

# Hobbies

## WEEKLY

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## AN OUTDOOR POST NOTICE BOARD

**W**E illustrate and describe here a very suitable type of notice board for a Church and Chapel. It would also serve a useful purpose for an Institute or Boy's Scout or Brigade headquarters. We have suggested the very convenient size of 27ins. by 24ins. for actual board space, but, of course, this could very well be increased to whatever size is required to suit certain circumstances and timber available.

### The Frame

The framing of the board is made of  $2\frac{3}{4}$ in. square wood framed together at the top and lower rails with the joints shown in Fig. 1. That is, the top rail at each end extends over the two side rails and is mortised and tenoned to them. The lower rail also extends over the side rails in a similar manner but is halved-jointed in a rather simpler manner.

Grooves are formed round the inside edges of the frame to take the main panel, which should be about  $\frac{5}{8}$ in. to  $\frac{3}{4}$ in. thick. The grooves must not run through from end to end but should be stopped off at the halvings on the side rails and between the mortises on top rail, these latter are clearly seen in the detail, Fig. 1, with the tenon of the side rail ready to be fitted into it.

### Order of Assembly

In assembling the framing, the lower and side rails should be knocked together, and the panel then inserted in the grooves. The head rail is then knocked on to its tenons and dowel-pinned securely. The panel should be so

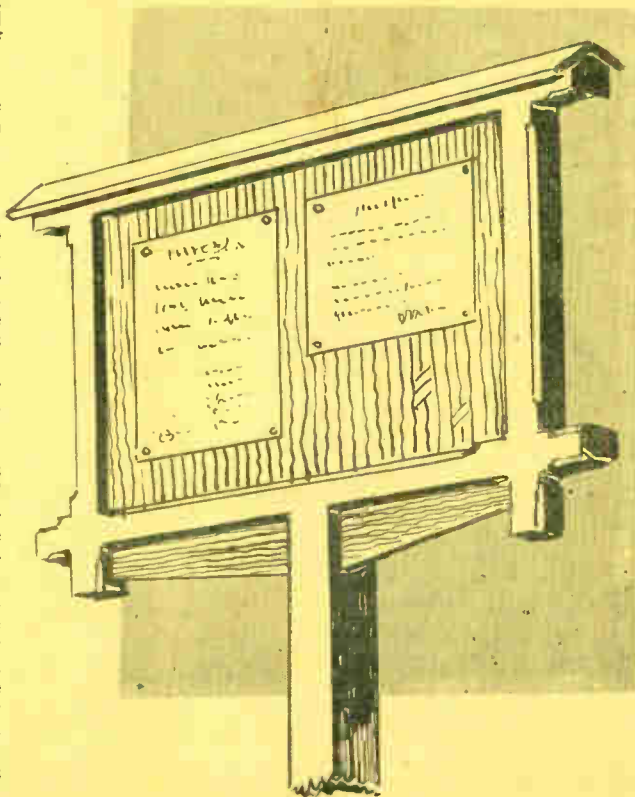
arranged that it fits rather loosely in its grooves so as to allow of expansion when becoming damp.

As an alternative fixing for the panel, the framing may be rebated to the size of the panel and the latter then placed in the rebates from the back and held by mitred beads screwed to the framing. The two methods of fixing are illustrated in Fig. 2. At A, is the grooving as first suggested, and B, the beading method, showing the fixing screws.

In Fig. 3 is given a useful diagram showing how the framing is assembled. The dotted lines show the grooving for the main panel, and that for the two smaller shaped panels beneath it. In this detail is

also shown how certain angles of the framing may be planed off to a chamfer to get an added and lightening effect.

The frame with its panel is mounted



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on a post of about 3½ ins. to 4 ins. square. This must be cut away to shape to allow the top rail to fit into it. The lower rail of the frame is partly cut away at its centre to allow the post to fit in it without weakening unduly.

In Fig. 1 a method of scarfing the post is shown, where the parts are carefully fitted into each other and held with two ½ in. flat-headed bolts with nuts and washers to go on the back of the post. The board could then be easily removed

carefully jointed up. The post, if possible, should be ash or oak, the lower end of which, together with the sole plates and

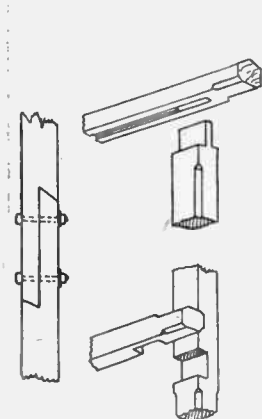


Fig. 1—Joints of framework

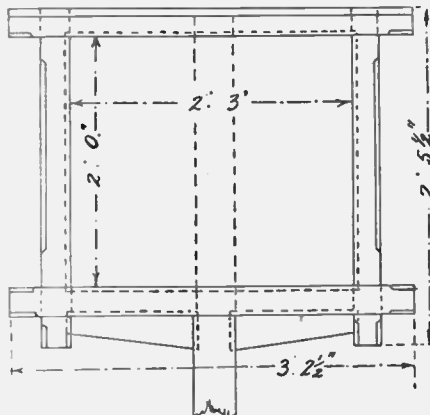


Fig. 4—Plan of framework showing stop chamfers

The capping to the frame is formed of two pieces of 5 in. by ¾ in. battening, each planed along one edge to meet at a mitre, as shown in the sectional diagram, Fig. 4. In this diagram is also shown how small shaped bracket pieces, cut from, say, ¾ in. stuff, may be fixed beneath the capping and to the framing at each end. The capping is screwed to the framing along the top.

It would form a good protection to the capping and, indeed, to the whole framework, if a wide strip of lead or zinc could be laid over and dressed along the front and back edges and closely nailed with copper or galvanized nails.

for relettering, etc., without much trouble.

#### Post Fixing

The frame is secured to the post with ½ in. bolts and nuts through the top and lower rails and through the post. To form a rigid and secure fixing for the post the framed base plate and angle supports shown in Fig. 5 should be introduced. The depth to which these will be sunk in the ground, and, indeed, the actual spread of the plates, will be determined by the subsoil itself.

If the frame is to be painted, it should be made from smooth yellow deal and the panel from yellow pine, the boards

supports, should be well coated with creosote or other well-known wood preservative. All joints of the framing should, before being put together, be coated with good red-lead paint.

It would be well to note the joints suggested between post and two of the side supports. These cut-in or recessed joints make for strength when well nailed together but, of course, they take some little extra time and trouble in cutting. Their added strength, however, is well worth the extra trouble.

The whole thing must be strong and rigid to withstand gales of wind if set up in an exposed position.

