

HOBBIES WEEKLY

IN THIS ISSUE

	Page
Miniature Galleon	177
Field Strength and Frequency Meter	179
Automatic Watering	180
Seeking Dace In Summer Waters	181
Timbered Buildings	181
Underwater Camera Case	182
Photographing Church Curiosities	183
A Stool for Your Easy Chair	185
Stamp Collector's Corner	186
A Book to Read	186
More Random Recipes	188
Patterns for Marquetry Picture	191



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In this issue

★ *FREE Design for*

MINIATURE GALLEON

THE study of old manuscripts covering the fifteenth century has enabled us to form a fairly authentic basis for the reconstruction, in model form, of British warships of that stirring period.

One such gallant ship was 'The Warwick', the Flagship of Richard Beauchamp, Earl of Warwick, and, in this addition to our miniature models, we have endeavoured to adhere to authentic detail, retaining all the colourful romantic lines of the original.

*A Gay
Model
for the
Sideboard*

'WARWICK'

To start the construction of 'The Warwick' trace the parts from the design sheet on to the appropriate thicknesses of wood, making sure that the pieces are spaced as economically as possible. Then cut out the pieces with a fretsaw.

Take the six pieces B and glue them together in two sets of three to form the left- and right-hand sides of the hull. Shape these sides to the sections shown in Fig. 1, and according to the dotted lines on piece A on the design sheet. When shaped, the two sides of the hull

are glued on either side of the keel A, and this done, the deck (C) and piece D can be added. The model should now appear as in Fig. 2.

Pieces E and F, which form the fo'c'sle, should now be glued together and attached to the deck, so that piece F



All correspondence should be addressed to The Editor, Hobbies Weekly, Dereham, Norfolk

*For Modellers, Fretworkers
and Home Craftsmen*

4½^D

PAGE 177

World Radio History

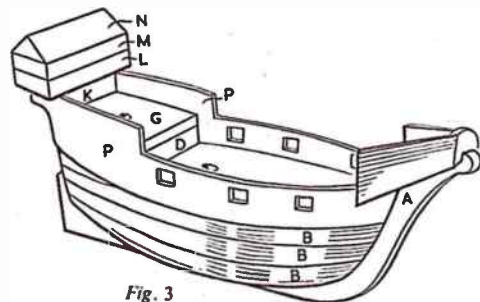
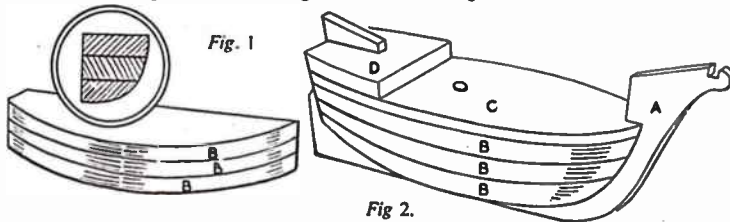
is forward of piece E, and the shaped ends fitting as shown by the dotted lines on the keel. When the glue is hard, these pieces must be shaped so as to continue the contour of the hull.

Decks G and H can now be glued in place, and following this the piece I and stern J. Notice that the hole in piece I, which will later take the bowsprit, is cut at an angle to allow the bowsprit to slope upwards and outwards. This hole should be started with a fine fretwork drill and enlarged with a mousetail file.

The Summer Castle

Pieces K, L, M and N, forming the summer castle, can now be glued in the positions indicated on keel A by the dotted lines. The bulwarks P and T, which are cut from thin plywood, can now be added. When cutting these out, allow at least $\frac{1}{4}$ in. spare at the forward end to allow for trimming, depending on the curvature of the shaped hull. At this stage, the model should appear as in Fig. 3.

The next stage is the making and



fixing of the deck fittings, consisting of the hatch and steps. Fig. 4 shows how these latter are made. They are cut from waste $\frac{1}{4}$ in. wood, the notches to form the steps being made with a razor blade as shown at B in Fig. 4. The small brackets (Q), which form supports for the summer castle, can now be glued in position on the stern.

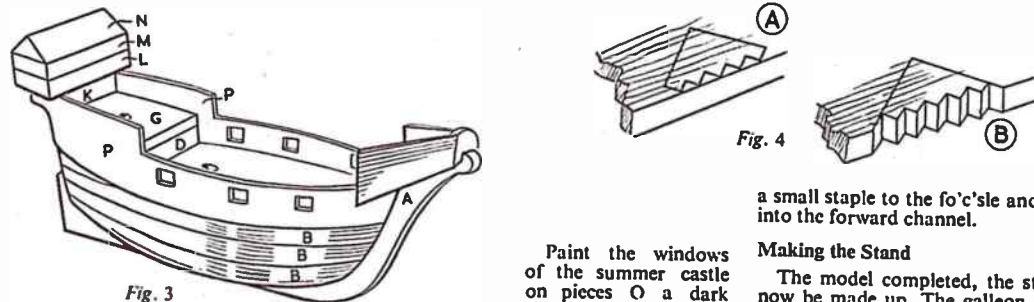
Painting

Now we come to the masts, the lengths of which can be gauged from the side view on the design sheet. They are shaped from $\frac{1}{16}$ in. round rod and are glued in position at the angles indicated.

Having completed this much of the

Send for a Kit
For making this miniature Galleon you can obtain Kit No. 3164 containing wood, cord, parchment, guns, nameplate and anchor from any Hobbies branch or post free from Hobbies Ltd., Dereham, Norfolk, price 8/1.

model, it is now advisable to paint the decks and hull. Give the whole model, excepting the masts, a coat of white paint. Below the waterline is left white, and the rest of the outside of the hull painted brown. Two black lines are added along the bulwarks, and the decoration as suggested on the design sheet can then be applied. For this the background should be black and white check, with alternating shields depicting the Cross of St. George and the Ragged Staff. The colouring for the Cross of St. George is red on white background and the Ragged Staff is yellow on a blue background.



Paint the windows of the summer castle on pieces O a dark blue, and the rest of the structure can be in brown with, possibly, a red roof to add colour.

The insides of the bulwarks can be finished in red, with the deck a buff colour, and lined lengthwise in pencil to simulate planking. The masts can have black bands painted round them at $\frac{1}{4}$ in. intervals, or for refinement you could substitute these markings with bound thread. In either case the masts are finished with varnish.

The crow's-nests can also be added at this stage after being painted brown, with a touch of red and gold on the main one. Now add the channels, the positions of which are indicated by dotted lines on the design sheet, and add

the standing rigging and shrouds. These latter are tied to the masts under the crow's-nests, passed through the channels, knotted and then glued underneath. It will be noticed that there are no ratlines on this particular model, which facilitates construction of the rigging. Deadeyes can be represented by small blobs of glue in the positions indicated.

Next cut out the sails from parchment and glue them to the spars. Lace with thread as shown on the illustration of the finished model.

The mainsail is painted in the colours shown on the design sheet. The other sails have no decoration. Attach the spars to the masts by tying with thread, and from the corners of the sails take the running lines as indicated on the side view of the design sheet. These can be attached at the most convenient points on the deck or hull as required according to the setting of the sails. They can be affixed to small staples made by cutting off the heads of fret pins, which are bent over and pushed into the woodwork.

The flags are cut from parchment, coloured according to the indications on the design sheet, and glued to the masts. After gluing the pennant to the mast, curl it by manipulation with the fingers to give it a realistic appearance.

The barrels of the six guns supplied in the kit are made up as shown on the design sheet and glued to the deck, poking through the gun ports. The anchor in the kit is attached by thread to

a small staple to the fo'c'sle and hooked into the forward channel.

Making the Stand

The model completed, the stand can now be made up. The galleon supports are trimmed to fit the keel piece and rounded base of the hull. The base of the stand measures 5 ins. long by 2 ins. wide and is cut from $\frac{1}{4}$ in. wood, the corners being rounded off to add to its appearance. The base and supports can be varnished, polished, or painted as desired, and the supports fixed to the base by screwing from underneath. The galleon will stand securely in the cradle thus formed without the necessity for any other fixing.

