Hobbies WEEKLY

CONTENTS

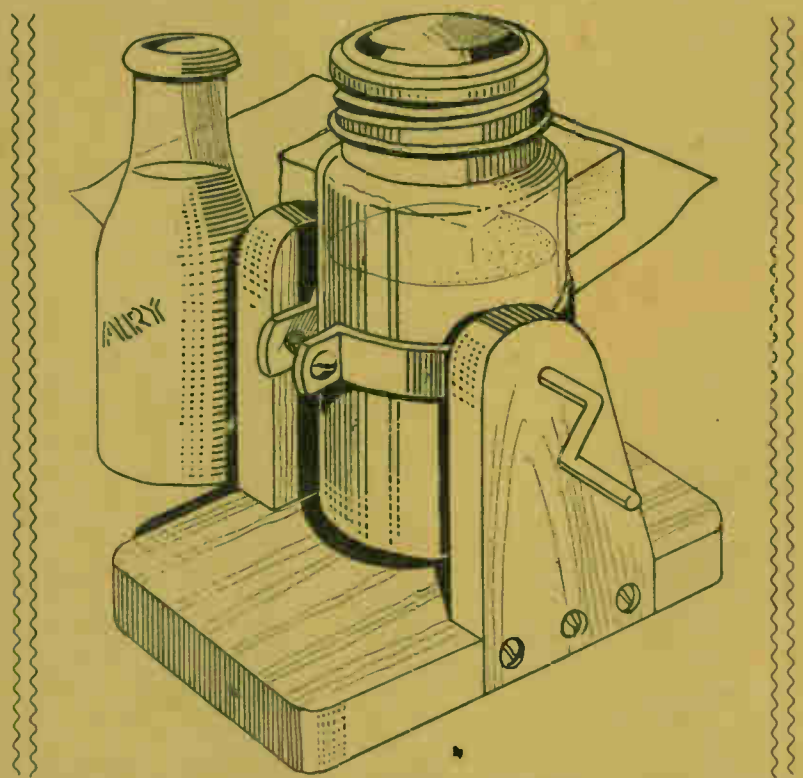
SUPPLEMENT DESIGN FOR MECHANICAL MODEL RACING CAR

April 7th, 1948 Price Threepence Vol. 106 No. 2736

A simple small home made

BUTTER CHURN

AS most readers know, when a fresh bottle of milk is delivered, most of the cream is at the top, or it will gather there if the bottle is left undisturbed for a few hours. By pouring some of this cream into a special glass container—really a preserving jar for fruit, pickles, etc.—and thus, day by day, gathering a quantity, the cream can be converted into pure, fresh butter, and the watery residue is butter-milk, so there is no waste.



It must be observed, by the way, that by removing the cream from the milk, say, two or three tablespoonfuls per bottle, the remainder of the milk is usable in the ordinary way, although robbed of some of its richness. If the entire cream, which can be seen about 2ins. deep in the bottle neck, is removed, the remainder in the bottle is mainly water.

Therefore, do not go to extremes. Remove a couple of spoonfuls from each bottle and store it in the preserving jar until this is half full or three-quarters full of pure fatty cream. The bottle requires to be shaken vigorously in the hands to convert the cream into butter, but by means of a simple churning device worked by a handle, the cream can be easily converted in a short period.

The Jar Required

The special churning jar required is shown at Fig. 1. It costs about a shilling complete. It has a glass covering lid, with rubber ring, and a screw-on cap, and all go together as shown. Although primarily intended for preserving fruit, pickling onions and so forth, the jar is ideal for the making of butter.

Having obtained the jar, the next step is making a suitable holder for it. This holder, made from ⅜in. by ¼in. or 3/32in. metal strip and a few machine screws, clips around the jar to be held by a tightening screw. The top plan is shown at Fig. 1, together with a handle from plywood and a machine screw, with nut.

Some jars may differ in size than others. The jar obtained by the

writer measured 3½ins. in diameter. The clip of the holder must be made to suit. The machine screw shanks serve as pivots when inserted into the base supports. Note how the metal strip is bent to allow for the heads of the screws, and that the screws are in a dead line with each other. This is important, otherwise the jar will turn stiffly, with a wobble.

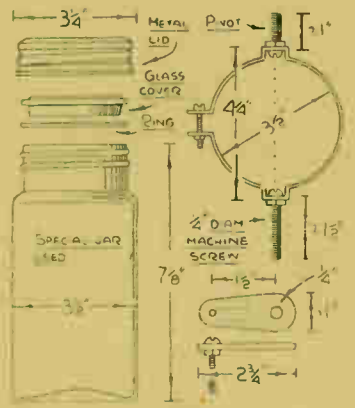


Fig. 1 Dimensions of jar required with details of holder

An alternative holder is shown at Fig. 3. This consists of a metal strip to which ¼in. rods are brazed or riveted. The metal is simply bent around the jar, tightening lugs provided, then the centre found, bored, and countersunk on the inside (for riveting), small pins, with shoulders being filed at the ends of the rods; the pin ends are flattened into the recesses.

Base Supports

If this method is adopted, one of the wooden supports must be fixed on at the handle end prior to riveting the handle to the clip. Better still, make your base supports from an old strap hinge, or use two old T-hinges, cutting away the knuckles.

These metal supports will thread over the cranked handle easily. Being a part of a hinge, the metal will be already bored, with some countersunk holes which can be used for screwing the supports to the base.

The Base

If ¼in. wooden supports are used, the base is cut to the shape shown at Fig. 3, using ⅞in. wood. While the length of this base would suffice, you could make it longer, or attach it to an extra piece of wood of longer size, if necessary.

The distance between the base supports must be the same as the distance between the pivot shoulders of the jar holder. This is 4¼ins. if made as at Fig. 1. There should be some allowance for a couple of washers.

When the jar clip has been prepared, attach it to the jar centrally, or rather, in a position so the weight of the jar is evenly balanced. Remove one of the base supports, fit in the shorter pivot of the clip, bring the other support to the base again, with the longer pivot projecting through it, then re-screw in place.

Using the Churn

The jar should turn easily and evenly between the supports. The

Fig. 2 Side elevation, showing how jar must clear base

plywood handle detailed at Fig. 1 is attached to the longer pivot screw by means of a couple of nuts. These nuts enclose the handle, being tightened against each other to grip securely.

Some farm churns are geared. Our model is not geared, but by keeping the crank small, a good speed can be worked up. Speed, in any case, is not a highly desirable feature. If the jar is turned too fast, centrifugal force causes the contents to remain at one end of the jar. Besides, because of the uneven swing, the churning device will rock about too violently.

To churn milk is to shake it vigorously, thereby separating the fatty substances from the watery content. By revolving the jar at a firm steady speed for some time, the cream drops from end to end and becomes, so to speak, pounded into

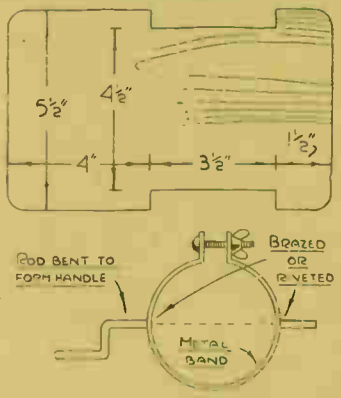


Fig. 3 Base and alternative type of jar holder

butter. During the process you can see the butter forming until it becomes a solid mass. The butter, when removed, leaves butter-milk, and this is excellent for drinking, baking soda farls, etc.

Salting

The butter, of course, must be salted. A pinch of salt should be added to the cream prior to churning it. A pinch usually suffices, or slightly more, for about a ¼ lb. of pure butter.

The jar, three-quarters full of cream, makes slightly more than a ¼ lb. of butter. The fresh butter is generally very soft and should, before use, be stored away in a cool place, preferably an ice-box or refrigerator. Goat's milk, by the way is not quite suitable for buttermaking.

HOW CYCLING STARTED

DURING a visit to an exhibition I was looking at a penny-farthing, not a coin, but a bicycle, so called because of the tiny size of the rear wheel in comparison with the one in front. Seeing this interesting relic prompted me to enquire into the beginnings of cycling.

Early last century, it seems, people in Paris saw the unusual sight of a man going along the road astride a two-wheeled contraption which he pushed with his feet on the ground. Baron von Drais, a German, produced an improved version of this latest idea in travel, and in 1818 it was introduced into this country by a London coachbuilder named Johnson. The machine was the Hobby Horse or Dandy Horse, from which developed today's most popular and least expensive means of transport, the bicycle.

It was not, however, until 1839 that mechanical movement was incorporated, Macmillan, a Scottish blacksmith, having by that time made a lever-driven model. In 1865 the pedal method was devised by a Frenchman, Michaux, who is credited with introducing a pedal-driven velocipede.

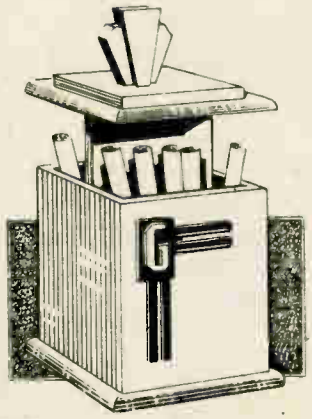
From time to time many different designs appeared, with two, three, or even four wheels. Cycles for two were early thought of, in some cases the pair of riders sitting side by side.

Boneshaker was the name given to the earliest machines, and considering their solid rims and general design, one can realise that cycling on some of the rough roads of those days must indeed have been a shaky business. Then in 1888 Dunlop came along with a model fitted with pneumatic tyres. Machines with graceful lines, smooth-going and light to handle, were gradually being designed, and the popularity of cycling increased.

The Craftsman

Lift the top and the contents are there in this novelty

CIGARETTE HOLDER



HERE is a novel and practical cigarette casket for the home, just the thing when you want an occasional cigarette. For when you lift the lid of the casket the cigarettes are raised, too, ready for you to help yourself. The picture on this page shows the lid raised and the cigarettes exposed. When the lid is down, of course, the contents of the box is hidden and is dust-proof.

Altogether an attractive little piece of work, especially if the simple front overlay is carried out in some contrasting colour scheme and the initial of the owner appropriately carried out.

The Case Work

The construction of the case is very simple. It consists merely of a box with a sliding floor and partition arranged inside. The box itself should be made from ¼in. wood, a fancy wood being used if it is possible to get some. Otherwise, ordinary wood could be adapted and painted carefully in colours with, perhaps, the decoration of the front also carried out in some contrasting colour. Or again, the decoration could remain as an overlay and painted or enamelled and stuck down to the case.

In Fig. 1 we see a plan or cross section of the box, showing at a glance its simple construction. There are two pieces, A, to form front and back, measuring 3½ins. by 3ins. Between these are the sides, B, again measuring 3½ins. by 3ins. Take care to cut them square, and allow for cleaning up the edges after cutting with the fretsaw.

Glue the four pieces together, and test the angles for squareness with a square. It should not be necessary to drive any fret nails or pins into the joints if the glue has been carefully spread over the ¼in. width of the upright edges while gluing up.

Floor and Interior

The floor of the box (C) is next cut and fixed on. This measures 3⅜ins. by 3½ins., and its four top edges are rounded as seen in Fig. 2. In fixing on the floor see that an equal margin appears on all four sides of the box. Here some thin nails or fret pins will be required, because of gluing on to the end grain of the sides of the box.

Dealing now with the inside of the box, the four pieces, D, forming as it

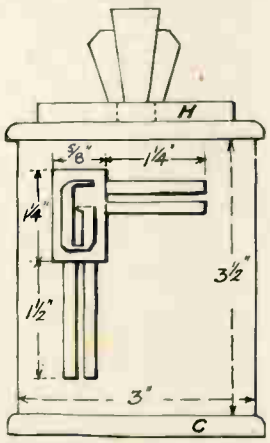


Fig. 2—Front elevation with outlines of decoration

were, grooves between which the lid partition, F, will work, are cut and glued in. Each piece is ¼in. thick and measures 3½ins. by 1 11/16ins. This measurement allows sufficient clearance for the partition (F) to work smoothly up and down.

Before gluing the pieces to the sides of the box, however, thoroughly clean off the edges and the surfaces, too, so no roughness remains to impede the smooth running of the partition.

Turn now to the moving parts within the box. At Fig. 3 we see them cut and ready to assemble. The measurements of each member is shown, but it would be advisable, however, before cutting the several

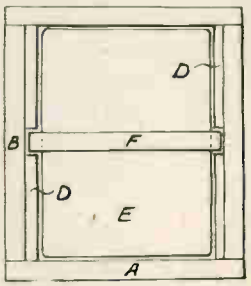


Fig. 1—Plan of box

pieces to check their sizes before actually marking them out. See that the two tenons on piece, F, fit tightly into the mortises of the floor, E, and the lid member, G, and glue them securely.

The top member of the lid (H)

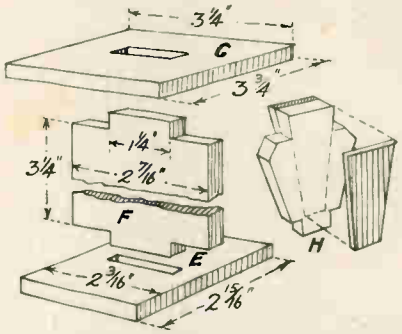


Fig. 3—Inside parts and detail of handle

should measure 3ins. by 2½ins. and in the centre of it a mortise must be cut into which the handle tenon may fit. The tenon may measure ½in. long and a scant ¼in. wide so a good fit results.

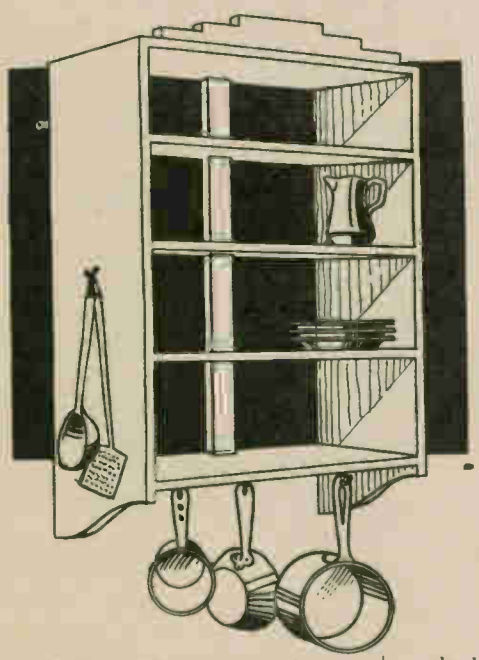
The Handle

The modern type of handle is made of three distinct pieces as shown in the detail in Fig. 3. The larger middle section of it measures 1½ins.—which includes ¼in. for the tenon—by 1⅛ins. wide. The two side layers consist of ⅛in., or even thinner wood, cut to the simple outlines shown and glued on. The matter of cleaning and glasspapering should be painstakingly done if the finished handle is to retain its original shape.

The suggested measurements of the overlay bearing the monogram are given in Fig. 2. The whole may be cut in wood or painted on as advised in the early part of this article.

Any housewife would be delighted if you make this

SCULLERY SHELF UNIT



SOME housewives like open shelves in sculleries. Others prefer the enclosed shelves, with hinged or sliding door, as these units do not harbour dust and dirt. In regard to open shelves, these are usually fixtures against the wall, supported by wood or metal brackets.

Such are, consequently, difficult to remove, and having got them shifted, the wall is badly marked, especially by various coats of paint which have been applied from time to time, the edges of the shelves having been a form of protection against the bare wall.

A Handy Holder

Now, it is hard to please everybody, but why not build a complete shelf unit which, when necessary, can be easily removed and re-fitted again?

We illustrate such a unit herewith. As you can see, it is plain and simple in construction, backless and doorless. If desired, flush doors (hinged) could be attached. Such a unit is a useful type of hold-all. Odd plates, china or tin, baking dishes, pots and pans, cooking utensils, etc., can be accommodated in the unit.

It can be made from 9in. by ⅞in. deal shelving board. For the size of most small sculleries, and the requirements of most housewives, a unit 4ft. by 30ins. should serve. It could be built 2ft. wide, if necessary. It is a hammer and nail job, and could doubtless be constructed in an evening.

The Side Pieces

You will want two side pieces 4ft. long, cut to the shape shown at Fig. 1. It is advisable to mark on the position of the four shelves with set-square and pencil, then pencil the bottom shape and cut it with a padsaw or bow-saw.

The shelves are, with exception of the topmost piece, all the same length (28½ins. long, if a 30in. long top piece is used). The top is glued and nailed on the ends of the sides to be flush. The shelves go between the sides.

Before this is done, however, it is necessary to check the rear edges of the top piece and shelves for a central wooden bar 2ins. by ⅞in. This should be a flush fit, so the checking will be 2ins. by ⅞in.

This bar serves to hold the carcase in the square, as it is backless. To save using wall hanger plates at each side of the carcase, you could fit double upright bars, and drive the fixing screws through them into the wall plugs.

Assembly Hints

When assembling the work, use 2in. oval nails. Having the carcase built, all nail heads are sunk with a punch and plugged over with putty or plastic wood, then the wood glasspapered.

A pediment piece could be added as a form of decoration, at the top, front edge of the carcase, as in the illustration. This, indeed, should not be omitted, as the top of the carcase can be used as an extra shelf for tins and so forth.

Having made the unit, the next thing to be done is to finish it. The unit could be left in the white natural state, but the present trend, regarding scullery shelf fitments, even on cabinets built from wood, is to have the work enamelled in attractive blending colours.

One method is to paint the entire unit a cream colour, then touch up the face edges only with a brown paint. Another very attractive colouring scheme is to paint the work light (pale) green all over. When this dries, the frontal edges are painted dark (olive) green.

Easy to Dust

These two shades blend nicely together and the unit has a pleasing clean and tidy appearance. Due to the enamelling, shelves are easily dusted and cleaned. Dust and grease sinks into bare wood so that, after a time, the unit will seem slovenly and unhygienic.

You should, at least, give the woodwork two applications of enamel paint, allowing the first to dry thoroughly before applying the second coat. There is no need to apply two separate coats of contrasting paint to the front edges of the work. A single careful coat will suffice.

Use light and not too dark colours. For example, with the cream or buff colour, the brown should be a light oak colour—not chocolate. Golden brown, a light form of chocolate, is a good colour to use. If you paint the unit white, edges can be cream or buff. Such a finish, however, is rather more suited to a bathroom than a scullery.

A good plan is to give the final coat in washable paint or enamel so the whole thing can be cleaned with a wet rag when it becomes dirty.

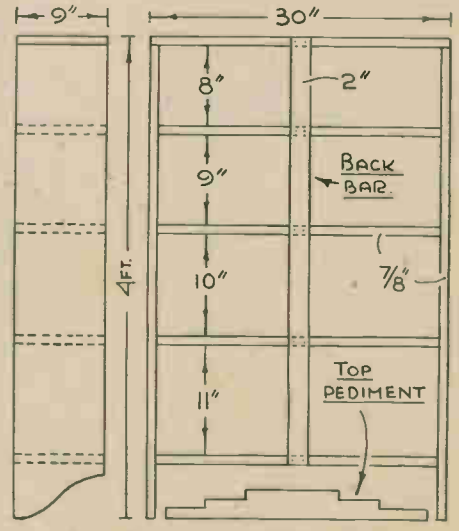
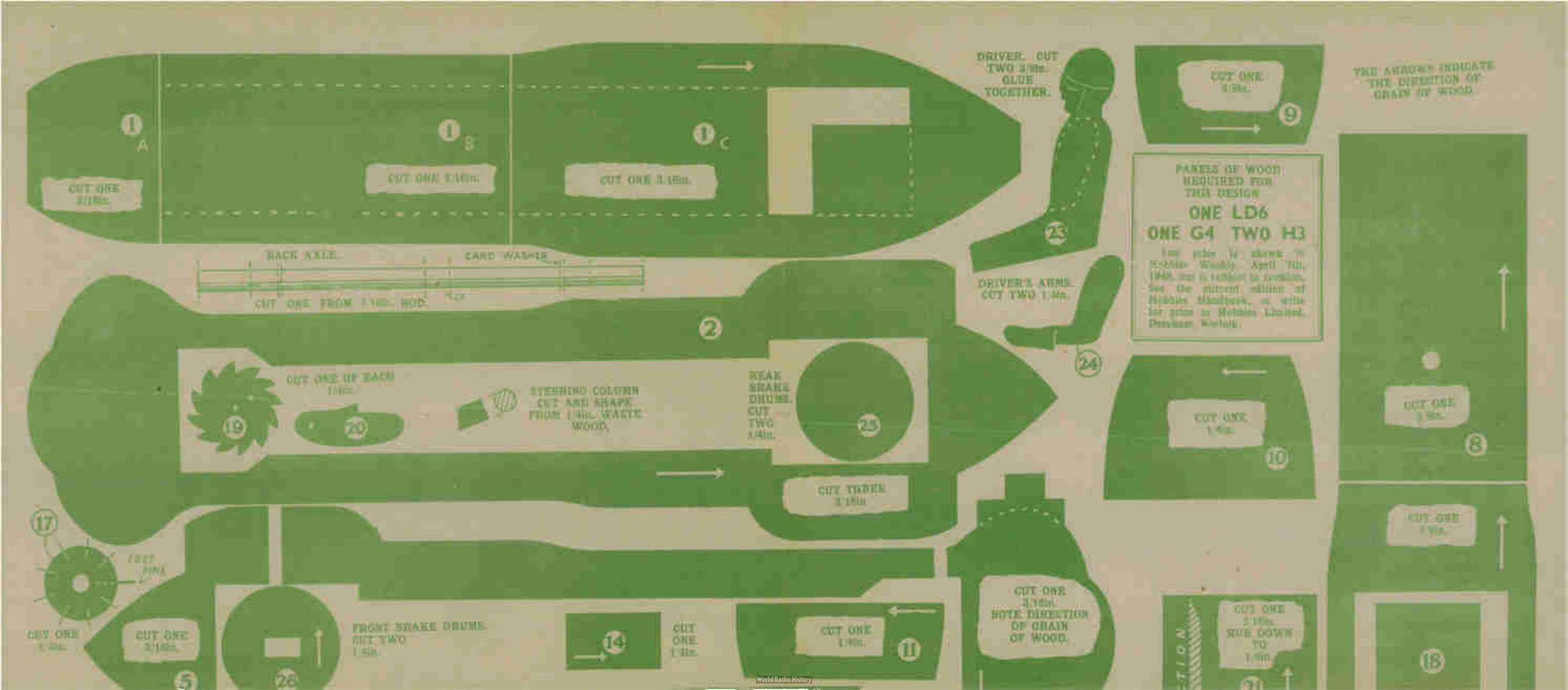


Fig. 1—Side and back view of carcase

Lead Ship Accessories

HERE is a tip which may be of use to model boat builders. I have found that when one wishes to make lifelike accessories they are best made of lead. Small dinghies, lanterns, windlasses, etc., can be easily cut out of soft lead with an ordinary penknife and they take the paint well. This is a good method for those who wish to build models made entirely by themselves. (W.F.C.)


1 A
CUT ONE 2/16in.
1 B
CUT ONE 3/16in.
1 C
CUT ONE 3/16in.
DRIVER. CUT TWO 3/8in. GLUE TOGETHER.
23
CUT ONE 3/8in.
9
THE ARROWS INDICATE THE DIRECTION OF GRAIN OF WOOD.
PARTS OF WOOD REQUIRED FOR THIS DESIGN
ONE LD6
ONE G4 TWO H3
Any plan is shown in Hobbies Weekly April 7th, 1945. But is subject to revision. See the current edition of Hobbies Handbook, or write for price to Hobbies Limited, Dereham Norfolk.
BACK AXLE
CARD WASHER
CUT ONE FROM 1/16in. ROD
2
DRIVER'S ARMS. CUT TWO 1/8in.
24
CUT ONE 1/4in.
10
CUT ONE 3/8in.
8
19
CUT ONE OF EACH 1/8in.
20
STEERING COLUMN CUT AND SHAPE FROM 1/4in. WASTE WOOD.
REAR BRAKE DRUMS. CUT TWO 1/4in.
25
CUT THREE 3/16in.
17
FRONT PINS
CUT ONE 1/8in.
CUT ONE 3/16in.
5
26
FRONT BRAKE DRUMS. CUT TWO 1/4in.
14
CUT ONE 1/8in.
CUT ONE 1/8in.
11
CUT ONE 3/16in. NOTE DIRECTION OF GRAIN OF WOOD.
CUT ONE 3/16in. RUB DOWN TO 1/8in.
21
18
CUT ONE 3/8in.

ANICAL RACING CAR

fitted to the front of
rong screw. Before
screw on a loop of
ed with a piece of
the elastic drive
wheel exactly in the
and check so that
s contact those of
le. Note that these
er apart than on the

these parts can be
e axle and its pin-
provided between
Fig. 1). The box is
t 7 and a screw can
as shown in the
ttern sheet through
sure the mechanism
nally add the lid of

Shaping the Body

At present we have a rectangular solid block of model, and shaping of it can now be undertaken. Screw on the unit composed of 1 and 2 (see Fig. 1), and then round off all parts so you have a model such as shown in the picture of the finished car. There will be a lot to take off at the front to make a nicely rounded radiator, and the back and bonnet must also be nicely shaped to balance.

Notice the lugs projecting towards the wheels are also rounded. The shape of the rear end is shown more clearly in Fig. 4. At present the sides of the car are solid, but it will be necessary to make a more open cockpit for the driver, by taking away a small portion.

This is shown in Fig. 5, the shaded piece being cut away with the penknife when the other shaping has been completed. Four wheels 1⅞ins. in diameter and ¼in. thick are needed, and to each is glued an imitation brake drum (25 and 26) on the inside.

The front wheels are, of course, screwed on to revolve freely, but the rear wheels are glued firmly to the revolving axle.

The two wheels containing 26 fit on the front lugs of No. 3, which can be clearly seen in Fig. 1. The wheels are fitted to the axle at the rear about 3/16in. gap away from the body.

Cockpit Parts

The interior of the driving cockpit is lined with the two pieces 21 and 22. These must be only ¼in. thick. Put in 22 first as the floor with the little semi-circular opening to the rear so the mechanism underneath does not catch. No. 21 must have its top edge chamfered to lie flush against the back "wall" of the body. The section of these two pieces is seen in the side section on the sheet.

A little steering wheel with spokes painted on is added to a short column glued to the centre of the dash after the instrument board has been painted on according to the details shown at Fig. 6.

Outline of parts for making a figure of the driver are given. The body is composed of two pieces of ¾in. glued together, and then rounded to form the head and trunk. Arms ¼in. thick are cut and shaped independently, and then the whole lot glued together and painted as in Fig. 7.

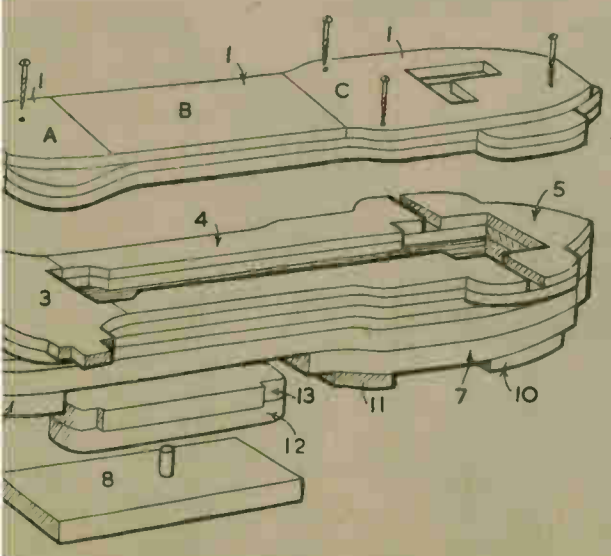
Painting the Model

The whole model should be thoroughly cleaned before giving a first coat of paint. Allow this to harden and then add the final bright glossy enamel in the colours desired. The whole body can really be in a bright red, with cream for the bonnet and wheels. The exhaust pipe is aluminium, fitted in place along the side by being lightly pinned back and front. The rear end is cut flat, but the front end is rounded off as though disappearing into the engine.