Fig. 2—(right) Section showing two methods of fixing

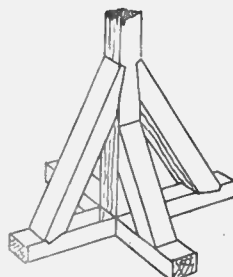


Fig. 5—Details of a stand post foot

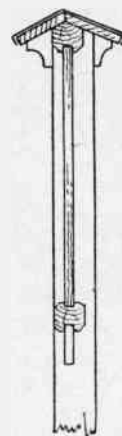


Fig. 4—Post and board fixing

## From The Craftsman's Notebook—

### Protecting Tools from Damp

I AM told of a jeweller who used to put one or two small trays of lime inconspicuously in his window during bad weather as a safeguard for his wares against the effects of damp. This absorbed the moisture from the atmosphere so other articles in the vicinity remained dry.

It is an example that could well be followed if you have to keep tools and apparatus in a cupboard or room where damp is sometimes unavoidable. The ordinary unslaked lime is what you want, and not chloride of lime, the effects of which may be just the opposite.

When tools are likely to be out of use for any length of time the surest precaution against rust setting in is, of course, to smear the blades lightly with Vaseline or oil.

### Noticed in the News

PARCHMENT-MAKING is an old English craft where handwork holds pride of place over machinery. Good for this trade is news that American

graduates prefer their diplomas on the real parchment made from skins.

Latest arrival at the Natural History Museum in Paris is a rare frog from the Cameroons. Weighing 5 lbs. and measuring 28 ins. long, this strange specimen favours a meal of small birds.

At Fawley, Southampton, a start has now been made on an oil refinery which will ultimately be the largest in Europe, with an expected output of over 5,000,000 tons a year.

From Germany comes news of a tiny new camera to be worn like a wrist watch and only 1½ ounces in weight.

If your rambles take you around the village of Tealby in Lincolnshire you may come across cows feeding unattended in the lanes—because it is the custom to let off the roadside grazing to farmers, at rents ranging from about two shillings to seven pounds a year.

### Old Bridge Chapels

GLANCING through a back number of this journal I noticed an editorial note about making models of buildings

with an historical interest. It occurred to me that old Bridge Chapels might be worth mentioning as a possible subject. Dating from the fourteenth century these tiny Chantries were built on a bridge over the river, and I believe there are only four now in existence. At Bradford-on-Avon, St. Ives in Huntingdonshire, Wakefield, and Rotherham.

It is suggested that this unusual site was chosen so travellers using the bridge could offer a prayer for so worthy a job of building it. Incidentally, they seem to have soon fallen into disuse as Chapels, as it is recorded that during the centuries they have been occupied for all sorts of purposes, including toll house, river lighthouse, and cheesecake house.

The one at St. Ives is restored to its original appearance, though it did not appear occupied when I saw it. The Old Chantry at Wakefield is now regularly used for services, having reverted to a Chapel a hundred years ago after a long run of different tenants.

The Craftsman

# How the amateur radio fan can build a powerful GRAM AMPLIFIER

SOME constructors favour battery-operated apparatus because of its safety and simplicity, and the ease with which additions or modifications can be made. The amplifier described here should commend itself to them because the results are very good, both from the point of volume and quality of reproduction, and because it can be made up in a simpler form, and the extra parts added later.

## Four-Valve Circuit

With a magnetic type pick-up four valves give sufficient amplification to deal powerfully with any record. The output stage consists of two valves in a push-pull circuit. In this type of circuit one valve handles all the negative surges and the other all the positive surges and no other circuit can provide such excellent volume with such low consumption from the batteries. Such a circuit is always used in the more expensive types of amplifier.

Many users may find three valves will deliver all the volume they can use. If so, the first valve can be omitted. In any case it is always possible to add it later.

The chassis needs to be approximately

wired in series with the L.T. positive lead.

With the valve-holders screwed down, connect all the filaments in parallel. By assuring this part of the wiring is correct, damage to the valves will be avoided.

All the connections shown in Figs. 1 and 2 should now be added. These diagrams show all wiring, and should be followed carefully. Insulated wire is advisable. By positioning the valve-holder sockets, as in Fig. 1, it is possible to follow the wiring plan in Fig. 2 exactly.

For battery leads, lengths of flex are necessary, and all these can be taken through a larger hole in the back runner and twisted together into a single cable.

## Tone Control

The .02 mfd. condenser and 50,000 ohm

.25 megohm leak, .01 mfd. condenser, and other parts connected to the first valve are not now required. Very good volume should still be obtained.

## The Push-Pull Stage

Those not accustomed to this type of output will welcome a few notes. The power-handling capacity of a single valve is approximately doubled and the method of connection cancels out undesired harmonics. The amplifier

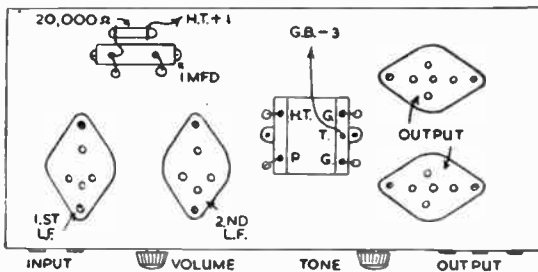
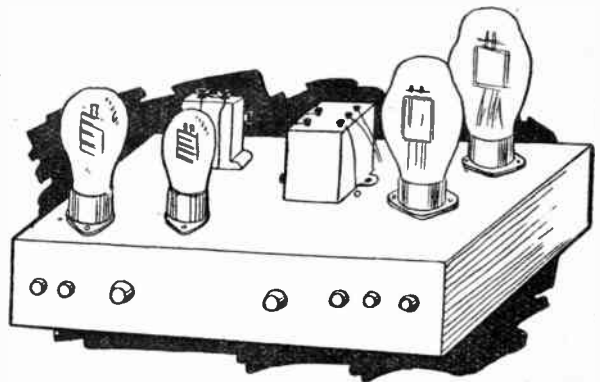


Fig. 1—Showing layout of the various components

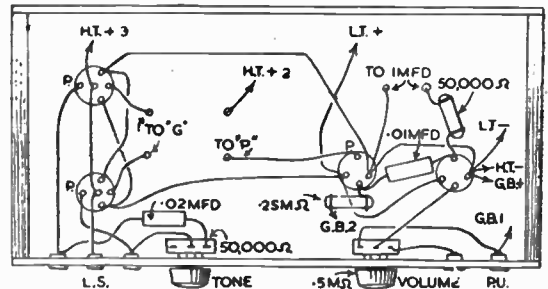


Fig. 2—The wiring underneath the chassis

9 ins. by 5 ins. and 1 1/2 ins. deep. Top, front and back are of 3-ply, with somewhat thicker wood for the sides. The detail at Fig. 2 helps to show how the wooden pieces are fitted together. Four 1 in. diameter holes should be cut for the valve-holders; the smaller holes can be drilled as construction proceeds.