If the model is to stand on a side-board or any other highly polished surface, it is suggested that a serviceable finish for the underneath of the base can be obtained with the use of rayon flock, which will obviate scratching.

Radio Control — Part 3

FIELD STRENGTH AND FREQUENCY METER

FOR use with model control equipment a field strength and frequency meter serves a number of purposes. First, it can show the actual power of the signal radiated by the transmitter aerial. This will at once show if the transmitter is working or not, and whether the output is up to the usual level. The effect of any change to the transmitter aerial system will also be shown. Readings of this type are known as field strength measurements, and can be made up to about 10yds. from a 1-valve transmitter, or 20yds. from a 2-valve transmitter.

When the unit has been calibrated, it provides a standard for tuning a home-built transmitter, and a means of checking the frequency of the radiated signal, to find whether it is within the permitted band.

Components Required

These are very few, as reference to the circuit in Fig. 1 will show. The coil is

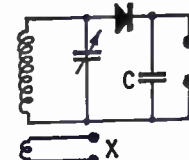


Fig. 1—Meter circuit

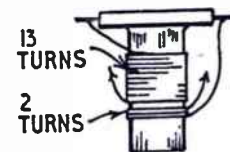
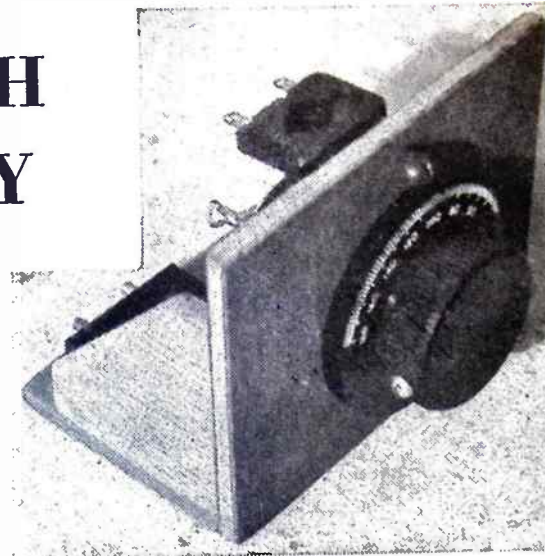


Fig. 3—Tuning Coil

home-wound, and if the details given are to be followed, a smooth Bakelite or Paxolin former $\frac{1}{16}$ in. in diameter is necessary. Insulated tubing of this size is easily obtainable, or one of the small TV formers sold by radio stores can be used, and these will have tags to secure the ends of the windings.

The fixed condenser (C) can be any value between $.001\mu\text{F}$ and $.01\mu\text{F}$. The

By
F. G.
Rayer



detector, or diode, is any kind of 'crystal diode' as sold for use as a permanent detector in crystal sets. If the unit is to be employed for frequency checking only, then diode and fixed condenser may be omitted, together with the two terminals for output connections.

For tuning, a small variable condenser of the type used in short-wave

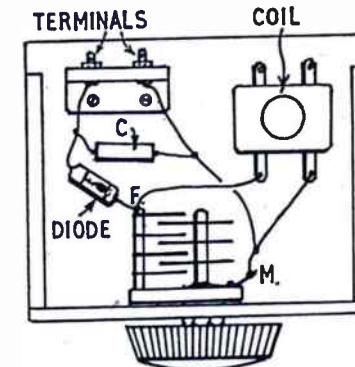


Fig. 2—Wiring plan of meter

sets is required. The most convenient capacity is about 25pF ($.000025\mu\text{F}$). Condensers much larger than this in capacity are not satisfactory, because the tuning range will become too great. A knob with pointer, or dial, is required for the condenser.

Solid Construction

The actual size is of no importance, and will depend somewhat on the dimensions of the variable condenser. With a fairly small condenser, a small

panel $3\frac{1}{2}$ ins. by $2\frac{1}{2}$ ins., with baseboard $3\frac{1}{2}$ ins. by $2\frac{1}{2}$ ins. will be large enough, giving a layout as indicated in Fig. 2, which shows all connections. To make the whole rigid, two panel brackets are required, and these can be cut from thin wood.

Coil winding will be clear from Fig. 3, and 28 S.W.G. or 26 S.W.G. enamelled wire is used. The larger winding is thirteen turns side by side. One end of this winding goes to (F) in Fig. 2, this indicating the fixed plates of the variable condenser. The other end goes to the moving plates (M).

Two turns are then wound on, as close as possible to the end of the 13-turn winding which goes to (M). If a lamp is not to be used for frequency tests, as will be explained, then this 2-turn winding is not required.

When the coil is wound, a turn or so of Sellotape is put tightly on top, to keep the turns in position, as any movement would upset calibration. The coil is a push-fit on a small disc of wood fixed to the base.

Wiring is very simple, and will be seen from Fig. 2. The knob must be locked firmly to the condenser, and not removed once the unit is calibrated.

Indicating Device

For frequency checks, a bulb, microammeter, or milliammeter can be used. For field-strength measurements, a microammeter is necessary, with a full-scale deflection of 50 or 100 microamps. For frequency checks, the bulb will be the simplest and cheapest, and it should be of .04 amp. low-consumption type. These are sold by various radio and electrical shops, and it can be 2 V to 6 V.

In order that accurate frequency checks are possible, one method of indication should be chosen, and retained afterwards. Variations in strength are more easily seen by the meter, so if one of 1mA or less is to hand, this can be used instead of the bulb.

Either 1mA meter or bulb will do for frequency checks. The 50 or 100 μ A meter will do for these, and also field-strength measurements.

Calibrating the Unit

This can be done in one of several ways. If a friend has a commercially-manufactured model control transmitter, or a home-built one already tuned, this will provide a suitable signal.

If a bulb is being used, this is soldered to the tags to which the 2-turn winding is taken. The transmitter is then switched on, and the unit held with its tuning coil in line with the coil in the transmitter, a few inches away. The bulb will light when the unit is tuned to the transmitter, and the distance between unit and transmitter coil may be increased so that the bulb only just glows when the unit is tuned exactly to resonance, as this gives the best indication. The dial reading or pointer position is then noted for future reference. With small transmitters it may be necessary to bring the unit within an inch or so of the transmitter coil.

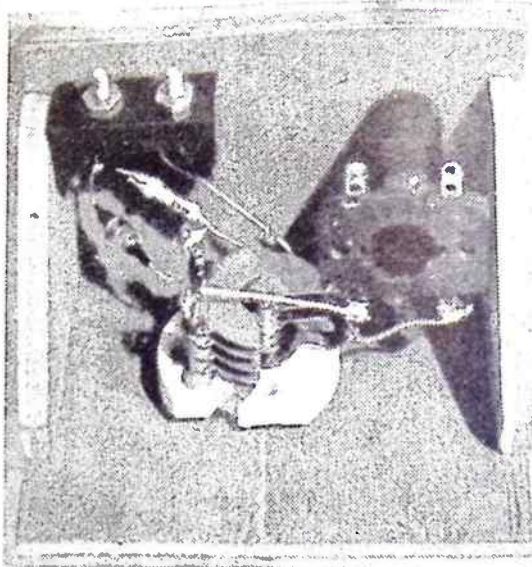
If a 1mA meter is being used, wire it to the two terminals. Now tune the unit for maximum pointer deflection, exactly as with the bulb, but with a greater distance between unit and transmitter coil. Mark the tuning position giving maximum reading on the meter.

When a 50 or 100 μ A meter is being employed, the same procedure is used, but the unit should be kept at some distance from the transmitter — say, 1ft. to 3ft.

