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VOL. 135

NUMBER 3499

THE ORIGINAL
'DO-IT-YOURSELF'
MAGAZINE

HOBBIES *weekly*

FOR ALL
HOME CRAFTSMEN

In this issue:

PATTERNS FOR A
TWINGING PARROT

COLLECTORS' CLUB

CONTEMPORARY
'BALL' CALENDAR

SINGLE LENS
REFLEX CAMERAS

TOY CARGO SHIP

STARS FEATURED
IN DISC BREAK

A FUN GAME
FROM MEXICO

IN THE GARDEN

ETC. ETC

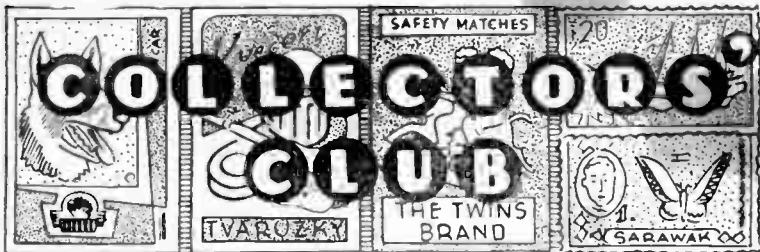


Up-to-the-minute ideas

Practical designs

Pleasing and profitable things to make

5^p



NEW STAMPS FROM RUSSIA



THE stamps illustrated have recently been received from Russia. They show above: 'World Championships of Winter Sports' — a set of two. On the left are shown the issue 'World Championships of Summer Sports' — a set of five.

CUBA

THESE two stamps were issued by Cuba on the occasion of the Central American Games held in Jamaica. The 3 cent issue is printed yellow and violet with a baseball motif and the 13 cent 'fencing' stamp is yellow and green.



AUSTRIA



The promotion of sports is one of the motives underlying the issue from Austria of the new special stamp which shows a gymnast on the horse performing in perfect style an exercise typical of side horse work.

CEPT COMMEMORATIVE FROM IRELAND

THE special Europa postage stamp sponsored by the European Conference of Postal and Telecommunications Administrations was

issued by member countries, including Ireland.

The Irish stamp is in two denominations 6d. colour pink (2,000,000) and 1s. 3d. colour green (2,000,000). The basic design, created by the Luxembourg artist Lex Weyer, symbolizes the collective work of the organization in the form of a young tree with nineteen leaves representing the nineteen member administrations. The stamp includes the word 'Europa', the letters 'CEPT', the denomination, and the name of the State in the Irish language, 'Eire'.



'Ball' Calendar in Contemporary Style



The first step in construction is to cut the ball to a depth of $\frac{5}{16}$ in., using a tenon saw. The width of the cut will be $1\frac{1}{16}$ in., as shown in Fig. 1. Clear away the waste portion, shown shaded, with a sharp chisel. The ball is then drilled to take the three feet, which are glued in

place. The pieces of $\frac{1}{4}$ in. square strip and thin ply form the holder for the calendar pad.

Finish off by sanding all parts smooth. Fill the grain, and paint with high gloss enamel after applying a suitable undercoat. (M.h.)

A HOBBIES 3 in. diameter wooden ball forms the basis for this attractive calendar. As can be seen from the illustration it makes an ideal New Year's gift. The ball (1s. 6d.), the three No. 15 ball feet (4½d.), and the No. 6162 calendar pad (1s. 9d.) can be obtained from Hobbies Ltd, Dereham, Norfolk, postage 9d. extra, or from any branch or stockist. The small pieces of $\frac{1}{4}$ in. square strip and thin ply can be cut from oddments.

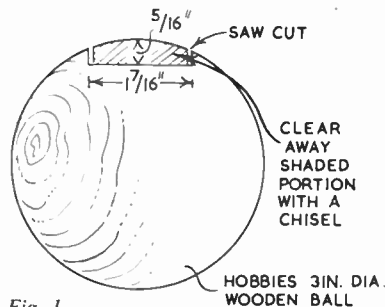


Fig. 1

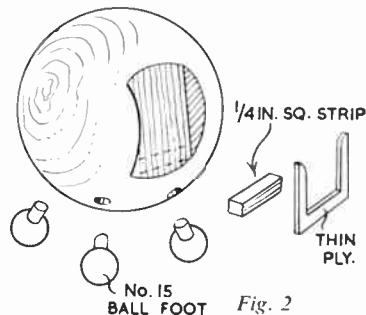


Fig. 2

MORE SOUNDS FOR TAPE PLAYS

SOME time ago I wrote about sound effects for tape plays. Since then I have experimented, together with a number of fellow tape enthusiasts, in an attempt to get sounds that are faithful reproductions of their originals. Later on these recordings were played back to another group of people, not particularly tape enthusiasts. They identified every one, and some insisted that they were made by the objects themselves.

The sound of sawing wood was perfectly reproduced by rubbing a tie across the top of a kitchen chair back; that of a carpenter's rasp by passing the microphone's face quickly across a newspaper or a magazine. One of the most significant successes, incidentally, was the rhythmical rubbing of the microphone's face against a newspaper to produce a train. While doing this I tilted the microphone slightly so that it could pick up my low whistle which added vastly to the realism.

I have written extensively on the use of the piano as a recording device. A far less likely one, but which can be exceedingly useful, is the typewriter. For instance, the carriage released at about half its length, with the bell at the end, makes an excellent cash register. If the carriage is allowed to go only about an

inch from the bell, then you have the sound of a clippie's ticket machine. Pounding on the space bar can give you the impression of distant artillery.

By G. E. Gompers

For the sound of artillery or aerial bombardment in the more immediate vicinity the microphone can be placed under the lid of a record player, or beneath an upturned shallow drawer, which is then pounded upon with the fist. However, for obvious reasons the better method is to construct a pounding board.

Of course, the piano itself is a recording device that offers almost unlimited scope. I particularly recommend it as a device for producing sounds made by other instruments. For example, by laying bicycle chains across the strings of a grand, I heard a variety artiste reproduce a zither perfectly. On another occasion I saw a pianist reproduce a harpsichord sound by stuffing newspapers

into the body of an upright. Harpsichord music is, of course, ideal for a Regency setting or a Jane Austen adaptation.

Great effects were achieved when we were experimenting by bringing into use quite familiar objects around the house and emphasizing the sound they made by putting the microphone right up to them. The laying of the microphone's face, for example, against a clock dial gave the ticking the right ominous tone for a time bomb.

Of course, all these sounds are made by using the one conventional speed of $3\frac{3}{4}$ i.p.s. However, if you have a more elaborate tape recorder with more than one speed, your scope is much wider. Here are just two examples. The backfire of a car recorded at $3\frac{3}{4}$ i.p.s., and re-recorded at $7\frac{1}{2}$ i.p.s. makes a good motor boat sound. Blowing across the top of a long necked bottle, recorded at a speed of $3\frac{3}{4}$ i.p.s., and re-recorded at $7\frac{1}{2}$ i.p.s. re-produces a ship's siren.

I would like to remind you that if you do not own an extra recorder or any other desirable equipment, you can always hire them. Appropriate firms are advertised in tape recording and electrical journals. Otherwise join a tape club, where facilities are pooled by members.

SINGLE LENS REFLEX CAMERAS

THE single lens reflex camera is used in both miniature and roll film sizes, and is particularly suitable for some types of photography. The details given here should make quite clear the way in which such a camera works, and also provide some idea of its uses.

By F. G. Rayer

Fig. 1 shows the more important parts of a single lens reflex camera. Actual details vary considerably, according to the make of camera, and whether it is for roll film, or 35 mm. Despite this, the general method of working is very similar.

The camera body generally has a folding hood, and when this is raised the ground glass screen may be observed. The lens itself has no shutter, and is permanently open, so that light passing through it falls on the mirror, and is reflected upwards to the screen. As a result, an image of the subject to be photographed is visible on the screen.

A shutter is fitted in front of the film, so that light cannot reach the film until the shot is taken. When the shutter release is pressed, this first raises the mirror, which is then flat under the ground glass screen, and the shutter then opens, to make the exposure. The shutter is termed a 'focal plane shutter' because it is near the focal plane of film, not in the lens.

After the shot, the mirror returns to its original position, reflecting light from the lens up to the screen.

Focusing

The distance from the lens to glass screen is optically the same as that from lens to film. So if an object is sharply focused on the screen, it will give a sharp image on the film. The lens has a focusing mount, or similar means of adjustment, so that subjects can be brought into sharp focus on the screen before taking the shot.

If a close-up lens is placed over the ordinary lens, very near, small objects can be photographed. These are focused on the ground glass screen, exactly as if taking an ordinary shot. It is thus easy to take close-up photographs.

With many cameras, the lens can be unscrewed or removed, and close-up photos can then be taken by adding a spacing ring or tube between camera body and lens. This is shown in Fig. 2, with the camera on a table-top tripod, and two short extension tubes between body and lens. By this means, and the addition of a close-up lens, objects can be photographed at larger than life size.

In all cases, it is only necessary to obtain sharp focus on the ground glass screen, in advance. This is a great advantage for all kinds of photos, and especially for close-up shots.

Other lenses

When the usual lens is removed, a different lens may be screwed into the camera body. Wide-angle long-focus, and telephoto lenses may then be used.

A wide-angle lens is one of shorter focal length than usual, and it provides a very wide angle of view. It is sometimes used to take interior shots, etc. Some cameras cannot be fitted with a wide-angle lens.

Long-focus lenses have a longer than usual focal length, and thus give a bigger image of a distant object. They may be used for portraiture, for example, to obtain a large image without having the camera near the sitter.

Telephoto lenses are perhaps most used, and they give an enlarged view of distant objects. Fig. 3 shows a 6 in. telephoto lens, used instead of the normal lens. Telephoto lenses are available giving various degrees of magnification. Powerful telephoto lenses are often employed to photograph wild animals, birds, etc.

If the focal length of the telephoto

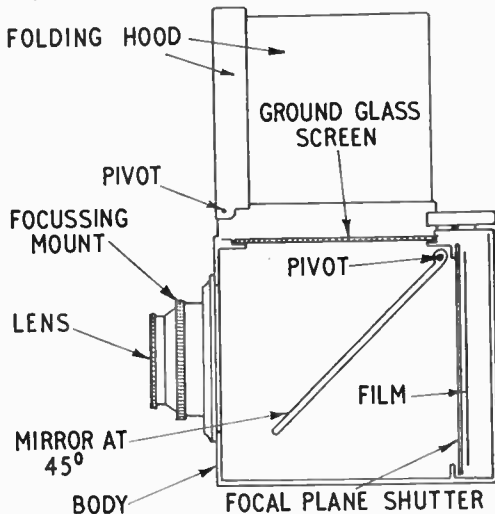


Fig. 1—A single lens reflex camera

lens is divided by the focal length of the usual lens, this gives the magnification obtained. As example, assume the usual lens is of 3 in. focal length, and a 6 in. telephoto lens were fitted instead. This would give 2x magnification. For example, if a distant ship were photographed with the ordinary lens, and gave an image 1 in. long, the image would be 2 in. long with the 6 in. telephoto. In the same circumstances, a 12 in. telephoto lens would give 4x magnification, and so on.

If the camera were a 35 mm one, with 1½ in. lens, a 4½ in. telephoto lens would give 3x magnification, and so on. With modern cameras, the focal length is generally given in mm. A 16 mm telephoto lens would give just over 2x magnification, compared with a 7.5 mm lens, as example.

As mentioned, in all cases the photograph can virtually be seen in advance, on the glass screen. This allows focus to be adjusted, or the viewpoint changed. The exact limits of what will appear on the film can also be seen.

The actual camera shown is for 12 shots 2¼ in. square on 120 film. Cameras

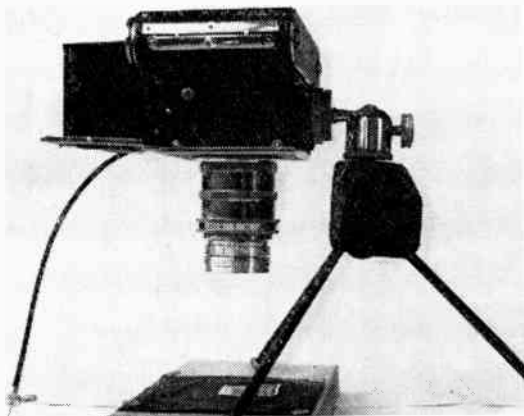


Fig. 2—Using two tubes and supplementary lens for very close photography

of this kind were very popular some years ago, and second-hand models are thus obtainable. The size is very good for black and white photography, but is not popular with colour film, in view of the cost of film.

Older 2½ in. square single lens reflex cameras had screw in lenses. Newer cameras of this kind had a quick-release bayonet type fitting. Extension tubes, ordinary lenses, telephoto lenses, etc. were available for all models. These

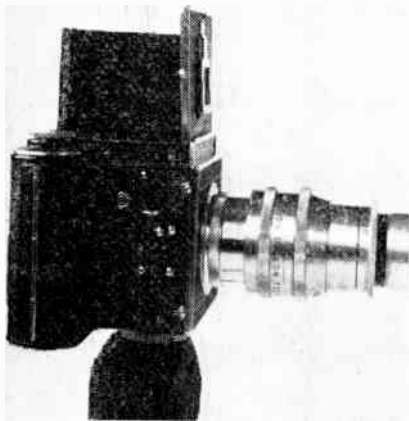


Fig. 3—A 6 in. telephoto with short extension tube

items are frequently sold separately, but must of course have the correct fitting to suit the camera body.

Most of the lower priced 2½ in. square cameras had shutters speeded from 1/25th to 1/500th second. More expensive models had shutters giving speeds from 1 second, to 1/500th or even 1/1000th second.

Single lens reflex cameras were also made for plates, and also for 2½ in. by 3½ in. exposures (8 on 120 film). These are still available occasionally. Plate cameras may be fitted with a roll-film holder, so that film can be used instead of plates. The outfit is then more bulky.

Miniatures

Miniature cameras are available in many types, new and second hand. The miniature screen is rather small to observe, but many cameras have magnifying devices, to help overcome this. Miniature film is cheaper, per exposure, than roll film.

Old models are not synchronized, but the more modern cameras have synchronized shutters, and can therefore be used for flash photography. Some cameras

have a delayed action, which fires the shutter after some 7 to 15 seconds or so.

Advantages, limitations

The photographer who is thinking of obtaining a single lens reflex will see that it is especially suitable for special work, such as close-up shots of still life, models, etc., or for very large photographs of very small objects. It is also very suitable for special jobs such as wild-life photography, with a telephoto lens. The screen always shows exactly what will appear on the film. This aids composition, as well as focusing.

The cameras are a little larger than non-reflex models, and may be carried on a strap, or in an ever-ready case. The usual case cannot be closed if a telephoto lens is in place.

The view, as observed on the screen, is the right way up, but reversed. (Objects to the right appear at the left, and vice versa.) This is of little importance with many subjects, but makes it difficult to follow rapidly moving objects. In addition, the view on the screen disappears when the mirror rises, to take the shot. For these reasons, the single lens reflex is not very convenient for action photography.

To help overcome this, many reflex cameras have some kind of direct vision, or frame finder. One of these is shown in Fig. 4. With the hood closed, and the frame finder raised, the camera can no longer be used as a reflex. To focus, it is necessary either to adjust the lens before closing the hood, or to estimate the distance, and set the lens according to the distance figures marked on it. The camera is raised to eye level, so that the subject can be observed through the frame finder.

Another disadvantage of the single lens reflex becomes apparent when it is necessary to stop down the lens to very small apertures. The image on the ground glass screen then becomes very dim. In such circumstances, it is necessary to focus and compose the scene with the lens at full aperture, then to stop down, before releasing the shutter. On the other hand, it is well known that depth of field increases as the lens aperture is reduced, and this can actually be observed on the screen.

Some modern cameras have an iris control incorporated, so that the lens automatically closes to a selected aperture, just before the shutter opens. This arrangement is not found on the 2½ in. square cameras.

From these details, it is hoped that the advantages and limitations of the single lens reflex will be apparent. If a very compact camera, for action photography, and general shots, is required, the reflex is not particularly recommended. But if the photographer wishes to take



Fig. 4—A typical frame finder for action photographs

telephoto shots, still-life subjects, and similar rather difficult objects, the Reflex is very convenient and satisfactory.

Miscellaneous Advertisements

100 DIFFERENT stamps free! Request ¼d. upwards discount approvals. — Bush, 53 Newlyn Way, Parkstone, Dorset.

ENJOY WRITING? Then write for Profit. Send for 'Writers' Handbook' (free) detailing countless opportunities for beginner or experienced. — Writers' Ring (HW), 5 Edmund Street, Birmingham.

UNDER 21? Pen friends anywhere—details free. Teenage Club, Falcon House, Burnley.

PERSONS with Sewing Machines required at once. Regular work. Send S.A.E. for details to Dept. 28, Arnold, 10 Shelley Road, Worthing, Sussex.

LEARN RADIO & ELECTRONICS the EASY Practical Way! Very latest system of experimenting with and building radio apparatus — 'as you learn'. FREE Brochure from: Dept. H.W.10, Radiostructor, Reading.

WOULD YOU ENJOY painting flower pictures, etc.? Then read 'PROFITABLE ART' (free). Wonderful opportunities for beginners and others — POPULAR ART (HW), Clun, Salop.

BUYING OR SELLING?

Classified advertisements on this page are accepted at a cost of 6d. per word prepaid. Use of a Box No. is 1/- extra. Send P.O. with advertisement to *Hobbies Weekly*, Advert. Dept., Dereham, Norfolk. Rates for display advertising on application.

Party Fun with a Mexican Pinata

OLE! OLE!' shouted the excited Mexican children when the pinata broke and candy, toys, and coins tumbled to the floor. The gaily-coloured crepe paper owl had been broken by the blindfolded guest of honour when his bat collided with the swinging pinata.



Each strip of newspaper is dipped into the flour-water paste and pasted on the balloon. Overlap about four layers



The papier mâché form is finished and ready for the fun of decorating it. Note 'ears' formed for an owl

**THIS IDEA
WILL CERTAINLY GIVE
A NOVEL APPEAL
TO YOUR NEXT PARTY
SAYS**

Amy G. Fisher

Pinatas have been used to celebrate birthdays South of the Border for centuries. The pinata is the outgrowth of the decorated clay images of birds and animals that the Aztec Indians fashioned for their children.

Today, this delightful custom of breaking a pinata still highlights birthday celebrations in Mexico. They are made of papier mâché or balsam wood base and covered with coloured crepe paper.

When you plan your next celebration why not use a pinata for an unusual 'fun' party. They are easy to make, inexpensive and fun to decorate. All you need is a balloon, newspapers, coloured crepe paper say, yellow, white and green flour-water paste and imagination.

Papier mâché base

Inflate the balloon and tie the top securely. Tear newspapers into strips about 2 in. wide by 3 in. long. Dip these strips in the flour-water mixture and paste on the balloon, leaving an opening at the top round the nipple. Cover the balloon with four layers of newspaper strips overlapping the pieces in criss-cross fashion. After the newspaper strips are completely dry, let the air out of the balloon and remove it. You now have your papier mâché base. Let your imagination soar when you plan the image which your pinata is going to take. Outline your design on the papier mâché and insert a wire coat hanger in the



A 'smashing time' was had by all! At an outdoor party the pinata can be suspended so that it is free-swinging and harder to hit. A young guest waiting his turn decided he would break the pinata with a bat!

opening so that you can suspend your pinata while decorating it. It is easier to handle when you can turn the pinata and the fluted crepe paper to be added will not flatten.

Cut coloured crepe paper into strips again about 2 in. wide by 3 in. long and flute one edge. Starting at the bottom of the form paste the straight edge of the crepe paper on the papier mâché base. Work up into your design until the pinata is completely decorated. The features of the design will be suggested by using the various shades of crepe paper.

● Continued on next page

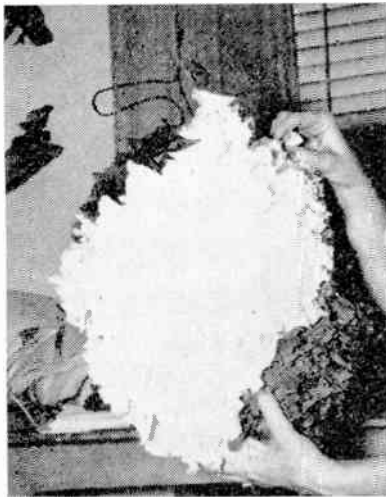
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● by a new exciting no-maths system, using practical equipment recently introduced to this country
FREE Brochure from:—

RADIOSTRUCTOR
DEPT. G81, READING, BERKS.

2/1/63



With the pinata suspended from the wire inserted in the top hole the coloured fluted crepe paper is added piece by piece, working into the design. Features are added with contrasting colours of paper

Fill the Pinata with Sweets, Toys and Small Gifts

Fill the decorated pinata, through the opening at the top, with wrapped sweets, small toys and coins, etc. Finish the wire coat hanger hook by twisting around it two or three strands of coloured paper.

Use the gaily decorated pinata as your main decoration; it will intrigue your young guests. It is suspended from a suitable point and the fun and excitement mount as each child is blindfolded and given a stick to strike at the free-swinging pinata. After three 'strikes' the stick is passed to the next child. Breaking the pinata will climax the party and the cry of Ole! will linger as the children run home to tell their parents of the wonderful time they had at a Mexican birthday party. Ole!

(P.p.)



With white face, green hair and yellow eyes, the owl looks knowingly at the young guests



From the popular American Western TV show 'Have Gun, will travel' comes Duane Eddy's 'The Ballad of Paladin'. It's the same formula as before with Duane plucking that 'twangy guitar' to a busy brass backing



Latest portrait of Shane Fenton



MIKE BERRY

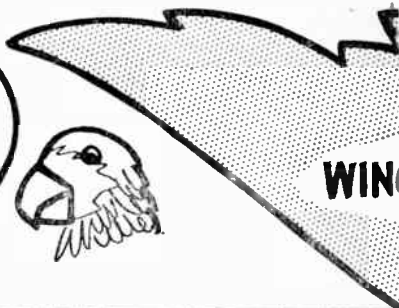
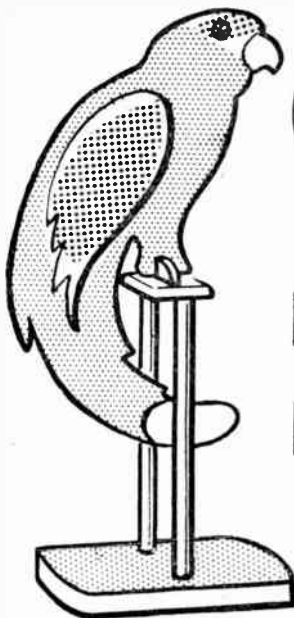
Eighteen-year-old Londoner Mike Berry had a new disc 'Every little kiss' and 'How many times' released on HMV 45-POP 1042. Musical accompaniment was directed by Ivor Raymonde

Hobbies

**DO-IT-YOURSELF
PLAN**

"SWINGING" PARROT

BEAK



UPRIGHTS 1/4" DIA. ROUND ROD



USE YOUR FI



BASE CUT

THIS working toy is easily made with the fretsaw and a few pieces of wood. The swinging movement is obtained by a lead balance attached to the curved tail of the bird. Plywood $\frac{1}{8}$ in. thick can be used for the body and wings of this, while for the stand, plain pieces of fretwood are recommended, with two pieces of $\frac{1}{4}$ in. round rod for the uprights.

Trace the patterns of the bird to the wood and cut round in the usual way.

Now cut the foot piece from $\frac{1}{8}$ in. wood, and glue it in the slot. Cut the base for the stand and glue the two

pieces of round rod firmly into it. Then glue on the top piece in a similar way. The bird can now be tested for balance by first attaching a piece of strip lead at each side of the tail as shown.

The lead should be at least $\frac{1}{16}$ in. thick, and ample should at first be allowed so that, while testing, small chips can be cut away until true balance is obtained. The edges can then be rounded over.

Small pieces of lead may also be pinned each side of the beak. Paint the toy in bright colours as indicated. The beak should be black. The stand should be painted cream or red.

WING * PAINT BLUE

RED

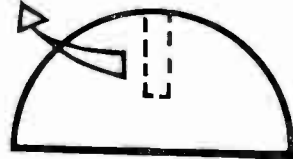
GREEN

PARROT
CUT FROM
1/8" WOOD

G * PAINT BLUE

RETSAW

UT ONE 3/8 IN.



FOOT

FIX LEAD
WEIGHT
HERE

Gardener's Notebook

PREPARE FOR PEAS

FEW vegetables can compare with green peas picked fresh from your own garden. They can be grown on almost any type of soil, but will amply repay good cultivation.

If they happen to follow a crop which has already been manured, they will have the conditions they need, i.e., moisture-retaining humus, which will help them over dry periods. This is particularly essential on light land where the soil dries out quickly.

The best method of providing a deep root run, with sufficient humus, is to prepare trenches as early in the year as possible, filling them with alternate layers of well-rotted manure and soil. You can, of course, use a well-made compost instead of manure.

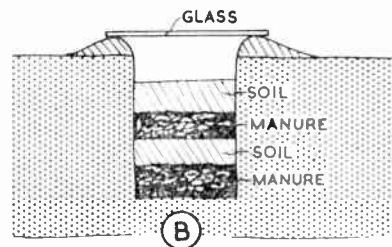
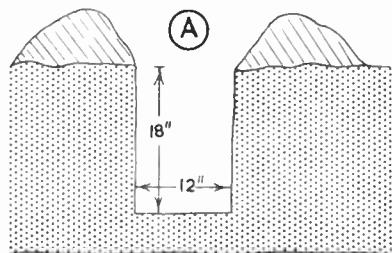
The depth of the trench should be about 18 in. to 2 ft., and about 1 ft. wide, as seen at A. Fill the trench with alternate layers of soil and manure as at B, leaving a little soil on each side of the trench as shown. An early sowing can then be made under cloches or flat pieces of glass in February if the weather is suitable.

Sowing times are January–March for early crops and March–May for second and main crops. Dress the rows with a complete fertilizer about a week or ten days before sowing, raking it well in. Sow in broad flat drills, 8 in. wide, spacing the peas about 2½ in.–3 in. apart. Put a few strands of black cotton, about 2 in. from the ground, along the row to keep off the birds. If this is not done when sowing, the sparrows will pick off the shoots as they appear, and you will never even see them. Provide sticks on each side of the row when the peas are about 3 in. high.

There are a few diseases and pests which will attack peas. Mildew can be troublesome on late sown crops and mosaic, damping off, thrips, and pea

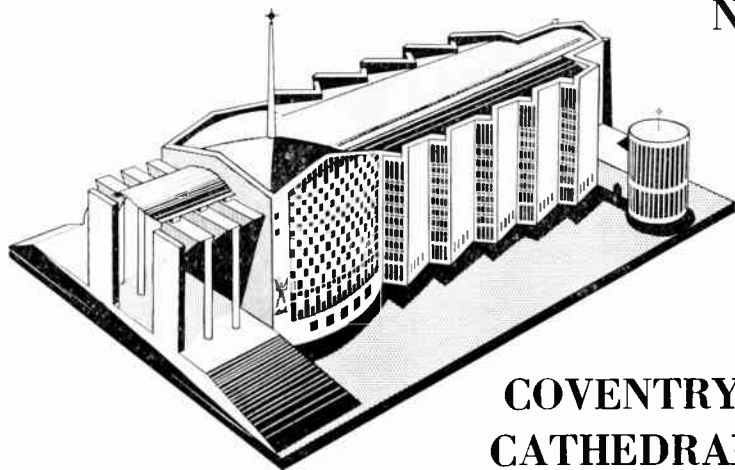
moth can cause unexpected damage, but fortunately the well-grown trenched crop seldom suffers from anything more than the occasional maggot in the pod.

Varieties to grow are legion, but there are a few well known names that come



to mind which will give excellent results. Early — Meteor or Kelvedon Wonder (1½ ft.). Second early — Onward (2½ ft.) or The Lincoln (2 ft.). Main crop — Senator or Fillbasket (both 3 ft.).

One of the best varieties for general purposes is Onward, which can be relied upon to give an abundant supply of delicious green peas. (M.H.)



COVENTRY CATHEDRAL

NEXT WEEK'S DESIGN

This is an illustration of the subject for next week's free design to appear in Hobbies Weekly. The model is, of course, the new Coventry Cathedral which has arisen 'like a Phoenix from the ashes', following the destruction of the old cathedral in an air raid in 1940.

Modelled on a necessarily small scale, we have nevertheless included outstanding features in this wonderful building which has been admired by many thousands of visitors since its consecration last year.

It is an ideal project for all modelers, so make sure of your copy of Hobbies Weekly containing the free design.

NEW! FROM

ARCOY SAW & SAW GUIDE SET

A must for the home

HANDYMAN



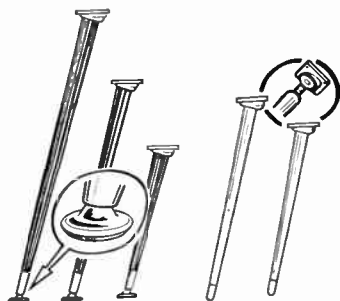
This set, contained in a most attractive box, comprises the ARCOY 4" Saw and ARCOY Universal Saw Guide. The Saw is designed for use with any make or size of electric drill, and the cutter spindle is mounted on two ball bearings which are sealed and contain an ample supply grease to last the life of the tool.

From most good retailers

AN IDEAL PRESENT Price 7 Gns.

ARCOY PRODUCTS, Knowsley Road, Liverpool 20

The New SLIM LEGS



supplied with metal blocks

PLAIN FERRULED BEECH

No. 601 — Per set of 4
6 in. 9/6 15 in. 12/6
9 in. 10/6 18 in. 13/6
12 in. 11/6 20 in. 14/6
24 in. 16/6

Postage and packing 2/6 extra

EBONISED with Ferrules & Glides

No. 604 — Per set of 4
6 in. 14/- 12 in. 16/- 18 in. 18/-
9 in. 15/- 15 in. 17/- 20 in. 20/-
24 in. 23/-

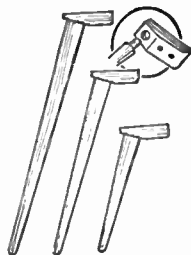
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HOBBIES LTD.

(DEPT. 99)

DEREHAM

NORFOLK



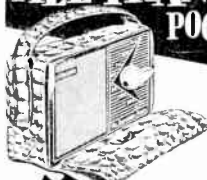
PLAIN BEECH with wood blocks

No. 580 9 in. 7/-
No. 581 15 in. 9/-
No. 582 20 in. 11/-
No. 583 29 in. 22/6

per set of 4

Postage and packing 2/3 extra.

THE WORLD'S LOWEST PRICED ALL TRANSISTOR POCKET RADIO



Britain's most popular set — powerful, brilliantly designed — yours for the amazingly low price of

32/6. (Lower than Japanese Home Prices.) Only 1 3/8" x 2 3/8" x 4 1/4". Performs perfectly for months on 1/2d. battery.

Assembly easy using our simple A. B. C.

plan. Send only 32/6 + 2/6 P. & P. (C.O.D. extra). All parts sold separately. Satisfaction Guaranteed.

CONCORD ELECTRONICS (Dept. B102/2)

210 Church Road, Hove, Sussex

MODEL LIGHTING KIT



ONLY

3/3d.

Post 4 1/2d.

Empire made

This low-priced kit for lighting your model contains pea bulbs (red, green, amber and plain) with holders, plastic covered wire and clips. Works off 4 1/2 volt battery. Full instructions enclosed.

HOBBIES LTD. (Dept. 99) DEREHAM, NORFOLK

Accurate Weighing Machines

THE amateur photographer or home experimenter occasionally finds it necessary to weigh small quantities of materials if, for reasons of economy, he purchases supplies in bulk. The expense of buying a commercial weighing machine, however can rarely be justified by the frequency with which it is required and an inexpensive substitute is therefore desirable.

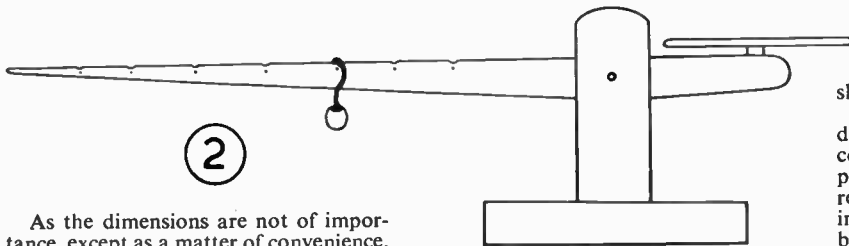
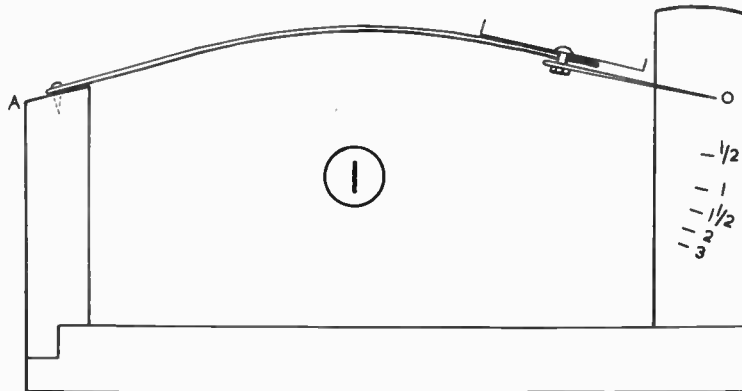
By W. R. Spence

The hobbyist will probably already know how to construct a home-made model, but the two versions illustrated do not depend, as do so many, upon a coil or any other form of tension which alters in use and needs constant adjustment. In addition, both have been thoroughly tested in home and office and have proved their reliability and consistent accuracy.

pointer itself is only a piece of heavy gauge wire acting as an extension of the weighing arm but it permits more precise readings than could be obtained without it.

Using a pencil, the zero position of the pointer should be marked first. Known

the small rider just equalises the weight of the empty pan or tray. The other scale positions are obtained as for the first model, by the use of known weights. If the divisions are not only marked on the bar but are actually notched carefully into it the possibility of the rider



As the dimensions are not of importance, except as a matter of convenience, any pieces of scrap wood could be used but both models may be constructed from one Hobbies L.D.12 Panel at a cost of only 2s. 2d. A hacksaw blade, a pendulum bob or lead weight, and two tin lids are the only additional items to be found.

No. 1 Machine

The machine illustrated in Fig. 1. depends upon the natural springiness of an ordinary hacksaw blade to provide the balancing force. This type of blade already possesses a hole at each end and merely requires to be fixed into position, as shown, by a screw at one end. A tin lid may then be attached to the other end to act as a pan.

The only point of construction needing special mention is that the top of the upright or pillar marked 'A' should preferably not be squared off but angled upwards about 15° so that extra space is left for movement of the pointer. If this is not done then the initial bending of the blade due to the weight of the empty pan may take up an excessive amount of the available space. The

weights are then added, one at a time, and the appropriate marks made on the other upright. These should be checked several times, especially if proper weights cannot be borrowed and the constructor is depending upon purchases of materials by weight to help him calibrate the scale. The weight divisions may be recorded on metal, wood, or even cardboard, a coat of varnish making them permanent.

No. 2 Machine

The model illustrated in Fig 2. is really a form of miniature yardarm and is based upon the scientific principle which governs the action of a see-saw, namely that a small weight on one side of a pivot or support can balance a larger weight on the other side by varying the distance.

Those who remember their science lessons will be able to recall that the product of the weight and distance on each side must be equal when the system is balanced, i.e. $W_1 + D_1 = W_2 + D_2$. The zero position is found at the point where

slipping off and getting lost is minimised.

After making up sample letters of different weights on the Post Office counter (using waste paper for the purpose), I have converted the scale to read postage rates. A flat wooden tray instead of tin lid provides a useful letter balance. Its accuracy, after a year's use, still appears to satisfy the Postmaster-General.

