

Hobbies

WEEKLY

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August 4th, 1948

Price Threepence

Vol. 106 No. 2753

A CRIB is often better than a cot for a new-born baby. It is more comfortable and less draughty, thanks mainly to the suspended canvas bag and the canopy. Besides, in these days of shortages, little in the way of wood is wanted, and in many small homes there is no space for a proper cot.

A crib is a good temporary convenience, and a couple living in rooms would welcome such a gift, particularly if the happy event is not far distant. Another likeable feature about the crib is that it is collapsible

and portable. If desired, the canopy can be raised or lowered, or removed or put on without bother. It serves its purpose admirably until the parents can obtain a proper cot.

A simple and practical BABY'S CRIB

The canvas bag dimensions are 28ins. by 14ins. by 8ins.—a fairly large size for the growing baby. It will cradle the infant until nearly a year or so old. The bag is attached by means of buttons so it can be removed and washed. Two bags may be necessary, one to change the other.

Suitable Canvas

A fine quality canvas is used, or something similar, which is stiff and strong, yet easily washed. Of course, with proper bedding, the bag may not need to be ever washed. Experience, perhaps, is the best teacher in such matters.

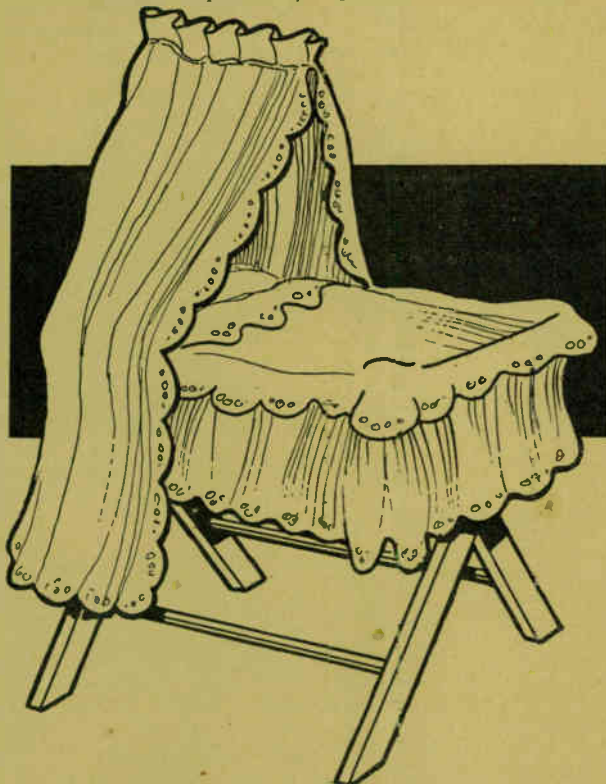
Your main job is to make the crib framework and the canopy attachment; the canvas bag can be left in the capable hands of a good housewife. She will know just how to make the bag, a glance at Fig. 2 sufficing to show exactly what is wanted.

As the strain is taken up by the ends of the bag, the ends require to be doubled or strengthened by a top hem. Corners need to be well sewn. Washed sugar bags provide coarse canvas sacking which can be, doubtless, utilised. Thick stout linen is another alternative.

The Legs and Rails

To make the framework of the crib, you need four leg pieces 36ins. by 1½ins. by ¾in., as shown at Fig. 1. Bore ¾in. diameter holes through where indicated. These holes are for the dowel rails.

The central dowel rod, by the way, is only ½in. diameter. It acts as a



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pivot for the two separate frames. To make these two frames, you need four lengths of $\frac{3}{4}$ in. dowelling 30ins. long. The legs are attached to the dowels by cutting a shoulder on each dowel (as per detail) to form a pin which fits into the $\frac{3}{4}$ in. holes.

The pins are cut down the centre

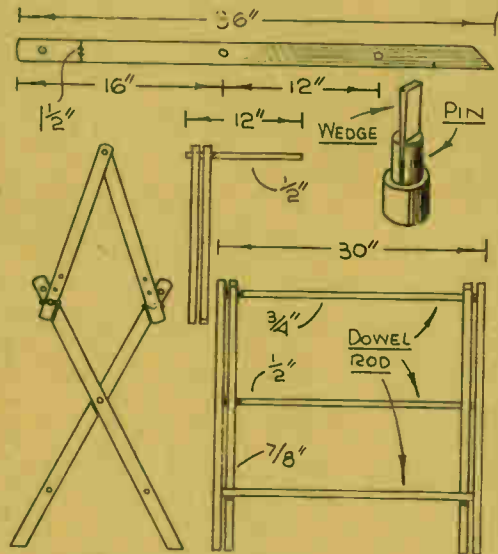


Fig. 1—End and side with leg details

with a tenon saw for wedges of wood. The larger frame requires dowel rails 30ins. long. Attach the legs to same, then drive in the wedges. Glue, of course, is applied to the pins and wedges, of course.

Square up the frame, then proceed

to assemble the second frame. This fits between the former, so the dowel rails are 28ins. long.

When both frames have been assembled and tested for squareness, make a saw cut at the ends of the $\frac{3}{4}$ in. pivoting rail. Place the frames together and push the rail through so

should be made from a hardwood, such as birch or beech, or even oak. Deal could be used if you have nothing else available.

Care must be taken to have the wedges driven in horizontal with the legs; if done the opposite way, there is a great danger of splitting the wood.

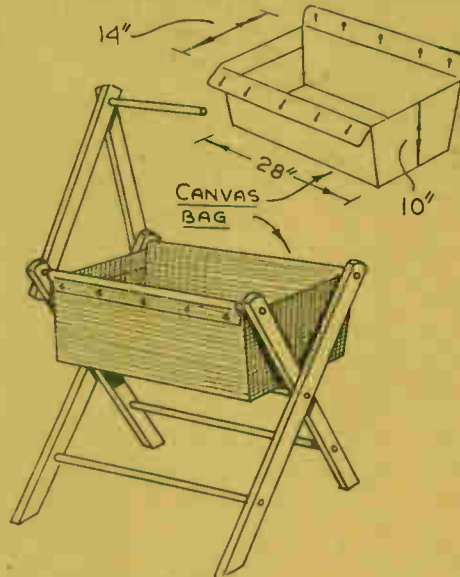


Fig. 2—General view, showing bag hung

its ends are even with the outside of the outer frame. Drive small wedges into the saw cuts.

It will be seen that, while the pivot rail is a fixture in the larger framing, it is free to turn in the legs of the inner framing. If possible, the legs

The canopy consists of two upright and a length of $\frac{3}{4}$ in. dowel rod. The uprights are about 22ins. long by 1 $\frac{1}{2}$ ins. by $\frac{3}{4}$ in. They are bored for the dowel rod and $\frac{3}{4}$ in. carriage bolts. Note the extra holes, so the uprights can be adjusted up or down as required. You need to be supplied with winged nuts and washers.

When the canopy attachment is in place, the work is completed by giving it a coat of stain and polish. As you are using deal or beech, the wood may be stained and polished almost any colour that is fancied. Light walnut is a good finish, including oak.

Once the canvas cradle bag has been attached, the crib needs to be draped in some manner. Generally, old curtain material is used, i.e., laced curtain. This stuff is ideal for the canopy, but here again we may leave such details to the women.

Notes about TEA CHEST PLYWOOD

A TEA CHEST provides the fretworker with six large sheets of $\frac{3}{16}$ in. birch plywood. If, therefore, you ever get the chance of buying one of these chests, snap it up. Most grocers will dispose of tea chests to regular customers—for a small consideration, of course.

If the tea chest is kept out-of-doors in all weathers, it will not stand up to rain and snow. After all, it consists mainly of cheap plywood, and while the bonding adhesive is a special waterproof kind, it is no guarantee against outward exposure. Within a month, the plywood will swell, bulge in places and weaken, the plies coming apart.

Plywood is too scarce to destroy in any way. A tea chest, if obtained, gives large sheets of rough plywood. It is, however, plywood, and you need it badly, no matter how it may be finished. It is easy to use the protected inside sides of the sheets. These are usually covered with tissue paper and lead sheeting.

The top and bottom end sheets are about 19ins. square. The four side sheets are about 24ins. by 19ins. One tea chest provides the fretworker with

sufficient plywood to last him over a considerable period of activity.

For Jig Saw Pictures

The plywood is excellent for cut-out picture calendar making and jig-saw puzzles. The pictures can be pasted on the exposed surface of the sheets; the protected side is thus at the back of the novelties and does not need to be stained. The wood will thus look and feel new.

Of course, a drawback with tea chest plywood is that, apart from knots, roughness, printings and damage received during transit, the heartwood, i.e., central ply, is usually badly butt-jointed, sometimes being overlapped so there is a "bulge" at each side of the sheet. When this bulge is noticed, it can often be avoided, being cut away as waste.

Sometimes, however, the central joint is gapped—nearly $\frac{1}{4}$ in. apart. This can occasionally be noticed as an indentation. Often it is come upon whilst cutting out a fretted shape, and then, of course, one can do nothing about it. Fortunately, it is a rare happening, and by looking at the edges of scrap cuttings and so forth,

the "gap" can be seen and avoided.

Tea chest plywood is excellent for making bottoms for small drawers. It can, too, be used for panelling doors, sides of cabinets, putting lids in seat frames, etc. It is better than pulp board, cardboard or thin wood, and it is cheap. Glasspapering its "protected" surface makes a lot of difference.

A tea chest not only provides one with good sheets of useful plywood, but provides lengths of 1 in. square wood, plus corner blocks. The latter makes excellent blocking fillet or blocking for corners, being cut into suitable lengths. As to the lead lining, you obtain a ball of lead weighing about 1 lb. 8 ozs.

This lead, needless to say, is useful for casting toy lead soldiers from casts. Lead, in any form these days, is difficult to obtain. The price of a length of new gas piping would surprise you. Yet, the tea chest provides a fair size lump for nothing. Keep it, as you may want it one day.

Thus, the tea chest, if obtainable, is a real godsend in disguise. Go out of your way to get one; it will be worth the trouble.

An interesting outdoor summer hobby is collecting BUTTERFLIES & MOTHS

COLLECTING butterflies and moths is an interesting outdoor hobby for the summer months. Incidentally, a well-arranged cabinet of these "winged flowers or living gems" is one of the most beautiful possessions a nature-lover can have, for their forms and colourings are diverse and attractive.

Whilst some species of such insects, are rare and localised, others are numerous in most parts of the country, so that no real difficulty in obtaining a pretty representative collection is experienced.

It is possible to obtain specimens for the cabinet by rearing them from the caterpillar stage, but the better way—at least, providing more healthy occupation and interest—is to sally forth these sun-warmed days and snare them with a net.

The drawback to this procedure is that specimens may be damaged, and if one happens to be a specially rare variety you are sorry. Still it is the method preferred by keen collectors.

Apparatus

Apparatus required consists of a net, a killing bottle or tin, a storage receptacle, and a good text book on the subject to identify the various species. You can purchase these from any dealer in entomological goods.

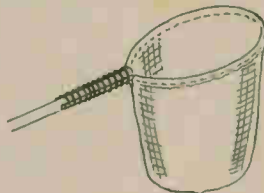
However, the handy hobbyist can easily make a useful net out of a yard of fine muslin, shaped into the form of a bag, sewn round the sides and with a hem around the open mouth.

A piece of stiffish wire is then bent into a ring, leaving two spurs about 6in. long. Run the wire through the hem of the bag-net, and work it so it

forms a nice even circle. The spurs are placed along the end of a long stick or bamboo cane, such as gardeners use, and firmly bound with pliable wire or string.

A Killing Bottle

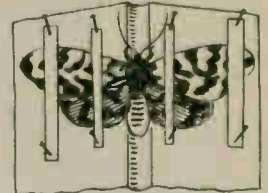
You should obtain the killing bottle from a chemist; a small glass jar with a lid will serve. The chemist will put in the necessary chemical; but remember that this is very poisonous, so take great care no one handles the bottle or jar but yourself. Keep it in a safe place—lock it up in your cupboard or tool-box.



A collecting net



Setting small insects



For larger specimens

It is perhaps safer to use a laurel tin. This is a tin into which you place a handful of pulped laurel leaves at one end—the other end is reserved as a lethal chamber. The pulp should always be freshly made.

The juice of the leaves should not be allowed to come into contact with the insects, so get two perforated cards and wedge into the tin, allowing a small space between them. See that the perforations on the upper card do not fall exactly over those of the lower.

Any useful tin will serve as a storage receptacle for carrying the dead captures home without damaging

them and a piece of sheet cork at the bottom to pin your captives to.

Another way of killing the insects is by a sharp pressure of the finger and thumb on the underside of the thorax, or chest, but this must be carefully done, or you will injure the beautiful texture of the wings.

Setting Out

To set your butterflies and moths get a few setting boards made of pieces of soft deal, with grooves cut down the centre, about 1/2in. deep, and of varying widths to accommodate insects of various sizes.

A thin strip of cork should be glued to the bottom of the groove. Besides the boards you require pins, and strips of thin card. Also a pair of forceps.

Take the dead butterfly or moth by the thorax, with the wings forced a little up. Pass a pin of sufficient length through the thorax, and insert the point in the cork at the bottom of the groove, so the body does not touch the sides.

Card Fixing

One of the strips of card is then fastened to the upper and left side of the board, a little higher than to be on a line with the insect's head, so the wings can have free play under it.

The upper wing is then taken hold of by the forceps and extended upwards as far as the pin which fastens the strip of card to the board. The card is then gently pressed down on it, to retain it in that position whilst the under wing is brought into its proper position under the upper, the card being arranged obliquely to act as a brace to both wings. A pin is then passed through the narrow end of it into the board, thus completing one side.

Holding Pins

The other side of the insect is likewise treated, or you can use extra card strips if necessary. (See illustrations). The antennae can be held in shape by pins placed on either side of them. When all the parts are fixed and rigid, the pins may be removed.

Remove the specimen when ready for the cabinet, usually a glass-faced box, hermetically sealed. Place two or three bits of camphor in the receptacle to keep "mites" away.

Glazed Cement

COULD you please give the quantity of sand and cement and the method of obtaining the china-like surface? (H.T.H.—Grays).

THE only practicable way to make highly glazed tiles of any kind, is to adopt the methods of the professional and "fire" or burn on the glaze. This, however, is not feasible for the home worker, even if the material were available.

You can make a substitute composed of Portland Cement one part and fine white sand one part (parts by volume). You need metal faced moulds in which to press your moist mixture, which must be gently but firmly and evenly pressed down. Oil the mould faces before putting in the cement, and leave for a day or two to

harden and set before attempting to remove the tile.

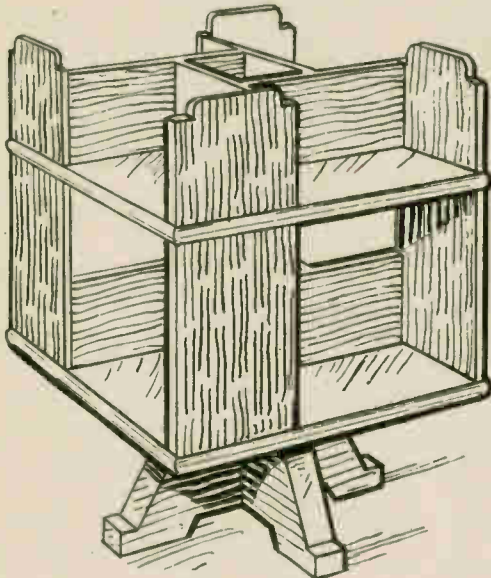
The colour will be a pale greenish-yellow, but you paint it with any of the regular brands of paint made specially for use on concrete work (ordinary paint is most unsatisfactory). You can vary the colour a great deal by adding enough colouring pigment, e.g., yellow ochre, red ochre, etc.

Enamelling a Gas Stove

IS there anything I could do to the outside of a gas stove to enamel it over white? (C.M.—Moulton).

THE only enamel that will withstand the heat of a gas stove is "vitreous" enamel, but it is not practicable for use by the amateur as it has to be "stoved" in a furnace at a very high temperature.

How the home carpenter can complete this practical REVOLVING BOOKCASE



THIS particular design of bookcase makes an attractive piece of furniture for the home, and holds a surprising number of volumes. It would look particularly nice if made in oak, but as this wood is scarce nowadays, deal could be substituted and if finished appropriately with oak stain, would ensure a pleasing article.

The Bookcase

Fig. 1 shows a side view of the bookcase, with some helpful dimensions. The wood to use should be, if possible, $\frac{3}{4}$ in. finished thickness. Make a start with the two floors, shown in Fig. 2. Owing to the dimensions it will be necessary to glue two boards together side by side, and these should be dowelled as well as glued.

At each edge cut away a strip, as shown, for the vertical side pieces of the bookcase to fit in. They are $\frac{5}{16}$ in. wide each, supposing $\frac{3}{4}$ in. wood to be used, otherwise they will be just half the thickness of the wood.

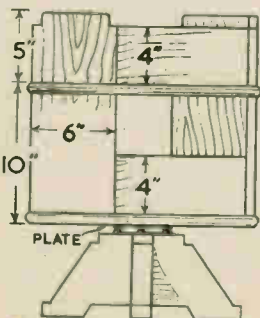


Fig. 1 - Side view of article

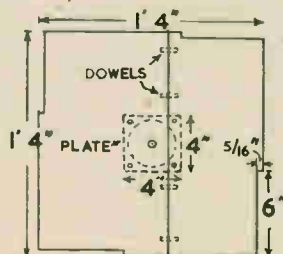


Fig. 2 - Plan of the floors

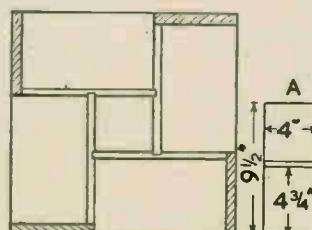


Fig. 3 - Plan view of book holder portion

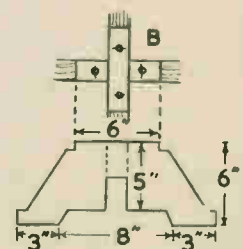


Fig. 4 - Details of stand

In the bottom floor, find the centre and there bore a $\frac{3}{4}$ in. hole through. Under this a metal plate, shown by dotted lines, is to be fixed. This is 4 ins. square, and cut from $\frac{3}{4}$ in. thick plate, iron or brass.

Centre this plate and there drill a $\frac{3}{4}$ in. hole through, and at each corner drill and countersink holes for $\frac{3}{16}$ in. stout fixing screws. The plate is now temporarily screwed in position, the centre hole exactly in the middle of the hole already bored in the floor.

An important point here is to make sure the corner screws are not likely to catch in the way of the four studs (see later on), on which the bookcase revolves. The best way to ensure against this is to scribe a 3 in. circle on the plate and drill the screw holes well away from the circle.

The vertical sides of the bookcase are cut to the dimensions given in Fig. 1. They are just plain rectangles, with the upper corners sawn out, and the sharp upper edges rounded off. At the bottom the edges are rebated $\frac{5}{16}$ in. deep, to fit over the floor, and where the upper floor comes a groove $\frac{5}{16}$ in. deep is chiselled out.

The sides can now be fixed to the floors with glue and nails and should be flush with the floor edges. Strips of half-round wood $\frac{3}{4}$ in. wide, are glued and pinned round the edges of both floors, being neatly mitred at the corners.

Fixing Divisions

Now turn to Fig. 3, which is a plan view of the bookcase, showing how the divisions are fitted. These can be cut from wood a little thinner than the rest, say, $\frac{1}{4}$ in., the point, however, is immaterial.

Nominally, each division will be of the dimensions shown at A, with a groove $\frac{1}{4}$ in. deep across, but it will be safer here to measure across for each

one separately to ensure a good fit. Each division is nailed or screwed to its particular side piece, and fits in the groove of its opposite number, as the plan shows.

Here again, nails or screws are used to secure the joint. The square open space at the top left by the division in the centre, can, if objected to, be covered in by a piece of board, nailed over; the underneath one also, if desired.

Now give the whole of the woodwork a thorough rubbing all over

WOOD REQUIRED

Floors— $\frac{3}{4}$ in. by 8 ins. board; 5ft. 6 ins. run.
Sides— $\frac{3}{4}$ in. by 6 ins. board; 5ft. run.
Divisions— $\frac{1}{4}$ in. by 4 ins. wood; 7ft. run.
Stand—1 $\frac{1}{2}$ ins. by 6 ins. wood; 2ft. 6 ins. run, or 5ft. of $\frac{3}{4}$ in. or $\frac{1}{2}$ in. by 6 ins.

with medium glasspaper. Pay special attention to the crossgrained edges of the sides. All nails showing should be punched slightly below the surface, and the holes stopped up level. See the mitred corners are close jointed, and clean off.

The Stand Portion

For the stand, a piece of thick deal should be chosen, about 1 $\frac{1}{2}$ ins. or so. If any difficulty here, two pieces of the wood used for the bookcase can be glued together to make the thickness. Cut two pieces for the stand to shape and dimensions given in Fig. 4.

In one of these cut out a slot half way to the centre, and a similar slot in the second piece, but this time from the top down. The two pieces can then be fitted together, and well glued. Make a good joint here, then any nails will not be needed to strengthen the joint.

There used to be available a special turntable for these bookcases, but as such may not be now obtainable, a simple form of movement is substituted, whereby the plate on the bottom floor of the bookcase rotates on four hard metal studs fixed to the stand.

(Continued foot of page 177)

How the handyman can make an attractive STATIONERY RACK

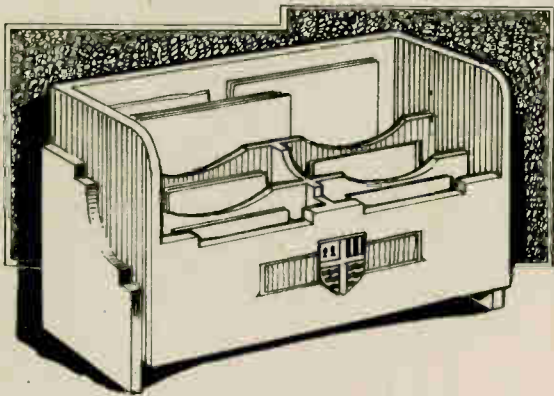


Fig. 1—The completed rack in use

THE useful and neat Stationery Rack shown at Fig. 1 on this page would make a delightful addition for the home. Wood $\frac{3}{4}$ in. thick is a suitable thickness for all main parts, although, without doubt, it might be an advantage to have the two extreme supporting ends of $\frac{3}{4}$ in. wood. The inside partitions should be of $\frac{1}{2}$ in. wood.

At Fig. 2 we see an outline diagram of construction, the rear end being omitted to show the floor section, etc. All parts are glued together, with small screws run in where possible in addition to some glued fillets of wood to bind the rack well together and to make a strong job.

The floor, A, measures $10\frac{1}{2}$ ins. long by 4 ins. wide, and to this the back, B, and the front, C, measuring $10\frac{1}{2}$ ins. by 7 ins., and $10\frac{1}{2}$ ins. by $3\frac{1}{2}$ ins. respectively, will be glued and screwed. Two lengths of $\frac{3}{4}$ in. square wood will be glued to the back and floor as G, Fig. 2, and section, Fig. 3, to strengthen the joints.

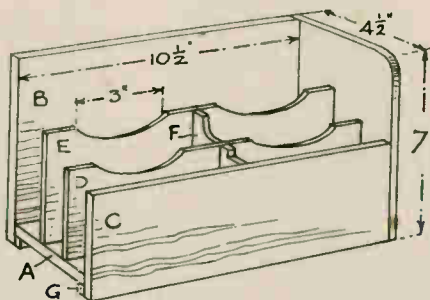


Fig. 2—Constructional view of carcass

shaped as shown in Fig. 2, all cutting being done with the fretsaw.

It will be observed from Fig. 1 that the top edge of the front of the rack is also shaped to give character here. This is, of course, purely optional.

The two ends of the rack may now be made. These measure 7 ins. by $4\frac{1}{2}$ ins. Care must be taken in marking them out to get the angles square.

The top outer corners should be rounded as shown in Fig. 3, and all sharp edges should be glasspapered off.

Glue and screw the ends to parts, A, B and C, and then make the inner partitions. The larger partition, E, could well be of $\frac{3}{16}$ in. wood, and it measures $10\frac{1}{2}$ ins. by $4\frac{1}{2}$ ins.

The middle partition is also $10\frac{1}{2}$ ins. long but $3\frac{1}{2}$ ins. wide. It is supported and stiffened midway by two $1\frac{1}{4}$ in. wide slips shaped at their top as in Fig. 3 and at F, in Fig. 2. The top edges of partitions D and E, should be

The main rack being now completed, it only remains to add the two supporting ends and an outline for one is given in Fig. 4. With the help of the dimensions and the squared top section, it should be simple to obtain a shape for cutting.

End Panels

First draw out, either on paper or direct on to the wood, the actual shape of the panel of wood required. Then at the top of the panel, set in the one-inch squares shown and draw in the curved outline through the squares, following each carefully to get an accurate outline. The shaping to the lower edge of the piece may be carried out if desired.