If the transmitter is a ready-made one of such a type that it is not possible to bring the unit near the coil, calibration can be obtained by holding it near the aerial, if a meter is being used as an indicating device. If a bulb is used, tighter coupling will be necessary. This can be achieved by taking a length of connecting wire from the transmitter aerial terminal, forming a single turn about 1in. in diameter in it, and holding the unit with its coil near this turn. The usual transmitter aerial should be joined to the other end of the connecting wire loop.

If a signal generator can be borrowed, it can be used. It should be set to 26-96mc/s. and then to 27-28mc/s. and the signal tuned in with the unit, in each case. This will give two pointer positions, and model control equipment can use the band between these.

If no such equipment at all can be borrowed, then the unit can be tuned to



Back view of frequency meter

a crystal frequency oscillator. It is hoped to describe the construction of this item later. The components, etc., used in it can almost all be used in a transmitter, afterwards, so that the additional expense is small. Once a frequency meter such as that described here has been calibrated from the oscillator, the latter is no longer required, so that it will be useful to employ the components for other purposes.

Tuning home-built Transmitter

Once the unit is calibrated, it is very easy to tune any transmitter to the correct band. The pointer on the unit is set to the correct position. The unit is then coupled to the transmitter exactly as described, e.g., held near the coil, or situated at a little distance, according to the type of indicating device.

The transmitter is then switched on, and tuned until the bulb or meter gives maximum indication. Final tuning should be done with the usual aerial

connected to the transmitter.

Field Strength Measurements

These show the efficiency of the transmitter and its aerial, and require a 50 or 100 μ A meter wired to the terminals. The transmitter is adjusted to the correct frequency as explained. The unit is then carried to some distance from the transmitter, a small vertical aerial being attached to (F) if the distance is fairly great, or if insufficient indication is obtained on the meter. Any improvement to transmitter or aerial, which will cause the meter reading to rise, will then be apparent. This is particularly useful for checking the results obtained with various lengths of aerial on the transmitter.

When an aerial is attached to (F) the tuning readings cease to apply, and the knob is tuned for maximum sensitivity, or movement of the meter pointer. This aerial can be 9ins. to 18ins. of stiff wire, standing vertically.

Automatic Watering

HERE'S a way to keep greenhouse plants watered when you are away from home or on holidays and do not wish to bother the neighbours.

Fill a large pail with water, stand it a little above the level of the plants and group round or near it as many plant pots as practicable.

Loosely plait two or three strands of wool together, immerse completely in

water and place one end in the pail, weighted and touching the bottom. Rest the other end lightly on the soil of the plant pot. A separate plait of wool will be needed for each pot.

The water will at once commence to 'syphon' via the wool strands, over the edge of the pail and down to the plants at a sufficient rate to ensure the plants having a plentiful and continuous supply of moisture. (R.L.C.)

With rod and line

Seeking Dace in Summer Waters

ONE of the best river fishes for sport is the dace in summer. It is not only a grand fighter on fine tackle, but can claim to be a most beautiful fish, the 'most comely' of the carp family.

It seems a pity that so sprightly and active a fish seldom runs to any big size. A 1lb. specimen is a very good one. The record for English waters is one of 1lb. 8ozs. 5drs. taken by an angler fishing the Hampshire *Avon* in 1932.

Gregarious nature

Dace are gregarious and cruise about in shoals, thus, once you have located their whereabouts it is possible to enjoy a bit of fun on a warm summer day. At this period of the year dace prefer quick runs, shallow glides, and little eddies below weirs. You will find them under bridges, in mill-tails, gravelly stretches, scours, and fast waters generally. They prefer swifter currents than roach. In smallish and medium streams these places can be covered from the bank with a 10ft. rod.

It may be a case of scoutcraft during summer, when the river is low and bright. No matter how carefully the angler may approach a shoal of dace, they will most probably see him, and that will prove fatal to his success, for they will dart off either upstream or down — not with the speed, perhaps, of trout, but too quickly for the angler. Therefore, never approach the water-side too recklessly. Keep out of sight of the keen-eyed quarry. Take cover as much as you can. Use your scoutcraft.

The interesting thing about dace is that they will prove adaptable to various methods of angling. Ordinary bottom fishing as for roach, for instance, works out very well in deepish, slower waters. In a stream with quick runs and shallows, what is known as 'trotting' will attain better results.

In this method adjust the float and weight the line with one or two small split-shot, so that the baited hook is kept near to the bed of the stream. Having located the spot where a shoal of feeding dace is anticipated, throw in a handful of maggots and keep a dribble of same trickling down the water at intervals while you fish. With a bit of practice you can swim the bait (which should be a nice fat maggot) thirty or more yards distant, but it is, perhaps, better to maintain full control over line and tackle by keeping the baited hook within easy distance, and the line fairly taut, paying it out from the reel as the current draws the bait along. A 'strike' can then be quickly and decisively made

when you get a bite. If you have too long a length of line, then 'striking' will be more difficult and you may well miss many fish. A dace must be hooked instantaneously on the sudden dip of the float. It is a good notion to keep checking the float as it travels down the swim so that the bait advances a little in front all the time, thus facilitating successful 'striking'.

On a big river where the angler fishes from a punt or boat, at a longish distance from the shoal of fish, which are in deep water, it is not possible to see the dace swim up to inspect the bait, as can be done in a small stream. On a big river the angler usually takes up a position above a length of water free from weeds and which is moving along at a fair pace over a gravelly or sandy bottom. He fishes with a float carrying a bunch of shot on the hook tackle in order to keep the bait near the bottom. He uses ground-bait freely.

When bait-fishing for dace the small red worm and the maggot are excellent. Wasp grubs in season are also useful, but this bait soon washes off the hook in

a fast water. Although a single fat white maggot is as good as any bait you can use, pearl barley, breadcrust, paste, quaddis, creed wheat, caterpillars, hemp, etc., are well worth a trial. In coloured water after rains red worms or brandlings are the better baits. Use ground-bait of bread and bran mixture, into which a handful of maggots or small worms has been squeezed, but when 'trotting' the stream and using maggots on the hook, a sprinkling of maggots from time to time will be quite sufficient. If baiting with worm, then use small ones to attract the feeding fish, a few worms too small for hook baits should be scattered in the water occasionally whilst fishing.

Don't overlook artificial flies

On warm evenings when flies are hatching out abundantly and are fluttering over the water, dace often rise briskly as they rush and leap at the water-born insects, gulping them in with avidity. The angler who has a fly-rod and suitable tackle can enjoy some of the prettiest sport to be desired.

A Marquetry Picture

Timbered Buildings

HEAVILY-timbered buildings make excellent subjects for reproduction in marquetry and the scene depicted here falls into that category. The picture, which is reproduced full size on page 191, should be traced and transferred to a backing board. From this tracing you can take your individual shapes for the marquetry veneers.

Colours are only indicated by shades, and it is up to the worker to decide on varieties and grains.

If you wish you can cut the picture with a fretsaw, using Hobbies inlay panels. One set contains four different woods, ideal for making an attractive picture. These panels are 10 $\frac{1}{2}$ ins. by 7 $\frac{1}{2}$ ins. and allow for a border round the picture. They cost only 4/3 a set from branches or post free from Hobbies Ltd., Dereham, Norfolk.

As enthusiasts will know, fretsaw inlay is a comparatively easy method of producing skilful inlay work, the only requisites being a fretsaw and some fine sawblades. Remember to keep the saw upright when cutting. For the benefit of newcomers to inlay work, the Editor



will be pleased to supply, free of charge, a leaflet 'Making Pictures in Wood'. Please enclose S.A.E. (M.p.)

Survey the depths — make this

UNDERWATER CAMERA CASE

THE growth of under-water swimming with the aid of breathing appliances, etc., has led many to search into the silent strange depths for the first time. It becomes a challenge for exploration and discovery and the urge to record these new vistas caused me to think about a method by which I could show them to friends. No one is content to merely hear about the sights, no matter how well described. Some kind of proof is required, and what better than photographs?