For loudspeaker and pick up, terminals or sockets can be used. If an on-off switch is to be added on the chassis itself, it can be positioned between the two other controls. However, it may prove more convenient to mount this switch in another position—possibly near the turntable. In any case, it is

potentiometer enable the tone to be controlled. It is possible to omit these parts, if desired. If so, it is advisable to connect a condenser of about .005 mfd. across the outside speaker terminals to reduce needle scratch. The variable control can always be added later.

## Volume Control

Some form of volume control is necessary, but some makes of pick-up have this incorporated in the tone-arm pivot stand. If so, the amplifier control is unnecessary; it can be omitted. Take one pick-up lead directly to G.B.1 and the other to the Grid socket of the first valve.

When connecting the pick-up, the screened braiding should be taken to the G.B.1 socket on the amplifier.

## Using Three Valves

To omit the first valve, take the wire from the volume control directly to the "G" socket of the second holder. The

should work satisfactorily with either of the push-pull valves withdrawn. But when both are in position the extra signal-handling capacity of this type of circuit should become apparent.

This pair of valves should be of the same type, and preferably have received the same amount of use so that they match together. Pentodes such as the Cossor 220HPT (or its equivalents made by other manufacturers) are very good. A pair of small power valves can be used, but amplification is slightly less.

Push-pull valves consisting of two complete valves in one glass envelope are manufactured. The Mullard QP22B is an example. Such a valve can be used instead of the two output valves shown if the two 5-pin holders are not used, and a 7-pin holder fitted instead. Reference to Fig. 3 will show how this holder is wired up. "F" is the Filament; "S" is the Screen Grid and is connected to H.T. Positive; "A1" is the 1st

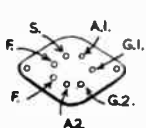


Fig. 3 — A double pentode holder

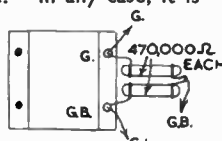


Fig. 4—Artificial centre tap

(Continued foot of page 256)



# A realistic miniature lighthouse can be built as a NOVEL BEDSIDE LIGHT



**T**HE model illustrated was made originally as a toy, and later fitted with a battery and bulb to give realism, when it was found that sufficient light was available to see by in the dark. Several have now been made and have proved very successful for children's night light and as a bedside lamp. The great attraction is that the lamp lights on picking up the lighthouse. By placing on an uneven surface the lamp can be made to stay on.

If a lathe is available, the body of the tower can be turned from the solid and bored to take a standard U2 cell, but the simplest method of construction is to build up from  $\frac{3}{8}$  in. discs of wood.

Cut six discs from  $\frac{3}{8}$  in. wood,  $2\frac{1}{2}$  ins. in diameter, each with a  $1\frac{1}{2}$  in. centre hole. Also cut one from  $\frac{1}{2}$  in. wood,  $2\frac{1}{2}$  ins. in diameter, with a  $\frac{3}{8}$  in. centre hole to form the platform. Glue the discs together and clamp tightly. When set, trim with a chisel, file and glass-

## Gram Amplifier—(Continued from page 255)

Anode or Plate, and "A2" the 2nd Anode or Plate; "G1" and "G2" are the 1st and 2nd Grids.

A push-pull transformer must have a centre-tapping, which is taken to Grid Bias. If no such transformer is to hand, it will be found a type of artificial centre-tap can be provided by wiring two resistors of the same value, as shown in Fig. 4. Here, they are shown as 470,000 ohms—a standard manufacturer's value. .5 megohm resistors may be used.

With some transformers including a resistor of about .25 megohm between the centre-tap and Grid Bias improves reproduction.

As there are two anodes driving the speaker the latter must have a centre-

paper to form a conical tower.

The lens for the lamp is made of three discs of  $\frac{1}{4}$  in. thick Perspex, cemented together, with a  $\frac{3}{8}$  in. centre hole drilled right through. Polish both the inner and the outer surfaces of the lens until a good finish is obtained. The top is cut from a  $\frac{1}{2}$  in. disc of wood, with a wooden button glued in the centre. The rails round the lamp are made from domestic pins which have No. 26 wire soldered on round the heads. The top and lamp house may now be glued in place.

## The Base

The base about  $\frac{1}{2}$  in. thick is made from cement, the surface of which is roughened to represent rocks. The tower is first firmly pressed on to the soft cement and then withdrawn. With a sharp knife cut away the centre of the cement to form a hole through which the battery may be easily passed.

Under the impression of the edge of the tower a small area of cement is removed in order that the contact may be unscrewed when a new battery is required. In the illustration, steps have been carved in the base and a rowing boat is also shown. These are best fitted before the cement has hardened. When all details have been added and the base finished, set aside to dry.

## Battery and Bulb

A 2.5 volt bulb is soldered to the centre contact of a U2 cell, checking that the whole will easily slide up the tower and that the bulb is in the centre of the lamp house. Solder a length of wire to the bulb and bend it down the side of the cell, the other end of the wire being secured under the lower contact. From brass cut a strip  $\frac{3}{16}$  in. wide, bend as shown, and drill a hole for the fixing screw.

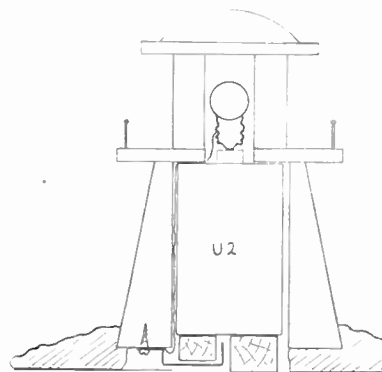
Push the bulb and cell into the tower and secure the contact temporarily with a screw. Adjust so the contact is just not touching the base of the cell when the

latter is pushed right home. On holding the tower in a vertical position the cell will slide down and touch the contact, thus lighting the lamp.

The tower may now be painted white with door and windows black. The stone block effect is obtained by carving the wood before painting. The base is finished with water colours, green and brown, and the boat red and white.

## Fixing the Tower

The tower may now be glued to the cement base. Cut a 1 in. diameter disc with a  $\frac{3}{8}$  in. centre hole from  $\frac{1}{2}$  in. wood, and glasspaper down until it is a little thinner than the thickness of the base. Cut a shallow groove on one surface a little wider than the contact spring. Push the cell and lamp into the tower, place the disc over the base of the cell, fit the contact and secure the wire under the fixing screw.



Section showing contacts, connections and discs

When the lighthouse is turned vertically the lamp will light and when placed on a flat surface the lamp goes out, as the loose wooden disc pushes the cell off the contact. The brass contact strip may need a slight adjustment by bending to effect the above.

will cause distortion and weak results. Low grid bias will cause an increase in high tension consumption.

For the 1st L.F. and 2nd L.F. valve-holders, general-purpose and low-frequency amplifying valves are required.