Having cut one panel with the fretsaw and cleaned up its edges, lay it on the second panel and draw round it to produce the second end. Fix the two ends by means of glue, and if screws are used as an additional fixing, the heads of these must be countersunk and afterwards filled with glue and sawdust.

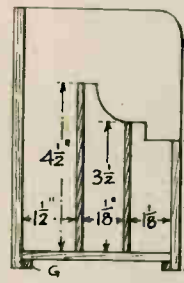


Fig. 3—End section

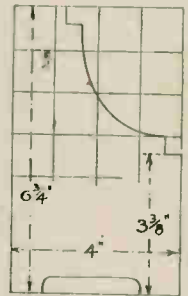


Fig. 4—End shape

The front of the rack would be made attractive by the addition of a simple panel and shield design as suggested in Fig. 1. The shield should be painted in in bright coloured enamels.

Revolving Bookcase—(Continued from page 173)

This will be apparent if the side view, Fig. 1, is studied; the plate you have already. For the studs, strong round-headed brass nails could be used, but hardened metal furniture domes, the smallest size, would be preferable.

These should be driven into the top of the stand, as shown at B, each at $1\frac{1}{2}$ ins. away from the centre. By striking a 3 in. circle here, or more correctly speaking, a series of arcs of a 3 in. circle, the correct spot for the studs will be seen.

The plate screwed to the bookcase should now be removed. As it must be rescrewed in its former position correctly, it would be advisable to mark one corner of the plate with a

file, and a corresponding pencil mark on the floor, as a guide when refixing the plate afterwards. Clean and glasspaper the stand, and thus finish off the whole article.

Finish is a matter of personal choice, of course, but if the article be made of deal, paint or enamel makes a better finish than most jobs involving stain and varnish. A really excellent finish for such a job, if the reader likes to try his hand at it, is a simple oak graining, followed by a coat of clear copal varnish. Otherwise, a red-brown colour of paint or enamel would be generally suitable.

When dry, screw the plate to the stand with a $\frac{1}{4}$ in. coach screw through

its centre. Or a stout round-headed brass screw could be used, if the centre hole in the plate is drilled to suit it.

In either case, take care to bore a preliminary hole in the stand for the screw, or a split may result. Do not screw the plate tight down, but let there be enough play for it to revolve freely.

Turn the bookcase upside down and then, placing the stand on it, rescrew the plate to the bottom floor. Place right side up, and the bookcase should revolve quite easily. A spot of oil might be rubbed over the plate to lessen friction; it would also help to resist rust.

Full size patterns on page 183 for this NOVEL WALL PLAQUE

BRASS wall plaques are all the rage just now, not only in the British Isles, but also overseas, particularly in Canada. Canadians enthuse over any brass ornament made in Britain—whether new or antique. Wall ornaments are the most popular, with decorated wine-glass dishes and plant pots, coming second and third in popularity.

The main reason why brass articles are preferred to silver-plated or chromium finished articles is doubtless due to the fact that, with constant polishing, the plating wears away in time. As the plating is usually deposited on brass, one might as well have the plain brass ornament. It can be polished repeatedly, and the more constantly, the better the finish.

As we always try to keep our readers up-to-date, we give a design for a novel wall plaque this week. We need something bright and cheerful, like the sun, for instance. It always seems to smile on us, driving away the gloom and misery. So, even though it is not always shining, we need to be reminded about it, and our designer thought of a novel way to keep the sun in remembrance and its cheery message, which seems to be "Keep on smiling".

You see the result on this page. It is a simple kind of wall plaque, and to have matters correct, you need a pair of these plaques to balance the ornamentation of a wall.

To Be Cut From Brass

Now, there are two ways whereby the plaques can be made. One easy method is to have the overlay cut from sheet brass or even copper about 1/16in. thick. When cut out with a metal-cutting fretsaw blade, the overlay is pinned to a shaped backing cut from, say, a piece of 1/4in. fretwood or plywood, if you possess one or the other. The backing is simply the outline shape of the overlay, as shown.

The overlay, drilled here and there for tiny roundhead brass nails, is affixed, the sharp edges smoothed with fine emery cloth, then the metal brightly polished with a metal polish. Thus you have, in effect, a pair of brass wall plaques which make a

SEASIDE HOBBIES

If you are at the seaside, remember the interest you can obtain by collecting shells on the beach. Get good clean specimens and when you are at home later you can identify them by means of nature books on the subject obtainable from the local library. To the geologist even the pebbles on the beach can be interesting and informative.



novel decoration for the wall of a fireplace or a hall.

It should be explained at this juncture that the complete overlay pattern could not be squeezed into our pattern page. You will, therefore, have to complete it where cut away at the sides. This will be found easy, since the "centres" of the surround of rings have been marked with dots. These broken rings are completed by scribing with compasses.

To Make a Pair

To make a pair of plaques, the pattern page requires to be adhered to the thin metal. The best adhesive is a thin coat of varnish, the pattern being applied while the varnish is tacky. In a day, the varnish will have dried and the cutting can be commenced.

When you have one overlay cut, it can be used as a template for marking out the repeat shape, the outlines being scored with a sharp awl (a marking awl, not a bradawl).

The waste paper adhering to the metal is removed by soaking it with a pad dipped in turpentine. Incidentally, the piece of sheet metal used should be perfectly flat, or as flat as possible. Dents and buckles are difficult to remove. If you obtain the metal from a sheet metal worker, explain that it must be quite flat. If necessary, he will have the sheeting "mangled" flat between special flattening rollers.

Using Aluminium

Polished aluminium sheeting may be used instead of brass or copper. This will be found much easier to cut, and you will probably prefer to use it. If the 1/4in. stuff is used, there is no need for a wooden back. You must, however, do the cutting absolutely vertical, otherwise some of the fine "ties" in the peculiar "face" design

may be under-cut.

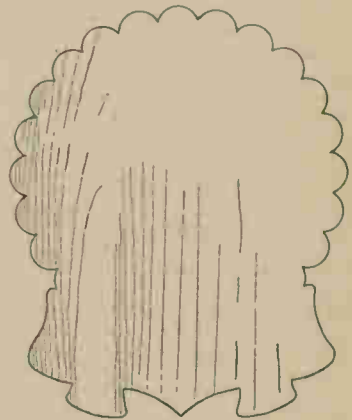
What makes the "face" frets so peculiar is that our designer adopted a "shadow" method of indicating the features. The blackened-in spots indicate the shadows, and while there seems lack of detail on the actual pattern, the difference is shown in our illustration of the completed work.

An Embossed Effect

The second method of preparing the plaques is less difficult. First of all, the design is cut from 1/4in. wood (preferably plywood). The backing is cut from 1/4in. fretwood. The overlay is glued to the backing.

Now, to obtain an embossed effect, you need a piece of sheet lead, or to be more precise, thick tinfoil. The proper kind of tinfoil to use is the stuff with which tea chest boxes are lined. Having painted or varnished the overlay, the thin sheet lead or tinfoil is laid on the overlay and pressed down flat with the palm of the hand.

In pressing the surface with the palm, the metal becomes slightly indented at the open spaces in the overlay. You thus get an embossed



Outline of the back board

effect. When the paint or varnish has dried, the outer edges can be neatly trimmed. The surface of the sheet lead is, of course, rather dull.

To improve matters, however, the plaque can be silver-painted or gold-painted; then, to preserve the finish, a coat of white polish can be applied on the dried finish. Varnish is not advised, as this is apt to soften the silver or gold paint.

To hang the plaques, small screw-eyes are screwed on the back, with a fine twine attached. The twine is hung on small wall hooks. The hooks or twine must not show. The best position for the screw-eyes is about midway down the plaques.

Some practical hints on both outside and indoor WOOD PRESERVING

THE preservation of timber has engaged the attention of scientists now for well over a century and investigation of the subject is still going on.

Woods requiring preservative treatment fall broadly under two heads, viz., outside timbering and inside timbering. The former, of course, comes into direct contact with frost, rain, storm and other extreme weather conditions, while the latter always has protection from the surrounding house—though it has several “ills” peculiar to itself.

Above and Below Ground

Sub-dividing, out-door timber can be categorised as that which is above ground level and that (such as the bottom of posts, etc.) which is below.

Preservatives themselves fall under one of three headings:

- (1) Oil preparations,
- (2) Water soluble salts,
- (3) Salts soluble in liquids other than water.

The most commonly used of oil preservatives are coal tar and creosote. Creosote is actually made from tar and forms a more workable solution than the pure tar. It is not so messy to apply, sinks better into the surface of the wood and is a more effective poison for insects and fungus growths. Neither tar nor creosote will wash away with water.

Creosote

For above-ground jobs creosote may be applied quite satisfactorily with a brush, working as much in as possible as you go along, and being sure to get to the bottom of cracks, knot-holes, cuts, etc. A second application is generally advisable and better results are obtained if the solution is put on piping hot.

Brushing on, however, will not do for wood that is to go under ground, e.g. the ends of posts, flagpoles, bottom boards of wooden sheds, etc. Then what is spoken of as the “open tank” method must be employed.

Get in the Wood

The aim at all times is to get the creosote as far *into* the wood as possible and with items like railway sleepers and telegraph poles it is forced in under pressure, a depth of two or more inches often being impregnated with the fluid.

The tank method of application helps to get the creosote right in below the surface, but it can only be applied to items which can be readily lifted about.

For the home handyman, the “tank” can be an old bucket or other receptacle in which it will be possible

to bring the creosote and wood concerned up to a fairly high temperature.

Heat and Immersion

Working outside, the bucket can be placed on bricks and a small fire then lit beneath it. An item of timber being treated is placed in the cold creosote and brought up to a temperature somewhere near boiling point, at which heat it is kept for nearly an hour. Everything is then allowed to cool—the wood still being immersed in the creosote. Should the level of the fluid fall too much during the cooling, more must be added to keep the wood submerged to the right depth.

The process can be repeated several times, and at each cooking the wood takes up more creosote and a deeper and deeper penetration is secured.

The reason for all this is that as the timber heats, moisture and more particularly air is expanded and to a great extent driven out of the wood. As cooling proceeds contraction takes place and creosote is drawn in to occupy the empty spaces that have been created. Thus it enters the wood far deeper than is possible by even the most vigorous brush application.

With a little ingenuity it is quite simple to treat post ends, etc., and the length “tanked” should be to about 6ins. above the ground level mark.

If a fence is already erected and there is no way of getting the underground ends into the tank, treatment may be as follows. Take a post at a time, clear the earth away from the bottom. Give several applications of very hot creosote and then refill the hole with soil made into a paste with more creosote. This is not as good as using the “open tank” but is better than just brushing on.

An old method of preservation for underground timber was “charring”, the surface of the wood being slightly burnt before placing in

position. Charring is quite a sound practice and charring followed by an application of creosote gives very good results.

Of preservations coming under the second head mentioned—water soluble—there are quite a number. They employ such chemicals as zinc chloride, copper sulphate and sodium fluoride, and their greatest advantage is that they can be painted over and are odourless. Creosote cannot be painted and has a strong, but not unpleasant, acrid smell. Many persons actually like it.

Indoor Work

Preservation for indoor work should be odourless, able to take paint, colourless, non-creeping (i.e. not spread to nearby plaster and wall-paper) and fire-proofing if possible. Woodwork needing treatment inside, includes rafters, joists and floor boards. This is to prevent dry rot, which, as well as everything else, can be very dangerous.

If dry rot is suspected, the floorboards should be taken up one or two at a time and the joists below given a good coat of hot creosote or other

(Continued foot of page 180)

‘The MODEL ENGINEER’ EXHIBITION

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This useful article for desk or bureau is A HAND BLOTTER

WE show in Fig. 1 a general type of hand blotter, useful alike for office desk or home bureau. And here would be a most interesting as well as useful article to make. It does not call for any great skill in the making, but at the same time, care will have to be exercised in the cutting and shaping and finishing of the parts.

The blotter, briefly described, consists of a shaped block of wood, into which is glued a handle. In this handle there is cut a tapered hole into which fits a wedge.

Wedge Handled

A top layer of wood, or plate, fits right over the handle, and when the wedge is pushed in, the plate is held down tightly against the blotting paper which has been previously wrapped round the curved block and folded between the ends of the plate and the block itself.

The general construction of the article may be easily understood from Fig. 2, while Fig. 3 gives the dimensions of the parts. The block may be

made up in two varieties of wood. Use a soft wood for the interior which is hidden later by the blotting paper, and a harder fancy wood for the outer layers.

The block of soft wood measures $5\frac{1}{2}$ ins. by $2\frac{1}{2}$ ins. by $\frac{1}{2}$ in. thick. It should be easy to shape up to the curve required.

To each side of this block is glued a layer of harder wood shaped to the radius given in Fig. 3. Clamp the three pieces of wood together until the glue has hardened thoroughly, and then undertake the shaping of the soft wood using the two side layers of wood as guides for this process.

Fig. 4 shows how the greater portion of the soft wood may be cut away before the gradual shaping down to the templates on each side is done. A chisel will clear away much of the unwanted wood, while a rasp will be found most useful for getting nearer to the actual template shape. Careful handling must then be exercised to finish off clean to the edge pieces. Coarse and fine glasspaper will do the rest.

It would be best to cut down the



Fig. 1 - The article ready to use

mortise for the handle before the above shaping to the block is commenced. The mortise is $1\frac{1}{2}$ ins. long, $\frac{1}{2}$ in. wide and $\frac{1}{2}$ in. deep. Most of the wood can be got away by boring a series of $\frac{1}{8}$ in. diameter holes and then clearing between them with a $\frac{1}{8}$ in. chisel.

Making the Handle

Now make the handle. To get this solid enough for the job, three pieces of $\frac{1}{2}$ in. hardwood should be glued together the actual shaping taking some such form as shown in Fig. 2 and Fig. 6.

In Fig. 5 the dimensions are given for the handle. Note that at "A" the depth must be slightly less than $\frac{1}{2}$ in. (the thickness of the top plate) to allow the wedge bearing down on top of it and so gripping the blotting paper tightly (see Fig. 3).

Check the length of the tenon on the handle with that of the mortise to get a sound fit when the two are brought together and glued up. Note, as previously mentioned, the hole in the handle for the wedge must be cut to the same slope as the top surface of the wedge itself, as seen in the detail of wedge in Fig. 6.

It only remains to make the top plate. This measures $5\frac{1}{2}$ ins. by 3 ins. and is cut from $\frac{1}{2}$ in. wood. Its edges, after a preliminary cleaning, may be either rounded or chamfered on the four edges. The hole in the middle of the piece must be large enough to fit easily over the handle see Fig. 2.

The sides, top and handle, at completion should have a final cleaning up with fine glasspaper and the whole then given a coat of varnish or, better still, a coat of stain with wax polish well rubbed in.

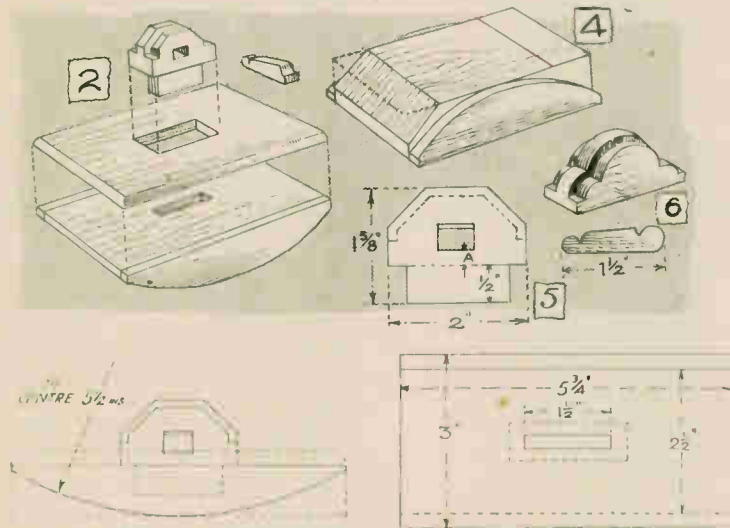


Fig. 3 - Side view showing curve and top plan showing handle slot

Wood Preserving - (Continued from page 179)

preservative. The boards should then be well treated and replaced. If the upper surface is to take stain or paint, then a water preservative must be used for the upper surface.

Woods to be examined and treated, especially if the house is damp, include skirting-boards, picture-rails, cellar stairs and hand-rails.

Furniture, it must be remembered, is also timber, and often could do with preservation treatment. Creosote and

the other cruder solutions are not suitable, but both paraffin and turpentine can be used to kill the various parasites which attack chairs, tables and other items of the kind, if applied to unvarnished areas. They can also be worked into cracks (if any) on the varnished side. Treatment should take place every four weeks over a fairly long period.

The Death Watch and Powder Pest beetles are biggest enemies of furniture

and it is only possible to kill the grubs as they get up nearer the surface, hence the purpose of repeated applications.

There are numerous insecticides and wood preservations on the market under one name or another, but in every case perseverance of the treatment over a number of months is absolutely essential.

Creosote to be really effective must be of a high quality.



INVENTIONS ON STAMPS

COMMEMORATIVE stamps are being issued now in great numbers. Some of these commemorate events of considerable importance. Others are, well, to say the least, just an excuse for the issue of a fresh set of stamps.

This is a great pity, because those who like to collect commemorative stamps are put off buying the stamps of some countries because the cost is more than they can afford, so in the end the very prolific country loses.

This week we wish to deal with some of the best of these commemorative stamps, those which remind us of important inventions. Sometimes stamps are issued because it is the anniversary of an invention and sometimes because it is the anniversary of the birth or death of an inventor.

Commemorating Railway

If, first of all, we mention the railway we have an excellent example of the worth-while and the not-so-worth-while issue. Germany in 1935, Austria in 1937, and Italy in 1939 each issued a set of stamps to commemorate the centenary of the railway in their particular country.

The Italian stamp is chosen for illustration because it is on the one stamp that we have a picture of the earliest and the latest locomotive. The others had the various types on different stamps. In each case the issue was surely worth while.

But in 1939 Roumania also issued stamps to commemorate railways. It was the 70th anniversary, so are we to have another set in 1959 for the 80th and another in 1969 for the 90th and so on? The first three were justifiable, the latter was not.

Another transport commemorative is the 1928 set from the United States of America. Lately the U.S.A. has issued a tremendous lot of commemoratives. Thank goodness they have all been low values, mainly 3 cents, so that we have been able to purchase them. That is not strictly true, because of the restrictions as to the importing of stamps



Mexico and the Penny Post

from dollar countries.

To go back to 1928, the form of transport then commemorated was air and the occasion was the Civil Aeronautical Conference. This also corresponded with the 25th anniversary of the Wright brothers first flight. So one can well understand the choosing of the picture of their aeroplane as the subject for the design of the stamp.

The First Aeroplane

On December 17th, 1903, the Wright brothers had their first flight which lasted just 12 seconds, but on the same day they increased this to 59 seconds at 30 miles per hour! Their engine was a four cylinder 12 horse power motor.

That was the first real power flight made by man, although there had been many previous attempts—such as men fastening wings on their arms and jumping off church towers, sometimes with considerable hurt to themselves.

The first balloon ascent was in 1783 by Pilatre de Rozier, and that was commemorated in 1936 by the French stamp. It shows a portrait of Pilatre de Rozier, his balloon, and giving the dates of his birth and death—1754-1785.

It is most difficult to give a stamp commemorating the first motor car. That was a development rather than an invention. But Germany on her stamps of 1939, on the occasion of the International Motor Show, gave pictures of very early Benz and Daimler cars, a modern racing car and the German "People's Car".

Although this article is rather more concerned with inventions depicted on stamps, mention must be made of the issue of Austria showing portraits of some of her famous inventors—Ghega, Werndl, Welsbach, Lieben and Kaplan. Also the U.S.A. set of 1940—Whitney, Morse, McCormick, Howe and Bell.

Then in 1947 came a portrait of Thomas A. Edison on the occasion of the centenary of his birth. In 1929, however, they had already issued a 2c. stamp, illustrated here, showing a picture of Edison's original lamp fifty years after it first glowed. Or, as the wording on the stamp puts it, "Electric Light's Golden Jubilee".

The U.S.A. have lately issued two

other interesting anniversary stamps, both of them in 1944. The first of these is a stamp showing a telegraph pole and wires to mark the centenary of the first telegraph message. A few months later came the second—to mark the 50th anniversary of motion pictures. On this they show an open-air cinema.

The mention of line telegraphy makes one think of the more recent form of communication—wireless. Russia in 1925 gave us a stamp to commemorate Popov. This shows a portrait and wireless masts in the background. Italy, in 1938, gave us the stamps bearing a portrait of Marconi.

Three more inventors in the sphere of electricity are commemorated on Italian stamps. There was Volta in 1927, the centenary of his death,



Italy's early Locomotive

U.S.A. Electric Light

Argentine's Refrigerator

Pacinotti in 1934, the 75th anniversary of his dynamo, and in the same year Galvani appeared on two more.

One of the most important inventions for the health of the whole world is commemorated on the Argentine Republic issue of 1932 shown here, which came out on the occasion of the Refrigeration Congress. By this invention food can be sent through the tropics from one part of the globe where there is plenty to another part where there is little. Great Britain is one of the countries which benefits very much from this invention.

In this respect the 6d. value of the New Zealand Proclamation of British Sovereignty set is of particular interest. It shows a map of the world marking the route of the "Dunedin" with the words "The First shipment of frozen mutton to leave New Zealand, 15th February, 1882". This was a journey of 12,030 miles from Port Chalmers to London.

Lastly we illustrate the invention or idea which has produced our hobby. The introduction of the postage stamp and the best commemorative of this event is the Mexican stamp of 1940 showing a picture of the 1d. black of 1840.

MISCELLANEOUS ADVERTISEMENTS

The advertisements are inserted at the rate of 3d. per word prepaid. Name and address are counted, but initials or groups, such as E.P.S. or £1.11.6 are accepted as one word. Postal Order and Stamps must accompany the order and advertisements will be inserted in the earliest issue. Announcements of fretwork goods or those shown in Hobbies Handbook are not accepted. Orders can be sent either to Hobbies Weekly, Advert. Dept., Dereham, Norfolk, or Temple House, Temple Avenue, London, E.C.4

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- 1 At the kerb—*Halt.*
- 2 Eyes—*Right.*
- 3 Eyes—*Left.*
- 4 Glance again—*Right.*
- 5 If all clear—*Quick March.*

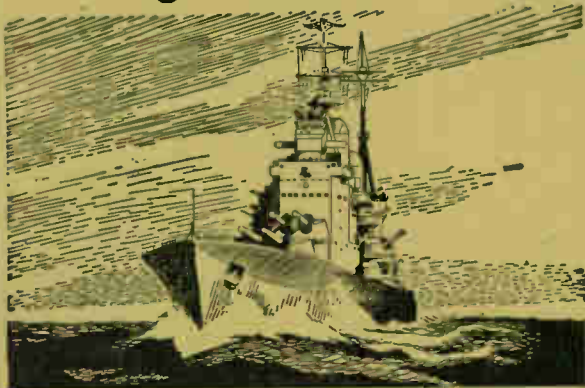
"I don't have to run—I just wait until there is a real gap in the traffic before I start.

"To score in Soccer, you often take risks and cut things fine. But traffic's quite different. To be a good Road Navigator, you want to keep alert — but play safe, every time. Do your Kerb Drill as I do. Then you'll be all right, and you won't cause accidents to other people."

Stanley Matthews

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These plans are "isometrically" drawn so that they not only provide dimensions which can be pricked off on to the wood but give that good general picture, which is so important if the worker is to get the spirit of the design. We shall be introducing further plans in this series to coincide with our period model house plans.

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The first two of these are the 'Golden Hind' and the 'Santa Maria'. Each pack consists of 26 roughly-shaped wood parts (and in the case of the 'Santa Maria' some sail parchment) in good clean knot-free timber. They are not 'kits' in the full sense, but they fill the need of most modellers.

21/-
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AND THE LATEST
(No. 6)

MAGAZINE & LIST

The June issue lists nearly 500 plans, etc., and in addition has more editorial matter than previous issues. In fact this little book is packed full of good things for the model maker.

1/-

Modelcraft Ltd.

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To tell you the truth it has been known for a faulty brush to slip through. Shame on us! If you should get one send it back and we'll replace it at once.



Harris—the paint brush with a name to its handle



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Hobbies

WEEKLY

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SUPPLEMENT DESIGN
SHEET FOR NOVEL
MECHANICAL HARE
AND HOUND TOY

August 11th, 1948

Price Threepence

Vol. 106 No. 2754

A small and easily made SEASHORE FLOAT

THERE is much more fun for children at the seaside if they have a small raft or float as a plaything. They can try sitting on it, lying on it and paddling it about with their hands or feet—always near the edge of the water, of course. It is certainly more exciting than simply walking or scampering around in the water.

There used to be large rubber ducks which, inflated with a bicycle pump, made novel playthings for children. Just now, however, we must try to manage with substitutes. Therefore, we have designed a novel type of sea float. It is rather like a surf board fitted with rubber wings.

The wings are merely a couple of old bicycle wheel air tubes. These fit neatly around special holders and are blown up to the maximum with a pump. The tubes make the board very buoyant, and being at each side, there is less tendency for the board to capsize.