The first problem met with in this type of photography is how to keep the

minium base is cut and filed into shape, allowance being made for four gussets which are used to secure the base to the casing, by means of brass turnbuckles fitted with wing nuts for ease of manipulation. A water-tight joint is secured by a gasket of $\frac{1}{4}$ in. rubber.

The release of the shutter is effected by a metal rod passing through the wood, the fitting made watertight by a bulb of a medicine dropper secured to the casing by rubber solution. The photograph is taken through a glass window let into the front of the case and sealed by resin glue. Sighting of the subject is

proportion to the film size and focal length of lens.

The casing is safe to a depth of about 15ft. and costs less than a pound to make.

Test by immersion to the maximum depth at which it is likely to be used, without the camera in place. The outside is then carefully dried and the base removed. Any water inside will, of course, show the presence of a leakage. Leaking need not give rise to bubbles when below the surface, as the air inside is compressible due to the external water pressure.

Before diving can take place it is necessary to have the right equipment. A pair of flippers is a 'must', and a good face mask is preferable to goggles. The actual photography presents little difficulty except, perhaps, for the focusing and lighting techniques.

Pre-focusing is carried out before diving. Due to various refractive tendencies objects below the surface appear

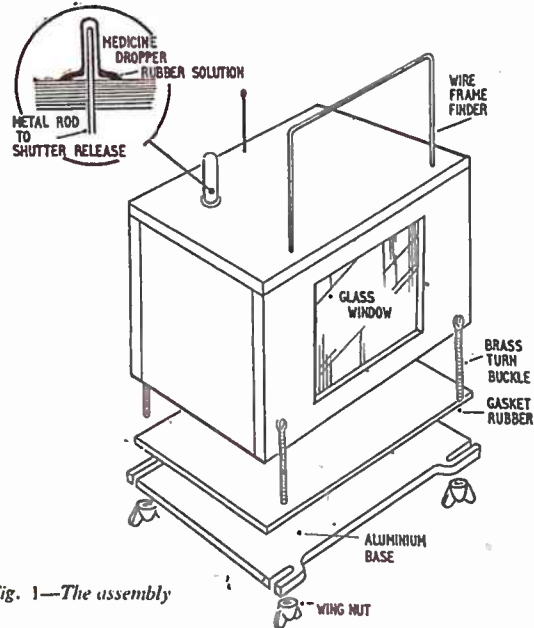


Fig. 1—The assembly

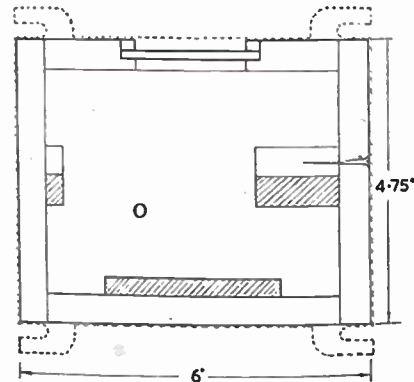


Fig. 2—Foam pads indicated by shading. Dotted outline shows aluminium base in position.

camera dry. An underwater casing is essential. You can if you have a certain type of camera buy a commercial product, but unless you are taking up this pastime very seriously the outlay is not justified. An alternative is to construct a case to suit your own camera and needs. All that is required is a limited knowledge of woodwork and a little ingenuity.

The casing is in the form of a box, with the sides and top constructed from $\frac{1}{2}$ in. plywood and a base of $\frac{1}{4}$ in. aluminium (Fig. 1). The design is made to suit the camera and refinements can be added as required. All the wooden joints are fixed with a resin type glue and screwed securely in place, care being taken to ensure a good fit. The alu-

made through a wire frame viewfinder.

The camera is held in position by strips of sorbo rubber glued to suitably placed wooden formers which are attached to the case by screws or glue (Fig. 2). The casing here was constructed to fit a 'Retina 1A' 35 mm. camera and will suit any of the post or pre-war 'Retina 1' type cameras. The casing can be designed to suit any camera, but preference is given to the 35 mm. miniature. Slight alterations in size will adapt the casing to suit personal requirements.

If a single lens reflex 35 mm. is to be used, a further small window is let into the top of the casing to serve as a viewfinder window.

The viewfinder, direct vision type, is in

to be about one-third nearer than they would on the surface, but this difficulty is readily overcome by visual estimation. Should a subject appear to be 8ft. away when under water, then if the camera is focused at that distance the resulting photograph will be in sharp focus.

Lighting decreases with the distance below the surface but due to varying factors no specific values can be stated for exposure times. Experimentation here is necessary. However, on a sunny day in summer at about midday and at a depth of 10ft. a rough guide would indicate an exposure of about four times that required on the surface, i.e., times that required on the surface, i.e.,

● Continued on page 184

Out with your Camera

Photographing Church Curiosities

IF you want an absorbing pastime, why not take up simple church photography — not views of church architecture, but pictures of oddities to be found in such buildings.

Nearly every church in the land, if it has any claims to antiquity, contains some curiosity. These entertaining objects range from effigies to old fonts, and from strangely carved bench ends to singular memorials. They can often be photographed without much difficulty, and you don't need an expensive camera, provided you have the 'know how'. A few such photographs added to your snapshot album will enhance its appeal immeasurably.

By A. Nettleton

One of the advantages of this kind of camera work is that it can be followed when the weather is unsuitable for outdoor photography. Although sunshine is necessary for many branches of outdoor picture-making, the best photographs of oddities in churches are usually obtained in a more subdued light. Shafts of sunlight are more detrimental than useful, for they create excessive contrasts.

A day when light clouds obscure the sun is usually ideal, but there are also many occasions when even rainy weather can be put to good use. At such times your camera need not be idle, provided you can reach a church.

As to the type of camera best suited to the job, you do not need a costly one with a 'fast' lens. The fastest lens on the market would not be fast enough for 'instantaneous' photography inside a church.

In all cases you will have to give a 'time' exposure, with the camera on a firm support, so, as far as the speed of the lens is concerned, a cheap box camera is just as satisfactory as a really expensive one for this job.

The ideal instrument is one with a focusing screen, enabling you to focus the subject on the ground glass. Yet excellent results can be obtained with a simple folding or box camera fitted with a reflecting viewfinder, though a little more care is needed. The main drawback of such an instrument for church photography is that the viewfinder gives too small an image of the subject for easy examination, and you will find it a helpful idea to carry a pocket magnifying glass, looking through this at the image on the screen.

The enlarged image will enable you to see more exactly the picture the camera

Most of our old churches contain oddities worth photographing, and here are some tips about taking up this branch of snapshotting without expensive equipment.

is taking. All the illustrations accompanying this article were taken with a folding Zeiss camera fitted with a reflecting viewfinder, but a magnifying



You can photograph effigies without much difficulty. This one is in Thornhill Church, Yorks, and the picture was taken in natural lighting

glass was used to magnify the picture in the finder.

A tripod is useful but not essential. You can often provide a substitute by placing two chairs back to back and resting the camera across the top.

An almost indispensable accessory, however, is a cable release for the shutter. Without one of these it is practically impossible to operate the shutter without moving the camera — and the slightest camera movement means a blurred photograph.

When buying the release, get one designed for time exposures. With one of these attached to your camera, you can give time exposures of any duration without difficulty.

The first pressure on the plunger causes the shutter to open, and it re-

mains open until you depress the plunger again. In that way you avoid having to keep your finger on the plunger throughout the exposure — a practice which again is apt to cause camera movement and blurred pictures.

Another useful piece of 'apparatus' is a tape measure for measuring accurately the distance between the camera and the subject. Large objects, such as fonts and pulpits, can be photographed with the lens set at 'infinity', as they will be more than 10ft. or so away, but such smaller

subjects as bench ends and alms boxes will have to be taken as close-ups, entailing accurate focusing.

The only sure way of getting clear-cut pictures, if your camera has no focusing screen, is to measure the distance carefully and then set the lens to that figure. For this purpose a tape measure is just as satisfactory as a costly range-finder, but it is wise always to reduce the lens aperture to about $f/16$ ('stopping down' it is called) to get depth of focus, too.