Quik-Tip



Plans to make your own Craft

Much of the cost for a professionally built boat is for time. As this costs the amateur nothing he can, solely for the price of the materials used, achieve first-class results if he is prepared to be patient and careful. The plans of the craft specified below are by the expert, P. W. Blandford and provide all the information you need to build from scratch. Shaped parts are shown full size and there are detailed instructions. Hobbies Ltd, can also supply kits for the canoes PKB10 and 20 and for the Runabout 'Zip'. Send for details. A list of firms supplying materials and kits is provided with each plan.

CANOES (Rigid fabric-covered)

PKB10. The shortest satisfactory canoe, carrying a man and camping kit. Very economical in size and building costs. Suitable for most waters, 11 ft. long, 28 in. beam, 48 in. cockpit, draught 5 in. Normal maximum load 300 lb. **Price 11/-**

PKB14. Roomy single for the big man or a two-seater for an adult and child or two young people. A popular tourer, but only room for lightweight gear when used as a two-seater. Has crossed Channel as a single-seater. 14 ft. long, 29 in. beam, 76 in. cockpit, draught 5 in. Normal maximum load 500 lb. **Price 12/6**

PKB15. Fast touring single-seater, suitable for rapid rivers and the open sea in capable hands. Safe and stable. The adult enthusiast's canoe. Many Channel crossings. 14 ft. 6 in. long, 26 in. beam, 48 in. cockpit, draught 4 in. Normal maximum load 400 lb. **Price 12/6**

PKB20. Very stable and seaworthy two-seater, with sufficient beam to carry an efficient sail plan. Very roomy and popular tourer on most waters. 15 ft. long, 32 in. beam, 7 ft. cockpit, draught 6 in., normal maximum load 600 lb. **Price 12/6**

PKB26. Fast and stable single-seater with a shorter cockpit than the other single-seaters, and a rockered keel, making it a good boat for rapid rivers. Many successes in long-distance racing. 14 ft. long, 26 in. beam, 39 in. cockpit, draught 4 in. Normal maximum load 400 lb. **Price 12/6**

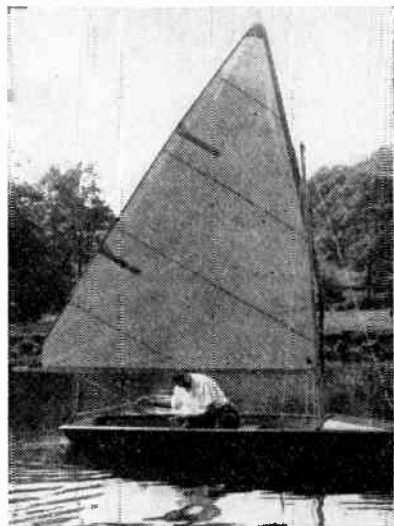
CANOES (Folding)

PKB24. A short single-seater of similar lines to PKB10, but with a longer cockpit. The only canoe which packs into one bag small enough to go on a bus. (42 in. x 16 in. diam.), 11 ft. long, 28 in. beam, 55 in. cockpit, draught 4 in. Normal maximum load 300 lb. **Price 12/6**

CANOES (Rigid plywood skinned)

PKB16. A two-seater, flat bottomed, safe and robust. Capable of standing up to hard work, as in hire fleets. May be left afloat. 16 ft. long, 32 in. beam, 7 ft. cockpit, draught 5 in. Normal maximum load 700 lb. **Price 12/6**

PKB23. A single seater with the same main dimensions as PKB15, but with V-bottom and hard-chine section. Roomy and stable, may be left afloat. 14 ft. 6 in. long, 26 in. beam, 48 in. cockpit, draught 4 in. Normal maximum load 400 lb. **Price 12/6**



GOBLIN PRAM DINGHY

DINGHIES

WENSUM. A fast 11 ft. sailing dinghy, suitable for general touring and family sailing as well as racing. Construction is double-chine, built upside-down on frames with a plywood skin. The rig is a sloop, with gunter mainsail. Length 11 ft. 0 in., beam 4 ft. 8 in., sail area 66 sq. ft. Draught hull only, about 6 in. or with centreboard down, about 30 in. Weight complete about 220 lb. Rowing positions for two oarsmen and will take an outboard motor of up to 4 h.p. **Price 16/-**

GOBLIN. Plywood pram dinghy, light enough to be easily lifted on to the roof of a car, yet able to carry two or three adults, and with a sailing performance that makes it suitable as an economy class single-handed racer. Length 9 ft. 10 in., beam 4 ft. 6 in., weight 120 lb. complete, sail area 52 sq. ft. Construction easy and quick. Good foredeck, and buoyancy is built in under side benches. **Price 16/-**

GREMLIN. A 7 ft. by 46 in. plywood pram dinghy of special form. This is the longest hull that can be got out of standard sheets of marine plywood. Fitted with rudder, dagger board and gunter rig. For its size it gives excellent performance under sail, oars and outboard motor. **Price 14/-**

PETE. A 6 ft. 0 in. by 44 in. flat bottomed pram dinghy. The cheapest and simplest practical boat, intended to be built from one 8 ft. x 4 ft. sheet of hardboard and the minimum amount of wood. Will carry two adults or one adult and two children. Popular as a single-handed angler's boat. May be carried or lifted single-handed on to a car roof. With sails it makes an excellent children's playboat. **Price 10/-**

ZIP RUNABOUT. Length 7 ft. 8½ in., beam 2 ft. 10½ in., weight 80 lb. Skinned with oil-tempered hardboard and suitable for a small h.p. outboard engine. Will carry an adult and one or two children. **Price 16/6** 'ZIP' is Hobbies Ltd design.

Postage 9d. extra on each plan from Dept. 99

HOBBIES, DEREHAM, NORFOLK

PIGEONS CAN WIN BIG SUMS

PIGEON-KEEPING as a hobby, although among the lesser known sports or pastimes, has a following of at least a quarter of a million fanciers in the British Isles alone. About four-fifths of this vast army of enthusiasts are actively engaged in pigeon racing. The remainder favour the breeding of exhibition fancy varieties and the fascinating high-flying competition tipplers.

Racing pigeons, often described by journalists outside the sport as carrier or homing pigeons, have been evolved over the last 150 years by selective breeding and the crossing of varieties developed both in this country and on the Continent.

Saturday sport

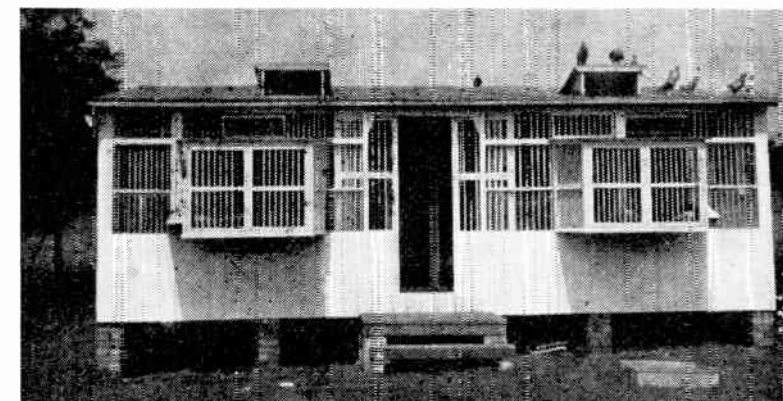
Nearly all pigeon racing takes place on a Saturday afternoon and each week-end throughout the pigeon-racing season, that is from April to September, upwards of 2½ million pigeons race home over the rooftops of our towns and cities. At the home end fanciers and their families await their arrival from the race-points to which they have been previously despatched in willow wicker baskets. Under the watchful eyes of professional pigeon-convoyers these are conveyed in specially designed railway coaches, known as pigeon specials.

Once a pigeon is home the rubber race-ring is speedily removed, placed in a thimble and then fed into the specially manufactured pigeon clock timer to record the time of arrival.

It is easy to understand the need for all-round speed once the first arrivals touch down at their loft. Many and varied are the methods adopted to ensure quick trapping — from secret speed-cakes and special seed mixtures, flirt birds and electrically controlled sliding doors to the establishment of jealousy systems towards other members of the loft colony or even the encouragement of jealousy between two contesting birds for the attention of the owner himself.

Imagine the eternal triangle being established between two female pigeons and a human being! Yet it is done and for those who master this art it is a highly remunerative method of quick trapping.

Pigeon clocks record the time either by puncturing revolving dials or imprinting the time on paper rolls according to the type of clock used. Competitors'



Part of the late J. W. SHERRING'S loft, with alterations and additions by GEO. H. ANDREWS at Bishop's Stortford where it now stands

clocks are set and synchronized with a 'master-timer' on the night previous to the appointed day of the race and 'struck off' against this master-timer a few hours after the race has been flown. Variations of each competitor's clock are then arrived at by an accurate calculation and allowed for in ascertaining the actual flying time of each bird's arrival in order to decide to whom the fastest pigeon belongs as well as the positions of the rest of the prize and pool winners.

These in many races, particularly in National and large Combine races, extend down as far as the 150th and even to the 200th position.

Preventing fraud

The rubber ring forms an important part of the system devised to prevent fraud. On race-marking nights each competing bird is rubber race-ringed by experienced handlers aided by a special race-ringing machine. Each rubber ring, complete with index and numerals printed both inside and outside, is removed from the paper tallies, which also contain the rubber ring particulars. The outside numeral and index is seen easily on the ring by an official, who marks each competitor's race sheet and who registers these numbers against each bird as it is rung.

The inside numerals are never revealed until after the clocks are opened on race-checking night, when both the inside of the 'rubbers' and the tally have to agree. Each pigeon is identified according to the aluminium ring which every racing pigeon has to be ringed with at the tender age of seven to ten days. These metal rings contain numbers, index figures and birth year. Only one of each is manufactured and when issued is registered to the purchaser in the books of the controlling bodies who administer the rules and arbitrate on the

conduct of their members.

Although race prizes vary from a couple of pounds to a hundred pounds, sums reaching above £600 can be won in National races with a well fancied bird entered in all the pools and special nominations.

Distances from the race-point to the actual loft entrance are obtained by pricking the loft location with a fine needle on an ordnance survey map. The services of officially appointed calculators is thus obtained to extend the actual flying distance. These distances reduced to sixtieths are then divided by the flying time, obtained from the corrected clock reading which is also reduced to sixtieths for the divisor figure and from this calculation the average velocity in yards per minute for each bird is obtained. The pigeon attaining the highest velocity is declared the winner and so on until all the prizes and pools have been won.

Racing pigeons can be bought for as little as £1 each and many which have changed hands for this sum have helped to make pigeon history, although anything from £5 to £100 may be paid at pigeon auctions for outstanding winners while many have been sold for over £125, even as much as £625, the world record price for a racing pigeon.

With 'a quarter of a million pigeon fanciers in the British Isles alone', there should be a good deal of interest in the book 'Pigeon Racing', from which the above account was taken. Lofting arrangements, general management, showing and racing tips, and all other aspects connected with the fancy are fully covered by the author, F. W. S. Hall, who first began breeding and racing pigeons 40 years ago and has won many trophies and medals. This book (published by Arco Publications, price 12s. 6d.) will be of particular value to beginners in the sport.

Pull-along Toy

MAKE A CARGO SHIP

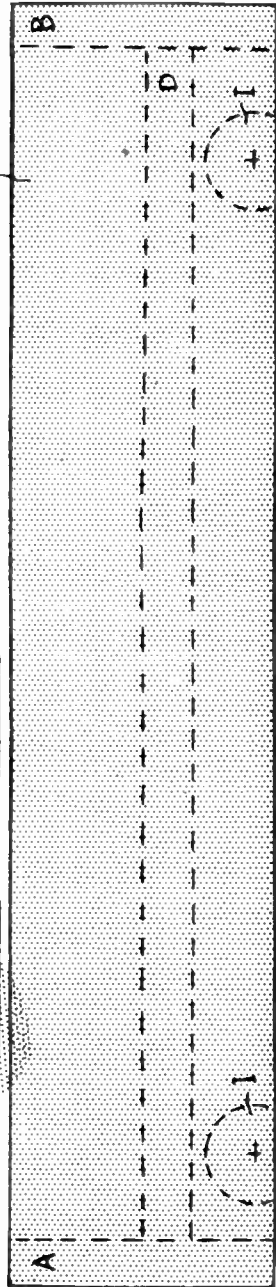
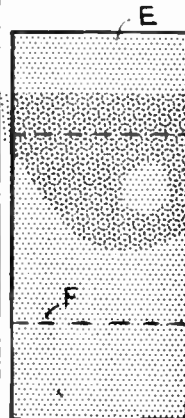
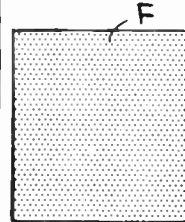
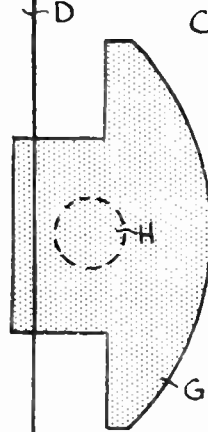
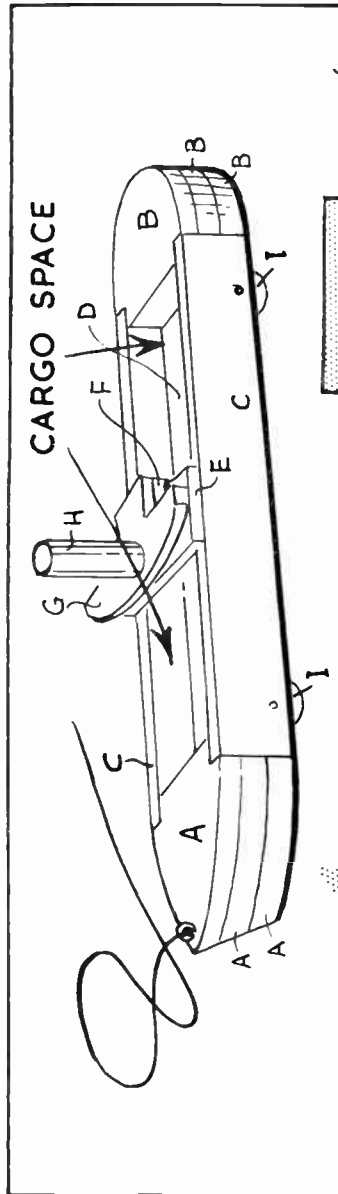
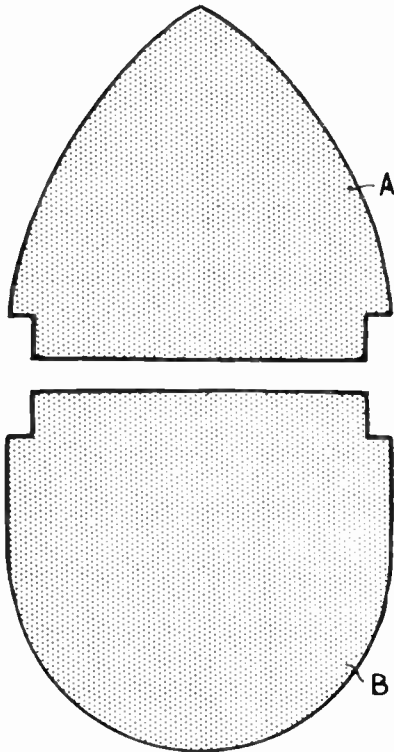
WITH the space for a cargo of small bricks or sweets this little toy makes a useful gift.

Cut two pieces each of A and B from $\frac{1}{2}$ in. wood, and one piece of each from $\frac{3}{8}$ in. Glue them together to form the stern and bow of the ship. The floor D is $\frac{1}{4}$ in. thick, and the sides C $\frac{1}{2}$ in. They are glued to the bow and stern as shown. The bridge is made up of one piece E ($\frac{1}{8}$ in.), and one piece each of F and G (both $\frac{1}{4}$ in.). The funnel H is a short length of $\frac{3}{8}$ in. diameter round rod.

The two rollers I on which the boat runs are lengths of $\frac{1}{2}$ in. round rod pinned through the sides C from the outside.

Paint in bright colours, and attach a piece of thin cord to a screweye in the bow. (M.p.)

CUT OUTLINES WITH A FRETSAW





KITS FOR MODERN FURNITURE

Finest quality materials from which the handyman can make attractive contemporary furniture for the home, and save pounds!

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KIT No. 3308

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29/-

(post 2/9)

Although simple in construction, this Contemporary Plant Stand makes an elegant showpiece in the modern home. Trough measures 30 in. by 7 in. Supported on 15 in. contemporary style legs, giving an overall height of 21 in. Kit contains design and instructions, panels of wood, and four 'screw-in' legs.

THESE KITS

Record Cabinet/Bookcase

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Kit contains planed wood, plywood, four contemporary style 'screw-in' legs, hinges, beading, ball catches, cabinet stays, handles, etc.



Kit No. 3266

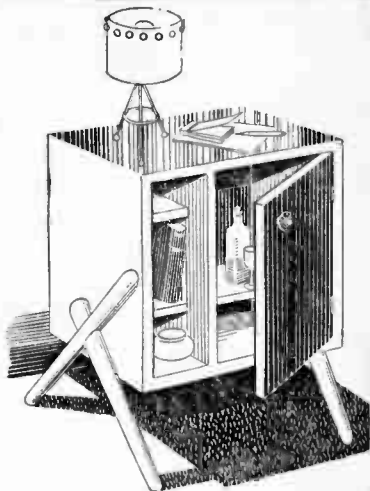
U.K. orders
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Kit No. 3278. This Lady's Sewing Companion is a really worthwhile job for the handyman. 30 in. wide, 17½ in. deep, 20 in. high. A handy table when closed. Kit contains selected planed wood, hardboard, beech rails, screws, corner plates, and four 'screw-in' contemporary legs.

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Kit No. 3144

Ideal as a bedside cabinet. Size 27 in. high, 18 in. wide. Kit of selected planed wood, dowel rod, hinges, handle, design and instructions, etc.

72/-

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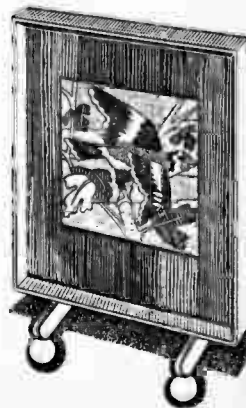
SAVE POUNDS

Kit No. 3262 Marquetry Firescreen

This Marquetry Firescreen depicts a colourful bird with outstretched wings against a background of foliage. Overall size of the screen is 28 in. high by 18½ in. wide. Kit contains hardboard, planed wood, moulding, wood balls for feet, round rod, and selected veneers for marquetry picture.

15/9

(post 2/-)



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Dereham, Norfolk

Please send me free booklet showing other kits available and

Kit No.

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9th JANUARY 1963

VOL. 135

NUMBER 3500

THE ORIGINAL
'DO-IT-YOURSELF'
MAGAZINE

HOBBIES *weekly*

FOR ALL
HOME CRAFTSMEN

COVENTRY CATHEDRAL

Also in this issue:

DECORATOR'S STEPS
AND BOARDS

COLLECTORS' CLUB

TWIN-LENS
REFLEX CAMERAS

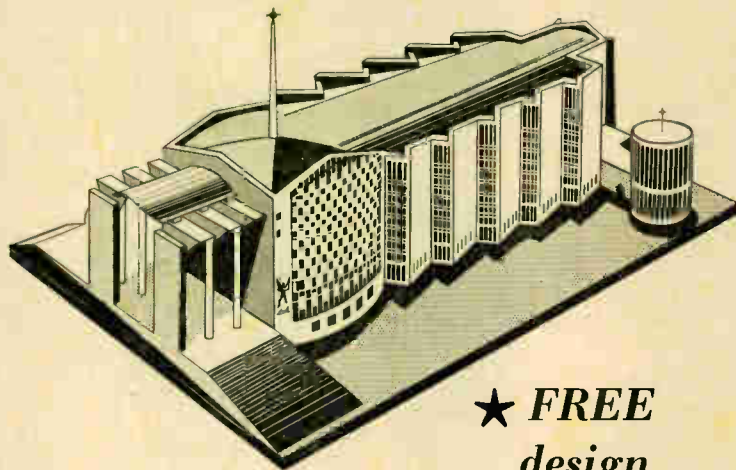
DISC BREAK: THE
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COVENTRY CATHEDRAL

ON the night of 14th November 1940 Coventry was savagely battered by incendiary and high explosive bombs in waves of German air attacks. Fires were raging all over the city, and despite valiant efforts which were handicapped by the chaos created, the cathedral of St. Michael's perished in a flood of molten lead and blazing woodwork.

By the side of the preserved ruins of the old cathedral, a wonderful new edifice has arisen. Designed by Sir Basil Spence, O.M., the Edinburgh architect, Coventry's new cathedral took fifteen years in building, at a cost of well over a million pounds. It was consecrated on 25th May 1962. People from all walks of life, and from many countries, helped in

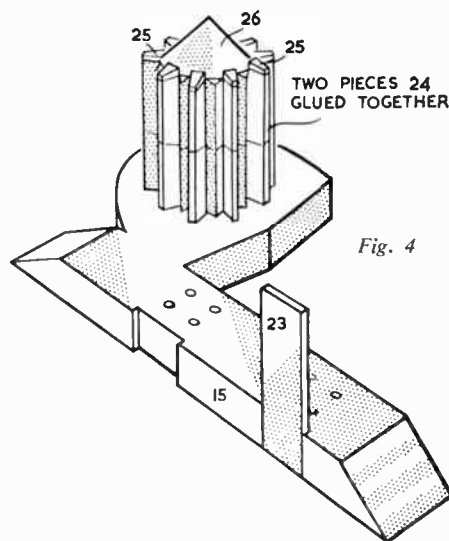
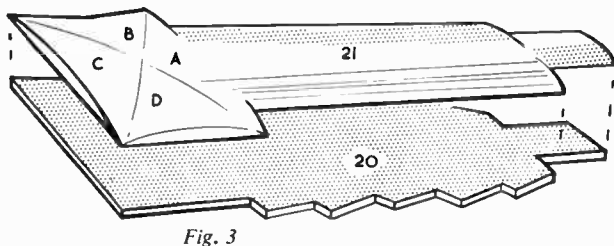
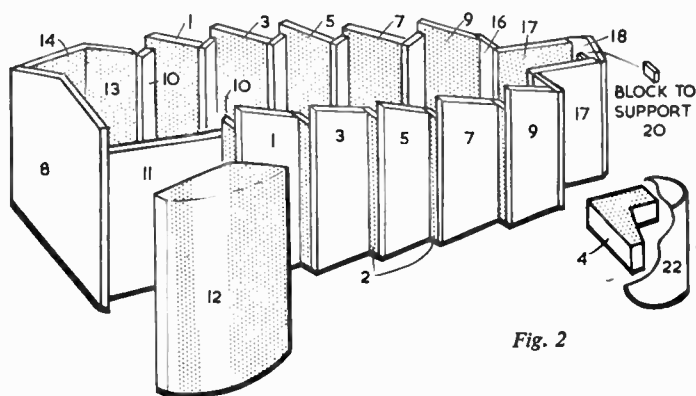
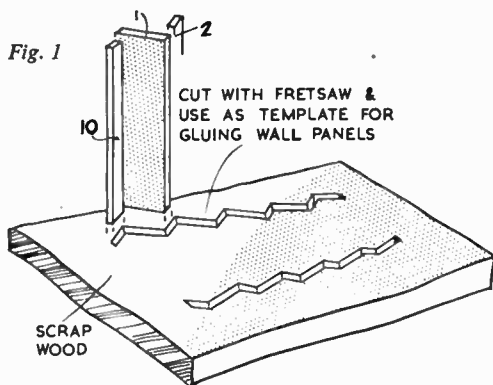
adapted for use as a collection or savings box by cutting a slot in the roof pieces, and making provision for an emptying aperture in the base.

Our scale model stands on a base measuring 9 in. by 5½ in., and the height to the top of the spire is 4 in. A feature of this building is the very beautiful windows, and to assist the modeller, we have shown the main ones actual size.

All parts which go towards the making of the cathedral are shown full size on the design sheet, and the positions of the various sections are shown clearly on the ground plan. Trace the various pieces, and transfer them by means of carbon paper on to the appropriate thicknesses of wood. Then cut them out accurately with the fretsaw, and shape

them to the sections where indicated. Particular note should be made of the suggestions for the shaping of the roof piece 21. The sections B & C to be shaped to the section shown on D.

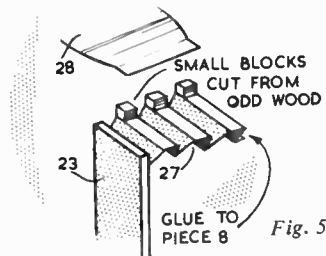
The construction throughout will be by gluing. Make a start by building up the nave walls consisting of pieces 1, 2, 3, 5, 7, 9, and 10. These two walls are identical in make but will, of course, be for opposite sides. To assist in the construction of these walls we suggest the worker should mark the positions from the plan on to a scrap piece of ½ in. wood which is then cut out as shown in Fig. 1. This will act as a template to give the exact placings of the various pieces which go towards the makeup of the walls. As an example, glue piece 10 to



various ways in the rebuilding, and this imposing structure with its many wonderful interior features has become the Mecca of many thousands of visitors.

For assistance in the designing of our model we are much indebted to the facilities accorded by the Bursar of the Cathedral, Capt. N. T. Thurston, O.B.E., M.C., who was secretary of the Reconstruction Committee from 1947.

Designed purely as a model of this famous building, it can, nevertheless, be



piece 1, and place it in the appropriate cuts. Then add piece 2 to piece 1, carrying on with piece 3, etc, until the wall is complete. The whole wall thus assembled can then be left in this template until the glue has dried, and can then be lifted out complete. Make the other wall up in similar fashion.

The next stage is to make up the Lady Chapel at the back (eastern) end of the cathedral. It is constructed from pieces 16, 17, and 18. When this section is completed, make up the Baptistry at the west end. This consists of pieces 8, 11, 12, 13 and 14, assembled as shown in the plan.

Now consult Fig. 2, which shows how the Lady Chapel and Baptistry are joined to the nave walls thus forming the main body of the cathedral. Place the

Fig. 6

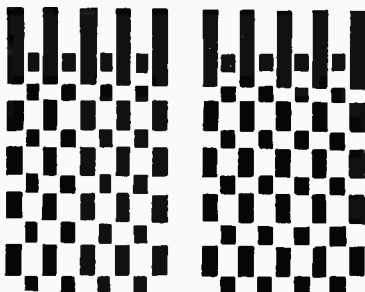
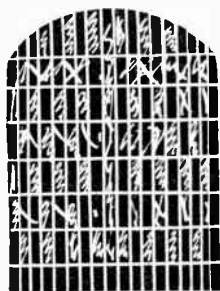
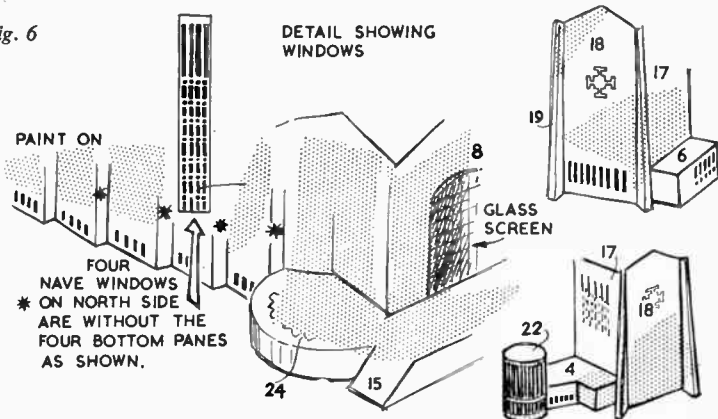
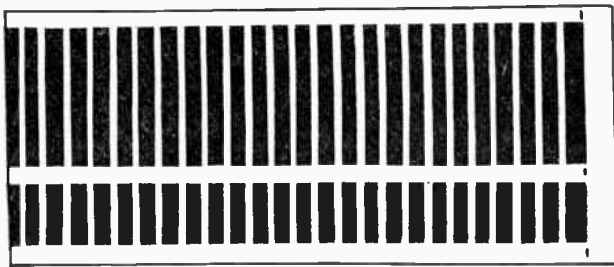


Fig. 7—Decorative windows and screen shown full size



★ A KIT FOR 7/6 ★
★ Hobbies Kit No. 3500 for making ★
★ this model contains all wood of the ★
★ correct thickness and round rod, ★
★ card, etc. Kits price 7/6 from ★
★ branches or direct from Hobbies ★
★ Ltd, Dereham, Norfolk (post 2/- ★
★ extra). ★

four sections over the ground plan on the design sheet, and glue up to ensure exact positioning.

The roof consists of pieces 20 and 21 put together as shown at Fig. 3. To support the roof, glue a small block of wood inside piece 18, as seen in Fig. 2. The other end of the roof will be supported by piece 11, which is inside piece 12. Note that the roof goes inside the main walls down to the level of piece 11, and the small block can be positioned correspondingly. The roof will be glued

all round the edges, but other small blocks can also be added inside the walls to support the roof if thought necessary.

Now make up the main entrance to the cathedral as shown in Fig. 4. The two main supporting walls for the entrance (pieces 23) are glued in the slots in piece 15, which is drilled or fret-sawn to take the eight pillars. Note that the sloping ends of piece 15 are in reality stepped. These can be cut as such or steps indicated by painting.

The Chapel of Unity is also added to

piece 15, made as shown in Fig. 4 from pieces 24, 25 and 26, and glued in the positions shown on the design sheet.

Now glue the entrance assembly to the main body of the building. When this is secured, you can start adding the roof of the porch. Insert the eight pillars (29) in the holes in piece 15. The porch roof is made up as shown in Fig. 5. The two pieces 27 are of card scored and bent as shown on the design sheet. Glue them between the walls 23 and the front 8. Small blocks are cut from waste

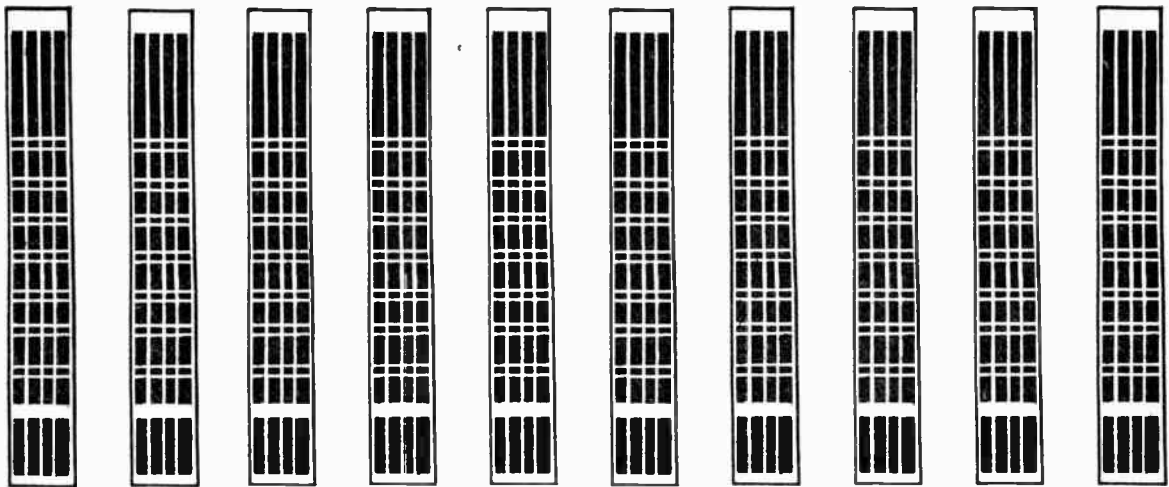


Fig. 8—Full-size illustrations of the nave windows, four of which are shortened as explained in Fig. 6.

wood, and added to the card as shown in Fig. 5. The final capping piece 28 is also of card, shaped as shown on the design sheet, and the flaps of this are glued to the small blocks.

The assembly at this stage can be glued to the base (30) in the position shown on the ground plan. Next make up the Chapel of Christ the Servant from pieces 4 and 22, and add this assembly in position. The small vestry (6) is added on

the opposite side at the rear of the cathedral, and pieces 19 can now be glued to piece 18.

The spire is tapered from $\frac{1}{8}$ in. dowel rod inserted and glued in a hole in the roof to show $1\frac{1}{2}$ in. above the roof. On top of the spire is a ball and cross shaped from wood and very thin wire. A shaft and cross can also be added to the roof of the Chapel of Christ the Servant, as shown in the main illustration.

Now thoroughly clean up and glass-paper the model. Paint the main body of the cathedral a warm buff. The Chapel of Unity and the roofs will be light grey, and the base will be green to suggest grass. Details of the smaller windows to be painted on in black are shown in Fig. 6, and those shown actual size in Figs. 7 and 8, can be cut out and pasted on to the model.

Uses for Old Greetings Cards

THE most attractive of used greetings cards can be made up into a variety of useful articles and amusing toys. Select only cards with interesting pictures or neat and unusual designs upon them. Good clear pictures may be glued on to thin plywood and then cut out with a fretsaw to make jigsaw puzzles. Selections of complete pictures and cut-outs may be pasted into inexpensive scrap books to provide colourful picture books for toddlers. If you have no children of your own, either of these simple playthings will be certain to give pleasure to youngsters who are ill, if you take the trouble to make them up and leave them at a hospital. Older children will prefer to compile their own scrap books.

It is a good idea to glance through your stock of cards with an eye to the future. For example, at Christmas time you will be sure to receive at least one or two pictures of the Nativity at Bethlehem. A really appealing version of the homely

scene may be cut out and preserved with the store of festive trimmings and baubles for next year. If a holly branch be arranged over a mirror or picture frame and the evergreen twigs and leaves hung with tinsel 'icicles' your little Nativity scene will look fine and inspiring if you secure it in amongst the foliage.

By A. E. Ward

Portions of Christmas cards illustrating robins, snowman, ice crystals and other traditional symbols may be cut out discreetly to serve another year as name tags on wrapped presents. But be sure that you cut around the pictures neatly and do not leave any printing or written words on their 'blank' sides. Youngsters in particular will probably want to save some suitable pictures with which to make gift calendars a year hence. A really special picture may be worth the

while framing as a permanent decoration. Some glass, stout cardboard and passe-partout tape (obtainable at an art shop) are virtually all that is needed.

Large humorous figures can be cut out and made into slide puppets. Each gay figure must be fitted into a slot cut across a slice of cork. A wooden spill or wire 'rod' is pressed into the side of the cork 'stand' and the puppet is operated when the 'slider' is pushed. Youngsters will appreciate several of these puppet characters which will have considerable play value, when 'worked' across an improvised 'stage' of piled up books. Perhaps the most fascinating idea of all, though, is to collect large pictures of flowers, then to cut out the 'blooms' and arrange them in a wine glass 'vase'. The effect, if imaginatively done, may be deceptively real at a distance, especially if a few living grass blades are added to the bouquet. Some water may be put into the glass to keep the grass blades erect.

TWIN-LENS REFLEX CAMERAS

TWIN-LENS reflex cameras are used by photographers, and many cameras of this kind are obtainable. Their particular advantage lies in the accuracy of focusing and composition, and Fig. 1 will give a general idea of the way in which a twin-lens reflex is made.

By F. G. Rayer

A folding hood is provided, and when this is raised, the ground-glass screen can be seen. The viewing lens has no shutter, and is always open, and the image it throws is reflected upwards by the mirror, so that it can be observed on the screen. This image is the right way up, but reversed, so that objects actually to the left appear at the right.

The taking lens is of similar type to the viewing lens, but has a shutter, normally closed. When an exposure is made, the shutter opens, so that light passes through the taking lens to the film. The spool of film is usually at the bottom of the camera, as in Fig. 1. From there, it passes round the roller, and can

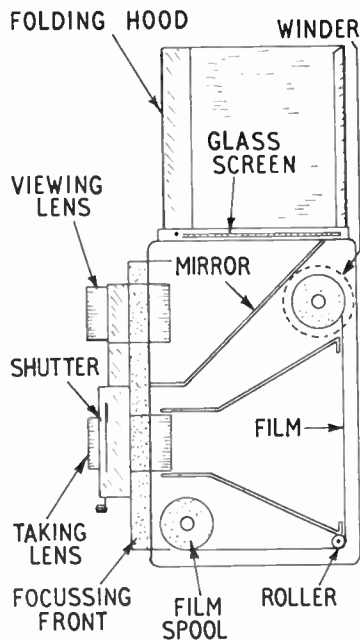


Fig. 1—Details of a twin-lens reflex camera

be wound on in the accustomed manner, for subsequent exposures.