The entire novelty is built for amusement near the seashore, or lakes. The board should be fitted with a towing line, which also serves to "anchor" the float near the sands so there is no danger of the simple craft being carried out to sea by an ebbing tide. There is plenty of space on the board for several kiddies and it is an article which will undoubtedly be appreciated.

Board Construction

One chief difficulty regarding the novelty is, perhaps, the necessary

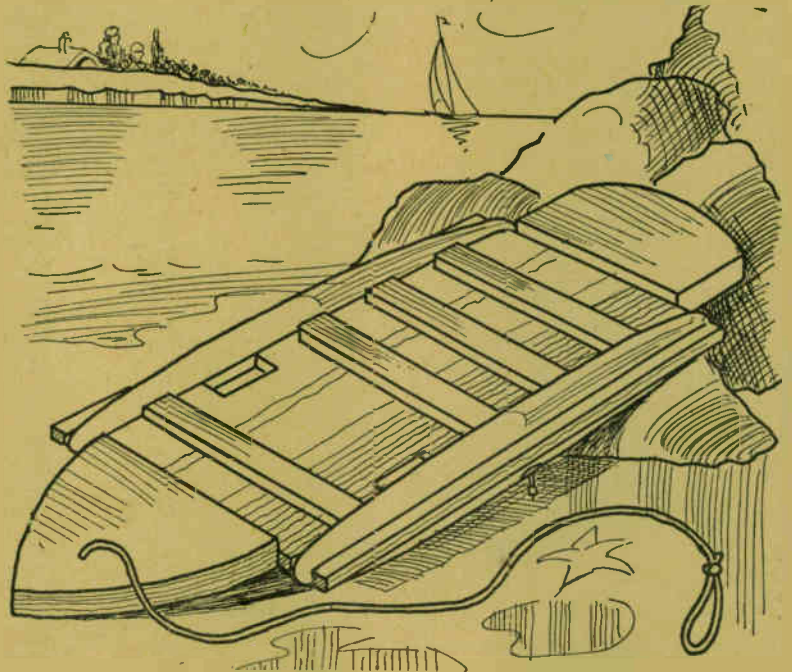
wood required. A glance at Fig. 1 shows that the board is made up from two pieces of wood 5ft. long by 8ins. by $\frac{1}{2}$ in. These are jointed together by dowelling and gluing.

The wing holders are 3ft. long by 4ins. by $\frac{1}{2}$ in. These are attached to the side edges of the main board with glue and dowelling. Now, when arranging the position of the dowels,

make allowance for the hand grip apertures.

Suitable Wood

At the moment, we will assume you have managed to scrounge suitable pieces of wood, perhaps scrap stuff, or new stuff, in a slightly damaged state, such as shelving board and flooring board, or made use of an old match-



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

boarded door. Clean over the joints with a smoothing plane (when you have the board and wings assembled), then strike the fore and aft shape with pencil and compasses.

Having cut away the waste wood with a pad-saw or bow-saw and spokeshaved the edges neat and smooth, cut out the grip apertures, using a centre bit and the keyhole saw. Make the nicks (about 2ins. by 1in.) at the ends of the wing pieces for the air tubes.

To give additional strength to the work, attach cross battens to the board. The fore and aft battens are cut to shape, then attached with suitable flathead screws, preferably brass screws. The slats are 18ins. by 2ins. by 1/4in. Take away the sharp arris of these prior to fixing down with screws. By the way, have the screws driving in via the underside of the work.

Fitting the Air Tubes

When you have the board prepared as explained, smooth all edges with coarse and fine glasspaper. The finger grips need to be rounded slightly, including the nicks at the ends of the wing pieces. The latter must be made quite smooth to prevent the wood fraying the rubber. The bottom of the nicks could be easily rounded with a rasp and file.

The board is then enamelled, applying two or three separate coats. Use a light green paint or bright red paint. Allow one application to dry before applying a fresh coat on top. To preserve the wood as much as possible, three coats, at least, should be applied. The first two coats may require to be rubbed down before the final coat is applied.

Cycle Inner Tubes

When the finish has dried, the air tubes are fitted. Now, old discarded air tubes will serve, but any punctures

must, of course, be attended to right away. If you do not have an old pair of inner tubes about the house, possibly you could ask a friend to help you in the matter. You need two tubes suitable for a 26in. wheel. Slightly smaller tubes could doubtless be stretched over the wing pieces. Too much stretch, however, is best avoided.

With Patches

Bicycle repair shops often have a lot of old bicycle air tubes which are discarded chiefly on account of numerous patches. These would serve your purpose. The worst of patches, however, is that the tubing, when inflated, has a rather "bumpy" look, as the rubber does not stretch where covered by a patch. Two new tubes are advised, but these may prove costly.

The tubes must be complete, i.e., with valve sleeves, valves and caps. Put the tubes on so the valve is at the underside of the board, in the centre, as may be seen in the illustration. When in position, gently force air into each tube until the maximum pressure is reached.

Do not over-do the pumping; just have the rubber filled with some pressure of air. The rubber, when rather "ballooned" with air, becomes thin and is easily punctured.

See there is no twist in the tubing when putting the tubes on their holders. If desired, one could have

the air valve fitting into a small hole bored in each wing piece so it is out of the way to some extent.

Air Valve Fitting

Here is what to do. Bore a 3/16in. hole in each wing, about the centre, and insert the air valve of one inner tube into the hole, via the underside. Bring the tubing around the holder end, taking care to see that it is not in twist. The valve will show at the upper side, but will be covered with the tube which, being elastic, can be easily forced aside to expose the air valve for inflation purposes. The

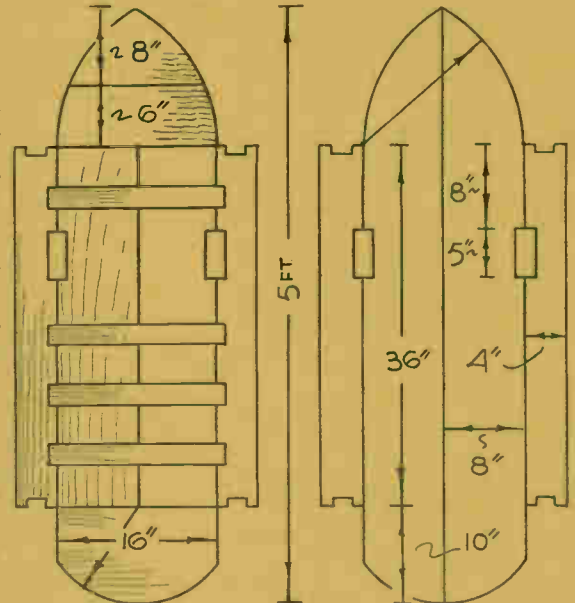


Fig. 1—Top and back view giving dimensions

other wing and tube is fitted similarly.

A test in the water will show that the tubes give excellent support to the board. The board, used without the air tubes, has little buoyancy.

The Efforts of Two Readers

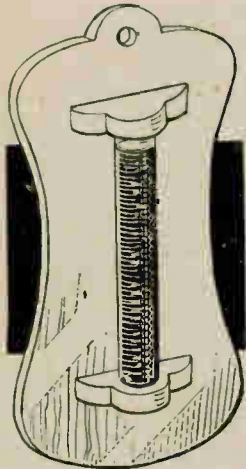


THE Doll's house you see photographed was made by Master B. W. T. Goodey, of Pondfield Bungalow, Gt. Dunmow, Essex, whom you see beside it. Although only 15 years of age he not only built the house but developed and printed the picture himself.

THE model of The Great Harry, on the other hand was made by 50-year old reader, Mr. I. J. G. Parker of North Road, Sherborne, Dorset. He says how much it is admired by all who see it, and of the great pleasure he had in making it. We do certainly say "Well, done" to both our readers, and hope they find equal delight in making many more.



How some everyday chemicals are used to make A WEATHER GLASS



Those who would like to own a barometer or weather glass, but find the price too high or are unable to obtain one these days, the following description of a very efficient little instrument will be more than welcome.

Besides being quite simple to make, and the cost

for materials extremely low, it will often be found to be as accurate as its big brother the mercurial barometer which may cost pounds.

The instrument we are about to describe consists of a small glass tube filled with chemicals which undergo certain changes according to the state of the atmosphere, varying from a clear solution to one that is quite cloudy.

Tube Container

The first thing to get is a small glass tube with a diameter of about $\frac{1}{4}$ in. and from 3 ins. to 4 ins. in length, one end of which is closed. Phospherine tablets are packed in a tube which is just about right, but if you cannot get one of these, a chemist would be able to find you something.

Having found a suitable tube the next step is to make a stand to hold the tube in an upright position. Three small pieces of wood about $\frac{3}{4}$ in. in thickness are all that is needed. Mahogany or walnut would be very nice, but it does not matter really what kind you use.

Baseboard

The length of the baseboard is determined by the size of the glass tube. In the one described here the tube is 3 $\frac{1}{2}$ ins. long; therefore, if you make the base 6 $\frac{1}{2}$ ins. long, you will have a well balanced design. Should your tube be longer you will need to make the base longer in proportion.

An outline drawing is shown here with $\frac{1}{4}$ in. squares, so you can mark the shape on to the wood. A plain rectangle would be equally satisfactory, although not so attractive in appearance. The edges can be chamfered, but although this improves the appearance it is not at all essential and may be omitted if desired.

The two small supports for the tube are cut from $\frac{3}{4}$ in. wood and each of them is drilled half-way through with a bit as near the diameter of the tube as possible. If you have not got a drill the exact size it is better to make the hole smaller rather than larger, and then open it to fit with a gouge.

The supports are fixed to the base with two small screws each. Fit the bottom one first, then put in the tube and mark the position for the top support. The woodwork can be french polished, stained or finished in whatever way you fancy.

The Chemicals Required

We are now ready for the mixture to go into the tube. It would be best to get a chemist to make up a small quantity of the solution for you; the cost should not be much more than about sixpence. Here is the prescription:—

Camphor	1 dram
Potassium Nitrate ...	$\frac{1}{4}$ dram
Ammonium Chloride ...	$\frac{1}{4}$ dram
Absolute Alcohol ...	1 ounce
Water	1 ounce

That quantity will be sufficient to fill several tubes.

Solution Ready

When you get the solution from the chemist see all the parts are dissolved and thoroughly mixed. This may be helped by shaking or even putting the bottle in warm water, but do not let any more water get in.

Directly the materials are all dissolved, pour sufficient into the tube to come to within about $\frac{1}{4}$ in. of the top, find a nice soft well-fitting cork, press it into the tube and cut off level with the top.

Some people recommend sealing over the top with paraffin wax, while others suggest making a tiny hole in the cork with a red hot needle. The instrument seems to work just the same whichever way is adopted.

Fix the tube in the stand by screwing on the supports, and the instrument is ready for use.

Reading the Instrument

Hang it up in a well ventilated room in a position where the sun does not shine on it. Then you can watch the state of the solution.

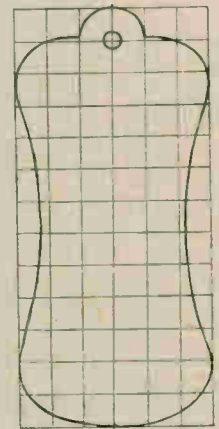
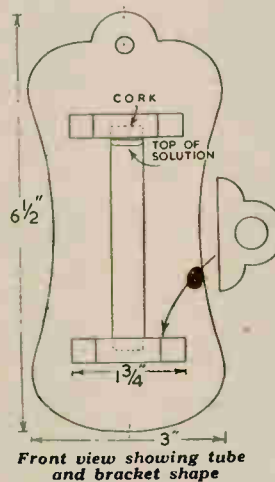
During fine weather the solution will be quite clear with probably some crystals right at the bottom of the tube. When rain is coming the mixture will get cloudy and the crystals may rise from the bottom. If stormy weather or strong winds are near, the crystals will rise to the top and may be leaf-like in form.

These changes in the solution take place 24 hours or sometimes even longer before the weather actually alters, so you, therefore, are given good warning.

Certain districts may make the solution act in a slightly different manner, and it would be as well to watch the glass for a time and make notes of its appearance and the kind of weather you are having so you can draw up a table to suit your own district.

Rain and Wind

You will notice that the crystals will appear in a great variety of forms and in different positions in the tube. Rain is coming from the south when they appear soft and powdery, or when the crystals form on one side of



A suitable outline marked in $\frac{1}{4}$ inch squares

the tube you can expect wind coming from that direction.

The crystals are generally higher in the tube in winter than in summer. In winter, when small stars form and the weather is clear and sunny, snow will fall in a day or so. By carefully noting all the changes that take place in the tube you will very soon become a weather expert, and your friends appreciate your true forecasts.

Additional design sheets or those from back numbers are always obtainable separately for 6d. (postage 1d.)

In rambling or hiking you should know about HIKERS' RIGHTS

RAMBLING or hiking is more popular than ever. The increase in the numbers of people, especially young folk, using the Youth Hostels each week-end and for longer holidays, amply proves this statement. No wonder, for tramping is economical, pleasant, interesting, and healthful.

What is a Public Footpath?

To get the best out of a tramp we must avoid the "ard 'igh road!" "Get over a stile" is Jefferies' advice. Happily, there are thousands of public footpaths in this old country, and they are free to all.

How to recognise such? Usually the indication is a stile, handgate or a V-shaped opening in a hedgerow or wall. On moors, big stones let into the walls provide the stile, sometimes iron stiles are used. Fieldgates are occasionally used not only as an entrance to a farm road, but also to a footpath.

If there is difficulty in deciding upon a footpath on account of no well-trodden way being discernible it is as well to consult a local resident. Remember, not all the footpaths shown on the lin. O.S. map indicate a "right of way" to the public.

Wherever a path is indicated by a stile or gate and a noticeable track

crossing the fields, it is pretty safe to assume a "right of way". At the same time, some such paths are merely a private way to a farm or country house. If in doubt, enquire.

Bridleways

A bridleway is open to walkers, but not to vehicles. Bridleways are frequently enclosed by hedgerows, providing nice green tracks to walk on. A bridleway should be 8ft. wide. Horse-riders can use it.

Width of field-paths can be anything. The laws relating to footpaths and bridleways are interesting, but we have no space here to deal with them at length.

The hiker can be assured that he is free to walk at will on any bridle-road, whether enclosed by gates or not. A useful booklet on the subject is issued by the Ramblers' Association, "Right of Way", price ninepence. It is sub-titled "Footpath Law for Everyman".

Stepping-stones

The stepping-stones that we find across brooks and shallow rivers are part of the footpath, as, of course, are bridges. Some stepping stones still existing are of much interest. These stones take the place of a ford, and have been used for centuries.

Stone clapper bridges sometimes take the place of stepping stones over brooks and burns. Some are of great antiquity, and all are free to the hiker. Parish councils are usually responsible for repairs to bridges of this kind.

A bull in a field is often a deterrent to the person who wishes to cross by the footpath. In some counties there are bye-laws prohibiting the keeping of bulls over a year old in fields traversed by a public "right of way". In many counties no such bye-law exists. Therefore, if you see a bull in the field you wish to traverse, use your discretion.

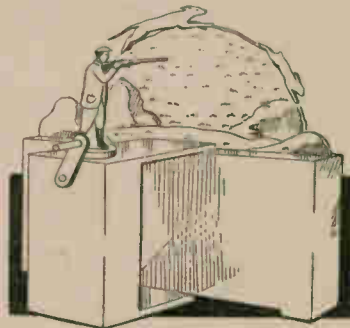
Do not trespass

off the proper path, even if you think to gain by a "short cut". Trespassers wandering off the path and doing damage to growing crops are liable to prosecution. There are so many public "rights of way" everywhere that there is no need to invade private land at all.

Avoid doing this, as it makes things worse for others. Never trample in mowing grass or crops of any kind; if there is a party of you and the path is narrow, proceed in single file.

Mechanical Toy Hare and Hound

Huntsman aims at hare as hound chases it over the hill in amusing fashion. Complete wood (Kit No. 2754) obtainable at Hobbies Branches for 3/9. Sent by post for 4/6 from Hobbies Ltd., Dereham Norfolk.



Many folk think that commons and open moors are free to all wherever they decide to walk. This is not the case. There are, happily, public footpaths over many moors and uncultivated land, and it is advisable to stick to such.

It may be added that many landowners take a liberal view of this matter and allow the public to roam freely, but it is only by privilege. In the grouse-shooting season in many parts of the country it is certainly very unwise to ramble away from the public footpaths.

On some Scottish moors and deer forests the public are rigidly excluded, so the game may be preserved.

In The Peak of Derbyshire, many of the public footpaths over the moors are sign-posted, so you cannot do wrong if you keep to such tracks. Although there is an added joy and interest in marching right across "the tops", it is wiser to stick to the moorland paths.

Modelcraft's plans for PERIOD FURNITURE

This new series of plans for model furniture is to the scale of 1/4 in. to 1 ft. and the drawings are isometric so that not only is a good picture given of each piece, but working measurements can be pricked off. The sheet size is 20 in. by 30 in., and the 'periods' will be chosen to fit in with those for which we have model house plans.

First four are **2/6**
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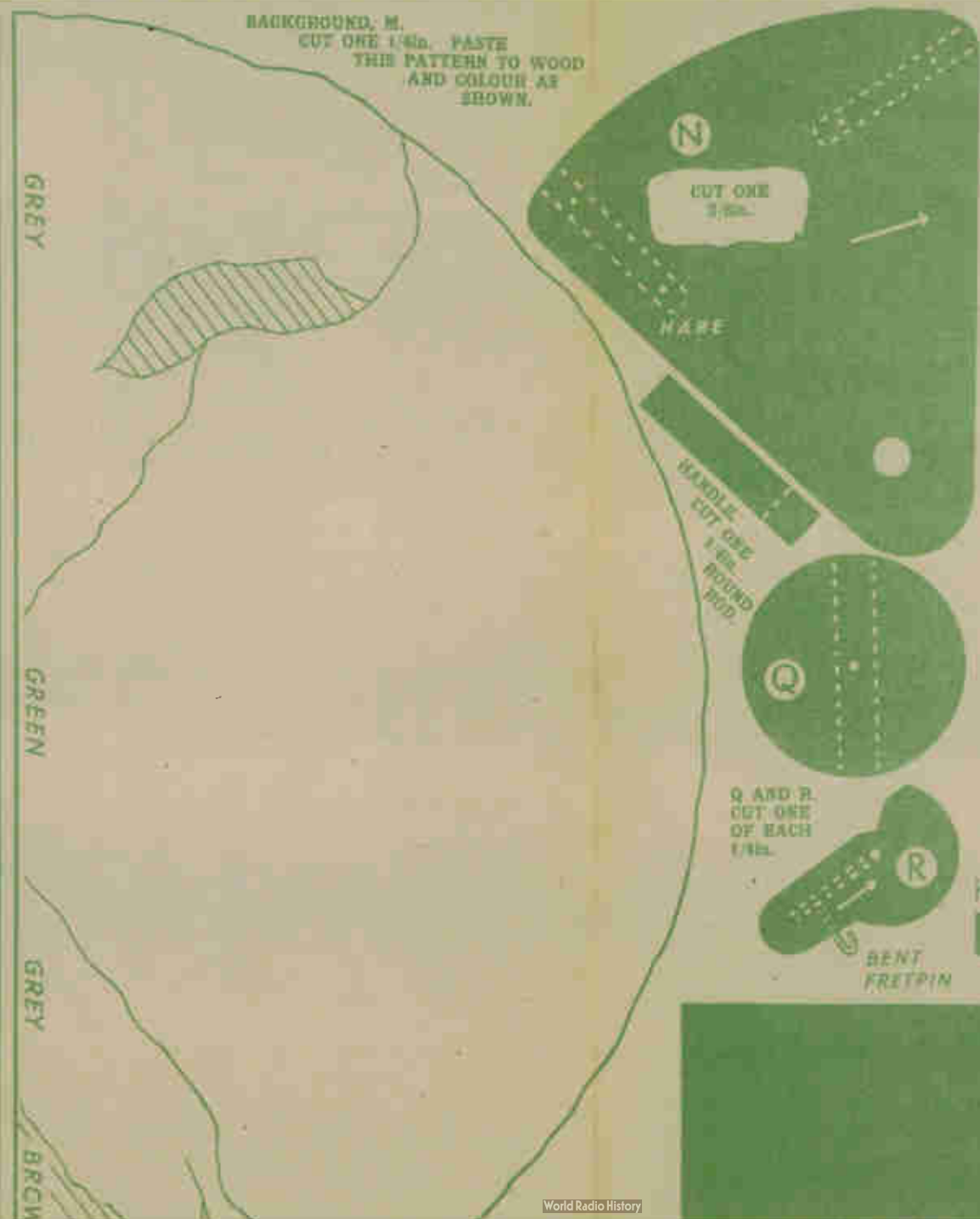
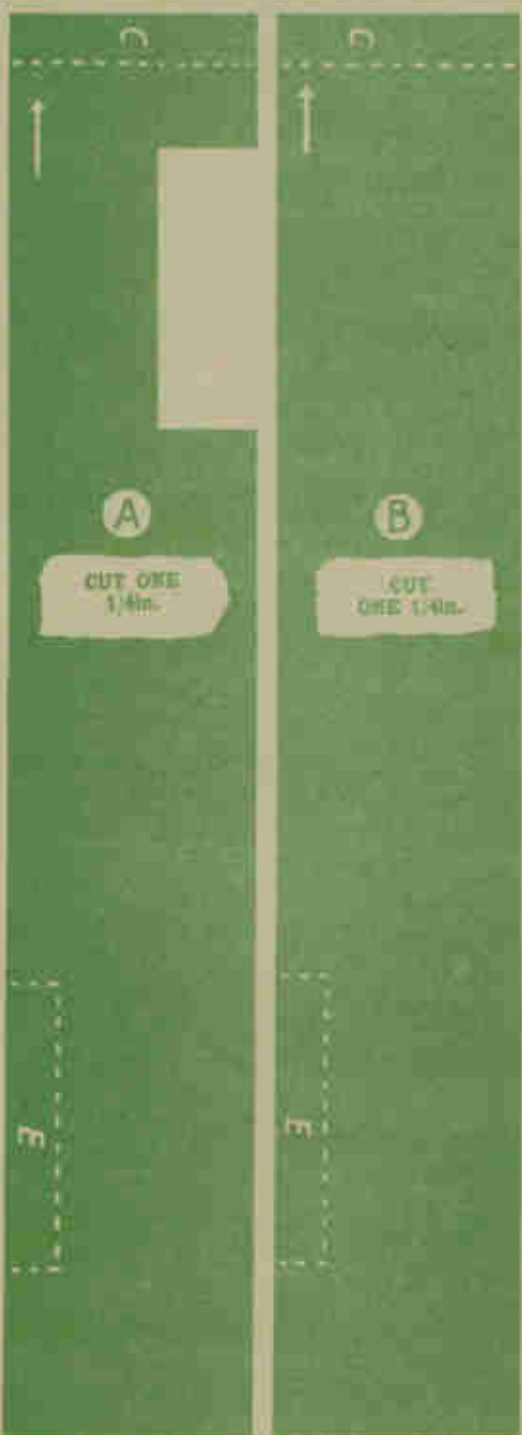
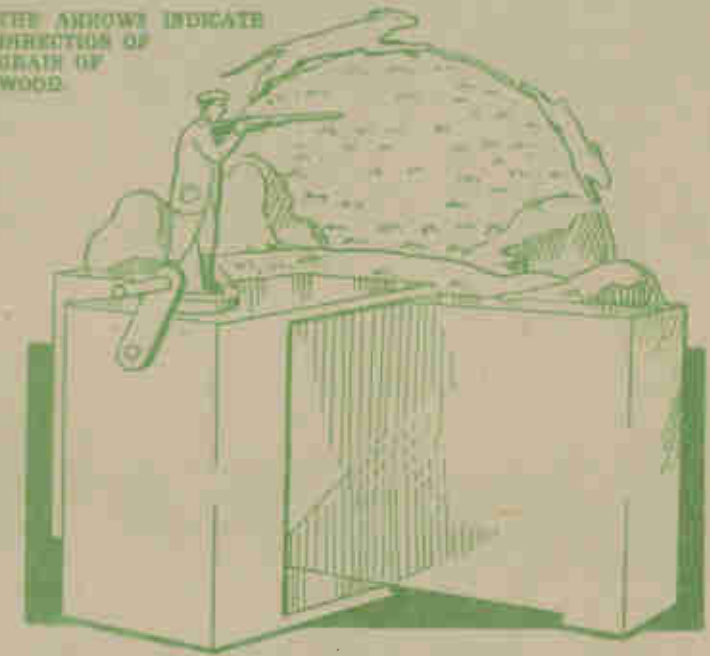
SUPPLEMENT TO HOBBIES No. 3754

HARE AND HOUND

NOVEL WORKING TOY

SIZE: 10 1/2" HIGH, 1 1/2" WIDE

THE ARROWS INDICATE DIRECTION OF GRAIN OF WOOD.



HARE AND HOUND SHOOTING TOY

THIS novel mechanical toy is one which will make a delightful present to any youngster, or even amuse the family. The novelty is that as the handle on the front is turned, the hare chased by the hound comes over the hill at the back, and at the same time, the sportsman with the gun follows him across as he disappears. By constant rotation, the whole action is repeated, with a novel effect. If nicely painted in the colouring suggested, the whole makes a very effective piece of work.