Special care is also called for in positioning the camera. A few inches difference in the height of the instrument, or a slight alteration to left or right, may make all the difference between a mediocre photograph and a good one.



This wooden figure holding an almsbox is in Halifax Parish Church. Photographs of such curiosities make a snapshot album more attractive.

Pay particular attention to the background, making sure that nothing behind the main subject is likely to cause confusion. For instance, a notice board several feet in the rear may appear as a white square standing on top of a font, but a small change of viewpoint will probably obviate the illusion.

As already stated, this branch of

TIMELY TIP

Trowel Gauge

WHAT is the correct depth to plant tulip, daffodil, or any other kind of bulb in the garden? Most gardeners will know the answer to this one, but how many of them take the trouble to ensure that their knowledge is put to good use? It's quite simple to make a depth-gauge of your trowel. Score it round the handle in convenient



units and perpetuate the marks with a brilliant red paint. Then, with trowel in hand, you cannot go wrong on the depth at which you are planting.

photography always requires a time exposure. Whilst it is almost impossible to give more than a general idea of the length of time the film will need to record the subject, in most cases it must be measured in minutes rather than seconds.

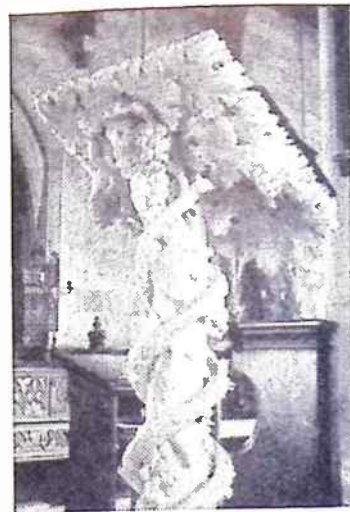
It is not easy to over-expose, unless the subject is illuminated by direct shafts of sunlight. The photographs reproduced herewith had exposures varying between 2 minutes and 10 minutes.

Exposure Calculations

A photo-electric exposure meter is a boon, but not essential. If you are in doubt, give more exposure rather than less. If you are still uncertain, make two exposures, one four times the length of the other.

A useful basis for calculations is that a subject in average lighting in a church requires about 3 minutes exposure at f/16, when the picture is taken on a film of ordinary speed. There is really no point in using ultrafast films for this work, as even these will require a time exposure. Moreover, their latitude is restricted, and that means less margin for error.

The film requires no special treatment in the developing process. As the subjects are usually in flat lighting, however, development can be increased by one quarter of the normal time. This increase will improve the contrast of the negatives and give you pluckier prints.



A lovely lectern in the church at Mackworth, near Derby. It was photographed with a folding camera by placing the instrument on a pew and giving a time exposure.

Many church oddities have entertaining stories, and the interest of the prints will be enhanced if a few notes are written beneath each picture in the album.

Continued from page 182

Underwater Camera Case

1/100 sec. at f/8; for daylight type colour film—1/25 sec. at f/4-5.

When using monochromatic film it is advisable to increase development time in order to boost the contrast, because the light being of an indirect nature reduces this to a large extent. An exposure meter can be taken down in a glass jar of the pickling type. Do not attempt to take pictures in muddy or cloudy water—the result will be beyond recognition!

It is advisable to be accompanied by a friend if you go to some deserted spot for your photography, as it is possible that you may be unlucky enough to catch cramp. Should by some reason or other the camera get wet the best thing to do is to immerse it in boiled fresh water, dry it and dispatch to a reliable camera repairer as quickly as possible.

The reason for the fresh water is that it will wash out any salt which would oxidise and ruin the metal mechanism.

There is no need to go to the seaside to find suitable material. Many interest-

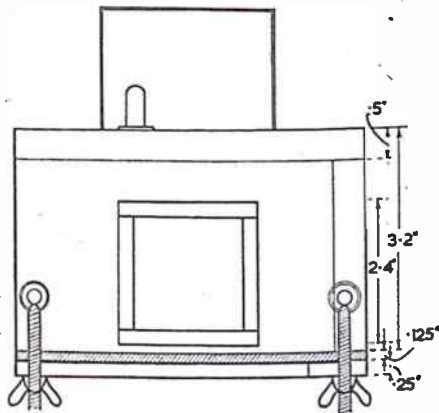


Fig. 3—Front view showing method of fixing base to casing. The shaded portion is 1/8" gasket rubber to make the joint watertight.

ing and amusing photographs can be taken in the local swimming pool, such as a friend as he enters the water in a dive or as he passes over you swimming on the surface. (D.P.)

The ideal companion

A STOOL FOR YOUR EASY CHAIR



The measurements of the top are given at (C) and for this two pieces 12ins. long, 6ins. wide and 1/2in. to 3/4in. thick will be needed unless you are using plywood. Then it must be cut from a piece 12ins. square. Fix the two pieces together with a dowel joint, using two 1/4in. dowels and then screw a bar on the underside across the join.

This bar also forms a fixing for the leg and should be 2ins. wide and 1/2in. thick. Similar bars are also fixed to each end to hold the legs there. The same procedure can be adopted when using plywood for the top in order to hold the legs securely.

Trimming

Rounding off the centre part of the top can be done either before fixing the bars or afterwards. Likewise the two ends can have the sharp corners trimmed off if desired, or they may be left square, in which case the two stools will fit together better.

For legs, dowel rods either 1/4in. or 1in. diameter are used. It is only necessary to taper the ends slightly so they will fit tightly into holes drilled in the bars, as shown at (D). The length of

the legs may be varied to suit the height of the easy chair seat, but about 12ins. will generally be found correct.

The positions shown for the legs in (D) are only approximate, but should be about right and produce a rigid stool.

Alternative Design

Should you not think so or prefer an alternative design, that given at (E) should be quite acceptable. Two strips of wood 12ins. long, 6ins. wide and 1/2in. thick are secured to the end bars, and the underside of the stool is shown at (F). A dowel leg is fixed in the centre as before, but this may be altered to a narrow strip of wood to match the ends if desired.

Finishing may be carried out in several ways depending chiefly on the type of wood used and also the kind of chair which it may be made to match, or to be a contrast as desired. French polishing or varnishing in the natural state of the wood is quite good, or you may stain the wood first. Plywood is best when painted or enamelled in a tone to match existing furnishings or it may be stained and varnished.

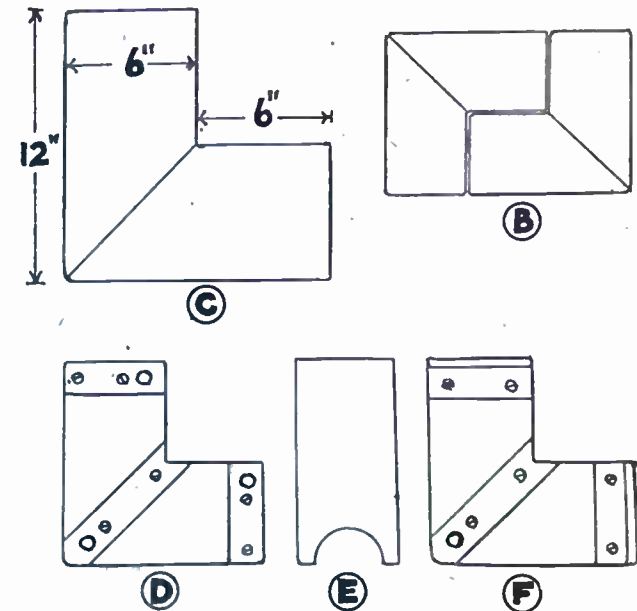
By A. F. Taylor

THE handy little stool described in this article is the ideal companion to an easy chair, especially the fully upholstered type. Nothing could be better for holding a cup of tea, or for the smoker with his pipe, tobacco and matches, while the ladies would welcome it for holding the sundry requirements for needlework or allied accomplishments.