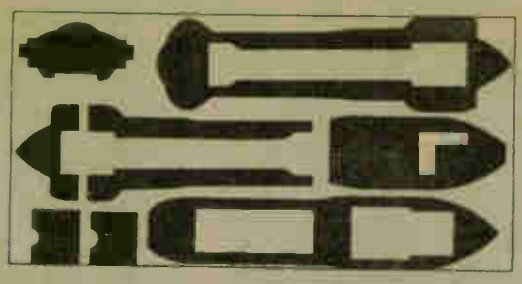
The bonnet top, as previously mentioned, is detachable and held in place by the little projecting dowel. This was allowed to fit tight into the engine during the period of shaping, but should now be made a more loose fit so it can be easily extracted.

Elastic Drive

If you find in the running that the wheels do not grip, a good plan is to glue and tack a piece of flat elastic round the rear ones. The driving elastic consists of four strands, the ends being tied together with cotton or thread, and the whole thing thoroughly lubricated with the special preparation obtainable from model aeroplane shops, or by the use of soft soap.



Up upside down view of the parts numbered as patterns



rns fit to the panels of wood provided

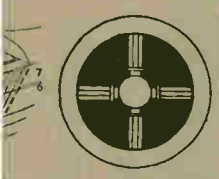


Fig. 6—Paste these to the driving wheel and dashboard

Fig. 7—Shape and colours of the figure

Hobbies DESIGN

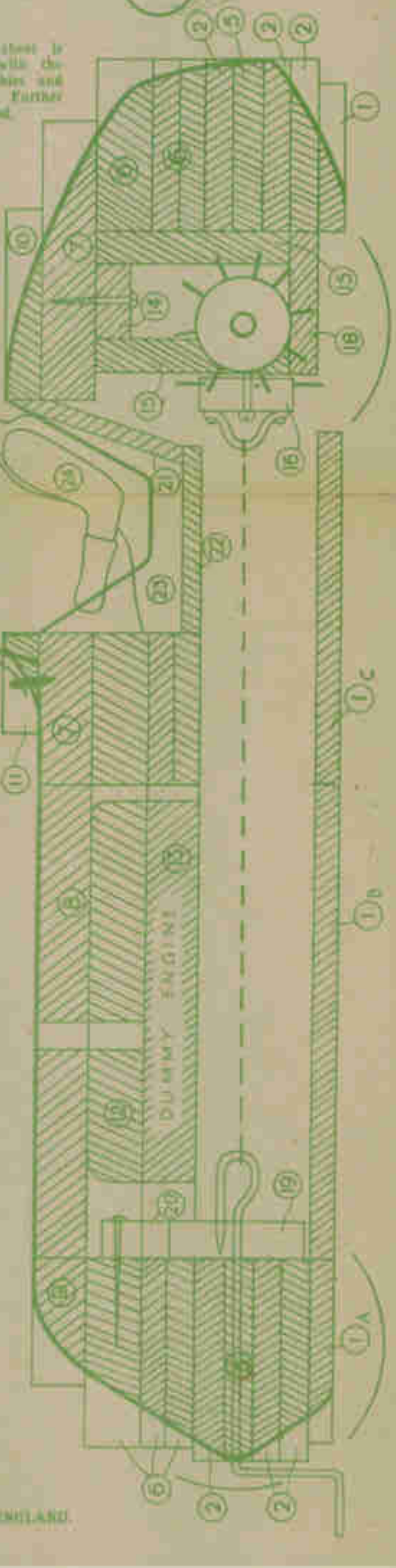
No. 2736

SUPPLEMENT TO HOBBIES No.

— A WORKING TOY —
RACING CAR

SIZE LENGTH
WIDTH

NOTE.—This design sheet is only presented free with the current issue of Hobbies and not with back numbers. Further copies may be obtained.



PRINTED IN ENGLAND

Instructions for a MECH

A STURDY working toy 10ins. long can be made from the patterns provided on the reverse side of this sheet, with the aid of fretwork tools, rasp, glasspaper and glue. The kit of wood provided includes boards of the correct thickness—3/16in., ¼in., ⅜in. and the rod for the exhaust pipe and the axle.

Apart from that, you need some 3/16in. wide model aeroplane elastic, some two dozen fine ½in. fretwork nails, a short length of 14 gauge wire, and some odd screws. The toy is driven by winding the elastic 80 to 100 turns, which is sufficient to drive it a considerable distance at a good speed. A helpful innovation is a pawl and ratchet movement so that the wheels do not revolve when winding stops, as is the case in the ordinary way unless you hold the wheels firmly.

Mark out the Patterns

Construction of the model must be followed carefully, and a thorough study made of the patterns and the details here given, to get a good idea of how it is built before starting. Trace off the patterns on to the wood by means of carbon paper, and cut out with a fretsaw. Parts are numbered numerically, and can be built consecutively in the order given.

Note, however, that two complete units are made as shown at Fig. 1. This detail is a view of the part upside down. The upper portion shown will be the part forming the floor. It is made as a separate unit and fixed on the final toy with screws where shown. It can thus be removed when necessary to lubricate the elastic, or renew or repair any parts.

Note that part 1 is shown in three pieces—A, B, and C. This is only to conserve room on the panels of wood provided. If you have a piece of board large enough, the part can be cut as one outline.

Patterns on the Panels

By the way, the method in which the various patterns can all be got out of the wood provided, is shown by the illustration here. If it is not followed you will find it awkward to get all the parts needed. Build up the unit shown at the top of Fig. 1, gluing it together, taking care that the L-shaped opening is in the direction shown.

Then proceed to build up the main body from 3, 4, and 5 onwards. Notice the aperture which provides for the mechanism and the space between 4 and 5 which forms the slot in which the rear axle runs. The dummy engine (12 and 13) is cut and shaped.

The bonnet portion (8) has a short length of dowel rod glued into it, and projecting beyond, and this sinks into a hole drilled into the engine as indicated in the drawings. Get this dowel rod a fairly tight fit because when the engine is glued in place on the projecting lugs of part 4, the bonnet top is held rigidly in place to the shaping. Do not generally shape the parts of the body at present, but build them up with square edges.

The Winding Handle

At the front end a hole must be drilled carefully through part 3 to take the winding handle. This wire, after passing also through the ratchet wheel (19) is formed into a loop, and then its pointed end hammered into the wheel again. Before finally driving into the wheel, it is a good plan to run a short length of valve rubber over the wire to prevent the elastic chafing or wearing.

Above this ratchet wheel (19) is the pawl (20). It is held with a long pin to the inside of the block front, so that its weight holds the part on to the ratchet and prevents that wheel reversing when turned. A detail of this portion of the mechanism is shown at Fig. 2. This is a helpful view, and should be studied in conjunction with the side view on the design sheet.

Driving Wheels

The detail at Fig. 3 is also worth studying as showing the reverse end mechanism. The hollow box made of parts 14 and 15 should be completed without the lid piece (18). Now make up the two driving wheels (16 and 17). Fix No. 17 on to the axle in the position indicated, glue in place, and then drive in the fret pins so they project only about 3/16in. Their points will go into the axle itself, and so make a firmer drive. The pins are, of course, equidistant, put in centrally on the edge of the wheel at the points shown on the pattern.

Wheel No. 16
the box with a
fitting, howeve
wire—again co
valve rubber—
later. Screw th
position indicat
its projecting
the ones on the
fret pins are far
other wheel.

A trial of
made by layin
wheel in the so
parts 4 and 5
glued down to
be run throug
section on the
part 14 into 7.
runs freely, and
the box (18).

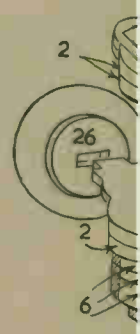
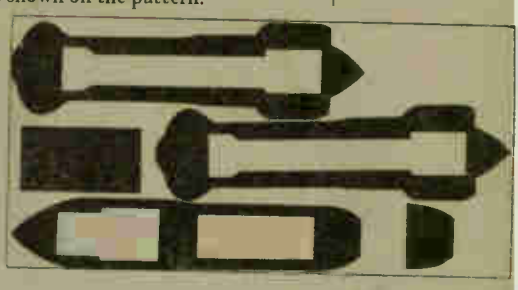


Fig. 1



Showing how the pa

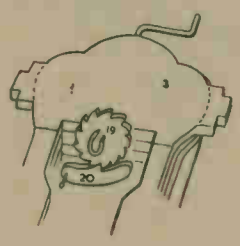


Fig. 2—Underview of ratchet and pawl

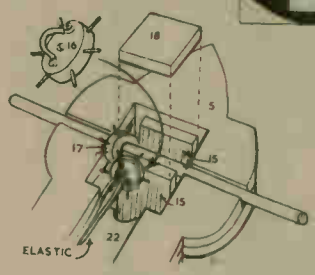


Fig. 3—The gears which engage to drive

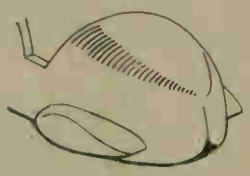
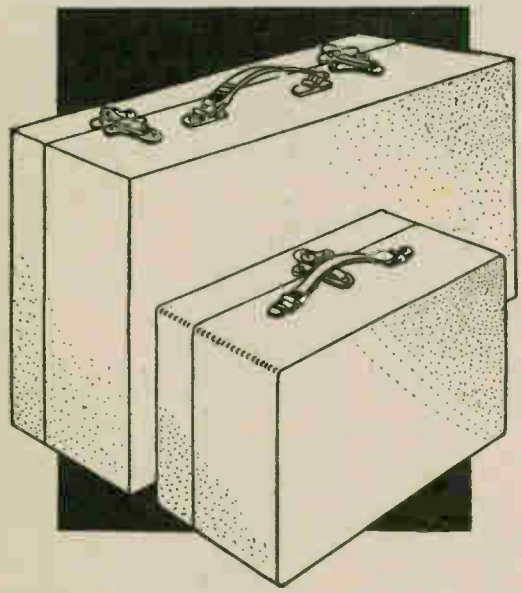


Fig. 4—Rear end shaping

Fig. 5—Cut the shaded po

How scrap material can be utilized for a HOME-MADE SUITCASE



THE price of carrying cases these days is pretty high—even for leatherette-covered cases. So, if you need a new case, small or large, why not make it? It can be easily done from scrap materials.

For instance, suppose you have an old empty soap box tucked away somewhere in the tool or bicycle shed, you have in that the makings of a good suitcase. These boxes, now replaced by cardboard containers unfortunately, measure 20ins. by 14ins. by 6ins.—just a nice size for a suitcase.

Another reason why these boxes are so ideal is that the corners are comb jointed and not nailed together. A comb joint is a very neat affair, and if the box can be covered on both sides with sheets of tea chest plywood, the work can be finished by polishing walnut, mahogany or ebony.

Useful Dimensions

Assuming you have only one side of a tea chest to spare and want an attache case; it would be easy to make a case from scraps of ¼in. deal board and have the ends comb jointed.

The case dimensions will depend largely upon the size of plywood sheet available. Tea chest sides usually measure 24ins. by 18ins. by 3/16in. Halve this and you get two sheets 18ins. by 12ins.

If the width of the case is made 6ins., you have a most useful size of attache case. If you do not have bits of ¼in. wood at home, it might be possible to pick up scrap lengths from a timber yard for a small sum. Timber, whether in small or large lots, is very difficult to obtain at the moment, i.e., new timber. A permit is required, but scrap stuff (new wood, damaged slightly or containing flaws), when available, is sold without the necessary permit, but in small quantities only.

Orange, lemon and grape-fruit crates are frequently disposed of by grocers and fruiterers as firewood. There is good useful sound timber in these boxes which can be utilized in numerous ways. The making of carrying cases is one way, and the method suggested by the writer is strong, neat, and proper.

The Casing

The casing consists of two side and end pieces cut to the dimensions shown at Fig. 1. The dotted lines indicate the lid depth.

To prepare the casing parts, cut and trim the side and end pieces to finished length and width, the latter being 6ins. Ends must be planed quite square, following which ¼in. gauge lines are scribed on both sides of the wood to mark the teeth depth.

The teeth are ¼in. and the sockets ¼in. When the parts are pushed together, the teeth and sockets "key" nicely and glue suffices to hold them together. Nails should not be used, unless thought necessary. These nails should be 1in. oval brads or panel pins, and be driven into each tooth at the ends and sides.

The teeth, when marked out, should be separated by means of a fine tenon saw, such as a dovetail saw. Now, if you own a ¼in. wood chisel, the waste wood between each tooth is chopped out, working from both sides.

If, however, you can use a fretsaw frame and saw quite vertically with it, this is ideal for removing the waste wood quickly and neatly. The blade is pushed into a saw cut and run across the guide line.

Adding the Covers

When you have finally glued and (if necessary) nailed the casing parts together, square the work and put it aside to set. Meanwhile, prepare the plywood covering pieces. You need two pieces 18ins. by 12ins. That is the net size; allow extra for cutting and trimming. An edge and end should be trimmed square and indicated by a pencil mark in the usual manner.

When the casing edges are ultimately levelled with a block plane, the plywood coverings are attached by gluing and driving in panel pins. Use ½in. or ⅝in. panel pins. When the coverings are attached, the pin heads should be sunk a trifle with a fine nail punch.

By the way, when attaching the sheets of plywood, have the squared side and end edges affixed flush with the side and end edges of the casing. This ensures that the casing is pulled square. When glued and nailed on completely, the remaining side and end edges are planed flush.

Stopping to Fill

Some of the teeth in the comb joints may require to be planed level. Use a finely set smoothing plane or a block plane for this purpose. The work is then stopped with a wax stopping or plastic wood, where essential, and thoroughly glasspapered. The corners can be kept square or rounded over.

The lid depth is then scribed with a marking gauge or a pencil. The lid is removed with a panel saw, beginning at one of the corners. Continue cutting right around the case until the lid is cut away. The rough saw marks are removed carefully by trimming with a plane.

The Fittings

Before polishing the work, obtain the fittings. You require two face hinges, a clip (with lock combined)

(*Continued foot of page* 6)

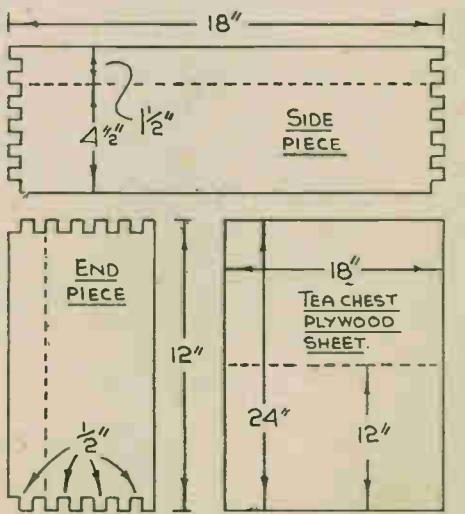
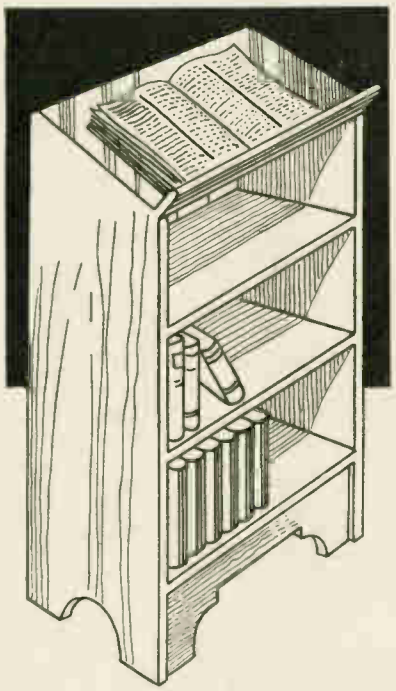


Fig. 1—Sides and ends with coverpiece

How the home amateur carpenter can build

A SIMPLE BOOKCASE



THIS bookcase has a top sloping surface or rest, on which opened books may be placed while doing a spot of research work through a small home library. Such a feature is sure to be appreciated at times, and the case is very easily made from ½in. deal shelving material and ⅜in. matching board, the latter serving to "back" the carcase, since plywood is not available.

Sides

The sides of the case are cut from shelving material to be 39ins. long or thereabouts. The three shelves are divided to suit individual requirements. Their positions should be accurately set out with a set-square at the inside surface of the sides, following which the top end is cut at an angle taking a 10in. wide shelving board, plus a 20in. by 1½in. by ½in. lip piece, as seen in the side view.

If desired, the sides can be cut to the shape indicated or kept plain, as in the finished view of the work. The front plinth is cut from ½in. wood to the same length as the shelves, which is 19ins. The shelves, plinth, sides and top should be prepared for assembly, with all ends neatly trimmed and squared.

Attaching the Parts

The top is attached to the sides with 1½in. oval nails, then the bottom shelf piece and plinth added, these going between the sides, of course.

The remaining two shelves are fitted, either on fillets of wood or by nailing in position permanently. The fillets, if attached with screws, enable the shelf distances to be changed, whenever necessary.

The plinth does much to keep the carcase square and, at this juncture, the backing may be added. The backing consists of two lengths of 3½in. by ⅜in. tongue-and-grooved boarding which run the full length of the rear edges of the sides. Four shorter lengths, stretching from the top to the bottom shelf, are then required, making six pieces altogether.

Fixing Back

The six lengths, placed together, are more than 20ins. wide. This is wanted, because the waste is cut from the sides of the longer pieces and this takes away the tongue or groove which otherwise would be seen at the sides.

To attach the backing, affix one side piece, then slip in the shorter pieces alongside, finally putting in the opposite side piece. Attach with oval nails, then trim the edges flush with the case sides. The matching board makes a very neat and attractive backing to the work.

No door is necessary. Books are fully exposed, ready for taking out when needed. Note, by the way, that the plinth is kept in slightly and not flush. It could be made flush, but the joint at the ends might be too noticeable. As to the top book rest, its lip pieces should be rounded over at the edge.

A Polish Finish

For a finish, apply several coats of thin walnut french polish with a soft brush. The shelves should be also polished so they can be dusted easily. Music stand clips could be affixed to the top lip to hold pages down properly.

It is being assumed, of course, that all nail heads are neatly punched and covered with plastic wood or a colour wax filling. There is no need to stain the wood walnut. Walnut polish is self colouring; the more coats applied, the darker the finish.

If you own a lot of books, especially reference books, rather than have them scattered about here and there in the house, this simple bookcase will hold them and facilitate reference.

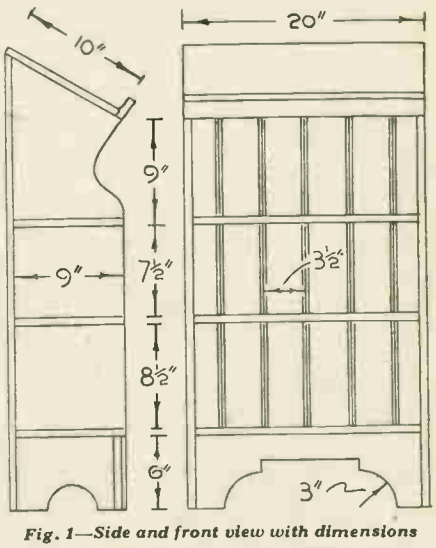


Fig. 1—Side and front view with dimensions

Suitcase (*Continued from page 5*)

and handle, with holders. These may be affixed with round head nickel-plated iron screws. If ¾in. long split rivets can be obtained, these will, if used (after polishing the case), ensure that the contents of the case will be kept safe.

When you have the fittings attached, these are removed to enable the case to be finished. A drawback with a polished case is that the finish is easily scratched. A high gloss, therefore, should be avoided. It can be removed by sprinkling a fine emery powder on a brush and rubbing the powder on in circular motions. Alternatively, a waxed finish could be applied.

When Wood is Too Rough

Assuming the wood used is rather rough, such as the soap box mentioned, and that you have no plywood sheeting to use, use ordinary thin box wood, such as the sides of onion boxes, etc.

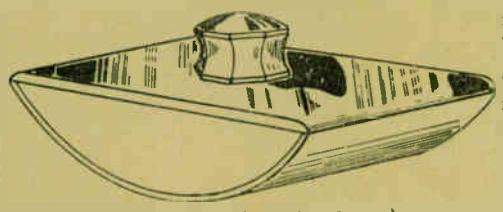
Rub hot glue between the joints at both sides, then level the wood as much as possible. All sharp corners and edges should be removed by running coarse glasspaper along the wood once or twice.

Having separated the lid, levelled the edges, and tested the lid in place for trueness, the entire woodwork is covered with a leatherette paper or cloth. There should be plenty of overlap into the case.

The interior overlaps are then concealed (including the roughness of the wood) by gluing in lining paper or cloth. Lining paper is often finished to look like marble or fancy leather. At a pinch, a fancy plastic wallpaper could be used.

How the Perspex worker can make a

ROCKING BLOTTER



A ROCKER blotter is a handy item on the writing desk, and the one shown would look most effective in opaque coloured Perspex. The actual process of dealing with the material has been dealt with in earlier articles. Fig. 1 shows the arrangement of the parts.

Commence with (A) which is cut from 3/32in. or ⅛in. thick material and bent to shape. The platform (B) is cut from ⅛in. Perspex and is pierced with a 1 B.A. tapped hole for the handle.

Strips of Perspex are cemented across each end of the platform, which is then trimmed to fit snugly into (A) and cemented in place. Notice that (A) projects above these strips by about 1/32in. to make sure that the blotting paper will be gripped securely at each end.

Pressure Plugs

Drill two small holes in each end and cement four small plugs (Fig. 2) made of Perspex into the holes, then trim them flush. This is done to reinforce the joints against the upward pressure when the handle is tightened.

The sides (C) are now cut from 3/32in. or ⅛in. Perspex and cemented in place, after which the top (D) is made. This is a piece of ¼in. thick material, pierced in the centre with a 1 B.A. clearing hole and having the ends rounded. Two strips of Perspex are cemented underneath so that they fit between the side pieces and thus prevent the top twisting round.

The Handle

The handle (E) is made up from five pieces of Perspex each measuring 1½ins. square by ¼in. thick, and you can give it a novel touch by using differently coloured pieces, and mixing transparent and opaque material in layers. A 1in. long, 1 B.A. countersunk screw is 'buried' in the handle as shown in Fig. 3. Drill a 1 B.A. clearing hole in one of the pieces and countersink it for the screw head.

Be specially careful to see it fits really flush or you may have trouble when cementing the layers. In another piece, a 1 B.A. tapped hole is made. These two pieces are cemented together and the screw driven home.

Handy Knob

Now cement the other layers in position and when dry, pare the block to an octagonal shape. Each of the eight sides is hollowed with a half round file and the top is rounded, as shown in the detail at Fig. 4. Smooth the surfaces and finish by polishing.

Cut a strip of blotting paper and lay it round the curved part. Put the top in position and secure with the handle. The screw grips the threaded hole in (B) and the blotting paper is thus gripped at each end.

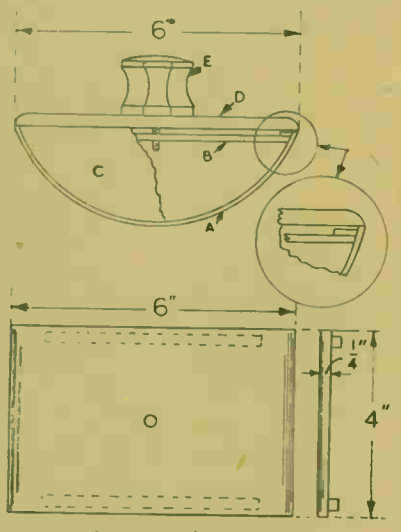


Fig. 1—Detail of the parts

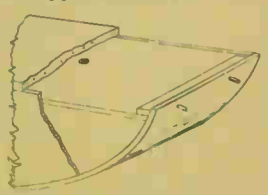


Fig. 2—Reinforced platform and end pins

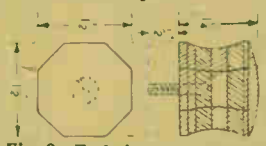


Fig. 3—End view and section of knob

Fig. 4—Filing the curved recess

Some Helpful Replies of Interest

IS the new D.D.T. insecticide dangerous to humans? After spraying the house with it, I seem to get a headache and a mild form of sore throat.

THE liquid spray, for killing insect pests, consists of, usually, 0.5 per cent. D.D.T. and 0.2 per cent. Pyrethrum. The latter is prepared from flowers and used for killing insect pests. Pyrethrum root, or pillitory, is used to stimulate the flow of saliva in cases where the mouth is abnormally dry. So, the insecticide is not dangerous to humans. It should not, however, be sprayed over food, and the less inhaled, the better. Flies sprayed directly with the insecticide die in 1 to 2 hours—on their backs, after a lot of leg exercise! The final action is an attempt to fly away—the last kick, so to speak. Like all insecticides, the new D.D.T. stuff is only dangerous if taken internally in a large quantity. The fine spray, breathed by the mouth, is inclined to irritate the throat and the remedy is to keep one's mouth closed.

WHAT kind of flies are generally responsible for the grubs found in meats? One day we had liver, some of which was fried. The following day, the remaining portion of the liver, in crevices, was covered with tiny sausage-shaped white eggs. Would these have hatched into flies?

UNDOUBTEDLY. Blue-bottles are usually responsible for the grubs in meat. The white eggs hatch into grubs which commence to feed on the meat, by which time the meat is in a state of decay, having a definite smell. Warm spells of weather, such as experienced last summer, help matters come to a head quickly. Hence, all meats, boiled or otherwise, must be kept protected from the activities of insects by keeping in a meat-safe or a refrigerator. Boiling fresh meat is an insufficient safeguard.

I HAVE been offered a ½ h.p. D.C. motor for driving my fretmachine. As the house mains are A.C., is it possible by some means or other to drive this motor from the same? (J.E.S.—Wolverhampton).

WHEN a motor intended for D.C. is connected to A.C. mains normally only very poor results will be obtained, and no results whatever in some cases. Provided the motor contains no permanent-magnet system, it is possible to rewind for the A.C. mains. Normally thicker wire will be required and sometimes it is only necessary to re-wind the field. This may be done experimentally, increasing the size of wire until the required power is obtained without undue overheating. It is not possible to state the winding required without knowing size and number of poles of field winding, etc.

Printed by BALDING & MANSELL, LTD., London and Wisbech, and Published for the Proprietors, HOBBIES LTD., by HORACE MARSHALL & SON, LTD., Temple House, Tallis Street, E.C.4. Sole Agents for Australia and New Zealand: Gordon & Gotch (A'sia) Ltd. For South Africa: Central News Agency Ltd. Registered for transmission by Canadian Magazine Post.

Hobbies WEEKLY

CONTENTS

April 14th, 1948 Price Threepence Vol. 106 No. 2737

How to make a tricycle

SAND YACHT

WHERE there is a nice stretch of clean hard sand, the sport of land yachting can be enjoyed. To make the yacht is no arduous job, provided a set of suitable wheels can be procured. As this is vitally important, the wheels should be obtained first, so that if sizes other than those given have to be substituted, the necessary slight amendments in the construction can be carried out. More about the wheels later on.

A side view of the sand yacht is given in Fig. 1 and a plan at Fig. 2. It will be noticed in the latter diagram that one of the fore wheels has been omitted, this to save space. Its absence makes no difference. Cut the outer bars, A and B, from 2in. by 2½in. sound deal.