Most cameras of this kind are of metal, with a bush at the bottom, so that the camera may be attached to a tripod. The back is frequently hinged near the hood, so that it can be opened to load the film.

Matched lenses

Both viewing lens and taking lens are attached to the focusing front, and a knob on one side of the camera moves this front in or out. It is thus possible to focus the required subject sharply on the glass screen. At the same time, the taking lens will have moved also, so that if the object to be photographed is sharp on the screen, a sharp image will also be obtained on the film. This is one great advantage of the twin-lens reflex — focus can be immediately adjusted to suit an object at any distance, by observing the screen.

In good quality cameras, the viewing and taking lenses are very closely matched indeed, and the mirror and screen are carefully fitted. Critical focusing is thus possible. A magnifier is often provided in the hood, and this gives an enlarged view of the image on the screen.

The taking lens is often $f/4.5$, $f/3.5$ or $f/2.8$. The viewing lens is sometimes of larger aperture than the taking lens, to give a bright image on the screen, and to assist in accurate focusing. (Large apertures give less depth of focus, so that exact focus of a subject can be more readily seen.) The glass screen may be specially etched to help brighten the image further.

If the taking lens is stopped down, as will often be so, this naturally has no effect on the image on the screen, because the viewing lens is always at full aperture. It is not possible to observe the increased depth of field which results from stopping down the taking lens. To help overcome this, many cameras have a depth of field scale incorporated with the focusing knob or scale.

The cheaper cameras have shutters with a small range of speeds, and these are adequate for all general photography. More expensive cameras have

shutter with slow speeds. To use these, the camera is placed on a tripod. They may be useful for interior shots of buildings, etc.

Negative size

Nearly all twin-lens reflex cameras provide 12 exposures, $2\frac{1}{2}$ in. square, on 120 or similar film. This is a useful size. Some cameras have additional counters which allow 16 or 24 exposures on 120 film. A thin metal plate is placed on the screen, and in front of the film, to reduce the negative size accordingly. This arrangement is very handy for colour photography, or for making colour transparencies for use in an ordinary



Fig. 2—Twin-lens reflex with flash gun attached to bar

35 mm. type projector.

Some twin-lens cameras have an adaptor allowing 35 mm. film to be used, as well as the 120 film. This also reduces the cost of film, especially for colour photography.

Some inexpensive cameras have a screen, or large viewfinder, arranged in a similar manner to that in Fig. 1, but the viewing lens does not move with the taking lens, and cannot assist in focusing. This type of camera should not be regarded as a twin-lens reflex.

Flash

Old cameras are not synchronized, but more recent models have synchro contacts, so that flash shots can be taken. For these, the shutter is generally set at about $1/25$ th second, in the usual way.

If flash bulbs are purchased, these will have a guide number. This number is divided by the distance in feet between flash gun and subject. The result is the correct lens aperture, and the taking lens is adjusted accordingly. For example, assume the guide number is given as 120, for a particular bulb and film, and that the subject is 10 ft. away. The result of division is 12. The nearest usual aperture is $f/11$, which would be satisfactory.

Many reflex cameras have no provision for attaching a flash gun of ordinary type. One way of overcoming this is to cut a strip of plywood or similar material, which can be secured to the camera by means of a screw in the tripod bush, as in Fig. 2. The gun can then be fixed to the other end of the strip, an accessory shoe being used if required.

Subject distances

Most twin-reflex cameras will focus from infinity down to 3 ft. or 4 ft., and they are very convenient indeed for all ordinary photography, with subjects at this range of distances.

For close-up photography, the presence of two lenses (viewing and taking) is an inconvenience, especially as the lenses are separated by about $1\frac{3}{4}$ in. For example, if a very small object were placed near the camera, and directly in front of the viewing lens, it would be too high for the taking lens.

To overcome this, special close-up attachments are available for the more expensive type of twin-lens reflex camera. An ordinary close-up lens is provided for the taking lens. A prism is incorporated in the close-up lens which is fitted to the viewing lens, however, and this deflects the field of view. As a result, when a small object is correctly placed to be viewed on the screen, it is also in the proper position before the taking lens. These attachments are fairly expensive.

Another method of taking close-up shots with a twin-lens reflex is to obtain an inexpensive push-on lens of the usual kind, and to place this on the viewing lens. The small subject to be photographed is then placed before the camera, and focus is adjusted on the screen. The close-up lens is then removed from the viewing lens, and placed on the taking lens. In addition, the camera is raised by about $1\frac{3}{4}$ in., or the subject is lowered by about this distance. The shot can then be taken.

One method of arranging camera and subject is shown in Fig. 3. The camera is fixed to a table-top tripod, and the subject is attached to a vertical board supported on a number of books. After adjusting focus as described, the close-up lens is transferred to the taking lens of the camera, and the subject is lowered by

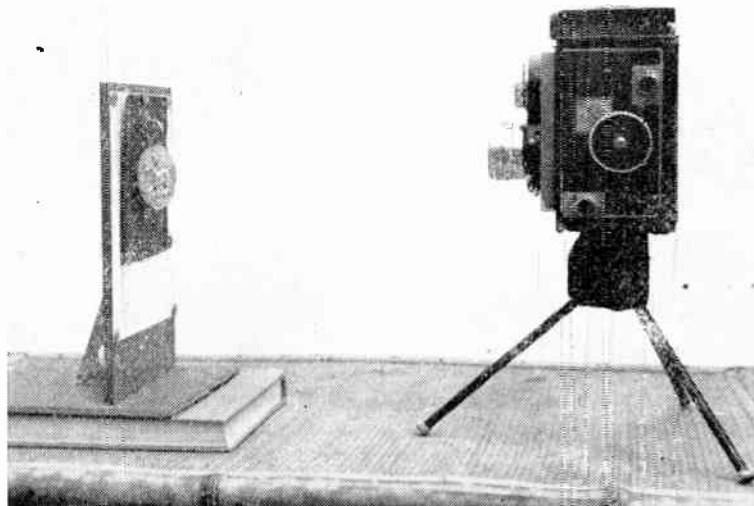


Fig. 3—Photographing a small object with a close-up lens

removing books. In this way, large photographs of small objects can be made.

The difference between the fields of view covered by the viewing lens and taking lens is termed the 'parallax error'. It is of no importance at normal distances, but becomes more and more important as the subject is brought nearer the camera. Some cameras have a sliding shutter on the screen, worked by the focusing control, to help avoid parallax errors.

Advantages, limitations

The twin-lens reflex camera has many advantages, for all ordinary photography. It is easy to focus. The screen shows the subject almost exactly as it will appear on the negative. This view is available all the time, and is generally quite bright. It is easy to avoid tipping the camera, or to change the viewpoint, to obtain a good result. It is easy to obtain sharp, well composed pictures, by observing the screen.

The twin-lens reflex cannot normally be used with long-focus or telephoto lenses. (A few models have provision for changing lenses, but are costly.) Close-up work is possible without too much difficulty, either with a close-up attachment, or with ordinary supplementary lenses.

Such cameras are fairly bulky, and have to be carried in a case, or on a strap. They are a bit awkward with rapidly moving subjects, but to over-

come this the hood is generally arranged so that a flap can be opened, to provide a type of eye-level direct vision finder.

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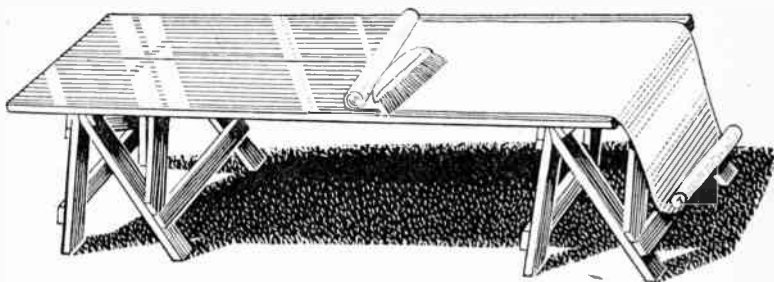
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the section in Fig. 3, and by the dotted lines on B in Fig. 1. These pieces are to take the back leg of the step.

This part of the back leg is shown in Fig. 4. It is made up of $\frac{3}{4}$ in. by $1\frac{1}{2}$ in. material to the dimensions shown, and

cross braces H are later added in the form of an X, as shown in Fig. 1. These pieces will be halved together, and then screwed or nailed direct to pieces E. The braces are made from 1 in. by $\frac{3}{4}$ in. material.

In Fig. 5 will be seen the remaining step and the sides I. Dimensions are

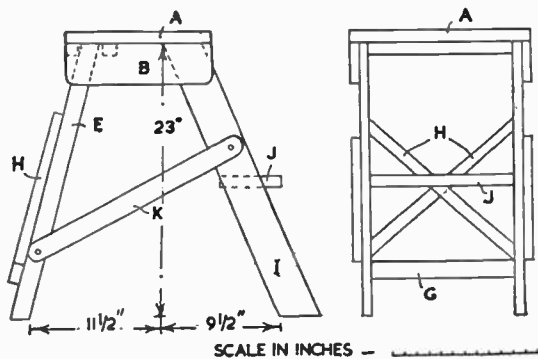


Fig. 1

Commence by making up the steps. The diagram in Fig. 1 shows side and front views with some useful dimensions. The first part to construct is shown in Fig. 2. This portion forms the top step, and is made entirely from $\frac{3}{4}$ in. wood. Two strips of $\frac{3}{4}$ in. square wood C and D are fixed inside this step, as shown by

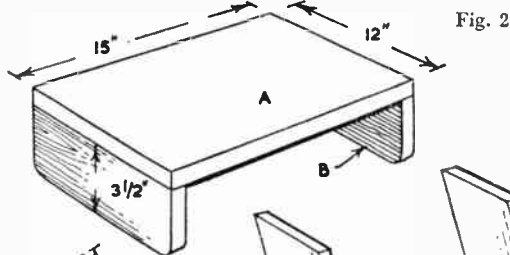


Fig. 2

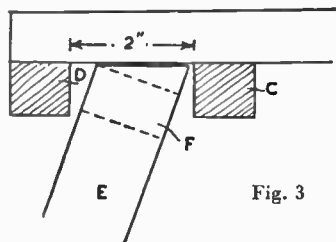


Fig. 3

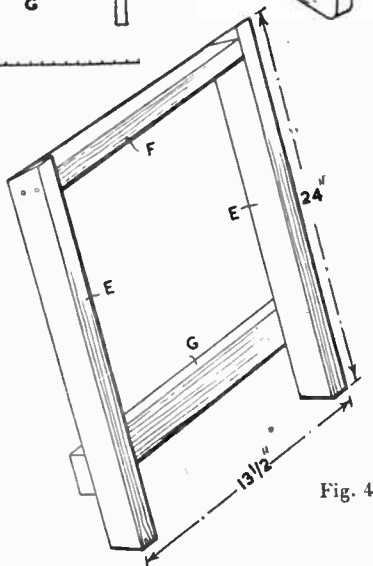


Fig. 4

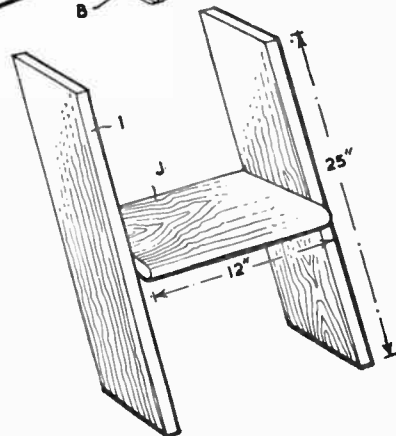


Fig. 5

shown, but it will, of course, be necessary for you to mark out the angles of piece I. This can be done by noting the measurements in Fig. 1. Pieces I and J are cut from $\frac{3}{4}$ in. material, pieces I being 3 in. wide and J 5 in. The two stretcher pieces K are screwed in position, as shown in

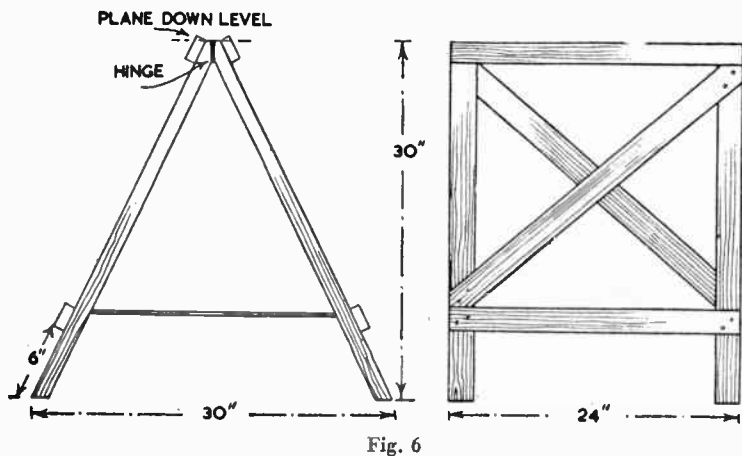


Fig. 6

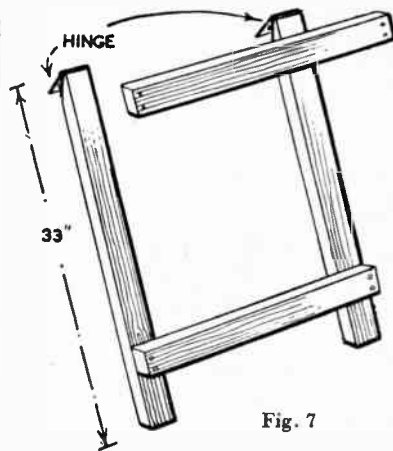


Fig. 7

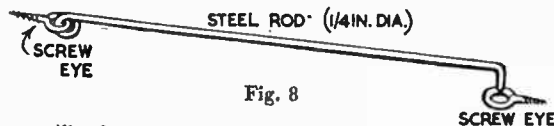


Fig. 8

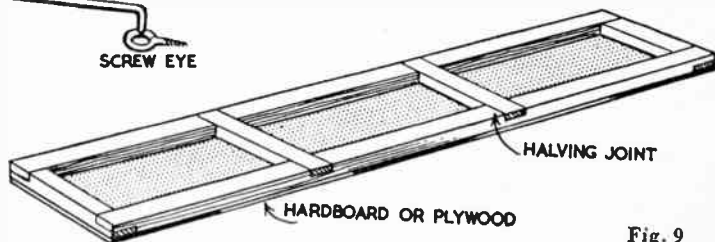


Fig. 9

Fig. 1. These will, of course, be movable, so that roundhead screws should be used, and made to pivot easily. They are cut from $1\frac{1}{2}$ in. by $\frac{3}{4}$ in. material, and are 20 in. long.

After assembly, the steps can be finished in plastic enamel paint, and the top covered with rubber or linoleum of a non-slip nature.

The trestles for the pasting board are made from 2 in. by 1 in. material, and a general idea of the construction is shown in Fig. 6. Note that as the legs are splayed it will be necessary to plane down the angles at the top and the bottom, so that the whole assembly stands square on the floor.

In Fig. 7 dimensions and the main pieces ready to screw together are shown. After these have been fixed they should be trued up with a square, and then a cross brace added. There should be a cross brace on each side of the trestles, and they should go in opposite directions. This is shown quite clearly in

Fig. 6. The two sides of the trestles are hinged together, making sure that the hinge does not project above the level at the top, and using fairly stout hinges. To keep the legs of the trestles from collapsing add a steel rod about $\frac{1}{4}$ in. diameter, as shown in Fig. 8.

The boards can be of fairly heavy material, and if made from solid wood they will need to be $\frac{3}{4}$ in. thick. Use really good seasoned wood, otherwise warping may take place.

The alternative method is, perhaps, the safest, and that is to use hardboard with a framework of soft wood underneath. This will be much lighter to carry about, and will not warp. The overall width of the boards in this instance should be a little over 21 in., which is the normal width of wallpaper. You will thus need two boards folding in the middle, each board measuring about 11 in. wide. The length, of course, will depend upon the amount of room available, but it is advisable to make these as long as is reasonably possible, say, 6 ft. at least.

Fig. 9 shows how the framing is halved together with the hardboard tacked on in place. The correct fixing for hardboard is a panel pin which drives into the board, and leaves no projections. (E.)

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Mainly for Modellers

IN this article I am going to deal with gun ports. Although not strictly speaking part of the deck fittings they are, undoubtedly, one of the fittings that have to be made separately, and can add authentic and accurate appearance to the model. Many of the models we see are spoilt by the fact that the gun port lids are painted on or consist of small squares of wood, glued into position.

WOODEN SHIP BUILDING—25

By 'Whipstaff'

Let us first consider the various types of lid. Gunports were introduced about A.D. 1485, but were confined to the poop and forecastle; the gun port cut in the hull proper was introduced in 1501 by the French.

During the sixteenth century gun ports were of many shapes and sizes, and after the *Mary Rose* foundered through water rushing in through portholes, this caused a change in the placing. Obviously the gun ports on the *Mary Rose* were too low — only some 16 in. above water.

Port lids were hanging doors to shut the ports at sea. Hinged at their upper edges, they were let down when the guns were drawn into the ship.

Port riggles were the curved pieces of wood placed over the ports to prevent any water running down the ship's side from entering the port. Port ropes — sometimes in later periods these were chains — were fastened to rings on the outside of the port lid, led through pipes in the ship's side, and by the use of blocks were used to haul up the lids.

In Fig. 1 we have the simple type of port lid seen on most galleon models. In some cases the hinges are painted on — quite satisfactory in very small models. However, for Hobbies' models such as the *Elizabeth Jonas*, *Golden Hind*, etc, they can be made of Bristol board painted and glued on after the port lid is fixed in position. This can be easily accomplished with a pair of tweezers. My own method is to cut them in brass shim. Apart from being more authentic

in metal, which can be blackened to look correct, they add strength to the assembly. With modern adhesive they glue into position quite securely.

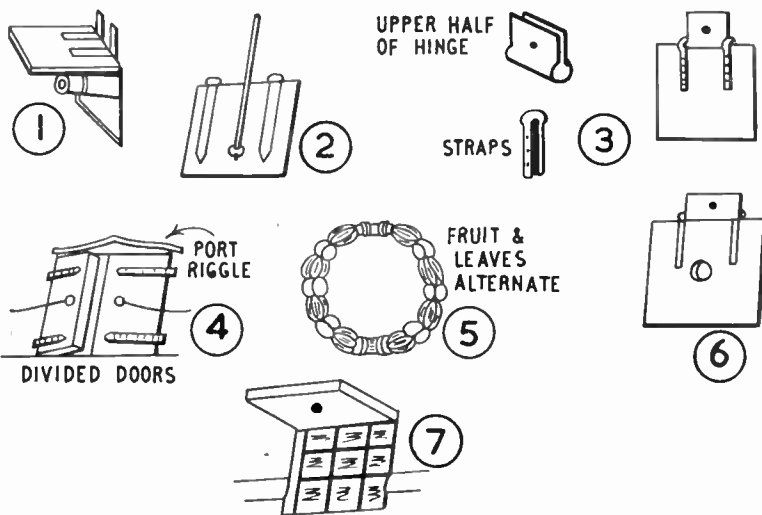
In Fig. 2 we have the general type of gun port that started with the Tudor ships of the *Ark Royal* type, and was seen up to the nineteenth century. The drawing makes the construction quite plain. On larger models of the Hobbies

length. A spot of tube solder is added at each end to secure the pin in place. This gives a gun port that actually works.

Note that prior to 1750 the gun ports did not follow the sheer; the decks had no sheer, therefore the gun ports follow the line of the decks upon which the guns were situated.

Occasionally in the early part of the eighteenth century we find gun port lids in two parts, and hinged at the sides instead of the upper edge. (See Fig. 4.)

Fig. 5 shows a gun port wreath. These were a prominent feature of Stuart ships, and the extent to which they can be modelled accurately depends on the scale of the model, and how good you are at miniature work.



range the hinges can be made of brass shim in the following manner. The upper part of the hinge is cut in brass shim as in Fig. 3, and doubled over a lill pint to form the hinge bar. It is drilled in the centre for fixing to the hull. The two straps for the port lid are made in the same manner. They are assembled with a beheaded lill pin cut to

On very small models they can be of plastic wood or glue roughened up, but on larger models we can use various means to obtain an authentic wreath. To carve every one for a model like Hobbies' *Royal Prince* would not only take quite a while, but unless we are very good at carving they would always vary slightly.

My method is to carve one master wreath, and from this make a plaster of Paris mould. The required number can then be cast, either in plaster of Paris, barbola paste or plastic wood. Do remember to coat the mould with a parting fluid; oil is excellent for the purpose. Another method I have used is to cut the rings out with a fretsaw, and model the carved design in barbola paste.

In the late eighteenth century scuttles were cut for ventilation purposes in every alternate port lid (Fig. 6). Later this was extended to every port lid, and in some cases port lids were fitted with windows behind them, as seen in Fig. 7.

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CHEMISTRY

AT HOME

PAPERING recently-plastered walls is often unsatisfactory due to dampness persisting in the wall for some time. The wall can, however, be damp proofed with a solution of shellac and rosin in methylated spirit. Put into a dry bottle $\frac{1}{2}$ ounce of rosin, 5 ounces of shellac and 1 pint of methylated spirit. Close the bottle, and shake occasionally until the solids have dissolved. The proofer is then ready for use. Brush on the walls, and allow to dry before proceeding with papering. Naturally, owing to the inflammability of methylated spirit, no flames should be allowed in the room until the vapour has dispersed. Open windows will speed dispersal.

ALABASTER CLEANING. Brush the article well with warm soapy water, rinse with plain warm water, and allow to dry. If grease spots are still apparent, swab with a clean rag, which has been dipped in petroleum ether. If the water treatment has dulled the polish, this may be restored by rubbing with a cream of whiting and water, finally buffing with a dry flannel.

ALABASTER ETCHING. Light etching of alabaster may be done by taking advantage of the prolonged action of water upon it. The part which is to remain unetched is protected by an etching ground consisting of 1 part of white wax dissolved in 4 parts of genuine oil of turpentine. Brush on the ground, grave the design through the ground with a wooden point, and then immerse the alabaster in water for two days. Dissolve the ground with a swab wetted with turpentine, rub dry, and carefully brush powdered alabaster into the etched lines, so as to emphasize the etching.

BLACK STOVE POLISH. This is for use on cast iron ranges and fireplaces. Melt in a clean tin in a boiling water bath 2 grams each of carnauba wax, and montan wax, and 1 gram of rosin. Dissolve 2 grams of potassium hydroxide and 3 grams of water soluble Nigrosine in 86 c.c. of boiling water. Stir this slowly into the wax/rosin mixture, and keep on stirring until the mixture is uniform. Allow to cool, and stir in 3 grams of lampblack and 5 grams of powdered graphite.

BROWNING BRASS. When it is desired that brass have a brown finish, this may be imparted by treatment with

sodium hydroxide and basic copper carbonate. Dissolve 3 ounces of sodium hydroxide in 1 pint of water. Note that sodium hydroxide is corrosive to the skin. Any coming in contact with the fingers should be flushed off with water,

MORE RECIPES TO SAVE MONEY

and vinegar dabbed on. Stir into the solution 1 ounce of basic copper carbonate, and warm the mixture. Immerse the brass until its colour is sufficiently dark. Then lift it out, rinse, and dry it. To avoid contact of the mixture with the skin, either fix a wire to the article for lifting in and out, or use rubber gloves.

MAGNESITE FLOORING. Residents in older houses may welcome this modern flooring, either as pure modernization or for renovation of worn floors. Mix equal volumes of dry sawdust and calcined magnesite. This is then mixed to a mortar with a solution consisting of 10 pounds of magnesium chloride to each 6 quarts of water. Smooth out the composition on the floor by means of a steel float, and then leave the whole undisturbed for at least twenty-four hours to set and harden.

KNIFE POLISHING POWDER. Thoroughly mix together 56 grams of precipitated silica, 14 grams of whiting, 3 grams of powdered oxalic acid, and 28 grams of either levigated flint or pumice powder. Dip a wetted cork in the mixture, and rub the knife. Rinse well after polishing.

GREENHOUSE SHADING. The green shading mixture sometimes used for greenhouses can readily be made up at home. Mix together 9 ounces of whiting, $4\frac{1}{2}$ ounces of plain flour, and $2\frac{1}{2}$ ounces of powdered glue. Mix this evenly with 1 pint of cold water, and then stir thoroughly with 2 quarts of boiling water. Enough dry green colour, such as Brunswick Green, is then mixed in to give the desired depth of shade. Paint the warm mixture on the glass.

IRON CEMENT. To unite cast iron fittings such as drain pipes and gutterings, make a cement by intimately mixing 80 parts by weight of iron filings, 1 part of ammonium chloride, and 2 parts of flowers of sulphur. Mix this to a thick paste with water for use.

DAMP ROOMS. Where a room is suspected of dampness it is a good plan to test the degree of dampness before trying to remedy it. Quicklime (calcium oxide) is a reliable means of measuring dampness, but it must be quicklime, NOT slaked or hydrated lime, and it must be in granular form, such as is obtainable from laboratory furnishers for gas drying.

Weigh out carefully on a saucer 100 grams of quicklime, and place it in the middle of the room. Close the doors and windows, and leave it for twenty-four hours. Reweigh the quicklime. If it now weighs more than 101 grams, the room has an unsatisfactory degree of dampness. The room is habitable if the weight is less.

OXIDIZING COPPER. The oxidized finish on copper is chemically a misnomer. No oxide is produced on the metal, but a sulphide. It is simple to carry out. Dissolve 3 ounces of liver of sulphur in 1 gallon of cold water. See that the metal is clean and bright. Immerse it in the yellow solution until it has darkened sufficiently. Remove it, rinse it in water, and allow to dry. If high lights are to appear, use a fine scratch brush on the prominent parts, finally buffing with a cloth.

This treatment gives a good adherent finish, and may be further stabilized by giving it a coat of transparent lacquer.

DISINFECTANT POWDER. A cheap powder for sprinkling over decaying animal matter consists of 15 ounces of powdered quicklime, 4 ounces of powdered ferrous sulphate, and 1 ounce of powdered phenol. Mix these intimately, and keep the product in a well-closed bottle or tin. Care should be taken when handling the phenol during the preparation, for it is corrosive to the skin. Any on the fingers should first be wiped off with a rag wetted in methylated spirit, and the skin then freely swabbed with methylated spirit.

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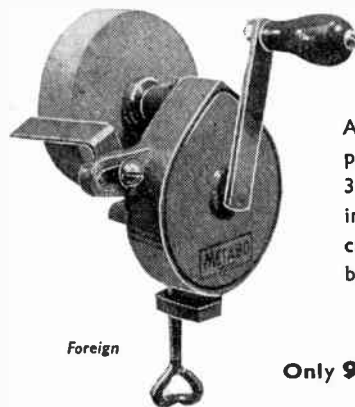
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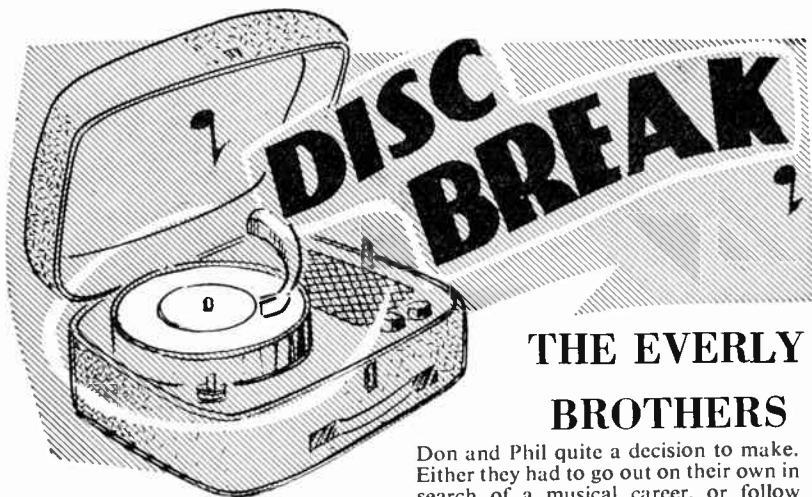
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Plans for other dinghies from 6 ft. available. Also many types of canoes. Ask for details



THE EVERLY BROTHERS

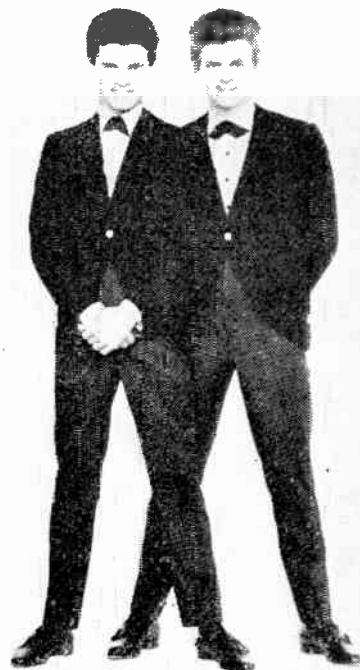
Don and Phil quite a decision to make. Either they had to go out on their own in search of a musical career, or follow some other field of endeavour. They decided on music. One thought was predominant in both their minds: 'Where do we go and who do we see?' Having moved to Nashville as their first step, they walked into one of the major music publisher's offices.

With several big names in the recording field around, and many hit records being played, the boys momentarily lost their self-assurance and confidence. But a recording contract was signed, and the record by the Everly Brothers, 'Bye Bye Love', followed.

This recording session also brought about a close friendship between the Everly Brothers and Boudleaux Bryant who wrote *Bye Bye Love*, and later penned many of their other hit records.

Twenty million discs

This was the beginning of what is known as the 'Big Time' for the boys.



The next few years took them into forty-nine of America's fifty states, Australia, New Zealand, Canada, and Europe. Many attendance records were set on several of these tours. During their many network TV shows they have shared billing with such names as Bob Hope, Perry Como, Arthur Murray, Dick Clark, Ed Sullivan, Patti Page, and many others.

After their first record, *Bye Bye Love*, passed the million mark, they followed up with world hits in *Wake Up Little Susie*, *All I Have To Do Is Dream*, *Bird Dog*, *Till I Kissed You*, and others.

Early in 1960 Don and Phil signed a ten-year million dollar contract with the then newly-formed Warner Bros. Records. And their association has resulted in yet another string of hits, including 'Cathy's Clown', 'Walk right back', 'Temptation', and 'Crying in the rain', bringing the total world sales of these astonishing singing brothers to well over twenty million discs.

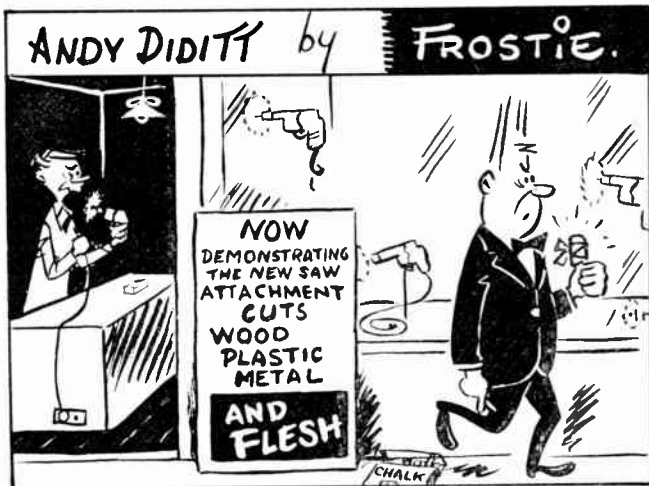
Don and Phil currently make their homes in Hollywood, close to the Warner Bros. Studios, Don with his actress wife, Venetia Stevenson, and Phil in a bachelor apartment of his own.

Recent Albums on the Warner Bros. label are: *It's Everly Time* (WM 4012/WS 8012), *A Date with the Everly Brothers* (WM 4028/WS 8028), *Both Sides of an Evening* (WM 4052/WS 8052), *Instant Party* (WM 4061/WS 8061) and *Golden Hits of the Everly Brothers* (WM 8018/WS 8018).

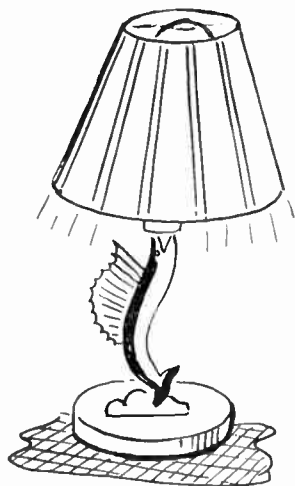
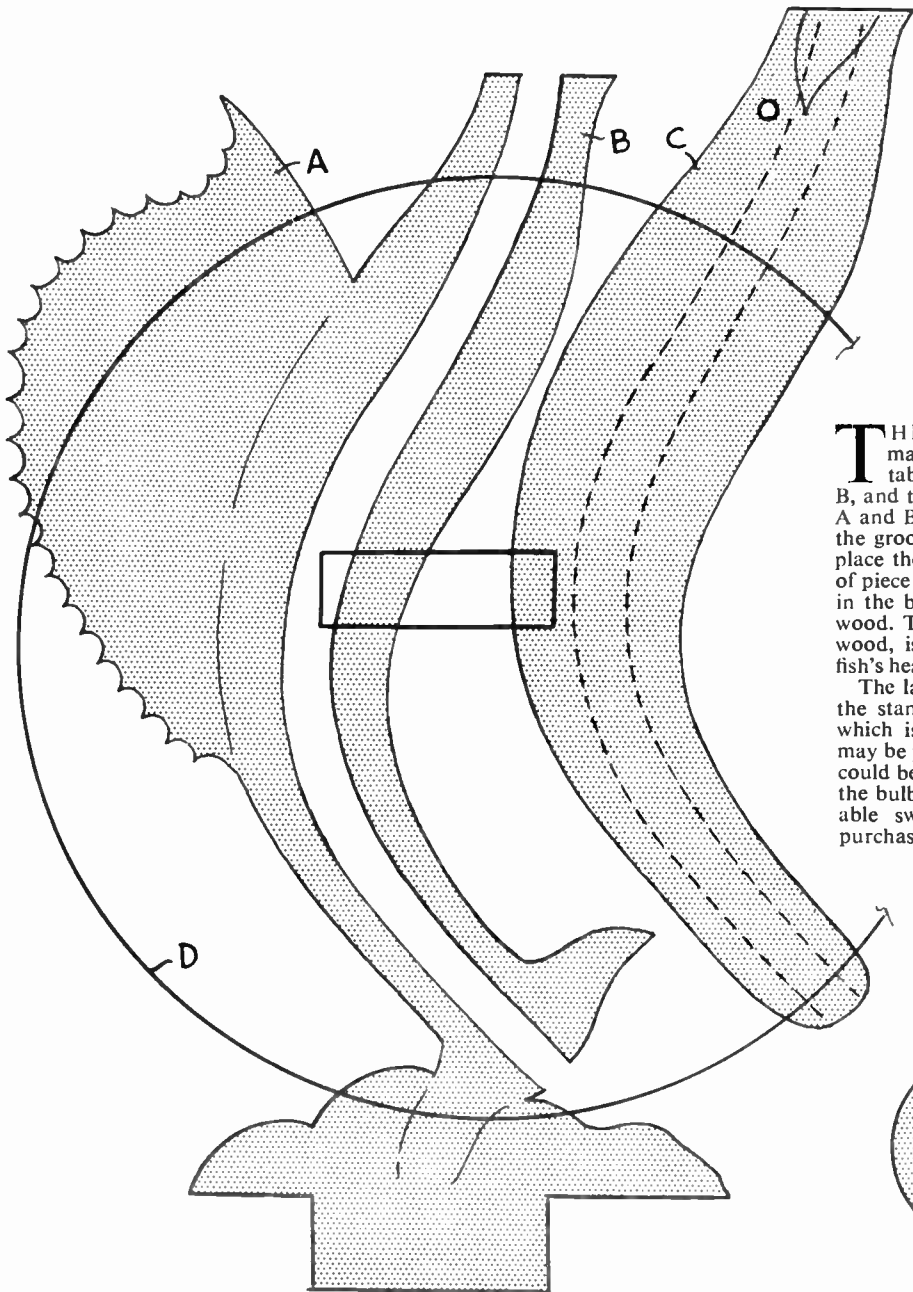
DON and Phil Everly are, without a doubt, the world's No. 1 vocal group. Consistently appearing at the top of the popularity polls, consistently placing their records in the top ten, and forever attracting thousands of fans to their personal appearances, the two Warner Bros. recording artists are riding the crest of a popularity wave that seems to last and last.