The amplifier can be enclosed in a cabinet, and no ventilation is necessary with battery-driven valves.

For the constructor who has omitted the 1st L.F. stage, and still seeks further simplification, one of the two output valves can be omitted. An ordinary transformer is then used, with the "GB" terminal taken to Grid Bias. A tapped output transformer is not now required and satisfactory results for quite large rooms can still be obtained.

# Colour-stain the patterns on page 263 to make a fine WOOD INLAY PICTURE

THE wood picture inlay section of *Hobbies Handbook* was very popular before the war, but owing to the shortage of the necessary varieties of wood we were unable to continue these designs. Unfortunately we are still unable to obtain the necessary thin coloured woods, but we offer here an alternative method of constructing these useful and highly ornamental pictures.

Many different uses of the inlay picture will suggest themselves to the reader, so we will take one as an example. It is to ornament a simple gift box, as shown in Fig. 1 below. Such a box will be a useful addition to the home and can be used for many different purposes.

If the workmanship is good it will be a very acceptable present. A simple sketch showing a suggested method of construction, using  $\frac{1}{2}$  in. wood, with the main measurements, is shown in the detail. The height is left to the reader's discretion.

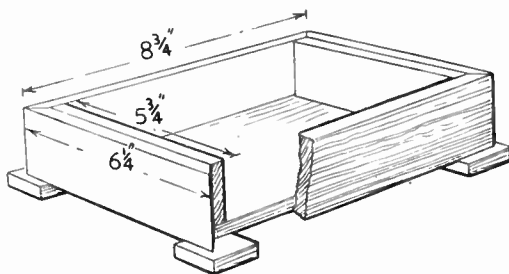


Fig. 1—Construction details of fancy box

The four sides should be mitred or butted, and glued together around the floor, as indicated. A second strengthening piece is inserted at each end on the inside, and four suitable blocks added as feet. The lid, which will be the inlay picture, will be hinged in place after the picture is made.

## The Picture

A full size drawing of a suitable picture is shown on page 263 and this should be pasted or copied to a piece of  $\frac{1}{8}$  in. whitewood which has been treated as follows. Slightly dampen one of the faces and place between heavy weights so it will not warp when drying. When dry, after a day or two, you will find that wetting the wood has brought up the grain and this should be rubbed down to a smooth and even surface with a fine grade glasspaper, after which it will be ready for the transfer.

With a very fine grade fretsaw cut out the whole design and carefully lay aside every piece as it is cut out, keeping the pieces in their correct places as you proceed. It will be necessary to drill a very small hole in the corners of the border pieces in order to start cutting,

but apart from this it is all quite straightforward.

When cutting is completed, the process of colouring commences and this is where the worker must have plenty of patience. Place the picture loosely together and decide upon the colours required. The letters shown in the picture represent actual varieties of wood. M equals Mahogany, O equals Oak, P equals Padouk, S equals Satin walnut, and W equals Whitewood. This is only a suggestion, however, and you may like to colour the trees green and the sky blue, etc.

A good medium for colouring is waterproof drawing ink which can be obtained in about 30 different shades. It has the advantage that the grain of the wood will show through even if two or three coats are applied. It is easy enough to mix the colours, but do try it out on an odd piece of whitewood before applying to the actual picture. Colour each piece carefully, working the brush along the grain so any streaks appearing will serve to emphasize the grain.

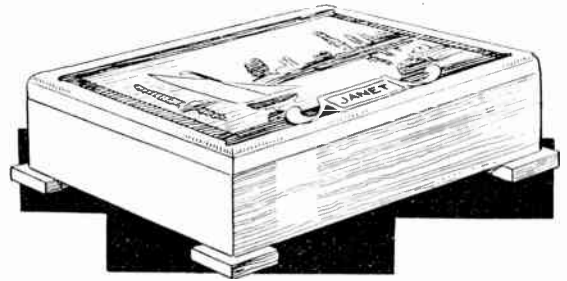
These colours are in the usual shades — not, of course, mahogany, oak, etc., but with a few basic colours you can easily obtain what you need. Indian ink is usually obtainable from good stationers and booksellers, or we can give you an address to write to.

Colour the edges of each piece also, because this will cause the wood to swell slightly, so when it is put back into its original position, its extra size will help to make up for the amount of wood removed by the saw. When all is coloured to your satisfaction, you can proceed to the next step which is mounting the picture.

## Mounting the Picture

Turn the picture face downwards on a piece of clean paper and on a hard level surface such as a sheet of glass. Work a small quantity of transparent glue into the saw cuts to fill up the interstices. Take care, however, not to work the glue through to the face of the picture.

You may find that you have to go over it twice because the glue shrinks considerably when drying. Leave to harden and then clean off with glasspaper. A piece of  $\frac{1}{8}$  in. wood, the same size as the picture, can now be glued over the back of the whole thing, but the glue this time will be ordinary glue. Place under



suitable weights and allow to dry thoroughly.

## Finishing

Several methods of finishing can be used, the best being to french polish with a white flat polish over. Work the polish in until the sawcuts have filled and the whole is one smooth surface. A similar finish is obtained by using a good brand of floor polish. Apply the polish fairly liberally with a cloth, dubbing it well in. After allowing to dry, polish with a clean soft shoe brush, working with the grain. When the polish begins to appear, finish off with a slightly stiffer brush.

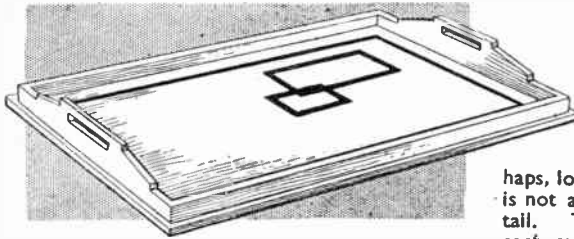
The third method is simply clear varnish over the whole. It would be necessary to give about three coats, rubbing down with fine glasspaper between each. The name can be painted on in enamel, or the letters cut out in whitewood and glued on as overlays.

The lid can now be fixed to the box by means of two 1 in. light brass hinges. A small lock could be fitted if desired, but a lock or catch is not usually necessary on an article of this description. If these instructions are carefully carried out, the effect of the finished article will be equal to real wood inlaid work and it will take careful scrutiny to detect the difference.

## For Stencils

OFFICE workers and those who produce school or club magazines may like to know that the ordinary ball-pen (or pencil) makes a very efficient cutter for wax stencils. Drawings, signatures and forms requiring complicated rulings are easily and quickly done with the ball-pen and the ink supply is not lessened, because the ball glides over the waxed stencil surface without revolving. Empty "refills" can, therefore, be used for this purpose. It is advisable to wipe off, occasionally, the small deposit of wax which accumulates on the ball-point and on the stencil itself.