At the front end, at 12ins. down, bore ⅜in. holes through for fixing crossbar, C. Cut this from similar wood, to length given, bore at the ends for the bolts, and bolt it to A and B. Bring the opposite ends of the bars together and fix these with a shaped piece of 1in. deal, nailed over the two, as in detail D. This piece can be cut from a 10in. length of deal board.

Now, on bar C, mark in pencil underneath, the angle bars A and B make with it. Remove the bar, and saw down on the pencil marks to a depth of ½in. then cut down at each end to the saw cut to reduce the ends to 2in. thick, as at E, Fig. 1. The bar can then be rebolted in place.

Cut middle bar, F, similar size wood again, fix between the outer bars at the rear end, mark where it contacts the cross bar C, and from there to the front end reduce it to 2ins. deep, so that all three bars, A, B and F, tie level. This middle bar should extend beyond the crossbar some 3ins. as it there forms the bottom of the mast socket.

To the rear end of these bars fix short pieces of the bar timber to each side, as in detail G, in Fig. 3. On these a tail board, H is to be fitted. Some strain comes on this board as it rests upon the fork holding the rear wheel.

It should be not less than 1in. thick, preferably a

little thicker, and if it can be cut from a hardwood, oak for example, all the better. Cut it to size given, and at a centre 3ins. down from the far end, strike a circle, 4ins. diameter. The end corners can then be neatly rounded.

From a piece of sheet metal, stout, say 3/32in. to ⅛in. thickness, cut a 4in. diameter disc. Drill and countersink for three screws, and fix the disc over the circle marked on the tail board, and shown by a shaded circle in the diagram.

In the centre of the disc drill a ⅜in. hole right through wood and metal. The tail board is now fitted over the end strips of wood, shown at C, ⅜in. holes bored right through the lot, including bars A and B, and the whole firmly bolted together.

The rear part of the tail board, with the metal disc underneath, should extend beyond the bars just 11ins. Strengthen this part still further by the addition of steel brackets underneath, as shown at I in Fig. 1.

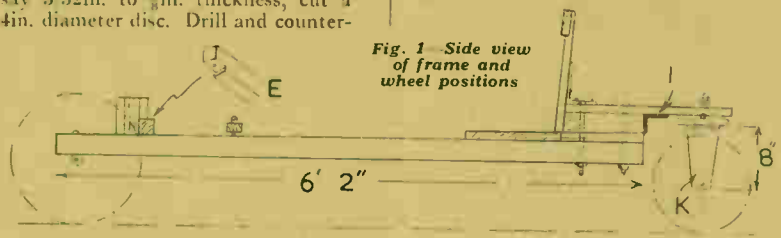


Fig. 1 Side view of frame and wheel positions

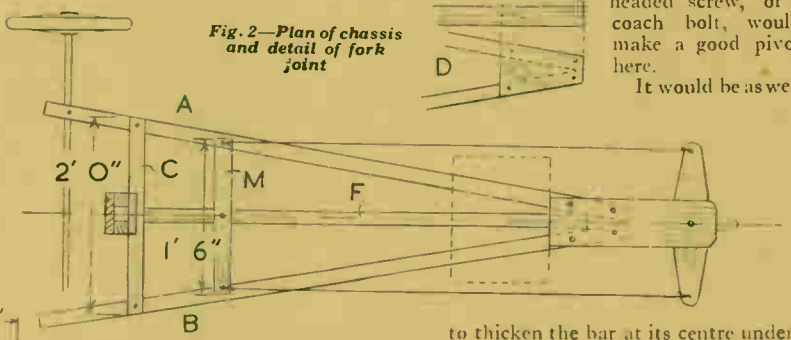


Fig. 2—Plan of chassis and detail of fork joint

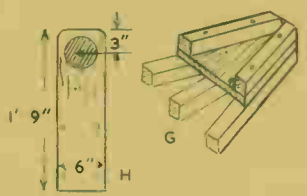


Fig. 3 Tail board detail

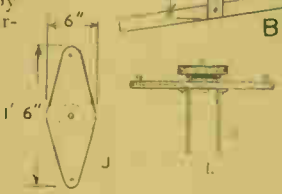


Fig. 4 Rear wheel steering

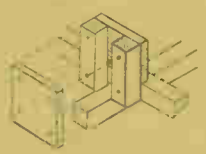


Fig. 5 Mast Socket

Rear Wheel Arrangement

The fork arrangement for the rear wheel, which provides for steering the yacht, is detailed in Fig. 4. Cut the cross piece J from 1in. hardwood to the shape given. Mark the centre and on it strike a 3in. circle, shown by dotted lines, then drill, also in the centre a ⅜in. hole through the wood.

The forks, the shape of which are shown at K, in Fig. 1, are cut out from ¼in. mild steel. Quite easy work this as mild steel is not difficult to cut with a hacksaw. The forks are 4ins. at top, tapering to 2ins. at the bottom. Allow an extra 1in. to the length given for bending over at the top. This bent over piece is drilled for fixing screws.

At 1in. up from the bottom ends drill a hole for the axle of the wheel. With a suitable axle these holes can be cut to form slots, like the slots in the front and rear forks of a bicycle. Screw the forks with stout 1in. round-headed screws to the underside of J, at the distance apart to suit the rear wheel.

At the top, where the circle is drawn, drive in three small size metal furniture domes, at equal distances apart on the circle. These domes contact the metal disc on the tail board and provide a good seating to the forks and an almost frictionless bearing.

Fit the forks in with a ⅜in. steel bolt, as at L. This projects above the tail board and should be provided with a lock nut to keep it in place. Allow ample freedom for the rear wheel to move for steering. At the ends of bar J, drive in stout screw eyes, to which the steering lines can be attached.

To support the mast, a simple socket arrangement is fitted. This is clearly detailed in Fig. 5, and consists of 6in. lengths of the bar A and B material, fixed to crossbar, C, in the centre, and just 2in. apart. To this is fixed a front and rear piece of board, the lot being strongly bolted together.

The seat arrangement, not separately shown, consists of a board, 1 ft. wide and 1 ft. 4ins. long, screwed across the bars, where shown in Fig. 1. Two strips of 1in. by 2in. wood, 1 ft. 6ins. long, are screwed to the front edge of the tail board, and rest upon the seat.

Across these, at the top, a 4in. wide strip of wood, as long as the seat, is nailed for a back rest. It is best to set the back rest parts at a slight inclination to the rear, for comfort, and add steel brackets at the rear.

Steering the yacht is accomplished by the feet, acting on a board, M, seen in plan, Fig. 2. This is 4ins. wide, and fitted to the middle bars at the most convenient distance from the seat to suit the user. An extra stout round-headed screw, or a coach bolt, would make a good pivot here.

It would be as well to thicken the bar at its centre underneath by screwing a piece of wood to it, to raise the bar enough above the middle one F, so that it clears both it and the outer bars as it is moved with the feet. At the ends drive in stout screw eyes, and connect to the steering piece J, by strong wires.

This completes the actual yacht, or at least the woodwork of it. Fit in the rear wheel, and at 3ins. from the front ends of bars A and B, bore ⅜in. holes for bolting the bars to the axle of the front wheels. Complete the work with a coat or two of suitable paint, or varnish.

CUTTING LIST

Bars A, B, F (3)—7ft. long, 2½ins. wide, 2ins. thick.
Bar C 2ft. long, 2½ins. wide, 2ins. thick.
Tail board 2ft. long, 6ins. wide, 1in. thick.
1in. by 4in. board—3ft.
1in. by 6in. board—7ft.

FITTINGS, ETC.

Pair 16in. front wheels, tyred, on 4ft. axle.
One 12in. rear wheel, tyred.
Two pairs 3in. steel brackets.
Mild steel, ¼in. thick, 4ins. wide by 2ft. long.
Steel furniture domes (3).
Stout screweyes (4).
Iron bolts with nuts and washers ¼in. by 8in. (4), ¼in. by 6in. (6), ¼in. by 4in. (1), ¼in. by 5in. (2).
One coach bolt, ¼in. by 4in.
Fittings for rigging as required.

Sail Arrangement

The sail arrangement can be a similar rig to that shown in the general view, or any other rig fancied by the reader. The mast can conveniently be a bamboo rod, a good fit in the socket.

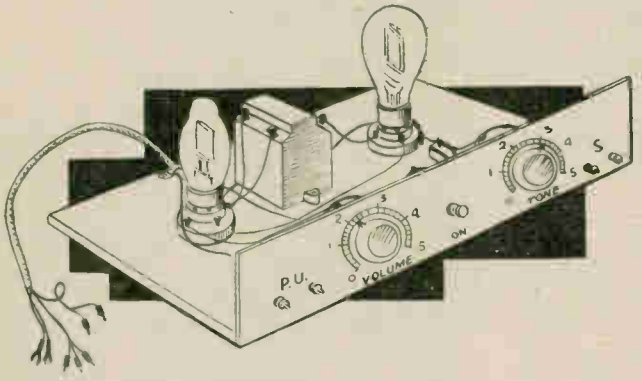
It is stayed with wires, reaching from the top to the outer bars of the yacht. Bamboo could also be used for the boom and sprit, and calico for the sail. The latter is raised and lowered by a rope and pulley, the latter fixed at the top of the mast.

A few final words about the wheels. These should be of the spider type, or bicycle kind, fitted with wide tyres for preference, to travel better over the sand. Recommended for this yacht are 16in. wheels for the front, fitted to an axle of 1¼in. square steel, with a distance of 4 ft. across, measured from the centres of the tyres.

A wheel, 12ins. is suitable for the steering at the rear. The wheels and axle can be ordered from any firm

(*Continued foot of page* 14)

How your mike or gram can be fitted with AN AMPLIFIER



THIS is a simple unit which can be used to amplify the signals from a microphone, gramophone pick-up, or crystal or one-valve receiver. Tone and volume controls are fitted, although these may be omitted if simplicity is of first importance. In this case very few parts are required and many readers will probably have these ready to hand.

The amplifier employs two valves, so a good loudspeaker output will be obtained unless the input to the amplifier is very weak. Used after any ordinary crystal set, microphone, etc., the volume will be ample for all domestic purposes.

Case and Baseboard

As the illustration shows, the amplifier is constructed on a baseboard with a narrow front panel. A baseboard 5ins. by 7ins. is amply large, the wood being about ⅜in. thick. The front strip can be about 2ins. high, cut from plywood or ebonite (the latter is best if to hand).

After drilling the required holes for the switch, etc., the strip is screwed to the edge of the baseboard. For the "P.U." (Pick Up) and "S" (Speaker) connections, terminals or sockets are used. Any type of on-off switch is suitable.

Although the values shown for the volume and tone controls are most generally satisfactory, they can be varied within some limits without results being spoiled. From ·25 to 1 megohm is most suitable for the volume control, with about 10,000 to 50,000 ohms for the tone control.

A case about 5ins. by 5ins. by 7ins. (inside measurements) can be made to fit over the amplifier when it is completed. A space 2ins. wide should be left for the panel to fit in, and several screws driven through the sides of the case into the edge of the baseboard will hold the parts together.

If the volume control is not included, one pick-up socket will go to G.B. Minus 1. The second socket will go to "G" on the valve holder. The ·01mfd. fixed condenser and tone control may also be omitted. Some control of the tone of reproduction can be obtained by connecting a condenser of from ·001 mfd. to ·01 mfd. across the speaker sockets. This will reduce needle-scratch when playing records. (The larger the capacity of the condenser, the more will trouble be reduced).

If only one potentiometer is to hand, it will generally be better to use it for volume control.

Wiring Up

There are not many leads, and Fig. 1 shows them all clearly. Lengths of insulated flex should be used for the battery leads, and all are taken under a clip screwed to the rear of the baseboard. The leads should be marked, either by using plugs and spade-ends of different colours, or by adding tabs or tying knots in the flex. Plugs and metal tags with suitable markings are obtainable.

Battery Connections

A 2-volt accumulator should be used for low tension. For high tension, a 120-volt dry battery will give most volume. If the amplifier is to be used with a one-valver using a 60-volt battery, this battery may also be used with the amplifier. In this case the accumulator already in use can drive the amplifier as well.

A 9-volt grid bias battery is used. The best voltages will depend upon the valves and high tension battery used. Normally G.B.1 should be 1·5 to 3 volts, with 3 to 6 volts for G.B.2. With only 60 volts H.T., G.B.1 may be taken to G.B. Plus (e.g.—no voltage) if this gives better volume.

If a 120-volt H.T. battery is used, H.T.1 should go to about 80 to 90 volts, and H.T.2 to 120 volts.

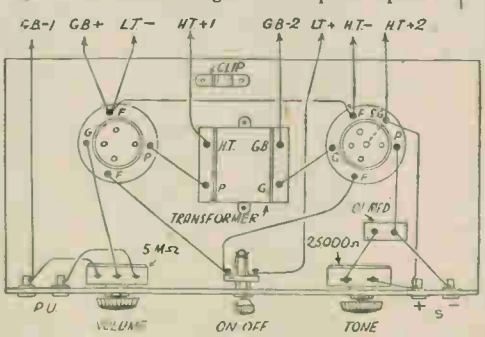


Fig. 1—Plan view of base with wiring details

The Valves

A detector or general-purpose amplifying valve should be used in the left-hand holder. A small-power, or power valve, is used in the right-hand holder. For maximum amplification, a high efficiency low-frequency pentode or tetrode may be used in the latter holder.

Connecting the Pick-Up, Etc.

If a pick-up is used, it should be connected through suitable flex to the sockets on the amplifier. A microphone is connected in the same way. Immediate operation from one or the other can be obtained by connecting a change-over switch as shown in Fig. 2. The lead "B" should go to the socket taken to the volume control alone, and lead "A" to the socket which is taken to G.B.1.

Carbon microphones are not suitable unless used with the customary transformer. A small speaker will act as a fairly efficient microphone, or a single ear-piece from a pair of headphones can be used. (Naturally these will not give such loud signals as a proper microphone).

If used to amplify a crystal or valve set, a second transformer should be used to couple the two. The primary of this transformer is connected to the phone terminals of the receiver, and the secondary is taken to the pick-up sockets of the amplifier.

In the event of instability (shown by howling from the speaker) the secondary connections of the transformer in the amplifier may be reversed. Where a microphone is used it must be screened from the sound produced by the speaker, or feedback of the amplified signal to the microphone again will cause unpleasant noises.

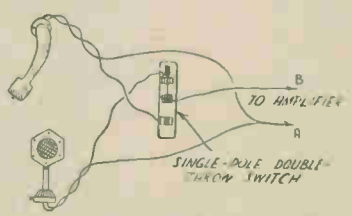
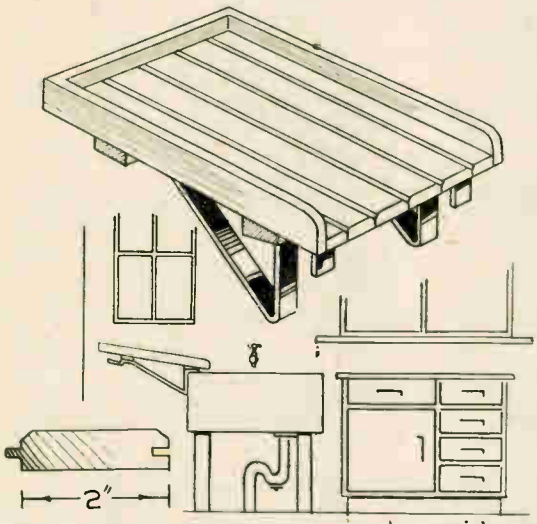


Fig. 2—A change-over switch fitted

A useful attachment for any sink is this removable DRAINING BOARD



EVERY housewife needs a draining board. Some sculleries are too small to enable permanent draining boards to be arranged near the sink, however. In such cases, a draining board attachment is used, this clipping on the edges of the sink itself by means of a couple of metal brackets.

Size and Materials

A useful size of board, suitable for small, squared, white sinks, is shown herewith. Its construction is greatly simplified by using 2in. by ½in. matching material. This is a prepared strip material, tongued-and-grooved, made narrow so it can be easily adopted for making a circular surround to a garden wall, etc.

When put together, the face side gives V-shaped grooves and these serve as draining grooves. It is the best material to use, if you can get it. For that reason, we shall describe how it is used.

If the stuff cannot be purchased anywhere, it would be quite easy to copy the board, using other wood, such as plain ½in. thick stuff. The necessary drain grooves could be cut with a groove plane, or by a simple method which shall be explained.

Making the Board

For the board construction, you need six 18in. lengths of the 2in. by ½in. matching material. Four of these are glued together, side by side. The remaining two lengths are attached after you remove the tongue from one, and the groove from the other. To do so, these boards are reduced by ½in. in the width.

They are then affixed to the other boards with glue, and the whole assembly further strengthened by a couple of cross battens. These battens measure 12ins. by 2ins. by ¼in.

The battens are attached with ¾in. by 6 flathead brass screws, via the underside of the board. A surround, consisting of 1½in. strips of ½in. wood, is attached. Note that the side strips are 1½ins. wide and that the end strip is only 1in. wide. It goes on top of the draining board and being on top, the grooves run beneath it, thus enabling the board to be upturned upon the sink to hasten the drying.

The Brackets

The metal brackets are shaped in such a way that the board can be clipped upright upon the sink to allow the water to drip off quickly after use, of course. When horizontal, the board has a slight tilt. The rinsed dishes, when set on the board, drain off easily into the sink, due to the amount of tilt.

Details of the brackets are provided at Fig. 1. Two are wanted, and can be easily made from mild steel bar measuring ¾in by 3/16in. or 1in. by ⅛in. The bar is easily bent to the shape shown.

Whilst both board cross battens can be ½in. thick, one of them should be ⅞in. thick and be planed to a slight bevel, as seen in the side view. It is only necessary to drill two holes in each bracket for the fixing screws, these being black japanned round-headed screws.

The brackets, when made, are also painted black. Note that the brackets are intended for sink side edges about 1¼in. thick to 1½in. thick. In the case of larger sinks, edges are sometimes 1⅞ins. thick to 2ins. thick. Be sure, therefore, to measure the thickness of your own sink beforehand. The brackets must be made to suit.

To complete the work, the woodwork could be clear varnished. It is better, however, to keep the wood in the natural white state. Varnish will only wear off in time.

Draining Board Material

At one time, as you probably know, it was possible to buy prepared draining board material. This was already grooved and tongued, ready for fitting together, and a surround bead moulding was available. The timber was a hardwood, such as birch or beech.

It is doubtful if such materials are obtainable today. It is easy to copy the material in any hardwood available, if you possess the necessary woodworking implements for grooving and tonguing. However, if you can manage to get two pieces of ½in. shelving 6ins. wide by 18ins., the edges could be glued and affixed together at the underside with corrugated joint fasteners, these going across the joint. The fasteners must not be more than ¼in. deep.

The V-Groove

Having attached the cross battens, the wood is grooved by first scribing pencil guide lines along the wood. Now, by clamping a guide stick at each line, running a tenon saw up and down the wood to make kerfs ¼in. deep or ⅛in. deep, the grooving is easily done with a small shoulder plane or a bull nose plane.

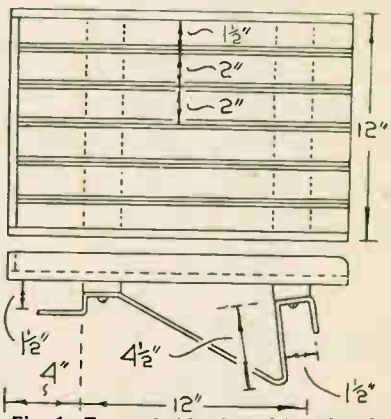


Fig. 1—Top and side view of board and bracket

When the cuts are made, hold the plane at an angle and run it up the cuts at one side. This produces a bevel. The plane is then run up at the other side of the cut to make a second bevel, and as a result, a V-shaped groove. When the wood has been grooved in this manner, the surrounding strips are attached, then the brackets.

Wood to Select

If you can manage to use a hardwood, do so. Deal may be used, but it is a softwood, and there may be some shrinkage. Do not forget, incidentally, that it is now possible to buy an enamelled draining board affair. No doubt a wooden holder could be built for this. If so, it can be based on the design of board described.

CORRECTION

On page 255 of our issue of March 31st, the receiver circuit in Fig. 1 showed a fixed tuning condenser ·0005 mfd. This, of course, should have been illustrated as a variable condenser, which, no doubt, most readers realized.

MAPS THAT ARE WRONG

ONE of the best examples of stamps which are not correct is a very common one indeed and without any doubt it can be seen in any collection however small.

Look at your stamps of Eire. The map is shown on the 1d., 1½d. and 2d. values, but can you see anything which is quite wrong about it? Well, how about Northern Ireland? That is not part of Eire and most certainly it should have been shown as a separate part of the area.

However, in this case nobody has worried; it has not led to any International situation or anything of that sort. There is, however, an example in which the wrong printing of a stamp caused trouble, and the first illustration is that particular stamp. This specimen was issued in 1900 by the Dominican Republic and it nearly started a war with the neighbouring state—Haiti.

If you look carefully you can see that the western part of the island is marked Haiti. But the boundary as shown on this stamp does not correspond with that of the country and it makes Haiti look a very small state indeed. To which Haiti objected, and as a result, the issue was withdrawn from circulation, and the unsold stocks were destroyed.

In 1929 these two republics accepted the arbitration of the three countries—Brazil, Venezuela and the United States of America. As a result, the Dominican Republic have issued a stamp with the portrait of the President of Haiti and Haiti issued a stamp showing a portrait of the President of Dominica. Thus peace was fully restored.

Fig. 1—Caused Trouble

Now, in 1927, there have been two stamps issued by South American States, and these are illustrated here as well as the stamp which was issued by the Falkland Islands Dependencies. As you can see, all three stamps have maps of approximately the same area—that part of the globe immediately to the south of South America and extending to the South Pole.

The stamps of the Falkland Island Dependencies outline the sector enclosed by longitudes 20 to 80 degrees West as far north as approximately 57 degrees South. Then the line extends east to longitude 50 degrees West, so that the island to the south of South America—Tierra del Fuego, is outside the sector.

The Argentine Republic does not recognise the fact that the Falkland Islands are British and never has done. In 1936 she produced a stamp showing a map of South America with the boundaries of the various republics marked on it and on this map the Falkland Islands were marked in the same way as the Argentine, presumably to claim the islands.

Also on the same map the boundary between Chile and the Argentine Republic does not appear correctly. It appears as though the whole of Tierra del Fuego belongs to the Argentine, but this is not so, and in February, 1937, a fresh stamp appeared. None of the boundaries were shown on this one, but the Falkland Islands again appear as though they belong to the Argentine.

Now the same Republic has produced the illustrated stamp map of the Antarctic, and on this, one sees quite clearly that she claims the sector between the 25th and 74th meridians. Which, as you can imagine, contains the Falkland Islands and the Dependencies.

The large stamp shown comes from Chile and from this it would appear as though Chile wants to make out that all that sector between meridians 53 and 90 degrees West is Chilean. Well, in the words of Yum-Yum, Nanki-poo and Ko-Ko in Sullivan's Mikado "Here's a pretty state of things! Here's a pretty how-de-do".

Fig. 2—Falkland Island Dependencies

Fig. 3—What Argentine thinks

Fig. 4—Chile shows her idea

The best thing that we can do is to find out something about these islands and learn something of their history. First of all, they are not very extensive in area, being from 5,000—6,000 square miles (Argentine is over a million square miles) and the population is about 4,000—almost exclusively of British descent.

Climate—well, somewhat cooler than London both in summer and in winter. A rainfall approximately the same, but the winds are very much stronger in the Falkland Islands. In fact it appears as though there are strong gales blowing most of the time. Heavy frosts are infrequent and snow does not lie on the ground for long.

Trees are completely absent and the land is most suitable for sheep farming which is the most important land industry. The Romney Marsh Ram appears on the ½d. of the 1933 Centenary issue and on the 2½d. and 3d. values of the present issue, there is a flock of sheep portrayed. There are no roads—other than in the small towns—so communications have to be kept up by means of horse, boat or caterpillar car.

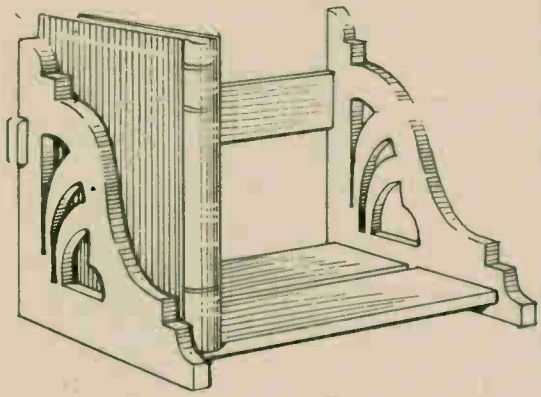
The whaling industry is the most valuable asset of the area; just before the war the products from this being worth about £300,000. The whale was portrayed on the stamps of King George V. A large view of a whale is on the 6d. of the centenary set, while the present ½d. shows a picture of a whale's jaw bones.

We first hear of these islands being sighted in 1592 by the British navigator Davis. Then there was a lapse of two years before Sir Richard Hawkins described them in detail. During the seventeenth century, visits were made from St. Malo and the islands were called "Iles Malouines", while Spanish visitors called them "Isles Malvinas".

In 1764 the French Admiral Bougainville established a colony at his own expense, but this annoyed the Spanish and it was agreed that the latter should have them if they repaid Bougainville. In 1767 the British established a township from which to survey the group. They were driven out in 1770 and came again in the following year, but abandoned it again in 1774.

It was not until 1820 that occupation again started. This time a German was in command, but he imprisoned an American sealing crew so he was driven out by the U.S.A. In 1833 the British Flag was again restored and has been there ever since. In 1933 there was issued the Centenary of British Occupation set, one of the most valuable of the later sets of the whole world.

Economy in wood has been effected in these designs for BOOK STANDS



IN designing the pair of bookends shown here, economy in wood has been studied. By looking at Figs. 1 and 2 it can be seen that the two ends of each design are so outlined that they can be cut from one small panel of wood measuring 6⅞ins. by 5½ins.

Great care must, however, in this method of economy, be exercised in the actual outlining, because the one line when cut with the fretsaw answers for the two ends, and nothing would look worse than seeing two irregular shaped outline edges. It remains then for the worker to choose his design from the two given here in Figs. 1 and 2.

Enlarged Patterns

This done, he may proceed to make his enlargement from the squared diagram which gives ¾in. squares. Drawing in the squares from the lowest edge, he will notice that the extreme top one measures ¼in. high, and not ¾in. as those below it. The whole height will then measure 6⅞ins. as before mentioned.

We would advise the worker to make his enlargement on paper, as, not only will this paper copy be of future use, but the transferring to the wood is made easy with sharp pencil and carbon paper.

The fretted ornamental work, although of the simplest character, may be omitted if desired. In fact, if the whole article is to be french polished, we should rather advise this omission for ease in working and getting a more satisfactory finish with the polishing bob.

Note, when making the enlargement to get the recess for the back rail correctly drawn, it should be 1⅛ins. long by ¼in. wide. In the diagrams at Figs. 1 and 2 it will be noted that the floor upon which the books rest consists of two pieces, each 2ins. wide by ¼in. thick. These two pieces and the fillet to which they are attached are shown by dotted lines as a guide for the worker.

Having finished the cutting and cleaning of the two ends, the fillets mentioned should be cut and glued to them. Each fillet is 4⅜ins. long by ⅜in. wide and ¼in. thick.

Floor

The floor, as mentioned, consists of two pieces. These may be 9ins. long by 2ins. wide each and spaced ½in. apart so as to make as wide a floor as possible with the minimum of wood. Clean the surfaces and edges of the pieces and then glue and screw them to the end fillets, see Fig. 3.