It is made from $\frac{1}{2}$ in. and $\frac{3}{4}$ in. wood and most of the parts need only straightforward cutting. There is, indeed, little need to paste the patterns down because they can be marked out on to the wood simply by pricking through the corners of the part and then linking up the holes with pencil lines.

If you do this, you should take care to test out the dimensions with a ruler or dividers and see that the rectangular parts have the proper square angles at the corners. All parts can be cut with the fretsaw, and as many of them butt up to each other, be sure to cut a straight line to ensure a satisfactory joint.

General Framework

The detail at Fig. 1 is a back view showing the general framework with the parts lettered to correspond with the patterns on the sheet. Each piece is cut square and true before being tested together to make the two framework units shown. The end pieces, C and D, are butted between A and B. A centre support upright, E, is added centrally nearest the front edge.

Note that this E piece has a small piece cut out of the top, in which the spindle rests and revolves, and that

the whole thing is fixed on the opposite side to the top containing the two openings towards the ends.

Mechanism Unit

On to this framework is put a rightangle unit (see Fig. 1) with the winding handle and axle rod. Four pieces $3\frac{1}{2}$ ins. wide and $5\frac{1}{2}$ ins. long are cut. In one of them a $\frac{1}{4}$ in. circle is bored at the position shown. In another one the hole is cut and then the fretsaw goes along the dotted line shown, to take out that small shaped piece. This gap, incidentally, is to allow the revolving mechanism later.

Two of these rectangle pieces form the front and back to the upright box, the two sides of which are J and K. Glue all four together and then fix to the base piece which is the same size as the others. The whole unit can now be glued centrally to the underside of the other frame (below B), care being taken to see that the spindle holes in this box are in line with the hole in the support strut, E.

The fourth panel of similar size, previously cut, forms the top to the unit (F). It should not be glued on but is held with small screws to be removable for examination of mechanism when necessary. It is to this part that the mechanism is fixed. An end view is shown at Fig. 2 which explains how and where fixed.

The shaped piece, R, is fitted at the position marked by a piece of fairly strong wire being driven through exactly at the points shown. One end is bent on the underside and driven into the wood to make a firm grip, the other end projecting about $\frac{3}{4}$ in. is put through the rectangle piece and

then through the disc, Q, exactly central.

Bend both ends of the wire and hammer into the wood so when the part is revolved the wire does not slip. If this tightens the discs to prevent them turning, you can easily pull slightly apart so there is a free movement.

To the edge of piece, R, at the point shown, a bent pin forms a staple for the piece of rubber band. After fixing to this staple, it is passed round one nail as shown, and carried over to the second one (see Fig. 2). Notice the stop pin fixed (Fig. 2) to hold, R, in position.

Spindle and Axle

Now revert to the main carcass and add the spindle rod or axle. This is $6\frac{1}{2}$ ins. long. A handle is formed to it by the piece, O, and a $1\frac{1}{2}$ in. length of dowel. A good plan to make this dowel firm is to cut it flush with the wood, and then drive a sliver of a razor blade into the whole thing—across the end of the dowel and into the grain of the other part.

Put the spindle through the box and then drive right through it a strong piece of wire or pin at the joint shown— $1\frac{1}{2}$ in. from the handle end. This pin actuates on the part, R, on the underside of the lid, and it may be necessary to make a few trials before you get the satisfactory movement. The pin in the spindle pressing against the projecting piece of, R, turns it round slightly in its revolving action on the spindle.

The Action

When, R, is released, the elastic brings it back to the stop pin ready for the spindle to come round again and catch it in a rotating movement. This causes the top disc to turn in an

triangular piece, N, fits on to the end of the spindle. It is cut from $\frac{3}{4}$ in. wood to form a good grip on that part. Now take two narrow strips of brass or flat metal, each not less than $\frac{5}{16}$ ins. long, and fit to this part, N, to hold the animals when they revolve. The shape to which this metal is bent can be seen at Fig. 3 and the exact angle at which they must be fitted to piece, N, is indicated on that pattern by the dotted lines.

The outer end of these strips is bent and screwed to the back of the animal, and in doing this, fix it by means of trial and error so that the animal just revolves around the semi-circle of the large background part. With this working satisfactorily, you can add the figure with the gun.

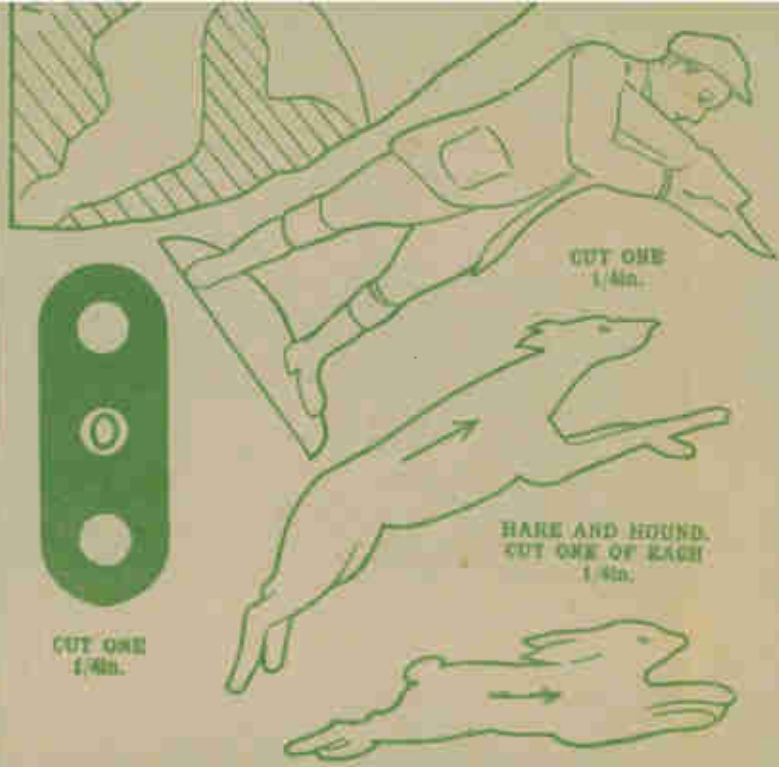
The Gun Figure

In fixing him in place to the disc piece, find the position so the gun travels facing the hare as it revolves. Then glue the upright figure to the base. This outline figure can be painted as indicated at Fig. 4 and the barrels of the gun can be two $1\frac{1}{2}$ in. lengths of wire or two strong headless pins glued to the flat of the hand.

A slight foreground piece to shade the holes through which the animals appear, is provided by a length of card cut to the pattern shown at the bottom of the sheet. Scribe along the line marked, and bend that piece forward to form a tab to glue to the top part, A.

To provide stability, two little feet are glued under each end of the main frame as you can see in Fig. 1—at P. This rectangle of, A, B, C, and D, is covered at the front by a piece of card, preferably green, or afterwards painted that colour.

The figures are all painted in their appropriate colouring, and the back-



CUT ONE
1/4in.

HARE AND HOUND.
CUT ONE OF EACH
1/4in.



CUT ONE
1/4in.

F G H I

CUT ONE OF EACH 1/4in.

CIRCLE IN I ONLY.

IF, CUT TO CIRCLE AND
DOTTED LINES.

F AND G, CUT TO OUTLINE
ONLY.

PANELS OF WOOD
REQUIRED FOR
THIS DESIGN

TWO H4 ONE GD6

The price is shown in
Hobbies Weekly, August 11th,
1948, but is subject to revision.
See the current edition of
Hobbies Handbook, or write
for price to Hobbies Limited,
Derham, Norfolk.



FEET.
CUT TWO
1/4in.



CUT ONE OF
EACH 1/4in.



CUT ONE
1/4in.



BEND

BEND

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

PIECE (P),
CUT ONE
FROM
THIS
CARD.

PRINTED
IN
ENGLAND.

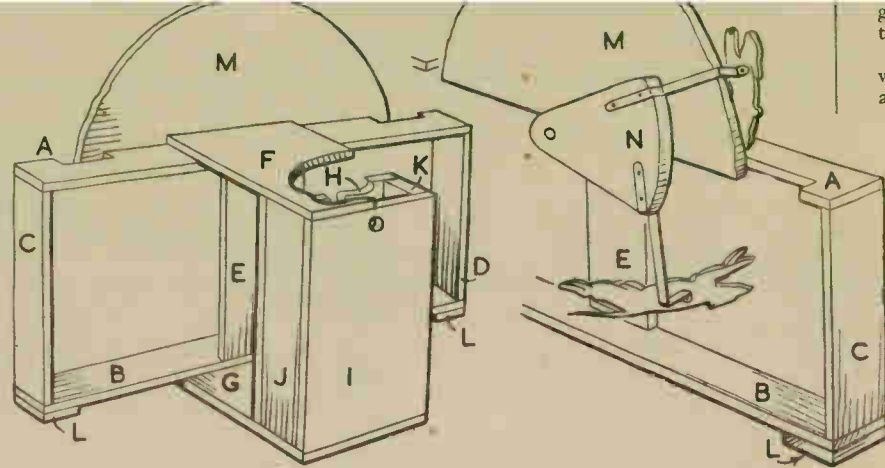


Fig. 1—Back view of two main parts

ground cut from $\frac{1}{4}$ in. wood, glued to the top framework of A.

A back view of the movement which travels the hare and hound around is given at Fig. 3. The

shown, water colour or enamel being used after the paper pattern has been cleaned off.

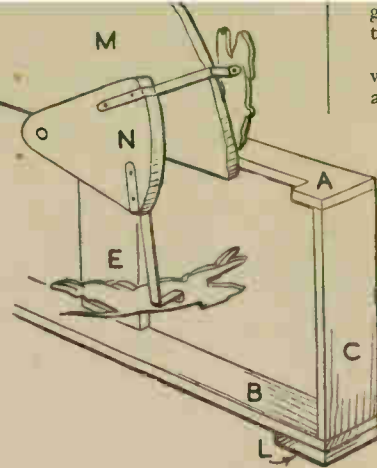


Fig. 3—Mechanism of hare and hound

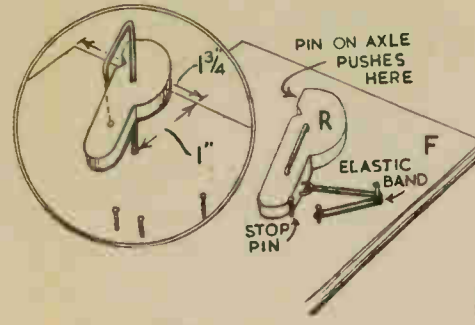


Fig. 2—The elastic and stop action



Fig. 4—Colour suggestion for the figure

Now is the time to be thinking and planning for AUTUMN OPERATIONS

WHILE many of us are enjoying summer holidays, it seems a little absurd to talk of Christmas, but the craftsman at home will do well to bear in mind that time soon passes. It is not too early to at least begin to plan for the autumn activities. This is now August, and only another month remains before we rapidly approach the longer evenings and, perhaps, the more intensive indoor work we are accustomed to undertake during the winter period.

You must remember that the big stores and shops have already purchased or ordered their needs for the Christmas season, even if they have not obtained actual delivery. They, of course, are dealing with big manufacturers owning machinery for production. You as an individual worker cannot possibly have such a large output, and in consequence for your own individual effort a long period of readiness must be maintained.

Points to Consider

There are several things to think about before you can actually get to work, and the wise worker will make a note of them for his own requirements after reading these suggestions. In these days particularly, most material is in short supply. Your first needs will be wood of one kind or another.

Here you will be immediately against trouble if you wait until the last minute and hope to start right away on woodwork of any kind. The variety of beautiful boards you were able to use before the war have disappeared. Indeed, it is most difficult to get material of any particular kind at present.

Material Matters

That surely is one reason why you should bear in mind the needs of your winter activities. You cannot now go into a shop and buy just what you want. But if you bear in mind during the next month or two the needs which you will have later, you will probably be able to pick up some odd boards or pieces of wood suitable for your needs.

A builder or timber merchant may have some odd pieces of "waste" which would come in useful. Have a look round the house and in the tool shed to see if there is any odd shelving, wood panelling or incidental pieces tucked away which will also serve a better purpose.

Accumulate as far as possible all you can, and keep it together in a dry place, preferably flat and weighted to prevent any curling. If you can only get thick stuff you may be able to have it sawn down into thinner planks

by a cabinet maker or carpenter who will help you out on such occasions.

You cannot tell what wood you will require, of course, until you know what you are actually going to make, but particularly now it is a sound policy to accumulate all you can in a great variety so that you may have some to choose from when you get down to the actual job.

Selecting Subjects

This, indeed, leads to the second point of selection of work which you are going to undertake. There are always suggestions in *Hobbies Weekly* which will appeal. Look through your back numbers and watch in future issues for what you think will appeal to the people to whom you propose to give or sell.

You can save yourself quite a good amount of money by making your own presents. This form of homework is a pleasure which provides a wide range of possibility. In this connection, however, further thought is required.

Remember that what you like to make may not be so acceptable or pleasing to the person whom you had in mind. Gifts should be applicable, appropriate and attractive. You would not, for instance, give a youngster anything other than a toy with which he can play.

Suitable Presents

Follow out the same scheme with adults. Give a man's present to a man, and offer the lady something which pleases her feminine fancy and which will prove of practical use every day. A gift should be for personal use, but in the case of newly married people or even those who have had a home some time, there are often articles which they can use jointly in the house which either the husband or wife would be delighted to receive.

The making of all these articles in turn depends on how much time you are prepared to devote to the work. In this connection you should plan out roughly your own ability in conjunction with the time allocated, and

MARKING ROUND A ROD

Readers may have found difficulty in marking a line around a piece of dowelling, a rod or tube or similar cylinder. It is, like most other things, simple when you know how. Hold a strip of paper around the rod, with the two ends overlapping and the edge in line. A pencil can then be run round the work, as the paper makes a suitable guide.

add that result to the number of people whom you wish to please with the gift.

Remember, it is not necessarily the large piece of work which is most acceptable. Do not spend weeks or months completing one huge article as one single present, when the same time could have been much more advantageously utilised in making half-a-dozen smaller objects, which would in turn provide gifts for half-a-dozen different people.

These remarks, too, are more important in view of the shortages previously mentioned. Wood being scarce should not be wasted, and should not be used on large unnecessary articles. There are all sorts of little things amongst the designs which we have published, and the articles we have printed in these pages, which come under the headings of suitable gifts.

Family Favourites

For various members of your family and your friends, you can make quite a range from toast racks, calendars, tubular door bell, wall brackets, novelty cigarette boxes, small photo frames, pipe racks, little statuette figures cut from photographs, and 101 other things which will suggest themselves by a glance through these pages and those of *Hobbies Handbook*.

Remember in this connection, too, that novelty always makes a big appeal. A plain piece of wood with three hooks on it could, for instance, form a key rack, but if you get some quaint or original coloured pictures pasted on the background, and cut out with the fretsaw, then the whole rack has a much greater appeal and appears to be a much more acceptable gift.

Good Work Essential

Apart from novelty and a pleasing finish, it is equally essential—indeed even more so—to have good workmanship. Here again, advance planning is helpful. If you leave things until the last minute you are bound to hurry, and in consequence the standard of your workmanship will have fallen considerably. Apart from that, the need to hurry will take out much of the pleasure which would otherwise be enjoyed in doing the actual work. Good workmanship, as we have said, is the first essential to aim at.

Whether work be small or large, a high standard should be maintained. If you are a beginner in this type of work, you may feel the advice not at all helpful. But, after all, everyone has had to begin some time, and it is only by keeping on and ensuring

improvement as you advance that any craftsman attains the ability of the expert.

Do not be satisfied with just cutting out and completing your work to the same style each time. The more you do, the keener you should become, and the better should be the results. Endeavour to attain an advance in time, ability and result with each object undertaken.

Multiple Work

Here again, the small gifts are more likely to qualify in this respect than the large pieces of work, because patience so often becomes gradually exhausted the longer a job takes. Not, of course, that you need confine your activity to one particular piece of work.

Indeed, it is often advantageous to have two or three jobs going along at the same time, because each may be in a different stage of completion. You can see that having, say, glued

several pieces of a part together, you have to wait until the whole thing is set before you can proceed with it. Thus it is worth while being able to turn to a second job and be going ahead with that whilst the first is awaiting your return. Too often this point arises in painting a finished article, where two or three colours are necessary.

Having applied the first colour, for instance, the ardent worker will go straight on and put the second one close up to it and probably spread it over and spoil the result. With two pieces of work going at the same time, you can have applied colour to one piece and then pass on to the alternative activity whilst the first is drying out.

Unfortunately, too, many workers go straight into their job without forethought of any kind, only to find that such lack of thought means a great deal more work must be

undertaken, or even that some of it must be done again.

Cutting Economy

As an example, if two patterns each have a straight line on one edge to cut, why not cut them together? The pattern can be marked on to the wood with the edges adjoining so that one sawcut will make the two edge pieces one operation. Or again, when you are cleaning up the cut parts, it will be just as easy to lay three or four of them on the bench and clean all together, as to have the trouble of glasspapering each one individually.

These few hints will provide sufficient thought for us to start our plan of campaign for the autumn. In a subsequent article we will give more detailed particulars of actual subjects which are popular, the way in which you can dispose of them not only amongst your friends, but as a side-line for extra pocket money.

Sharpen your knives, cutters, etc. on this inexpensive NOVEL OILSTONE

IF you happen to need an oilstone, here is a simple, novel idea. Why not purchase a knife-stone, and make a wooden case for it? The whole thing is shown herewith, the case being built up by the shaped layer method.

The usual size of knife-stones is 9 $\frac{1}{2}$ in. long by 1 $\frac{3}{4}$ ins. wide by $\frac{1}{2}$ in. thick. The stone is a Carborundum type, and is thus a rapid-cutting stone, giving a good edge to most tools. While, so far as domestic knives are concerned, the stone may be used dry, it is better to use a thin lubricating oil, known as knife-oil. Neatsfoot oil, or any similar thin oil may be used.

Oil is really a necessity. It prevents the metal, particularly at the cutting edge, wearing thin, from over-heating. It also clears away tiny particles of metal and grit.

Linseed oil should, under no circumstances, be used, as this tends to dry up quickly and clog the pores of the stone, thus resulting in a slippery scum so it is difficult to sharpen tools correctly.

A Knife Stone

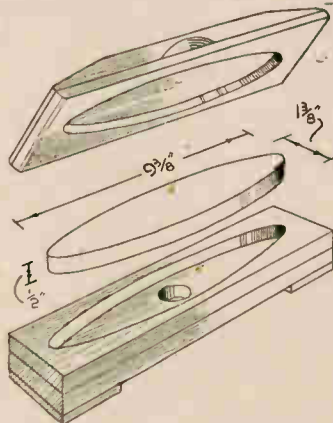
Ordinary oilstones, for woodworkers, measure 8 ins. by 2 ins. by 1 in. The knife-stone, unlike these stones, is boat-shaped. This does not matter, because most of the wear is at the middle of the stone, and that is where it is widest. Although only 1 $\frac{1}{2}$ in. wide or thereabouts, the knife-stone will easily sharpen 2 in. or 2 $\frac{1}{2}$ in. wide plane cutters. It may also be used for sharpening spokeshave cutters, twist drills, etc. It is only a sharpener—not a grindstone. When necessary, the stone may be removed from its

case so the edges can be rubbed against something that cannot be sharpened in the usual manner.

Making the Case

Assuming you have bought the knife-stone (the word "carborundum" is embossed on one of its surfaces), the base of the case is made first. For the top layer of the base, you need a piece of wood (any sort will do) 11 ins. by 2 ins. by $\frac{1}{2}$ in. Set the stone centrally on this and mark its shape on the wood with a pencil, then cut out the waste with the fretsaw.

The bottom layer is of similar size



as the top layer, but it should be $\frac{1}{2}$ in. thick, or $\frac{3}{4}$ in. thick. The upper piece is glued on top and a few panel pins added to hold it in position. If you use $\frac{1}{2}$ in. stuff for the bottom piece, small toe pieces about 2 ins. square by $\frac{1}{4}$ in. are attached to the ends, as

shown. If $\frac{1}{2}$ in. stuff is used, it will be easy to have the toes formed in this.

When you have the base completed, try the stone in it. Perhaps, however, you may not have noticed the hole bored through the lower base piece. If this hole has not already been bored, or cut, do so before trying the stone in its aperture. The stone must be a neat, tight fit, but yet removable.

To remove it, in case it should happen to be too tight, it is pressed out by inserting a finger through the hole provided. Be sure, then, to have the hole bored, or cut, prior to fitting the stone.

The Lid

The lid is built similarly to the base, using $\frac{1}{2}$ in. and $\frac{1}{4}$ in. stuff. The lid should be a fairly loose fit, but not too slack. Before attaching the shaped piece to the upper piece, scallop the sides of the upper piece, as shown, with a penknife. When both pieces are attached together, the scalloping provides a grip for the fingers when removing the lid.

The case, when completed, should be glasspapered smooth and kept in the natural state. A coat of varnish or polish may be applied, but this is not necessary. To prevent the base from shifting about the bench when sharpening a cutter, chisel, etc., on the stone, a few panel pins may be driven into the feet and the heads cut off (with pincers) to provide sharp spikes which take a grip on the bench.

Alternatively, pieces of soft, roughened leather may be tacked to the feet, including rubber. The latter may be attached with glue or rubber solution. Such a simple oilstone will prove invaluable on many occasions.

Some interesting and helpful hints from CRAFTSMAN'S NOTES

Home Decorating Hints

SHABBY woodwork can be scrubbed clean for painting with hot soapy water or, if soap cannot be spared, a handful of lime to a bucket of water. A rag moistened with turps will deal with difficult greasy patches.

After measuring up the height and distance round the walls, a rough estimate of the amount of paper required for any particular room can be made from the fact that a roll of wallpaper measures 36ft. long by 21ins. wide.

To avoid any possibility of streakiness when it dries, distemper is best mixed two or three hours before use, and the top skimmed off just before starting. If lumpy it may be strained through coarse muslin.

Work round to the right when decorating, starting if possible at the lightest side of the room, and get a clear run by unscrewing any movable obstacles such as hooks and finger-plates. Windows are best closed while working, but open them afterwards to dry the room.

To keep paint brushes in good condition, wash the bristles out in turpentine after use, otherwise they will dry into a hard mass.

Re-enamelling a Bath

WHEN indoor decorating includes the renovation of a worn iron bath the materials required are Flat White Paint and Bath Enamel.

Having scrubbed the bath out and allowed it to dry, any badly chipped portions at the bottom receive a preliminary application of the white paint, after which the whole surface receives a couple of coats, followed by two coats of the enamel. Between each application, of course, a day or so is allowed for drying.

After the final coat has dried for a couple of days fill the bath with cold water and leave for a further three or four days to harden off thoroughly. The result—a smart gleaming white bath that greatly enhances the appearance of the bathroom.

Map Reading

MAPS are useful companions for the walker and cyclist. With their aid routes can be planned beforehand, bearings can be taken during the course of the tour. By studying the various symbols the area can be visualized even before it is reached.

Contours are important because they show the rise and fall of the land

and one can tell whether slopes are steep or gentle. On some maps the height at different points is shown by a graduated colour scheme, on others the contours are shown by red lines marked with the height in feet.

When out of doors it is usually necessary to "set" the map before reading it—that is, spread it out with the north of the map actually facing north, so that the various features of the land lie in their correct position.

There are rough methods of setting a map—going by the position of the sun, using prominent landmarks as a guide, and so on—but for accuracy it is best to carry a compass. It is then just a matter of adjusting the map so that the pointer indicating magnetic

north lies in the same direction as the compass needle.

Spotters

MANY people, like myself, have wondered at the value of "spotting" railway and bus numbers, and I now see that a member of the "Spotter's Club"—of which there are apparently 20,000 members—claims that it promotes intelligent observation, teaches geography, and is an outlet for natural curiosity and collecting urges. Well, well! In some places the authorities are frowning on these activities because of the crowds which collect.

The Craftsman

Making and Using Mortar

AMONG his various items of knowledge, the home handyman should know how to make and use mortar, if only for re-fitting loose bricks in the garden wall or filling courses round drains, waterspouts, etc., which have become washed out.

Broadly there are two kinds of mortar—that made with cement and that made with lime. These are the binding agents in each case, bulk is produced by adding sand. To use technical terms, the cement or lime is the "matrix" and the sand the "aggregate".

Simple Preparation

For small jobs about the home, cement mortar is the simplest prepared, but it would be too expensive for big work, hence housebuilders, it will be noticed, always use lime.

Cement mortar is mixed to the proportions of 1 part of cement (Portland) to three parts of sand—water being added till a fairly soft paste is produced.

It is cheaper (when you can get it) to buy cement in quantity and if stored in a dry place, it will keep indefinitely—but it must be kept dry. The sand used should not be from the sea-shore if possible, as it contains too much salt—this being particularly important with lime mortar. Sand obtained from a pit inland is ideal.