Don and Phil were born in Brownio, Kentucky, to Ike and Margaret Everly, well known country artists. When they were six and eight, respectively, they made their first public appearance in Shenandoah, Iowa, on radio station KMA. For several years thereafter the family spent their summers travelling around the country, and settling down only during the winter months, so that Don and Phil could attend school.

When the boys finished High School, their parents decided to retire. This gave



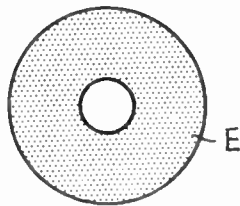
A SAIL-FISH LAMP



THE sail-fish with its large sail makes the standard for this small table lamp. Cut one each of A and B, and two of C from $\frac{3}{8}$ in. wood. Glue A and B to one piece C. Lay the flex in the groove so formed, and then glue in place the remaining piece C. The tenon of piece A is then glued into the mortise in the base D, which is cut from $\frac{1}{2}$ in. wood. The circle E, also cut from $\frac{1}{2}$ in. wood, is now glued on the top of the fish's head.

The lampholder is fixed to the top of the standard E by means of a nipple, which is screwed in place. The nipple may be plastic or brass. The small shade could be the type that clips on the top of the bulb. If a switch is required, a suitable switched lampholder should be purchased. (M.p.)

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- 781 Electric Bell 3v-6v. 4s. 11d. Post 3d.
- 882 2-pin Socket and Switch. 1s. 6d. Post 3d.

16th JANUARY 1963

VOL. 135

NUMBER 3501

THE ORIGINAL
'DO-IT-YOURSELF'
MAGAZINE

HOBBIES *weekly*

FOR ALL
HOME CRAFTSMEN

Easy to make

Also in this issue:

PLAQUE PAINTING
ON WOOD

FORMING A
STAMP CLUB

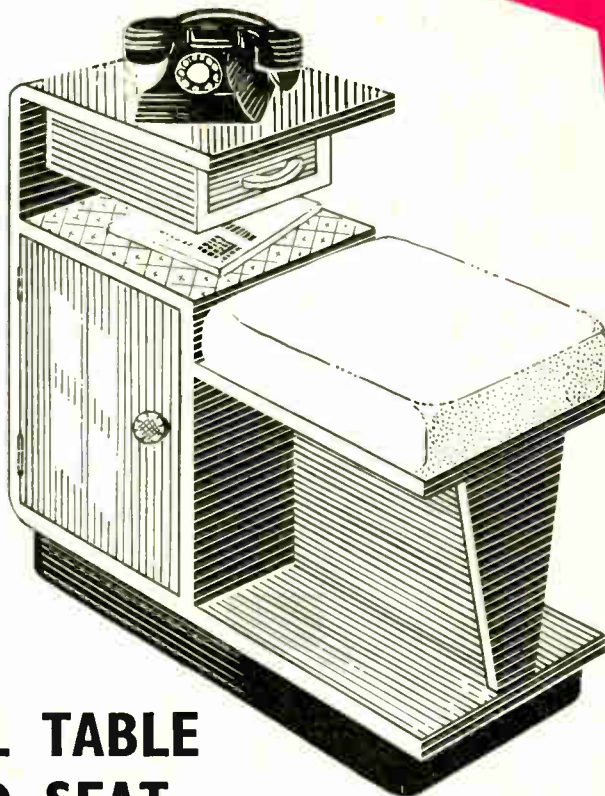
ROTORAGE GAME

DISC BREAK:
'THE BEATLES'

MAKING PHOTO
PUZZLES

COLOURED BAITS
FOR FISHING

ETC., ETC.



HALL TABLE AND SEAT

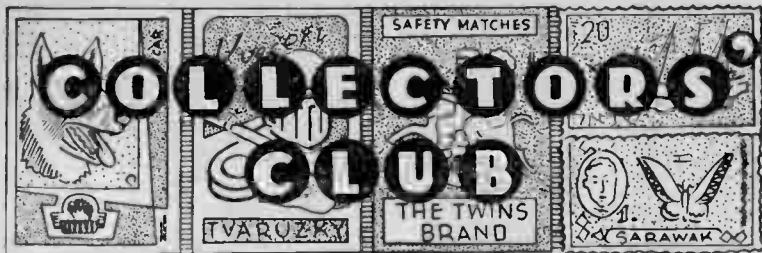


Up-to-the-minute ideas

Practical designs

Pleasant and profitable things to make

5^D



A GRAND new definitive issue was released by Bermuda on 26th October 1962, and are fully illustrated here. The seventeen stamps feature a portrait of the Queen with the St. Edward's Crown, and show various

that a stone building be erected on each one within two years. This old cottage was built by G. Dew, a Rhode Islander, and a redeemed pirate, who became a good citizen.

2d. — Church of St. Peter, St. George's — There was previously a frame building with a palmetto thatch roof. It disappeared in a gale in 1712. The existing building results from a series of replacements and additions during 1713–1820. It received its name about 1830.

3d. — Government House, 1892 — When the capital of Bermuda was transferred from St. George's to Hamilton in 1815, the Government purchased an old Bermuda mansion and 75 acres of land on a hill north of Hamilton for the Governor's residence. By 1886 the wear

★★★★★★★★★★★★★★★★★★★★★★
 ★ NOTE TO ★
 ★ CORRESPONDENTS ★
 ★ All correspondence on any sub- ★
 ★ ject covered in this magazine ★
 ★ must be addressed to: The Editor, ★
 ★ Hobbies Weekly, Dereham, Nor- ★
 ★ folk. If a reply is required, queries ★
 ★ should be accompanied by a ★
 ★ stamped addressed envelope and ★
 ★ reply coupon inside back cover. ★
 ★★★★★★★★★★★★★★★★★★★★★★★

and tear of both hurricanes and time had made the building of a new Government House a necessity and a large stone 'H' shaped building was erected of Bermuda coral and completed in 1892.

4d. — The Cathedral, Hamilton, 1894 — The Church of England is the Established Church of Bermuda, and the Cathedral is the seat of the Bishopric of Bermuda and the Azores. The style is Gothic and Middle English, and the building materials used included native stone and cedar, Caen stone from France, Irish marble, paving stone from Scotland, stone and oak from Indiana, freestone from Nova Scotia, and red Peterhead granite.

5d. — H.M. Dockyard, 1811 — The building portrayed replaced the Great Store which stood in the way of development of the dockyard. Built from local stone by convicts, it was completed in 1857. A clock made in London in 1856 was installed in the nearer tower; a niche in the base of the same tower housed the famous bell of H.M.S. Shannon (1813).

6d. — W. B. Perot's Post Office, 1848 — William Bennett Perot conducted his Post Office next to his young friend, James Bell Heyl, a chemist. The two friends together were responsible for the idea of the hand-made penny stamps which W. B. Perot first produced in 1848 for use between Hamilton and St. George's.

8d. — The General Post Office, 1869 — Hamilton Post Office was built in 1869 on the site of the old tread-mill which had been brought from England forty years before for the punishment of criminals.

9d. — The Library and Historical Society — The main house at Par-la-Ville, built between 1807 and 1814 by William Perot of Huguenot descent.

1s. 0d. — Christ Church, Warwick, 1719 — This Church of Scotland Church was built in 1719. It is reckoned to be the oldest Presbyterian Church in the British Commonwealth; possibly in the Western Hemisphere.

1s. 3d. — The City Hall, Hamilton, 1960 — This handsome, modern building incorporates a theatre and art gallery.

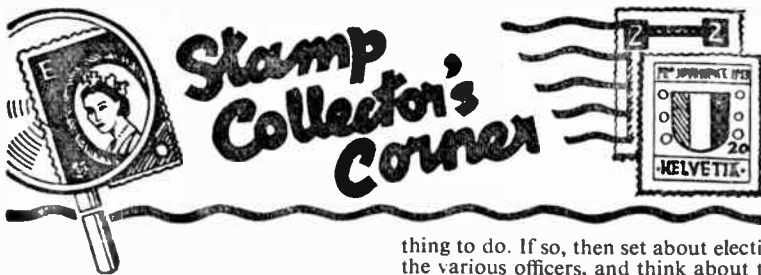
GRAND NEW ISSUE FOR BERMUDA

famous buildings on the islands. Printing is in multicolour. Individual details are:

1d. — The Old Rectory, St. George's, c. 1730 — Plots in St. George's were granted in fee simple on the condition



● Continued on page 247



Stamp Collector's Corner

HAVE you ever thought of forming a Stamp Club? At first it may seem rather a tall order. You may think that stamp clubs or philatelic societies are solely for experts; well that is very far from the case. In fact a few friends joining together could find great value in such a society.

HOW TO FORM A STAMP CLUB

By L. P. V. Veale

The real purpose of a philatelic society is the study of stamps in all aspects — the design, the paper, the method of printing and so on. Well, in order to study stamps you need some to study, so in the case of a junior club one might say that the purpose is to increase the collection.

The best way to commence is for about half-a-dozen enthusiastic collectors to have a discussion on the subject, and see if they think it is a feasible

thing to do. If so, then set about electing the various officers, and think about the way in which to increase the size of the members' collections.

Why not make pen friends? Very frequently in *Hobbies Weekly* you see notes of people living abroad who want pen friends. Arrange that each member of the club writes to a friend in a different quarter of the globe, explain the scheme to them, and agree to send English stamps in exchange for theirs.

By explaining the scheme you will indicate that it is desirable that the pen friend should send more than one specimen of each value. In fact it is preferable that there should be at least one for each member. You, in turn, will send him plenty of English stamps of all values. If you take the trouble to collect all the various values, you will soon have a packet worth sending away, and you may expect a similar packet from your friend.

Now before going further perhaps it would be wise to suggest some simple rules for the club. If you start without rules with the intention of making them as you go along, you will be asking for trouble, because you will find that some will want one rule and others a different one. Then comes the inevitable retort

'Oh, I should not have joined if I thought that you were going to do that.' So have your rules drawn up, and then there will be no unpleasantness.

A set of rules should follow these lines:

1. The Club will be called
2. The officers will consist of, chairman, secretary, treasurer, and a committee of three; four to form a quorum.
3. All members shall have a pen friend abroad.
4. The subscription shall be
5. That meetings be held on the first and third Thursdays of the month.
6. The Annual Meeting be held the first Thursday in January at which all officers will be elected.
7. No stamp exchanges, etc, to take place while the business meeting is in progress.
8. No member to write to another's pen friend without the original member's permission.

Notes on the rules

The number of officers and the size of the committee will depend on the number of members you are likely to have. Remember it is easier to enlarge a committee than to make it smaller.

Better to keep the subscription as low as possible, so that you do not frighten possible members away.

Meeting days shown are only for example; it would be one of the important things to decide at the preliminary meeting.

A small club could meet in a private house, but a large membership would mean going to a schoolroom or parish hall. In this case the help of a schoolmaster or parson would be invaluable. One of them might be prepared to act as president of the club, especially if he is a stamp collector.

Minutes of each meeting should be kept and read out, and signed at the next meeting. The secretary may have some information to give out, such as a notice about an exhibition of stamps that is to take place nearby, or, perhaps someone has offered to come and give a display and talk. While all this is going on no member should be allowed to have any book of stamps open in front of him. When the chairman gives consent, then the exchanges can take place.

If the funds of the club allow, it might be possible to buy a stamp catalogue, which could be lent out to members for one week at a time, drawing lots for who has it first. Sometimes a packet of stamps might be purchased and shared out at a meeting. A good secretary will be keen to make the meetings interesting, and should be chosen with that end in view.

Well, there is the idea. What about a stamp club in your own district?

● Continued from page 246

BERMUDA NEW ISSUE

1s. 6d. — **Bermuda Cottage, c. 1705** — This ancient cottage, much painted by artists, is one of the oldest houses in the island, and was probably built around 1705; it has been a home from the date of building, and has never fallen into disuse.

2s. 0d. — **Town of St. George** — This is the oldest residential building in St. George's, built in 1700.

2s. 3d. — **Bermuda House, c. 1710** — A cruciform house in the manner of the first State house at St. Mary's, Maryland.

2s. 6d. — **Bermuda House, early Eighteenth Century** — Another fine cruciform residence built c. 1705 by the granddaughter of Richard Norwood, the distinguished mathematician and navigator.

5s. 0d. — **The Colonial Secretariat, 1833** — The Secretariat, formerly known

as the Public Buildings, is a dignified yet simple two-storey building of native limestone. The Throne, from whose dais His Excellency the Governor delivers his address to the assembled branches of the Legislature, is of Bermuda cedar, and bears the date 1642.

10s. 0d. — **Old Post Office, Somerset, 1890** — The Old Post Office, Mangrove Bay, Somerset, ceased to function as such when, in 1907, due to a large increase in postal traffic, the facilities were moved to more commodious premises. It served as a Post Office for over fifty years.

£1 — **The House of Assembly, 1815** — With the Supreme Court on the ground floor and the House of Assembly above, the building serves both Legislature and law, and also includes offices for the Chief Justice, Registrar General, Attorney General, juries and committees.

PLAQUE PAINTING ON WOOD-1

THE making up of circular wall plaques and stands to your own designs, based on particular motifs, can be a highly-absorbing, pleasurable, and maybe profitable pastime. The designs are drawn out on wood as suggested in this article and completed by painting.

By Edna Knowles

Apart from the pleasure of doing this type of work, it also affords another interest in the collection of details for different motifs, and there is, of course, the thrill of working out your own design. Various motifs to create your own individual designs can be obtained from books obtained from your local library, while museums also offer a happy hunting ground. A notebook should be carried to copy particulars which you might like to reproduce and in this way quite an interesting collection can be accumulated.

Circular pieces of 3- or 5-ply wood can be obtained to measurement from any good timber merchant, and work out to about 3d. to 6d. each if bought in quantity.



**ALL-OVER
PERSIAN
MOTIF**



**ALL-OVER
JACOBEAN
MOTIF**

They will, of course, need careful glass-papering, beginning with a medium grade of paper and finishing up with the finest obtainable. They can then be painted without further treatment.

If possible, it is of advantage to choose woods with an attractive grain, but one cannot expect much choice and must be prepared to take more or less what is offered. If, however, the best white wood is required for better finished work, the only way to acquire it, is by paying a relatively high price from handicraft shops or a handicraft firm like Dryad of Leicester. From these firms, any type of wood-ware for painting is available, from boxes, bowls and dishes, to toast-racks and candlesticks.

For painting the design, oil paints are preferable, but again, to cut the expenses down, powder colours can be used quite effectively. Good colours may be obtained loose in tins, or already mixed with water in small screw-topped jars. The paint must be put on quite thickly, and two coats are sometimes necessary on the shiny parts of the grain.

The designs are usually prepared first on paper and then copied or traced on to the wood. Tracing is a messy job at the

best of times, and I find it better to draw directly on to the plaque, using only a few guiding lines and measured points. With circular pieces of wood there are several satisfactory ways of making a design:

1. An all-over drawing not symmetrical in any way.

2. An all-over symmetrical design radiating out from the centre, repeated three, four or more times in sectors.

3. An all-over design springing from a point near the circumference, usually bi-symmetrical.

4. A border design either of 1 in. to 1½ in. in width, or nearly covering the plaque with only 1 in. or so left bare in the centre.

Numbers 1 and 3 are suitable for wall plaques, and 2 and 4 for tea-pot or flower-vase stands.

Motifs for building up the designs can be taken from historic ornament — Persian, Egyptian, Chinese, Celtic, Jacobean. (See illustrations of Persian and Jacobean.) Or they may be derived from plant forms, (leaves, flowers and fruits), drawn directly from nature. Some people have a preference for geometrical or abstract types of design, and these, too, can be quite effective.

(P.P.)

(To be continued next week)



SIX REPEATS
JACOBEAN

THREE REPEATS
PERSIAN

JACOBEAN MOTIFS are likewise taken from plant life and are usually the basis of embroidery work. Examples may also be found in the Victoria and Albert Museum.

Both of these styles of design are suitable not only for wooden plaques, but also for fire screens, and the decorating of almost any article in wood or pottery.

It will be noticed that the majority of the motifs are adapted from plant life, but there are also a number of charac-

teristic animals and birds incorporated into these designs, and sometimes human figures, too. (See below, right.)

PERSIAN MOTIFS are derived from plant forms and may be seen in the Victoria and Albert Museum used extensively on textiles, pottery, carpets and so on. A much used colour scheme for pottery work is navy blue, emerald green, orange and cream. Carpets and textiles tend to be in tones of brown, fawn, orange and green. (See below, left.)



Spin and win on the

ROTORAGE GAME

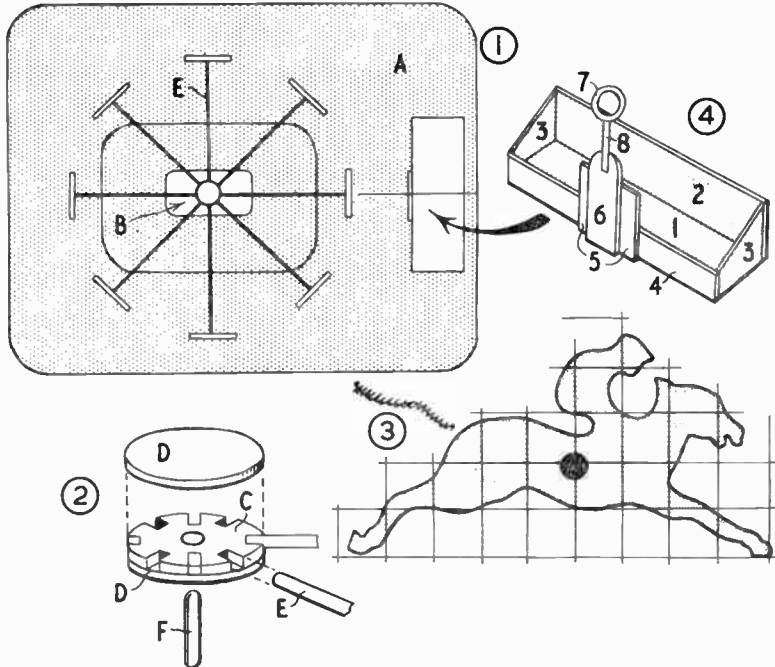
PREPARE hardboard panel A by rounding-off the corners, then painting the rough side with two coats of green gloss paint to simulate turf. When dry, draw the oval track and finishing line, and line these in with white paint.

Measure evenly-spaced slots in disc C, and cut these out neatly with a fretsaw. Cut a centre hole to fit loosely on to axle-rod F. Glue C to D, then glue in the eight rods E. Glue on disc D. (Fig. 2 shows assembly of this 'capstan').

Copy full-size outlines of mounted

assembling the structure with glue and fret nails. Paint the stand white, and the winning-post ring black.

The horse which stops on or just over the finishing-line is the winner. A 'book-maker's board' may be cut from ply or cardboard, with names and numbers of runners painted on it. Players chalk their initials on black panel opposite their fancied racehorse before the start of a race. (T.S.R.)



Drill a $\frac{1}{4}$ in. diameter hole in the centre of piece B, and glue the rod F upright in this. Glue and nail B to the board in the middle of the marked-out track (Fig. 1).

racehorses over $\frac{1}{4}$ in. squares to pattern given in Fig. 3 on to wood, and cut out with the fretsaw. If four legs for the horses are preferred, cut from thicker softwood, then cut between legs, finishing off with glasspaper. Mount the horses to the capstan arms by gluing ends of rods into holes drilled in horses. (See that they each face the same direction around the track!)

Paint horses black, grey, white, and browns, adding colours to the jockey's, and painting in other details, as well as giving a number for each.

When all is dry, test out the game; make certain that the horses run round the track without scraping, adjusting the height of the pivot rod if necessary. The capstan should revolve smoothly when spun by hand.

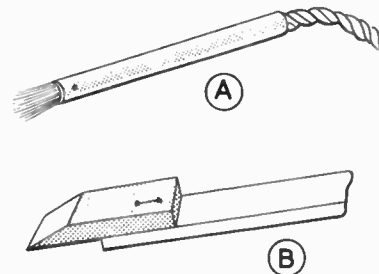
A grandstand can be built with a winning-post as shown in Fig. 4. Parts are numbered to correspond with cutting list. Shape sloping ends 3 round top to 6, and the disc 7 with the fretsaw, before

THIS handy way of applying oil will find a welcome not only in the workshop or garage but around the house also. It is an easily made little gadget which has so many uses.

All you need is a piece of rope or card and a length of metal or plastic tube A into which it will fit easily. About 6 in. is long enough for rope, but a shorter piece will suffice if you are using cord or string.

Fray out one end for about an inch, soak with oil, and thread through the tube. Enough oil will be absorbed to last quite a while, and it will be found most useful when drilling and for other similar jobs. Tools which are stored away can receive a periodical rubbing to help preserve them.

A small hole drilled through the tube to receive a pin will hold the rope secure and allow it to be adjusted when the 'brush' wears.



A wedge shaped piece of felt fastened on to a piece of stick B, can be used to apply oil or grease in a similar way, and is especially useful in awkward out-of-the-way places. (A.F.T.)

LIST OF PARTS

Figs. 1 and 2

- A Hardboard panel 10 $\frac{1}{2}$ in. by 12 in.
- B 4 in. by 2 in. by $\frac{1}{8}$ in. plywood.
- C 1 $\frac{1}{2}$ in. diameter disc, $\frac{1}{2}$ in. ply.
- D 1 $\frac{1}{2}$ in. diam. $\frac{1}{8}$ in. ply. (cut two, one with centre hole, $\frac{1}{2}$ in. diam.)
- E $\frac{1}{8}$ in. diam. dowel rod (cut eight, 4 $\frac{1}{2}$ in. long).
- F 1 $\frac{1}{2}$ in. length, $\frac{1}{8}$ in. diam. rod.

Fig. 3

Panel (or oddments) $\frac{1}{4}$ in. plywood, for set of eight model horses.

Fig. 4. $\frac{1}{8}$ in. plywood

- 1 8 in. by 2 $\frac{1}{2}$ in.
- 2 8 in. by 2 in.
- 3 2 $\frac{1}{2}$ in. by 2 in. (two).
- 4 8 in. by $\frac{1}{2}$ in.
- 5 2 $\frac{1}{2}$ in. by 1 in. (two).
- 6 3 in. by 1 $\frac{1}{2}$ in.
- 7 1 $\frac{1}{2}$ in. diam.
- 8 4 in. by $\frac{1}{2}$ in. diameter rod.

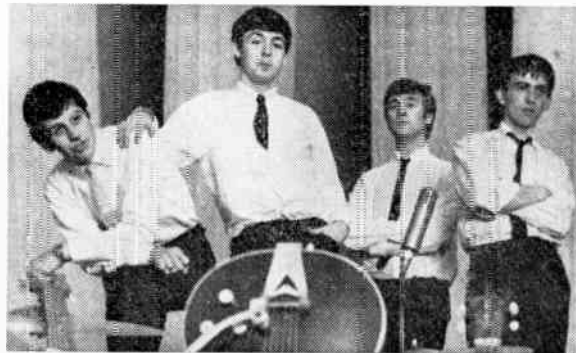


While they were in Germany they were asked to accompany British singer Tony Sheridan on a record of *My Bonnie*, made by a German company. Personal manager Brian Epstein takes up the story:

'They made this record, and then the German company asked them to record as solo artists. But I decided to turn down the offer, because I wanted them to record for a British company.'

This they did in September, 1962, when they recorded their own compositions, *Love me do*, and *P.S. I love you* for E.M.I.'s Parlophone label (45-R4949).

THE BEATLES



THINGS really happened for The Beatles on 27th December 1960, at a suburban town hall in Liverpool. It was their first important public appearance since their formation in mid-1958, and followed local club and ballroom dates as semi-pros.

As Liverpool critic Bob Wooler wrote shortly after: 'Here again, in The Beatles, was the stuff that screams are made of . . . rugged yet romantic, appealing to both sexes, with calculated naïvety, and an ingenious throw-away approach to their music, effecting indifference to audience response, and yet always saying "thank-you".'

The Beatles, who have achieved their success as singers and instrumentalists, were further described by Mr Wooler as 'musically authoritative and physically magnetic'. And, after explaining how they had exploded on a jaded scene, he went on to attribute their success to — the 'resurrection' of original-style rock 'n' roll music.

It was at the Liverpool Institute that John Lennon (rhythm guitar), Paul McCartney (bass guitar), and George Harrison (lead guitar) got together to form The Beatles. They were joined later by drummer Pete Best, who left the group in the summer of 1962, and was replaced by Ringo Starr.

Before the town hall engagement The Beatles scored a spectacular success — in Germany. They left their native Liverpool not long after their formation to appear at the 'Top Ten' Club in Hamburg.

Personally speaking

JOHN LENNON, born 9th October 1940, in Liverpool, is 5 ft. 11 in. tall, has brown eyes and brown hair, attended Quarry Bank High School in Liverpool, and Liverpool College of Art.

John plays harmonica, marraccas, and 'a bit of piano and banjo', and spends much of his spare time writing, playing records, and composing.

PAUL MCCARTNEY, born in Liverpool on 18th June 1942, is 5 ft. 11 in. tall, has brown eyes, dark brown hair, and attended the Liverpool Institute. He follows the work of Ray Charles, Peggy Lee, Dinah Washington, Chuck Berry, Larry Williams, Little Richard, Carl Perkins, and Fats Waller.

He also plays 'a bit of piano, drums, guitar, and banjo'.

GEORGE HARRISON, born 25th February 1943, in Liverpool, is 5 ft. 11 in. tall, has hazel eyes and dark brown hair, and attended the Liverpool Institute.

He enjoys Carl Perkins and Eartha Kitt, and wants nothing more than to retire with lots of money. In his spare time you will find George around either records, the guitar or girls.

RINGO STARR, born 7th July 1940, in Liverpool, is 5 ft. 8 in. tall, has blue eyes and brown hair. He went to St. Silas and Dingle Vale Secondary Modern School. Educated at the same school — and in the same class — as Billy Fury.

MIKE PRESTON



ON a new and chart-smashing kick goes versatile Mike Preston, swinging out the 1936 oldie *It's a Sin to Tell a Lie* with a new and eye-opening brand of Preston personality to a foot-tapping backing by a big band under the Johnny Keating baton.

'I've been longing to record the song for the last two years', says Mike earnestly, 'but the musicians would always put me off the idea. Then Dick Rowe suggested I cut half a dozen sides to see what came out of it, and I slipped in *It's a sin* . . . while no-one was looking!'

'Johnny Keating has shown what an arranger can do with a title like that', adds Mike, who first fell for the song when he heard it being sung at parties when he was twelve years old.

Illustrated on front cover:

HALL TABLE AND SEAT

THIS handsome hall fitment is intended primarily for use with the telephone, which is placed on the table-height top. Underneath is a small drawer for pencils and pad. There is also a shelf for the directory. Underneath is a general purpose cabinet of generous proportions, which can, if required, be provided with a shelf.

With the exception of the drawer, which is of $\frac{3}{4}$ in. wood, wood used throughout is $\frac{3}{4}$ in. All joints should be glued, and supplemented with dowels, screws or pins, according to the ability of the worker.

The main measurements are indicated in the front and side views in Fig. 1. The overall height is 28 in., and the plinth is

3 in. deep. The cabinet measures $15\frac{1}{2}$ in. by 12 in., and the seat height is 15 in. without the foam cushion.

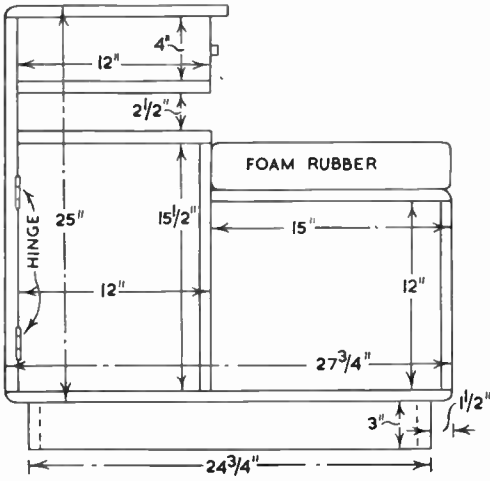
Commence by making up the main parts as indicated in Fig. 2, not forgetting to fit a back to the cabinet. This will be the same size as the door, fitting inside the top, bottom, and sides.

It will be an advantage to use faced plywood for the door, since this is not so likely to warp. If ordinary timber is used it would be as well to put cross battens on the inside.

The diagram in Fig. 3 shows the addition of the drawer, door, and plinth. Make sure that the drawer slides easily into the compartment, and trim the projecting parts of the sides, so that when closed it fits flush. Note that the hinges are recessed to allow the door to fit flush. Provide a small stop or ball catch.

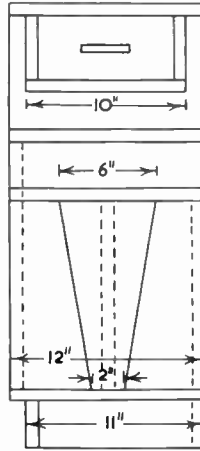
The plinth presents no difficulties, and is fixed by screwing down from the inside of the cabinet floor. Finish off by

● Continued on page 253



FRONT VIEW

Fig. 1



SIDE VIEW

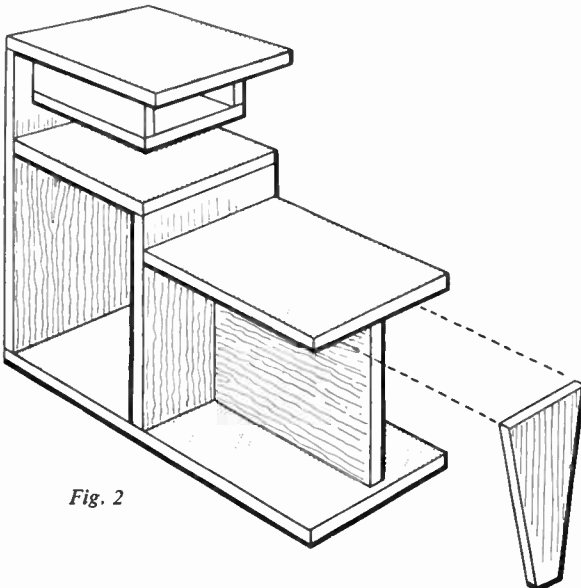


Fig. 2

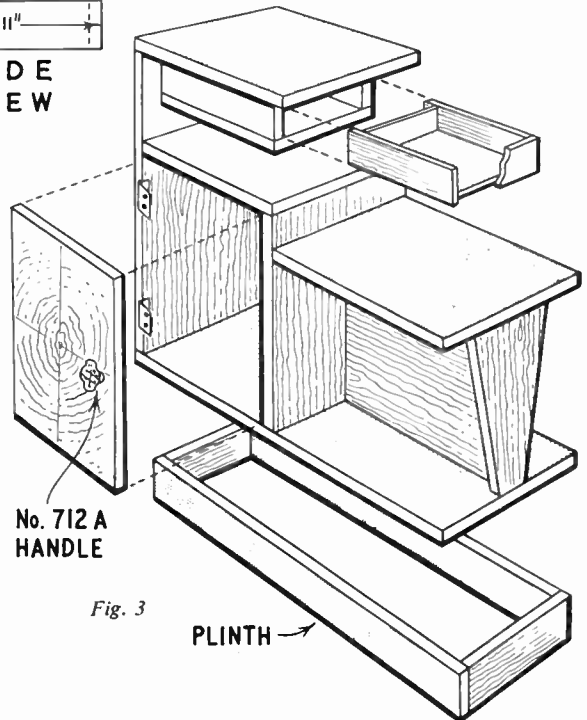


Fig. 3

HEAVY DUTY WALL BRACKETS

STRONG brackets securely fixed to walls are often required for carrying heavy loads such as ladders. These brackets can easily be made from 1 in. thick wood, which is free from knots, being fixed to the wall with coach screws.

By C. Franklin

Materials required for each bracket are:

- 1 piece of wood 14 in. by 2 $\frac{3}{4}$ in. by 1 in.
- 1 piece of wood 12 in. by 2 $\frac{3}{4}$ in. by 1 in.
- 2 pieces of wood 18 in. by 1 $\frac{1}{2}$ in. by 1 in.
- 2 by 1 $\frac{1}{2}$ in. long No. 12 screws.
- 4 by 1 $\frac{1}{2}$ in. long No. 10 screws.
- 2 by 2 $\frac{1}{2}$ in. long by $\frac{5}{16}$ in. coach screws.

If the wall on which the bracket is to be fixed has been rendered, then the coach screws must be 3 in. long.

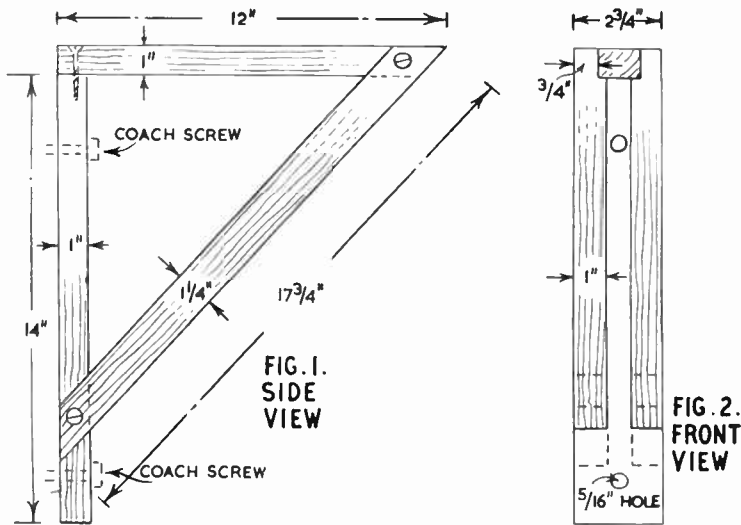
Screw together at one end the two 2 $\frac{3}{4}$ in. wide pieces of wood, using 1 $\frac{1}{2}$ in. long screws. Lay the cross braces in position, as shown in Fig. 1, and mark the cutting angles. Unscrew the two arms, and cut two slots 1 in. deep, one on each side of the 14 in. long arm, as shown in Figs. 1 and 2. On the end of

the shorter arm, cut at the correct angle two slots 1 $\frac{1}{2}$ in. by $\frac{3}{4}$ in. deep. To fit these slots cut a rebate 1 in. by $\frac{1}{4}$ in. at the end of each brace, and fit together, as shown in Fig. 2. Bore and countersink the screw holes, and glue and screw the parts together. Trim off the protruding corners of the braces.

Drill holes in the bracket to take

$\frac{5}{16}$ in. coach screws. Place the bracket in position on the wall, and mark where the plug holes are required. Drill the wall, fixing the bracket with coach screws, which must be tightened up with a spanner.

If the brackets are fixed in an exposed position they should be painted or treated with some other preservative.



● Continued from page 252

HALL TABLE AND SEAT

adding the door handle No. 712A (price 1s. 0d., post 4 $\frac{1}{2}$ d.), and the drawer handle No. 711 (price 6d., post 4 $\frac{1}{2}$ d.). Both can be obtained by post from Hobbies Ltd, Dereham, Norfolk, or from any branch or stockist.

Clean up all parts carefully with glasspaper, and fill the grain before applying the finish, which may be stain and polish or varnish. Alternatively, a painted finish will look quite attractive in the right setting.