The back rail, fitting into the recesses at the top of the ends, should measure 9⅜ins. long by 1⅛ins. wide. The ends are shouldered down (Fig. 4) to hold the ends securely and give all the support possible. The projecting tenon at the ends of the rail must measure 1⅛ins. by ⅜in. projection. This then leaves an outstanding piece ⅛in. beyond the face of the wood. Make a tight fit of the tenons and glue them securely and add a couple of fine nails or countersunk screws.

The Finish

The finish of the book racks largely depends on the kind of wood used. If mahogany is obtainable, then french polish can hardly be excelled. On the other hand if a commoner wood of wide grain and soft texture is adapted, then paint in art shades and of matt quality would be best. A dark stain of walnut or mahogany is also good, with a final rubbing up with wax polish.

It should be pointed out, in conclusion, that the length of the rack should in no case exceed the measurements here given. In fact, for wood of only ¼in. thickness, as here suggested, an inch or so off this would make a more rigid fitment. Heavy books, too, are not provided for in these racks; they come in most useful for the light-weight text books of the student. Or the light paper-covered Penguins and similar books in the small sizes which are now popular.

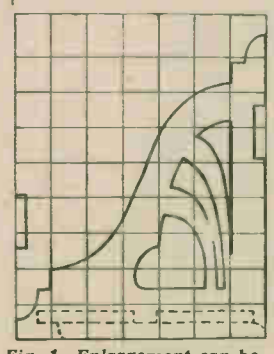


Fig. 1—Enlargement can be taken from this squared diagram.

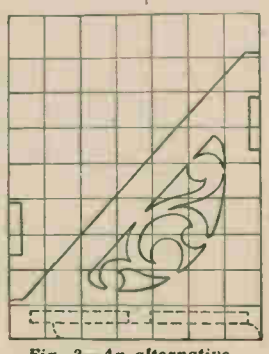


Fig. 2—An alternative pattern for an end.

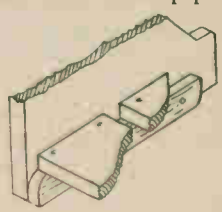


Fig. 3—Shelf and Supports

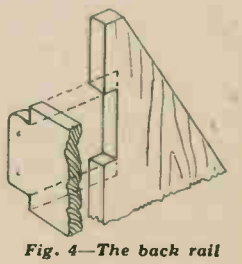


Fig. 4—The back rail

Sand Yacht—*(Continued from page 10)*

dealing with such commodities.

Those using wheels of a size differing from that given should amend the length of the forks as necessary. The yacht must ride on a level keel, as it were, and should be tested by level, so that packing pieces of wood can be introduced between the outer bars of the yacht and the axle of the front wheels, should some adjustment be necessary. If wheels of the given size are used, and timber to the thickness stated, no such adjustment will be required at all, or should not be.

It may be added that the axle will need to be drilled for the bolts to fix it to the outer bars, These holes will be approximately 2 ft. apart, and if drilled beforehand, it will be wiser to fix the bars to them first before the ends of the bars are fastened together at the rear.

The exact length of bar C, will then be measured across, and fixed after. This will ensure that the holes in the outer bars A and B are where they are required to be to suit those in the axle.

BE Taller. Quickly! Safely! Privately! No appliances—no tablets—no dieting. Details 6d. stamp.—Malcolm Ross, Height Specialist, BCM/HYTE, London, W.C.1.

LONELY? Then write Secretary U.C.C., 5B.B. Hay St., Braughing, Herts. Genuine. Est. 1905.

MODELS: You can make lasting stone-hard models with Sankey's Pyruma Plastic Cement. Supplied in tins by Ironmongers, Hardwaremen and Builders' Merchants. Ask for instruction leaflet.

TRANSFERS for decorating toys, trays, furniture, fancy goods. Selection 10/-, 20/-. Flowers, pixies, dogs, nursery rhymes.—H. Axon Harrison, Jersey.

SPECIAL Offer. Attractive stamp album, 50 stamps, packet of mounts. Post free 3/-.—Gamut (Dept. C) Supplies Co., 24 Gunnersbury Avenue, London, W.5.

PERSONS required make fancy goods at home. Write for details.—Melton Manufacturing Co. (Area 544), Southgate Street, Leicester.

DOLL'S House fittings and papers. Send S.A.E. for list. Doll's House plan special, send 2/6. Trade supplied.—Zimplan, 88 Ware Road, Hoddesdon.

SPOKE Wheels, treaded tyres, 8ins., 9ins. and 12ins. overall diameter. Also rubber tyred metal disc wheels ranging from 2ins. to 9ins. Small or large quantities supplied; write requirements.—Joyden Toy Co., 193 Chase Side, London, N.14.

A ROYAL free gift from Newfoundland. A set of stamps everybody wants. Absolutely free to all applicants for my repeat approvals (1/- without approvals). Postage please.—H. A. Smith, 13 New Road, Scole, Diss, Norfolk.

TOYMAKERS super casting moulds for lead toys and plastercraft. As used by all high-class toymakers in England and abroad. Over 600 latest designs. Fully illustrated catalogue 2/- P.O.—Agasee, 7 Stradbroke Road, Highbury, N.5.

DOLL'S House papers, model supplies, kits, plans, engines and motors. Full lists 1/-.—Sutton, Hill House Drive, Billericay.

PRESSED Metal wheels (balloon tyre design). Per dozen, ¾in.—10d. 1in.—1/-. 1½ins.—1/3. 2ins.—1/6. Per gross, ¾in.—6/-. 1in.—7/-. 1½ins.—8/-. 2ins.—10/-. Illustrated catalogue 3d.—Jason, 135 Nags Head Road, Ponders End, Middlesex.

"THE Art of Wood Finishing". A book explaining in simple language the art of french, brush and wax polishing, liming, fuming, etc. Price 1/6. Postage and packing 1½d. extra.—M.M.D.A., Ground Floor, 38 Belmont Road, Bristol.

WHEELS for toys in metal, wood and plastic. Numerous sizes and types. Write for list, stating requirements to The Joyden Toy Co., 193 Chase Side, London, N.14.

"POWER Tools You Can Make". Famous "Popular Mechanics" plans and constructional details for building drilling machine, jig-saw, band-saw, lathe, etc. All from readily available materials. 12/6 only, post 7d. Illustrated lists 3,000 American home-craft books, plans, magazines, 6d.—BCM/PUBLICATIONS (H), London, W.C.1.

NOVELTY packet of unusual stamps free to approval applicants sending 3d. postage.—M. Edwards (N.3), Westcroft, Northchurch Common, Berkhamsted, Herts.

THE interest in car numbers never ceases. "Where's That Car From?" containing all the car index marks alphabetically arranged. 54 pages 6d. Now in its sixth edition. From all newsagents.—Raleigh Press, Exmouth.

ELECTRIC Repeater Motors, new, ideal experimenters, adaptable for D.C., A.C., synchronous or remote control. 5/- each, post 6d.—F. Lucas, 22 Hengrove Rd., Bristol 4.

FREE! Extra special Br. Col. packet. Scarce Jubilee, Coronation, Victory, Zoological, new issue stamps. Request approvals (2½d.).—Thompson, 2 Western Gardens, London, W.5.

MONOMARKS. Permanent London address. Letters redirected. 5/- p.a.—Write Monomark BCM/MONO82, W.C.1.

TOY casting moulds, farm animals, soldiers, wall plaques, ornaments, dogs, etc. The largest selection of metal and plaster moulds available. 6d. Illustrated catalogue, S.A.E. for list.—Nuthall, 69 St. Mark's Road, Hanwell, W.7.

DUTTON 1 week Shorthand. Learnt in 12 2-hour lessons. Accepted by all examining bodies. Test lesson 3d.—Dutton's (H.B.), 92/3 Gt. Russell St., London, W.C.1.

PERSONS required immediately to make leather shopping bags in spare time. Write—Dept. 11, Empire Co., 117 Nottingham Road, Loughborough.

GALLEON sails and heraldry, 5 sheets 7½ins. by 10ins., 2/6 pkt. List of plans and accessories 3d.—St. Andrews, High Pitfold, Hindhead.

STAMPS FREE!! Twenty unused (2½d.).—G. H. Barnett, Limington, Somerset.

LONELY? Join Friendship Circle. Details 6d.—Secretary, 34 Honeywell Road, London, S.W.11.

PEN pals Bulletin. World-wide contacts, 1/- monthly.—176a Old Shoreham Rd., Hove.

PERSPEX, new transparent sheets, 12ins. by 12ins. by ⅛in., 9/6 each, post paid. Make beautiful articles with crystal clear Perspex.—Thacker (H.W.), 235 Wragby Road, Lincoln.

DURALUMINIUM sheets 6 by 3 by 24G, 18/- per sheet ex yard. Also 16G, 47/6.—Wilson Bros. (Timber), Ltd., 548 London Road, Thornton Heath, Surrey. Tel: Thornton Heath 1148.

W. McGARRIGLE for aeroplane and ship kits. All accessories. Stamps lists 3d. Wholesale lists 4d.—64 Hillcrest Road, Romford.

WHY not make art jewelry as a profitable spare-time hobby?—Dept. 3, Somat Plastic Co., 8 Middle Marsh, Nottingham.

MOROCCO Agencies Coronation Set (Mint). Free with Approvals. Postage 3d.—Ledger, 221a Boothferry Rd., Hessle, Yorks.

ROUMANIA

ABDICATION PACKET FREE

Set of 10 **beautiful, mint Roumanian stamps,** including several of the now scarce, photogravure **King Michael** series; now very illusive, obsolete and much sought after. No more stamps will ever be issued depicting this recently abdicated young monarch. **Obtain your set now!! Absolutely Free to all Approval Applicants.** Enclose 2½d.

D. J. HANSON (H.27), Eastrington, Goole, Yorks.

RHODESIAN ROYAL VISIT FREE

WE will send you **ABSOLUTELY FREE** this lovely green and black two-colour stamp, which shows both our Royal Princesses (**Princess Elizabeth and Princess Margaret Rose**). This very beautiful stamp was only issued in April, 1947, to commemorate the Royal Visit to **SOUTHERN RHODESIA** during the African Royal Tour. This attractive historic stamp was on issue for a very short time only, and is now scarce. We managed to obtain a small supply, and now have pleasure in offering one to you, **ABSOLUTELY FREE,** for you to add to and improve your own collection. Just send us 3d. in stamps to cover our posts, and ask for free Rhodesian Royal Visit stamp. It will be immediately sent to you with our interesting approvals.

WINDSOR STAMP CO. (Dept. 12), UCKFIELD, SUSSEX

Modelcraft's MINIATURE GALLEON KIT "Golden Hind"

This kit makes up into a charming model 5½" in length and as accurate in detail as historical research can make it. Sails, flags, poop decorations etc., are in full colour and the kit contains cannon, figures, stern lantern etc., etc. We shall produce a whole 'fleet' in due course, but in the meantime there are many happy hours of work on this one.

7/- POST 6d.

★*We are also offering a 'wood pack' of good quality roughly prepared timber for the 20" model of the* **"GOLDEN HIND."**
PRICE 21/- POST 6d.

Modelcraft's NUMBER FIVE MAGAZINE & LIST

The magazine section is rich in the garnered wisdom of leaders of every branch of modelmaking. Yet it is as much for the fascinating opportunities opened up by the list of plans, plan-books, kits and accessories that modelmakers buy it. Over 450 items are listed and the list grows longer with every issue including—

- GALLEONS, CLIPPERS, OLD-TIME SHIPS AND STRANGE RIGS
- MINIATURE GALLEONS AND CLIPPERS
- WARSHIPS
- MERCHANT SHIPS
- WEAPONS OF WAR
- GLIDERS AND FLYING MODELS
- SOLID SCALE AIRCRAFT
- RAILWAY FEATURES
- LORRIES, BUSES, etc.
- CARS
- PERIOD HOUSES

PRICE 1/- Post free SUBSCRIPTION 4/6 Four issues Post free

MODELCRAFT Ltd.

77 (F) Grosvenor Road, LONDON, S.W.1

Is Your Hobby RADIO?

Then here's a Morse Training Set, Ready for use, Brand New

—AND OFFERED AT A FRACTION OF THE ORIGINAL COST!

A battery-operated buzzer complete with buzzer and artificial interference circuits. Incorporates note selector control, volume control, phone, key and interference jacks. Housed in a wooden case, 9 ins. × 8 ins. × 8½ ins., with provision for housing batteries in a separate compartment of the same case.

27/- COMPLETE WITH TWO VALVES

Batteries required : HT 60v. GB 4½v. LT 2v.
Complete with two valves, PM1LF and LP2, **guaranteed for 12 months**, or as a complete kit with Morse key and pair of headphones, 32/-
Wooden transit case, 2/6 extra. Add 2/6 for carriage and packing.

AS USED IN THE R.A.F.

This Morse Oscillator is what you have been waiting for. Do not delay — ORDER NOW! The demand is certain to be huge, since the price is but a fraction of the original cost to the R.A.F.

M.O.S.

MAIL ORDER SUPPLY COMPANY
Dept. H, 24, New Road, London, E.1
Telephone: Stepney Green 2760—3906
POST ORDERS to 3, Robert St., Hampstead Rd., London, N.W.1

CUT YOUR OWN HAIR

TRIMS AS IT COMBS with **PENN'S 'EASY-TRIM'**. For lady, gent or child.

2/9 Post 3d.

with three spare blades.

This superior, unbreakable SELF-TRIMMING COMB with blade ready for use keeps your hair always neatly trimmed.
Send NOW 3/- P.O. or stamps to:

Wm. PENN LTD. (Dept. THB), 585 High Road, Finchley, LONDON, N.12

PENN'S RUG MAKER

Makes full-size Rug on ANY Sewing Machine in a few hours. Enables wool to be stitched on canvas without waste on back. Makes stronger rugs with less wool and better results than any other apparatus. Uses coupon-free rug wool.

2/9 Post 3d.

Long, short or medium pile. No adjustment to machine required. VERY PROFITABLE HOBBY. With simple directions. Send 3/- P.O., cheque or stamps. Direct only from:

Wm. PENN, LTD. (Dept. HBR), 585 High Rd., Finchley, LONDON, N.12

ELECTRIC-MOTOR OUTFIT

3'6 Post Free

WORKS FROM ORDINARY TORCH BATTERY
6,000 REVS. PER MINUTE
BRITISH MADE
EASILY ASSEMBLED

This outfit comprises ALL necessary parts and base ready for simple assembly by any boy to make this working Electric Motor exactly as illustrated.
Apart from its novelty, this has very considerable technical and constructive value. More can be learnt from it regarding Electric Motors than by reading volumes. A most instructive and entertaining toy for boys. Complete with diagrams and very easy instructions. Send P.O. 3/6.
Direct only from:—

Wm. PENN LTD. (Dept. EMD), 585, HIGH ROAD, FINCHLEY, LONDON, N.12

ANORMA

Constructional Kits for Model Buildings

4 MM. SCALE FOR OO GAUGE.

No.			No.		
1	Bungalow	5/-	20	Corner Shops (2) ...	5/6
2	Windmill	3/-	21	Semi-det. Houses ..	6/6
3	Modern Villa "A" ...	7/6	22	Farmstead	10/6
4	Country Station "A" ...	11/6	23	Det. Villa and Garage ...	7/6
5	Signal Cabin	4/-	24	Factory	11/6
6	Timber Mill	6/6	25	Country Goods Depot ...	8/6
7	Modern Villa "B" ...	8/-	26	Telegraph Poles, Kiosk and Bus Shelter ...	7/6
8	Shops and Flats	8/6	27	4 Extension Platforms..	7/6
9	Semi-det. with Garage ...	7/6	28	Loco Water Tower ..	3/-
10	Semi-bungalow	5/6	29	Airport Control Tower	10/-
11	Church	10/6	30	Hangar	8/6
12	Public House	11/6	31	Loco Shed	7/6
13	Country Station "B" ...	10/-	32	Coal Office and Cattle Pen	4/6
14	Georgian Mansion ...	9/6	33	Café and Bank	5/6
15	Service Station	7/-	34	Rly. Footbridge "A" ...	2/9
16	Cinema	7/6	35	Post Office	4/6
17	Walk-round Store ...	5/6	36	Rly. Footbridge "B" ...	3/6
18	Town Shops	5/6			
19	Arcade	8/6			

Please write for full illustrated price list of the above and of the "Airyda" Model Aircraft and "Aquila" Model Ship Constructional Kits to:

MODELLERS SUPPLY LIMITED

AIRYDA WORKS, ASPLEY, HUDDERSFIELD.
Tel. 5511 (2 lines).

Printed by BALDING & MANSELL, LTD., London and Wisbech, and Published for the Proprietors, HOBBIES LTD., by HORACE MARSHALL & SON, LTD., Temple House, Tallis Street, E.C.4. Sole Agents for Australia and New Zealand : Gordon & Gotch (A'sia) Ltd. For South Africa : Central News Agency Ltd. Registered for transmission by Canadian Magazine Post.

Hobbies WEEKLY

CONTENTS

April 21st, 1948 Price Threepence Vol. 106 No. 2738

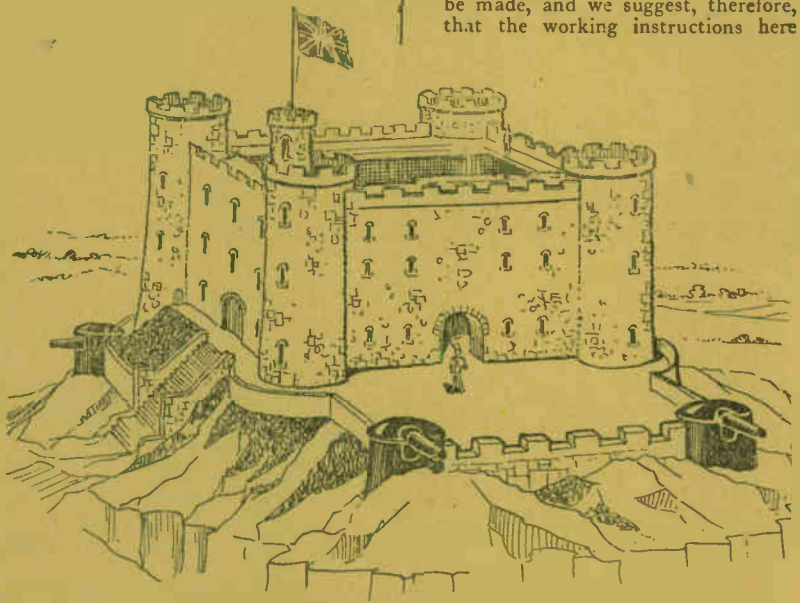
Card, brown paper and paint can make a marvellous

HILLSIDE FORTRESS

WE have frequently given in these pages, designs for toy forts having usually the well-known protecting moat and drawbridge. The one we give here, however, is quite different, inasmuch that the fortress is to be built on a hill, dominating the country around; and having large and powerful gun emplacements built actually into the hill-side.

A glance at the sketch on this page makes clear what our model is like, and the worker will be most interested in the construction that has been introduced into it. As suitable wood for such a piece of work as this is difficult to get we have brought into use just ordinary stout cardboard and brown paper. These materials surely can always be found in any home, with also a pot of paste and a brush for the assembling as well as the actual making of the parts of the model.

It will be understood from the foregoing that careful and skilful handling of the materials suggested, are vital points if a good model is to be made, and we suggest, therefore, that the working instructions here given regarding construction be carefully read and followed.



"Hillside" Work

Commencing then with the foundations of the model, we have to make the raised hillside on which the fortress will stand. This should not be difficult, and a box, either of wood or cardboard is first needed. Around the sides of the box some modelling clay or ordinary builder's plaster is banked up and left with rugged surfaces, covered with sand and sawdust and afterwards painted up realistically.

The parade ground in front of the fort must be left clear and level as indicated in the sketch. The gun emplacements are formed from cotton reels which have been cut through, trimmed off and rounded at the top ends. The guns are let into these and glued in place, the whole being later painted up in contrast with the surrounding hillside. Certain features as suggested, regarding the surrounding walls of the fort, will be left to the worker's imagination and can be worked up in card, clay, etc.

Suitable Sizes

The size of the actual fort itself will depend upon the proportions of the hillside, and the amount of clear space allowed for the building. We merely give here in Fig. 1, the relative proportions of the front as may be worked out from the dimensions shown. It would be a simple matter to form a scale on paper, dividing a given length into, say, twelve parts and then setting out the frontage from this as shown.

The fort model is constructed of separate units, each made proportionate and then assembled and attached to the base. There will be four towers, each connected by the battlemented walls which are to be the feature of our new method of construction.

Taking in hand the towers, we first bring into use an empty food tin of the usual size, about 5ins. high and 3ins. or so in diameter. After washing and scraping off any paper, wipe the surface lightly with a film of wax or grease. Laying this aside, cut a strip of stout brown paper of width equal to the height our towers are to be.

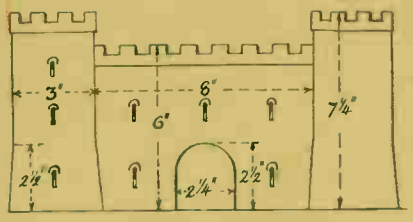


Fig. 1—Front elevation of Fort, with dimensions

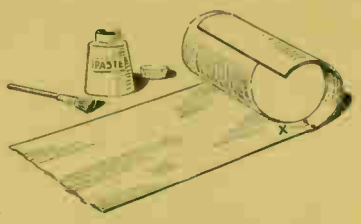


Fig. 2—Forming the tin tower

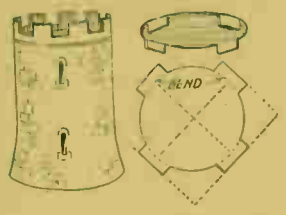


Fig. 3—Top and base of tower details

Fig. 4—The battlements

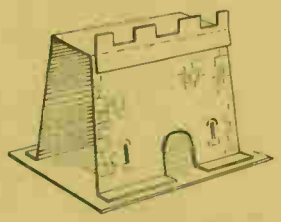


Fig. 5—Cut-away view of walls

Taking the paste, we brush one surface of this liberally and allow the paper to become saturated with the paste.

Tin for Towers

Looking at Fig. 2, the whole process of rolling the tin on the pasted surface of the paper is explained, a narrow margin at one end of the tin being allowed for later trimming. Press the paper well with the hand and fingers during rolling, and judge the amount of paper beforehand that will result in a stiff cylinder. Before the paste has time to harden, work out with the thumb and finger the lower portion of the cone as seen in Fig. 3 to add to the attractiveness of the tower at that part. Having thus made the four towers, stand them aside and allow them to stiffen and the paste to harden. Do not, however, force this hardening by placing them in front of a fire.

In Fig. 3 a method of forming the roof of the towers is shown. Cut a flat disc of card with projecting tabs for gluing into the tops of the cone. A method of cutting down the battlements of the towers by means of scissors and a sharp knife is shown also in Fig. 3. The separate roof section, just dealt with, is kept down inside the tower to allow this.

Another method of forming the battlements to the towers is given in Fig. 4 where the roof disc is kept flush with the top of the tower.

Battlements

The battlements are then formed from a separate strip of card bent round and glued to the top. This, perhaps, is the better method, and makes for ease in cutting and in strengthening the top of the tower.

The walls of the fort are a feature of the construction, they are termed curtain walls, and are directly connected to the towers. The thickness of the walls form the ramparts on which the guards keep watch, and in the cross section, Fig. 5, it can be seen how these are formed from stout card bent up in two places to get the height and width of the wall.

Narrow margins of card are provided along the lower edges of the main walls for gluing to the base card, as seen in the sectional diagrams. The card must be carefully marked out and then lightly scored on the underside with the point of a knife along the lines, using a metal straight-edge.

If an archway or opening is required in the wall it should be marked and cut before the bending is done. The thickness of a wall through an archway may be indicated by first cutting the shape of the arch as Fig. 5, and then bending and slipping a piece of card through the opening, as shown in Fig. 6.

Mark round in pencil on both sides to get the true shape of the junction at this point. Then remove the piece and cut to the line with scissors or knife. Next wipe round on the inside of the wall with glue, and add a tab or two of paper to hold the two parts well together. A very realistic appearance is given to the walls by this addition and finish.

The parapets of the walls are represented by gluing separate strips of card along on the outer face of the main walls as seen in Figs. 5 and 6. The battlements and any added shaping beneath them can be cut before the strips are glued on.

An added feature of the model will be the representation of the steps and landing leading directly on to the ramparts. The inside angle of the model shown at Fig. 7 illustrates this and makes the addition quite worth while. The ramparts must be broadened at this part by the addition of a complete corner square of card abutting one of the towers.

Making the Steps

The steps may be formed by first setting out in pencil the treads and risers, dividing up the total height into the number of steps desired and proportionate to the length of tread allowed for. Lightly score the lines, one at the front face of the card and one at the back of the card alternately before bending each step at right angles. Cut the front of the inner wall to the same profile as the steps and then glue the latter to each wall, adding gummed strips of paper where possible to give added strength.

Another method of fixing the steps, and, perhaps, the better method, would be to allow narrow gluing tabs on the extreme ends of the treads or risers. These can then be coated with the glue and put in place on the two walls. The worker will find there are all sorts of ways of strengthening his model, by adding glued strips of stout paper in certain places, and by the addition of small blocks of wood glued into the angles at and along the bases of walls, etc.

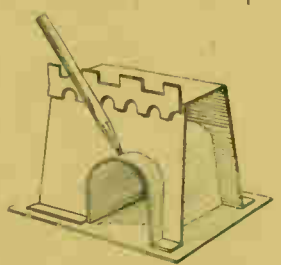


Fig. 6—The card entrance arch

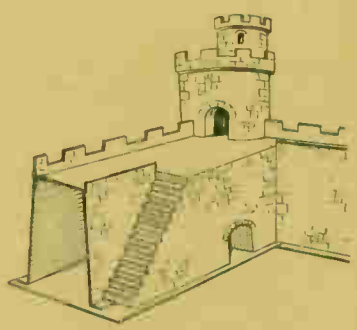
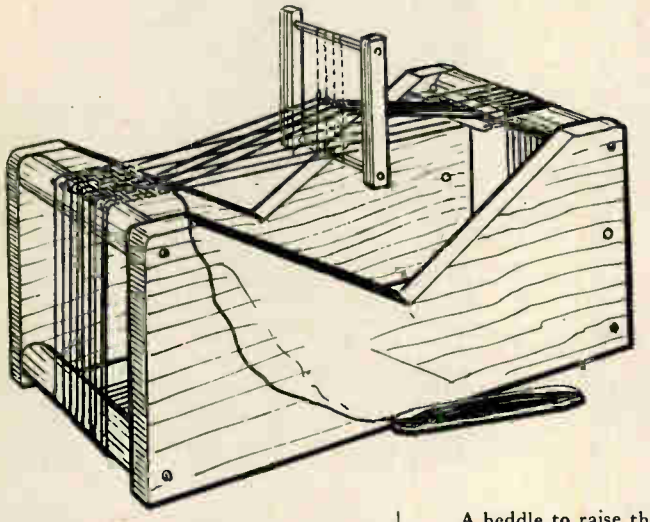


Fig. 7—Inside walls and corner tower

Then, too, he may add a watch-tower to one of the larger corner towers, as seen in the detail at Fig. 7. Any strips of paper or blockings of wood, so useful in stiffening up the model, will not become at all unsightly because all visible parts of the model will be coated with paint.

A variety of weaving can be undertaken on this

SIMPLE BRAID LOOM



THIS simple loom provides a good introduction to the art of weaving, and may, perhaps, prompt the reader to a greater interest in this fascinating and useful craft. The construction of the loom is of the easiest, as may be gathered from the diagrams.