Gauge for Quantities

Small quantities of mortar are best mixed on a flat board with vertical edging boards at the back and sides, not the front, this being officially known as a banker. For home use,

this can be quite small, but the shape is extremely handy.

A "gauge", which may be a jar, should be in readiness, too, for measuring out.

The sand, of course, must be free from lumps and small stones, and if you have doubts about this, use a sieve.

To make, measure three jars of sand and spread over the bottom of the banker, then one of cement—repeating till you have sufficient for the work in hand. Now mix the two thoroughly whilst dry and when this is done, and only then, add the water a little at a time till by working up, a ball made of the compound and rolled in the hand does not squeeze out water. If it does, it is too wet, but if the ball crumbles, it is too dry.

Cement mortar must be used almost at once and is applied with a bricklayer's trowel. If correctly made, it goes on easily and finishes readily with a smooth surface.

Lime Mortar

Lime mortar is made up to the proportion of 1 of lime to 2 of sand (non-salt). Salt sand in lime mortar will become damp in humid weather. Two kinds of lime can be used, "hydraulic lime" which is treated like cement, and "quick lime" which must be slaked first with water. In this case, when a mushy mass has been secured, the sand is added.

It is best if you can leave this mixture several days before using. Hydraulic lime makes a stronger mortar than quick lime. Quick lime mortar, however, is good for inside work, as like plaster, it expands slightly while drying.

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Hobbies

WEEKLY

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August 18th, 1948

Price Threepence

Vol. 106 No. 2755

How to make a simple toy mechanical MODEL SAND CONVEYOR

GREAT fun could be enjoyed from the novel sand-pit conveyor model we give here. Most youngsters love a working model, and one that will "do something". The one illustrated and described should certainly be well worth making up, as it will, we feel sure, give hours of instructive interest and fun.

The inclined platform carries two four-wheeled trucks, connected by "cables" to a windlass underneath the hoppers at the head of the structure. The hoppers are first filled with fine dry sand and one of the trucks brought up under it.

As one cable is wound up, the second cable is unwound, thus allowing the empty truck to stand at

the bottom of the incline, while the second truck at the top is being filled with the sand. The continual upwards and downwards running of the trucks is thus maintained. Further, each hopper valve is actuated separately to keep the work "going".

General Framework

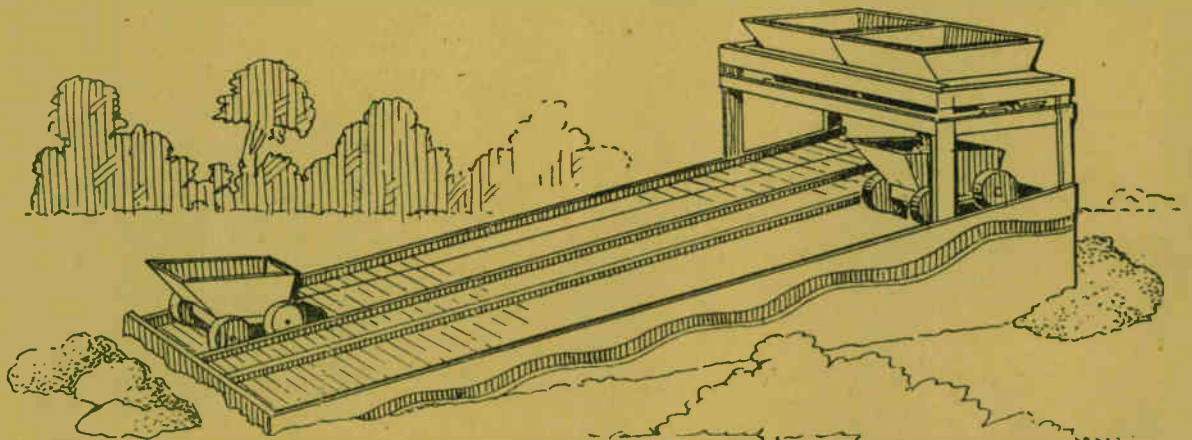
Having explained the sand machine we can go forward with its construction. The framework of the sloping platform will first be made (see Fig. 2). It will be apparent that the greater the length of the sloping platform (up to a sensible length, of course), the more effective will the model be.

Four feet has been suggested for the slope, and it should hardly be necessary to increase this, as it

makes a very workable size. To make the framework we shall require a number of ordinary rough laths such as builders use for house plastering. They are obtainable in various lengths, but 48ins. should be adopted. In section they usually measure about 1in. by $\frac{1}{2}$ in.

Start to build the triangular frame shown in Fig. 2. The laths are cut to size, and nailed together with $\frac{3}{4}$ in. wire nails which should be turned over and hammered flat on the inside.

Note the short lengths of lath at points A1, which will be found necessary to bring the face of the framework flush throughout. A greater number of short uprights may be added if required to make a stiffer job and to take the face covering



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

which may consist of card or stout paper glued on (see the finished side in Fig. 1).

The uprights and cross rails at the top of the slope will be firmly made, and extra laths to those shown may quite well be added.

The platform on which the trucks run fits between the two side frames. Stout card 11½ ins. or so wide is cut to the length required and glued or fret-pinned to half-laths, as at B in the cross section, Fig. 3. The half-laths will be glued or pinned to the outer frame sides, A.

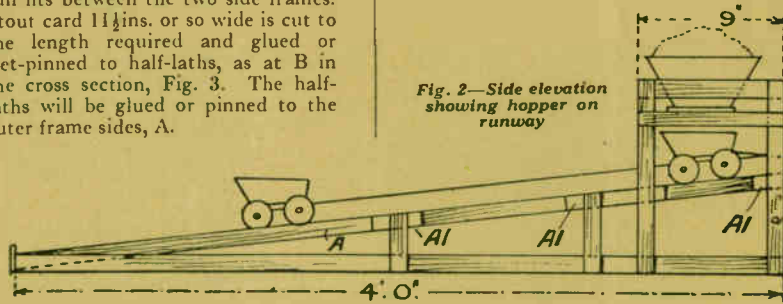


Fig. 2—Side elevation showing hopper on runway

Next, to the upper surface of the card, must be glued the square fillets C, Fig. 3. These act as guides between which the wheels of the trucks run. There should be ample clearance each side of the fillets as shown.

It may now be necessary to form a simple lath frame to go centrally between the two main side frames. This will give added strength to the truck. Fig. 4 gives a detail of the head of the model. Some wider rails of wood, D, are introduced to give rigidity where the axle and crank occur.

It will be noted that the axle is supported midway along its length. For the axle a piece of ½ in. round rod is required, and to the end of it the simple crank and handle is fixed. The enlarged detail in Fig. 4 shows the correct method of winding on the cables which connect up to the trucks.

Now make the hoppers and their release valves, from card or stout paper. The latter should be varnished to stiffen and thereby strengthen. Each hopper may be cut and angled from a sheet measuring 11 ins. square. If this size is not obtainable, then separate pieces can be utilized and glued quite simply by allowing extra tabs along the edges of the pieces.

In Fig. 5 we give a quarter-section only of the size sheet required, with the necessary measurements given for marking out and cutting. Cut a ½ in. diameter hole in the centre of the piece, and then, having cut out the shape, angle it up, bending along the dotted lines until it takes the shape of

the hopper shown in the circled diagram in Fig. 5.

It will be found helpful in laying out the measurements if the cross centre-lines shown in Fig. 5 as chain lines, be first set out across the material.

The completed hoppers are mounted on the top boards of the valves, but the latter should first be made up complete before this gluing is done.

Two views of the valves are given in Fig. 6. The upper view is of the underside, while the lower view shows all complete and the hopper glued in place on the top.

Piece A is first cut 3½ ins. square from ½ in. or 3/16 in. wood and with a ½ in. hole in the centre. Along two edges of this piece are glued strips of wood, B, measuring 3½ ins. by ½ in. by 3/16 in. thick. Then to these latter pieces again are glued further strips,

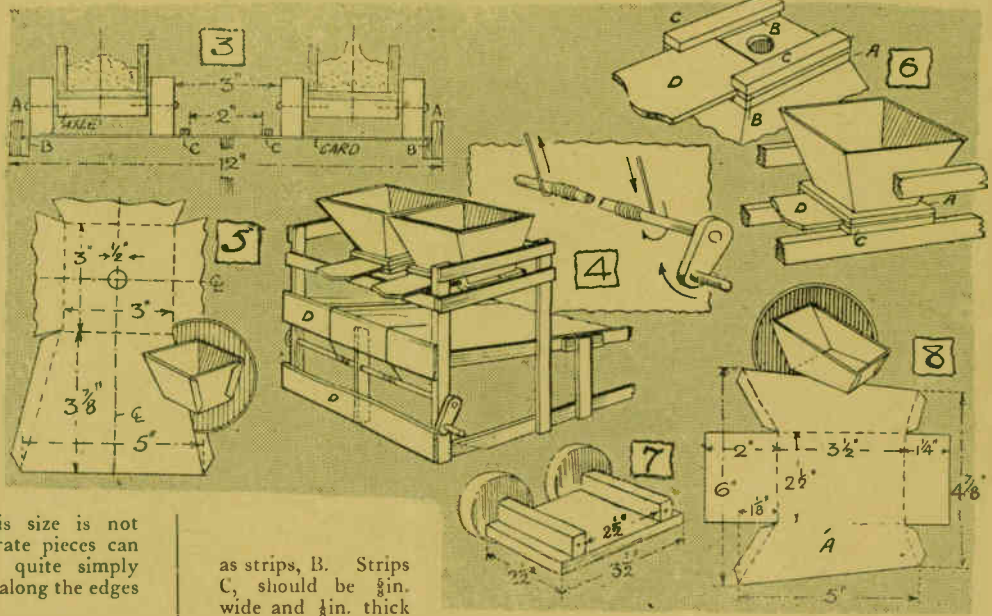
floor of the hopper, the sand is released and falls into the waiting truck beneath.

The rate of flow into the truck can be regulated by the partial opening of the valve. The hoppers are supported on additional cross rails framed and fixed to the two cross rails of the side frames.

The little trucks are very simple to make from a few odd pieces of wood. The floor may be of ½ in. thick wood. To the underside are fixed the two cross axles consisting of ½ in. by ½ in. stuff cut off flush and square. The diagram, Fig. 7, illustrates the make-up on the underside. The wheels of 1½ in. diameter put on with round-head screws.

The container of the truck is made in the same manner as the hoppers. Take Fig. 8 as the pattern from which to angle up the sides, ends and floor. After cutting the card to the outline shown, bend the pieces along the dotted lines and use the narrow projecting tabs for the gluing together. The finished container should appear as the circled sketch in Fig. 8. Having finished the two containers, glue them to the floor of the truck.

If it is desired to use up some ½ in. wood for the containers, then the sides of these would be the better for having them in wood. This is cut to the outline of the side as A, in Fig. 8. The cross sections of the trucks shown in Fig. 3 illustrate the sides as being of ½ in. wood and shows their connection with the floor of the trucks.



as strips, B. Strips C, should be ½ in. wide and ½ in. thick in section.

Two grooves are thus formed in which the actual valve piece, D will slide, this piece D, being ½ in. thick and about 4½ ins. long and a scant 2½ ins. wide.

From this it will be seen that when valve D, is withdrawn beyond the outlet hole in the piece A, and in the

The whole model at completion should be painted in appropriate colours, and it would be advisable to strengthen the side frames and, perhaps, to make a permanent base for the model to withstand any rough usage.

Some practical hints to improve your work with SCALE MODEL WHEELS

FEW people interested in model-making realise the true value of the fretsaw in making wheels. The average model maker finds that he usually has to buy his wheels, or perhaps prefers to buy them rather than tackle such a difficult job himself. The truth is that far from being difficult, it is comparatively simple. With the aid of the fretsaw and scale wheels can be easily and accurately made.

We have published designs in *Hobbies Weekly* from time to time which have incorporated wheels made in this fashion and using these and similar wheels as examples the model-maker will be able to construct wheels to suit his own particular model.

Taking Measurements

For the purpose of this article we will deal with a model of say a car or lorry. The first essential is to find out accurately the measurements of the actual wheel of the original. Draw a rough diagram of the wheel and jot down the main dimensions.

These dimensions must be scaled down to the same scale as the model. Having drawn the wheel to the correct scale, measure the depth of the tyre, shown as A in Fig. 1.

Since the tyre is obviously almost round in section it naturally follows that this will be the thickness of the tyre and will decide what thicknesses of material you can use.

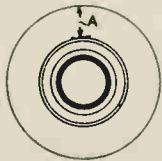


Fig. 1—Tyre measurements for scaling down

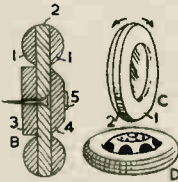


Fig. 2—Section of tyre with hub cap details

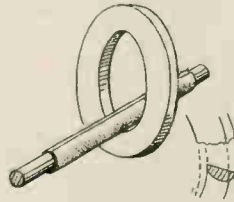
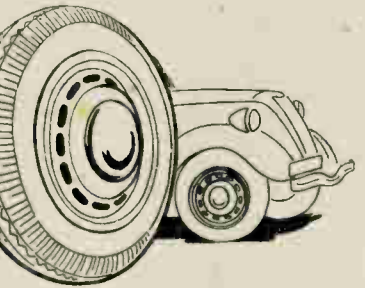


Fig. 3—Rounding the inside with glasspaper stick



brake drum and 5 is a small cap glued on 4 to form the hub.

One of the rings piece No. 1 (Fig. 3) and it should be rounded off on the inside on one side only. The easiest way to do this is to glue a piece of glasspaper round a length of round rod as shown. Finish off with a piece of fine grade glasspaper wrapped round the finger. The two rings, after shaping, are then glued to the plain circular piece, No. 2, and the outer edges rounded off to represent the tyre as shown in C, Fig. 2.

The method of fixing the wheel to the chassis is also clearly shown. The screw is countersunk in piece 2, and piece 4 is glued lightly in place after the wheel has been screwed in position. Make sure to glue piece 4 very lightly, so if the screw should come loose a light tap will knock it off and the screw can be refixed.

Piece 4 can be painted to represent the particular wheel being copied. A general type of wheel is shown in Fig. 2, D.

Car Type Wheel

If you look at E in Fig. 4 you will see a diagram of a wheel of the same diameter, but of the motor-car type.

maker will no doubt want to show the rim in larger models. A section through a 1½ in. wheel is shown in F, Fig. 4. The rim is represented by a disc shaped to the section shown. It is a type of wheel often seen in modern cars.

Four pieces are used here to form the tyre thickness, three of ¼ in. wood and one of card. A different method of fixing is shown. It will be seen that the brake drum is first fixed to the chassis by means of a countersunk screw and the complete wheel is glued lightly in place afterwards.

If the screw does work loose, give the wheel a slight twist and it will break away easily from the brake drum. The diagram in Fig. 5 shows how the wheel should look before shaping the tyre. The dotted line shows how it should look after shaping.

As far as possible the colours of the



Fig. 4—Section of two types of wheel



Fig. 5—Squared edge before rounding

The thickness of the wheel can be built up from ¼ in., 3/16 in. or ½ in. wood and card can be used where the wheel is very small. Assuming that the measurement A in this case is ½ in. we can make up the wheel from three pieces of ¼ in. wood.

A section of the wheel is shown in Fig. 2, B, and shows how the three pieces are glued together to form the wheel and the tyre. This type of wheel is found on most heavy lorries such as petrol and large transport lorries. The diameter of this wheel is approximately 1½ ins.

Construction of Wheel

The parts are indicated by the figures. The details at 1 are the rings forming the tyre, 2 is a plain circular piece, 4 is a circular disc shaped at the edges, 3 is a washer representing the

tyre is a little larger in comparison with the wheel and to get the right thickness two pieces of 3/16 in. and a piece of card have been used. This is a good method and if fairly stiff card is used will make a light and serviceable wheel.

Representing the Rim

So far we have dealt with a simple wheel which looks quite realistic, but yet is not exactly true because it has no rim. It is particularly suited to small models when the size of the wheel makes it difficult to represent.

The more ambitious model-

original car or lorry should be adhered to and the markings should be painted on in matt black. A good representation of chromium is got by mixing a touch of blue with a very light grey. For the tyre dark grey a poster paint can be used. One coat of brush polish over this will give the desired effect. Any tyre markings should be done with a sharpened 2H pencil before the polish is applied.

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HERE is an attractive hat and coat rack; just the thing for the small entrance hall or passage.

It must be said, however, that it is not intended for heavy articles of clothing such as a greatcoat or a number of lighter ones, perhaps, on one peg.

Not only does this rack afford an opportunity for the amateur craftsman to show his skill at carpentering, but it also gives him a chance to work in some very simple carved work in the overlays attached to the side panels of the rack.

These side panels, too, are intended to add a touch of colour by having the shields, which are superimposed upon them, carried out in enamel or paint. Fig. 1 gives a good idea of the finished rack, while its general proportions can be gauged from Fig. 2.

Frame Rails

The frame, consisting of the rails, A, B and C, should first be made up. The top rail, A, should be well made

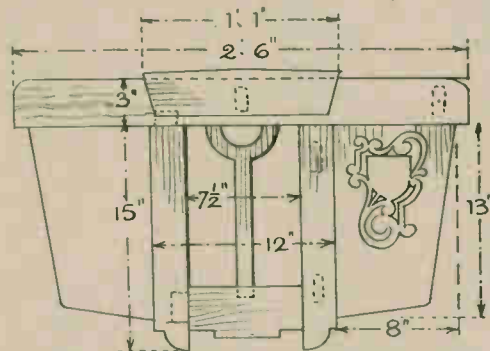


Fig. 2—Measurements of parts required

if it could be in one length, but if short pieces of wood only are procurable (and this seems to be the rule nowadays), then the dovetail mortise and tenon joint and its cover or splicing piece as shown in Fig. 3, might well be adopted.

Note how the centre line of the dovetail is arranged. It may be cut quite easily with the fretsaw. Wood not less than $\frac{3}{8}$ in. thick should be used for the framework, but $\frac{1}{2}$ in. or even $\frac{3}{4}$ in. stuff would make the better and stronger job. Any salvaged sound wood, whether oak or pine, if it is clean and whole, would be suitable for the rack, and the finish of polish stain, etc., should make quite a worth-while job.

Round off the end top corners of the rail and, then having glued the dovetail joint firmly, lay on the splicing rail, which measures 13 ins. by $\frac{3}{8}$ ins., and glue and clamp it down. Note the simple shaping of the latter

rail which tends to lighten it in appearance.

Next prepare the two side rails, B. These are 16 ins. long and $2\frac{1}{4}$ ins. wide. Note from Fig. 3 how the halved-in tenons are made at the top and how the recesses are cut in to receive the tenons of the lower rail, C. Shape the lower extremities, too, to the simple outline given in Fig. 2, this being carried out with the fretsaw.

The rail, C, measures $9\frac{1}{2}$ ins. long and $3\frac{1}{2}$ ins. wide and is cut to a simple shaping, with tenons at each end measuring 2 ins. long by 1 in. projection. Check the sizes of the tenons with those of the mortises already made in the rails, B.

When the rails are all fitted together and checked, take them apart again and coat both the tenons and mortises with glue. Clamp the joints securely and later run in screws or hardwood dowel pins to make a good stiff joint.

The shaped middle rail is cut from a piece of $\frac{3}{8}$ in. stuff 12 ins. by 5 ins., and the top arms of the piece and the lower arm are to be let into the rails, A and B, as shown in Fig. 3, and again in Fig. 2. The three recesses to receive this rail are cut $\frac{3}{8}$ in. deep so they lie level with the back surface of the main frame rails.

Side Panels

The side panels measure 13 ins. by 8 ins., and might be $\frac{1}{2}$ in. in thickness. The fretsaw will cut the edges clean and make the outer rounded corners. See the panels fit up to the rails correctly before they are glued and held rigidly in place by metal plates at the back (see the enlarged diagram in Fig. 3). The plates can be made from stout brass and drilled to take the $\frac{1}{4}$ in. brass screws.

It will be noted that the side panels must come flush with the back surfaces of the frame rails so the metal plates can be flush, as the enlarged diagram indicates.

It only remains now to make the overlays for the side panels. These may be cut from $\frac{3}{16}$ in. wood if they are to be carved slightly in relief as the full-size pattern shows. This

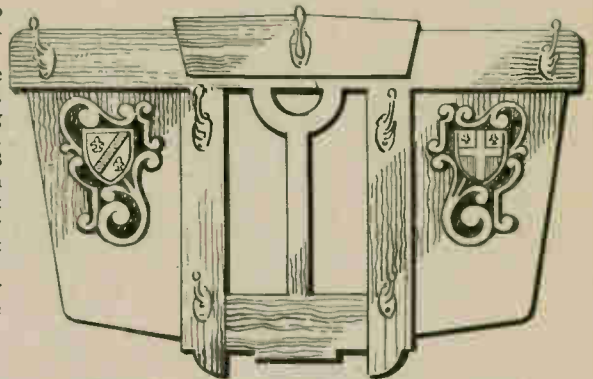


Fig. 1—A compact article, economical in wood

appears as a full-size pattern on page 203. If, however, just a simple cut-out overlay is wanted, then $\frac{1}{8}$ in. or even $1/16$ in. wood would be suitable.

Full Size Pattern

The full-size pattern (page 203) is pasted to the wood, and when it is cut out with the fretsaw and cleaned up, it can be traced round on to the second panel of wood with a pencil for the second overlay.

The shields bearing the crests or coats of arms can be traced off from the pattern given and cut from $\frac{1}{8}$ in. wood, oak for preference, as this will take the oil paint or enamel of the design.

The shading on the pattern design shows how and where the carving will occur, but it must be remembered that the rounded parts can only be of shallow carving with merely rounded

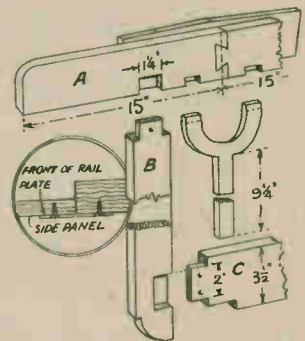
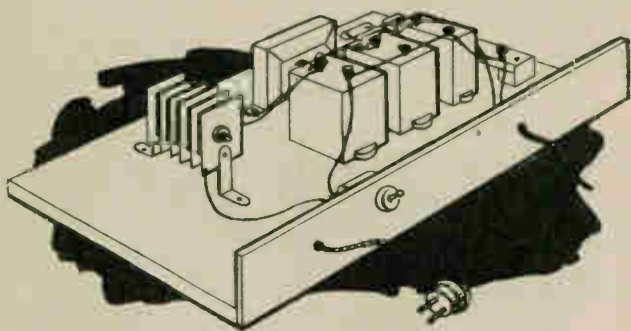


Fig. 3—Back view showing joints

surfaces in most places. The carving can be done with a penknife, small chisel, or a proper carving tool. In every case the cutting edge must be kept very sharp to obtain clean tidy incisions.

Light metal hat and coat hooks are screwed on in the places indicated, and two wall plates are fixed to the back for hanging in place.

Running a battery-operated set from mains by means of AN ELIMINATOR



THE purpose of a High Tension Eliminator is to enable a battery-operated receiver to be worked from the mains without the use of a H.T. battery. In other words, it takes the place of the H.T. battery, the necessary current coming from the mains.

As its cost is only about that of two normal H.T. batteries and it will last for years, it is quite an economical unit. The current it takes from the main is so slight as to be insignificant.

For A.C. Mains

Fig. 1 shows the circuit and will make clear how the unit works. Because direct current must be supplied to the receiver, a rectifier is used to change the alternating mains current to direct current. The result is a surging direct current which would make a loud hum if used.

So a smoothing choke is added (this passes a steady current but resists surges), with condensers which act as reservoirs. This gives a steady direct current, and it is only necessary to add a resistor to reduce the 220 to 250 volts to about 120, a further

condenser being added to by-pass signal currents from the receiver so that it can operate. The most important part is the rectifier, which is a metal one. As they last almost for ever, a second-hand one is suitable. It should be a high-tension rectifier, of which many different makes are available. It may be either full-wave or half-wave. If full-wave, it will actually only be used as a half-wave rectifier and the slight additional cost will convey no benefits. For such a circuit, any H.T. rectifier obtainable is usually suitable.

For a fairly large receiver, the choke should be 20 to 40 Henrys, with a current capacity of up to 20 milliamps, or more.

Again, almost any choke will be suitable, and for a small set an old transformer primary may be used. For a small one- or two-valve receiver a 10,000 ohm resistor may be used if desired. A choke will not then be wanted.

Smoothing condensers are not in any way critical, except that they must have a working voltage of 250 volts or more. They may be either paper or electrolytic. Anything from 4 to 8 mfd. is suitable. If larger capacities are to hand, they may be used. For a small receiver, down to 2 mfd. may be used, but if they are much smaller, a rather bad mains hum will be generated.

Before beginning construction, a mains on-off switch, flex, mains plug or adapter, and terminal strip will be wanted. As 200 to 250 volts is too great for battery valves (which have a

150 volt maximum for normal working) a resistor will also be needed.