The directory shelf should be covered with a plastic such as Waverite, and the seat finished off with a foam rubber cushion covered with a suitable hard wearing material. (M.h.)

Miscellaneous Advertisements

WOULD YOU ENJOY painting flower pictures, etc.? Then read 'PROFITABLE ART' (free). Wonderful opportunities for beginners and others. POPULAR ART (HW). Clun, Salop.

100 DIFFERENT stamps free! Request $\frac{1}{4}$ d. upwards discount approvals. — Bush 53 Newlyn Way, Parkstone, Dorset.

ENJOY WRITING? Then write for Profit. Send for 'Writers' Handbook' (free) detailing countless opportunities for beginner or experienced. — Writers' Ring (HW), 5 Edmund Street, Birmingham.

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PENFRIENDS home and abroad, all ages. S.A.E. for details. European Friendship Society, Olney, Bucks.

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FOR MODEL MAKERS
THE 'MIGHTY MIDGET' electric motor, only 1 $\frac{1}{2}$ in. high. Runs at 10,000 R.P.M. from a 4 $\frac{1}{2}$ V. torch battery. Minute current consumption. Complete with pulley, price 8/10, postage 6d. **MODEL BOAT PROPELLER**, 3 blades, shaft, pulley, and 5 $\frac{1}{2}$ in. long stern tube, to run off above 'Mighty Midget', Price 7/3, plus 6d. postage HOBBIES LTD, (Dept. 992), DEREHAM, NORFOLK.

BUYING OR SELLING?

Classified advertisements on this page are accepted at a cost of 6d. per word prepaid. Use of a Box No. is 1/- extra. Send P.O. with advertisement to *Hobbies Weekly*, Advert. Dept., Dereham, Norfolk. Rates for display advertising on application.

Another use for your enlarger:

MAKING PICTURE PUZZLES

PICTURE puzzles are quite easy to make, and they may then be used for intriguing party games. Those shown in the illustration differ from the popular types of puzzle where objects are photographed from an unusual angle and here we have highly enlarged pictures of common subjects.

Briefly, we would say that the method involves the taking of a photograph as near as possible to the subject, and then enlarging to a high degree. And the secret lies in the fact that we can get much nearer to our tiny subjects by using the enlarger as a camera.

By S. H. Longbottom

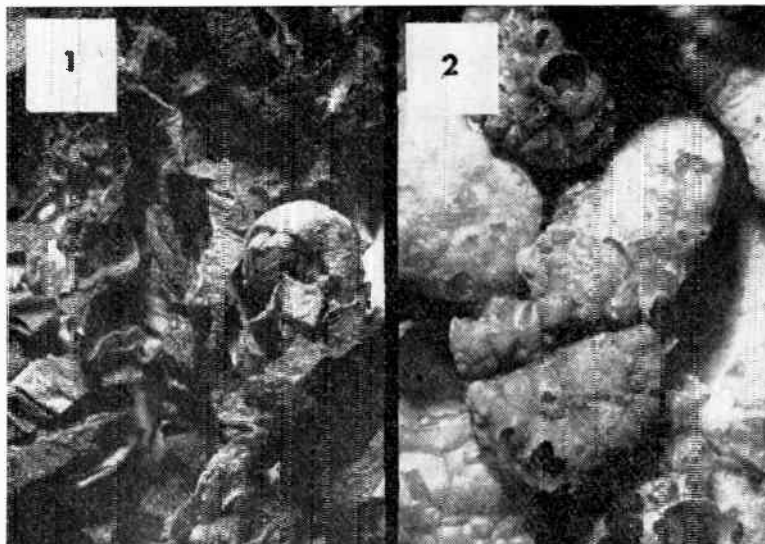
We use Commercial Ortho sheet film for this purpose, and a film $2\frac{1}{2}$ in. by $3\frac{1}{2}$ in. will be large enough to take two pictures at the same time, providing the subject matter can be arranged on the same plane.

If you cannot determine the materials shown in the illustration we would now mention that Fig. 1 depicts a small pile of tobacco, while Fig. 2 shows some grains of a popular breakfast cereal. Both these were taken at the same time, although separate enlargements have been prepared, and you will appreciate that the two materials may be placed side by side on a piece of cardboard. It will, perhaps, now be better to give a detailed explanation of the method used.

A piece of white cardboard is placed on the enlarger baseboard, and portions of tobacco and cereal positioned side by side in the centre. The enlarger head is lowered and the bellows fully extended to permit a near focus on the materials.

Place a piece of paper on top of the two materials, making a test focus on this with a normal negative to ensure sharpness. In practice you should find that the area covered is approximately the same size as the negative normally used for the enlarger. For example, an enlarger equipped for a $2\frac{1}{4}$ in. square negative should be able to focus sharply on a square of the same size when the bellows are fully extended, and it is merely a matter of adjusting the head on the column.

Having determined the correct position for the lens, and tested for sharp



What are these strange objects? — see text

focus, remove the paper in order to take a photograph of the subjects.

Now insert a piece of unexposed film in the negative carrier of the enlarger, directing a light on the subjects. You will find that Commercial Ortho film is ideal for this process, since we can undertake all the operations with the helpful aid of a ruby light. Your light, which should be directed on the subject at an angle of 45° , may be a 200 watt lamp, but it is essential to protect the cut film from being fogged by straying light. This can be obviated by bandaging the slot where the negative carrier fits with a strip of opaque material. Black lining is suitable for this purpose, since it may be easily tied around the slot.

Some test exposures may be necessary, but when using a 200 watt lamp and the negative material mentioned, the exposure should be between 6 and 10 seconds with an aperture of $f/16$.

Processing follows by development in any usual negative developer, and you will have prepared a negative bearing two picture puzzles, almost the same size as the original. When these are enlarged several degrees, we produce unusual puzzle pictures as shown.

For your assistance we would mention that the illustrations have been enlarged four times, but a greater degree of enlargement will make the problem pictures still more puzzling. An interest-

ing extension of the process is to make further positives by projection, and then negatives from these. This will make even greater enlargements.

Other intriguing subjects to take include nail heads, which bear remarkable criss-cross patterns when enlarged photographically, grains of rice, wheat, corn flakes or pieces of manilla string, which look like hairy ropes or insects. Flowers also make fascinating puzzles.

When you have completed a series of such pictures they should be numbered as shown, and a list prepared with the solutions, for it is easy to be confused. When making the prints, place a small square of black paper on the printing paper, and this will leave a space for numbering. This will then make an original set of puzzle pictures to baffle your friends.

Quite apart from the fact that we can make these novel pictures, the entire process will demonstrate how easy it is to take photographs by means of the enlarger. Try to keep the subjects in a flat plane as much as possible. A few nails may be driven into a block of wood and boxes will support other subjects.

Remember to make a test focusing for every subject should you have to adjust the enlarger. Make test exposures, and note that it is really essential to protect straying light from the unexposed film in the negative carrier.



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WITH ROD & LINE

WE all get those blank days when no matter what we offer the fish we don't seem to have anything in which they are really interested.

The blank days can be somewhat reduced in their number by studying the weather, the water, and trying to assess which bait will be suitable. We go along with maggots, worms, stewed wheat, and possibly bread or bread paste. Arriving at the river we may find it is up due to rains, and in this case, the water may

COLOUR AS A FISH 'ATTRACTOR'

By
'Kingfisher'

well be what, in my part of the country, is termed 'thick'. Whatever name it's given, when there is a lot more water flowing, the bottom is bound to be stirred up, and this muddies it, so that the fish have their range of vision considerably limited.

To my mind, under these conditions they should be offered something which will easily be seen, and this is where colour comes into the picture. Maggots can be bought in various colours, paste can be coloured by using the same dyes you would use for maggots, worms have to stay as they are, and this also applies to stewed wheat.

This appears to negative my statement about colour being an attractor; but on looking at this point a second time, and allowing for the worms and the wheat it is a fact that very often in muddy conditions, a pink maggot will take fish where a white one will not.

At one time I used to be able to buy coloured groundbaits, and a green one fished over a sandy bottom could be relied upon to produce a few fish. I think the fish regarded this as a weedbed — growing quickly, perhaps! But I do tend to the opinion that green to a fish will usually denote weeds.

I've also used pink groundbait with good success. I can't imagine what the fish took this to be. Perhaps they ac-

cepted it through curiosity, and as a novelty. It may also be that the colour showed up more easily from reflected light in the thicker water.

When we come to pike and perch I think the colours in a thick water, when spinners are being used, should be the lightest possible. Here I prefer a blue and silver Devon or one which is all silver. I think there are times when it pays to recolour your Devons, and this can be done by using the same colours, but putting them on in a different manner.

I often paint mine, the silver ones that is, with blue. But instead of doing one half blue, I apply the paint or enamel round the body in the form of a spiral. You should know whether your Devon has a left- or a right-hand spin, and apply the colour in the direction which, as it revolves, gives the appearance of length. The action is like those small barber's poles which are rotated by the use of a small motor, or, perhaps, by the heat rays. The thing is that it rotates and gives an impression of length. As the spiral runs out because of the turning of the lure, I think they offer a great attraction to the fish, and I've often taken both pike and perch on one so finished when the normal type has failed to raise a run.

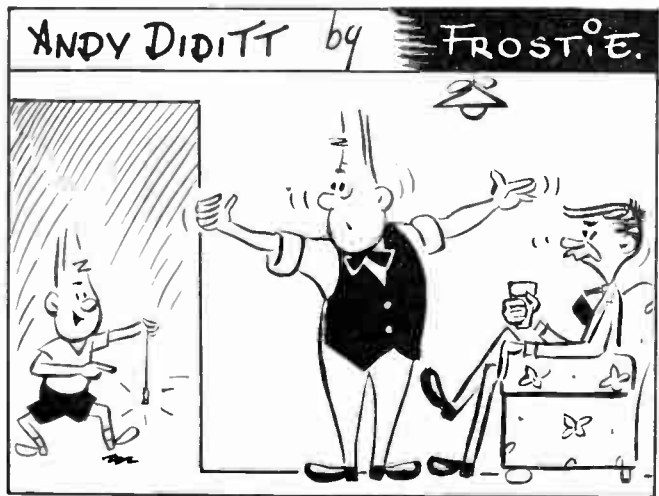
If you use a cellulose enamel it is always easy to remove it if necessary by using nail varnish thinners or buying a small bottle of cellulose thinners.

In sea fishing bright colours are also attractive, and I find orange a good colour to use. You have only to remember how many mackerel are taken each season on an ordinary milk bottle top to realize that the flash of this foil is the attractor. Some of these tops are enamelled red or blue on the outside, and are left the polished aluminium colour on the inside.

This brings another thought. We rarely see our spinners coloured red and silver, although red is supposed to be an attraction to pike and perch. As a rule the colours are blue and silver, or gold and brown. Spoons, on the other hand are often coloured red on one side, or are copper-plated on one side; so why not the red and silver minnow?

Another thought which arises is that our manufacturers appear to give us the same things as their forefathers gave ours; and we've either got to fish with them or go without. There's a lot of scope and potential business for a tackle-maker with fully modern ideas on baits and lures.

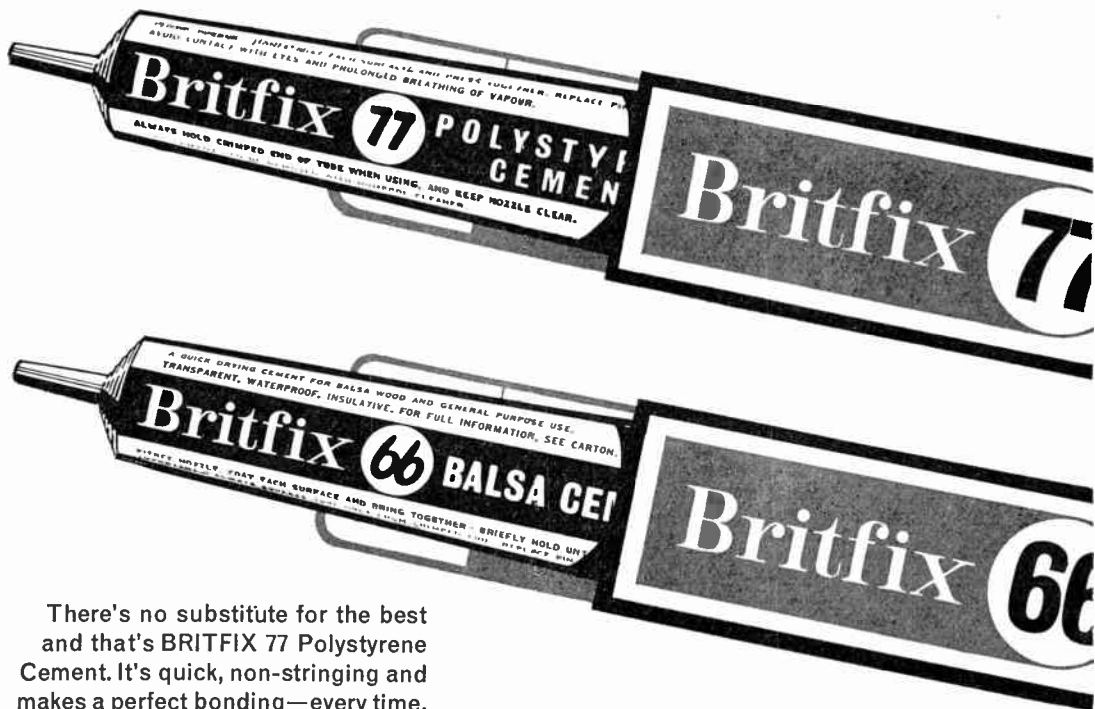
However, just give a bit of thought to this colour question. At the same time, remember that in thick water, and in the winter months your lure must be very near the bottom. Two reasons are given for this, one being that the fish will not come up into the much colder water to take a bait which is spinning high. Secondly, in the thick water they won't be able to see it at all. In fact in cold weather you should always spin your lures as low as possible in the water, and you'll get more fish as a result.



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LONDON AND NORTH-WESTERN RAILWAY—1882

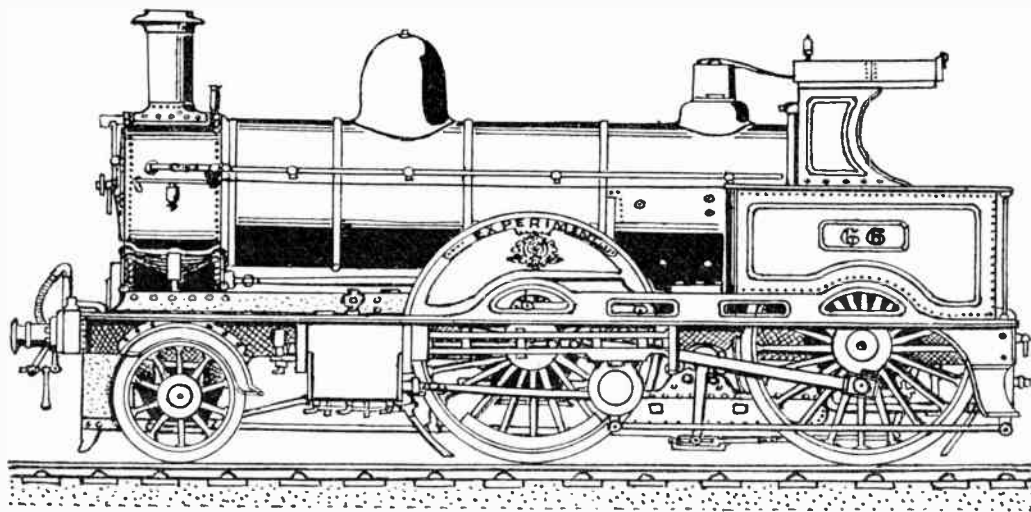
F. W. WEBB'S first Compound locomotive for the London & North-Western Railway was designed in December 1881, and erected at Crewe in March-April of the following year.

This engine No. 66 *Experiment* was built as a 2-2-2-0, 3 cylinder passenger tender, the two outside high pressure

which he claimed were — greater power, the whole of the available power of the steam being used, a more even distribution of the strains upon the working parts, and larger bearing surfaces for the axles, and the same freedom of running as with a 'Single' engine, with the same adhesion to the rails as a coupled engine.

was subsequently given 13 in. diameter cylinders, making a total in the class of thirty engines. They remained in service up to 1903, when they were finally broken up by Mr Whale.

It may be mentioned that Mr Webb besides being a formidable advocate of the Compound system was, likewise, a firm believer in the single driving wheel



London & North-Western Railway. F. W. Webb's first 3 cylinder compound express locomotive, No. 66 'Experiment'. Crewe 1882

cylinders being $11\frac{1}{2}$ in. diameter, and the one inside low pressure 26 in. diameter, the stroke being 24 in. Joys valve gear was used for the distribution of steam in the cylinders. At the time Mr Webb stated that he had built this engine primarily as an experiment, and for that reason he named it *Experiment*.

Before, however, finally deciding upon the design, Mr Webb had for some time been very interested in the success of some small six coupled Compound engines running on the Bayonne and Biarritz Railway, which Monsieur Anatole Mallet had built in 1878, and later in that year he converted one of the old Trevithick 2-2-2 Crewe engines into a 2 cylinder Compound on M. Mallet's system, and this engine ran on the Ashby-Nuneaton branch for some four years, giving very encouraging results, which led Mr Webb to go more fully into the question of the Compound system for locomotives.

His idea in applying this system was not only to economize in fuel consumption, but to gain other advantages,

The high and low-pressure engines worked independently of each other, the high pressure driving the rear wheels, and the low pressure actuating the leading driving wheels. The high pressure valve-chests were fitted below the cylinders, whilst the low pressure chest was in the smokebox above the cylinder. Driving wheels were 6 ft. 6 in. diameter, whilst the boiler was the same as the *Precedent* Class, having a tube heating surface of 980 sq. ft., firebox 103.5 sq. ft., the total being 1,083.5 sq. ft. Working pressure was 150 lb. p.s.i., and grate area 17.1 sq. ft.

Experiment was given some extensive trials for some twelve months, and the design apparently proving satisfactory, Mr Webb built a further twenty-nine of the type, the first one No. 300 named *Compound* being built in March 1883, and the last one No. 372 *Empress* in October 1884. These had the high pressure cylinder diameter increased to 13 in., since it had been found that the $11\frac{1}{2}$ in. diameter cylinders did not possess sufficient starting power, and No. 66

locomotive for fast express work. He considered that whilst coupling rods were useful at starting, they were, nevertheless, a hindrance to an engine running at speed, and for this reason he would never use coupling rods for any of his 3 cylinder Compounds. (A.J.R.)

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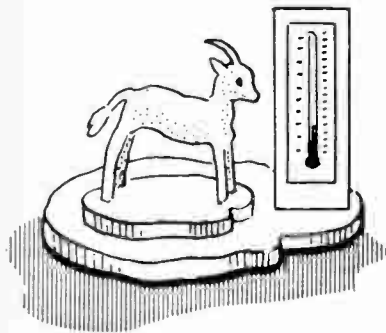
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MINIPET THERMOMETER

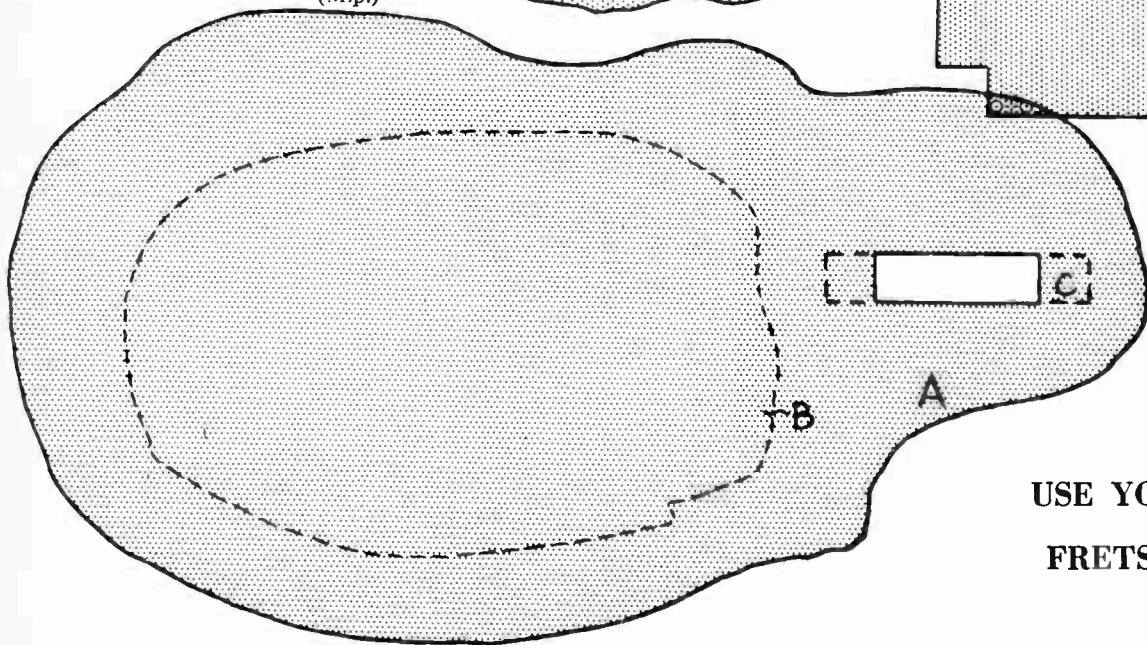
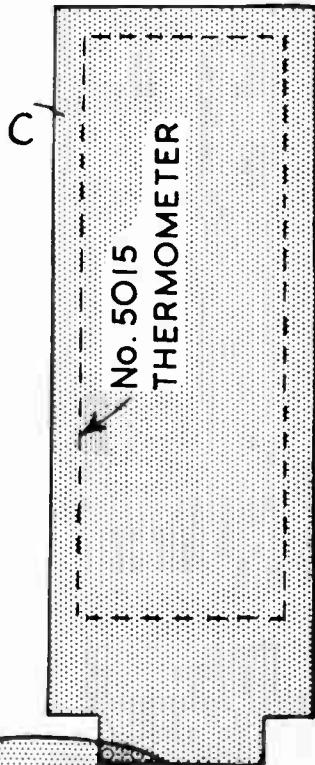
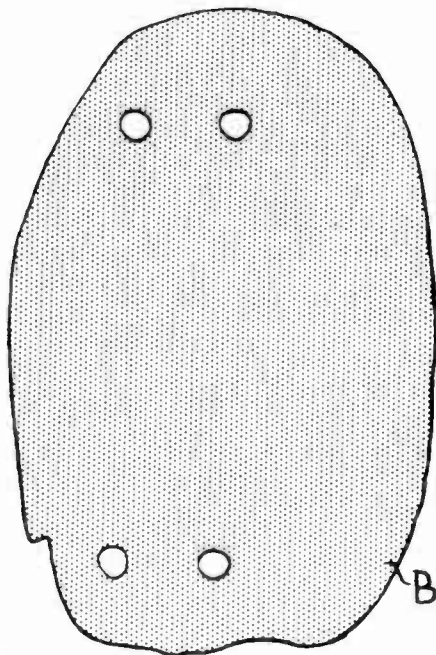


A MINIPET deer or similar animal is the focal point of this little novelty.

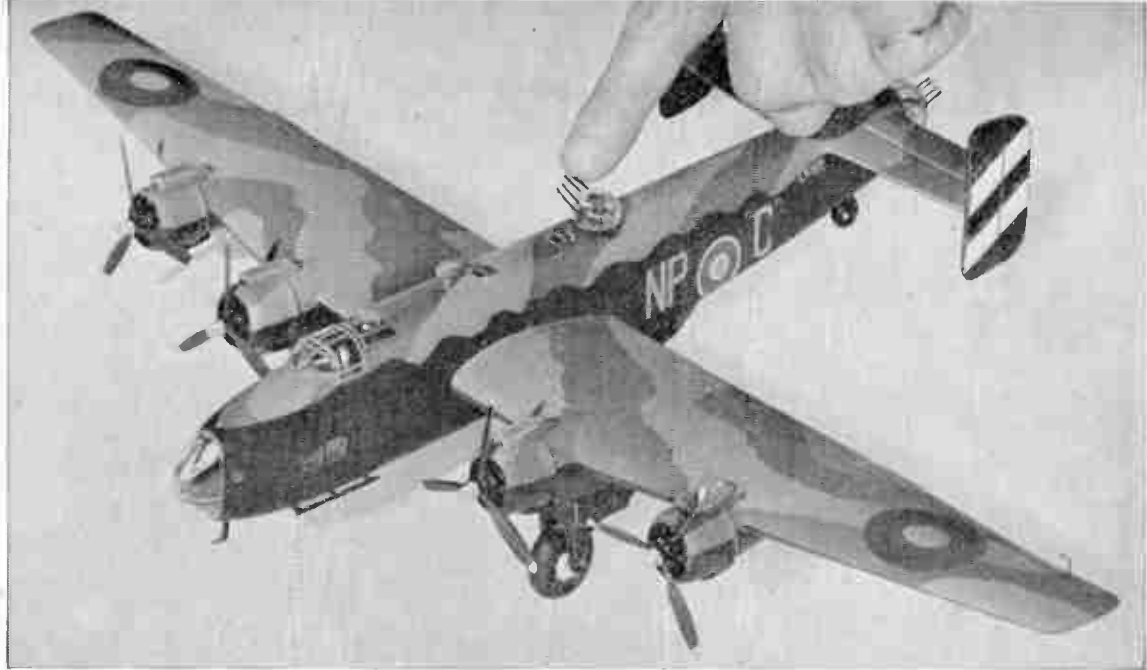
Cut one each of A, B, and C from $\frac{1}{4}$ in. wood, using a fretsaw. Glue B to A, and glue piece C into the slot provided in A. Paint in suitable colours, and glue the thermometer to C. Stand the animal in the holes in piece B.

The Minipet (deer) costs 4s. 11d., and the thermometer (No. 5015) 2s. 3d. from Hobbies Ltd, Dereham, Norfolk (postage 10d.). They can also be obtained from Hobbies branches and stockists.

(M.p.)



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A 'PONY RIDE'



Up-to-the-minute ideas

Practical designs

Pleasing and profitable things to make

5^D

Suggestions for Future Pleasure

THERE are two reasons why a person collects gramophone records. The main one, of course, is that the collector is a music lover, and wants to hear the music of his or her choice, and not what might come over the wireless by chance. The other reason, in one sense far more practical, is to build up something of intrinsic as well as artistic value. Really worthwhile collecting along these lines is completely dependent upon detailed knowledge of the great singers of the past, which can only be acquired by conscientious research.

As a good basis for such a study I recommend H.M.V.'s fascinating series of five L.P.s., *Fifty Years of Great Operatic Singing*, CSLP 500-504. With this series goes an interesting little booklet, giving all the details relevant to the recordings, and very brief biographical notes.

From such a beginning it is possible to commence a serious study of the great singers. Quite a lot of them, such as Tetrazzini, Melba, Lotte Lehman, and that popular ballad singer Peter Dawson wrote their autobiographies; some, like Caruso, had their memoirs written by their nearest and dearest; and practically all the great singers of the past

were adequately written about. The average public library will furnish you with enough books relevant to a study of the great vocalists to last a lifetime. An invaluable companion for such research is the *Grove's Dictionary of Music*, which seems to be in most reference libraries.

By G. E. Gompers

The period when a record is likely to have value is roughly the years 1900-25. Anything before this date might well be quite hopeless, and anything later would still be in quite popular circulation.

For example, the great contralto Clara Butt, who lost her voice in 1931, and died at the beginning of 1936, still has many excellent recordings in quite popular circulation. Even her pre-electric recordings are in quite good condition. What with her most popular 'hits' being re-recorded on the long play medium, I cannot conceive any time, not even in the remotest future, when a

Clara Butt recording will have any rarity value.

Some of my own most successful buys were from record shops of the West Central area of London. When one is on these treasure hunts one is generally completely alone, and self-reliant. It seems incredible, but too often the average assistant in the record shops would be just at home in a butcher's selling pork sausages.

As you begin to amass something like an archive collection, special care should be taken to preserve these more valuable recordings. I recommend binding them in groups of 8-10 between sheets of plywood, with plenty of corrugated cardboard in between to act as shock absorbers. If you are fortunate enough to have a tape recorder, you can take tapes of each one before packing it away, so that once you 'embalm' it, you will never need to disturb it again.

I have found that the sapphire needles that are fitted now on the bulk of the modern styluses will not be too hard on this type of recording, but if you have the old fashioned kind of player that only caters for standards, remember to use a fibre needle. A steel one would be absolute vandalism!

OUR STAMPS SOLD FOR £150

WE told the story in our issue dated 5th December 1962 of the partly imperforate block of six halfpenny stamps which came into our possession, and readers will no doubt be interested to learn that these have since been bought by a leading stamp merchant for £150. Just think of it! Their face value was 3d. — yet the price paid was 12,000 times that amount. No doubt in years to

come their value will be further enhanced.

Now, how to dispose of this windfall? Strictly speaking the stamps were the property of Hobbies Ltd., proprietors of this magazine. Its Directors generously decided that the money should be put to the benefit of *Hobbies Weekly* and its readers, and it could not have come at a more opportune time. For on 1st. January this year we as publishers were subjected to further increases in production costs due to wage and other awards in the printing industry. This, together with other increases we have had to carry over the past few years, meant that we would have had to put the price of the magazine up to 6d. from the beginning of the year.

However, because of this help towards production costs we have been able to put off this increase until the issue beginning with the new volume on 3rd April.

Our good fortune will thus be shared to this extent by ALL our readers — and from our point of view we could not wish for a happier solution.

ASTRONAUTICS IN THE SIXTIES

By Kenneth W. Garland

THIS is a serious factual approach to extra-terrestrial exploration, but it is so lucidly written by an expert in this field that it can be read not only by technicians, but by all people interested in scientific progress.

After discussing the technical problems of rocket propulsion and the various new and specialized techniques it has engendered, the author describes in detail various types of space vehicles, some of which have been designed for pure research and exploration into space and others for communication, navigation, weather forecasting and surveillance.

The exploits of the Russians, Gagarin and Titov, are fully recorded, and other chapters cover the military uses of space, robot explorers, probes round the sun, the first men in space, and men on the moon. The work is considerably enhanced by the use of excellent photographs and line drawings.

*Published by Iliffe Books Ltd.
Price 47s. 6d.*



The block of imperforate 1/2d. stamps

'Modeller' describes the ultrasonic principle

A new way of Model Control

WAYS of controlling models by radio have been described from time to time in past issues of *Hobbies Weekly*. The main disadvantages of radio control are the need for a Model Control licence, and the fact that wrong adjustment of the transmitter may cause TV interference. Both these difficulties can be overcome by using ultrasonic control — that is, sound waves of such high frequency that they cannot be heard, but can be picked up by a suitable receiver.



At a recent exhibition in London the use of ultrasonics to control a model train was demonstrated. On the right is shown a Gulton 1404 transducer

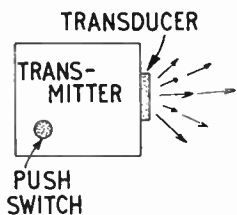
The receiver has a second transducer, used as a 'microphone', and a 5-transistor amplifier can be employed

with this. The last transistor is so biased that it only passes current when the receiver unit is picking up the signal radiated by the transmitter. This current closes a 400 ohm, 5mA relay.

It will thus be seen that when the transmitter switch is closed, the relay contacts at the receiver also close. These contacts act as a switch, to control the model, or other equipment.

With the 2-transistor transmitter, and 5-transistor receiver, control is possible up to a distance of 100 ft. This is sufficient for many purposes, such as models indoors or in the garden, or boats on small ponds. The ultrasonic beam radiated by the transmitter is directional, falling to one-half strength at 30 degrees each side. That is, the beam is 60 degrees wide (for down to half strength). The receiver transducer has similar directional effects.

Fig. 1—Items for ultrasonic control



The high frequency sound beam is radiated by a transducer, and a similar transducer is used with the receiver. The receiver operates a relay, and this can control the model.

Ultrasonic transducers are available from Gulton Industries (Britain) Ltd, 10 St. George's Place, Brighton 1, Sussex, and the transmitter and receiver details briefly described here are as suggested by them for their transducers. Further details, and actual transmitter and receiver circuits, may be obtained from them, if required.

Method of working

Fig. 1 will help to make clear how the system operates. The transmitter unit consists of a 2-transistor oscillator incorporating a transducer, and run from a small 9V. dry battery. Current drain is low, so that a miniature battery has a long life. The whole transmitter, with battery, can thus be built as a compact unit to hold in the hand. A push switch allows the transmitter to be switched on and off.

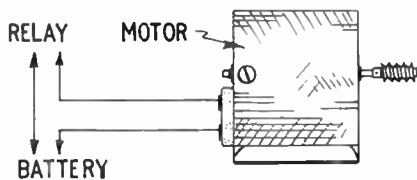
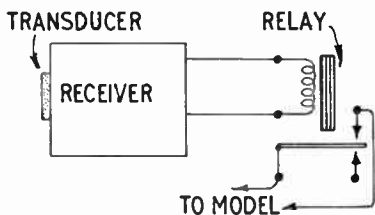


Fig. 2—Using the relay to control a motor

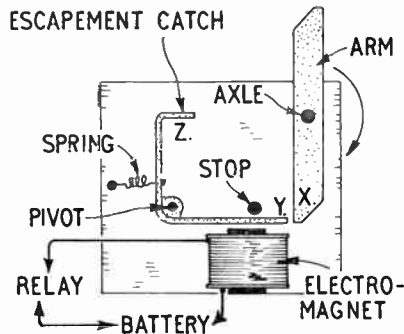


Fig. 3—A 4 position escapement

Control devices

These can be of the same type as when radio control is used. For example, a small motor such as might propel a model could be wired directly to the relay contacts and a battery, as in Fig. 2. The motor can then be started and stopped at will.

For other purposes, some kind of 'actuator' is generally used. A simple, popular actuator is shown in Fig. 3. The arm tries to rotate in the direction of the arrow, motive power being obtained from a clockwork motor, or twisted elastic. Rotation is prevented by the escapement catch.

When the relay closes, the electro-magnet draws the escapement catch, so that the end X of the arm is no longer held at Y. The arm and axle thus rotate 90 degrees, the end X being held by the

catch Z. When the relay opens, the escapement is released, and the arm turns a further 90 degrees, its other end being caught by Y. The escapement can thus be controlled to bring the axle to rest in any of four positions, this continuing until the elastic or clockwork motor is run down.

The axle can have a crank, as shown at A in Fig. 4. If this crank operates a rudder, for example, a model boat can be made to sail straight ahead, or can be turned to port or starboard. This is a simple way of steering a small model.

Other actuator devices are also used, as for CW radio control. For example, the axle may have a rotating contact, as at B in Fig. 4. The actuator can then be brought to rest to complete the circuit to any of the fixed contacts, 1, 2, 3 or 4. These can be wired to other items, such as further relays, motors, etc. For example, if both the steering crank and rotating contact were provided, positions 1, 2 and 3 could give sailing straight ahead, or to

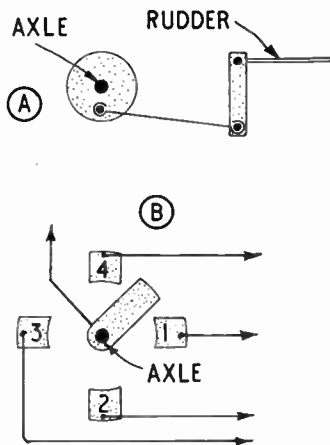


Fig. 4—Two actuator devices

port or starboard. Position 4 could complete the circuit to a change-over relay, to reverse the motor, to give sailing straight astern.

Actuators which will come to rest in any of eight positions are also used. Or the actuator mechanism can be driven by a small motor, controlled as in Fig. 2. Rotation of the motor then turns the rudder or performs other operations. In this way, large and complicated models may be controlled.

Other uses

The photograph shows ultrasonic control of a model train. The same transmitter and receiving equipment could be used for any purpose where models or apparatus are to be controlled over a short distance, without connecting wires. This could include the control of radio or TV receivers, or of mechanical devices in which the relay is used with a suitable actuator.