A Variety of Uses

The stool has been designed to fit close to the corner of the chair and within easy reach. Two such stools can be placed together to form a larger rectangular stool as shown at (B) for serving afternoon tea, as a coffee table, or for playing games round the fire.

Almost any kind of hardwood is suitable for its construction, and even plywood can be used either plain for painting or faced with a hardwood that may be polished or varnished. When using plywood the top is cut in one piece, but for a hardwood it is best to use two pieces, joining them together with a mitre on the corner as at (C).





If you look at a stamp catalogue you will notice at the head of each issue the perforation is quoted, and very frequently there is a variety of perforation. Moreover, the variety is generally worth more than the normal. Since there is so frequently this enhanced value for certain perforations it is only sensible that we should consider this subject and learn something about it.

If you look at the catalogues describing the British stamps of the present reign you will find that the stamps are described as being perforated 15x14.



Top — Line perforation

Bottom left — Interrupted perforation

Bottom right — Off centre

When you see two figures quoted as in this case, the first refers to the perforation at the top — also the bottom — and the second figure to the right-hand and the left-hand side. If we take a Queen Elizabeth stamp and count the holes at the top we find that there are 15, while at the side there are 17, so that the figures shown in the catalogue could refer to the number of holes in the top, but could not refer to the number in the side. The reason why the number of holes corresponds with the figure given in the catalogue is because the stamp is

two centimetres wide, and the method of stating the perforation of a stamp is by stating the number of holes in two centimetres of stamp.

The 1953 Coronation stamps are also quoted as 15x14 but if you count the number of holes along the top then you find there are 30 and when we measure the length we find that it is four centimetres long, so that we should expect there to be 30 holes. Down the side of the stamp there are again 17 holes and when we measure the length of the side we find that it is just over two centimetres, so that we should expect just over 14 holes.

Occasionally you may see a stamp quoted as having four different perforations. In this case the first figure quoted refers to the top, the second to the right-hand side of the stamp, the third to the bottom and the fourth to the left-hand side.

When first issued stamps had to be separated by means of scissors by the clerk at the counter, and when there was a rush he was not able to afford the time to ensure that the cut went exactly between two stamps and that is the reason why one so frequently sees a stamp with part of one side cut away. The English Penny Black is a case in point, and that is one reason why you see this priced from 10/- to as many pounds, the low prices being for the stamps which were carelessly cut.

As more and more letters were sent it was realised that there was a very great waste of time in separating one stamp from another and in 1848 there were various suggestions and attempts made to solve the problem. Some were rouletted — that is a series of short slits was made so that the stamps could be torn apart. Sometimes the rouletting was not done in a straight line, but the lines were at an angle to one another and it was called zigzag roulette. About 1850 Henry Archer experimented with various ideas and the results of his experiments were put into use by the Post Office.

Perforating, or the cutting of small holes between stamps, has so far proved the best way. If you look at a block of stamps you will notice sometimes that at the corner the holes are not regular. In the first illustration the corner holes cut one another, and this is typical of what is called line perforation. The sheet of stamps is fed into the machine one way, and then the other. If, however, the

PERFORATION

—Part 1

By L. P. V. Veale

holes are perfectly symmetrical, then almost certainly it will be a case of comb perforation — that is the punches were arranged at right angles and three sides of the stamp were perforated at one stroke. Or it might be a case of harrow perforation, the whole sheet or block being perforated at one stroke, as is generally done on the Continent.

Off Centre

Occasionally one finds a stamp perforated in such a manner that the holes are not symmetrical about the design, and in extreme cases part of the design on a neighbouring stamp is seen, while some of the design of the specimen being considered is missing. This is an example of what is known as 'off centre' — it is, of course, due to the carelessness on the part of the operator using the machine.

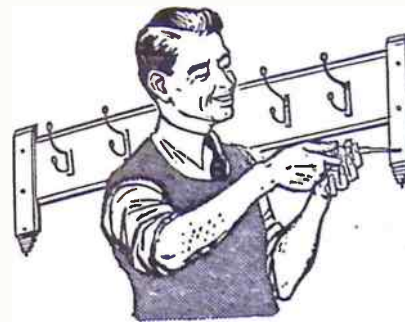
Two rather unusual methods have lately been adopted to prevent the perforated stamps from being torn apart too easily. Holland has what is known as 'interrupted perforation', leaving some of the holes unpunched, and consequently not quite so easily torn apart. Then in 1937 Australia issued coil stamps separated the one from the other by different sized holes, the two holes on the outside being smaller than the remainder. Thus the outside holes would be less easily torn than the inner.

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More Random Recipes

WOODEN posts sunk into the soil for netting, clothes lines and similar purposes have the disconcerting habit of snapping off at crucial moments. Soil organisms, the old enemy of non-growing wood, have been at work eating away at the wood. A little time spent in rotproofing the posts is well worth while in the replacement time it eventually saves.

There are several ways. Two time-honoured methods are to char the ends or to paint with coal tar. Both are good, but the first means building a bonfire and the second seeking out a gasworks and almost inevitably getting tar stains on yourself and your clothes. Much more convenient is to use a solution of copper sulphate, a chemical which you can obtain from your dispensing chemist. Dissolve this at the rate of 4 ounces to the gallon of warm water. Use a pot, glass or enamel vessel for the solution, not bare metal, for copper sulphate reacts with some metals. Stand the ends of the posts in the blue solution to a little above the height they will be inserted into the soil and leave them in it for twenty-four hours. The posts may then be sunk into the ground.

Another simple method is to use sodium fluoride. Dissolve this at the rate of 4 ounces to 5 quarts of water and soak the posts for twenty-four hours.

BRACKEN ERADICATOR—Bracken can be a persistent nuisance in odd corners of country gardens, where it may be spreading from an adjacent field. Sodium chlorate will keep it at bay. Dissolve this at the rate of 4 ounces to 2½ gallons of water and spray the weed thoroughly and also the ground around the stems.

FUNGUS KILLER—Another common garden pest is fungus in all its various species. A good dusting powder to eliminate fungi can be made by mixing together 3 ounces of basic copper carbonate powder, ¼ ounce of powdered copper sulphate and 5 ounces of flowers of sulphur.

BLACKBOARD PAINT—A good paint for blackboards which provides just the right finely rough surface to take chalk calls for the following ingredients: shellac ¾ ounce, methylated spirit 39 fluid ounces, liquid drier 4 fluid ounces, carbon black ¾ ounce, Prussian blue powder ¼ ounce, lithopone ¼ ounce, carborundum powder 1½ ounces, boiled linseed oil 1½ fluid ounces. Dissolve the shellac in the meths. Mix the other solids and add the liquid drier and linseed oil and into this work the shellac-meths solution. Stir well before use and keep in a well

closed bottle to prevent evaporation.
HOOKBINDER'S VARNISH—If you have any leather bound books whose title bands are showing signs of wear, prompt treatment will save them. They need brushing with a special bookbinder's varnish. Use a fine haired brush, so as to attain an even glaze. Dissolve 5 grams of Venice turpentine (not oil of turpentine) and 11 grams of bleached shellac in 42 c.c. of methylated spirit. The varnish should be kept in a well closed bottle, or the spirit will evaporate.

While on the subject of leather bound books, most of those in existence are old and they are worth looking after. Give them a rub with a little good furniture cream once a year. If you do not, the leather will eventually rot.

EBONY STAIN—A cheap ebony stain for wood is useful to have at hand. You can make this up by dissolving ½ ounce of water soluble Nigrosine and ½ ounce of oxalic acid crystals in 1 pint of warm water and allowing to cool.

WOOD BLEACH—To whiten wood dissolve 4½ ounces of sodium metasilicate and ½ ounce of sodium perborate in 2½ pints of boiling water. Brush the solution on to the wood and leave it for thirty minutes. Then rinse well with water.