Fig. 1 shows a side view and Fig. 2 a front one. The sides are cut from ½in. thick wood, not to make the loom heavy, so it can be worked on the lap or on the table as preferred. The four cross bars can very conveniently be cut from a broomstick, if one is to spare, but 1in. square strips of wood can be used in place, if the corner edges over which the warp threads pass, are quarter rounded, and then glasspapered smooth.

No special joints are necessary, just glue and round-headed screws will suffice. Note that the bottom bars are not fixed at the corners like the top ones, but raised ½in. or so up from the bottom edge, so that the warp threads do not rub against the table.

Extension Work

An extension bar can conveniently be provided, as the loom without it can only produce a braid of one length, the warp not being wound on a roller but going round the four bars only. With this bar an extension of the length of braid possible can be obtained up to just over 2ft. As it is, a length of some 3ft. is possible, with the bar up to 5ft., can be produced.

A side view of the bar is shown at A and an end view at B. It is just two lengths of ½in. by 1in. wood, with a rounded cross bar at the front and a square one at the back. It will be seen that the extension bar can slide inside the loom, and if a small hole is bored in the sides of the loom where shown, and a similar hole in the bar, the latter can be fixed with a bolt and nut each side, and extending beyond the rear of the loom, will allow a longer length of warp thread to be used.

A heddle to raise the warp threads as required for weaving, is shown in Fig. 3. A single one is wanted. It is a frame of ½in. square wood sides, joined together by cross bars of ¼in. round wood rod, glued in. The heddles themselves are of wire. Make them this way, as in detail, C.

Heddles

First cut two lengths of tinplate, nearly as long as the cross bars, and ½in. wide. Bend these to semi-circular shape throughout their length, as at D, and place over the bars, pressing them flat to them. These are to prevent the wire heddles cutting into the wood.

Cut the wire, which should be of the fine variety sold at hardware shops for a few pence per coil, into suitable lengths, double over the top rod and twist the ends together under the bottom one.

In the centre insert a 1in. wire nail and twist round until the wire is tight. Withdraw the nail, leaving a small eye in the wire into which the warp thread can pass. Probably about 12 heddles will do for a start, others can be added as required later.

Shuttle

Before weaving can be commenced, a shuttle for carrying the weft, as the cross threads are called, must be made. This is cut from ⅛in. by ¾in. wood to the shape shown at E, Fig. 4. All the sharp edges should be rounded off, and the whole made glass smooth with glasspaper.

The width of the braid must be decided on, and this will depend on the number of threads per inch, and also on the thickness of thread used. It is as well to start with a rather thick warp first, coming to thinner stuff as experience is gained and according, of course, to the purpose the braid is wanted for. If a strong wool or stout yarn is used, 12 to 16 threads per inch will be enough.

Wind the thread round the four bars, and tie the ends over the front bar, until the required number are on. Each alternate thread will pass through the eye of a heddle, the others between the heddles. It will be helpful if you get a friend to hold the heddle in position while adjusting the threads.

Preventing Overlap

When all are on, a "cross" is arranged at the rear end, behind the heddle, to keep the threads side by

(*Continued foot of page 26*

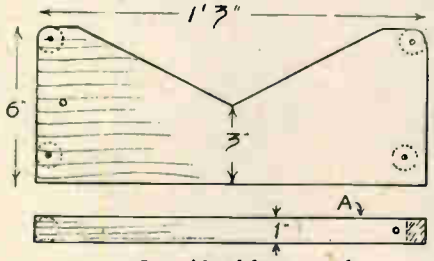


Fig. 1—One side of frame work

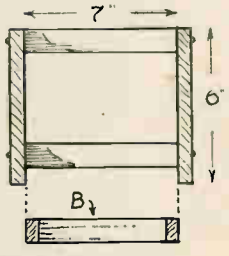


Fig. 2—An end view

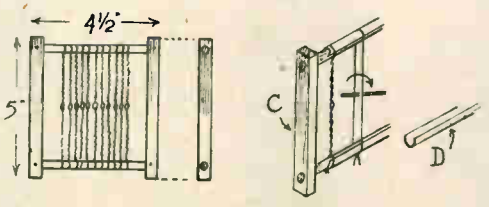


Fig. 3—Construction of the heddle

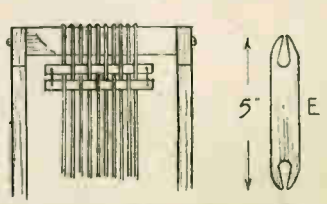


Fig. 4—The spacer and shuttle

How to modernize your house by making
DOOR IMPROVEMENTS

PROVIDING an old-fashioned front door, as shown at Fig. 1, is in a fairly decent condition, there there is no need to purchase a new door in order to improve the appearance of the front of a house. Quite a lot of people are spending money foolishly by having a new door specially made.

The door is ordered months in advance and orders are strictly dealt with, by firms in a position to do such work, as they are received, providing "priority" orders do not intervene. New houses must have new doors.

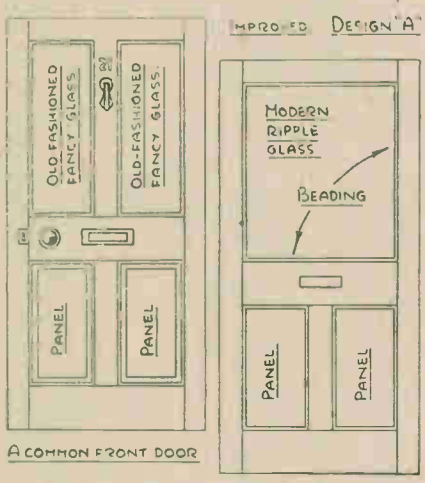


Fig. 1—Ordinary door and alterations

Since you have a door, you must wait.

The new door, when it does arrive, will probably consist of long, moulded panels, with a small oval aperture at the top in which to fit fancy glass. In such a case, you will have less admittance of light into the hall as that provided by the older door. Where is your advantage ?

After months of patient waiting, the expenditure of five or six pounds, the fitting of new glass, and the fitting-up of the door on its hinges, you will not feel so satisfied as the man who decided to alter his door on simple, modern lines.

Five Modern Designs

In this connection, we provide five modern designs. Take your pick, and start work right away. First and foremost, the old door must be studied. If badly worn or rotted, a new door is advised. It might be possible to reface worn edges of closing stiles or level the base of a bottom rail, using red cedar or pine— even deal.

Tenons, if loose in their mortises, could be re-glued or, to save removing stiles, be strengthened by inserting flathead screws via the interior side, sinking the heads for stopping with plastic wood or putty.

Before anything is done, however, decide how you will alter the appearance of the door. If the average type, with bottom panels, set off with 1½in. moulding, with sharp-embossed fancy glass panels above (such glass is very dust-catching), complete with an old iron knocker, knob and letter-box, etc., a simple plan is to remove the bottom panel mouldings and fit a beaded slip.

Glass Panel

The old glass is then removed, then the upper half of the munten. The rebate is fitted with new pieces of wood where necessary, following which a sheet of modern ripple glass, known as "Arctic" glass, is fitted, using tacks and putty or a small beaded slip, mitred at the corners.

This, as shown at Fig. 1, makes a wonderful difference to the old door. The old iron knob should be removed. If a knocker type letter box fitting is added, this serves as a simple knocker and a door handle. The old keyhole escutcheon plate should be replaced with a new one matching the letter-box. Design "A" is quite popular in many districts.

Design "B"

Another equally popular way to renovate a door is shown at Fig. 2, such as design "B". In this case, an upright bar is fitted in place of the munten rail. All you require is sash bar material, i.e., a length of suitable bar, plus side slips.

Alternatively, fit a plain 1¾in. wide by ¾in. thick bar, rebated similarly as the original door rebate. Two panes of wavy glass are fitted. Should the bottom panels be rotted or cracked in places badly, short, diagonal-running lengths of 3½in. matching board could be fitted, as suggested.

Design "C"

Should the entire munten rails (central uprights) be in a bad state, including bottom panels, Design "C" could be adopted, in which case the munten rails are removed. Thin matching takes the place of panels, keeping them upright, as shown.

An upright and cross bar is added at the top, keeping them off centre, if desired. This makes a very modern door, but it must be stressed that the door framework depends on support from the panelling which, consequently, must be a neat, tight fit.

When the panes of clear, small ripple "Arctic" glass are fitted and glazed with putty, the door will be quite self-supporting and rigid.

Fig. 2—Same door further improved

Fig. 1—Two more pleasing suggestions

Design "D"

Should the bottom half of the munten be in decent condition, including the panels, bead same as previously described. Now, however, that you have a central munten, the upper bars must be central, either having the cross bar central or nearer the top of the door.

If the bars are off the centre, as in Design "C", the effect is accentuated and must be avoided. If desired, an extra upright bar could be added, as in Design "E".

Design "E"

The door, Design "E", is based on an actual design which happened to catch the writer's eye. Compared with the common type of door, it looked very modern and stylish. Instead of the

(*Continued foot of page* 21)

Patterns and pictures provided for this Royal

SILVER WEDDING STAND

THERE will be many readers who will make up the little frame and inkstand shown here. It forms a fitting commemoration of their Majesties' Silver Wedding Jubilee. The portraits of the King and Queen fit well into the scheme of design, and well printed photographs on art paper suitable for use are obtainable from The Editor as stated below.

Altogether, it makes a very attractive little piece of work, in which the fretworker may show off to the best advantage his skill in workmanship and neatness. Full size patterns of the parts are given on page 27. Provision has been made for covering the photographs with transparent celluloid, so dust, etc., should not mar their brilliance.

The Wood Needed

Wood 3/16in. thick is used for all the parts, although if you have a piece of ¼in. wood it could well be used for the circular overlays.

The base consists of two layers of wood, the lower piece measuring 7½ins. long by 3¼ins. wide. Glued on top of this is the upper base, and this is shown to scale on the sheet of details. In this piece an opening is cut so when the whole upper piece is glued to the larger piece, a shallow recess is formed for pens and pencils.

ROYAL PICTURES

Two excellent photographs of the King and Queen are supplied on art paper. Send 6d. for them to The Editor, Hobbies Weekly, Dereham, Norfolk.

The same remark applies to the square opening to receive the ink bottle, a square measuring 1½ins. being allowed. If you have a round bottle, then a circular hole can be cut to accommodate it. Having set out this upper layer of wood and marked in the openings, it should be cut with a fretsaw and cleaned up with fine glasspaper before being glued to the lower solid base. A detail section through the completed base is shown in Fig. 1.

In this drawing it will be noted that the upright bearing the two photos rests upon and is glued and screwed to the lower base piece. The upper base comes against the upright and is here also glued along its back edge. This method makes a strong joint, which again is strengthened by the two little brackets glued to base and upright.

Full size patterns on page 27

Main Back Pattern

Care must be exercised in cutting the design of the back or upright. First cut out the page, and then cut round roughly with scissors the design itself. Paste the design to the wood without stretching the paper unduly, which would distort the outline of the circular openings of the frames.

The diameter of the openings for the pictures should measure 2 ⅛ins. This will then allow the disc of celluloid to be cut 2⅜ins. in diameter to fit into the openings when the overlays have been glued in place. Support the frame sufficiently on the cutting table to prevent breakages while cutting, as it will be noted the outer rings, as it were, will be a little weak until the overlays are glued to the face.

Overlays and Backing

The overlays are plain simple rings of ⅛in. or 3/16in. wood, and the two lines forming each ring can be got by describing with a pair of compasses, the circles from the centre shown on the pattern sheet. Clean the edges carefully of each overlay before gluing them to the back. See an equal margin is allowed all round inside the rebate for the pictures, etc.

Keep the discs of wood removed from the frame, because these can be afterwards replaced behind the photographs. In the sectional view, Fig. 2, this latter remark is clearly illustrated, A, being the overlay, B, the celluloid, C, the photograph, and, D, the back, whose outer edge has been chamfered round to make the fit less conspicuous.

A circle of stout brown paper is cut and pasted over the whole back, D, and over the joint to exclude dust.

Suitable Finish

The matter of finish for the wood will greatly depend upon the kind of wood used. If mahogany, the finish should undoubtedly be french polish, either applied with the polishing bob or with a brush. A fine brush will be required to get the polish inside the frets of the crown and the figuring.

If the design has been carried out in whitewood, then it can be either left natural or lightly varnished over to preserve the surfaces from dust. A piece of royal blue or, perhaps, red silk paper might be pasted on behind the fretted work.

Four feet, ⅜in. square, and cut from the waste wood of the upper base should be glued on beneath the base to raise it and to add character to the whole article.

Door Improvements—(*Continued from page* 20)

usual plain door lock, a special mortise type appears to have been fitted, with special keyhole-handle plates. This means that, if necessary, one may leave the door unlocked, it closing on a catch, being opened by turning the handle down.

This is handy, should one have to leave the house for a few minutes. When necessary, the door can be locked by the turn of a key, in the usual manner. With ordinary door locks, as soon as the door closes, it can only be opened with a key. The door may be painted plainly or grained. Fittings should match. A white ripple glass should be used—not orange-tinted stuff, as the latter is for interior doors only.

At the present moment, there is a shortage of the popular "Arctic" glass. However, glass merchants get their quota of this glass frequently. The construction of new houses must have first priority in the matter of new glass.

Large, single panes are the most difficult to obtain, but there are generally quite small cuttings and odd sizes with which one may be supplied. Try to get all the necessary material together before beginning work on your door, and thus save disappointment. The job will prove an interesting piece of work for the handyman.

Two attractive and unusual types of FIREPLACE SCREENS

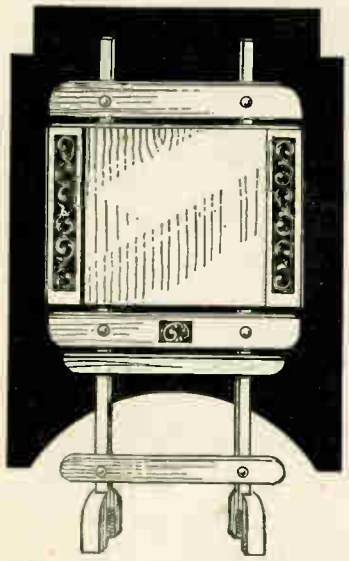


Fig. 1—An attractive type of screen

WE give this week something a little out-of-the-ordinary in the way of fireplace screens.

The two uprights (Fig. 1) are either ⅝in. or ¾in. squared stuff 29ins. long. They should be laid together and all the measurements shown on the left of Fig. 2 accurately marked off and squared across both surfaces. The measurements start from the top end of the pieces. The lower end of each piece is held between the two semi-circular pieces forming the feet.

Now mark out on ¼in. wood the four narrow cross rails according to the lengths and widths given. Trim the ends with the fretsaw to the curves given. Next lay these rails edge to edge with the lower two spaced with equal distances each end. Mark in 3½ins. from each end to show where the inside edges of the uprights must come.

Holes may then be bored in the cross rails to suit either ⅝in. or ¾in. widths, whichever is used for the uprights. Countersink the holes in the rails so when the latter are fixed firmly, the heads may be covered with suitable filling.

The heads of the screws of three of the rails might be covered with turned and shaped buttons, or plain ¼in. thick discs cut with the fretsaw.

The large central panel measures 15ins. by 10⅜ins., ¼in. thick. Lay the panel between the rails with ¼in. spaces top and bottom and fix with countersunk screws in a similar manner to the rails. A narrow upright panel with a fretwork design or transfer incorporated would relieve the plainness as shown. The side view of the screen is shown in Fig. 2 on the right and gives the suggested sizes for the feet.

A detail of one foot is shown at Fig. 3 and each is made of two pieces of 6ins. by 3ins., ½in. thick. Shallow recesses are cut centrally to admit the upright of the screen, glued firmly and dowelled or screwed.

The Alternative Pattern

In the screen shown as Fig. 4 all five rails are halved together, the position of the halvings being spaced according to Fig. 5. Note from this diagram that, looking on the face of the screen, the uprights "run through", therefore, the cross rails must be let in from the back of the uprights as Fig. 6 shows.

The main centre panel of the screen, ¼in. thick, measures 15ins. by 10⅜ins. A beading about ⅝in. wide and ¼in. thick is attached to the top of the panel, ¼in. being allowed to overhang at the front and ⅛in. at the rear. Beneath this should be added a glued strip to give strength. To the top of this beading a pediment piece is added, measuring 10⅜ins. long and 1½ins. wide in the centre, tapering to

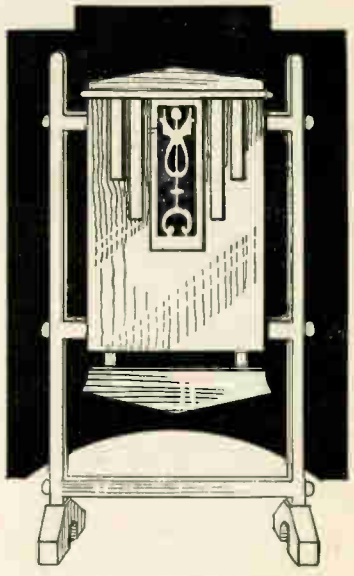


Fig. 4—A more upright type

½in. at the ends. It should be glued and pinned at the ends.

The shaped rail beneath the centre panel is 11¼ins. long and 2⅝ins. wide in the centre, tapering to 1½ins. at the ends. It is attached to the centre panel by means of two strips of wood about 3ins. long by ⅝in. wide and ¼in. thick. Glue and screws will be used to fix these three parts to the panel, a space of 1in. being allowed between the rail.

The simple decoration suggested for the panel consists of a centre fretted panel measuring 9ins. by 3ins., with plain strips glued on either side. Two strips 7ins. and two strips 5ins. and all ⅝in. wide by about ⅛in. or 3/16in. thick.

The feet are made in a similar manner to those of the preceding one, although shaping is somewhat different. Four pieces of wood ½in. or ⅝in. thick will be required, measuring 6ins. by 3¼ins.

Fig. 3—The feet

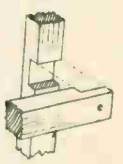


Fig. 6—Rail joint

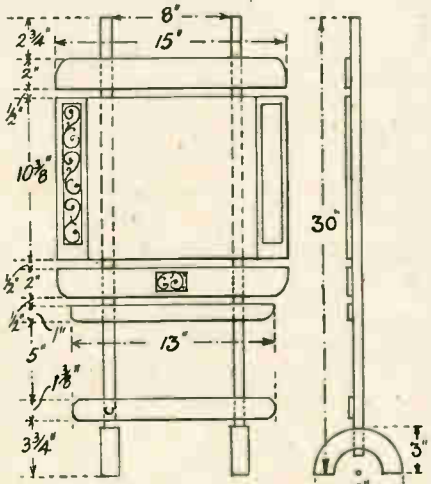


Fig. 2—All details of the construction of first style

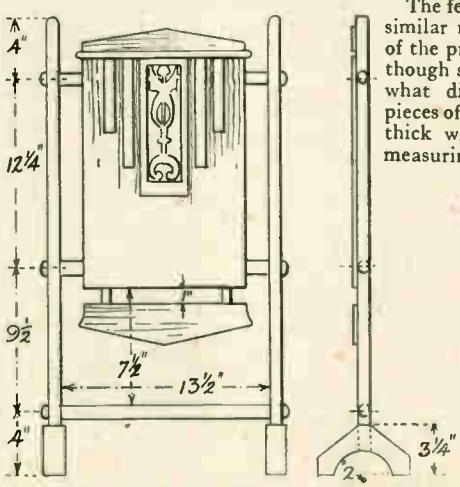


Fig. 5—Front and side view of second type

Hobbies DESIGN

No. 2738

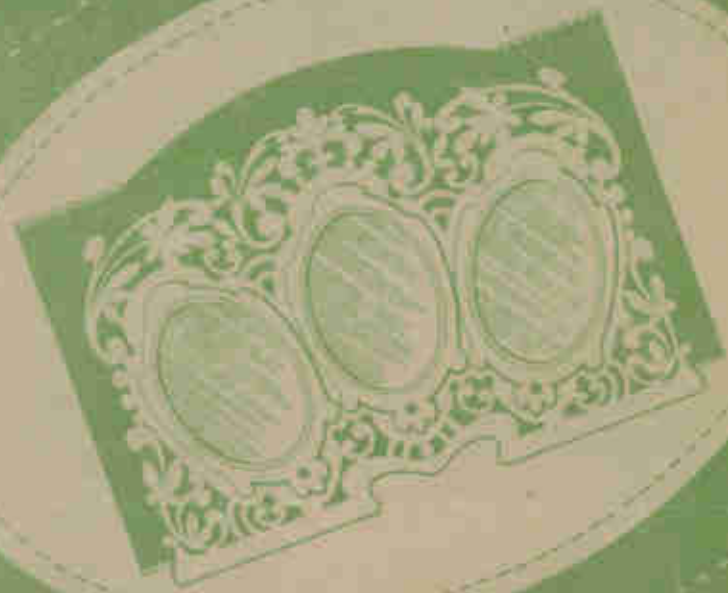
SUPPLEMENT TO HOBBIES No. 3781

FRAME FOR THREE OVAL PHOTOS

PANELS OF WOOD REQUIRED FOR THIS DESIGN

ONE J3 ONE H2 ONE G3

The price is shown in Hobbies Weekly, April 21st, 1945, but is subject to revision. See the current edition of Hobbies Handbook, or write for price to Hobbies Limited, Dereham, Norfolk.



SIZE OF FRAME

14¼in. LONG.
10¼in. HIGH.

THE ARROWS INDICATE THE DIRECTION OF GRAIN OF WOOD.

CHAMFER ROUND THIS OPENING TO SECTION SHOWN.

Line

A "FAMILY" PHOTO FRAME

THE patterns on the reverse side provide for the making of a "family" frame, in which you can show a group of three pictures postcard size. Apart from a large pattern fretted frame, there are only the three overlays to hold in the glass and the pictures.

Main Pattern

The main framework is cut from 3/16in. wood and the overlays from ¼in. boards. The large pattern must be put down carefully so no creases develop. To do this, it is advisable to apply the paste to the wood itself quite thinly, and then lay the design carefully. Pat it down flat with a clean duster, but do not rub upwards or you will be apt to stretch the paper.

The pattern of the overlay for each frame is shown in two pieces for lack of room. Paste one of the patterns down to the wood and cut the other one exactly along the centre line marked. Then paste the second half down with the two centre lines overlapping to form a perfect elliptical whole.

The only other pattern to mark out is that of the strut which is 7ins. long, 2ins. wide at one end, tapered to 1in. at the other. It is cut from 3/16in. wood. In cutting out, the three elliptical openings of the pictures can be taken first as this will lighten the piece of wood for turning. As each ellipse which comes out will be afterwards replaced in position, make the drill hole on the cutting line and mark each cut-out piece so you know in which aperture it is to be used later. The fretted work can be undertaken next, then the whole part finally cleaned with glasspaper. Fit the part down to a bench against two or three nails to act as a stop, which will make the glasspapering operation easier. Be sure to use the glasspaper on a block of wood or in a holder to keep it flat, otherwise you will be apt to break away some of the delicate frets.

Overlay Frames

As mentioned, three overlay parts will be required, so it will be necessary to trace off two further patterns from the printed one joined together as mentioned. Cut the interior opening first, after having laid the glass on to test if the opening will be large enough. Then chamfer the edge carefully with a file, working at right-angles to the wood. A good plan is to do this through the V-opening on a fretwork cutting table.

Then cut the outline of the pattern and clean up in the usual way. The overlays, of course, are glued in position round the three openings in the back with an equal overlap to all edges. This overlap provides the stop for the glass. The picture is then put behind and the piece of wood replaced in position. It can be held there by tiny nails or a covering of gummed paper put over.

Support Strut

The strut is cut to the shape shown, and then hinged in position behind the centre picture. To mark the position, lay the strut on the back level with the lower edge of the main piece. This will indicate the position where the hinge is to come, so that when the strut is fixed and open, the whole frame will lean slightly backwards.

A 1in. wide hinge or special photo hinge can be used, and it is advisable to fix a short length of tape to prevent the strut opening too far. This is fixed with glue or a tiny fretnail to the back of the frame, and then about 2ins. upwards to the inside of the strut.

BACK STRUT. SHOWN HALF FULL-SIZE. DRAW OUT TO FULL SIZE ON THE 3-16in. WOOD AND CUT ROUND. HINGE THE STRUT TO CONTOUR OF BACK BOARD OF MIDDLE OPENING.

NOTE:—THIS PIECE OF WOOD—OVAL IN SHAPE—CUT FROM HERE WILL BE CHAMFERED ROUND ITS OUTER EDGE AND REPLACED BEHIND THE PHOTOGRAPH. STOUT PAPER SHOULD BE GLUED OVER.

NOTE:—THIS DESIGN SHEET IS ONLY PRESENTED FREE WITH THE CURRENT ISSUE OF HOBBIES AND NOT WITH BACK NUMBERS. FURTHER COPIES MAY BE OBTAINED.

CUT THE THREE OVERLAYS AND THE BACK STRUT FROM 1-16in. WOOD.

Centre Line

CHAMFER

OVERLAY. STICK THE TWO HALVES OF THE PATTERN TO THE WOOD, WITH THE CENTRE LINES TOUCHING. THEN CUT OUT THE OVERLAY WITH THE FRETSAW. DRAW ROUND THE CUT-OUT, AND MAKE THE OTHER TWO OVERLAYS.

PRINTED IN ENGLAND.

How to deal with bromide and gaslight work when

TONING PRINTS

IT is reasonably true to say that everyone who has experimented with the hobby along the lines given in these articles on the various processes will have experienced quite a number of thrills. Thrills which have made the work really enjoyable at the time and now that you have gained some further knowledge, you can claim that those thrills and experiences are the real cause of the better photographs which you are making and of which you are justly proud.

This particular chapter is for the purpose of showing you how to make some of the bromide or contact prints, which are now in the black and white stage, look different and, in many instances, be improved, and so give you more pleasure.

Prints in Colour

It is possible to tone prints blue, green, red and sepia, but as the first three are of limited application, so far as subjects are concerned, and are rather complicated to process, it is best to leave them till one has gained some experience of toning and which subjects are suitable. Therefore, let us concentrate on the simplest and most adaptable, the sepia.

Almost any landscape will be improved by changing the black and white image to sepia, but there are a few hints which the beginner must know if success is to be assured. It is as well to mention these before giving the directions how to proceed with the work.

When making a print that is to be toned, it is important that correct exposure of the piece of bromide paper be given. Then the print should be developed to finality, which means that the developer is allowed to act until no further effect is noticeable.

Now this does not mean that over development is required, or that if a little extra exposure is given and the print fully developed, a good sepia colour will result.

The Perfect Result

What really happens is that during the process of toning, the silver bromide or chloride image is chemically changed to a silver sulphide image. And in order to get a good sulphide there must be a good silver bromide image on which the chemicals can act and the only way to ensure it is to correctly expose and to develop to finality.

The second important factor in the making of a good sepia print is that the hypo must be thoroughly washed out of the print before starting the next process. If there is any hypo left in the emulsion it will, when it contacts one of the other chemicals, set up a reducing agent and some of the image will become thinner by reduction.

Finally, do not attempt to use a stale toning solution. This is the one which is made of soda sulphide. It can be kept in a concentrated form, but when it has been diluted for use, it must be used straight away and after you have finished the toning of the batch of prints or completed the evening's work, pour the remaining solution down the drain out of doors.

Unfortunately this solution gives off a very powerful and unpleasant odour, hence the advice to discard the solution out of doors. Do not be deterred by the smell; it does not last very long.

Now that the causes of failures have been covered, we can proceed to do our first sepia toning. If the prints are old ones from your collection, they should be soaked in clean water for about half-an-hour before being placed in the bleaching bath. This will be a safeguard to the possibility of any hypo remaining. If they are newly made prints, then they can be taken from their final washing water and put straight into the bleacher.