An easy way to repair your Books

IT is useful to be able to repair damaged books, and to reinforce one's favourite paperbacks, and the method described here is both simple and inexpensive. All that is required is a quantity of stiff cardboard, some rolls of bookbinding cloth (both of which are obtainable from good art dealers), and some gum and tube glue.

Damaged covers of old books should be removed completely, but the covers of paperbacks are best left on, unless badly torn or creased. It is better, of course, to cover these when absolutely new, rather than wait until they have had a lot of wear and tear.

Cut two pieces of cardboard $\frac{1}{16}$ in. bigger on three sides than the original cover of the book, or $\frac{3}{16}$ in. bigger with larger books. This extra is for protection of the pages within. Nothing extra should be left along the edge adjoining the back of the book.

Cut two pieces of bookbinding cloth $\frac{1}{2}$ in. to 1 in. bigger than the boards on three sides, according to the size of the book. Thick books with large covers need more overlap. Nothing should be left along the back; the overlap is merely for folding over the edges. Gum the boards to the cloth in the position shown in Fig. 1.

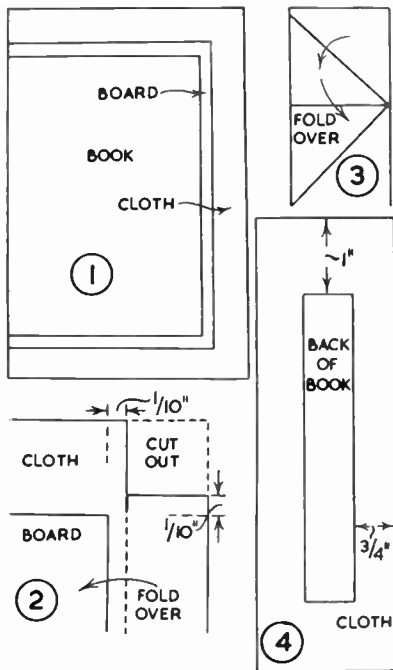
Cut out a small section of cloth at each outer corner (Fig. 2). The distance from the cut section to the edge of the board is about $\frac{1}{16}$ in. either way. Gum the edges strip, and fold over the board, pressing down firmly.

Turn in the $\frac{1}{16}$ in. left at the top, to

neaten the work, and then gum the corner and fold over diagonally. Gum again, and press firmly over the board, so as to make a neat corner.

Do each of the corners in the same way, and leave on one side to dry.

Cut a strip of bookbinding cloth,



about $\frac{1}{2}$ in. wider than the back of the book on both sides, or 1 in. wider on both sides for thicker books. The length should be 2 in. longer than the back of the book for turnings (Fig. 4).

When the covers are dry, place them in position on the back strip, making certain that there is plenty of room for the book when the covers are in their proper position. Gum the covers on to the strip.

Cut out a piece of strong white paper (cardridge paper is ideal), or fancy coloured paper, if preferred. This should be about $\frac{1}{16}$ in. less in size than the whole cover all the way round. Gum this on to the board and cloth cover already made, as a lining. Leave to dry.

When the cover is thoroughly dry, fix the book inside its new cover with strong glue. If the book is a new paperback all that is required now is to strengthen the work by putting strips of cellulose tape where the cover and book meet, both back and front. With old books, extra linings can be put in, covering the lining already in position, and spreading over the first and last pages. A glance at any book will show how this is done. With extra heavy books, reinforcement with adhesive tape is sometimes necessary before the second cover-lining is put in.

Title of book and author can be printed on the front and spine by pen in gold or white ink, but this should not be done until the cover is perfectly dry.

(E.K.)

Ideal for a youngster

MAKING THE 'PONY RIDE'

REMINISCENT of a day at the seaside, this toy is not another rocking horse, it is, as its name implies, a toy which gives a safe and realistic ride. It is safe because it cannot turn over backwards and its gentle back-

wards and forwards action is eminently suitable for even the tiny tots. It is sturdy enough, too, for use outside during the summer.

The diagram in Fig. 1 shows the side and front views and also gives some of

the main measurements whilst Fig. 2 gives the shapes in more detail. Each square in this diagram represents one inch and the various pieces can easily be drawn out. Use a large piece of cartridge paper or the back of a piece of wallpaper for this purpose.

Trace the shapes and transfer them to the appropriate thicknesses of wood by means of carbon paper. Cut the main parts with a handsaw and the shaped pieces with the fretsaw. Remember to keep the saw upright when cutting and use a fairly heavy blade.

The holes for the dowels will of course be bored in the positions shown. To prevent splitting of the wood it will be an advantage to bore before cutting out the pieces.

The thicknesses are clearly indicated in Fig. 2. Pieces A, B, D and H are cut from $\frac{3}{4}$ in. plywood and pieces C, E, F and G from $\frac{1}{2}$ in. plywood. Glue and countersunk screws are used throughout where necessary.

Clean up all pieces with glasspaper and commence assembly as indicated in Fig. 3. Glue and screw the front C and the back E to the main frame B. Next fix the head H, screwing to A from underneath. Notice that pieces C and E are chamfered to allow the seat to bed down flush. Screw down the seat and the shaped piece D at the front.

Pieces C and E are now strengthened by adding the small pieces F. Make sure that these pieces are glued thoroughly and allow for the axle holes if you are

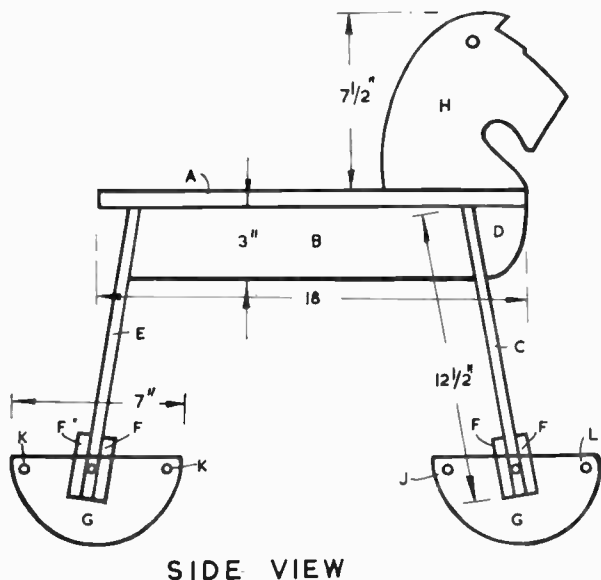


Fig. 1

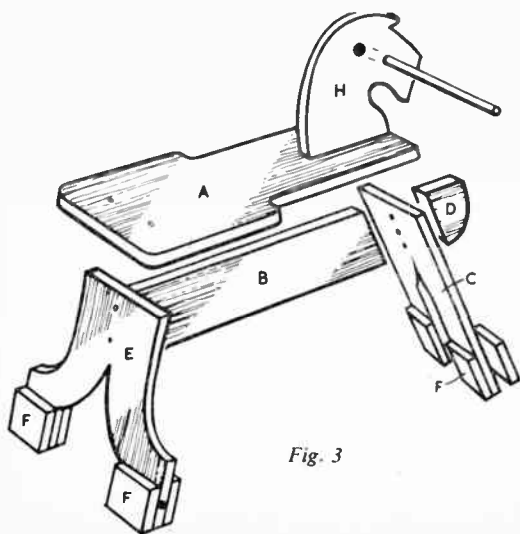
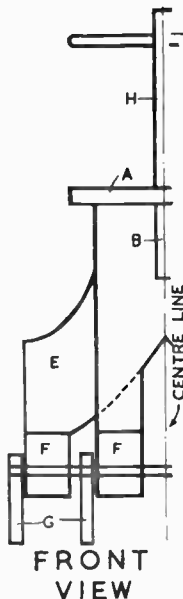


Fig. 3

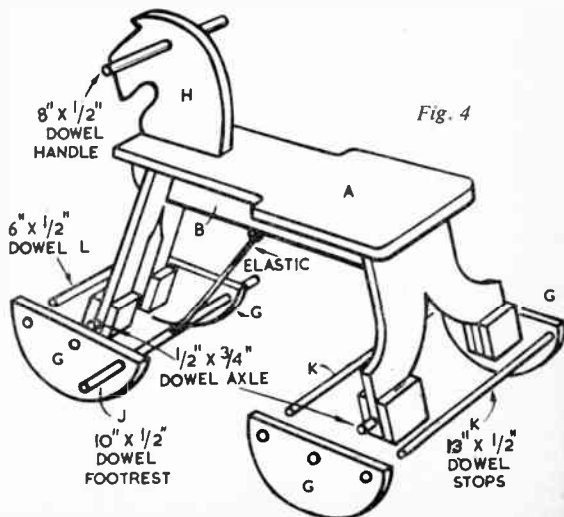
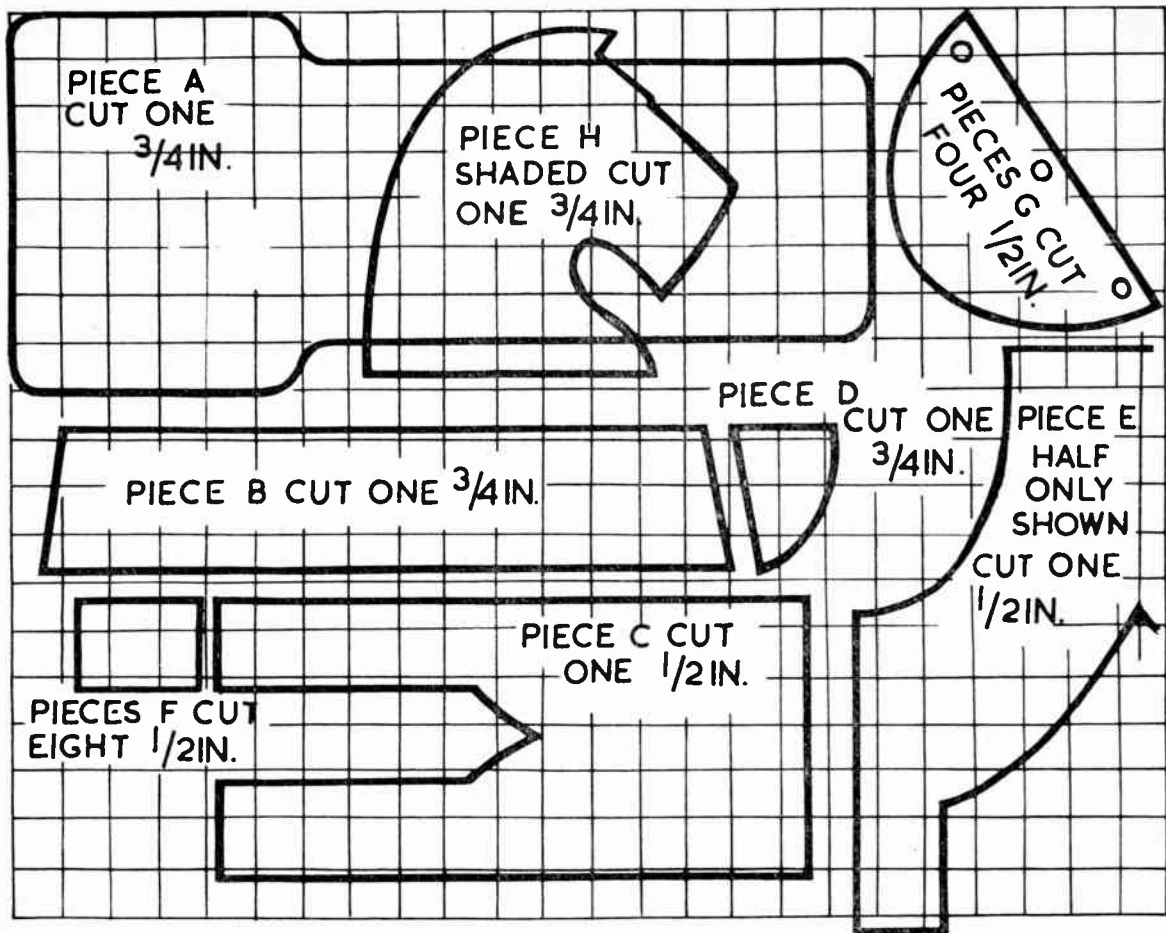


Fig. 4



1 IN. SQUARES

Fig. 2

using screws. A piece of $\frac{1}{8}$ in. diameter round rod forms the handgrip.

Continue by adding the 'feet' G, and the axles of $\frac{1}{8}$ in. diameter round rod as in Fig. 4. The axles are fixed into pieces C and E and are pivoted into pieces G. They should work quite freely and could be lubricated with a little candle grease. The three stops K are of course glued in place and similarly the 'footrest' J.

To finish off, clean up well with glasspaper. Fill the grain and go over again lightly with fine glasspaper. Give two undercoats and one top coat, rubbing lightly between coats. Colours need not necessarily be realistic, brighter colours being much more appealing to children. White with irregular patches of red will look quite effective.

The mane can be represented by a

narrow strip of carpet glued along the head and neck. The tail, if you require one, could be an old short brush, cut down and dowelled into the seat A.

Finally attach two strips of $\frac{1}{4}$ in. square elastic to a screweye in piece B and to the footrest J. This will help to return the mount to the correct riding position when the pressure on the footrest is released. (M.h.)

NEW 95m.p.h. DIESEL LOCO

A new 95 m.p.h. diesel locomotive developing 2,750 h.p. — the most powerful single-engine diesel locomotive to be built for British Railways — has gone into crew-training service on Eastern Region main lines. It is the first of a new class which has been adopted for British Railways in the 2,000 — 2,750 h.p. (Type 4) power range for

hauling express passenger and high-speed freight services. It weighs 114 tons and is just over 63 feet long.

The new locomotive is powered by a 12-cylinder 2,750 h.p. Sulzer diesel engine. Number D.1500, which has just been handed over to B.R., is the first of a batch of 20 ordered by the Commission in February 1961.

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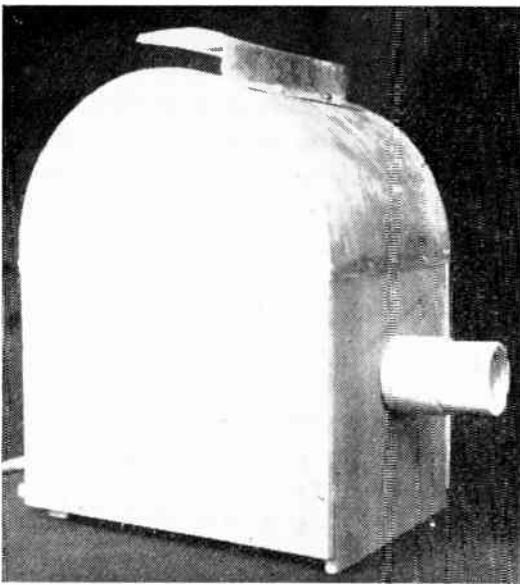
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AN EPISCOPE PROJECTOR



This popular project is in frequent demand by our readers and is described here by *F. G. Rayer*

AN episcopes projects an enlarged image of opaque objects such as picture postcards, drawings, illustrations from books, and so on. The image thrown upon the screen is in full colour, and fairly flat objects, such as some kinds of leaves and flowers, can also be projected. By making use of a mains-voltage bulb, a picture of good size and brilliance may be achieved, and the episcopes described here can give very pleasing results.

Wood $\frac{1}{4}$ in. thick is used throughout, with a metal top to help dissipate heat. A ventilated light trap is also fitted. If wood of a different thickness is to hand,

this can be used without many changes in dimensions.

Cutting the parts

Fig. 1 shows front, bottom, back, and the hinged flap, all cut from $\frac{1}{4}$ in. wood. A strip about 6 in. long and $\frac{1}{4}$ in. square is also necessary, to glue or pin on the bottom of the projector at the back.

The inside of the back, and edges of the 3 in. by 5 in. opening, should be painted flat black. The other pieces are unpainted inside. The exact diameter of the lens hole may need adjusting, to suit the lens, as explained later.

Two sides also have to be cut from

$\frac{1}{4}$ in. wood. To do this, measure off a width of $5\frac{1}{2}$ in. and draw a centre pencil line $2\frac{3}{4}$ in. from each side. At a point $4\frac{1}{2}$ in. along this line, mark the dot 'X' in Fig. 2. Using a pair of compasses, draw a circle $1\frac{1}{16}$ in. in diameter, as in Fig. 2, for the bulb holder. Then describe the large semi-circle with a radius of $2\frac{3}{4}$ in. This is the shape to which the wood is cut, as in Fig. 2. Both sides are alike, but the bulb holder hole is required in one only.

Cut a sheet of thin aluminium or tin-plate 7 in. by 10 in. to curve over the top and drill several $\frac{1}{4}$ in. diameter holes above the bulb position. The light trap, also of thin metal, bolts on above these holes, as indicated.

Another piece of flat metal forms a baffle, to prevent light falling directly on the lens. Allowing about $\frac{1}{4}$ in. each end, for fixing, this is 2 in. by 7 in. Household containers, opened along the top and baffle.

Assembly

Small panel pins and glue will hold the wooden parts together. The front overlaps the bottom by $\frac{1}{4}$ in., lifting the projector so that air can flow up through the holes. The bottom, in turn, overlaps the back by $\frac{1}{4}$ in. so that the flap can be hinged as shown. When these parts have been nailed together, one side is carefully positioned, and fixed on.

The baffle is then fitted, $2\frac{1}{2}$ in. from the bottom of the projector, inside, and $1\frac{1}{2}$ in. from the front. Two small sprigs or short screws will hold it. The second side is then attached, and the baffle secured by putting in a small screw.

The bulb holder can now be fixed in place by screwing up the ring intended to hold a shade in position, as in Fig. 3. The cover of the holder should be removed, and threaded upon a length of good quality twin flex, as supplied for table lamps, etc. The ends of the flex are bared, and held by the small terminal screws in the holder. An adaptor is similarly connected to the other end of the flex. The bared ends should be tightly twisted, and then doubled, to allow the screws to grip well. If desired, a switch of the enclosed type can be added in the flex, near the projector.

The metal top, with trap already attached, is now curved carefully over the top of the body, and held with small screws or panel pins. Begin nailing at the top, directly above the bulb, and work

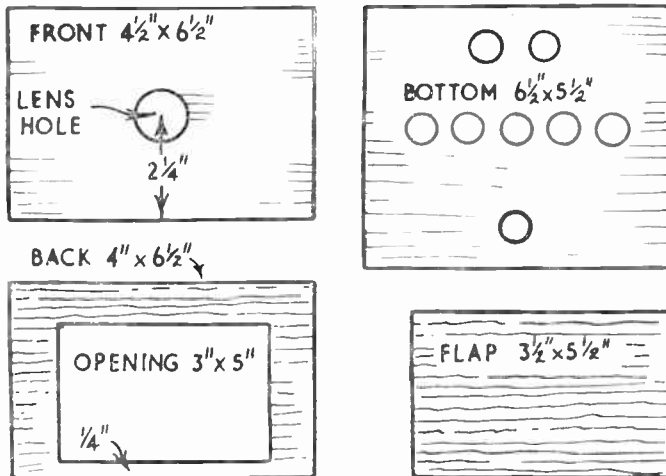


Fig. 1—Dimensions of parts

towards the ends of the sheet in both directions, to avoid any buckling or gaps between metal and sides. A few small screws will be needed along front and back edges, to hold the sheet down firmly. One back screw pivots a small catch, used to hold the flap shut.

Lens and tubes

The quality of the projected picture depends upon the lens. Simple magnifying lenses give good results near the centre of the picture, but definition falls

Lenses smaller in diameter than about $\frac{3}{8}$ in. are not much recommended, because they pass a small amount of light, so that the image thrown on the screen is less brilliant.

These points may make the selection of a suitable lens seem difficult, but this is not so. For many general purposes, a cheap single lens, such as can be bought at very low cost from suppliers of ex-service optical equipment, will be satisfactory.

The lens is fitted in a short cardboard

tube, or a tube made by rolling glued brown paper round a suitable object. Semi-circles of thin card, fixed with a spot of glue, will keep the lens in place. This tube is a sliding fit in a larger tube, which fits into the hole in the projector front, and is held there by glue.

Bulb to use

Any household bulb will be satisfactory. For a small screen, a 40 watt or 60 watt pearl bulb will suffice, especially in a well-darkened room. For a brighter picture, a 100 watt bulb can be inserted instead, or one of the powerful high-intensity photo enlarging lamps.

The bulb can be inserted through the opening in the back of the projector. With powerful bulbs, the top of the projector will grow quite hot, after a period of running.

Using the episcopo

The picture or other matter to be projected is placed between flap and projector back, the flap then being closed. Picture postcards of bright glossy type will give the best results, but any black and white or coloured illustration, etc., can be used with success.

The image may be thrown upon any white surface, some 3 ft. or so from the projector. A large sheet of glossy drawing paper will make a good screen. White fabric is poor, giving a dull picture. A wall of the room may sometimes be suitable, but dull, matt wall finishes will greatly reduce the brilliance of the image.

The lens is moved in or out, to bring the picture into sharp focus. Or the projector may be moved towards the screen, or away from it, to do this. To obtain a larger picture, move the episcopo farther from the screen, restoring sharp focus by pushing the lens slightly inwards. With a small lens and bulb, very large projected pictures will not be very bright, so it is best to keep the episcopo reasonably near the screen.

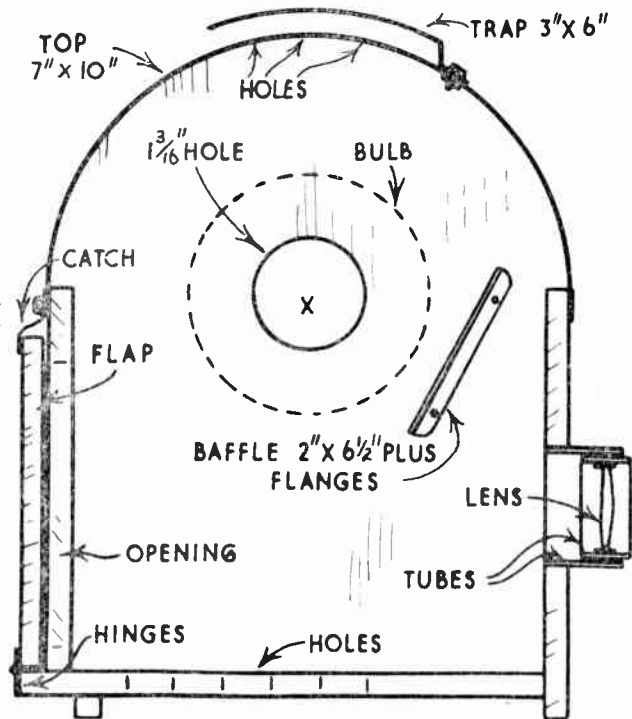
For children, many comic papers will provide suitable picture strips, which can be cut out and passed across the opening in the back of the projector. Printed matter can be cut off, and read aloud.

All episcopos of this kind project a reversed image on the screen. This is seldom important with illustrations, but means that print cannot be read. When necessary, this can be overcome by turning the projector at ninety degrees so that one side of it faces the screen. A small mirror is now set at forty-five degrees, near the lens, to reflect the image upon the screen, when printed matter will appear correctly, and can be read.

Sharper definition

The sharpness or definition of the

Fig. 2—
Assembly
Details



off towards the edges. This may not be noticed when projecting views, pictures, and similar material, but it will be a little troublesome if printed matter is projected, because the print will not be sharp near the screen edges.

Achromatic lenses are better, and consist of two lenses cemented together. Better still are doublet lenses and similar lenses designed for projectors.

The focal length of the lens is fairly important, and should be around 6 in. If the focal length is shorter, the lens will have to be set back into the projector, to get it nearer to the illustration being projected. Similarly, lenses of longer focal length will have to be fitted in a slightly longer tube, to get them far enough from the picture to be projected.

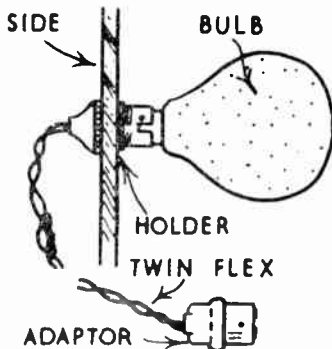


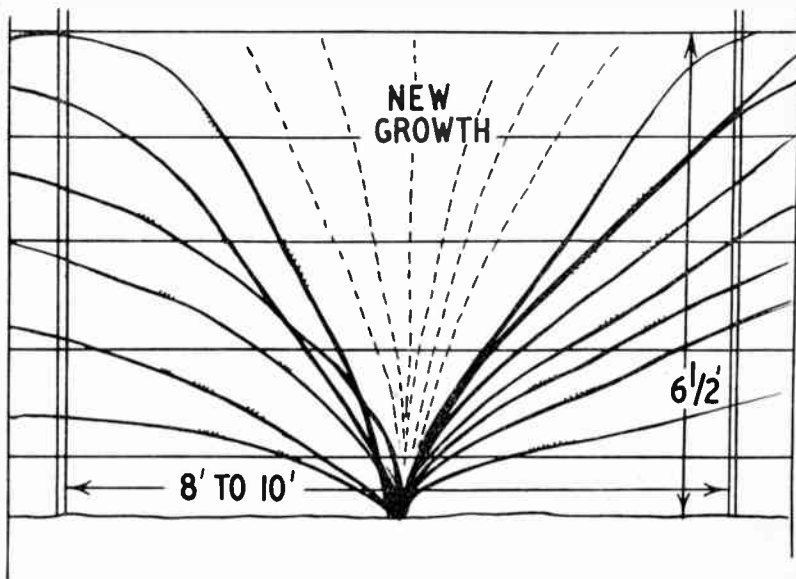
Fig. 3—Fixing the bulb



PREPARE FOR LOGANBERRIES

Of course, only a few canes will appear the first season, but these will increase the second and third years. The new growths will not fruit until the following year and during the fruiting period other young canes will be springing up. These are tied to the space left in the centre as shown.

After fruiting, the old canes are cut right down to the ground and the new growths tied in their place, leaving a central space as before. In this way the centre space is always reserved for new growth and will not interfere with the



PERHAPS not as popular as they might be, few people realise the enormous crops that loganberries can bear if treated properly. They are seldom troubled by disease or pest and can be relied upon to fruit freely year after year. If the thornless varieties are used they will be less trouble to control and they equal the others in fruitfulness.

The canes must be trained to wires which are secured to posts and pulled tight by means of straining bolts. Metal posts set in concrete are of course more durable and are probably cheaper anyway than the oak variety.

Before planting, the ground should be double dug and plenty of compost or well rotted manure incorporated in the bottom spit. Set the plants out 8 to 10 feet apart, firming them in and watering during dry spells. Planting may be done any time up to the end of March.

As the new canes progress during the

growing season they should be trained fanwise as shown in the illustration. They need not be fixed to every wire, it will be sufficient to tie here and there.

picking of ripened fruit. It also ensures that new growth is above old wood, which thus cannot contaminate the new.

(M.h.)

● Continued from page 285

THE PROJECTOR

image thrown by cheap magnifying lenses can be increased by fitting a disc of card, with a central hole, against the lens. The smaller the hole, the greater will be the improvement in definition, especially near the edges of the picture. However, very small holes will reduce the brightness of the image rather severely.

If it is possible to focus the picture sharply on one side, but not the other, this indicates that the projector, lens, and screen are not all correctly square. The projector or screen can be twisted slightly one way or the other, to correct this, and a check should be made that the lens is not crooked in the tube.

Miscellaneous Advertisements

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Classified advertisements on this page are accepted at a cost of 6d. per word prepaid Use of a Box No. is 1/- extra. Send P.O. with advertisement to *Hobbies Weekly*, Advert. Dept., Dereham, Norfolk. Rates for display advertising on application.

Replies to Readers

Tape Recorder 'Buzzing'

I OWN a tape recorder and recently needed to extend the lead on the microphone. Unfortunately the recordings made with the microphone all had a buzzing on them. Could you please advise me how to eliminate the buzzing? (A.T. — Histon).

THE microphone lead should be screened. Such a screened lead consists of a central conductor, surrounded by insulation, then with metal braiding as an external conductor. Other insulation may cover the braiding. The braiding side of the circuit must go to input chassis (e.g., the earthed side of the circuit). At the microphone there may also be a correct 'way round' for the connections.

Indicator For Tape Spools

COULD you advise on a method of speedily finding a short recording amongst several others on one tape? (J.A. — Sheldon).

ONE form of indicator for tape spools consists of a type of counter, driven by a rubber band. The counter is set to zero, when beginning the tape, and the numbers are noted down to show where items begin. A simple, less accurate

ate way is to have a scale along the spool, from pivot to perimeter, marked as exactly as possible. This scale may be held while the spool rotates. For an exact indication, a spot of thinned paint may be placed on the back of the tape.

Cleaning a Cedar Door

WE have a cedar wood garage door which has been treated with three applications of raw linseed oil, and one of boiled linseed oil. After just two years we have found that the dirt from the concrete drive has splashed up on to the door, making it look very dirty. We have tried cleaning it off without success. We still want to keep the wood in its natural colour and grain; can you advise us how to clean it, and whether there is a better way of treating the door? (M.S. — Salisbury).

IT seems that you have splashings of cement on the cedar wood door of your garage, and this could possibly be removed by careful scraping with a metal edge such as an old chisel. Any discoloration could then be removed with rough sandpaper. You might try putting a coat of clear varnish over the wood liable to be affected, as this will wash down satisfactorily.

Battery Record Amplifier

WOULD it be at all possible to make a battery amplifier for an electric record player. Also is there some way to make the coil pick up for experimenting? (O.J. — Anglesey.)

IT is quite in order for a battery-powered set to be used to amplify the signals from an electric pick-up of a record player. The turntable must, of course, be clockwork driven as dry batteries would not have sufficient power to rotate the turntable. Suitable circuit diagrams are obtainable.

Making Poster Paints

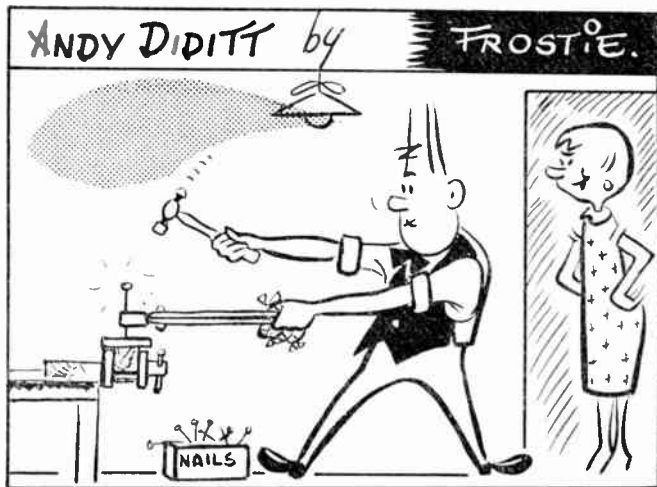
I WISH to make some good quality poster paint, if possible waterproof, and would like to know a suitable formula for making the basic colours. Is an oil base required? (J.S. — Smethwick.)

A WATERPROOF vehicle for poster colours consists of freshly bleached shellac 28 grams, borax 7 grams, water 1 litre. Dissolve the borax in the hot water, and then dissolve the shellac. It will remain in solution on cooling. A basic formula for the pigments is, we are afraid, impossible, for there are hundreds. The principle is to prepare an alumina paste of a definite strength, to mix this with various dye solutions at specific temperatures, and then to add various other chemicals. In other words, an alumina lake has to be formed, and this used as the pigment.

Improving Reception

I HAVE built a 2-transistor receiver. As it needs a very big aerial to obtain a good reception, it is impossible to use it as a portable. Is there any way in which a ferrite rod aerial can be added to give a better reception without a big aerial? (K.B. — Barnsley.)

IF the transistors are cheap surplus ones they may not give much amplification. The detector transistor TR4, in particular, should be a good one, intended for radio frequency circuits. Even with good transistors, an external aerial would be required, unless very near a station, though a few feet of wire should suffice. One way of increasing sensitivity is to use a regenerative detector. This needs some extra parts, and a good quality transistor is required for detector (TR4). Circuits, etc, appeared in *Hobbies Weekly*, dated 14th February 1962. Other improved circuits and ways of increasing volume will be found in the series on transistors (December 1961, January, February, and March 1962).



"WHERE'S THAT OLD CONFIDENCE, ANDY DIDITT?"

AN EVENING IN THE LIGHTS

IN winter the long spells of dismal, depressing weather do little to encourage the amateur photographer to use his camera. He can, of course, pass his leisure time in the comparative comfort of his darkroom, printing the stock of negatives which have accumulated during the lighter months of the year. Mounting, spotting and binding colour transparencies are other 'inside' jobs. But it is not the same as actually taking photographs, and when the urge becomes so strong that he feels he must go out with his camera, the streets of London or any of our large provincial cities and towns can offer much in the way of subjects, even after darkness has fallen.

In the not so recent past, when films and lenses were much slower than they are today, it was more of a miracle if such after dark shots came out at all and photographers had to restrict themselves

By
**Clifford
Robinson**



'Waiting for the girls'

Meeting in Piccadilly



to unimaginative subjects and static scenes giving long time exposures with the camera firmly mounted on a sturdy tripod. Today, even with the most moderately-priced equipment modern high speed films allow us to include people and life in our after dark pictures. This of course, gives them a far greater appeal.

With any camera possessing a lens that has a maximum aperture of $f/2.8$ or even $f/3.5$ and loaded with film in the 400—800 ASA speed groups it is quite easy to capture such scenes in the more brightly lit thoroughfares. The light reflected from illuminated signs, shop windows, cinema foyers, etc. can be used to good advantage. Railway stations and bus termini, too, make happy hunting grounds for the candid photographer after dark.

Exposure meters are, as a rule, most unreliable in such circumstances and just what exposure to give is best arrived at by previous experience in similar situations. However, as it can

never be more than your maximum aperture coupled with the slowest shutter speed which you can 'hand hold' without camera shake (usually around $1/30$ th to $1/60$ th of a second) this is a good basis to begin with.

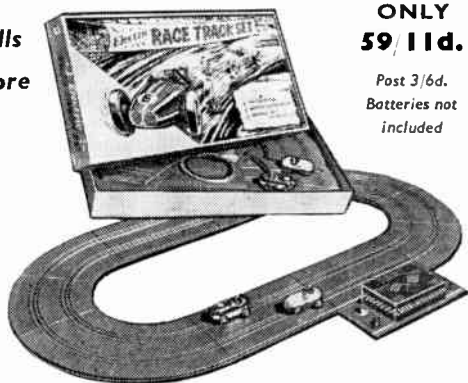
If you find that you can use, say, $1/30$ th of a second comfortably, but that less exposure than this is required with your maximum aperture, it is a good plan to stop your lens down rather than increase your shutter speed. This will give you a greater depth of field and correct any slight errors you may have made when focusing in bad light conditions. If it is necessary to use your full aperture the focusing must be accurate as the depth of field is then very shallow.

When using such shutter speeds as $1/30$ th— $1/60$ th of a second it is not always possible to arrest the movement of people in your pictures, especially if they are near the camera (say within 10—15 feet). The best time to expose then is when they pause or are standing still

● **Continued on page 290**

ELECTRIC RACE TRACK SET

**Thrills
Galore**

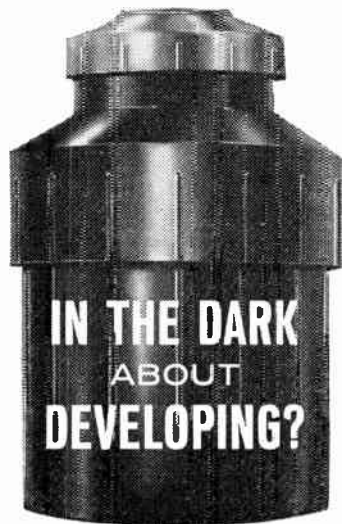


**ONLY
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No need to pay a lot of money to enjoy the thrills of toy car racing. This set by Selcol has a twin track measuring 38 in. by 20 in., easily assembled, and smooth running. The two race cars are battery-driven by very efficient minute electric motors. Each car individually controlled by push button from the control panel.