The value of the dropper resistor depends upon the voltage to be dropped and the current flowing. Fortunately it is not at all critical. With 220 volt mains, it should be about 100,000 ohms for a 1-valver; 50,000 ohms is suitable for a small 2-valver; a more powerful 2-valver will require 20,000 to 30,000 ohms. 5,000 to 10,000 ohms is suitable for most larger sets. With 250 volt mains the values may be a trifle higher if desired. As the output needs to be between 120 and 150 volts, it is not critical.

It is quite possible to use a variable resistor, turning it towards minimum resistance until proper reception is obtained.

If it is desired to obtain certain voltages, the following table will show what value to use.

Voltage to be Dropped.	Current flowing. milliamps.	Resistance. ohms.
100	1	100,000
150	1	150,000
200	1	200,000
100	2	50,000
150	2	75,000
200	2	100,000
100	5	20,000
150	5	30,000
200	5	40,000
100	10	10,000
150	10	15,000
200	10	20,000

Building the Eliminator

Fig. 2 shows the layout and wiring—so straightforward that no remarks are needed. If electrolytic condensers are used, the plus and minus on them must be connected as shown. Paper condensers may be connected either way.

If a resistor is to be used for smoothing, it may be connected in place of the choke, as mentioned. A terminal strip, raised on wooden blocks, may be used for the leads which will need to go to the receiver.

If the battery cable of the receiver is long enough, then the H.T. plugs may be removed and the ends connected to the

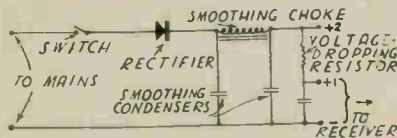


Fig. 1—Circuit of the A.C. Mains H.T. Eliminator

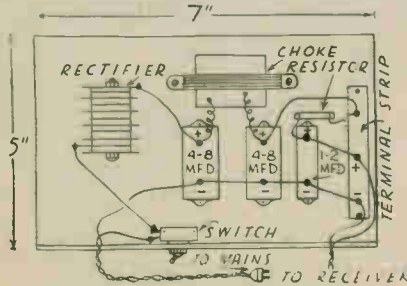


Fig. 2—The wiring diagram

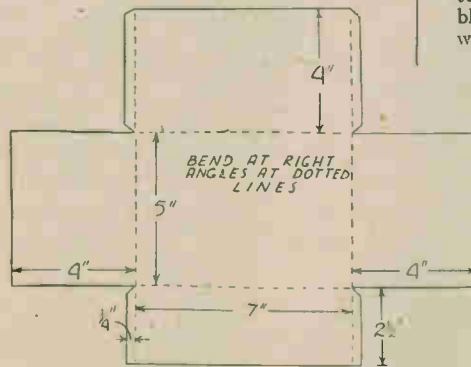


Fig. 3—Shape and dimensions of case cover

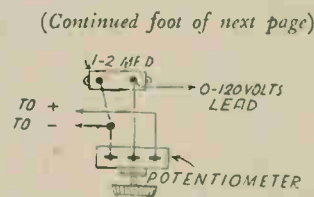


Fig. 4—How a potentiometer may be added to obtain any voltage required

For indoor or garden use here is how to make A FOLDING SEAT

A FEW pieces of scrap wood, such as $\frac{7}{8}$ in. and $\frac{1}{2}$ in. stuff, will make the simple garden seat illustrated. The construction is very straightforward, there being none of the usual constructional joints. Just two back legs and two front legs crossed together, with seat and back rest slats added. You could doubtless make the seat in an evening, providing you can scrounge the necessary pieces of timber.

Wood Required

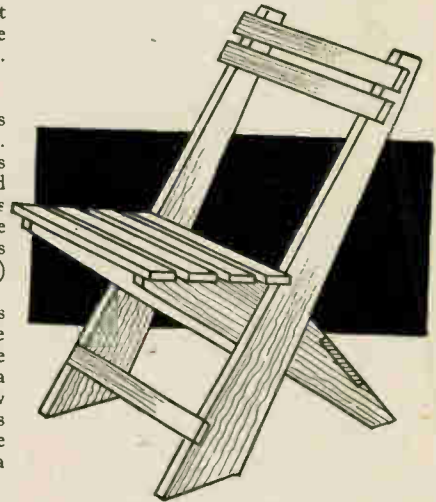
Old deal shelving, flooring, matching board, etc., could be used up, if available. The slats could be cut from $\frac{1}{2}$ in. matching board (tongued and-grooved stuff). The seat is not large and, perhaps, due to its unusual

construction, not too comfortable. However, by adding more back rest slats, if you have the wood, it can be made more comfortable and stronger.

The Leg Shapes

A pair of each leg shown at Fig. 1 is cut to size and shape from $\frac{7}{8}$ in. wood. The slots, or recesses, cut in the edges are $\frac{1}{2}$ in. deep. Now, you may glue and screw one of each leg together, as indicated in the side view. To give more strength, the shorter (seat) legs may be let into the longer (back) legs by $\frac{1}{2}$ in.

This means holding the two legs together in their approximate position (as judged from the side view) and scribing the position with a pencil on the longer legs. A tenon saw is used to make cuts $\frac{1}{2}$ in. deep across the guide lines, following which the waste wood is removed, using a chisel or a router.



A small easily-made all-wood article

used, there will be no hammering and, consequently, some form of support necessary.

Be sure to run the smoothing plane along the top edges of the slats to remove the sharp arris. This also applies to the legs. All edges can be easily rounded with coarse glass-paper held in a block of wood.

Finishing the Work

To finish the work, apply a coat of creosote. When this dries, apply a coat of varnish. A varnish stain could be used. If you have used various kinds of wood, the seat could be finished by applying a couple of coats of oil paint. Green is a popular colour for garden seats.

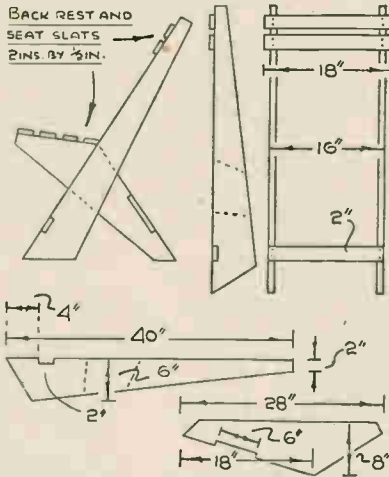


Fig. 1—Side view and various details

Assembly

Having fitted the legs together, drive in a few holding screws. Do not use glue at this point of the construction. The back rest slats and the bottom slats are affixed to the longer legs. Use roundheaded nails, or alternatively, raised head screws.

Fit a back rail to the shorter legs. This rail is 6 ins. wide, its length being found by actual measurement. Fit a front slat to the seat, then remove the shorter-legged framing and attach the remainder of the seat slats, using roundheaded nails.

If you prefer to use raised head screws, there is no need to have the shorter framing removed. Simply keep the legs crossed, but fixed with glue and screws. The other parts are then added, and as screws are being

Eliminator—(Continued from page 197)

two terminals, taking the plus and minus as in Fig. 2.

The small strip supporting the switch may be about $1\frac{1}{2}$ ins. high. If the base is the size shown, a cover can then be made by cutting perforated zinc to the shape and size shown in Fig. 3, and bending it into a box-like shape. The narrow flanges may be soldered or wired in place. Half a dozen screws driven into the edges of the base will hold the cover in place.

If the cover is made from wood, etc., a row of $\frac{1}{4}$ in. holes should be drilled round near the bottom, and also near the top, to give some ventilation. A cover is recommended to reduce risk of shocks.

Using the Eliminator

The completed eliminator should be connected to the mains and receiver as mentioned. The switch on

the receiver is then turned on, and afterwards the one on the eliminator. If no results are obtained, the rectifier may be connected in reverse. Disconnect the mains and change over the connections to it to remove this trouble.

When listening is finished, switch off the eliminator, then the receiver. If the eliminator is switched on when it is not connected to the receiver, or if the receiver is switched off, no current will flow. In consequence, no voltage will be dropped, and the full 220 to 250 volts will be applied to the terminals on the terminal strip. As this may give shocks, they should not be touched.

Screen Grid Tappings, etc.

If the receiver has one or more H.T. plugs which should go in low voltages (48 to 90), these low voltages

may be obtained by adding an additional resistor (see table). Between the H.T. lead and H.T. minus, a condenser of about 1 mfd. should be added.

Fig. 4 shows how a potentiometer may be added to the eliminator to obtain any low voltage. The part should be from 10,000 to 100,000 ohms, and wire-wound. By turning the knob any voltage may be divided off for Screen Grid Tappings, etc.

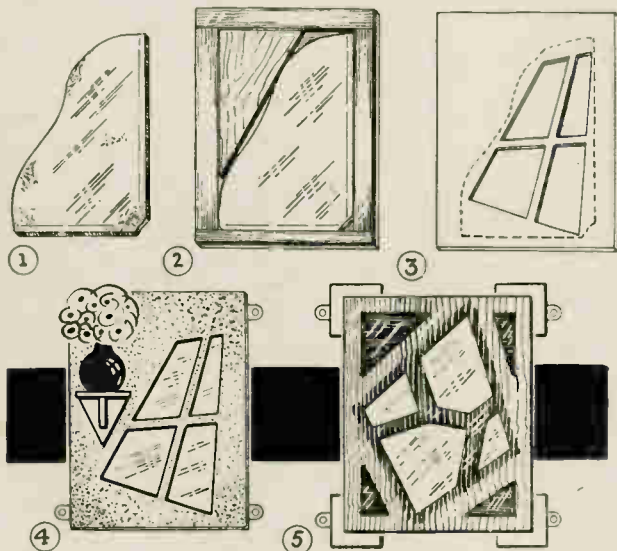
The addition of these extra tappings however, will only be necessary in fairly old sets with several valves, as a rule. In more modern circuits, the voltage droppers, etc., are already included in the receiver.

If the receiver has an earth lead, a condenser of .01 to .1 mfd. and 300 or more volts working, should be connected in series with it. This is to avoid earthing the mains via H.T. minus.

An original suggestion for USING OLD MIRROR

IN the great majority of homes there is at least one piece of broken mirror, such as is illustrated in Fig. 1. It may be a piece about the size of this page or even greater (or smaller). Some of the silvering may be scratched. Yet this unsightly piece of mirror can quite easily and inexpensively, be "glamourised" into something worthy of a place in any room or hall.

The writer will describe a typical job he undertook. It will be appreciated that as sizes and shapes of mirror pieces vary, it is impossible to give any definite dimensions. It is realised, too, that sheets of plywood are very difficult to come by. Quite coarse plywood (from tea chests, etc.)



can be used for this job, whilst tough varieties of cardboard, leather board, etc., can be used to good effect, especially for the top pieces.

Sheets of aluminium and duralumin seem plentiful and may be used for the top layers if the reader knows how to work the metal. Thus, though the word "plywood" is used throughout for the sake of uniformity, this precious commodity need not necessarily be used.

Lay the mirror on a backing board so that, if the mirror were rectangular, there would be a margin of about 1½ ins. all round. Then, with strips of wood, and with triangular, etc., pieces, exactly as thick as the mirror, build up as shown in Fig. 2. Provided the mirror is held firm, there is no need to be too accurate at this stage.

Fig. 3 shows an overlay in thinner wood which represents a rather "futuristic" window and bars. This

should be planned with the aid of a piece of tracing paper, the shape of the main opening and the position of the bars being arranged to cover bad spots where the silvering on the mirror has been rubbed off. For a small mirror, the bars may be eliminated. In the manner of stained glass windows, the bars may be as shown in Fig. 5.

This overlay is eventually fitted over the mirror but it may be advisable to paint, stain, lacquer, etc., it first, as it will look very bad if any paint gets on the mirror. Such novelty finishes as Plastone are to be encouraged in this style of mirror.

If one is expert at joining mouldings at an angle (not necessarily at

45 degrees in the present case), real moulding can be glued round the "window" and along its bars.

According to the size of the frame now made, the blank spaces can be filled up in various ways. On the largest, a bracket to hold a flower vase, or even a lamp sconce can be fixed. On smaller frames, triangular pieces of wood can be glued (as

in Fig. 5) or ready-made ornaments—diamonds, half domes, etc.—can be glued on. Again, certain parts of fretwork designs can be cut out and used as overlays.

Additional Ornament

For simplicity of illustration, the completed frame (in Fig. 4) has been shown perfectly rectangular but in Fig. 5, squares have been glued on from behind. A bracket can be fixed in some cases below the mirror, so that flowers in the vase are reflected—a charming effect.

Try hanging these mirrors on dark walls, and notice how they brighten them up. They are specially suitable for restaurant walls . . . a hint to those readers who make up craft-work for profit.

If you have no odd pieces about the house, your friends may be able to help you. Remember this suggestion for your next breakage!

From the EDITOR'S NOTEBOOK

WHO would make a hobby of Tops? Well, somebody does, and, believe it or not, has had 180 different types as a result of 37 years effort—I nearly said work! Anyhow C. W. Rayner of Bristol is very proud of that range—who wouldn't be?—which he has designed varying from the ordinary whipping top to complicated things spun by machine. Some actually fly!

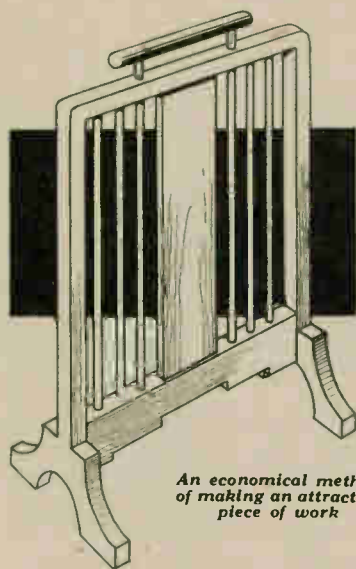
MANY readers at some time or other try their hands at putting miniature model ships in bottles. Now here's a better suggestion—try them in electric light bulbs! Oh, yes, it can be done and I can quote an ex-Merchant Service man, Mr. G. R. Drayton, of Haywards Heath. He makes some very nice ones. He takes out the filament, uses coloured putty for the sea, builds the ship in the same ingenious way as the ordinary ship "bottlers", but adds a special touch. He puts in a lighthouse that works, using a tiny bulb, a cork and a piece of glass tube. The wiring he cleverly makes invisible. By an ingenious connection with a battery and a clock, the lighthouse is made to flash at regular intervals.

CAN you help a disabled reader suffering from heart disease who is now unable to do normal work? Whilst in hospital at Bestwood Estate, Nottingham, he was taught the use of the fretsaw and some friends in the furniture trade gave him a stock of wood veneers which are ideal for inlay work. Now before the war we published a number of designs of inlay suggestions, but unfortunately they all went for national salvage. So I am wondering if any reader has some of these Inlay Designs, and if so whether they would send them along to our friend? The address is Mr. H. H. Ringrose, 82 Gainsford Crescent, Bestwood Estate, Bulwell, Nottingham. It would be helping a lot in a very good cause.

HERE'S a suggestion from another collector—Postcard Cathedrals. You can get pictures of them wherever you go to a city—and a city must have a Cathedral!—and gradually attain a collection which proves of great interest architecturally, theologically, and historically. Tombs, chapels, porches, screens, all have fascinating stories behind their age or appearance which make a pleasing pastime to collate and collect.

The Editor

How the handyman can make an inexpensive and simple FIREPLACE SCREEN



An economical method of making an attractive piece of work

READERS possessing a few pieces of $\frac{3}{4}$ in. wood and $\frac{1}{2}$ in. dowelling will be able to make the simple, yet pleasing form of firescreen illustrated. It has been designed to use up small waste pieces of wood. The central panel, in fact, could be a strip of wood removed from an old box—an orange box, for example, or anything like that.

One is still able to buy dowel rod at most cabinet-maker's supply shops. The screen is, naturally, a plain utility type, but it will serve its purpose admirably. The dimensions are average. The framing parts are merely dowelled together. The feet, however, need to be bridle-jointed to the legs—a very easy task, if you have a tenon saw and chisel.

Preparing the Uprights

The uprights or legs are prepared first. These are made 22 ins. long by 1 in. by $\frac{3}{4}$ in. One end of each is slotted to receive the feet, as detailed. The slot is about 2 $\frac{1}{2}$ ins. by $\frac{3}{4}$ in. wide. The top ends are bored for a $\frac{3}{8}$ in. dowel stump to which the top cross-rail will be affixed.

This cross-rail measures 18 ins. by 1 in. by $\frac{3}{4}$ in. It is bored $\frac{1}{2}$ in. deep for the upright dowel stumps and the two extra long dowel rails, as can be visualised from the front elevation at Fig. 1.

The bottom cross-rail is about 16 ins. long by 2 $\frac{1}{2}$ ins. wide by $\frac{3}{4}$ in. It is prepared for dowel stumps at the ends, then the upright dowel rails. The central panel is cut from $\frac{1}{2}$ in. or $\frac{3}{4}$ in. wood. It should fit into a mortise cut in the top and bottom cross-rail. A depth of $\frac{1}{2}$ in. would suffice in each

case. The dowel uprights could be of similar depth. The dowel holes are spaced about 1 in. from the central panel.

Attach the Feet

The feet require to be cut from wood 10 ins. by 4 ins. by $\frac{3}{4}$ in. When shaped with a keyhole saw or bow-saw, and the sides grooved 1 in. wide by about $\frac{1}{4}$ in. deep (the slots in the uprights must be a neat fit), measure and test the fitting before cutting the recesses to the depth specified.

When the feet are prepared and fit neatly to the uprights, a spot of glue is applied, and the legs fixed permanently to the uprights. When the glue sets, it may be necessary to level the joints with a finely-set smoothing plane, after which the feet can be glasspapered and the shape smoothed up. Actually, after testing the feet for fit, the shape should be cleaned up with a spokeshave, rasp and glasspaper prior to affixing the feet to the uprights.

The side of the uprights require to be bored for, say, two dowel stumps in the ends of the bottom cross-rail. The latter is 18 ins. distant from the top cross-rail, you will note. This means, of course, that the panel and four dowel rails will be 19 ins. long, the holes being $\frac{1}{2}$ in. deep, including the mortises for the panel. The "handle" dowel rails are about 22 ins. long, since these have to project for the handle.

To assemble the work, cramp the bottom cross-rail between the leg uprights. Insert the panel and dowels, applying glue to the ends of same, then attach the top rail, using glue. It is being assumed that the panel and dowel rails are glasspapered; in any case, these parts could be glasspapered after being fixed together.

The Handle

The handle is prepared from a piece of wood 10 ins. long by $\frac{3}{4}$ in. square. Holes for the two projecting dowel rails are bored about $\frac{3}{8}$ in. deep, after which the wood is rounded neatly and then glued over the dowel projections.

This completes the construction, and before applying the finish, the feet should be tested on a flat floor for trueness so that the screen will not "rock" unsteadily. If one part of a foot is higher than the other, the trouble can be remedied with a plane, removing shavings, not from the one foot, but from both, at the toes which

keep the other two toes "raised" from the ground level.

Suitable Finish

As to the finish, a coat of walnut stain and two applications of thin walnut polish would suffice. If desired, these two coats may be mopped on. When dry, the final coat could be rubbed down with "flour" glasspaper and a third final coat of polish applied, again using a soft mop. The mop will be found more convenient to use than a polishing pad, particularly at the dowel uprights.

In respect to the handle, this could be ebony finished, i.e., stained black and coated with black polish. Some lamp black added to a little of the walnut polish will make it into an ebony polish.

If you do not like the idea of a wooden type handle, and possess a small iron door handle, this metal

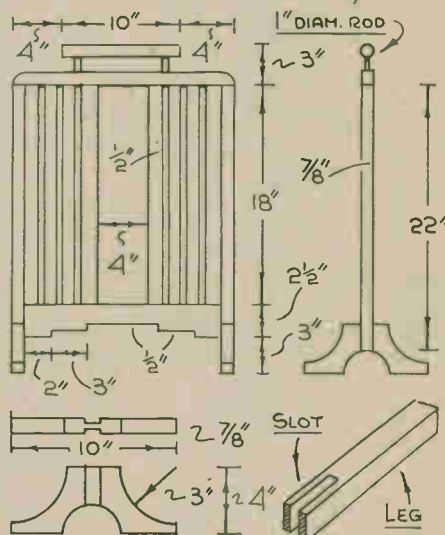


Fig. 1—Front view and details of parts

could be screwed upon the top rail, keeping it in the centre. Rather neat modern plastic handles are available, one of which could be bought, and attached to the screen. Another plan is to cut the top rail from 2 $\frac{1}{2}$ in. wide stuff and cut a finger grip aperture in it, with a suitable top shape.

So far, we have not stated which kind of wood you ought to use. As you are using birch dowelling, the remainder of the screen frame, including the feet, should be cut from birch or beech. Deal or spruce could be used, including whitewood.

The chief trouble nowadays, of course, is that wood in any one variety is scarce. You may have to use any kind and colour it with stain.

There's a novel trump indicator fitted to this SIMPLE CARD CASE

THIS pleasing little case will hold two packs of playing cards easily, a handy useful article for those who enjoy such games. It keeps the cards safe, and in order, and not tossed about anyhow in a drawer. A novelty note is the trumps indicator, fitted to the lid, important to whist players.

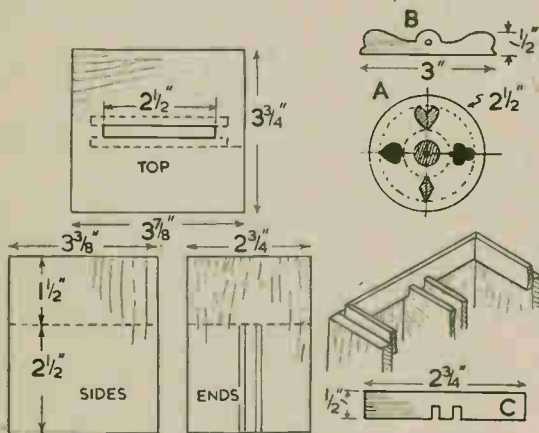
Fretwood is used to make the box, $\frac{3}{16}$ in. thick, with $\frac{1}{8}$ in. wood for the interior divisions and where stated. Two panels will be required, one 7 ins. by 14 ins. of the $\frac{3}{16}$ in. wood, and one 4 ins. by 9 ins. of the $\frac{1}{8}$ in. wood.

Fig. 1 shows the parts of the box to be cut in the $\frac{3}{16}$ in. wood, sides, ends and top respectively. Cut these to the dimensions given, and on the inside of the end pieces cut out to the dotted line grooves, where shown, for the divisions to slide in. These are $\frac{1}{16}$ in. deep and $\frac{1}{8}$ in. wide, and are spaced $\frac{1}{4}$ in. apart.

Wheel Aperture

In the top saw out a slot, $\frac{1}{4}$ in. wide, for the trump indicator wheel to rotate in. The bottom of the box is a piece of $\frac{3}{16}$ in. wood the same size as the top, but of course, needs no slot in it.

The top has its edges neatly rounded off; the bottom has its edges



quarter rounded. Fix the four sides and ends together with glue and a few fine fretwood nails, then with a gauge mark a line all round $1\frac{1}{2}$ ins. from the top edges. This done, glue and nail the top and bottom parts on and leave for the glue to set hard.

The box should now be carefully sawn across on the gauged lines to divide it into two parts, box and lid. Give both a thorough rubbing over with medium and then fine glasspaper to make smooth all over, especially the sawn edges.

In the latter case the glasspaper should be laid face uppermost on a flat piece of wood and the box and lid held firmly in the hands and rubbed on the glasspaper. This method ensures the edges of both being kept flat and not rounded off.

Box Rim

For the rim of the box cut two strips of the $\frac{1}{8}$ in. fretwood to C, in Fig. 2, and at the middle cut out $\frac{1}{8}$ in. by $\frac{1}{4}$ in. notches, $\frac{1}{8}$ in. apart, to fit over the divisions. Cut the side rim pieces the inside length of the box, and mitre the ends of all four so that they meet neatly at the corners.

From the $\frac{1}{8}$ in. wood cut the two divisions and see they are a smooth sliding fit in their grooves. Now glue them in, glue in the end rim pieces and then the side rim pieces.

Fig. 3 shows the parts of the trump indicator. Cut both from the $\frac{3}{16}$ in. wood. The disc, A, should have circles, shown by dotted lines, struck on as guides to mark out the "pips"—the outer one 2 ins. and the inner 1 in.

In the centre a small hole should be bored, just large enough to admit, as a tight fit, a steel pin for the axle, on which it rotates. The pin can be a 1 in. wire nail, with its head filed off.

The "pips" can be painted on, or cut out of red and black paper and glued on, if preferred. Many readers will doubtless have their own methods of doing this.

From some scrap of thin velvet, felt, or other suitable material, cut two $\frac{1}{8}$ in. discs, and glue these, one to either side of the disc. These are for friction brakes to keep the disc from slipping, when once turned. The disc rotates inside bearing strips, to the pattern shown at B.