A delightful woodland scene

Bleaching Solution

The bleaching solution is made as follows:—

Potass. Bromide	...	¼ ounce
Potass. Ferricyanide		½ ounce
Water to make up to		5 ounces

This concentrated solution, if stored in an amber bottle and away from strong light, will keep almost indefinitely.

For use, take one part of the concentrated liquid and add nine parts of water. When the print is well washed it is placed face upwards in this and almost immediately the image begins to fade away. In three or four minutes all that is visible is a faint outline in yellow.

When you are satisfied that there is no more black image to be bleached, remove the print to a washing water and clear away as much of the yellow stain from the surface as is possible. This should be complete in three minutes but the faint image will still remain.

While the print is washing, the toning bath can be prepared as follows:—

Sodium sulphide, *pure* 1 ounce
Water to make up to 5 ounces

For use take one part of this concentrated solution and add six parts of water. Lay the washed print face upwards in a dish and pour the diluted solution quickly over it. The image immediately returns, but in a pleasing brown colour, which on drying, should prove to be a sepia.

When you have finished with the dilute solution of sulphide it must not be kept, because it quickly deteriorates as a result of chemical reaction. The concentrated liquid, however, if in a well stoppered bottle, will keep good for a reasonable time. If you find on subsequently using it you are only able to produce weak sepia tones, then it is proof that the solution has lost its full strength and must be discarded.

If, during the bleaching process, you find some of the black image refuses to bleach out and remains in, patches, then you must take this as an indication that the bleacher is no longer strong enough to do its work.

If, when the print is dry, you notice there are parts that do not appear as dense as in the black stage, it is a sure sign that the print in those parts still had some hypo present and, in consequence, some reduction of the image had taken place.

Washing

After the toning, place the prints in running water for half-an-hour and hang them to dry. A sulphide-toned print should last many years without showing any signs of fading or deterioration as the sulphide image is reckoned to be harder to destroy than the black silver bromide image. It is, in fact, more permanent.

Some bromide papers give a richer sepia than others and generally speaking, all bromides give a darker result than any or most contact papers. The same strength of baths are equally suitable for all papers and for lantern slides which require exactly the same treatment as for papers.

The home handyman should be able to undertake

BOOT REPAIRING

HAVE you ever thought of repairing your own boots or shoes? In such cases as soling and heeling, the amateur repairer has nothing to worry about. It is a simple straightforward job. However, no person, not even the experts, can do good repairing without certain tools, so if, in these days when it is weeks before a local repair shop can fix up your boots or shoes, you are seriously thinking of attempting the work yourself, buy yourself an iron last, a proper hammer, brown and black heel-ball, a good leather knife, a rasp and file, plus different sole and heel brads.

Accessories Wanted

These are the main accessories required. There are probably local shops in town which cater for the requirements of the boot and shoe repairer, particularly amateurs. Soles and heels are cut to various sizes suiting the shapes of most footwear.

If you want soles and heels, simply place the boot or shoes on a sheet of brown paper and pencil around the shape to make a pattern by which the leather heels or soles can be gauged.

By buying the leather already cut to the approximate shape and size, much troublesome shaping work is cut out. Usually, for cheapness, some men buy odd scraps of leather from which heels or soles may be cut. These scraps give trimmings which will enable, say, a worn heel to be built up with small fresh sections of leather.

Use the Fretsaw

It is an economical way of making repairs. It is not always necessary to build up a badly worn heel with complete new layers of leather. Wear is mainly at the back edge and side of heels. The top or final layers must be completely removed and a new piece fitted.

When this top layer is removed, it may be found that the layer beneath, owing to the amount of wear, is rather worn away. It is the worn part that should be removed—not the complete layer. The new piece to be fitted must be the same thickness as the original layer.

Now, some men, having marked out with pencil the approximate shape of a heel or sole, begin to cut out the shape with a knife, such as the leather knife, then proceed to trim it to the "near" shape with a penknife. Leather, while easily cut with a sharp knife, differs greatly from wood; it is a difficult thing to form the sole shape with knives.

Any time the writer has occasion to repair his shoes from a scrap piece of new leather, the shoe is set on the leather and the shape pencilled on carefully, following which the shape is cut with—a fretsaw! Believe it or not, a fretsaw is an excellent tool for cutting leather to shape. It is just like sawing a piece of wood.

The leather, however, should be quite dry. Some workers, to prevent swelling when the repaired shoe comes in contact with water, steep their leather in water over-night to make it soft and pliable for cutting and attaching. This is a mistake.

The leather should be steeped after being cut to shape, or after it has been nailed to the boot or shoe. In fact, there is no need to dampen the leather at all since, in the finishing off, one makes it waterproof.

Sewed Soles

Practically all soles are sewn to the uppers of boots and shoes nowadays. The professional, of course, does the sewing on a special machine designed for such work. You, the amateur, can also sew new soles to the upper of footwear, using a needle and wax thread. This needle and thread can be purchased at most shops stocking repair goods.

If you study the sole of a shoe, it will be seen that, while the thread is visible at the top edge of the sole, it is invisible at the bottom edge. The reason is that, prior to sewing the sole to the upper, a recess was cut all round the edge, about ¼in. inwards, with a knife. The feather edge, knurled back, provided a groove for the thread. Once sewed, the feather edge is folded down again in place to conceal the thread and save it from undue wear.

Wire Sewing

A special waterproof adhesive may be applied to the feather edge to make a good join. The edging requires to be well hammered down, with the sole supported in the last. Another way — an unusual, but practical method—to sew on a new sole is to use a copper coil wire of wax thread gauge. Any enamelled coil wire would serve, preferably a black enamelled wire (for black footwear) or brown enamelled wire (for brown footwear).

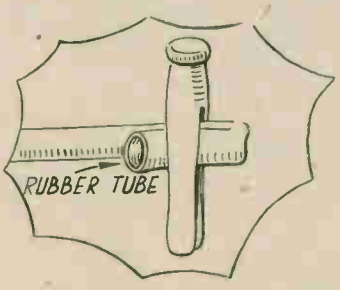
The new sole is, after the old one has been removed as far back as the beginning of the instep and the thread holes cleared, nailed on here and there temporary, then trimmed. With a fine bradawl, holes are pierced through the new sole via the upper side.

Bed for Wiring

Having done this, a parting or veining tool is used to make a groove which runs through all the holes in the sole at the surface side. This provides a "bed" for the wire turnovers and

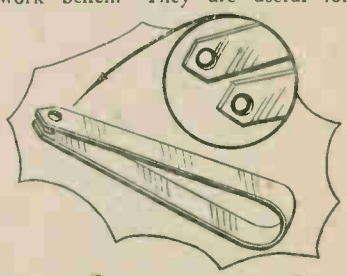
Chemistry Stop Tap

IN chemistry one often wants to use a stop tap for rubber tubing in the experiments, and the illustration shows a simple but quick and efficient means of forming one. When the end of the rubber is bent over, it is held fast by fixing an ordinary clothes peg over the end as seen. It is advisable to rub the "legs" of the peg inside with glasspaper to take away any roughness—likely to damage the tubing.



Useful Tweezers

A SMALL pair of tweezers is a handy gadget to have on the work bench. They are useful for



picking out small nails, or for holding them in place for the hammer to tap. The tweezers shown are easily made from an old hacksaw blade. To bend to the shape shown, heat the centre very hot and turn over until the ends meet. File or grind the ends to a point near the hole already in the blade. The ends of the tweezers will serve to pick up small articles whilst small balls can be taken up in the holes.

the whole area of the sole must be worn away before wear attacks the wire.

The wire is simply pushed in and out of the holes until the sole is completely wired up. Always begin at the instep and gradually work your way around to the other side. Each time the wire is drawn through a hole, it should be drawn tightly to make it bed properly. Too much strain, remember, is liable to break the wire; use as little force as possible.

Instead of wire, which is easier to thread through the holes than wax thread, a wax thread could be used, bringing it through the holes with a needle. The groove is better than the invisible sewing method—at least, for you to do.

Rubber Heels

If you are one of those folk who like to walk on rubber heels, here is a tip to keep in mind, assuming you fix on all your own rubber heels. Buy your heels, not as a single pair, whenever required, but in several pairs. Reason: after you buy a certain make and size of rubber heel and fit it, the chances are that when the heels become worn and you seek a fresh pair of similar make and size, such are not available. Result: make do with some other make of heel, the holes of which do not correspond with the holes in the old heels.

Some of the old holes may "clash" with the new holes to be made, this often throwing the new heel out of true. One could have the old holes stopped with a plastic cement, such as leather stopping or plastic wood. But, by having the exact type of heel on hand, such will be easier to fit.

Hole Filler

HOLES in the wall made by nails or where the plaster has been removed, can be filled without expense. Tear up an old newspaper into small pieces and put into a bowl containing a few scraps of soap and boiling water. After soaking for a few minutes squeeze out and mix the pulp with a little cold potato until it has become like glue. Fill the holes with the mixture and when dried, paint over with a little whitening and soap mixed together.

By the way, when fitting a new heel, do not merely hold down the heel in place, then proceed to bang home the fixing nails. You should use your bradawl to make starting holes. The nails will drive in more easily and straightly. The bradawl, too, will find out whether some of your nails will be driving upon nails in the leather—a thing which must be avoided.

Neatness and Finish

And having hammered in the nails, use a nail punch to tap them in further so the heads engage properly with the "washers" within the rubber heel. You must be neat, and by being neat at the beginning, you can keep being neat until the boots or shoes are not fit for repairing.

Finally, after rasping and filing leather, glasspaper it. When stained, apply suitable coloured heel-ball, rubbing it on, then smoothing it out with a special tool which can be heated, such as an edging tool. A final touch with polish completes the job. Never omit to stain the leather; the coloured wax alone is insufficient to colour it.

A few odd pieces are utilized to make this

SIMPLE NOVEL TABLE LAMP

MANY designs for making table lamps have appeared from time to time, but here is a really novel idea.

The stem, which is the most important part, is made from the middle section of an old table leg. Actually, it will be found that these "limbs" are quite nicely turned and the centre section, inverted as shown, gives just the shape and balance needed for a table lamp. If in good condition, the only finish necessary will be polishing.

Having obtained the leg, cut across at the top at the desired position, but at the bottom cut about 1in. below the line which will rest on the surface of the base. This is so a mortise joint through into the base block, can be made.

Centre Hole

Next comes the tricky but quite possible part of the work, the boring of a hole right down the centre for the flex. This is a matter of careful drilling from either end with a suitable brace and bit or with one of those extremely long gimlets. It is just a case of taking the job very steadily a little at a time.

The base is any heavy rectangle of wood about 1in. thick. A hole is cut in the centre to take the shaped end of the stem which, when tapped into position, should be quite firm. The joint is made complete by gluing.

On the under side of the base a channel is cut to take the flex, with the channel continued to the hole in the centre of the stem. The flex is held in with staples and the whole of the bottom is covered with thin baize (glued on) which effectively hides this arrangement.

Colour Finish

The base should be a wood that will stain readily to match with the stem if a polished finish is to be retained. If the lamp is to be enamelled, no careful choice is necessary.

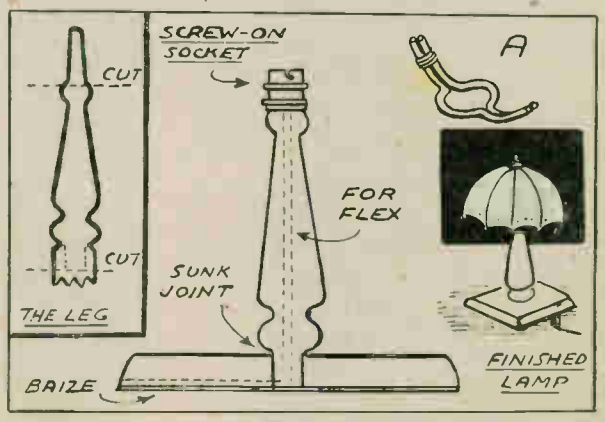
The lamp-socket with collar for shade must be bought and to make a firm job, the former should be of the bracket variety so it can be firmly screwed to the upper end of the stem. Nothing is worse in a table lamp than an insecure top.

For final fitting, the flex is fed down through the stem and the top end is attached to the terminals of the holder.

The shade is held by a simple wire frame which goes under the top collar of the holder and finishes above the bulb in a shape that will hold the shade you have in mind. Two lengths of fairly stiff wire are used widened out to go round the socket and either soldered or wired together at intervals for the rest of the circle.

Flex Matters

If bought as such, the switch will be incorporated in the socket, but if it is of the plain type, then a "torpedo" switch must be put in the flex just where it leaves the base. This is merely a matter of cutting the flex and fastening the ends so left to the terminals of the switch. After which the torpedo cover is replaced.



What you have to do if you want to make PROFIT FROM PLASTICS

"IF I make some articles in Perspex, what are my prospects of selling them at the present time?". Many readers are asking themselves and us this question, so let us examine it more closely.

Firstly, it is obvious that Perspex has come to stay, for we see items made of this material featured more and more frequently in shop window displays. But we must realise that a considerable number of 'amateur' workers are turning out such items for sale, which means that we shall be entering a competitive market with our goods.

Quality Essential

On the whole, the items we see displayed are of high quality, some of them, of course, are excellent, but there is also a fortunately small sprinkling of poor quality, badly designed pieces on show. This should teach us our most important lesson, that if we are to sell our goods, they must be well designed and of high quality.

There will, of course, always be a market for cheap and shoddy goods, provided that the price is cheap enough. To obtain this, the work has to be skimped, with the result that the article deteriorates rapidly, and usually falls to pieces.

Take the case of the well-made article. The price to the buyer is, of course, higher, but the article is correspondingly better. The design must be good, otherwise the item, though well made, will not be a success. So avoid unnecessary frills in the design.

Study the Windows

The next time you pass a first class jewellers, study the design of such things as silver cigarette boxes. Notice how the box is invariably simple in shape—there are no fancy bits stuck all over it. But the workmanship is excellent. It is this which sells the box. Even the decoration is simple, but executed in faultless style.

THIS WEEK'S FREE DESIGN

This week's gift design sheet is for making a three-picture "family" frame. It is attractive and straightforward for the fretworker and a special parcel of planed wood, the necessary thicknesses is also supplied. It is obtainable (Kit No. 2738) from Hobbies Branches for 4/1 or for 9d. extra by post from Hobbies Ltd., Dereham, Norfolk

The workmanship we put into our goods must, therefore, be of our best. To achieve this, see the tools are properly sharpened and in good condition. Two minutes work with the oilstone may make all the difference between a well cut joint which will cement without difficulty—(and thus save valuable time)—and one which will come apart at the first knock.

All edges must be cleanly cut and free from unsightly nicks and scratches. This can only be ensured by careful work. Rushing the job will never produce good results.

When we buy our material, we shall usually find it covered on both sides with paper. This is to protect the delicate surfaces from scratches which are so easily caused by grit, particularly on the workbench. So we must be sure to keep the bench really clean—in fact a good plan is to use a piece of brown paper pinned to the bench top on which to work.

We can also put the paper covering of the Perspex to good use by marking out the shapes we want, and then cutting out before we remove the paper. You will find that it is quite easy to plane and even polish the edges without taking off the paper.

Therefore, by doing this, no harm will come to the highly polished surfaces during the making up stages, and this will be rewarded by the high finish we will be able to obtain.

High Class Work

You may say that all this takes time, and time means money. Quite true, but remember that you will always find a market for a well-made article, provided that you do not expect an unreasonable profit. High class work for a reasonable price means a satisfied customer and a good recommendation. These will show you a profit from Perspex.

Loom—(*Continued from page* 19)

side and prevent them overlapping each other. This arrangement is shown at Fig. 4, and consists of two suitable strips of celluloid or very thin wood, woven between the threads, as seen in the diagram, and tied together at each end to prevent them shifting apart.

When the heddle is lifted with the fingers, half the threads are pulled up from the remainder, leaving a space, called the "shed" for the shuttle, with its weft thread to pass through. The heddle is then pushed down, the threads with it passing below and making a second shed for the return journey of the shuttle.

Fill the shuttle with the weft, and proceed with the weaving, as above. Every time the shuttles cross the warp, bring the heddle forward to press the weft thread up to the weaving. At necessary intervals, pull the woven braid over the cross bars to make room for the shuttle to work in.

When the work is complete, that will be when the space of unwoven threads is too small to admit the shuttle, cut the threads across, and pull the braid off the loom. The loose ends can be tied together in pairs, to prevent the work unravelling, and either left as a fringe or cut short and hemmed over.

Various Patterns

Many varieties of patterns can be woven on this loom, and not the least interest lays in designing them. The weft threads can be different colour to the warp, and need not be of the same thickness or material.

Stripe patterns are arranged by different coloured threads in the warp, either singly or in groups. Chequer patterns are arranged by dividing the warp threads in equal groups of two colours, and using the same two colours or others, for the weft. Two shuttles being required.

To make this clearer. If the total warp threads are 20, arrange, say, for 1 to 5 and 11 to 15 to be black, and the remainder white. Use one shuttle of white thread and one of black, and work alternately, passing each shuttle 5 times across in turn. The result will be a chequer pattern of black, white, and grey squares. Other colours can, of course, be chosen.

Belts and ties, as well as braid can be woven on the loom, as material up to 4ins. wide can be worked if a heddle of corresponding width is made.

ROYAL SILVER WEDDING FRAME AND INKSTAND

See page 21

OVERLAY
CUT TWO

CENTRE FOR
DESCRIBING
CIRCLES

BRACKETS

2⅞"

1½"

1½"

¾"

7⅞"

UPPER BASE. FOR
LOWER BASE SEE
INSTRUCTIONS

1923
1948

LINE OF
OVERLAY

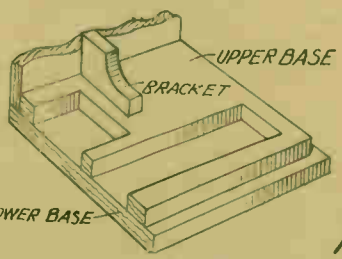


Fig. 1—Cutaway view of base

BRACKET

LINE OF
OVERLAY

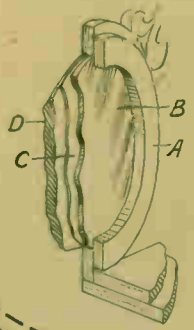
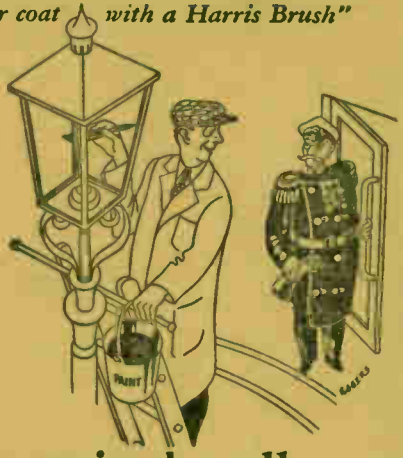


Fig. 2—Cutaway view of photo portion

"You get a better coat with a Harris Brush"

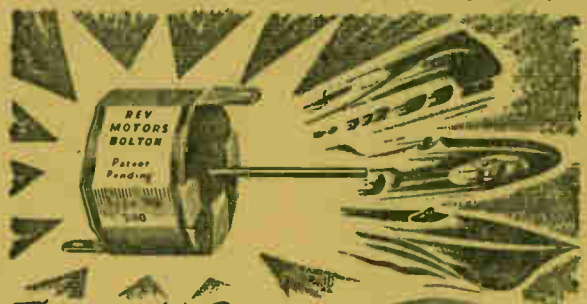
Harris
the paint brush with a name to its handle



L. G. HARRIS & CO. LIMITED,
STOKE PRIOR, WORCESTERSHIRE

C.R.C.10

BELIEVE IT OR NOT—*BUT*



This complete Power Unit will drive your working models...

Mechanical hobbies now become more than ever an all absorbing thrill with the aid of the amazing ELECTROTOR - a phenomenon never before thought possible of realisation. Think of its size. Takes up less than a cubic inch of space, weighs only ½ of an ounce yet is powerful enough to work all kinds of mechanical models. Powered by an ordinary torch battery it develops approximately 5,000 r.p.m. and is adaptable to an infinite variety of drives. Must be seen to be believed. Ask your Retailer for full descriptive Leaflet.

Sole Manufacturers: **REV MOTORS LTD., Knowsley House, Bolton**

Model Retail and Model Wholesale enquiries to Cartwrights Model Supplies Ltd. 19-21 Elystan Street, London, S.W.3.

Whatever your soldering job, in your home or workshop, you will prefer to use Ersin Multicore Solder. No extra flux is required. Multicore is the simple and precision method of making sound soldered joints for all household purposes. Just apply it simultaneously with the soldering iron; the three cores automatically provide correct proportions of flux to solder.

6d. CARTON *Shown above*

WORKSHOP SIZES 4/10 - 6/9 each

MULTICORE SOLDERS LTD.
Mellier House, Albemarle Street, London, W.1
Tel. · REGent 1411

★The most popular pactum package is M-Q developer (Metol - Quinol) containing all the chemicals required to make 10 oz. of solution for dish development. This M-Q pactum will also make 16 oz. of solution for using in a tank.

JOHNSON PACTUMS are exceptionally useful for those amateur photographers who like to make up small quantities of solution at a time. Toners, Intensifiers and Reducers are only needed occasionally and to have the chemicals at hand in this convenient form saves time and trouble. Get a few PACTUMS of each kind and keep them ready in your dark room. You will be sure to need them.

The following packings are available.

★M-Q DEVELOPER (Metol-Quinol)
COPPER INTENSIFIER for 8 oz.
REDUCER sufficient for 8 oz.
BLUE TONER for making 10 oz.
SEPIA TONER to make up 8 oz.
GREEN TONER for making 10 oz.

Ask your Dealer for Scales Brand Pactums.

JOHNSON & SONS MANUFACTURING CHEMISTS LTD.,
HENDON, LONDON, N.W.4. *ESTABLISHED 1743*

Printed by Harding & Mansell, Ltd., London and Wisbech, and Published for the Proprietors, Hobbies Ltd., by Horace Marshall & Son, Ltd., Temple House, Tallis Street, E.C.4. Sole Agents for Australia and New Zealand: Gordon & Gotch (A'sia) Ltd. For South Africa: Central News Agency Ltd. Registered for transmission by Canadian Magazine Post.

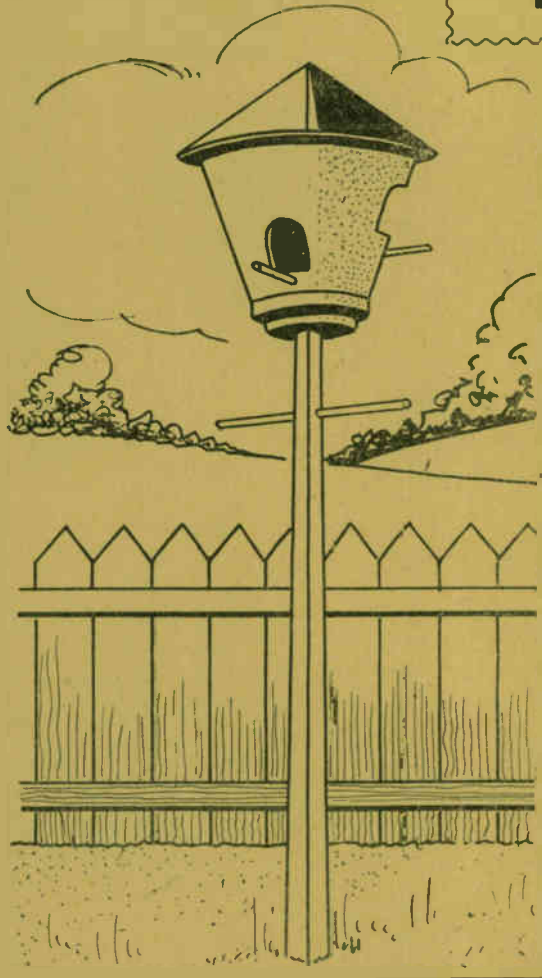
Hobbies WEEKLY

CONTENTS

April 28th, 1948 Price Threepence Vol. 106 No. 2739

A SMALL DOVE COTE

WITH wood so difficult to obtain these days, and since it seems a sheer waste to discard old buckets with leaking bottoms that have been repaired several times, here's a good way to make further use of one, and save wood into the bargain. What do you think of the novel dove cote shown herewith? You'd think that buckets were just made for making such a cote, wouldn't you?



Any bucket will not do. It must, if possible, be a large washing bucket, measuring about 13ins. at the rim, 8½ins. at the base and 11½ins. long. Of course, a small sized bucket, if nothing larger is available, will do—will *have* to do, in fact. But sizes, as detailed in the diagrams, will require to be altered to suit. A rather medium-sized dove cote will result, and the smaller birds are more likely to view such a possible "home" with pleasure—not doves!

Strictly speaking, cotes on posts are merely a form of rustic ornamentation for gardens. Many remain uninhabited the whole year round, and nobody cares. The cote is there, a mere ornament serving to take the bare look away. The large bucket type of cote shown will house three or four tame doves easily enough, but that is about all.

Preparing the Bucket

Assuming you have an old washing bucket the size mentioned, the first thing to do is to remove the mending plates and bolts from the bottom, then the handle lugs. By filing the rivets holding these, the lugs and handle come away. Any dents in the bucket sides must be straightened out with a hammer carefully. A battered "house" is most unattractive and slovenly.

A wooden bottom, cut from ⅞in. material, is fitted to the underside of the bucket bottom with screws via the inside. It may be necessary to drill holes for these screws.

Prior to screwing in place, cut a 1in. square hole in the centre of the disc. Make a second disc, about 6ins. in diameter, with a 1in. square hole, and fix it to the underside of the bucket disc, with the square holes in alignment.

Rafters and Roofing

The elevation at Fig. 1 gives a good idea of the entire work involved. Fig. 2 shows the rafter pieces, cut from ⅞in. wood, which are fitted to the rim of the bucket (see cut-away view). These rafters are half-checked together and then secured with single screws at each end. Holes are bored in the metal for the screws to enter the ends of the rafters.

Entrance apertures are cut in the bucket sides. This is done by scribing the shape with a sharp instrument

(possibly a sharp-pointed nail) to size (about 5ins. by 3ins.), then drilling a ⅜in. hole near the line and cutting away the waste metal with a piece of hacksaw blade fitted with a wooden handle or a file handle which also takes hacksaw blades.

Two apertures will suffice. Beneath each, drill a ⅜in. hole for the ⅜in. dowel perches (for landing purposes). These perches are 6ins. to 8ins. long, being a force fit into the holes, and projecting evenly inside and outside. Tight-fitting wooden washers could be inserted over them at the outside and inside, to hold the wood more firmly in place.

The roof is nothing more than a piece of roofing felt or lino material. You need a piece approximately 24ins. square, or rather, 24ins. in diameter, as shown at Fig. 3. When cut to shape, the joining edge is tacked to one of the rafters and the material bent around to form the cone shape, being finally tacked over the joining edge, then if necessary, the edges are trimmed with scissors.

To give more strength, the roofing may be first covered with cardboard, then felting added. Remember that A goes on top of B to make a neat join. Rafter edges may need to be planed to suit the conical shape.

The post is a piece of deal material 7ft. long by 2ins. square. It is planed to taper to 1½ins. at the top, 12ins. up from the base end. The base consists of two 4in. wide by ⅞in. boards half-checked together in the centre, with a 1in. square mortise.

At the top of the post cut a 1in. square by 1⅜in. tenon. At the base end, the tenon is ⅞in. long only. Fit this into the base mortise, then add the brace pieces, using glue and screws, preferably brass screws.

Bore a hole through the post, about 8ins. from the top, for an additional landing perch. The doves or small birds land on this perch, await to see if the coast is clear, then hop to the entrance perch, look around for a bit, then hop inside.