# Complete details on making a variety of useful ATTRACTIVE TRAYS



**W**HEN the lady happens to be indisposed, or when hubby feels like taking up that welcome cup of tea on Sunday morning, an attractive tray meets with an appreciative eye. Moreover, these make ideal presents—in view of their popular practicability—at any time of the year. Most important point, too, this is a section of woodwork that provides the home craftsman with something really useful as a reward for his labours.

The actual work is very fascinating and the finished articles for the man of a business turn of mind, provide a useful means of augmenting his income. The designs given here are of the modern type which are so popular today and, if carefully made, are extremely effective. There are not any difficult joints to make, and, wood already planed to thickness, makes the work easier still.

The trays will vary in size according to the use to which they are to be put. For example, only a very small one would be required to accommodate a teapot, milk jug, and sugar basin for afternoon tea. A wine tray would have to be slightly larger, and a breakfast or "general purposes" tray, larger still. The most practicable plan, therefore, is to make a set of three or four trays that will just fit one inside the other. Then you will always have a suitable one at hand whenever it is required.

## Construction

There are several ways of jointing the sides of the trays but the strongest, and most satisfactory, is by means of a dovetail joint, as shown in Fig. 1. Many people think this is a difficult joint, but, really, it is extremely easy, as, perhaps,

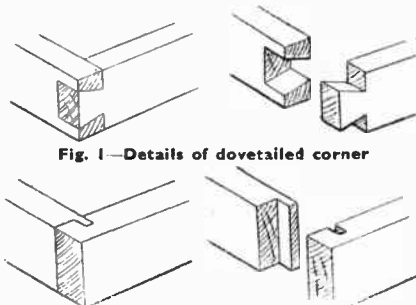


Fig. 1—Details of dovetailed corner

Fig. 2—An alternative, with tongue and groove

you will agree later on, when you have tried it.

Another common method is with a tongue and groove joint, as shown in Fig. 2. This, per-

haps, looks a little neater but is not as strong as the dovetail. The base of the tray in each case is screwed on from underneath and, if wooden handles are being fitted, these also will have to be glued and screwed in place.

## Making the Tray

The first job will be to joint up the four sides of the tray, and here with the dovetailed type, as this is the strongest one.

Cut the two sides and the two ends  $\frac{1}{8}$  in. longer than required and square a line right round every piece of wood  $\frac{7}{16}$  in. from each end. Then mark out a dovetail on each end of one long side, place the two sides together in the vice, and saw out the two dovetails together.

Next place each dovetail in position in turn, and mark round it, so that the exact shape of the dovetail is marked on the ends. These should be marked AA, BB, and so on, so you may know where each particular dovetail belongs when it is time to glue the four sides together.

The sides of the sockets are sawn with a tenon saw, and the waste wood in between cut out with a chisel. This part of the work can now be cleaned up, glasspapered, and then glued together. While the glue is setting, the base of the tray can be cut to size and inlaid, if this form of decoration is being used.

Inlaid decoration is carried out by

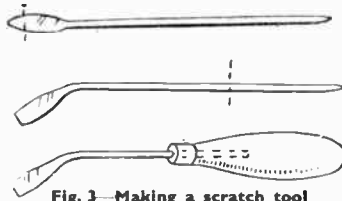


Fig. 3—Making a scratch tool

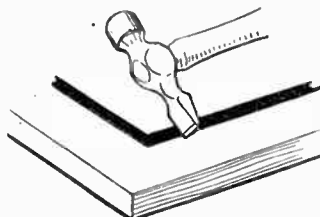


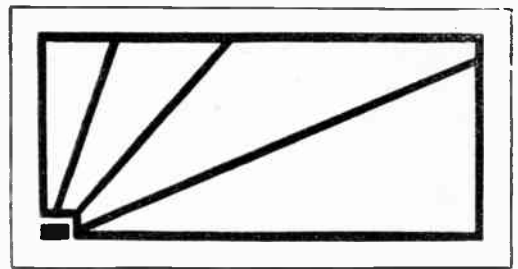
Fig. 4—Sinking the inlay

inlaying strips of black wood,  $\frac{1}{16}$  in. square, and known as "stringing", in the base. Stringing is sold in 3ft. lengths and can be obtained at handicraft shops. The designs should be kept as simple as possible which, if carefully done, are extremely effective.

## Make Your Own Tool

The tool used for cutting the grooves, into which the stringing goes, is known as a "scratch tool", and is quite easy to make out of an old steel knitting needle, in stages shown at Fig. 3.

First of all make one end red-hot and flatten it slightly, then bend it over nearly at right angles. When it has cooled sufficiently, file the flattened part



Another suggestion for an attractive design

to the same thickness as the stringing, and then file off the top corner. Fig. 3 shows also the blade fitted into a handle. This is done for convenience when the tool is being used. The cutting edge should be kept sharpened on an oil-stone in the usual way.

## Inlaying the Stringing

The inlaying is done in the following manner. First of all the design must be drawn on the wood and then a piece of wood, with a straight edge, cramped along each line in turn and the scratch tool worked along this until the groove is the same depth as the thickness of the stringing.

It is advisable to commence at the end of a line and work away from any corners so that, if the tool should accidentally slip, it will not spoil the work. If the sides of the grooves at the corners of the design are cut down with

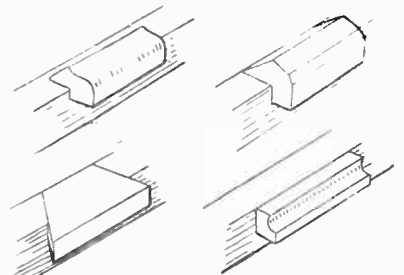


Fig. 5—Four simple types of handle



a chisel, the corners can be scratched out quite sharp and square.

When all the grooves have been scratched out to the required depth, the stricking should be fitted in dry, then glued with hot thin glue and worked down with the plane of a hammer, as shown in Fig. 4, to squeeze out any superfluous glue. At this stage the work must be put on one side until the glue is thoroughly hard.

The base must finally be cleaned up and glasspapered, and then screwed on to the sides with  $\frac{3}{8}$ in. No. 6 screws.

#### The Handles

In order to enable the tray to be readily picked up, the ends of the tray can be made wider than the sides and have a handle cut in them, as you see in the illustration of the finished tray. Or alternatively, a wooden handle can be fitted. Fig. 5 shows several suggested shapes for the wooden handles, which, when completed, should be glued and screwed in place.

Trays of this type should not be highly polished but, before being used, given several liberal applications of raw linseed oil rubbed well into the grain and then finally wax polished. This reduces to a minimum the liability of the

surface to get marked by hot articles.

Another finish, apart from inlaying, is to enamel the tray in some bright colour or contrasting shades.