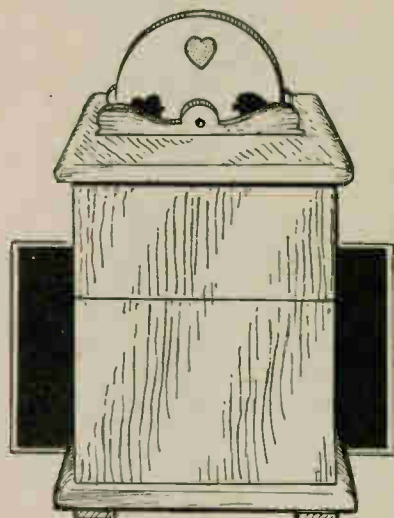
Cut them from scraps of the $\frac{3}{16}$ in. fretwood to the shape shown and bore the axle holes to suit the pin. These are glued to the lid, either

side of the slot as shown by the dotted guide lines in the diagram, Fig. 1.

Strengthening Screws

There is some strain on these when the lid is drawn off, especially if the fit is rather tight, so additional fastening in the form of two screws to each is recommended.

The screws should be driven in from inside, so that the heads do not show. Quite small screws should be employed,



say $\frac{1}{8}$ in. thin brass ones. The disc, or wheel, can now be pushed down in place, and the pin tapped through to hold there. It may be a trifle stiff in movement at first, but will ease itself in with use.

Feet and Finish

Finish the box with four feet. These are $\frac{1}{8}$ in. squares of any scrap fretwood left over, and are glued just $\frac{1}{8}$ in. from the outer edges, to the bottom.

Give the rims a rubbing with fine glasspaper to ensure a smooth fit for the lid, and then apply a coat of clear varnish over all. The disc will, of course, be removed for varnishing and replaced when the varnish is quite hard.

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THE following is a successful method for making wireless earth connections through concrete or crazy paving. Obtain a glass jar about 3 ins. diameter and knock the bottom out. Dig a hole through the concrete or paving until you reach the soil underneath, and stand the jar in the hole. The earth tube can now be driven through into the earth. This method avoids untidy jagged holes, and the jar collects moisture and rain, thus making an effective earth for your wireless.

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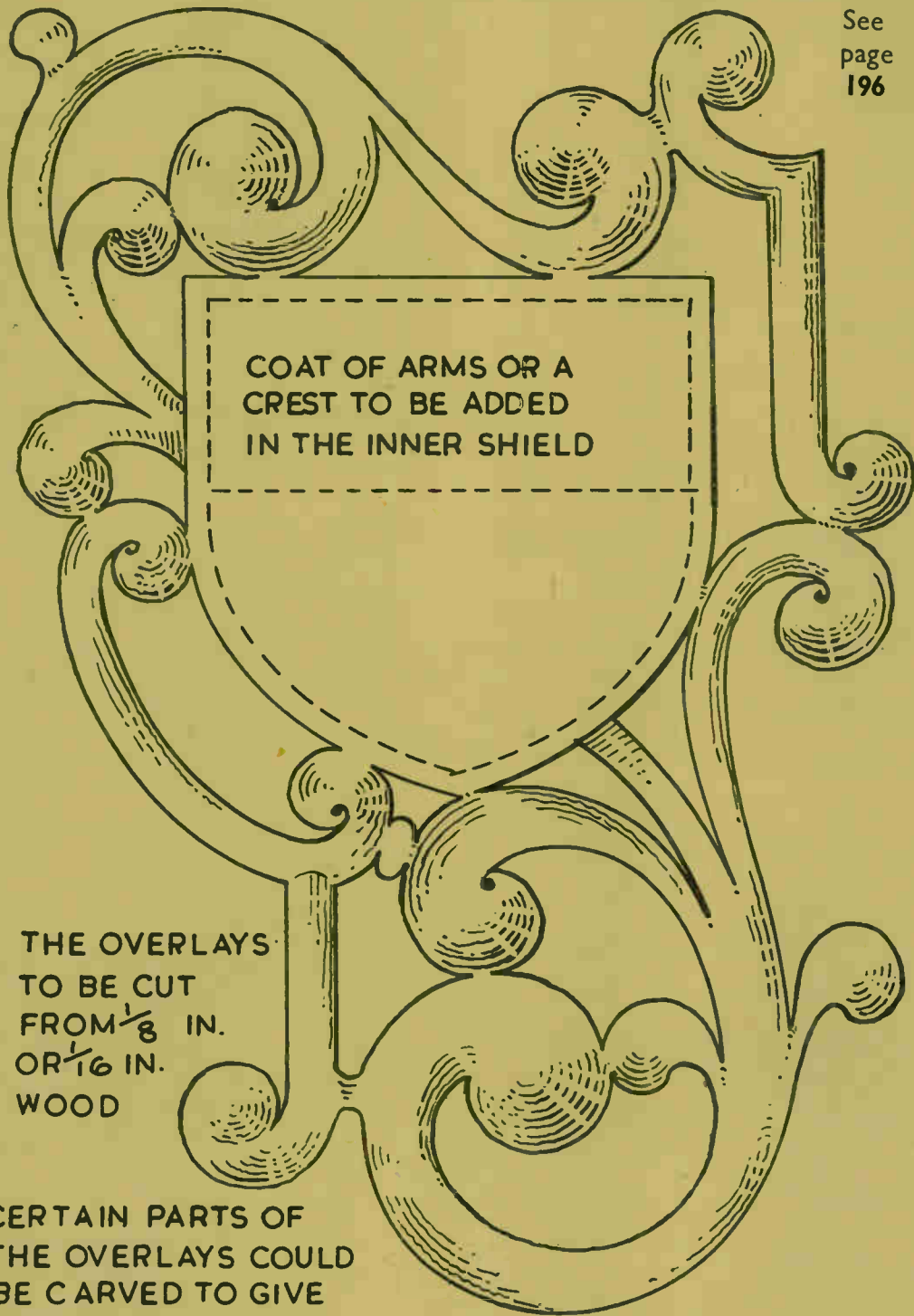
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Shield decorative pattern for A HAT RACK

See
page
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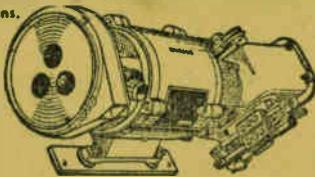
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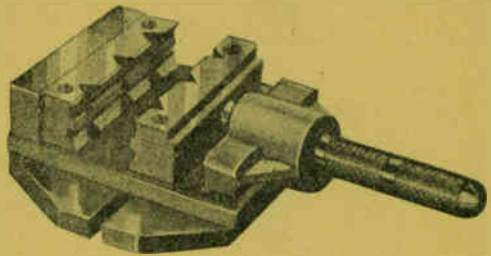


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Hobbies

WEEKLY

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August 25th 1948

Price Threepeace

Vol. 106 No. 2756

A Simple home-made GARDEN ROLLER

THIS is a small roller, but serviceable enough for the lawns of most gardens. Its smallness is mainly due to the rollers used. It occurred to us that an old mangle roller, which is usually made from a tough wood, such as maple, could be used to make twin rollers when cut to length.

The length of mangle rollers (belonging to the large iron-frame type) is usually 23ins., with a diameter of 5ins. Maple is a hard durable timber, and fairly heavy in weight. These rollers, however, wear away at the centre, so they have to be either re-turned or renewed. It might be possible to pick up an old useless roller at a mangle repair shop. It is also possible to construct hollow rollers from $\frac{3}{4}$ in. wood.

Hollow rollers may, indeed, be used, because the chassis is constructed on the lines of a small barrow. This barrow, to give weight to the hollow rollers, or even the solid rollers, could be filled with sand, or the sand put in a bag which the barrow can carry. Thus, either way, weight is given to the roller.

The barrow-like chassis, of course, is provided so it may be utilized for carrying a few gardening tools, such as trowels, forks, shears, etc. Thus, you have a useful barrow-roller combination ideal for the small garden, and one which will not cost much outlay.

The Rollers

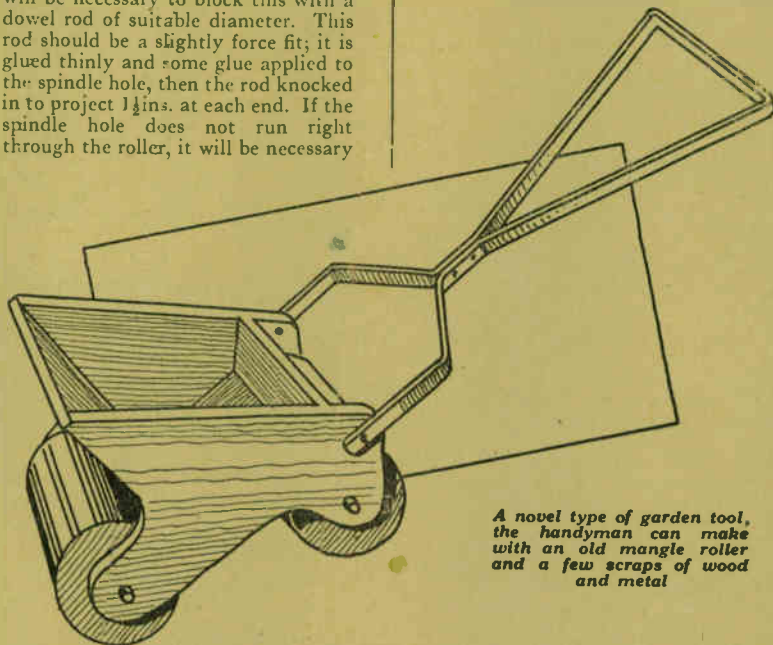
The rollers need to be prepared first. Assuming you have an old mangle roller of the size stated, with

its metal spindle removed, measure off two 12in. lengths and carefully cut off with a panel saw. You will need to get someone to steady the roller for you whilst sawing, as it is difficult to cut cylindrical objects unaided. If you have a sawing stool or a box, a couple of bars of wood could be nailed upon it, so the roller is held steady between the bars.

Should a spindle hole run right through the centre of the roller, it will be necessary to block this with a dowel rod of suitable diameter. This rod should be a slightly force fit; it is glued thinly and some glue applied to the spindle hole, then the rod knocked in to project $\frac{1}{4}$ ins. at each end. If the spindle hole does not run right through the roller, it will be necessary

to bore holes at the roller ends for stumps of dowel rod which will act as spindle pins when driven in.

If you have to make hollow rollers, this can be done by cutting out 4in. or 5in. diameter discs having twelve planes, similar as a brass threepenny bit. Laths of wood, about $\frac{1}{2}$ in. thick, are nailed across the planes, which means that the joining edges are planed to a slight angle to



A novel type of garden tool, the handyman can make with an old mangle roller and a few scraps of wood and metal

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

make a coopered joint. Glue must be used, as well as nails.

When the glue sets, the top of each joint can be truly rounded over with a plane to make a neat hollow roller, the ends of which are centred and fitted with a length of $\frac{1}{4}$ in. dowelling which, inserted through the holes in the discs, are glued to project $\frac{1}{4}$ ins. at each end. The roller can be covered with a piece of lino or felt, tacked on. Two such rollers, of course, will be required, 12 ins. long.

If you wish to give them weight, a 1 in. hole could be bored at one end, and dry sand put into the inside via the hole thus made, which later is plugged with a suitable cork. Each roller must be packed tightly with the loose sand.

Making the Barrow Body

Now prepare the barrow body parts. You need two sides cut to the shape shown (in the 2 in. squares) from $\frac{1}{4}$ in. wood. Be sure to indicate the position of the front, back and bottom pieces, as indicated by the dotted lines.

The front end piece measures 12 ins. long by about 11 ins. wide by $\frac{1}{4}$ in. thick. Shelving 10 $\frac{1}{2}$ ins. wide could be used, but note that the length is 12 ins. Having attached the front end piece to one of the sides, the end and bottom pieces may be fitted. The size of these can be found by measurement. Note that the edges require to be planed at slight angles to make a neat joint. By the way, have the bottom and its ends affixed with screws—not nails.

The prepared rollers are fitted between the sides. So, by using screws, one side can be easily removed so the rollers can be fitted,

then be screwed on again. As you may be using $\frac{1}{4}$ in. dowel rod for roller pins, the holes in the sides for these pins will be $\frac{1}{4}$ in. in diameter.

Having assembled the rollers between the chassis, try them for movement. Should they squeak, apply wet-wax or a floor polish to the

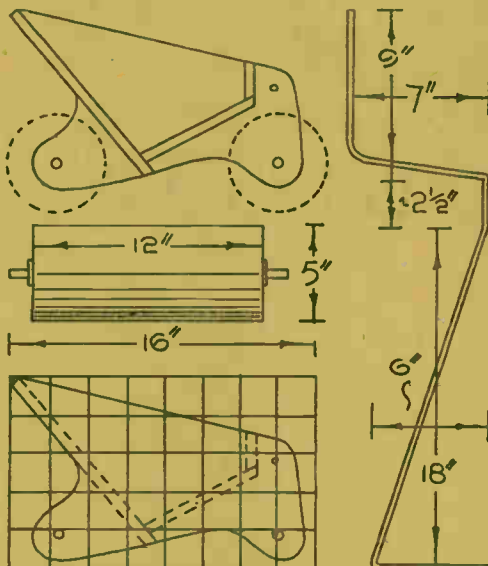


Fig. 1—Side view with roller side shape in 2 in. squares, and half shape of shafting

bearings.

A simple, yet strong shaft may be made from a length of mild steel bar or iron bar, about 1 in. wide by $\frac{1}{4}$ in. thick. One half of the shape, to which the bar is bent, is shown. The complete shafting can be bent out of a single length of the bar, two rivets being used to hold the shape

together near the shoulder of the forks.

It will be necessary to drill $\frac{1}{4}$ in. holes at the fork ends for pivoting bolts. These bolts can be carriage bolts $1\frac{1}{2}$ ins. long by $\frac{1}{4}$ in. thick. The bolts are inserted into their lugs at the rear end of the chassis in such a way that, when the fork of the shafting is brought into position, the bolt ends can be inserted through the holes in the fork ends.

Nuts are screwed on the bolts with a spanner; as the nuts tighten, the heads of the bolts sink into the wood. The nuts are slackened a trifle and then "locked" by tightening them against each other.

Completing the Roller

The roller is completed by applying two separate coats of enamel paint. The barrow body, at the outside, could be bright green; the inside could be bright red. The rollers could be black, including the shafting. Should you have difficulty in obtaining metal bar for the shafting, one could be easily made from wood, or better still, you could use the fork and handle of an old grass-mower, if available. In this event, it may be necessary to alter the shape of the fork by bending.

In the case of jobs like the one described, it is always a wise plan to see if you can get the necessary things together prior to proceeding with the construction. The main purpose of our article is to give you ideas which you can follow, and in many cases most readers, looking around, find other items which can be utilized according to their own ideas. The handyman can generally make a good job by compromising.

A Home-made Gluepot from Tins

MOST handymen prefer to use hot glue rather than cold glue, i.e., the liquid glues in tubes and tins. While small glue kettles can be bought, a simple "boiler-and-pot" arrangement can be made up from an empty distemper tin and a small paint can, as shown herewith.

It is not every paint can, of course, that is provided with a wire handle. However, such cans do exist, and if you have an old one lying about the tool shed or bike shed, it could be cleaned up and used as a glue pot. This also applies to the distemper tin. Cleaned out, it makes a good boiler for the pot.

It may have a wire handle like the paint can, but if not, a special handle can be fitted, as shown. This handle is a narrow strip of metal, bent to shape and affixed with rivets, or alternatively, it could be soldered on.

A wire hook of the shape indicated is attached to the top, so the glue pot may be suspended in the water clear from the bottom of the boiler. This arrangement, by the way, means that

a fairly large distemper tin must be used. If a smaller size (almost suiting the diameter of the pot) is used, there will be some difficulty in

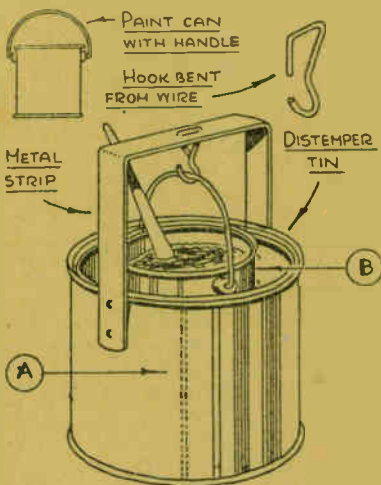
removing the pot from the boiler.

The boiler (a) being made of tin, ensures that the water heats quickly. The glue pot (b) which is suspended slightly above the bottom of the boiler, is not liable to get burned—that is to say, the glue will not be scorched—when the water, due to inattention, evaporates completely.

This state of affairs, however, should not be tolerated for long. On a gas-ring, the empty boiler will become red with heat, and the heat around the suspended pot of molten glue will be rather strong. The smell of burning tin, fortunately, is a sufficient warning.

This is liable to happen with the best of glue pots. So far as the home-made affair is concerned, the handle should be riveted on. Solder alone might melt.

When the glue has been heated, both boiler and pot can be taken to the work bench. The heat of the water will keep the glue in a workable state for a fairly long period.



Ear phones are used satisfactorily in this novel EXTENSION SPEAKER

NEW moving-coil loudspeakers, with matching transformer, cost money. So, assuming you want a small extension speaker, a simple, inexpensive type can be made, using an old pair of ear-phones as reproduction units. Both units, operating simultaneously, from a 2-valve set, give fair results, but much louder and better fidelity is obtained with a midge or 4in. moving-coil speaker, of course.

However, our idea is to save money, and possibly enable old 'phone units to be utilized that are lying in the radio scrap box. These units are not seen when fitted to the novel miniature cabinet illustrated, except at the back.

Earphone Reproduction

Speech, music, etc., comes through the case front quite loudly and plainly, because if sufficient output is applied to the units, it is not necessary to have them close to the ears in order to hear

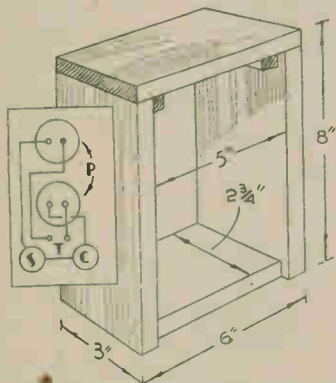
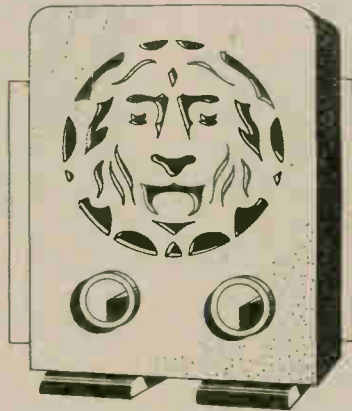


Fig. 1—Case frame and wiring diagram

properly. A crystal set output, of course, is quite useless for speaker reproduction.

If such an output is stepped-up by means of a 3-to-1 L. F. transformer and a pentode valve, with a H.T. and



See full size patterns on page 211

L.T. battery connected, the 'phone will reproduce programmes loudly enough to be heard quite a distance away. Details of 1-valve amplifiers have appeared frequently in past issues of *Hobbies Weekly* and we will not go into here.

The total volume from a simple triode-pentode valve set is sufficient to operate a moving-coil speaker and a pair of ear-phones, with the latter as loud as the former.

Making the Case

The 'Phones require to be housed in a simple case, and details are given in the constructional view at Fig. 1. Use a softwood, such as deal, 1/4in. thick. The ends of the parts should be trimmed square and to the exact length shown.

Note that the bottom piece is 1/4in. less in the width of the top and sides to allow for the thickness of the back piece, this also applying to the length of the strengthening corner blocks.

These blocks, 1/4in. square, are added to provide a support for the back piece, at the top. A screw is driven into each, with three screws along the bottom.

Because of the simple, yet intricate, fretwork in the front panel, a full size pattern is provided on page 211. This, preferably, should be cut from 1/4in. plywood, but fretwood will serve.

The lion's head is something new in the way of a fretted aperture for a loud-speaker. It makes an interesting piece of cutting, and as the pattern is actual size, you

get a good idea of the size of the cabinet. It should be mentioned that the 1/4in. holes are for the spindles of a rotary switch and a volume control. If desired, a combined switch and control may be obtained, in which case a single hole only will be required, keeping this central.

When the front panel has been prepared, it is glued and affixed with panel pins to the case, then the corner blocks added. When the glue sets, the top corners of the case are rounded over to correspond with the front panel.

The back piece, (Fig. 2), is cut from 1/4in. wood to the dimensions indicated. The 'phone units must be a force fit in their holes, so be sure to measure the casing to get the correct diameter necessary. This is about 2ins.

Terminals may not be at the back of the units, as indicated. In this case, the wires are attached to interior terminals in the units and, by cutting a small slot in the apertures, the wire can be brought into the interior side of the back for connecting to the input terminals, switch and volume control. The series of four holes, shown, are not required in this case.

Fitting Up

When the 'phone units have been fitted to the back, including two input terminals, the units are wired together as shown in the inset at Fig. 1. The switch, a rotary type, and the volume control components are affixed to the case front, then the necessary wires

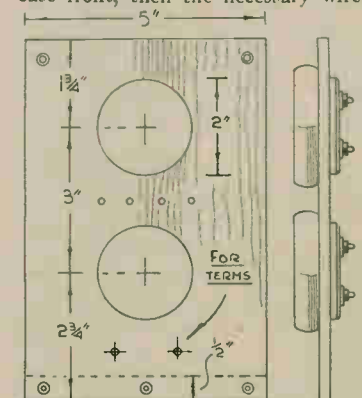


Fig. 2—Back details and side view

connected to them. Use electric light flex wire, and allow sufficient length for opening the case back.

When all is complete, test out the speaker by connecting leads from the radio receiver to the input terminals on the extension speaker cabinet. Switch on, then turn the volume control knob until the units are operating at sufficient volume.

The cabinet may be fitted with two wooden feet, as in the illustration, being finally smoothly glasspapered and finished off with ebony polish.

SUPER TOY PLANS

- 10044 Engine and Tender
- 20044 Mechanical Shovel
- 30044 Tipping Lorry
- 40044 Paddle Steamer
- 60044 Toy Fortress



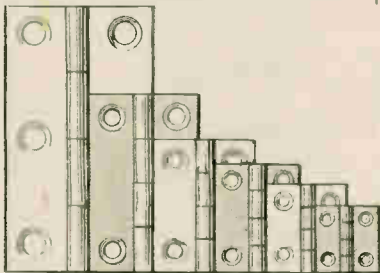
9d each from **HOBBIES** branches and principal stores or 1/- post free, from

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Hoddesdon, Herts

The handyman should know the correct method of FITTING HINGES

IF hinges have been added to any work which you have done, they form quite unexpectedly perhaps—the means of judging the standard of your work. The addition of metal work of this type is often completed hurriedly, and in consequence not only have you an unsightly finish, but an unsatisfactory fitting.

Anyone who has tried adding a door, whether for a tiny cabinet or a room, will know that the work is not the easiest to undertake. Like everything else, however, there is a proper way, and the thorough craftsman will not be satisfied until he has made a satisfactory job, even of



A range of useful common butt hinges

such an apparently minor detail as fitting hinges.

If a full scale door is badly hung, the consequence is it gapes to allow draught and wind. If in a small cabinet, or even a lid to a box, then the result will be ill-fitting and unsightly. The first time you attempt the job of adding hinges will probably be a trying event, but if you follow a definite method and use the correct way, then much of the irritating trouble will be avoided.

Obviously two hinges must be in line with each other, otherwise one end of the door or lid is pulling at a different angle from the other.

Essential Recessing

Then, of course, generally speaking, there are two types—one which is just added to the outside of the wood, and the other which is let into a recess. The thicker hinge should always be recessed into a groove to provide a neat finish. It is this recessing which sometimes throws out the whole work, and brings about only a poor result.

Generally speaking, our readers will be using the smaller type of hinge for boxes, tiny doors for models, or small wall cabinets. The only difference in their use so far as fixing is concerned, is that they are miniatures of the larger one. There should be as much preparation before fixing them as if you are hanging a full size door: although in the case of the small ones, of course, the work is more simple and

everything is done on a more miniature scale.

A full size door hinge may have to be let into the wood as much as $\frac{1}{4}$ in. In the small models, the hinge is let in merely the thickness of a postcard.

The position of the hinge on the actual door is one which will effect the whole work. If it is put too close to the top and bottom, then the gap between is too much. On a full door, three hinges are fixed, one centrally, the others about 9 ins. from the top and bottom. In small work, two hinges would be sufficient, being fixed nearer the ends of the small door or lid.

Correct Position

The principal point to remember is that the pin which passes through the knuckle of the hinge must be in line not only with the work itself, but also with any second hinge being placed farther along. Everything depends upon the position, and an inaccuracy of this point will upset the whole work. You may get one hinge projecting beyond the edge of the door and the other slightly inwards. This will alter the alignment and so the door will either bind or have a gap.

There are two ways of fitting a large hinge, either of which is satisfactory. One way is to put the whole of the hinge into a recess in one side. The other is to have a recess in each half of the work—that is, in the door and the jamb. The latter is much the more usual method although, of course, it means cutting out two recesses.

In all cases, particularly in large work, be sure to have a hinge strong enough to do its job. Amateurs usually fall into the habit of getting a hinge too fragile and fixing screws too short. The professional carpenter is always on the "heavy" side, in order to make sure the job holds good after completion.