TALCUM POWDER—A good talcum powder, especially suitable for use after bathing, is easily and quickly made by mixing 20 ounces of medicinal talc, 2½ ounces of zinc stearate, ¾ ounce of boric acid, and 1½ ounces of magnesium carbonate, all in fine powder. If you want a perfumed product, sprinkle ordinary handkerchief perfume on the magnesium carbonate, allow this to dry out and then mix with the other ingredients.

LIP POMADE—Cracked and wind roughened lips will improve rapidly when smeared lightly with your own lip pomade. It will also provide an invisible protective coating on the lips if applied before going out. In a water-bath melt together 1½ ounces of medicinal liquid paraffin, ½ ounce of white petroleum jelly, ½ ounce of paraffin wax and ½ ounce of white wax (bleached beeswax). When clear, pour into moulds made by sticking short lengths of clean aluminium tube to a board by means of discs of modelling clay. Let the moulds grow cold, pull them away from the clay, push up a little of the pomade by means of a dowel rod and pare off a thin shaving from the end which has been in contact with the clay. The whole of the rod of pomade may then be pushed out of each mould and wrapped in metal foil.

LIQUIFYING CLEANSING CREAM—Potato peeling and other household chores leave ingrained grime which is hard to remove. By making a liquifying cleansing cream you can solve this problem. By massaging the grimed areas with the cream, the dirt literally floats out, leaving the hands soft and clean. To make it, melt together in a water-bath 2½ ounces of medicinal liquid paraffin, 1½ ounces of paraffin wax, 1 ounce of white petroleum jelly and ½ ounce of spermaceti. When the mixture is clear, remove the vessel from the water-bath and allow it to stand until a very slight haziness appears. Then pour at once into screw-top jars and allow to set solid.

WITCH HAZEL JELLY—This useful product is easily made at home. Weigh out 0.5 gram of boric acid powder and 1 gram gum tragacanth powder. Stir these into 80 c.c. of witch hazel and allow to stand overnight for the gum to swell. Then stir it well until smooth and put into jars.

SOLID BRILLIANTINE—The pleasant green brilliantine so often seen consists essentially of petroleum jelly. The colour is imparted by means of an oil soluble dye, for which purpose chlorophyll, the green colouring matter of plants, is very suitable. To make your own, melt 160 grams of petroleum jelly in a water-bath and dissolve in it 0.2 gram of oil soluble chlorophyll. Stir in 0.8 gram of oil of lavender to scent it. Remove the vessel from the bath and when the mixture has cooled somewhat, pour into warmed jars and allow to grow cold.

HAIR SETTING LOTION—This product is suitable as a finger wave set. In 180 c.c. of boiling water dissolve 6 grams of borax and 0.8 gram of gum acacia. When both the solids have dissolved allow the solution to cool and then add 0.8 c.c. of spirit of camphor and a few drops of handkerchief perfume.

BRUSHLESS SHAVING CREAM—This is a smooth white cream suitable for dry skins. Melt together in a water-bath 20 grams of stearic acid, 3.5 grams of anhydrous lanoline and 9 grams of medicinal liquid paraffin. In a separate vessel dissolve 1.5 grams of glycerine, 1.65 grams of triethanolamine and 1.85 grams of borax in 62.5 c.c. of boiling water. To the latter add the melted mixture (which should stand at about 70 degrees Centigrade) from the water-bath and stir rapidly until an emulsion forms. Add a little perfume and continue stirring slowly until the cream is lukewarm, when it may be packed into a jar.

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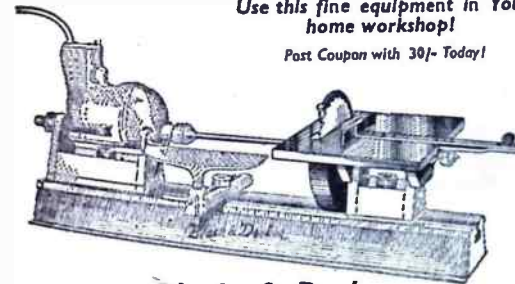
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See page 181