This finish is particularly suitable when the trays are required to form a unit in an existing colour scheme. Most of the

#### Door Stop

HERE is a good tip how to make a door-stop. If the knob of the door is inclined to cause a mark on the wall of the room, make a doorstep out of a cotton-reel. Fix it about 6ins. from the wall by means of a 2 $\frac{1}{2}$ in. screw. If desired it can be painted or stained to match the floor.

enamels on the market have full directions on the tins, explaining how to get the best results, so this point will not be dealt with here.

#### Fitting a Glass Bottom

Those who have had more experience of woodwork may like to try fitting a glass bottom to their trays. Although this is not a very difficult job it requires

a certain amount of care in fitting the glass. There are two ways of doing this.

It will be necessary, in the first example, to cut a rebate in the four sides deep enough to take the glass and also a thin piece of felt packing. Then fit the glass and screw on the base which, in this case, also serves to hold the glass in position.

#### Another Method

In the second method the glass simply fits inside the sides and is held down by four strips of wood, termed fillets, screwed round in the bottom corner.

The advantage, of course, of the glass base is that it will not get marked; its disadvantage, that it is liable to get cracked. This being the case, it will be best left to hobbyists to make up their minds about this type of tray although, if a fairly thick glass is used it will stand a good deal of rough usage.

Using the popular 3-ply wood, the writer made a four-in-one set of trays measuring 18ins. by 12ins., 16ins. by 10ins., 14ins. by 8ins., and 12ins. by 6ins., each of particular practicability according to the occasion when used—for the modest outlay of 5s.

## What you should carry in your tool bag to ensure CARE-FREE CYCLING

ALL cyclists with any sense carry a tool kit and this invariably includes a puncture repair outfit. The convenient little tin is usually well filled, but room should be found for a few more oddments.

In the writer's kit is a long thin nail. This is useful for many purposes, such as digging flints out of tyres, levering up the lock washer when adjusting pedals, and so on. But the chief reason the nail is kept is in case the three-speed gear goes wrong, or if the cable breaks. When this happens one usually has to keep on the high gear, which is very awkward if one is facing a head wind or has hills to tackle.

With a thin nail, however, the difficulty is soon overcome. Pull the spindle out so that it is set for middle gear, and push the nail through the link of the chain so it is held, by the pull of the spring inside the gear, against the hollow nut. This fixes the gear in middle position (or if you prefer it, you can adjust it so that it is in low gear) and will remain so until you can attend to it properly.

#### Slipping Gears

Three-speed gear adjustment is so easy that it is a wonder why some fellows put up with a slipping gear. The spindle has two shoulders at the end. If the gear is in middle position, the first of these shoulders comes flush with the opening at the end of the axle.

In low gear, the second of these should

ers makes an appearance. Test the matter by pressing the pedal firmly.

Adjust the gear at the very first sign of slip, otherwise you may seriously damage the gears.

#### Brake Cables

Another little item you should have in your puncture outfit is a spare nipple for cable brakes. It is comparatively rare for the soldered joint to give way if properly done in the first place. Usually the wire frays and snaps.

You would be extremely unlucky if both brakes failed at the same time, but if you continue the journey with only one brake working, you have nothing in reserve if this fails. Moreover, you might easily skid if only one brake is suddenly applied.

The spare nipple is made to be fitted

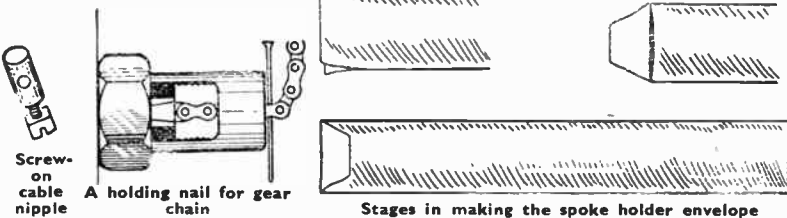
special nipples, and once these go, they are not repairable (except, as just described) temporarily. A new cable and fittings is needed. Fortunately these are not very expensive, and can be easily fitted.

Other small items which can be carried in the puncture kit are spare bulbs for the lamps and a spare link for the chain.

Cutting up old inner tubes to make rubber bands is, of course, an old idea. Most people know that they can make longer bands by cutting on the slant. These bands are better if cut rather thin. Wide bands usually break.

#### Spoke Containers

Not so generally known, however, is that a useful container for spare spokes (and the tandem-rider specially needs them) can be made from a length of



to the cable by a set screw. It is only a makeshift, and will not stand up to much hard wear. But it will usually suffice for a day or so.

Many patent-type brakes now have

inner tube. A flap is cut as shown and stuck down with rubber solution. Such a case is also useful for other purposes... for holding pencils, draughtsmen's scales, and so on.

# Books to Read!

In view of the wide range of problems we are asked to solve in letters from readers we recommend a note to be taken of these recent books published. They are obtainable from booksellers in the usual way or direct from the publishers if you mention *Hobbies* and add postage.

## The Kuklos Annual

THIS standard manual for cyclists has become a recognized book of reference since it was first published 27 years ago. A revised list of rest houses and the touring section make it an essential to any travelling cyclist, and although the summer may be virtually over, many cycling clubs, as well as individuals, now indulge in their healthy pleasant and inexpensive hobby all the year round. Hints and notes on machines and accessories add to the value of such a book to any keen cyclist.

Published by Ed. J. Burrow & Co. Ltd., Cheltenham—Price 1/6

## So Spins the Silkworm

by Zoe Lady Hart Dyke

HERE is a most fascinating story of another hobby which was carried forward to successful business by acumen and enthusiasm. The interest of the authoress began as a child, and unlike many childhood cults, continued to grow as she did. How breeding and weaving from silkworm can be a profitable business, how unknown difficulties can be surmounted, how a fascinating knowledge can be obtained of a little known matter is set out in the book's 165 pages. The whole story is alive, exciting and interesting as a remarkable autobiography which is still in progress. The silk farm at Lullingstone Castle, in Kent, has become internationally famous as an industrial centre, and the process of producing silk from the earliest stages of hatching silkworms, to the material such as used in the Coronation Robes, makes a very readable and informative story.

Published by the Rockliff Publishing Corporation Ltd., 1 Dorset Buildings, Salisbury Square, London, E.C.4—Price 15/-

## The Complete Handyman

THE trouble with many of the so-called practical books is that you almost have to be an expert on the subject before you can begin to understand much of the contents. Here is one we can thoroughly recommend as really telling you *all* about the subject, dealing with it on the assumption you are an ordinary fellow who wants to do something, but has no specialized knowledge about it. Well here you have 575 pages and over 750 illustrations telling you exactly how. The range it covers is enormous—woodwork, decorating, plumbing, electricity, radio, gardening, kitchen fittings, household repairs, etc. There are simple everyday jobs, delightful things to make, repairs and

additions for the greater comfort in the home, and complete chapters on fretwork and model making which will particularly appeal to our readers.