HOBBIES LTD (Dept. 99) DEREHAM, NORFOLK



It is much easier than you think to develop your own films and this new UNIVERSAL tank from Johnsons makes it easier still. You only have to load the film in the dark, the rest of the job—developing, fixing and washing—is carried out in the light. Everything has been designed for ease of manipulation and the tank is adjustable for several widths of film—20/620, 127, 35 mm./828 or 16 mm. (5 feet.) With fully illustrated instruction book. At your dealers' now, 32/6.

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Build the 'Wensum' Dinghy

Specially designed by P. W. Blandford for those who require a general-purpose dinghy which may be used under oars or outboard motor as well as sail. It has a length of 11 ft. overall, has a good turn of speed under sail, and is suitable for racing.

Construction has been simplified as much as possible without sacrificing performance. It is one of the cheapest craft of its size designed for home construction.

FULL-SIZE PLANS AVAILABLE

Complete plans for building the 'Wensum' Sailing Dinghy are available from Hobbies Ltd, price 16s. 0d., plus 9d. postage. The plans include all the information needed to build the boat — full-size drawings of the frames and other shaped parts, several other detail drawings, a material schedule and step-by-step instructions — for rowing, outboard motor, and sailing.

Write for plans now to Dept. 99

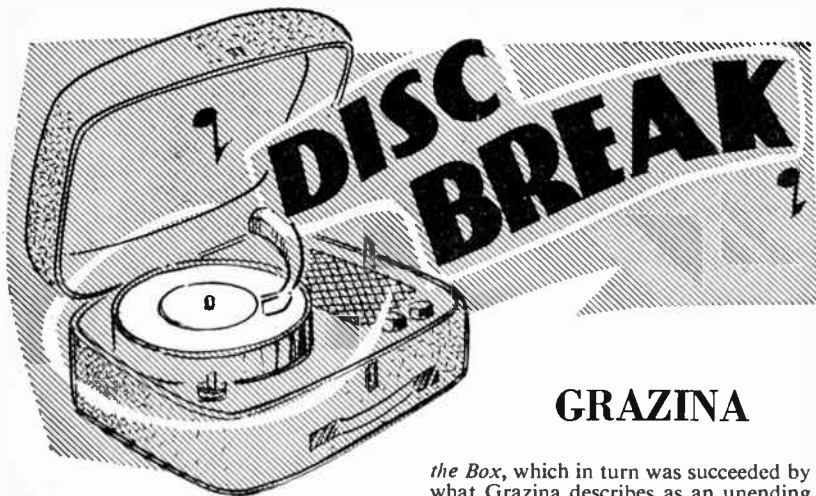
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289

World Radio History



Plans for other dinghies from 6 ft. available. Also many types of canoes. Ask for details



GRAZINA

the Box, which in turn was succeeded by what Grazina describes as an unending chain of singing and acting parts on television.

Grazina trained at The Aida Foster Drama School, and as she advanced in her teens, she became known as a talented actress, and powerfully appealing singer.

The biggest break of her early career came when Lionel Bart decided that she was just right for the juvenile lead in 'Blitz', which was such a huge success.

In response to the public demand for her to release a record Grazina signed a contract with Robert Stigwood Associates to act as her recording managers, and guides in the record industry.



Consequently, *Lover, Please Believe Me*, backed by *So What* was released last November. (H MV 45 — POP 1094).

Known as 'The voice of the stars', Grazina, under her stage name of Grazina Frame, has recently been the singing voice of: Yvonne Romain in *The Frightened City*, Carole Gray in *The Young Ones*, and Laurie Peters in *Summer Holiday*.

BORN in Blackpool in November 1941 of Polish parents, lovely singing star Grazina was deprived of her father at an early age. He was killed whilst on active service with a Polish squadron of bomber command.

After the death of her father, Grazina's mother brought her to London, and she went to school at St. Martin's Convent in Hampstead.

She nurtured ambitions to go on the stage, and her ambitions were first fulfilled when at the age of 12 she played the juvenile lead in a television Christmas play *A Time to be Born*. This she followed by a series on television called *Jack in*

● Continued from page 288

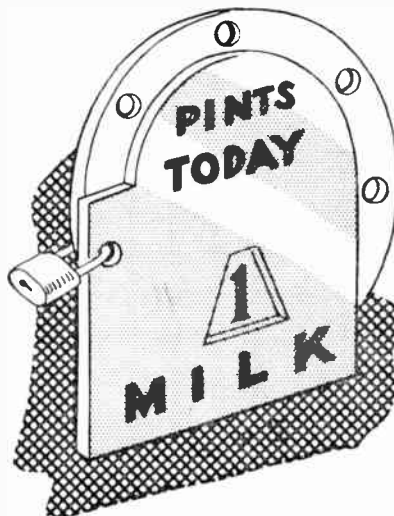
Out with a camera

for a moment looking at something which happens to have caught their eye, such as the goods in a shop window, photographs in a cinema showcase, or perhaps when waiting for a friend or a bus.

As the subject is rather a contrasty one consisting of bright highlights and heavy shadow areas, over development must be avoided at all costs. Prolonging the development time may increase the density of your negatives, giving an impression of increasing the speed of your film. But it will be at the expense of increased contrast and grain, making them extremely difficult to print. A thinner, normally developed negative without burnt-out highlights is much more desirable and will give better results.

The accompanying illustrations taken in the West End of London will I think convey just what can be done when out with a camera after dark; it is certainly an interesting subject and one which I heartily recommend to readers.

SAFETY MILK INDICATOR



FULL-SIZE PLANS
ON OPPOSITE PAGE

THERE is no need to be the subject of a practical joke and find yourself with twelve pints of milk instead of one. Once you have set the indicator in the correct position, nobody can tamper with it. A small padlock is put through the holes coinciding at A and locked. The principle can of course apply to other commodities such as bread.

The indicator consists of two pieces 1 and 2, cut from $\frac{1}{4}$ in. exterior grade plywood. The two are well painted and pivoted together in the centre. The numerals are now painted in the space provided, moving the circle 2 round one space at a time, ensuring that the small circles coincide at A each time. You will of course paint in the amounts that you are likely to require.

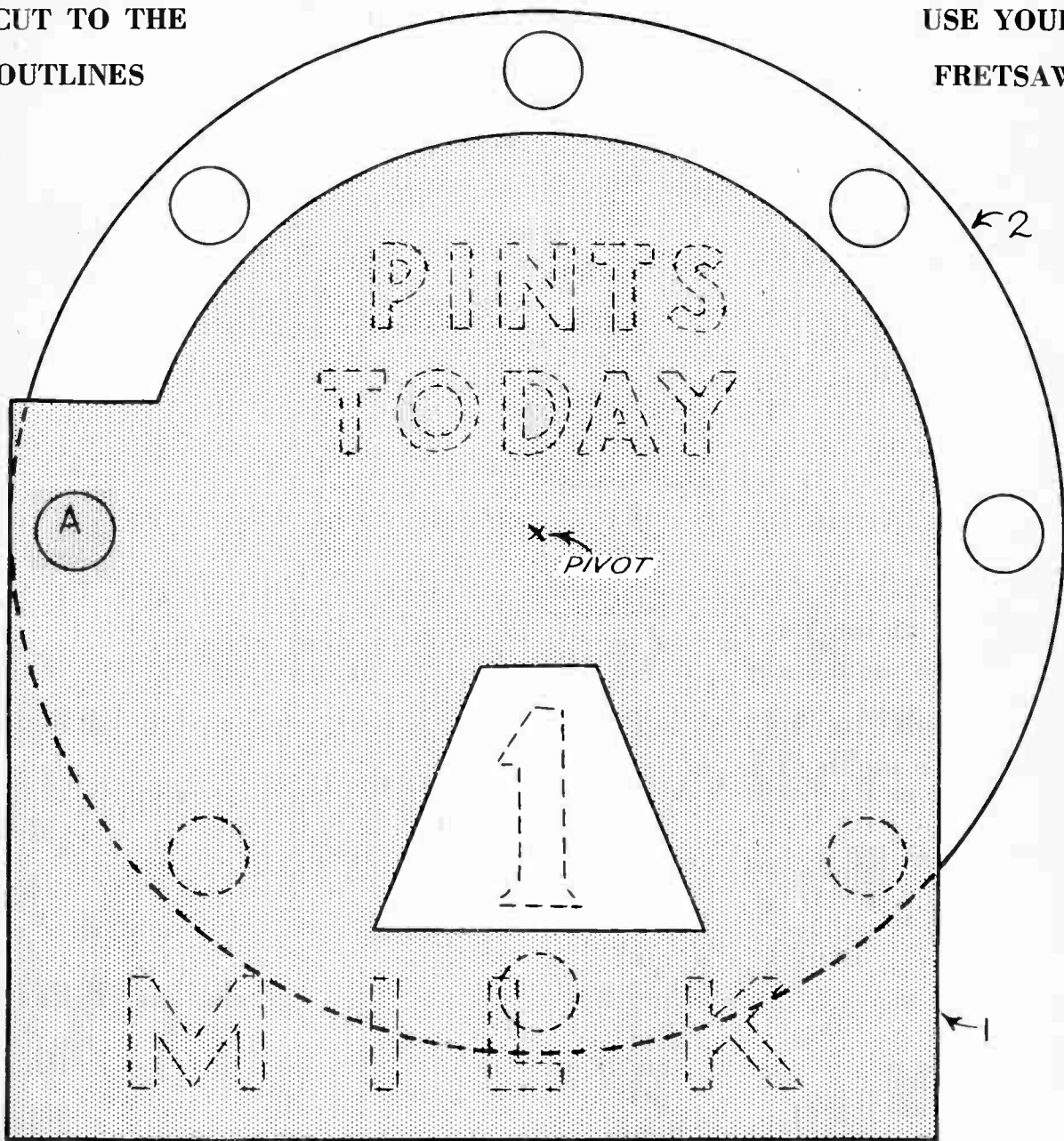
On the face of piece 1 the words shown can be neatly painted. Simply stand the indicator in position behind the milk bottles.

(M.h.)

PLANS FOR THE SAFETY MILK INDICATOR

CUT TO THE
OUTLINES

USE YOUR
FRETSAW





CHARMING MUSICAL BOXES



'GONDOLA' BOX
No. 3388. For trinkets or
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14/6 (post 2/-)

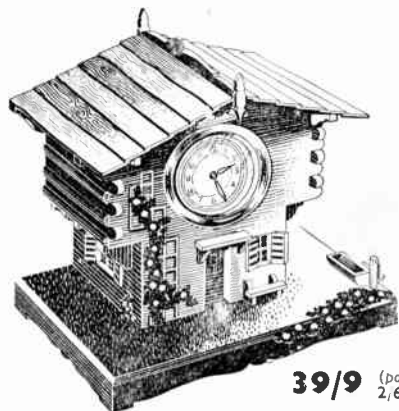


MUSICAL
SWISS CHURCH
No. 3364. Holds about 30 cigarettes.

10/11 (post 2 -)



No.261 Special. Bird rotates and
whistles when drawer is opened
for a cigarette. Kit for Box 14 11
(post 2/3), Mechanism (with bird)
24/9 (post 9d.) extra.



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SWISS CHALET CLOCK
No. 263 Special. A 30-hour clock set in a Swiss
Chalet, which is also used as a cigarette box.
A No. 1 Musical Movement can also be added to
play when the roof is lifted for a cigarette. An
outstanding novelty.

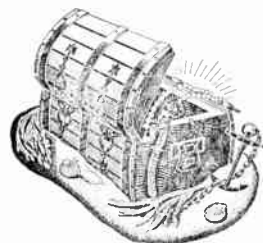


ILLUMINATED MUSICAL
SWISS CHURCH
No. 256 Special. Full kit contains
materials, paint, glue, electrical
fittings, etc.

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Kits and Musical Movements from
all Hobbies branches or direct
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**HOBBIES LTD (Dept. 99),
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TREASURE CHEST
MUSICAL TRINKET BOX
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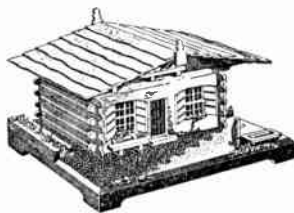
Charming reproduction of a pirate's
treasure chest.

15/9 (post 2/-)



TWO-STOREY
MUSICAL SWISS CHALET
No. 255 Special

Kit contains materials,
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SWISS CHALET MUSICAL
CIGARETTE BOX. No. 3152

Kit for chalet **8/6** (post 1/3)

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Choice of 28 Tunes

(One Tune per Movement)
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The Knick-Knack Song
Anniversary Waltz
Jingle Bells
O My Papa
Blue Danube
Vienna, City of my Dreams
The Harry Lime Theme
Brahms' Lullaby
Parade of the Wooden Soldiers
Church Bells Air
The Bridge on the River Kwai
(Col. Bogey)
Ave Maria de Gounod

Silent Night
Limelight
Moulin Rouge
Greensleeves
Tales from the Vienna Woods
Home Sweet Home
Swedish Rhapsody
Be'l's of St. Mary's
Blue Bells of Scotland
Irish Eyes are Smiling
Auld Lang Syne
Auf Wiedersehn
On the Street where you live
Some Enchanted Evening

Price 14/11

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IMPORTANT — When ordering please give 2nd. & 3rd. choice

23rd JANUARY 1963

VOL. 135

NUMBER 3502

THE ORIGINAL
'DO-IT-YOURSELF'
MAGAZINE

HOBBIES *weekly*

FOR ALL
HOME CRAFTSMEN

MAKE HER THIS

Also in this issue:

MAKING A
WEATHER INDICATOR

COLLECTORS' CLUB

A NOVEL CONTAINER

MAKING AN
ACCUMULATOR
CHARGER

PLANT STUDY
AS A HOBBY

DISC BREAK:
JOHNNY DE LITTLE

ETC., ETC.



TOY ELECTRIC COOKER



Up-to-the-minute ideas

Practical designs

Pleasant and profitable things to make

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 ★ stamped addressed envelope and ★
 ★ reply coupon inside back cover. ★
 ★★★★★★★★★★★★★★★★★★

THE theme of the new stamps issued by Uganda and fully illustrated here is 'Building a Greater Uganda', and the designs range under four main headings. Brief details of the stamps are:

AGRICULTURE AND LIVESTOCK

10 cents. Tobacco growing. Four million pounds of tobacco of all types are produced each year in Uganda. The crop from this 6 ft. high plant, sown and

and named after the President of the Royal Geographical Society, are now the central feature of a 1,100 square mile Game Park.

50 cents. Mountains of the Moon. The Ruwenzori, or the Mountains of the Moon, is the only snow-capped range in equatorial Africa.

SOCIAL SERVICES

1/-. Mulago Hospital. The scene depicts a radiographer at work with the outline of the vast new Mulago Hospital in the background. The building is a

£2.3 million project with bed accommodation for 867 people, and is situated on the outskirts of the capital, Kampala.

1/30. Cathedrals and Mosque. This stamp was designed as a tribute to the great part played by the various religious missions in the early development of Uganda.

2/-. Makerere College. This stamp illustrates the rapid advances in the field of education.

20/-. Parliamentary Buildings. This fine building was opened on 19th September 1960.

GRAND NEW STAMP ISSUE UGANDA

picked annually, is an important feature in the economy of the areas in which it is grown, providing the whole or part of the livelihood of some 60,000 people.

15 cents. Coffee growing. Coffee, a major agricultural industry in Uganda, produces 40 per cent of the country's overseas earnings.

30 cents. Cotton. The largest producer of cotton in the Commonwealth is Uganda where the crop is a source of wealth which slightly exceeds that earned by coffee.

20 cents. Ankole Cattle. This breed, which is resistant to tropical tick-borne diseases, has a good hide for leather production, and contributes towards the beef and milk needs of Uganda.

COMMERCE AND INDUSTRY

5/-. Copper Mining. The copper industry finds employment for many people and provides a valuable contribution to the economy of Uganda.

10/-. Cement Industry. The Uganda Cement Industry Ltd. was the first cement factory to be built in East Africa. It has annual output capacities of 190,000 tons of cement and 30,000 tons of lime.

TOURISM

5 cents. Murchison Falls. The Falls, discovered by Sir Samuel Baker in 1864,



As illustrated on front page:

TOY ELECTRIC COOKER

THIS toy is carefully modelled on the real thing, and provides the young cook with an imitation oven, grill, hot plate, and plate warming compartment. Everything in fact for some 'fancy' cooking. If carefully sanded and painted, it will look most attractive and realistic.

The front and side views in Fig. 1 give the main measurements, and show the arrangement of the various doors and shelves. The overall height is 28 in., and

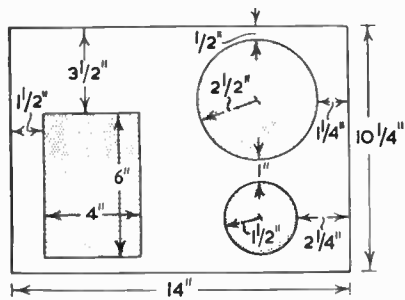


Fig. 2

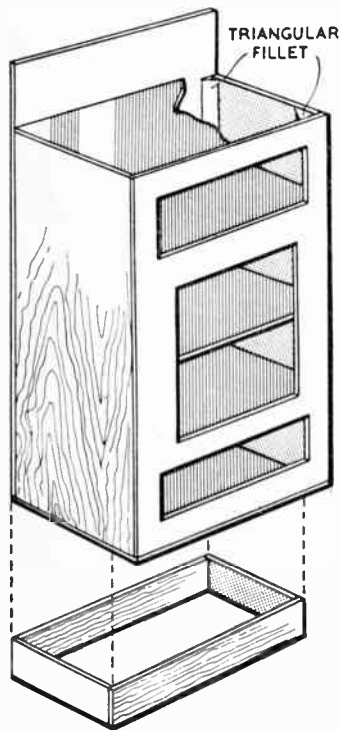
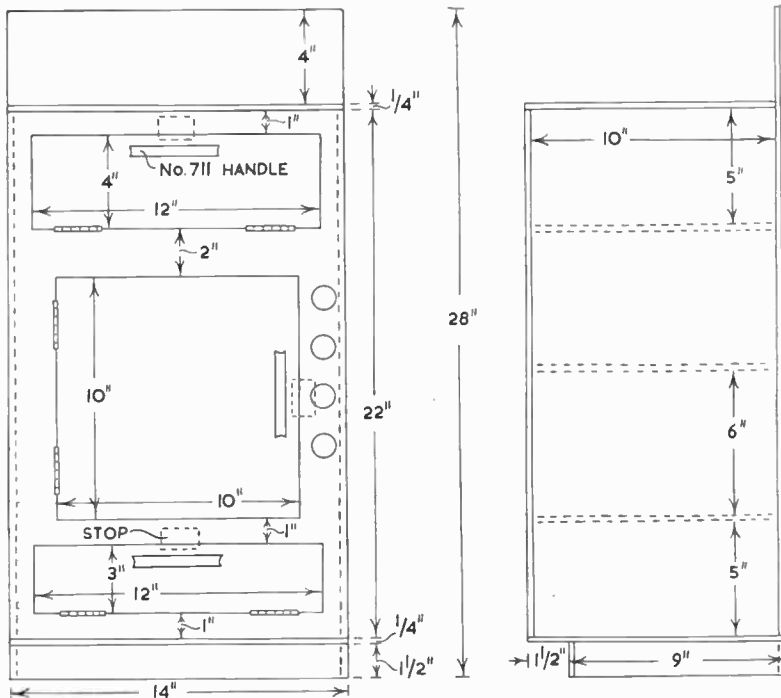


Fig. 3



FRONT VIEW

Fig. 1 SIDE VIEW

the width of the front 14 in. The material used is $\frac{1}{4}$ in. plywood throughout, strengthened by triangular fillet in the corners.

The hotplates are marked out on the top as shown in Fig. 2, and painted black. Alternatively, they can be cut

C/S HOLE

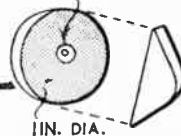


Fig. 4

from thin card, and glued on. The doors are cut from the front, using a fretsaw, and are hinged back in place. Start the saw by drilling a small hole at one corner.

The diagram in Fig. 3 shows the main pieces glued and pinned together with the shelves in place. Note that the sides are fixed between the front and back. The top is broken away to make the construction clear. The plinth is also

● Continued on page 264

WEATHER INDICATOR

THE device described here is as reliable a weather forecasting aid as the normal household barometer, yet it costs only a few pence for materials, is easy to make, and requires no maintenance at all.

Whereas a barometer responds to changes in air pressure, an equally accurate indication of the trend in climatic

with the chemical solution, made up from the chemicals given in the materials list, and then allowed to dry. By warming it in front of a fire, all the moisture may be driven off, and the resulting brilliant blue shade should be matched with appropriate paint on the arrow marked 'Very Dry'. If water is now sprayed on, or the indicator is held for a few moments in steam from a kettle, a deep red colour will result. The arrow marked 'Very Wet' at the other end of the scale should be similarly tinted to match this shade. The intermediate colourings are not too difficult to determine if a reasonable selection of ordinary water colours is available.

The indicator in operation

The 'active' part of the apparatus is the cobalt chloride, which changes colour with the amount of water it contains, and it is the only essential ingredient. The other chemicals are used because they are hygroscopic, i.e., they attract moisture out of the air, and, therefore, serve to increase the sensitivity of the device.

In practice, no difficulty will be experienced in using or understanding the gadget, because the blotting paper and the arrow it matches form a pointer aiming directly at the weather conditions to be expected. It is important, however, that the indicator be hung in a hallway or porch, so that external air reaches it. Air inside a room is usually drier than

MATERIALS REQUIRED
12 grams of Cobalt Chloride.
6 grams of ordinary Salt.
3 grams of Gum (almost any kind will do).
2 grams of Calcium Chloride.
1 fluid ounce of Water.
1 piece each of White Blotting Paper, Drawing Paper, and Plywood of convenient sizes.

that outside, and would result in a misleading forecast.

Those who possess some artistic ability can easily create a more novel version by painting a landscape picture which has an area of sky coated with this solution instead of paint. The scene will, consequently, always mirror the prevailing conditions by depicting a sky which is clear blue in fine weather, but which turns threateningly red as a storm approaches.

● Continued from page 263

TOY ELECTRIC COOKER

shown in this sketch. Corners can be strengthened with triangular fillet or stripwood if necessary.

Hinge the doors in place as indicated in Fig. 4, using 2 in. light brass hinges. The handles are shown in position in the sketch, but they should be removed for painting. Stops are made from small pieces of waste plywood, and glued in the positions shown in Fig. 1. It is unlikely that the doors will need catches, but these can, of course, be provided.

The switches are small circles of $\frac{1}{4}$ in. wood pivoted to the front by means of countersunk screws. These will not be screwed in place until painting is complete. The shaped portion is glued on after pivoting.

When construction is complete, all parts are carefully sanded smooth, and the grain filled. This is important if an enamel finish is to be obtained. Give two coats of white undercoat, and rub down again. A final top coat of white enamel will give a smart high gloss finish. The interior can also be painted if desired, and suitable markings painted on the switches. (M.h.)

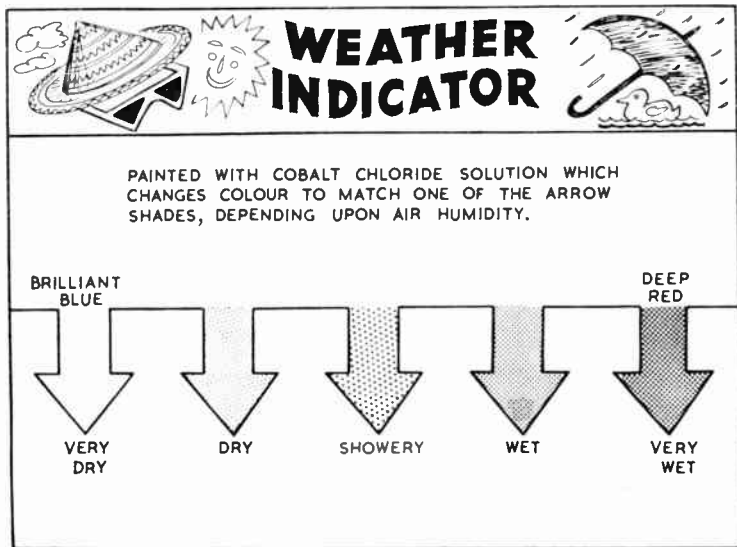
By W. R. Spence

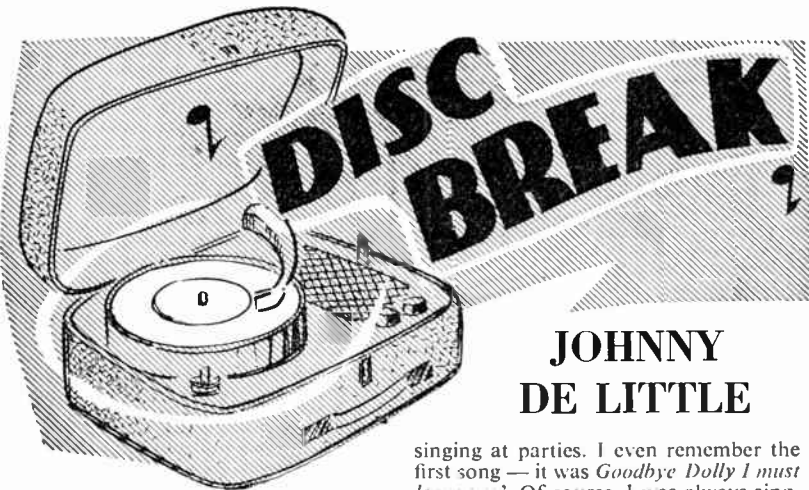
conditions is obtainable, in this country at least, by noting variations in air humidity or 'wetness'. These are clearly shown on this Indicator by significant changes of colour, and the model is best constructed during the winter months, as it may then be more thoroughly tested in preparation for its most useful purpose of predicting good weather when summer comes.

Construction

The drawing paper is first pasted on to the wooden support, and the blotting paper affixed across the upper half. Five pointers as shown in the illustration are then outlined on the drawing paper ready to be painted with water colours. The actual shades will vary from blue to red, and must be found by trial and error in the following manner.

The blotting paper is coated liberally





JOHNNY DE LITTLE

singing at parties. I even remember the first song — it was *Goodbye Dolly I must leave you*. Of course, I was always singing around the house'.

'When I was about 16 I had my eye on a concert party which toured the working men's clubs of South Wales. They called themselves The Bright Lights, and I asked for an audition. I passed the audition, and sang with them for eighteen months or so'.

At the age of 17½ he joined the Royal Army Service Corps. He signed on for a regular engagement of three years, and served most of his time in York. Within a fortnight of joining the Army he was singing at a concert in an Aldershot garrison theatre. But when he was sent on an N.C.O.'s course, he began to wonder whether his singing days were over.

'On this course we had to literally scream out orders to the drill squad, and



my voice started to go. I really thought it was 'goodbye' to a singing career, and seriously thought of signing on in the Army.

But Johnny, complete with singing voice, was demobilized from the Army in November, 1958. He decided to find a job in York, and before long he was working as a bus conductor. Johnny — and his songs — soon became well known to the regular passengers who nicknamed him 'Young Top Twenty'. In December, 1959, he won his first regular singing engagement — at the Chase Hotel in York.

'I knew that John Barry's home was in York, says Johnny so I went along to see his father, who arranged an audition for me in his own Rialto Cinema in York. While I was singing on the stage — the song was *Clementine* — John himself happened to walk in. He asked me to change the key in which I was singing — to test me out, I expect — and when I had finished, he told me that he liked my style and technique, and that he would try to find some good song material for me'.

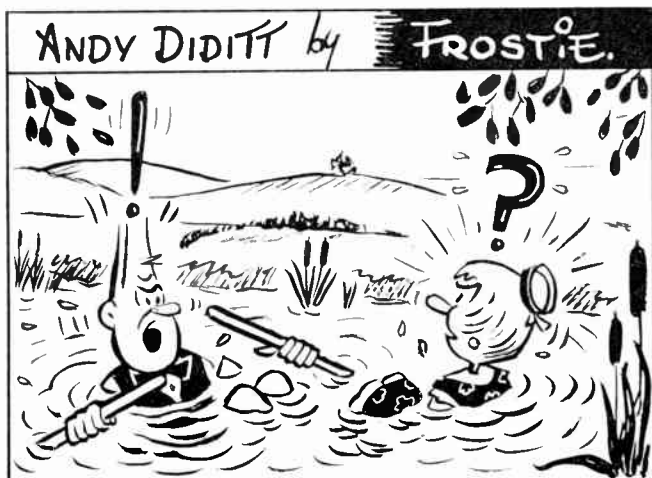
John Barry was as good as his word. He found a song called *Not Guilty* for Johnny — and was also responsible for his disc debut on the Columbia label with the same song. The coupling was a song called *They*, and on both sides Johnny had the backing of the John Barry Orchestra.

Johnny De Little is 5 ft. 10 in. tall, he weighs 11 stone, has brown eyes and brown hair. On Columbia 45-DB4907 Johnny sings *Lover* coupled with that old favourite, *You made me love you*.

SOME people enjoy a film so much that they go to see it twice — or three times. Perhaps even four. But Johnny De Little liked 'The Al Jolson Story' so much, that he saw it eight times! As far as he was concerned the sequel, 'Jolson Sings Again', was tops, too. (Yes, he saw that eight times as well).

But it was really 'The Jolson Story' that convinced Johnny that show-business was definitely for him. Born in the South Wales mining village of Penrhiwceiber on 4th August 1937, he began singing at an early age.

'But back home in that Welsh village', says Johnny, 'good singing voices were practically ten a penny! I went to school in the village, sang in the school choir and, when I was nine or ten, started

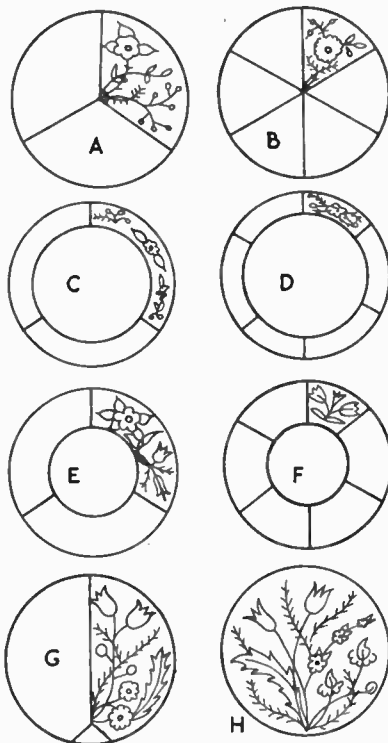
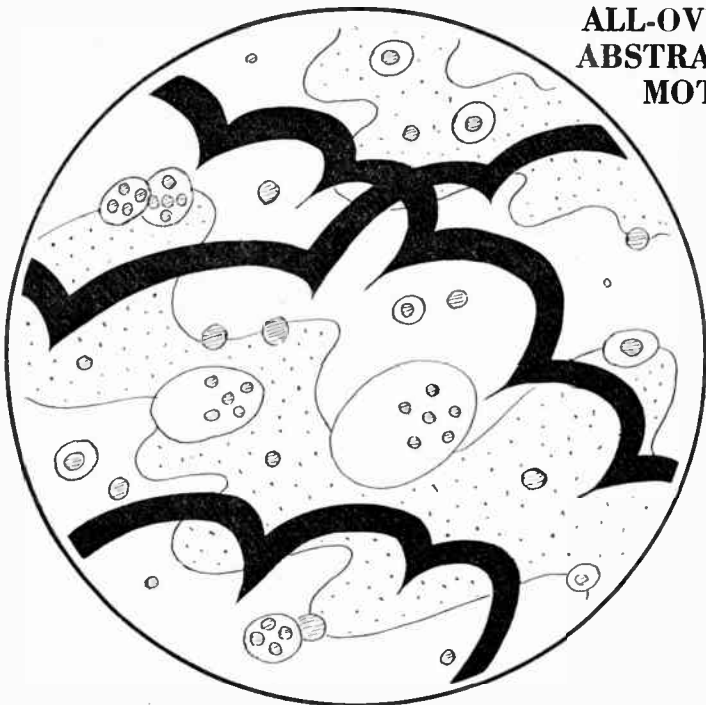


"MA, HAVE YOU GOT THOSE STILETTO'S ON!"

PLAQUE PAINTING ON WOOD-2

ALL-OVER ABSTRACT MOTIF

THE hobby of painting on wood is really a double one, firstly, the collection of different motifs from museums, books, fabrics and wallpapers, and their arrangement and classification in a notebook, and secondly, the drawing and painting of your own design on the wood. It is thus a hobby which offers quite a bit of variety, and can be pursued at odd moments, as well as on special occasions when it is convenient to take up a fair amount of space on your desk or on the kitchen table.



ABSTRACT DESIGNS are usually regarded as being the easiest to draw. There is absolute freedom of choice in the shape of motifs, and even those who cannot draw a plant or use a ruler accurately can produce effective work in this style. These designs fall into line with modern tendencies in art and are used a great deal in textile and wallpaper design today. A design is classed as abstract if it consists of lines and shapes not recognizable as being of plant or geometrical origin, but, of course, there is a certain amount of overlap in both directions.

GEOMETRICAL DESIGNS are, as the name suggests, made up of straight lines, curves and geometrical figures, drawn very carefully with the aid of ruler and compasses. These designs can be repeated without use of tracing paper, and are consequently easier to do for those who have a natural aptitude for exact measurement. Examples of this type of design can be found in the art of any period or country, and is at its best in some of the Celtic work found in the 'Book of Kells', although floral and animal motifs are also found in this book.

In the examples of motifs from historic ornament, these designs are usually taken from plant or animal life, but each country or period has its own characteristic way of adapting these forms which is easily recognizable.

Develop your own style

In drawing directly from nature oneself, one can quite soon develop one's own individual style. It is not usual to copy the specimen exactly when making designs; the main features only are noted and adapted to one's purpose, always remembering that the parts of the plant taken must be botanically correct in general structure even if without detail. For instance, in making a design with holly, it would be wrong to render it in a naturalistic manner as a climbing plant, but a certain amount of liberty is allowed in number and arrangement of leaves and berries.

The more stylized the drawing (that is, the less natural), the more liberties may be taken, as will be seen in the Persian drawings of bluebells, carnations, etc.

In constructing a design from certain selected motifs (unless of a geometrical or abstract nature), a 'scaffolding' of smoothly curving lines is necessary on

How motifs can be arranged:

- A Three sectors
- B Six sectors
- C Third of border repeated
- D Sixth of border repeated
- E and F Wider border
- G Two repeats
- H All-over design

which to build up the pattern. The aim is to have not more than 3 or 4 different motifs which go well together, and to draw them in large enough to leave the minimum of background.

A mistake with beginners is always to have numerous tiny motifs of assorted types, spaced at wide intervals with no coherence or unity at all. This, apart from any considerations of artistic value, is much more niggling to paint, especially on wood, and does not show up well at a distance. The spaces between the designs should be of a pleasing shape, as far as this is possible.

Regarding colour, it is well to avoid having the three primaries, (red, blue and yellow) together, or with green. Children, on opening a paint box, go directly for yellow or red, followed by blue and green. It does not seem to occur to them that some sort of a scheme for colour ought to be used. With older people, some have a natural flair for colour, others are at a loss.

Therefore, a good method to follow is to have three or four colours only in the design, one of them being black or grey, or alternatively, to choose a colour family, that is toning shades or tints of one colour such as green or brown. Then

use with them one contrasting colour, with or without grey or black.

If it is desired to make the plaques look really old, shades of browns, oranges and fawns, with not much contrast should be employed. Alternatively, a brown varnish used at the end, instead of a colourless one, is very effective.

THIS IS THE SECOND AND CONCLUDING ARTICLE BY

Edna Knowles

For wood untreated with size or any other preparation, two coats of varnish are necessary, the second only to be applied when the first is thoroughly dry.

When proficiency has been gained in making single plaques, it will then be time to set about making something a little more ambitious. It will be necessary to be able to cut your own wood, or to have a friend in the trade, unless you are prepared to spend much more money on purchasing the best white wood materials.