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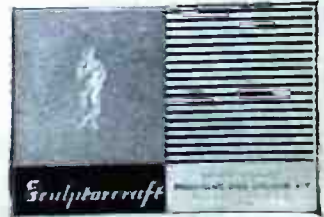
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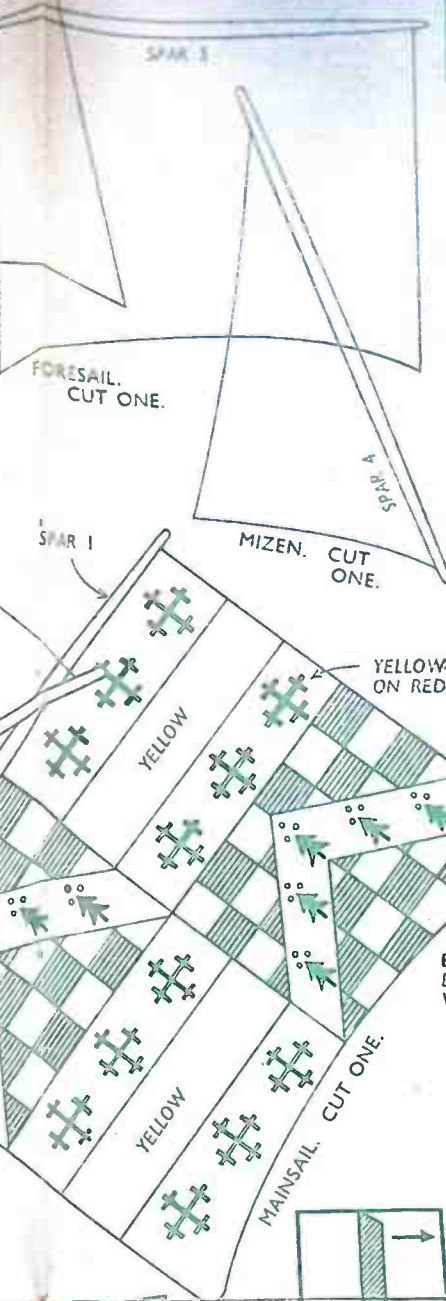
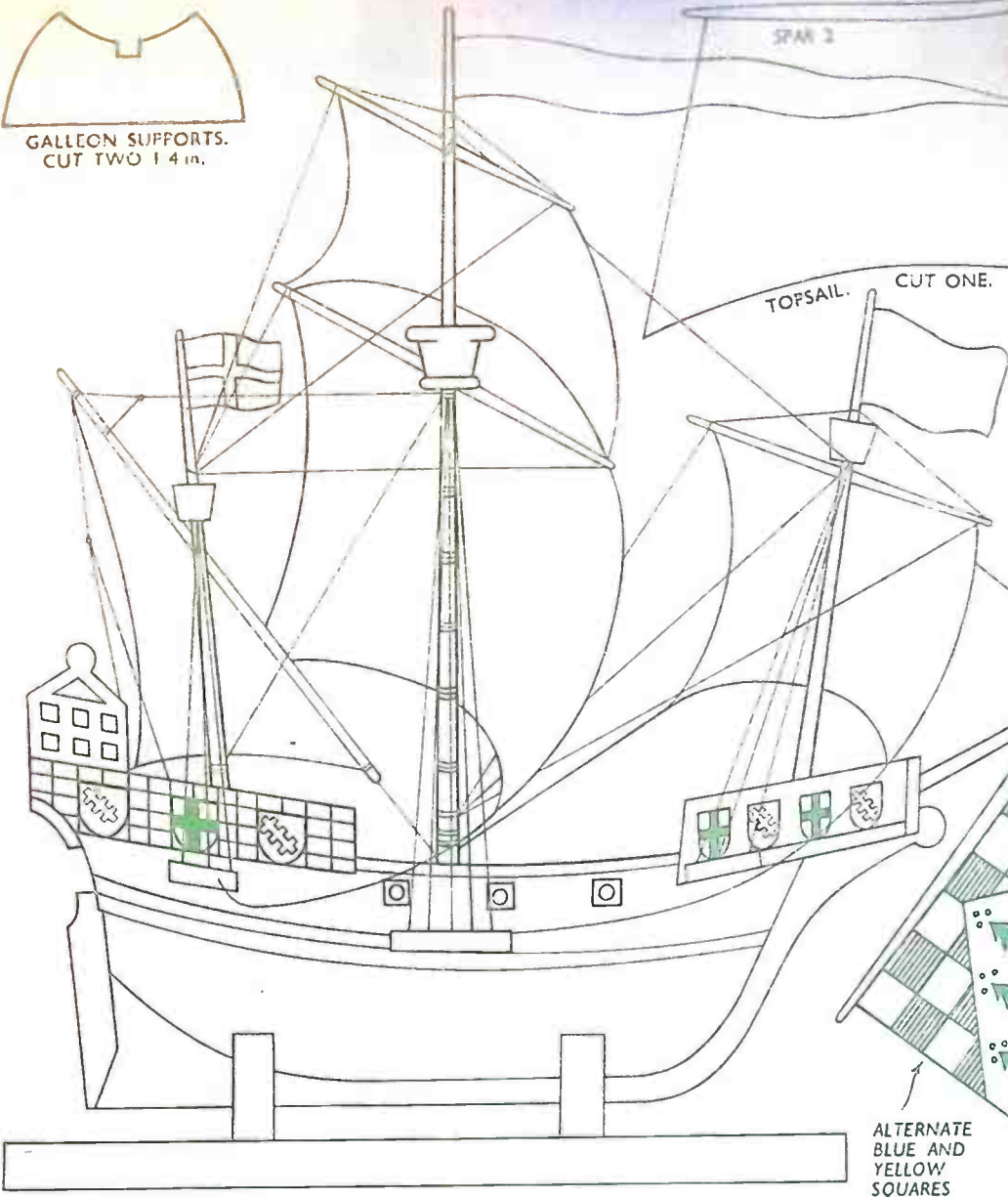
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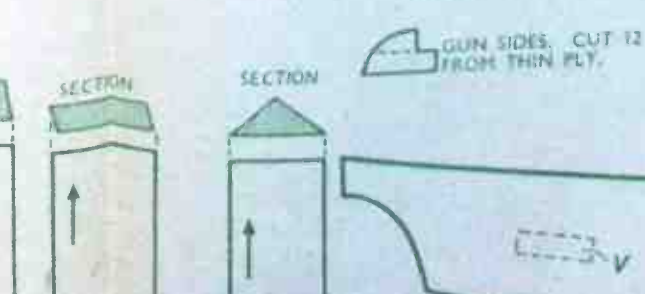
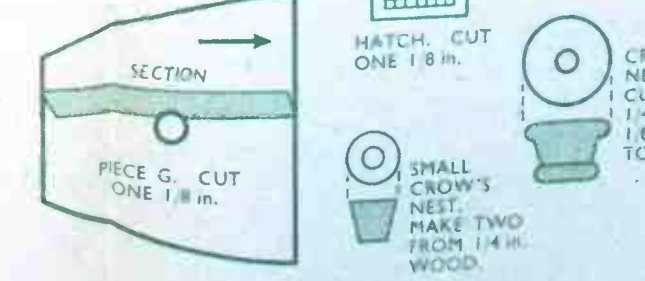
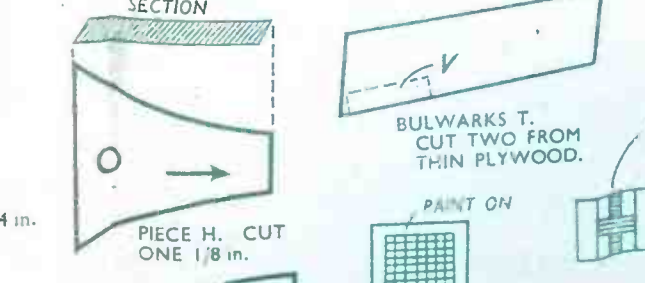
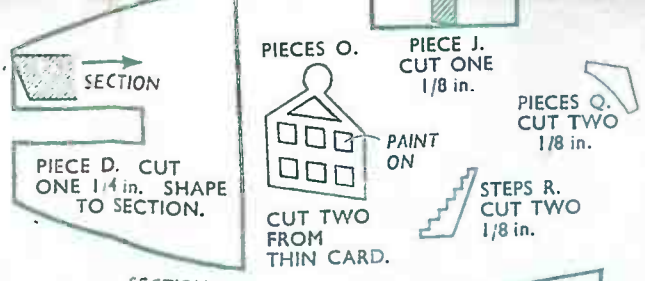
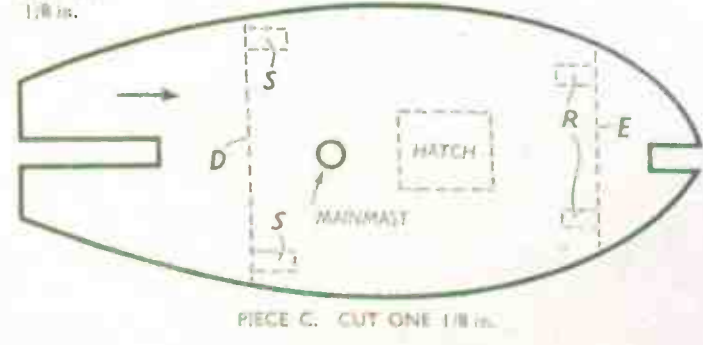
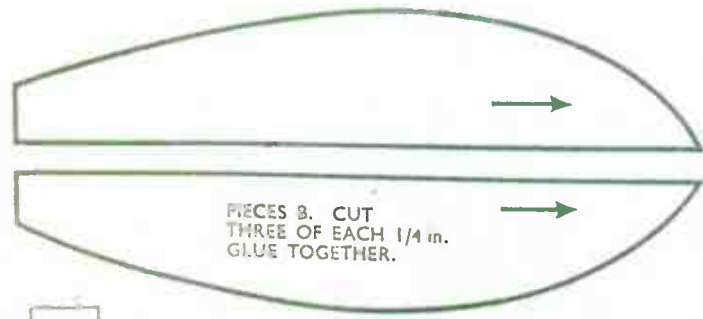
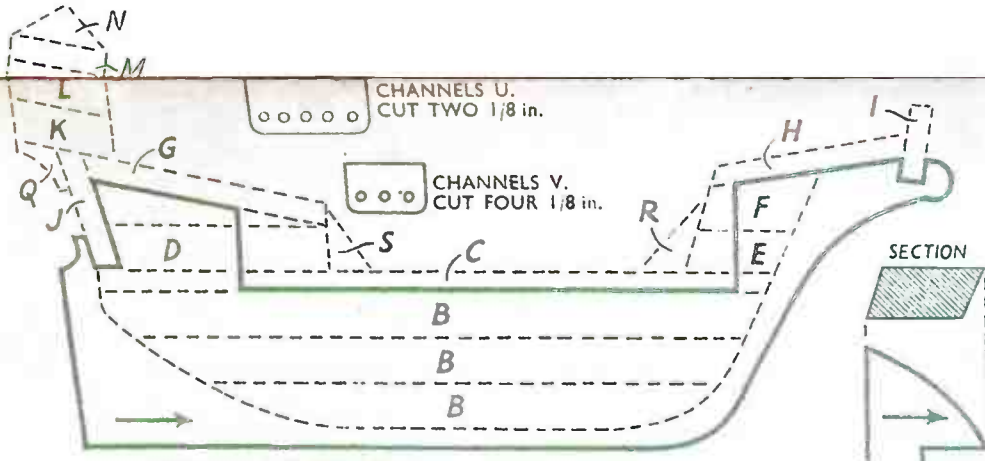
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