Published by Odhams Press Ltd., Book Dept., Long Acre, London, W.C.2.—Price 8/6

## Woodwork

by W. L. Showell

NOT every teacher or examiner can express on paper what he can efficiently explain orally or visually, but here is an author who has had the practical knowledge of craft and can pass it along in most readable and instructive form. The book is "a textbook for handicraft students", but this need not upset the casual craftsman or even the more experienced handyman. Not only does it seek to inculcate the pride of workmanship well done, but it shows the "how and why" in progressive and successive chapters. Commencing with wood—natural timber, plywood veneers, etc.—it covers tools, planning and preparation (a subject all too frequently lightly passed over), methods of work—dealing with construction, glue, and general fixing—and finally surface finishes. The chapters certainly deal effectively with the whole process of general carpentry as needed by the average student and home craftsman.

Published by Sir Isaac Pitman Ltd., Parker Street, Kingsway, London, W.C.—Price 8/6

## How to Draw

by Paul B. Mann

TWO more of these series published by the Studio press deal with Locomotives and Rolling Stock. Practical instruction is given in pencil and letterpress. Examples are given not only of detailed parts but of complete subjects and the results seem so easy and fascinating that they must certainly lead any reader to take up a study of the subject thoroughly and hopefully. The books are nicely compiled, of an easy pocket size and deal thoroughly and in a pleasing manner with the subject concerned.

Published by The Studio Ltd., 66 Chandos Place, London, W.C.2.—Price 3/- each

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by T. D. Richards

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but greatly improve the ability, ease and gracefulness of any reader who follows its instructions. Far from assuming he is already an expert, the chapters first give guidance to the very beginner, teaching the first glide, and gradually working up to free skating, dancing and team work.

Published by C. Arthur Pearson Ltd., Southampton Street, London, W.C.2—Price 5/-

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by W. T. Poole

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Published by Handicraft Supplies Ltd., 204a Gower Street, London, N.W.1—Price 1/6

## Film-Strip Projection

by Cecil A. Hill

AMONG the many modern visual aids being provided for learning or interest, one of the most popular must be the use of film strip. It carries the old magic lantern entertainment a stage further and offers endless interest to the enthusiast. The idea is that strips of miniature films bear a number of "stills" dealing with the subject in hand. These are put into a projector and the screen picture is used to link up the story of interest, or education, or adventure. Loan of a wide variety of film strips is made possible from a number of different sources, whilst there are also several types of projectors supplied by specialist firms. For schools, clubs, hostels, etc., the subject offers a new interest for entertainment and instruction, and individual readers could also well make a pleasing and, perhaps, profitable hobby of it. At least some knowledge of it should be obtained and this book is ideal for the purpose. It deals with the subject thoroughly with explanations of film-strip and film-slides, projectors and how to use them, faults and how to rectify them and other information.

Published by The Fountain Press, 46/47 Chancery Lane, London, W.C.2—Price 5/-



# How to convert an ordinary hand drill into A HANDYMAN'S LATHE

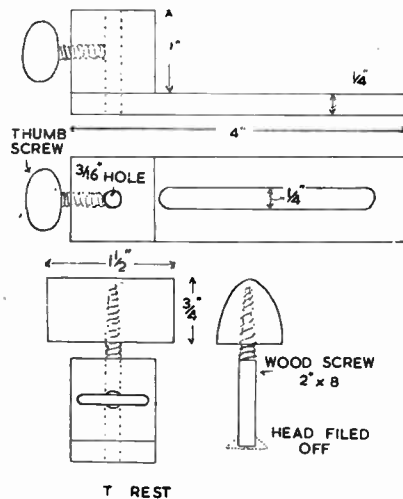
**T**HE lathe is, undoubtedly, one of the most useful tools to be found in the craftsman's or handyman's work shop, but, unfortunately, many of us cannot afford to buy one. There is one consolation, however, for if you possess a hand drill, it is quite a simple job to make it into a very useful little lathe which will undertake small turning work.

Even if you do not own a hand drill it would be well worth buying one, as it is a tool that no real handyman should be without. Apart from the drill the cost of making the lathe should be very small. In fact, you most likely have all the parts hidden away in the junk box.

## Tool Opening

It is really surprising the amount of useful work that can be done on a lathe of this type, and once you have built it you will wonder how you were able to do without such a handy tool. Most hand drills are made to open from zero up to  $\frac{3}{16}$  in. or  $\frac{1}{4}$  in. which is a very useful range and quite as much as many real lathes.

All the parts of the lathe are mounted on a baseboard or to use the correct



Components parts to be made and incorporated

term—the "bed". A piece of hardwood 12 ins. long, 4 ins. wide and  $\frac{3}{4}$  in. thick will do for this, although you may make it larger to suit your requirements if needed. The hand drill is mounted on a block of wood and the size of this will depend on the type and size of your drill. It should be about 5 ins. by 3 ins. and from 2 ins. to  $2\frac{1}{2}$  ins. thick. The height of the centre of the drill headstock above the lathe bed should be  $2\frac{1}{2}$  ins.

## Mounting

The method of mounting the drill on to the block should not present any

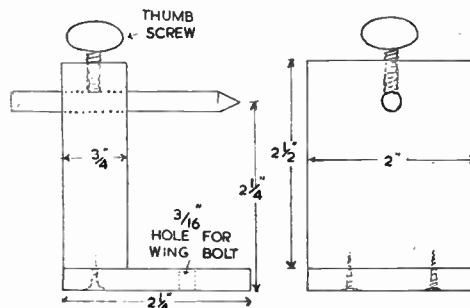
difficulty. Most hand drills have a tapped hole opposite to the large gear wheel, which is used to screw in an extra handle. A bolt can be found to fit this hole and screwed in through the block and lathe bed. If the drill does not have this tapped hole, two strips of sheet metal can be cut and screwed to the block to form saddles.

In order to do accurate work in the lathe it is necessary to have an adjustable tool rest, so you can make this next. It must be capable of moving along the lathe bed and also in and out from the drill headstock centre. The T rest also has a movement up and down and should be able to swivel round.

## The Base

The base or sliding part of the rest is made from  $\frac{1}{4}$  in. ply and has a  $\frac{1}{4}$  in. wide slot cut along part of the centre, as shown in the drawing, for the in-and-out movement. It is secured to the bed with a bolt and wing nut. A 1 in. cube of hardwood is securely fixed to the end of the ply base with glue and screws.