The Whole Process

If we describe the fixing of a hinge as an example on a door and its jamb, the same work will apply to whatever other job is in hand. Get the actual hinges to be used, decide on their position on the edge of the door, and then mark round it with a pencil. This is done by laying one plate of the hinge on the edge of the door itself, making sure that the pin through the knuckle is in line with the edge of the door itself.

Having thus got the outline, you can cut down the recess to the required thickness of the hinge plate. Needless to say, the pencil for marking should have a sharp point, or you can use a marking awl or penknife.

The great point is to ensure accuracy so that the hinge plate may bed into the recess portion satisfactorily.

Marking and Cutting

Another method is to use a marking gauge, standing the hinge flat on the block and keeping the marking pin in line with the pin in the hinge itself. Then you can mark a line in the ordinary way on the edge of the door, possibly carrying the point of the gauge pin to the depth needed for the thickness of the hinge plate.

A small tenon saw will cut down the ends of the recessed piece and a chisel can be used to cut the work out. Be sure to get the recess flat with your chisel, stopping short for the width of the hinge plate with a square end. Of course, you should have your chisel quite sharp, in order to get a clean smooth surface.

If you find it a little difficult to control your saw for a small hinge, then you can mark the ends of the recesses with a chisel of a suitable width. Hold the chisel upright on the marked line, and give a tap with the mallet so that it goes into the wood just the depth required. You can then chisel out the recess as before, finishing with a sliding circular movement to ensure the surface being flat.

Both parts are dealt with in the same way to take the recess, then you should hold the door to its frame and get somebody to test the hinge in place as satisfactory. If it does



Two types of small photo support hinges



An embossed fancy fretwork hinge for box lids

happen that you have cut the recess too deep, then a good remedy is to put a piece of glasspaper under the hinge to fill. This will bind in when you screw the whole thing in place. If the recess has been cut too deeply and the hinge is put too far in, then it will cause the door to bind.

Do see also that the screw heads are quite flush when they are driven home, because that will prevent the door closing if they are outstanding. In fixing the hinge, you can put them both on the jamb first, and then add the door.

Most large hinges have three holes in each plate, but it is not advisable to put all three in one hinge straight away. A better plan is to fix the centre screw in place in each plate in order to test out that the door swings

(Continued foot of page 209)

THE ARROWS INDICATE
THE DIRECTION OF
GRAIN OF WOOD.



DESIGN

No.
2756
25-8-48

SUPPLEMENT TO HOBBIES No. 2756.

TWO POST-CARD FRAMES

PIECES OF WOOD REQUIRED
FOR THIS DESIGN

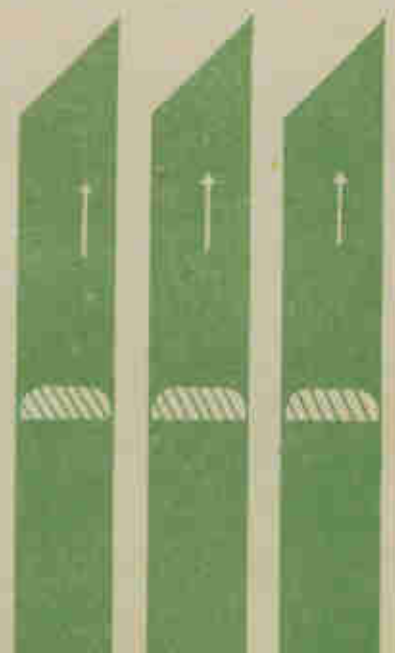
TWO H3 ONE G3

The price is shown in Hobbies Weekly, August 25th, 1948, and is subject to revision. See the current edition of Hobbies Handbook, or write for price to Hobbies Limited, Dereham, Norfolk.

STRUT FOR UPRIGHT FRAME.
CUT ONE 2/16th.



FRAME. CUT
ONE 2/16th. DOTTED
LINES SHOW BEHAVE
STRIPS.



NOTE:—THE PIECE OF WOOD 2/16th BY 3/16th.

TWO POSTCARD-SIZE PICTURE FRAMES

THESE two simple pieces of work, patterns for which are shown on the other side, are easily cut and completed with the fretsaw and a few tools. There is only the main back to each frame with the addition of a plain strip overlay to hold the glass in place. Struts are provided to make each frame stand, although of course, if these are omitted, then they will serve as hanging frames.

Wood is provided for both of them, and two pieces of postcard-size glass are also offered, with hinges for the strut supports. All parts are cut from 3/16in. wood. The patterns are pasted down to the appropriate boards, care being taken to see there are no creases in the paper.

The outside edge of the frame can be cut first, and then the interior work completed. Leave the rectangle of the glass opening until last, to provide greater strength to the wood. The piece of wood coming from the rectangular opening should be used as backing behind the glass and picture. In consequence, we must make a drill hole at one corner on the actual cutting line. Thus, when you have cut round the line indicated, the piece which comes out can be used later for backing.

Holding Strips

When the frets and frame have been cut, clean up all surfaces with glasspaper, taking away the paper pattern with fairly coarse glasspaper, and finish with quite a smooth grade.

Each frame has a surround of four strips. Each strip has its end cut at an angle of 45 degrees, so when glued

After the strips are cut, the two long top edges of each should be nicely rounded with glasspaper, the shaded section on the pattern of each showing the curve required. Get the same curve on all four strips so it is the same the whole way round. Glue the strips in place around the opening in the frame. This will provide an overlap behind which the glass is placed.

Fitting the Picture

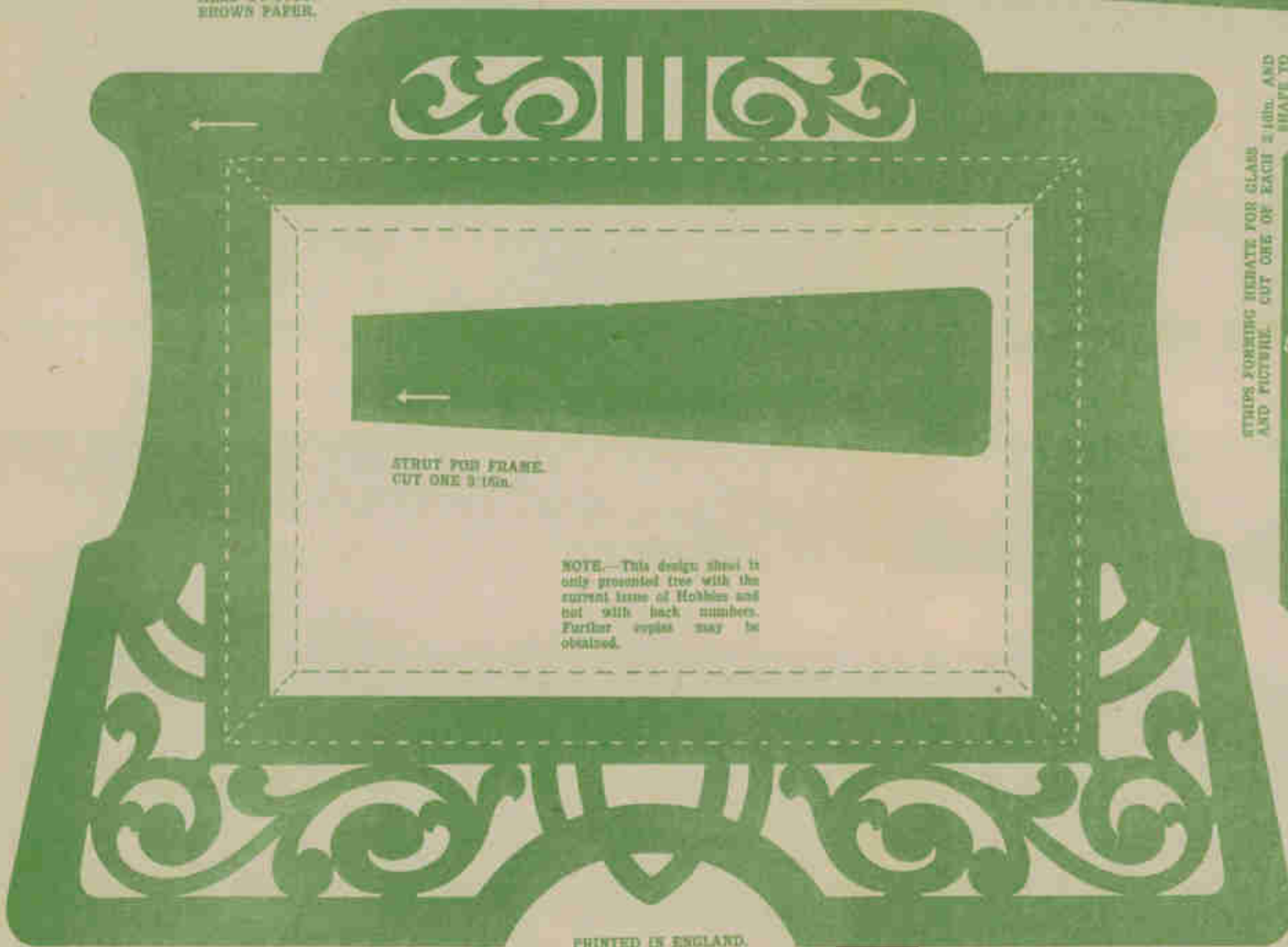
The actual picture is then put in and finally the piece of backing board which was cut out earlier. The thickness of the glass will make this backing board project slightly, and it is advisable to chamfer the edges down with a plane or rasp and file. The whole thing can then be held in position by pasting brown paper over the back to grip the main frame.

The support struts are hinged at the top, the hinge being fitted inside the strut and the outside of the frame. The position is obtained by laying the bottom of the strut in line with the edge of the bottom of the frame and marking the top on the back with pencil. Thus when the hinge is fitted on, the strut opens slightly to allow the frame to slope backwards a little.

To prevent the strut opening right out, a piece of cord can be glued to the back of the frame and to the inside of the strut. A tiny pin staple can fix it to the back of the frame, but it can be put through the hole near the centre of the bottom of the strut itself and then knotted.

If you are proposing to stain and polish the work, this should be done

CHAMFERED ON ITS FOUR EDGES AND REPLACED BEHIND GLASS AND PICTURE AND HELD BY STOUT BROWN PAPER.



STRUT FOR FRAME.
CUT ONE 3/16 IN.

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

PRINTED IN ENGLAND.

STRIPS FORMING BEHIND FOR GLASS AND PICTURE. CUT ONE OF EACH 1/16 IN. AND SHAPE TO SECTION.



FRAME CUT ONE 1/16 IN. DOTTED LINES SHOW BEHIND STRIPS.

Be sure to get these corner angles correct, so that the joint is seen as little as possible.

and also possibly before the strut is finally added.

Any housewife will be delighted if you give her A POLISHING MOP

THIS useful appliance will enable anyone to polish their floors without back-aching labour. Its unconventional shape enables it to reach right in the corners and angles and is more satisfactory than the usual oblong. It is quite cheap to make, just a scrap or two of any soft material for the polishing part, and an odd bit or so of wood only being required.

Any wood will serve for the block, $\frac{3}{8}$ in. to $\frac{1}{2}$ in. thick. Cut a piece to the triangular shape, given in A for the base of the block. Across this, underneath, saw and chisel out 5 grooves, $\frac{1}{2}$ in. wide and half the thickness of the wood deep.

These are spaced just $\frac{1}{4}$ in. from the ends, back and front, and marked off at equal distances apart. On the top a strip of wood, $\frac{1}{2}$ in. wide, is screwed along each side, as in the diagram. The three sharp corners of the block are then rounded off.

The Handle

The handle is a 1 in. square strip of wood, about 4 ft. long, or a little more if a tall person is to use the mop. The top end of this is shaped up a bit to make a comfortable grip for the hands.

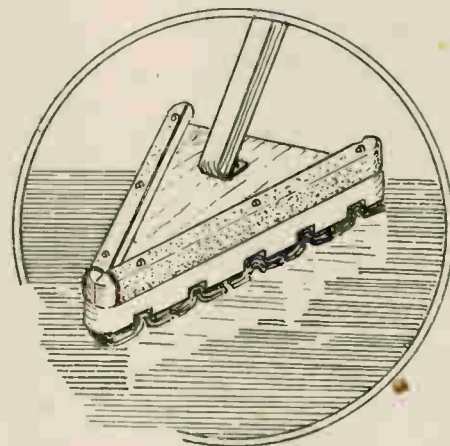
For the same reason it is also nicely glasspapered.

The lower end is fitted to the block with a single lin. iron hinge, as at B. A strong hinge is really desirable here to take the strain due to the work of polishing. The position of this hinge, while not critical, should be approximately where indicated by the dotted square in plan view, A.

Now remove the handle temporarily, while the polishing material is inserted in the block. For this any fairly soft fabric available can be made use of. A few strips of old blanket for instance, would do nicely. Old pieces of cloth also, almost anything soft in fact, could be utilised.

Cut the stuff in strips about 4 ins. wide and tack them, doubled along the centre, in the grooves. Use three or more thicknesses together, press in the grooves, and drive the tacks in with a punch and hammer, as shown in detail, C.

Do not use an unnecessary number of tacks—two to four to each groove should be enough, according to the



length of the groove.

Now unscrew the side strips, above the block, cover each with a double thickness of the blanket strip, and rescrew again, as shown in B.

This will protect the skirting of the walls against bruises, as the mop rubs against them when in use. While not essential, it is certainly an advantage to give the completed article a coat of stain and varnish before using.

The Polish

The floor polish can be applied direct to the linoleum, or flooring boards, then the mop used to impart a polish, or, the polishing medium rubbed on the blanket stuff itself.

The latter obviates the rather unpleasant job of going on the hands and knees first, and though it may appear to absorb a good bit of the contents of the tin of polish, the mop can be used several times in succession before another application of the polish may be necessary.

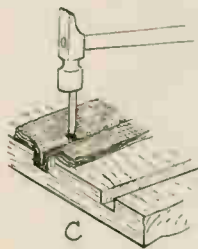
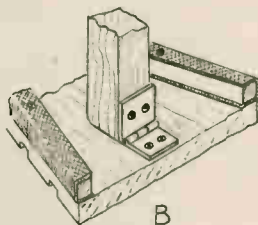
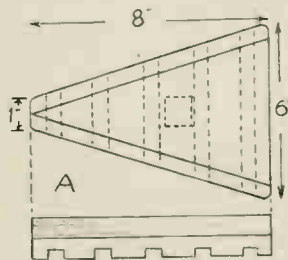


Fig. 1—Shape and section of mop Fig. 2—The handle fixing Fig. 3—Adding the pad

Hinges—(Continued from page 208)

and hangs correctly. Make a hole with a bradawl for your screw in order to get the centre, and be sure to drive the screw home straight.

As mentioned, suitable flat-headed screws must be used, and they should be of the correct grade to fill the hole in the hinge plate. In driving the screws home, it is much more convenient to have a ratchet screwdriver. The fixing is often in an awkward position, and if you have to release the hand to turn the screwdriver each time, then the point is apt frequently to fall out of the slot and time is wasted. The ratchet screwdriver allows you to turn the wrist without releasing hold of the handle.

If the door is full size, then you will need somebody to hold it when you come to put the second portion of the

hinge in its recess. To hold the door the right height it is a good plan to have a wedge underneath which brings the hinge recesses in line with each other.

See the door is held true in place when the first screw of that portion of the hinge is fitted. Put one screw in each hinge first, and then test the door for accuracy. If satisfactory, bore the remaining holes and add the screws as before. Drive them right home and then test out the door again to see a satisfactory fitting has been made.

Special Types

Apart from the large hinges of carpentry, there are a number used by the fretworker and model maker, and some of them are illustrated

herewith. In these cases, of course, the hinges are specialised jobs, and the work of fitting them is not so involved. In many cases, indeed, the screws are held with a simple round-head small screw on the surface of the wood as in the case of the ornamental ones on boxes.

In photo hinges, too, a nail is added into the edge of the wood to form a pivot rather than an actual hinge. These, however, are simple fittings provided one undertakes the same care as if undertaking a larger and more elaborate job.

Always remember that judges in a competition pay particular attention to these small fittings and the addition of the metal parts, screws, etc., because they show the difference between good and bad workmanship.

How a photographic expert progressed to a good system of FILING FOR PHOTOS

As an amateur of fifty years experience and one who has always considered the care of the negatives to be an important part of the hobby, the writer can claim having made a trial of almost every filing and storing system, from the old time slotted boxes fitted for 100 by $\frac{1}{4}$ plates or 50 by $\frac{1}{4}$ plates each to drop into its own numbered section and its title then to be written on the printed sheet which was pasted on the inside of the box lid, through to the present day types of bags or envelopes fitted into covers or wallets for holding film negatives.

For some time the method which many professionals employed was adopted. That was giving each negative a number and storing it in the original box in which the manufacturers packed it. When this box became filled with a dozen plates it received a paste-on label bearing the numbers of its contents—as 420 to 431 and so on.

Protection from Dust

Obviously any system on which a little thought has been given has its own peculiar advantages, even if it only means protection from damp, dust and scratches. But, as the collection grew in numbers, there seemed to be a considerable waste of time in finding any particular negative. So another scheme was planned which gave a good deal of satisfaction for a number of years.

Eventually plate camera work became a job of the past. In fact, 95 per cent. of the negatives now were on roll film, $3\frac{1}{2}$ ins. by $2\frac{1}{4}$ ins., with a few on film pack. Most amateurs will agree that if one wants to save time and temper these small negatives have to be put away as quickly as possible after they are made and dried, and an efficient system is most essential.

Card Index Drawer

Something always comes along if you think long and hard enough about it. One day while passing by a second-hand office furnishers shop the writer saw a single card-index drawer which caused a brain wave. The price for the drawer was $2\frac{1}{6}$ or thereabout; anyway it changed hands very quickly.

Before reaching home it had received 250 envelopes made of a good manilla paper and with flaps without gun, the size of these being 6 ins. by $3\frac{1}{2}$ ins. and the flaps $1\frac{1}{2}$ ins. deep with rounded ends. Included with the envelopes were 25 fairly stiff cards 6 ins. by $4\frac{1}{2}$ ins.

Each of these cards was to be used as an index representing one year. The date of the year was written in

bold figures near the top edge of the card, on the left hand side was written a column of figures commencing at one. A corresponding supply of envelopes were numbered in the same way and with the date of the year boldly marked on the flaps.

Title and Card Number

When a negative was placed in the envelope, its title was written on the front and this title was also placed against the corresponding number on the index card.

If at any time a certain negative was required it was simple to recall the particular year in which it was made, refer to that card and see what number envelope it was stored in. All the negatives of that place or holiday were sure to be there and in a few moments the one wanted was found.

This scheme worked very well for some years. Then owing to a change in the application of the hobby it was necessary to make a further alteration. Negatives could no longer be stored or filed as views of The Highlands or of Blankmouth. They must be classified as Landscapes, Interiors, Seascapes, Portraits, etc.

The Index cards again were brought into service, and, of course, the films were placed in the envelopes. But, after trying it out for three years, it was found not nearly efficient enough for the purpose, as too much time was wasted searching through three or four dozen negatives of a particular class of subject.

When on a Journey

The final change came about rather suddenly, when touring the country in search of good health, with, needless to say, a camera as a constant companion.

As the negatives were made, so each one was carefully wrapped in paper and the full data and title

written on this wrapping. When any particular district was left the batch of negatives was placed in a box and posted to a friend for safe keeping until return.

Wanderings occupied about eighteen months. In that time the number of negatives increased by well over a thousand and when on again resettling, a new scheme had to be evolved. It is so good that all readers of Hobbies should put it into practice at once for their own collections. They can then pick out any particular negative, whatever subject, place, or year it was taken.

The writer looked around for another drawer or cabinet to take small films and eventually found a two-drawer combination, a quantity of envelopes 5 ins. by $3\frac{1}{2}$ ins. procured, and a good loose-leaf book, quarto size. The leaves were numbered one up.

Final Filing

Then, taking the first batch of negatives, each one was placed in a separate envelope and on the top edge of the envelope a number was registered. On the face of it all data, such as title, date, exposure time, make of film, developer, etc., were written. When this batch was completed each negative was recorded on the first page of the book but only the number and title of the film. Eventually every batch was done and the consecutive numbers in the book reached a total of over one thousand.

Probably you are thinking that this amount of work must have taken a long time and that it may not be worth while for your small collection. Well, it took just about three evenings to index and file the lot and there is no doubt that it is the most efficient system that can be suggested.

Easy to Find

For, if a negative, say, of The Ruins of Tintern Abbey, is required it can be found in a few seconds; first a reference to the loose leaf book tells me it is number 767, then it only means drawing that numbered envelope out of the cabinet to get what is wanted.

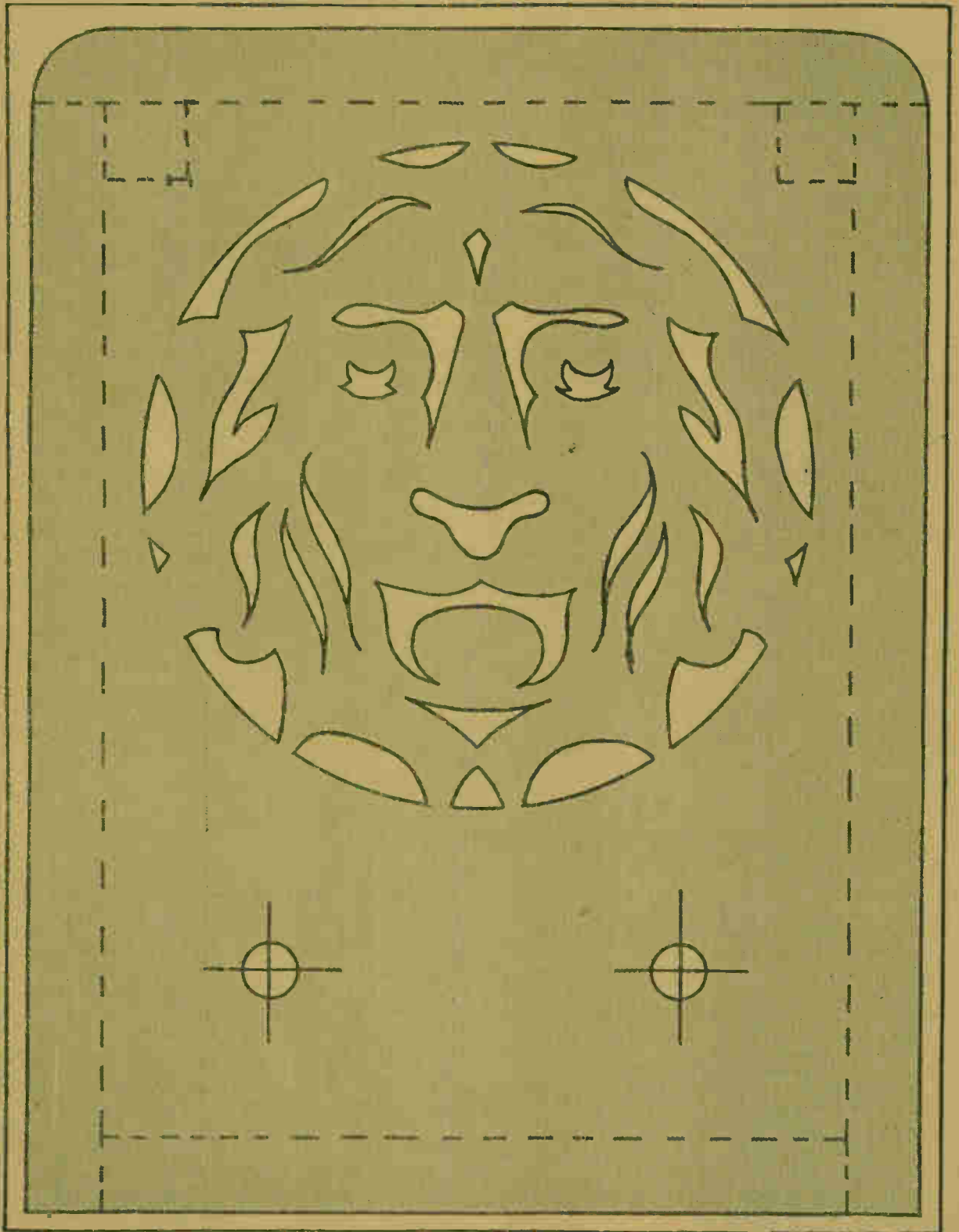
If a print is required, then more data such as paper used, exposure time, and developer, is added to the envelope for future reference which means more saving of time and material. If your collection only numbers a few hundred or six dozen you will find it just as useful.

The system has been examined by many photographic friends, most of whom are now adopting it and pronounce it a success.

Patterns for 2 Picture Frames

This week's gift design is for two post-card frames, one shown here. Kit of wood and glass (No. 2756) from Hobbies Branches for 4/1 or post free 4/10, Hobbies Ltd., Dereham, Norfolk.





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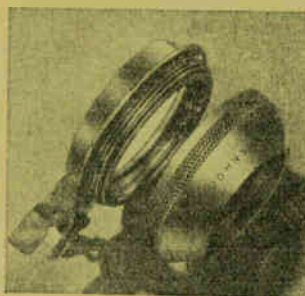
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