Having mounted the cote upon its pole, the work is painted. The pole and perches should be black, the roof red and the bucket green. Use an oil paint and apply two separate coats, allowing the first application to dry.

Regarding the base support, this should be tarred, using a tar paint. While the paint is drying, prepare a hole in the soil for the base which requires to be buried 12ins. deep. Be sure to select a good site for the cote, well away from sheds, outhouses, etc. Cats are great bird-watchers and climbers, as you know. So, to park the cote on a convenient wall is to invite all prowling cats into the home of the birds who, if caught napping, will have a lively time.

A height of 6ft. from the ground is usually sufficient. If you have the extra wood to spare, it should be 7ft. to 8ft. high. The top tenon should be augmented with small metal brackets to give extra security.

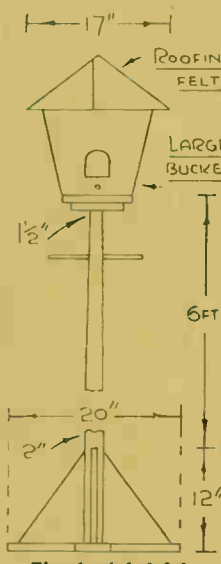


Fig. 1—A helpful elevation

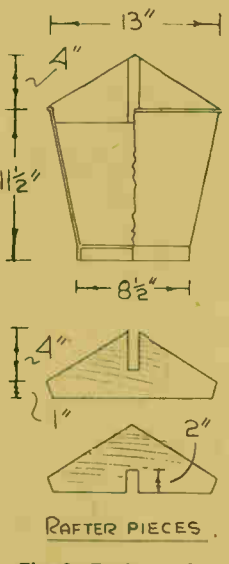


Fig. 2—Bucket and rafter pieces

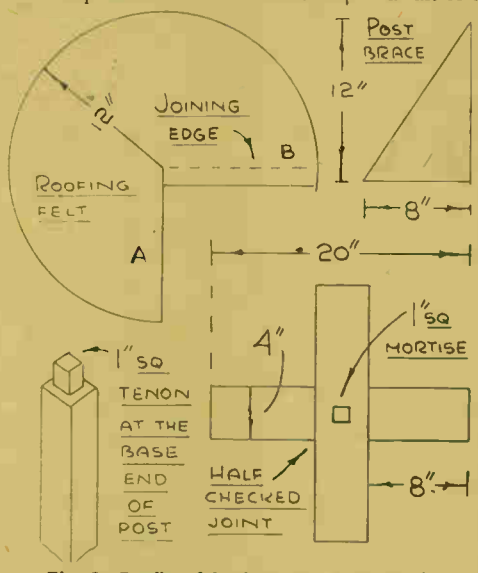
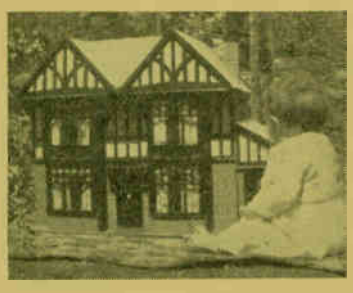


Fig. 3—Roofing felt shape and base details



NO wonder the little lady gazes in delight at her doll's house—a real piece of work and one which her daddy—Mr. V. H. Jones of Hafod, Swansea, can well be proud of constructing. It certainly has had a very useful life because it was originally made during the "blitz" days for a niece who has since grown "past it". So after touching up and renovation it comes in for Miss Johes. Complete with interior lighting from a battery in the garage.

Examples of two of our
Readers' Models to Admire

THE 8-wheel lorry you see looks real but isn't. It is a model 1ft. 8½ins. long made by a reader who is not only a driver of the full-size lorry but keen enough to have made 23 replicas in miniature for his mates on the firm. The builder is Mr. R. T. Carey of Bolingbroke Rd., Norwich, and in sending the picture he says "The models are mainly wood, the axles being 3/16in. mild steel and the wings aluminium. The wheels I have turned. Windscreen is mica, and the radiator in this case I cast in solder, having cut a wooden mould first. This is the only time I have tried that, however, and shall not bother again—it is quicker with wood. The gauge on the fuel tank is a drawing pin and the side lights are from pieces of tubing. The model is complete with steering wheel, bonnet, seats, rear view mirror, starting handle and spare wheel". Congratulations to Mr. Carey on his work.

A simple and novel stand type of
CRYSTAL RECEIVER

AS this receiver requires no kind of case it is very easy to construct. Despite this, the finished appearance is good and efficiency has not in any way been sacrificed. A single piece of wood forms the basis of the set as well as acting as a coil former, and this type of winding is particularly suitable for crystal receivers where losses in the coil should be avoided.

Although only a single earpiece is illustrated, a pair of earphones may be used. With an average aerial and earth, good reception will be obtained up to 50 miles or so from the major transmitters. With a long high outside aerial, well insulated, quite satisfactory reception is possible up to 150 miles, provided the earphones are not of inferior make (and consequently insensitive).

An indoor aerial will give quite good results, particularly if in an upstairs room. In all cases a metal object in damp soil provides the best earth, though water pipes, etc., may be used instead.

The Coil Former

This is a flat piece of 3-ply 8½ins. by 7½ins. In addition to the winding it will carry the detector and other parts. Fig. 1 shows how it is marked out. The thirteen slots should be about 1/10th in. wide. They may be cut with a fretsaw or simply by sawing to the required depth with a large tenon saw. If the latter method is adopted, care must be taken to see that the wood is not split behind.

Four holes for terminals are drilled near the bottom edge. A hole for the tuning condenser and two holes for the crystal detector will also be required.

When the wood is cut out, it should be glasspapered smooth and varnished to improve its insulating qualities. The varnish should be allowed to dry thoroughly before the wire is wound on. It is necessary, remember, that there should be an odd number of slots, as illustrated.

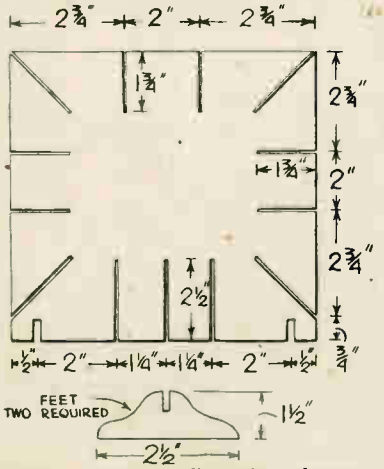


Fig. 1—Shape and dimensions of parts

The Feet

Fig. 1 also shows the shape of the feet. They are cut from 3-ply or any other suitable scraps of wood. If they are cut to be a tight push-fit on to the larger piece, a touch of glue will hold them in position. After glasspapering they should be varnished.

As the coil winding is so straightforward, even the worker who is making this his first circuit to construct, should experience no trouble. The end of the wire is passed through a small hole near one of the lower sloping slots (see Fig. 2). Two or three inches of wire should be left for subsequent connection to the earth terminal.

The wire is now wound on, passing it down each slot as the turns are put on. Because of the odd number of slots, turns will come alternatively at each side of each of the pieces, and when winding is finished, half the turns will appear on one side of the former and half on the other side.

The end of the coil is fixed by passing the wire through a small hole. This end may now be secured under the aerial terminal and the beginning of the coil connected to the earth terminal.

Double-cotton-covered 24 or 26 S.W.G. wire is most suitable, but either cotton, silk or enamel-covered wire of from 22 to 28 S.W.G. is suitable, and may be used if to hand. With a ·0005 mfd. tuning condenser 30 turns can be used. However, thinner wires will require a few less turns and if a very long aerial is used, less turns still will be required.

Fortunately the exact number is not critical. If it is found a low wavelength station cannot be reached,

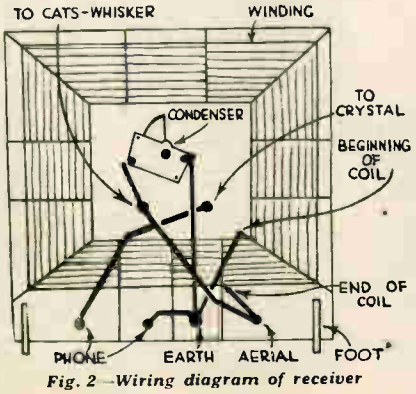
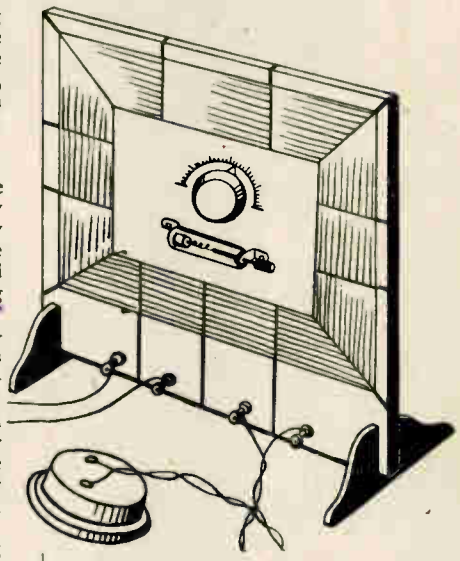


Fig. 2—Wiring diagram of receiver



a few turns may be removed. If, on the other hand, a high wavelength station cannot be tuned properly, then a few more turns will be required.

The coil tunes from approximately 200 to 550 metres.

Wiring Details

All the connections are at the rear of the receiver and are shown in Fig. 2. The condenser may be either air-spaced or solid dielectric, the latter being smaller. If a condenser of ·0002 or ·0003 mfd. is to hand it may be used instead of the ·0005 mfd. component, but the tuning range will be reduced to about 200 to 400 metres.

As Fig. 2 is a back view, the 'phone terminals will be on the right when the receiver is turned round.

A suitable knob is placed on the condenser in the centre of the panel. The detector is also bolted here, a lead being taken from one bolt to the 'phone terminal, and from the other to the aerial terminal (as in Fig. 2).

Upon connecting aerial, earth and 'phones and adjusting the detector, signals should be heard. The tuning control is used to bring these in, but it must not be expected the receiver will tune as sharply as a valve receiver. If necessary, the detector knob may be moved a little to find a sensitive point on the crystal, though often this is not necessary.

The earpiece or earphones must be high-resistance types (usually from 500 to 4,000 ohms). The special low-resistance types (ex-R.A.F.) sold by some shops will not operate on a receiver of this kind unless a matching transformer is used.

Some general information subjects answering

WHY IS IT——?

WHY is it that a mild explosion sometimes takes place when puffing at a cigarette?

EXPLOSION is hardly the word. A bright spark, emitted with a slight crackle, explains the effect. This is due to a particle of saltpetre. Saltpetre is put into tobacco to make it burn properly. It largely explains why home-made cigarettes are hard to keep alight.

WHY is it that the gas in electric lamps never becomes used up? Is it some special, long-lasting gas?

YES—in a way. Actually, it is an inert gas, unaffected by the burning lamp filaments. It does, however, enable the filament wires to burn more brightly.

WHY is it that, after bending a strip of Perspex material into a fancy letter, for attaching to a lady's handbag, it became almost straight again?

THE bending, while successful at the time of execution, was not permanent. There is only a certain amount of "give and take" in plastic material. It breaks under extreme duress, especially if bending a sharp corner in fairly thick stuff. The application of heat, however, really makes it plastic, and the heat from warm water is usually sufficient to enable it to be bent and twisted in almost every way desired. It must be held to its new shape until cool; the shape will then be of a permanent nature.

WHY is it that the caps, or covers, on smoothing plane cutters enable cross-grained wood to be planed?

BECAUSE of the fact that, when the caps are set close to the cutting edge, the shavings are broken back more finely. The cutter merely "lifts" shavings; it is the cap which prevents the cutter from lifting heavy, rough shavings. A sharp cutter, projecting the minimum at the sole of the plane, will not enable the plane to be used against grain directions, as in the case of a block plane; but, with a finely-set cover attached, one can plane against grain, as the cover prevents digging.

WHY is it that, having inflated bicycle tyres quite hard, the tyres are sure to be soft again a few days later?

THIS is due to a slight escape of air from the valve. It is unavoidable; if the air can get in, it must get out, and it does so, despite the elasticity of the valve sleeving. It is often noticeable that one wheel remains harder than the other. This shows the difference between a good valve sleeve and a weak one.

WHY is it that holes are difficult to bore in end grain with a centre bit, yet so easy to bore over grain?

FOR the simple reason that there is no "screw" to the point of the bit which will "draw" the scriber and cutter into the wood. For boring holes in end grain, a twist-head bit, with threaded point, should be used; this is a variation of the common centre bit. Another type is the Forstner bit, but this has no threaded point.

WHY is it that, after rubbing beeswax on a drawer to ease it in its aperture, it was tacky to move in and out?

HARD beeswax used alone is of a sticky nature. The best lubricant for the purpose mentioned is candle tallow. It does not need to be put on thick, but enough to form a smooth running surface. On small drawers or working movements in wood, the powder of graphite from a lead pencil is an excellent lubricant.

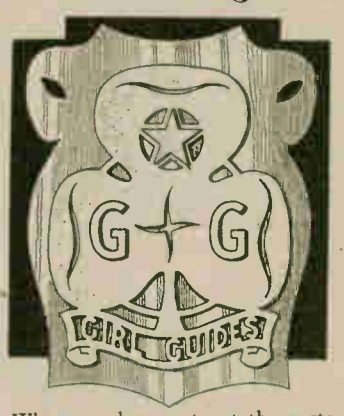
Patterns on page 39 for this simple

GIRL GUIDES' PLAQUE

AS we have provided shields and wall plaques for most male organizations, such as the Life Boys, the Bovs' Brigade, the Church Lads' Brigade and the Boy Scouts, it is only fair to balance matters by providing a design for a female organization, and in this connection, we have selected the Girl Guides.

Now, members of such an organization may not be fretworkers. Some *are* keen on fretwork, but these are in the minority. But you could possibly do something about it for, possibly, a sister or a young girl friend. She would be highly delighted to possess a wall plaque based on her badge.

The cutting is quite simple, and with the help of the design pattern (page 39), the whole thing could be completed in several hours, using ⅛in. and ¼in. fretwood. Some idea of the finished work is provided by the illustration.



The Overlay and Back

As usual, take a tracing of the overlay by means of black duplicating paper and a sharp, hard lead pencil. Trace the design and lettering on ¼in. wood and take separate tracings of the five-pointed star and the letters "G" on similar wood. At a later stage, these are glued upon the surface of the overlay.

A tracing is then taken of the back shield shape. All you require is the outline shape, but as a guide, the outline of overlay should be included. All the parts are carefully cut with a fine fretsaw blade.

By the way, to prevent warping of the completed shield, the back should be cut from a piece of ¼in. plywood if possible. If the plain ¼in. fretwood you use is fairly flat and well-seasoned, there will be no likelihood of it warping in the centre; if damp, however, it will likely dry with a twist or bend.

When you have cut out the parts, put a piece of new No. 1½ fine glasspaper around a block of wood or the proper glasspapering block and rub the reverse side of the work with it to take away trimmings of wood. Having glasspapered the face side of the back, the overlay is glued upon it in its correct position.

It is advisable to keep the glued work flat by putting it on a flat surface and piling heavy books on top. When the glue has had time to set, the face side of the overlay is smoothly glasspapered, then the star and the letters added. This completes the work.

Suitable Finish

Regarding a suitable finish, the entire work could be painted silver, or gold, or bronze. Another plan is to have the back cut from a wood contrasting with the wood used for cutting out the overlay design.

However, if you have used the same kind of light-coloured wood throughout, such as oak, the back could be stained a brown shade, using a pencil brush for the purpose, this enabling one to get into the lettering, etc.

For general use or storage a good plan is to have

A CYCLE RACK

GENERALLY, when a shed is built for a bicycle, the latter is simply wheeled into it, then the door or doors closed and, if necessary, locked. Such an arrangement is quite usual if the bike is used daily. If, however, the bike is put in its shed for the duration of the winter, one simply must give more thought to the bike.

If left unattended for a week, inspection will show that the tyres have become soft. In another week the tyres will be absolutely flat. This is often due to a slight leakage of air at the valve, or a very slow puncture.

Whatever the cause, the tyres of most bikes will get soft, and if the whole bike weight rests on such tyres for several months, it stands to reason that a permanent "kink" is put into the rubber; and furthermore, there is always considerable dampness in a shed, especially the floor.

Away from the Ground

This dampness affects the rubber. It causes it to deteriorate, and as most machines are nowadays fitted with synthetic rubber tyres, this does not help matters. To store the bike away properly, it must be kept off the ground.

We show how a simple rack can be constructed from wood. This rack is fixed strongly to a wall, and is fitted with a padlock so that, if necessary, a simple "roof" could be added above it to protect the bike from rain, at least, until a proper shed can be made.

The bicycle is supported on a notched arm, the cross-bar fitting into the notch. A pivoted clamp drops over the cross-bar, it having a staple which closes over the hasp or vice versa for a padlock. Thus, the machine cannot be stolen from its rack.

Furthermore, being raised from the ground by several inches, the wheels can be turned around easily for inspection, oiling, etc. It does not matter if the tyres become soft, as no weight is being carried by them. Such a rack is undoubtedly a proper thing for a bike shed, and it can be made from a few pieces of scrap wood.

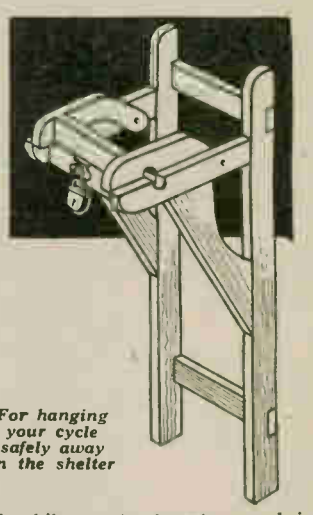
The Sides

The side pieces of the rack are made first. A single side consists of an upright 39ins. by 2ins. by $\frac{7}{8}$in., a 15in. by 2in. by $\frac{7}{8}$in. shoulder piece and a 16in. by 8in. by $\frac{7}{8}$in. arm, as detailed at Fig. 1.

The arm is dowelled to the shoulder piece, then both the arm and shoulder dowelled to the upright. Use $\frac{3}{8}$in. dowels, two in the shoulder, and three in the arm. Prior to dowelling the parts together, however, the upright is notched for two 12in. by 2in. by $\frac{7}{8}$in. cross-rails.

Assembly

Having made the two sides required, the cross-rails are glued and screwed to the uprights, to be flush, then a front rail glued and nailed between the shoulder pieces. By the way, do not have the cross-rails more than 12ins. long, otherwise the rack will be too wide for the cross-bar



For hanging your cycle safely away in the shelter

of the bike. The length stated is enough, it allowing for a 3-speed gear control lever on the cross-bar.

The Clamp

The clamp consists of two cranked side pieces and a front cross-rail. The clamp is made to fit neatly between the main sides of the rack. While screws could be used as pivots, it should be remembered that such screws could be removed with a screwdriver. Therefore, to be on the safe side, the clamps must be affixed with rivets and burrs. Burrs is a name given to the tiny metal washers supplied with rivets.

When fixing the rivets, support the rivet heads with a heavy hammer head, using a lighter hammer to flatten over the stem on its burr. Get somebody to hold the heavier hammer against the rivet head. The hammer head is simply held up against the head of the rivet, thus acting as an anvil. Being copper or brass, the rivets will flatten easily.

In regard to the cross-bar notches, these are cut to size—$1\frac{1}{4}$ins. in diameter—with a gouge or a centre bit. Such notches should be cut when preparing the shoulders.

When fitting a hasp and staple for a padlock, have the screw part of the hasp under the clamp front edge so that, when the clamp is down, the screws cannot be tampered with. The rack should be well screwed to a wall. Plug the wall with wood to ensure a good grip.

Finishing the Rack

Having attached the rack to the wall and tested the bicycle on it, the work should be given several coats of paint. If you have an old tin of bicycle enamel, use it for painting the

(*Continued foot of page* 35)

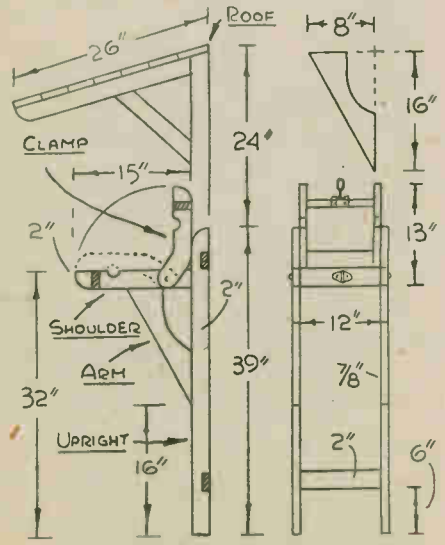


Fig. 1—Sections giving dimensions

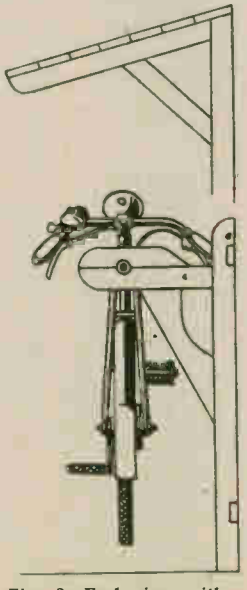
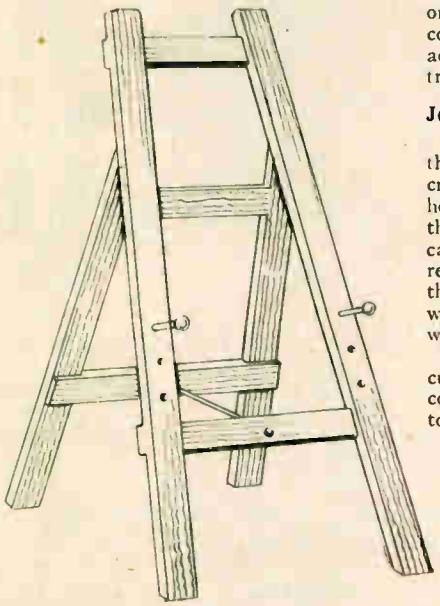


Fig. 2—End view with cycle in place

A youngster can be kept happy by having a small

BOARD AND EASEL



WE have frequently been asked to give in these pages, suitable sizes for and construction of a child's easel. This week we are complying with these requests and give suggestions for one that would be suitable for a child from six to ten years old.

This easel is strong in construction, and the simple joints suggested for the uprights and rails should not be difficult to cut and fit, being plain recessed joints or halving joints.

The sketch shows the general arrangement with back strut hinged and held by a cord to the front upright. In Fig. 1 is given a front view of the main frame and also a side view giving a suitable spread for the back strut, allowing for a workable slope of the blackboard.

All from Strips

All parts of the easel are made from straight-grained wood 2ins. by ⅝in. or ¾in. thick. There will be two upright rails 36½ins. long, one lower rail 16ins. long, and one upper rail 11ins. long. First cut the long rails to proper length, trimming off the tops and the feet to the angle shown.

The best way to do this is to lay the rails on the floor and space them out to 18ins. at the lower end and 10ins. at the top. A chalk line is drawn as a centre line on the floor or table to be certain of getting the two sloping pieces symmetrical.

Then measure 9ins. upwards on each leg, and lay the lower rail across. Mark in pencil where the uprights cross this rail and also mark on where the inside of the uprights come, so the recess may be worked accurately. The upper 11in. rail is treated similarly.

Joint Work

It does not matter much whether the recesses are cut in the ends of the cross rails or in the uprights. It may, however, be simpler to cut the ends of the rails, as all the cutting here can be carried out with a tenon saw. If the recesses are made in the uprights, then the cross cuts only can be made with the tenon saw, and the unwanted wood cut out with a chisel.

All the joints having been carefully cut and fitted, they are taken apart, coated with glue and finally put together and screwed from the back, countersunk brass screws being used. The ends of the cross rails should be cleaned off flush with the uprights and the holes then made for the pegs supporting the board.

The frame forming the back support strut is made in much the same manner as the main front, and the measurements in Fig. 2 make the construction clear. The slope of the two side rails follow those of the front frame, and this being so, the lower cross rail is identical with that in the front frame and is "let in" similarly.

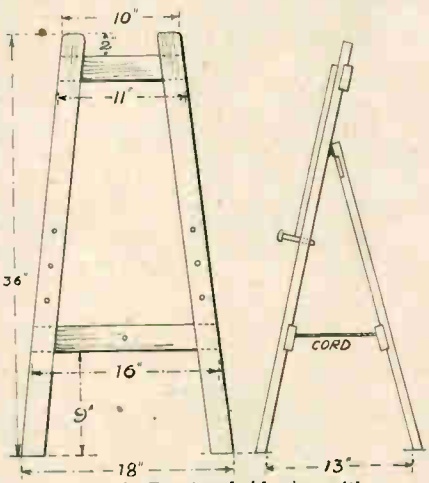


Fig. 1—Front and side view with dimensions

Hinged Strut

The top rail, however, might be wholly halved in, as in Fig. 3, which also shows how the hinges are arranged for the two parts. A pair of stout brass hinges 1½ins. wide should be used if possible, with ½in. brass countersunk screws for fixing.

An alternative method of forming the strut to the easel is shown in Fig. 4, where a single leg has been introduced to take the place of the double-legged frame shown in the sketch. The single-leg strut saves timber and workmanship, but the easel would not stand so rigidly as the previous example.

The cross rail at the top of the easel is shown as being simply glued and screwed on, quite a good method but not so firm, perhaps, as when the rail is cogged on or halved on. The strap hinge shown in Fig. 4 makes a firm connection, and it will be noted that the strut top folds underneath the top rail when closed up.

All the woodwork should receive a good glasspapering and a coat of clear varnish or painted in some suitable colour, two coats being given to make a satisfactory covering.

The Blackboard

For an easel of the size given here, a board 20ins. wide and from 15ins. to 18ins. high would be most suitable. If a piece of ⅜in. plywood can be obtained it should be mounted on a frame of 2in. by ⅝in. stuff. which has been lap-jointed at the four corners and glued and screwed or wood pinned.

The board should be thoroughly cleaned with glasspaper and stained with ebony water stain in two coats. A specially made blackboard paint can be purchased from colour merchants, or a recipé will be sent to any reader desiring to make his own.

Fig. 2—Details of support

Fig. 3—The strut hinges

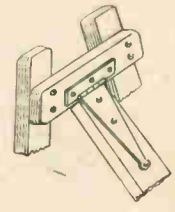


Fig. 4—A single hinge

DESIGN FOR A MODEL FIRE ENGINE WITH NEXT WEEK'S ISSUE

How the amateur woodworker can undertake

SIMPLE OAK GRAINING

SO many articles of woodwork now have to be made of deal, which usually necessitates a finish of stain and varnish to imitate hardwood or painting. For a change, oak graining might be tried, quite an effective finish to any article made of common wood. Good class graining is quite an art, but a simple form, as described, can be managed by any handyman and look quite well.

The only tools needed are combs and a graining pencil. The latter is shown at A, in Fig. 1, and is a strip of soft wood some ⅜in. thick and, say, 6ins. long, with its operating end shaved to a sharp edge.

Combing

In use, a scrap of clean rag is wrapped tightly round it. The combs, B, are cut from thin fretwood, the teeth being formed by cuts with a tenon saw. Make the teeth of the fine end ⅛in. each, and those of the coarse end 3/16in.

The paint for the work is of two kinds, known as under coat, and graining coat. With the materials it is quite an easy matter to make up the paints oneself, but if any difficulty arises over getting the colours, then it is best and certainly easiest to get a local painter and decorator to make up the required quantity to order. It should be noted that a much smaller quantity of the graining colour is required in comparison to the under coat.

For Light Oak

For light oak graining, the under coat should be a light buff colour. It can be made of 1 lb. white lead ground in oil, 1 oz. yellow ochre, 1 oz. driers, thinned to working consistency with equal parts of linseed oil and turpentine.