Drill a  $\frac{3}{16}$  in. hole through the block



tailstock to a lathe, the purpose being to hold the work steady and keep it from wobbling about. It is quite a simple affair, and consists of a base of  $\frac{1}{4}$  in. ply  $2\frac{1}{2}$  ins. long and 2 ins. wide and an upright of hardwood  $2\frac{1}{2}$  ins. by 2 ins. and  $\frac{3}{4}$  in. thick. A bolt and wing nut is used to fix the tailstock to the lathe bed in the same way as the tool rest. Drill a hole  $2\frac{1}{2}$  ins. up from the base to take the adjustable centre. Another thumb screw is used to clamp this in position.

The most usual centres in use are the inside and outside cones, as shown. Other types may easily be made to suit the various kinds of work which the lathe will be called upon to do.

## Wood or Metal Turning

Both wood and metal turning can be undertaken on this lathe and a brief description of the tools to use would not be out of place here. For wood you can use ordinary chisels and gouges but for metal work special tools are necessary. You can buy a few gravers and cutters but it is quite easy to make some useful ones yourself by grinding down some worn-out files and putting a cutting edge on them.

Different shaped cutters can be made by using square, round and three corner files. The cutting angle varies according to the metal or other material to be cut—wood and soft metals can have a longer cutting edge on them than for the harder materials.

It is not usual to use any form of lubricant on the cutter when doing small work in a lathe of this description, but a drop of light oil might help to ease the task when cutting iron or steel. A useful tip to remember concerns the correct speed for turning—hard metals require a much slower speed than the soft ones. •

to take the pin of the T rest. Another hole is drilled in the front of the block and this is tapped and a thumb screw fitted so that the rest is adjustable for height and also to give it the swivel action.

## The T Rest

The T rest is made from a piece of hardwood  $1\frac{1}{2}$  ins. long and  $\frac{3}{4}$  in. square and shaped as shown. The pin which is fitted in to this is made from a 2 ins. by 8 wood screw, with the head filed off after it has been screwed in to the wooden block.

It is usual to have what is called a

A design sheet for a small model of H.M.S. BOUNTY will be presented with an issue soon

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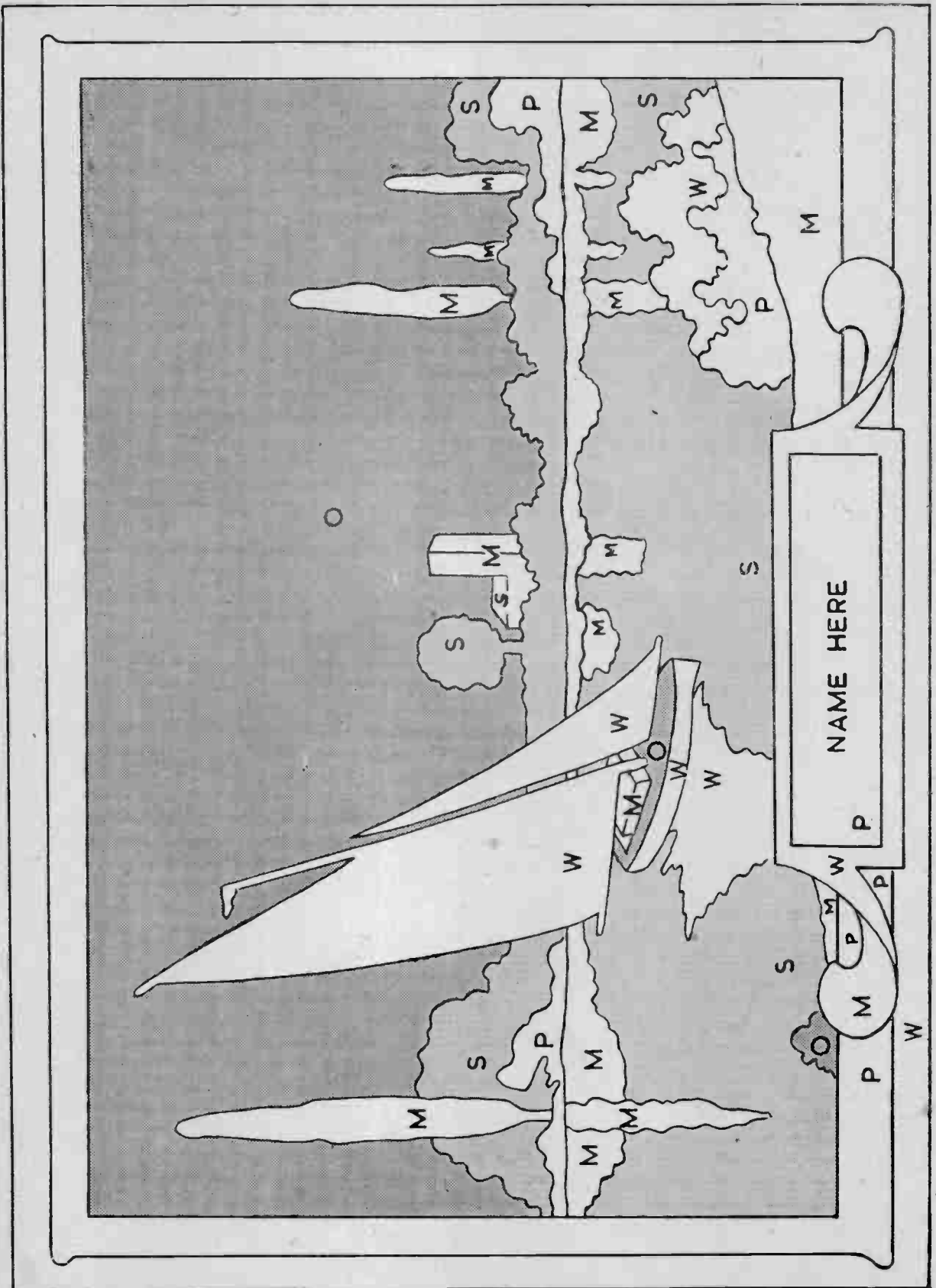
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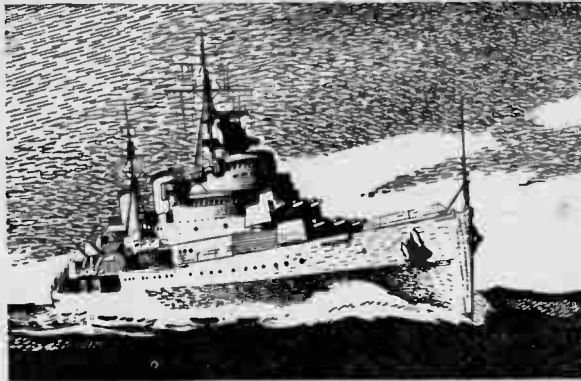
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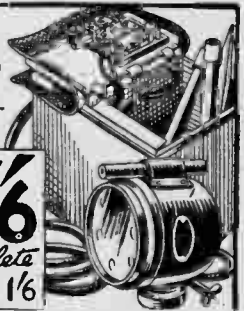
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