Very attractive for presents, are sets

of circular mats for the table, in different sizes. Do not make the mistake of decorating these with holly or mistletoe, as it is certain that your friends will quickly tire of these designs if they wish to use the mats all the year round!

For continual use, designs should be unobtrusive and tasteful, like the better class fabrics and wallpapers, from which, incidentally, you can often get remarkably good ideas for designs.

It is of the utmost importance to choose restrained colour schemes which will tone in with any furnishings or decorations your friends might adopt. This is especially important if you are producing a pair of wall plaques, and it is worthwhile, even at the sacrifice of the element of surprise in your gift, first to find out from the recipient, the kind of design and colour scheme he or she favours; that is, if you do not want to have your work put away in a drawer.

It is simple to progress from flat plaques and mats to designs for small boxes, egg cups, table napkin rings, book ends, letter racks and so on. The scope for this kind of work is enormous, and with practice it will be found that it is just as easy to decorate solid objects as flat pieces of wood. (P.P.)



More examples of Persian (left) and Jacobean (right) motifs as described in the text. Ideas of motifs for other historic ornaments, such as Egyptian and Chinese, can be gained by visits to museums with your notebook

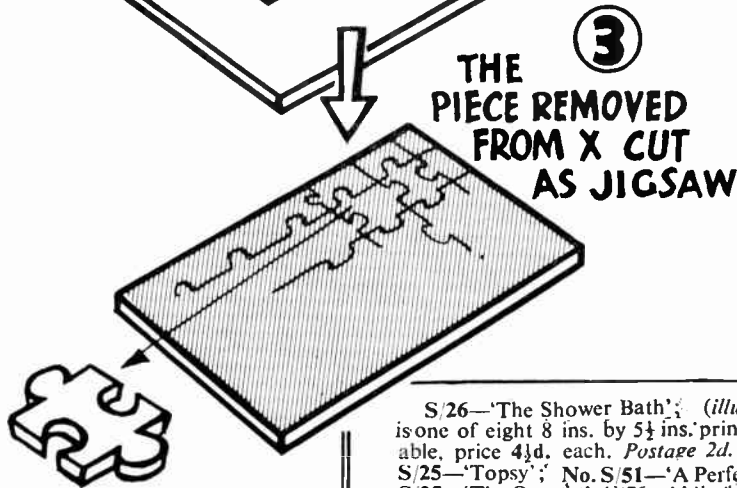
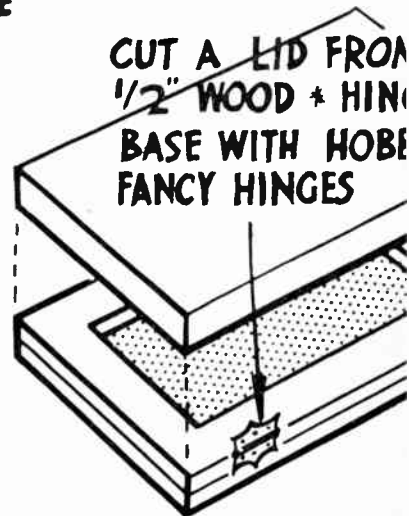
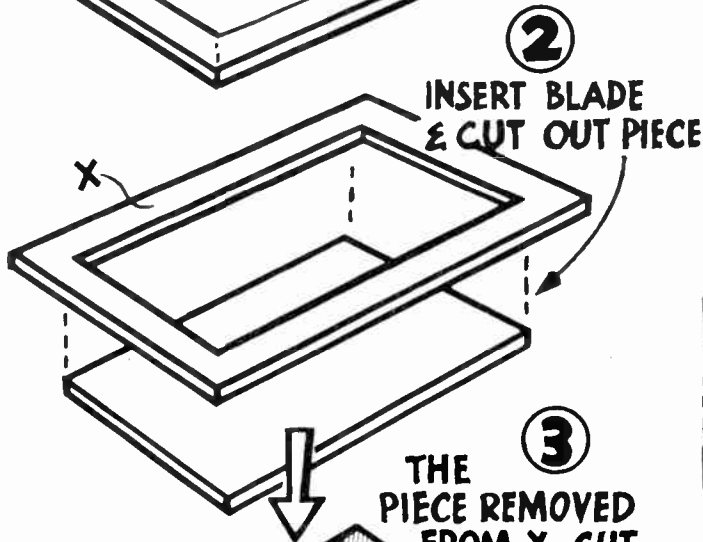
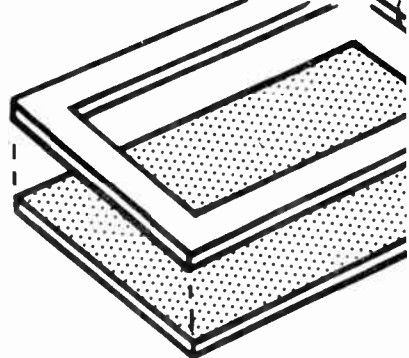
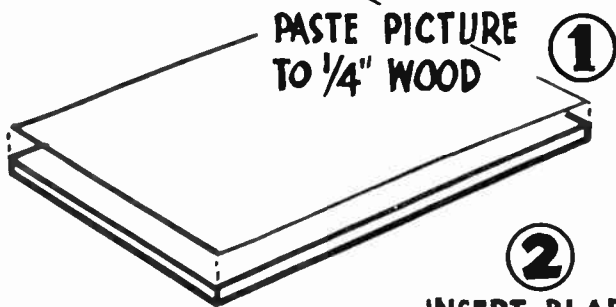
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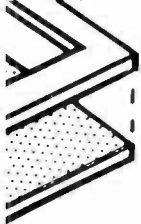
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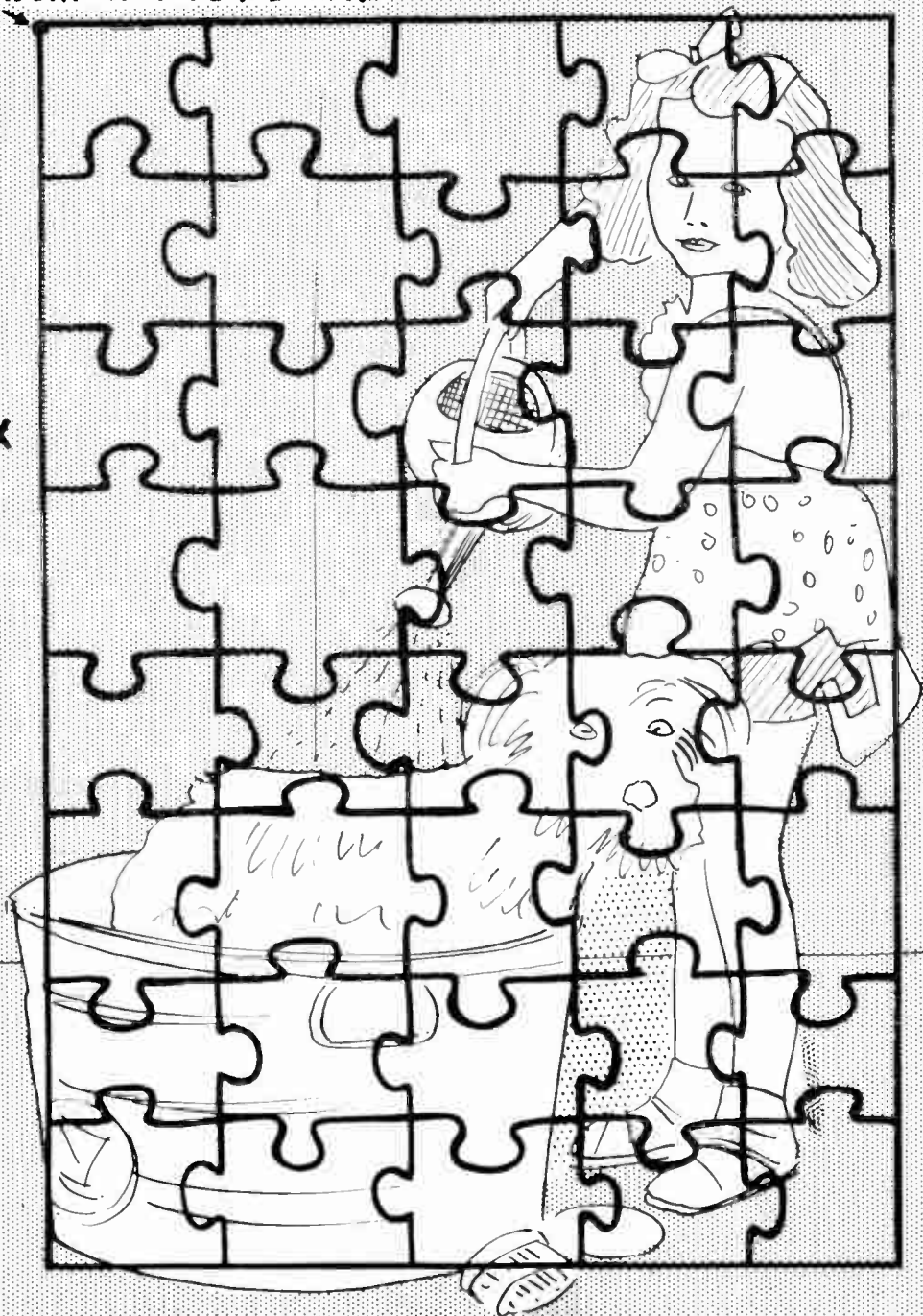
5

GE TO
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FOR
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Charge your Batteries at Home

THE accumulators which are used in scooters, motor-cycles, and vehicles, or for driving models, can easily be charged at home. Vehicle accumulators may become rather discharged during winter months, due to the increased use of lights, or difficult starting. If so, a home charger which can be put on for a few hours, or overnight, will prove very helpful indeed. Other accumulators, such as may be used for models, can also be kept in good condition.

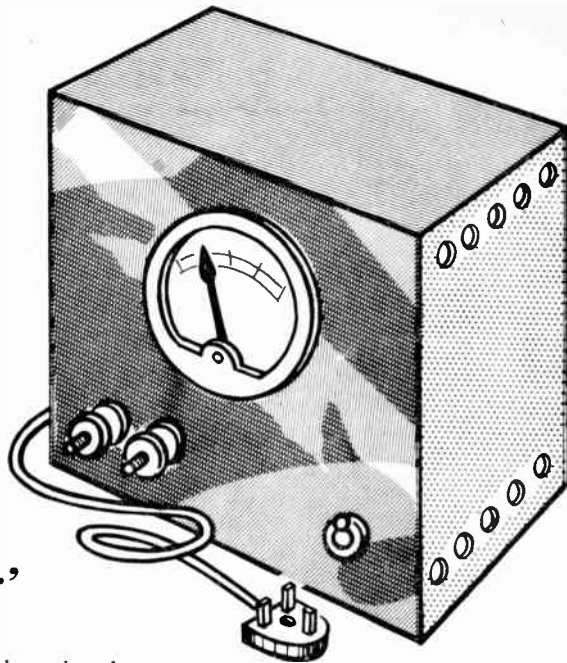
A typical charger circuit is shown in Fig. 1. It is operated from the usual house A.C. mains. The transformer reduces the voltage to the required figure, and isolates the battery circuit from the mains. The output from the transformer is also alternating current, and the rectifier changes this to direct current. The meter shows how much current is flowing into the accumulator.

The same kind of circuit may be used for any ordinary purpose, such as charging small 2V., 4V. or 6V. accumulators, or the larger 6V. and 12V. accumulators fitted in vehicles.

Output required

The transformer and rectifier have to be chosen to suit the *maximum* output which will be wanted. For home charging, even of vehicle batteries, an output of more than 4 amperes will never normally be required. Car and similar

By
'Modeller'



accumulators can be charged at lower currents, such as 2 amperes, the charger being left switched on longer, to compensate for the smaller current. So a transformer and rectifier rated at 2 amperes will do for many purposes. For small accumulators, more than 2 amperes is seldom needed, and 1 ampere can be sufficient.

A transformer and rectifier may be used for lower charging rates than maximum, so a large transformer and rectifier will be suitable for small accumulators, as well as larger batteries. But if large accumulators will never be charged, there is no point in obtaining a transformer and rectifier able to deliver a heavy current.

Normally, a transformer and rectifier for 2 amperes would do well for most purposes. But if the charger is to be made for fairly rapid charging of vehicle batteries, 4 ampere transformer and rectifier will be required.

No harm arises from charging a large battery at a low rate. If the rate is very low, this is termed 'trickle charging'. Vehicle batteries can be trickle charged overnight at 1 ampere, or so. There is no need that the charging current should be at any particular figure, except that the *maximum* rate should not be exceeded. This maximum rate is marked on the battery, or is listed by the maker. Small batteries have maximum charging rates as low as 1 ampere.

Battery voltage

The charger output voltage needs to be suitable for the battery. Each 2V. cell rises to about 2.6V. to 2.8V. when fully charged, so the transformer delivers a slightly higher voltage than that of the battery. For 6V. accumulators, a 10V. transformer is suitable. For 12V. batteries, the transformer can deliver 18V.

Batteries of lower voltage may be charged, if needed. For example, if the charger is made to deal with 12V. accumulators, it can also be used for charging 6V. batteries, or even single 2V. cells. But there is no point in providing for a 12V. output if small batteries, such as 6V., will always be handled.

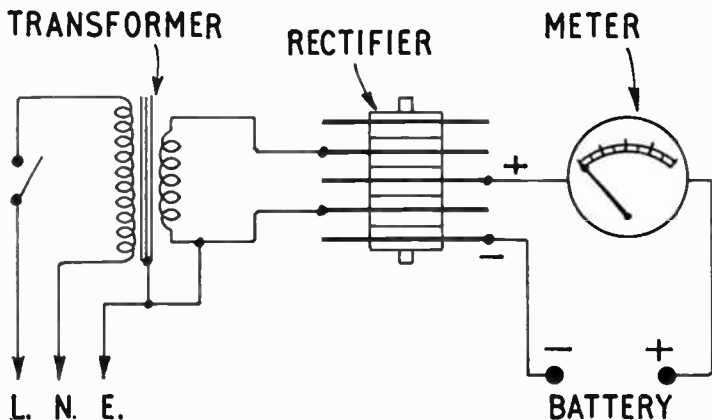


Fig. 1—A battery charger circuit

For a single output voltage, choose the transformer and rectifier as mentioned. For example, a 18V. 4A. transformer and rectifier for charging 12V. batteries at up to 4 amperes, or a 10V. 2A. transformer and rectifier for 6V. 2A. and so on.

For a range of output voltages, a transformer with a tapped secondary is convenient. These are easily obtained. The transformer may have two outputs, such as 10V. and 18V., for 6V. and 12V. accumulators. Or it may have several tappings, giving from 2V. upwards.

Another method of reducing the charging rate so that small batteries can be charged from a large charger, is to add a variable resistor in one lead, such as between meter and battery. A wire-wound resistor able to carry the required current must be used. The resistor is merely adjusted until the meter shows the charging current required.

The meter is useful to show what current is flowing. It can be for 0-4 amperes, or anything similar, to suit the charger.

Construction

The components can be assembled on

a wooden baseboard, with an insulated panel, as in Fig. 2. Terminals for battery leads, meter, and mains switch are mounted on the panel. If the charger is run from a handy wall socket with switch, the switch on the charger is unnecessary.

A 3-core flexible cord is used for mains connections, and current is best drawn from a 13A. plug fitted with a 3A. or similar small fuse. In Fig. 2, black is wired to the transformer primary, and red to the switch. The green lead is used to earth the transformer and secondary, so that no danger can arise due to mains voltages in the battery connections. At the plug, take green to the large earth pin, black to the 'Neutral' pin, and red to the plug fuse terminal.

The rectifier is mounted on brackets. Positive and negative connections should be followed correctly, as the accumulator must always be charged with positive and negative connected as shown.

If the transformer has a tapped secondary, sockets on the panel will allow any required voltage to be selected. If a variable resistor is used, as

described, it can be mounted to the left of the meter, above the terminals.

A case should be made, to protect components, and avoid any danger of touching mains circuits. This case can be of hardboard or plywood, with some rows of $\frac{1}{4}$ in. holes, for ventilation.

Charging

The meter cannot show any current, unless a battery is connected. Flexible leads, equipped with clips or spade ends to suit the battery, are taken from charger to battery.

The condition of a cell or battery is often found by using a hydrometer to check the specific gravity of the acid. The hydrometer is a graduated float inside a glass tube with rubber bulb. When acid is drawn up from the cell, the float in the hydrometer shows the S.G. of the acid. With a fully discharged cell, the S.G. is about 1.15. If the S.G. is around 1.2, the cell is somewhat discharged. When the cell is fully charged, the S.G. rises to 1.275 to 1.3. It is thus only necessary to continue charging until the S.G. has risen to about this figure.

The fact that a battery is nearly run down is also shown by a drop in voltage, so that lights or other items begin to fail. It should then be recharged as soon as possible. Each 2V. cell should not be discharged to such an extent that its voltage falls to less than 1.8V. When a battery is fully charged, the voltage of each cell will rise to 2.6V. or so, and cells will be gassing freely.

Some idea of the time required to charge an accumulator can be gained by dividing the ampere-hour capacity of the battery by the charging rate. For example, a 40AH battery, charged at 2A., will require somewhat over twenty hours.

If a battery voltage is rather low, the charging meter will show a fairly heavy current when the charger is first switched on. As charging continues and the battery voltage increases, the meter reading will fall back. This is quite usual.

The acid level in a battery will fall due to evaporation, and distilled water should be added when necessary so that the plates are always covered. A naked flame or light should not be brought near an accumulator.

If acid is spilled from a cell, the acid level should be made up by adding more acid of the same S.G. as that in the cell. Sulphuric acid is used, and its S.G. may be lowered, if necessary, by adding it to distilled water. Concentrated acid must never be diluted by pouring distilled water into it. Instead, the water is placed in a vessel, and acid poured into the water. Diluted acid, of about 1.3 S.G.,

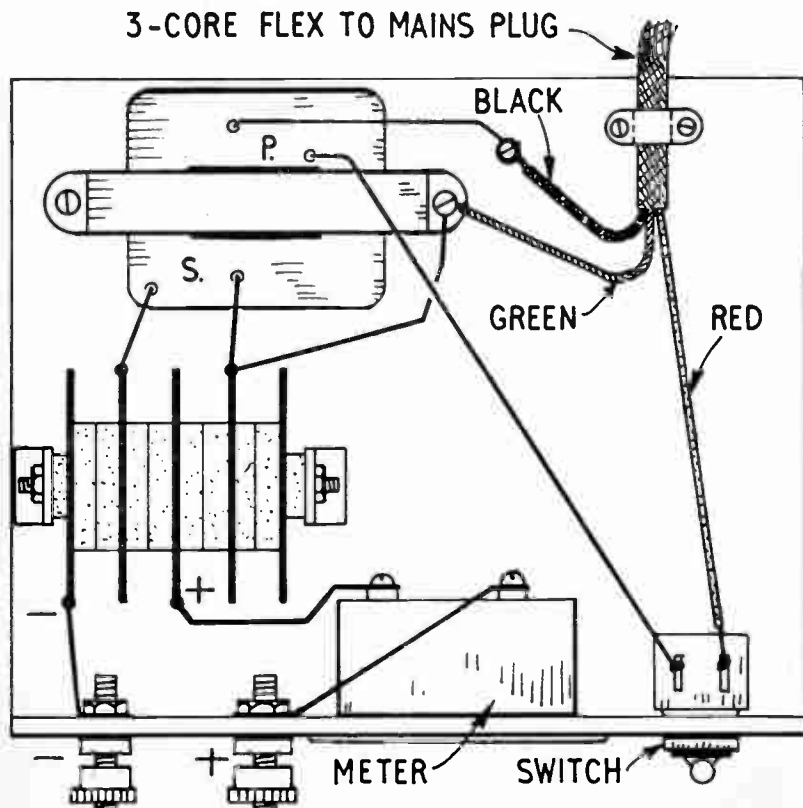
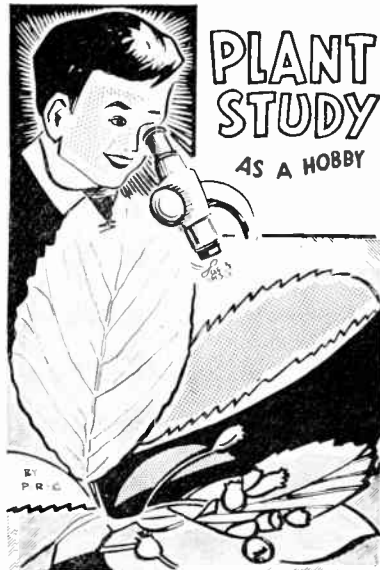


Fig. 2—Practical wiring diagram



PLANT STUDY

AS A HOBBY

Red Algae (Rhodophyceae)

Although the names of the classes are based on the colour, the members of each class have definite common characteristics, either of structure or methods of reproduction, and these are more reliable for classification than the colour, since some 'green' algae are red, and some 'brown' and 'red' algae are green.

Algae are able to manufacture their own food from carbon dioxide and water by means of the green pigment chlorophyll in their cells (the green colour is masked by other pigments in those algae that are not green in colour).

2 - ALGAE

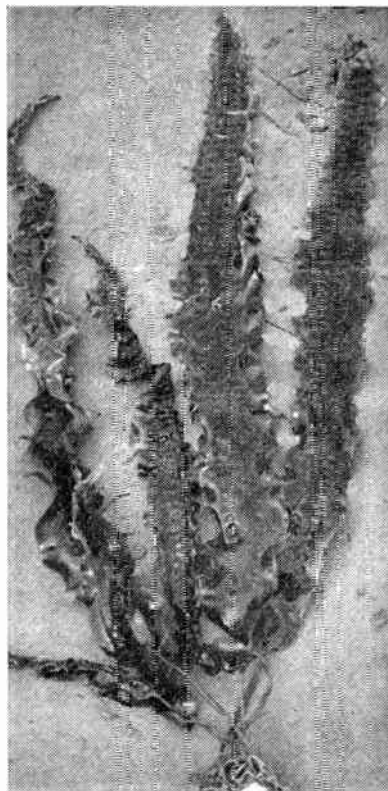
By P. R. Chapman

All plants, except fungi and some parasites, are able to do this. Consequently, algae need light, and will not grow in darkness. They do, however, require moisture, for, unlike the higher plants, they do not possess a waterproof cuticle. They must, therefore, grow either in water, as most of them do, or in damp situations.

The blue-green are the simplest of the algae, and are not well-known, for although abundant, they are microscopic. One species, however, is bright red in colour (another example of unreliable colour classification), and the colour of the Red Sea is due to the presence of this minute plant in vast numbers. Some of the blue-green algae are associated with fungi to form the curious 'combined' plants known as lichens, of which we shall speak later.

Green Algae. Some of the commonest of all algae are included in this group, and, indeed, the algae most frequently seen, apart from seaweeds, is one of these. This is *Protococcus viridis*, familiar as the green covering on trees, fence posts, rocks, etc.

All algae must either live in water or exist in a moist atmosphere, since with their simple structure they cannot afford to dry up. Therefore, although *Protococcus* is widespread on land, it is to be found mostly in moist places. On trees and posts it occurs usually on the north side, not because it shuns the light, but because the less sunny side is the moister. This, of course, does not apply if the whole situation is moist or shady. If some of this green material is scraped off, smeared on a microscope slide with a little water, covered with a cover slip, and examined, it will be found to consist of single cells, often grouped together in clumps. Reproduction of *Protococcus* is by simple division of the



Wavy fronds and 'holdfast' can be seen in this washed-up specimen of *Laminaria saccharina*

cells, and when they divide, they tend to stick together.

Swimming plant

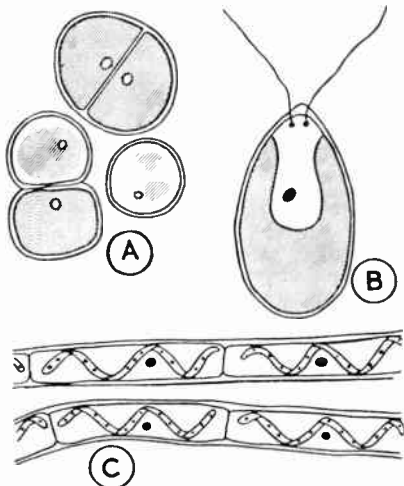
Another common green algae to be found in ponds and ditches is *Chlamydomonas*. It is often so abundant that the water is coloured green. This is also a microscopic plant, and is remarkable in the plant world in that it is able to swim about in the water by means of two whip-like threads. These, known as flagella, act rather like the arms of a breast stroke swimmer, pulling the tiny plant through the water.

Those who have read John Wyndham's *Day of the Triffids* will remember the huge, vicious walking plants. In our study of botany, the minute, harmless *Chlamydomonas* is the only plant that we shall meet capable of real movement. If some water containing these plants is placed in a bottle covered with black paper, but with a small hole in the latter, and placed in bright light for some hours, the green colouring will be seen to be concentrated around the illuminated area. *Chlamydomonas* swims towards

A PART from flowering plants, some of the most familiar and widespread members of the plant kingdom are the algae. They are particularly noticeable at the seaside, for all the seaweeds come into this group. There is, therefore, a great variation in size amongst the algae, from the microscopic single cells of ponds and ditches to the gigantic kelps hundreds of feet long to be found in tropical seas.

The algae are divided into four groups, according to the colour:

- Blue-green Algae (*Myxophyceae*)
- Green Algae (*Chlorophyceae*)
- Brown Algae (*Phaeophyceae*)



Three microscopic Algae. (a) *Protococcus* (b) *Chlamydomonas* (c) *Spirogyra*

the light. Of course, under a microscope, the plant can be seen swimming.

One of the commonest of pond algae is *Spirogyra*. This forms long green hairy filaments, often as a dense scum on ponds and sometimes inside aquariums, where it has probably been introduced with the more usual water plants for this purpose. The filaments are composed of elongated rectangular cells, joined end to end.

Spirogyra owes its name to the spiral ribbon-like chloroplast, containing the plant's chlorophyll. This algae can be identified easily by the fact that the filaments are surrounded by a layer of mucilage. This gives the plant a characteristic slimy feel. *Spirogyra* can reproduce by separation of the cells of the filaments, each cell growing into a new filament. Also, different filaments can come together in the process of conjugation, the result being a zygote, which is an oval-shaped body capable of surviving difficult conditions.

At the seaside

A number of green algae can be

● Continued from page 271

ACCUMULATOR CHARGER

will be convenient to use, as a stronger acid is not required.

If the plates of a cell are sulphated, due to it having been left discharged, a long charge, at a very low rate, may help remove this.

With jelly and similar 'dry' accumulators, a little distilled water should be added at the vent, before charging. After charging, any surplus is poured away.

Jelly and dry batteries are most conveniently charged at the rate marked on them. For example, this may be given as '20 hours at 1 ampere, or equivalent'. An equivalent charge would be 40 hours at $\frac{1}{2}$ ampere, and so on. However, the maximum charging rate shown on the battery should not be exceeded.

The top of a battery should be kept clean and dry. If terminals are kept clean, and smeared with Vaseline, this will prevent corrosion, which may otherwise be troublesome.

New batteries, obtained dry, should be filled with acid of the S.G. indicated by the maker. Batteries which are supplied 'dry charged' may then be put into service at once, or given a short refresher charge.

If a filled battery is stored, it should be charged, and given a further charge every two months or so. Accumulators in regular use can be given a period on charge when there is any indication that this is needed, so that they are always kept in good charged condition.

found at the seaside, although these are outnumbered by the brown ones. One of the most common of the greens is the Sea Lettuce, or *Ulva latuca*. This is to be found on rocky shores, and consists of bright green crinkly sheets, somewhat slimy to the touch. The sheets (correctly called the thallus) consist of two layers of cells. Although *Ulva* is usually to be found throughout the year, it is most abundant during July and August, which is convenient for those on holiday who wish to look for it.

Brown Algae. These are marine plants and include some of the largest of all the algae. In fact, excluding the trees, these algae are among the largest of all plants. All the large seaweeds to be found on the shore are in this group, as well as many small ones. All these plants contain the green chlorophyll, but the colour is masked by the presence of other pigments, so that these plants can vary from olive green to a definite brown.

These algae are 'zoned' along the shore, according to the amount of drying-up they can stand; the very large ones such as the kelps and laminarias only grow in deep water where they are covered at all times. Those who don't mind getting really wet in their botanical studies will find some interesting large algae of this type by examining the sides of rocks in water about 2 ft. deep at low tide. (Better not to do this unless you can swim, in case of an accidental stumble, and of course, you need to be suitably clad.)

Sugar content

The distance to which the tide recedes depends upon the phase of the moon. At full and new moon we have spring tides (nothing to do with the season), when the tide both comes in and goes out the farthest, and this is the best time to look for the kelps. *Laminaria saccharina*, so called because it contains a sugar, is easy to recognize, because of its long fronds, crinkled, and with wavy edges. Another is *Laminaria digitata* with finger-like fronds. Both these algae have a thick stem-like structure terminating in a 'holdfast', by which means they fasten themselves to the rocks.

Other very common brown seaweeds are the wracks. Bladder wrack (*Fucus vesiculosus*) is probably the best known of all the seaweeds. Its fronds contain gas-filled bladders which children love to 'pop'. These, by giving the plant buoyancy, enable it to float more vertically from its holdfast.

The serrated wrack (*Fucus serratus*) is similar in size, but its fronds have no bladders, and have serrated edges. The wracks live higher up the shore than the laminaria, and are exposed to the air for quite long periods between the tides.

Although they may dry up and appear almost dead, they recover when they are once more submerged.

Red Algae. These are also almost entirely sea plants. They are rather small and very varied in form; some being feathery, others thread-like or even leaf-like. There are, in fact, so many different types that it would be quite impossible to describe them in detail here. They cannot stand drying out like the wracks, and mostly live below low-tide level. However, some can be found in rock pools. They are mostly beautiful, delicate little plants, and well worth searching for.

An interesting collection of seaweeds can easily be made during the summer holiday. The kelps are mostly too large, but the others are very suitable to gather. The wracks can be simply washed in fresh water to remove the salt, and pressed between sheets of newspaper until quite dry, when they can be stuck to paper sheets with name and details of where and when found.

The more delicate green and red algae are better floated on to a sheet of white paper from a bowl of water. If the paper is gently lifted from the water, the plant will retain its shape quite well, and can be dried out. It will usually stick to the paper without any additional aid.

Next. The Fungi.

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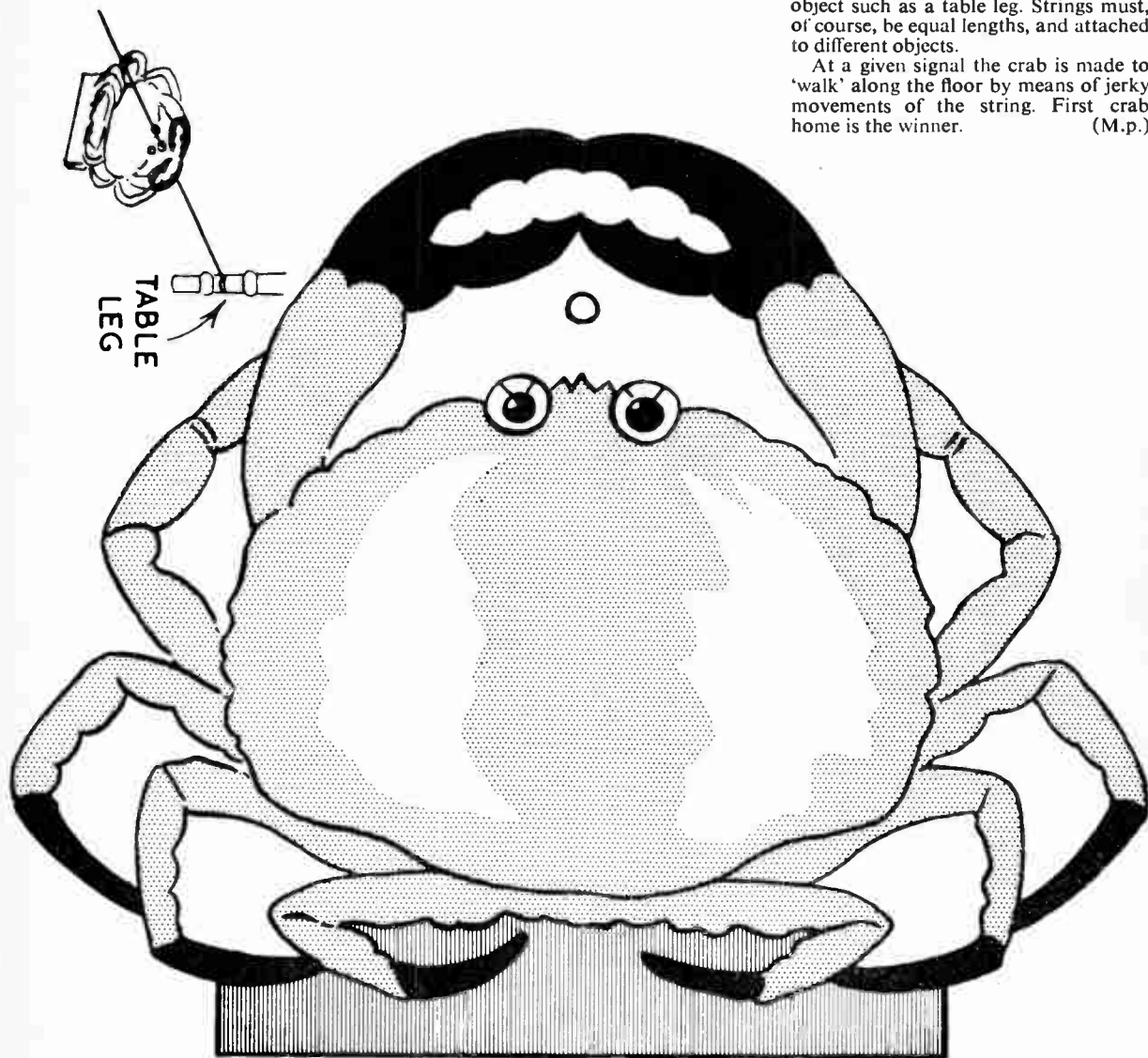
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USE YOUR
FRETSAW

THIS is an exciting game for two or three persons. Cut two or three crabs, to the outline shown, from $\frac{1}{4}$ in. plywood. Colour them orange and black.

To play the game a length of string, about 10 ft., is passed through the hole near the claws, and is attached to some object such as a table leg. Strings must, of course, be equal lengths, and attached to different objects.

At a given signal the crab is made to 'walk' along the floor by means of jerky movements of the string. First crab home is the winner. (M.p.)



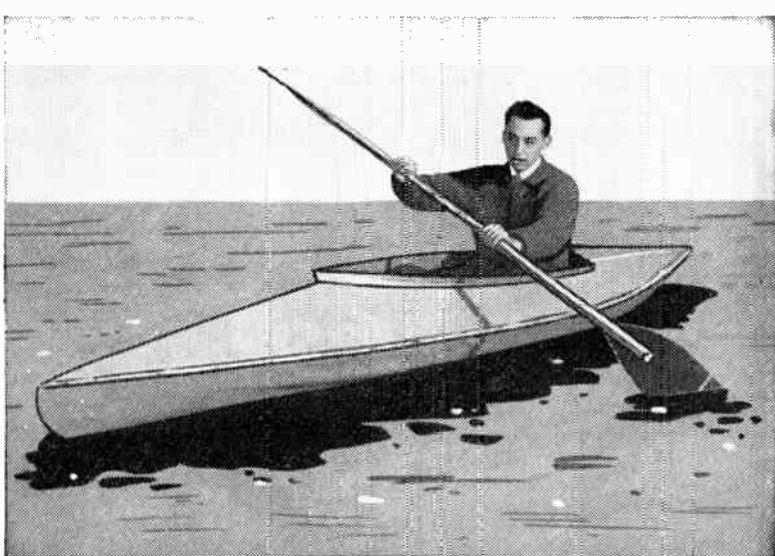
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Single seat and two seat CANOES

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FOR THE WATER — OR
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PBK 20 Two seater — 15 ft. long
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