For the graining colour, 2 parts yellow ochre to 1 part burnt umber, with a proportion of 2 ozs. driers to each pound of the pigments. This is also thinned with the linseed oil and turpentine.

A Darker Shade

Those desiring a dark oak colour should mix for the under coat as for light oak, then add equal parts of burnt umber and venetian red, until the colour of a deep leather is obtained. Graining colour for dark oak is made of equal parts raw and burnt umber, with driers, etc., as above.

Paint the work with the under coat and let it dry thoroughly. Then apply a coat of the graining colour. This should be brushed out thinly, very thinly indeed, then the graining effect is obtained by the use of the graining pencil and combs.

For an example, a sketch is given of a cupboard door. The effect of the panel is produced by drawing the pencil from top to bottom, twisting it between the fingers so a stroke varying from a thin one to one the full width of the pencil is obtained at will.

A little practice on a spare piece of board will soon help the reader to acquire the knack, which is by no means difficult. A reference to any grained piece of work—house door for example, will show how the grain is simulated.

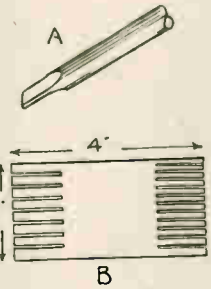


Fig. 1—A graining pencil and a comb

For the stiles and rails, the combs are used. These are drawn across from one side to the other, with a straight, waved, or curved line, to vary the work. Keep the comb clean by wiping frequently with a rag. The peculiar small patches, seen on some grained work, and copied, of course, from the actual wood, are obtained by wrapping a piece of rag round the tip of the forefinger and dabbing it at intervals across the combed lines, as seen on the stiles 4 and 5.

Order of Work

A regular order of procedure is necessary in the work. Grain the panel first (1) then the rails (2 and 3) and finish with the stills (4 and 5). The edges are done last of all. Graining other parts of the work, the pencil can be used for broad surfaces and the comb for narrow. No rules laid down for guidance, so the reader can please himself, the suggestions being just helpful.

Fig. 2—The sequence of work

When the work is dry, apply a finishing coat over all of oak or other clear varnish.

Cycle Rack—(*Continued from page* 33)

rack. One coat would suffice. The paint is applied merely to take the bare look off the rack.

Suitable Covering

If you provide a temporary roof over the rack, it may consist of two uprights, as shown, with sloping rafter and support, with cross pieces of wood covered with old lino material or felting. The uprights should be kept 6ft. or more distant, according to the length of the bike. The rack is kept in the middle. At a later stage, no doubt, sides and a front could be added to the roof parts.

At the moment, the roof will get you out of a difficulty respecting a shed for your bike. Pick the most sheltered corner of the yard or back garden for your rack and its roof. By having the roof against a wall, plus the adjoining wall of the house, only a side and front will be wanted, or at least, one side of the shed will afford better protection for the bike from rain, wind, etc.

It is not possible, incidentally, to have a double bike rack arrangement. There would need to be plenty of width in a shed to accommodate two bikes on a single rack or separate racks. Two machines mounted on a single rack would be too much of a strain on the supporting shoulder pieces.

While it is possible to copy works racks in wood, there is a considerable amount of tedious work involved. Wood being so greatly restricted in supply, it is inadvisable to attempt to build such racks.

Besides, all the weight of the machine has to be supported by the rear wheel. For temporary housing, the all-metal racks provided in most work yards are ideal. They are not so good for long storage, however, for the reason mentioned.

Time and money saved by reading and acting upon these

GENERAL HINTS

MOST of our readers are users of the usual fretsaw kit but we question whether all of them use them correctly and to the best advantage. It may seem quite a simple matter to use the fretsaw frame, but it can be quite wasteful in both wood and fretsaw blades unless proper methods are used.

There is a natural inclination as soon as one has a tool set, to start right away and unfortunately these first operations become an ingrained habit so that if the work is started wrongly, very often it carries on continuously. There is, however, always the opportunity of altering to get it right, and readers should be ever on the lookout for a better method whereby they can save themselves time, energy and expense.

Saving Sawblades

In these days of shortages, it is not only economy but more essential than ever to conserve what tools we have. Their replacement is not always easy, and often means an irritating delay when one is anxious to get on with a particular job either because of a time limit or from enthusiasm to see final results.

The beginner particularly is extravagant on sawblades, and this is generally due to over-enthusiasm and wanting to see some result of his work as quickly as possible. There are two or three things to remember even in fitting and using a sawblade in its frame.

Cause of Breakages

The blade itself although only a tiny piece of steel, is really a high-grade tool. It can only be made, at least so far as Hobbies are concerned, from good quality material which will stand up to continuous wear with reasonable handling. The beginner so often in a hurry, is apt to feel that they break too easily, or bend and twist unnecessarily. As a matter of fact, the experienced worker can make a single blade last a considerable time, and the failings which the beginner imagines are due to the saw, are really a trouble brought about by himself.

Two Important Points

Two things are important in its use. One is to get it to the proper tension in the frame, and the other is to have the end grips holding it firmly. The sawblade cuts on the downward stroke, and in consequence, the teeth should point that way in fixing in the frame. You can feel this by running the thumb up and down the edge once or twice. Then put one end of the blade into the bottom clamp about $\frac{1}{8}$in.

Insert Straight

Put it in straight so it is in line with the top clamp, otherwise you may have the cause of breakage. If you put this $\frac{1}{8}$in. into a clamp at an angle, and then have to bend the blade slightly to get it into the top clamp, you are obviously weakening the metal at that point where it has been bent. Put the end in straight, therefore, and clamp up quite tightly.

Then, holding the handle towards the stomach, press in the top arm of the frame and guide the other end of the blade to its proper position in the grip holding it. Again insert about $\frac{1}{8}$in. to get a satisfactory hold. This actual length, however, may vary slightly because the main point is to get the saw quite taut. It must not be so loose that it bends backwards as you cut through the wood.

You really cannot have too much tension although, of course, the more you have, the greater is the pull on the grips which hold the ends, and the more likely to pull out. This is another cause of the beginners trouble that the handframe springs away from the sawblade in use. The obvious reason is that the grips are not holding tight enough.

A tiny plane like this is a useful addition

This is possibly because you have not the strength in your thumb and finger to turn far enough, and a good plan is to have a pair of small pliers so you can give just that extra twist to ensure a good grip. This will prevent the end of the blade pulling out.

A Lever Tension

In the case of the better frames, you have a special screw and shackle, originated by Hobbies, which ensures an almost perfect grip without any trouble, and a handy screw which drives on to a plate and so fixes firmly. In the other types you have just a wing nut acting on to the frame itself, and obviously there is here a wedge-shaped angle which does not form quite such a good grip theoretically. Both, however, are quite satisfactory in results if properly applied.

Mention of the lever frame reminds us that in some cases workers use this action the wrong way round. It may be when they obtain the frame, the lever has got reversed, and they do not immediately see the advantage of it. The top of the lever is a tiny handle working on an eccentric, and when the frame is at rest, this lever points outwards in line with the actual frame.

The saw is then put in as before and tightened in its grip, then by swinging the short arm of the lever over so it rests on the top of the frame, you have a perfect tension easily obtained. In such cases there is no need to put so much of the blade into the grip, because added tension is obtained by reversing the lever in the method mentioned. The illustration here explains quite clearly how the eccentric motion brings the added pieces to the blade itself.

Testing its Tension

When correct, the blade can be made to twang like a violin string if "plucked" with the finger and thumb. When in use, keep a steady even motion and do not try and force the saw through the wood with great pressure.

You may remember that in using an ordinary saw in carpentry, it is not the force or the drive put behind the blade that cuts the wood, but steady rhythmic operation which allows the teeth of the saw to cut themselves through. Or another example is that a screwdriver is used to turn a screw cutting its way through the board, and not to force it home with a heavy pressure which creates frictional resistance on the screw itself.

A Useful Little Tool

A very useful addition to the reader's kit is a small metal plane such as the one illustrated. These tools were easily obtainable before the war, and there are possibly a number still about. It is to be hoped they will be again in production shortly. The plane itself is under 3ins. long, but is fitted with a blade which can be set at the right place as in a full-size tool.

This plane is mainly useful in quite small work, and on thin wood. It is ideal for taking a chamfer along the edge of a board, or for gradually shaping it round to make a thumb bead. In every case, you must put a stop on the bench to prevent the wood from sliding. A hint in this connection is to have a couple of flat-head screws driven well into the bench and left with their heads slightly projecting. The wood is then pushed against these so they act as a stop when you are planing or even glass-papering.

The height of the screw can be altered according to the thickness of

the wood merely by turning it in or out as required. If you have ⅜in. wood, then the top of the head should not be more than ¼in. above the bench.

Use a Small Hammer

Another useful tool which may not be found in every kit is the small hammer. This, if properly made, has quite a small head and a comfortable handle. It is wrong to imagine it is a tool useful only to juveniles because the expert adult worker will find it helpful, and indeed, essential on many occasions. Tiny fretnails are so frequently used in fretwork and model making that a small hammer is needed for use with them.

The use of a large hammer, indeed, is often fatal because the weight of its own head is too much for the work. It may bend the thin fretnail being used, or it may fall too heavily on the work and so make an unsightly round mark.

If you cannot hold the fretnail with the fingers without getting them knocked by the hammer head, remember to drive them into a strip of card strong enough to hold them whilst the hammer taps them home. Just before the final tap, the card can be pulled away.

Notice that we mention tapping the nail, rather than hitting it, because in this fine work it is quite unnecessary to use it in a heavy-handed manner. Take an occasional glance, too, at the flat head of the hammer to see it is clean and bright. It may even have become slightly rounded, which is a fault. The head should be perfectly flat as well as clean. If it has been lying about and got rusty, then rub it on a piece of emery cloth laid on the bench. Rust or dirt is liable to make the hammer head slide off the nail, or not hit it true.

Fretnails and Pins

In all this type of work—fretwork, model making, etc.—a special fine fretnail is used. It has a thin shank and quite a small head, but is pointed sufficiently to drive it home and make a satisfactory joint. These nails are obtainable normally from ¼in. to ¾in. long, and it is as well to have a supply at hand for the job being undertaken. See they are driven straight home and not bent over. The flat heads will show unless you nip them off just before the final tapping.

These nails, you will find, are particularly helpful for holding surfaces together after gluing. If necessary they can then be withdrawn or the heads cut off, and driven to disappear into the wood. In good work, of course, you must be careful not to show any hammer-head marks on the wood.

A Home-made Punch

To prevent this, a tiny punch can be used to drive the nail home finally. Knock the nail so it is almost right in, and then with the punch on its head, give it a final one or two taps. Hold the punch with the fingers close to the end actually on the nail, as this will prevent it sliding off and itself making a mark on the wood. These little punches can be easily made from a strong wire nail, the point of which has been filed flat to the diameter roughly of the nails being used.

It is not the easiest thing to handle a punch, so a little trial on odd waste wood should be made first. The great point is to prevent the punch sliding off and to hit it fair and square on the head with the hammer.

Some practical suggestions for simple work

FOR THE WOOD CARVER

WOOD-CARVERS are always on the look-out for new items upon which to execute their skill and here is a little article which we are sure will delight the heart of the hobbyist who likes to produce most of his efforts with a knife.

It is a letter-opener for desk use and it has the novelty that the name of the owner appears on the handle. Thus this particular design of opener (or paper knife) makes an excellent and very personal present for birthdays.

Cut from not too short-grained wood, the total length from blade tip to end of haft is 10ins., 5¾ins. being taken up by the blade, 4ins. for the handle and a ¼in. for the small extension with a hole for hanging purposes.

To give strength and plenty of latitude for cutting, the handle is ¾in. deep.

Simple Letters

The letters are all of the "square" variety as shown, and both to add to the general effect and to give a good grip, the divisions between the letters are taken down to the bottom edge.

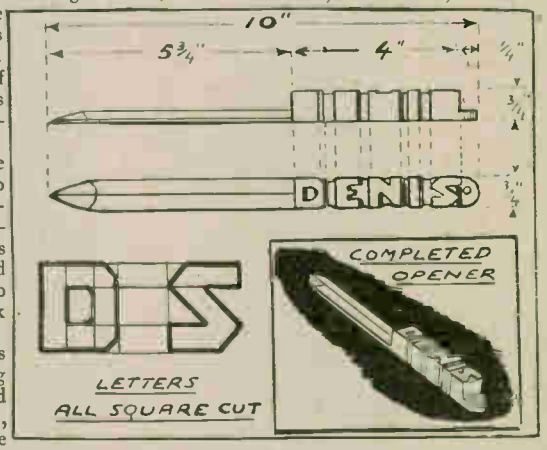
Rectangular letters of the alphabet (L, M, A, F, etc.) are quite simple to form, being left as they are, but round letters or letters having a round section have the curve formed by first outlining square and then taking the corners off as per sketch.

The letter "S" is, perhaps, the most troublesome, being cut with diagonal "curves" on the outside but not on the inside, as space does not allow. Taken with the rest of the letters, the effect is not bad, however. Full-stops are cut square.

In all cases before starting to carve, the top of the handle is glass-papered down to a perfectly smooth surface, as it will be in the finished article, for it is good to have as little after work as possible.

Upon this the letters are traced, having previously been arranged as regards spacing, etc., on a piece of paper the same size as the handle. The first breaking of the surface along the lines must be with the sharpest of blades to prevent danger of edge-splitting. Once the surface is cleanly broken, the work may be proceeded with at a rather faster rate.

The blade is bevelled down to either edge and the tip is pointed and then bevelled for about one inch inward from the end.



To finish, the opener may be stained or left plain if a good wood has been used and the surface well smoothed with glasspaper.

If desired, of course, a colour scheme can be adopted with the letters standing out in a contrasting hue, this being quite effective if carefully done.

Finally, the worker need hardly be reminded to keep to the shortest names possible. Better a clear "TOM" than a six or seven letter name that has to be so crowded as to be hardly decipherable.

THE perfect present—high quality private notepaper, 8ins. by 5ins., printed any address. 100 sheets 4/6, each additional hundred 2/3.—C. W. O. Firth, 38 Soho St., Salford 5.

RARE Hitler Setenents, 1/- per pair post free. Big discount approvals.—Andrews, 34 William St., East Wemyss, Fife, Scotland.

LEAD toys—make your own! Use our moulds. Lists 3d.—7 Hawthorn Terrace, Halifax.

NOTEPAPER, 100 sheets, printed your address 5/-. 25 visiting cards 3/6, post free.—W. J. Thomson, 18 Dalton St., London, S.E.27.

INDIA-STATES. Order prepaid please. All different, 60, 150 for 1/6; 5/6 post free. Nepal 19; 10/6. Wholesale; 25, 50 var. for 10 pkts. each, 2/6; 5/6. Exchange and Trade.—Junior Exchange, Nasik Rd., Bombay

ALUMINIUM snap-head rivets, 1/16in. by 3/16in., 7/32in., and 5/16in., 3/32in. by 3/16in. Ideal for toy and model making—assorted packet, approximately 2,000—5/- including postage.—J. Spencer, 4 Clairview Road, London, S.W.16.

FREE! Obsolete New Zealand Provisionals. Approval applicants please enclose 2½d.—Lektron Philatelist Service, 15 Earl St., Barnoldswick.

STAMPS—Italian set free to all approval applicants enclosing postage.—G. H. Brewer, 9 Wrington Crescent, Bristol 3.

"WOOD TOYMAKING". A practical handbook with 180 effective designs and illustrations, 2/3 posted.—Industries, 2 Waldegrave Park, Twickenham.

ENLARGE your drawings mechanically with the "Perfect" Pantograph. Hardwood with metal fitments. With instructions, 6/6 posted.—Industries, 2 Waldegrave Park, Twickenham.

SWISS Pictorials, etc. Free with approvals.—Rattigan, 83 Fretson Road, Sheffield 2.

STAMPS FREE!! Twenty unused (2½d.).—G. H. Barnett, Limington, Somerset.

IT'S all the rage! Can you do it? The Puzzling Rings. Most ingenious puzzle ever devised, strongly made, all metal, 1/6 post free.—H. Davies, Le Chalet, Crescent Drive, Woodingdean, Brighton.

MODEL Engineers Horizontal and Vertical Steam Boilers in stock. Several teak showcases suitable for models. Also Stuart Turner steam engines.—Edwards & Drage (Tools), Ltd., 131 Magdalen Rd., Exeter, Nr. Victoria Park Rd., Exeter 56134.

FREE Gifts! Smashing approvals! Send postage now.—D. Bracchi, 36 Ewenny Road, Bridgend.

WHY not make art jewelry as a profitable spare-time hobby?—Dept. 3, Somat Plastic Co., 8 Middle Marsh, Nottingham.

STOCKISTS for "Little John", "Atlas", "Halifax" and "Willimot" Engineers' Lathes, all in stock. Woodworkers' Lathes, "Coronet", "Centrix" and "Gala". Send us your enquiries.—Edwards & Drage (Tools), Ltd., 131 Magdalen Rd., Exeter. Nr. Victoria Park Rd. Exeter 56134.

PERSONS required immediately to make leather shopping bags in spare time. Write—Dept. 11, Empire Co., 117 Nottingham Road, Loughborough.

GALLEON sails and heraldry, 5 sheets 7½ins. by 10ins., 2/6 pkt. List of plans and accessories 3d.—St. Andrews, High Pitfold, Hindhead.

ELECTRIC Repeater Motors, new, ideal experimenters adaptable for D.C., A.C., synchronous or remote control. 5/- each, post 6d.—F. Lucas, 22 Hengrove Rd., Bristol 4.

MOROCCO Agencies Coronation Set (Mint). Free with Approvals. Postage 3d.—Ledger, 221a Boothferry Rd., Hessle, Yorks.

LONELY? Join Friendship Circle. Details 6d.—Secretary, 34 Honeywell Road, London, S.W.11.

SHIPS in bottles. Very profitable hobby, unusual and quick selling. Simplified with these plans and detailed instructions. Send 2/6 now. Satisfaction assured.—Phillips, "Littlecraft", Kingswear, Devon.

BE Taller. Quickly! Safely! Privately! No appliances—no tablets—no dieting. Details 6d. stamp.—Malcolm Ross, Height Specialist, BCM/HYTE, London, W.C.1.

LONELY? Then write Secretary U.C.C., 5B.B. Hay St., Braughing, Herts. Genuine. Est. 1905.

MODELS: you can make lasting stone-hard models with Sankey's Pyruma Plastic Cement. Supplied in tins by Ironmongers, Hardwaremen and Builders' Merchants. Ask for instruction leaflet.

TRANSFERS for decorating toys, trays, furniture, fancy goods. Selection 10/-. 20/-. Flowers, pixies, dogs, nursery rhymes.—H. Axon Harrison, Jersey.

MONOMARKS. Permanent London address. Letters redirected. 5/- p.a. Write Monomark BCM/MONO82, W.C.1.

PERSONS required make fancy goods at home. Write for details.—Melton Manufacturing Co. (Area 544), Southgate Street, Leicester.

FREE! Extra special Br. Col. packet scarce Jubilee, Coronation, Victory, Zoological, new issue stamps. Request approvals (2½d.).—Thompson, 2 Western Gardens, London, W.5.

BOYS! Learn Magic. The boy who does tricks is always popular. Send stamp for illustrated catalogue of tricks specially arranged so that you can do them.—The Boys' Magic Service, Prestatyn, North Wales.

AVAILABLE—Over 11,000 gross bottles (including limes, winchesters, poisons) and jars for all purposes. Sizes 2 drms. to 3 galls. Schedule from Container Reclamation Co., Ltd., 82–94 Seymour Place, London, W.1. Padd. 3456.

SPOKE Wheels, treaded tyres. 8ins., 9ins. and 12ins. overall diameter. Also rubber tyred metal disc wheels ranging from 2ins. to 9ins. Small or large quantities supplied. Write requirements—Joyden Toy Co., 193 Chase Side, London, N.14.

A ROYAL free gift from Newfoundland, a set of stamps everybody wants. Absolutely free to all applicants for my repeat approvals (1/- without approvals). Postage please.—H. A. Smith, 13 New Road, Scole, Diss, Norfolk.

TOYMAKERS Super Casting Moulds for lead toys and plastercraft, as used by all high class Toymakers in England and abroad. Over 600 latest designs. Fully illustrated catalogue 2/- P.O.—Agasee, 7 Stradbroke Road, Highbury, N.5.

DOLL'S House papers, model supplies, kits, plans, engines and motors. Full lists 1/-.—Sutton, Hill House Drive, Billericay.

WHEELS for Toys in metal, wood and plastic. Numerous sizes and types. Write for list, stating requirements to The Joyden Toy Co., 193 Chase Side, London, N.14.

PRESSED Metal Wheels (balloon tyre design). Per dozen, ¾in.—10d. 1in.—1/-. 1¼ins.—1/3. 2ins.—1/6. Per gross, ¾in.—6/-. 1in.—7/-. 1¼ins.—8/-. 2ins.—10/-. Illustrated catalogue 3d.—Jason, 135 Nags Head Road, Ponders End, Middlesex.

"POWER Tools you can make". Famous "Popular Mechanics" plans and constructional details for building drilling machine, jig-saw, band saw, lathe, etc., all from readily available materials, 12/6 only, post 7d. Illustrated lists 3,000 American Homecraft books, plans, magazines, 6d.—BCM/PUBLICATIONS (H), London, W.C.1.

THE interest in car numbers never ceases. "Where's That Car From?" containing all the car index marks alphabetically arranged. 54 pages 6d. Now in its sixth edition. From all Newsagents.—Raleigh Press, Exmouth.

W. McGARRIGLE for aeroplane and ship kits, all accessories; stamps lists 3d.; wholesale lists 4d.—64 Hillcrest Road, Romford.

SPECIAL Offer. Attractive Stamp Album, 50 stamps, packet of mounts. Post free 3/-.—Gamut (Dept. C.) Supplies Co., 24 Gunnersbury Avenue, London, W.5.

DOLL'S House fittings and papers, send S.A.E. for list. Doll's House plan special, send 2/6. Trade supplied.—Zimplan, 88 Ware Road, Hoddesdon.

Patterns for GIRL GUIDES' PLAQUE

See page 32

NOEL JOHNSON, known to millions of B.B.C. listeners as . . .

Dick Barton

SAYS

"I cross the road this way . . ."

"ON THE RADIO I lead a life of thrills — Dick Barton is always ready to risk death if necessary. But to take risks in traffic isn't necessary at all — it's just *stupid*. Here's the proper way to cross the road:

1 At the kerb — HALT.
2 Eyes — RIGHT.
3 Eyes — LEFT.
4 Glance again — RIGHT.
5 If all clear — QUICK MARCH.

"Don't run — there's no hurry if you keep cool and wait for a proper gap in the traffic.

"There's nothing brave about rushing out in front of a car. Other people may get killed besides yourself. Detectives perform plenty of brave actions, but they're *never* careless in traffic. If you can keep cool, and calm, and alert — you'll be a good Road Navigator. And the first thing is, to do your Kerb Drill at *every* crossing."

GET HOME SAFE AND SOUND

Issued by the Ministry of Transport

"LET ME BE YOUR FATHER"

This famous phrase has inspired countless students to take the high way to higher pay. Let us help you into that higher paid position.
The Bennett College is the most progressive, most successful Correspondence College in the World. Send now for full details and free advice. DISTANCE MAKES NO DIFFERENCE.

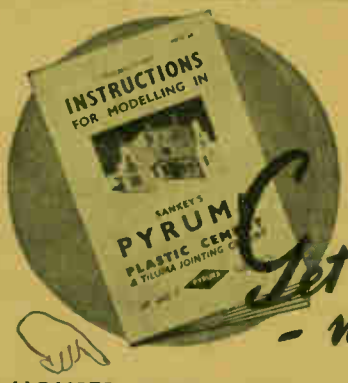
CHOOSE YOUR CAREER AND WE WILL SEE YOU THROUGH

Blue Prints.
Book-keeping, Accountancy and Modern Business Methods.
Building, Architecture and Clerk of Works.
Cambridge Senior School Certificate.
Carpentry and Joinery.
Civil Engineering.
All Commercial subjects.
Sanitation.
Shorthand (Pitman's).
Concrete and Structural Engineering.
Draughtsmanship, all Branches.
Heating and Ventilating.
Institute of Housing.
Languages.
Mathematics.
Matriculation.
Municipal & County Engineers.
Plumbing.
Quantity Surveying—Institute of Quantity Surveyors Exams.
Structural Engineering.
Surveying.
Teachers of Handicrafts.

If you do not see your own requirements above, write to us on any subject. Full particulars free.

Direct Mail to **Dept. 62**

THE BENNETT COLLEGE Ltd.
SHEFFIELD, ENGLAND



Get this book - make these MODELS

HOUSES · SHIPS · ASHTRAYS · BOOKENDS
SIGNAL CABINS · RAILWAY STATIONS
AIRPORTS · DOCKS · RELIEF MAPS · PLAQUES
MODEL FURNITURE · INKSTANDS · PAPER WEIGHTS · MODEL FIGURES & ANIMALS etc.

SIMPLE TO HANDLE · INEXPENSIVE

The Instruction Book illustrated tells you how to make such models as above, without special tools or skill, in Sankey's "Pyruma" Plastic Cement. This material, modelled while plastic, dries or bakes to stone-hardness, ready for painting according to instructions. Obtainable at local ironmongers, hobbies shops and art material dealers.

Get Instruction Book by sending 4d. in stamps to the address below

SANKEY'S PYRUMA PLASTIC CEMENT

Dept. 3

J. H. SANKEY & SON, LTD.

ILFORD Est. 1857 ESSEX

● **GOOD NEWS** *FOR FRETWORK ENTHUSIASTS*

ALL ABOUT FRETWORK

A NEW BOOK WRITTEN BY
W. F. CHAMBERS (EDITOR OF HOBBIES WEEKLY)

The author has not confined this book solely to fretwork but demonstrates to the reader the countless possibilities of the uses of the fretsaw. Fretwork wooden toys, light Woodwork and even sheet metal work are dealt with in this book which is fully illustrated with diagrams and easy to follow drawings.

Bound in full cloth, 5/- net. Bound in paper covers, 2/6 net.

VAWSER & WILES LTD.
555, LEA BRIDGE ROAD, LONDON, E.10.

● **JUST PUBLISHED**

PHOTOGRAPHS from any size thrown on to the screen at very few feet distance. Merely insert snap photograph, drawing, stamps, ordinary picture cards, or documents and enlarge to Goliath proportions projecting colourings. A postage stamp snap is produced magically to fill screen. Show your family album. A boon also to philatelists. Plug in to electric light circuit. Produces enlargement when focused direct on to sensitised paper in dark room. Send now 79/6. Post and packing 2/6.

Genuine BRITISH NAVAL Telescopic Gun Sight 35/- POST PACK ETC. 1/6

Naval Telescopes. Powerful day and night lenses. Modern micrometer automatic range focus apparatus. Splendid object lens. Approx. 15in. length. Picks out objects at many miles range.

Two or more carr. free. 35/- ONLY. Post and Pack. 1/6

MARQUEES.—Every type of Marquee. Tentage and Camping Equipment. Send 1d. for LIST.

HEADQUARTER & GENERAL SUPPLIES LTD. (Dept. HOB/EP)
196-200 Coldharbour Lane, Loughborough Junc., London, S.E.5

Printed by BALDING & MANSELL, LTD., London and Wisbech, and Published for the Proprietors, HOBBIES LTD., by HORACE MARSHALL & SON, LTD., Temple House, Tallis Street, E.C.4. Agents for Australia and New Zealand: Gordon & Gotch (A'sia) Ltd. For South Africa: Central News Agency Ltd. Registered for transmission by Canadian Magazine Post.