HOBBIES WEEKLY

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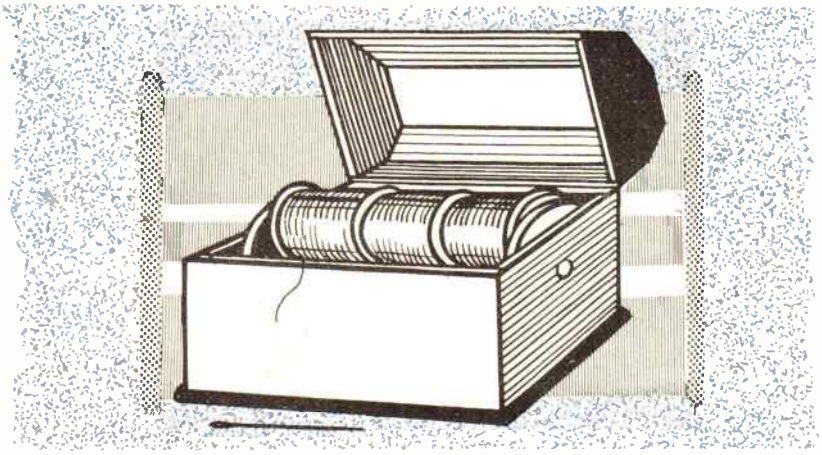
IN THIS ISSUE

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

HANDY FOR THE HOUSEWIFE



MAKE THIS COTTON REEL CABINET

REELS of cotton often seem to have the habit of hiding away when wanted, or else they roll on to the floor and get under some almost inaccessible piece of furniture. Such a domestic catastrophe would be avoided if they were kept in a cabinet where they would be ready for instant use when the lid is opened.

Holds twelve reels

The cabinet is designed to hold a dozen normal size cotton or silko reels, which are arranged so that any one can be brought to the top immediately for the necessary length of cotton to be cut off without taking the reel out of the cabinet.

The dome-shaped lid which closes over the reels to keep out the dust may appear at first sight a little difficult to make, but this is not the case. By cutting the two end pieces to shape, and then gluing on the five strips, quite a neat little job is easily accomplished.

The wood chosen to make the cabinet should be of good quality, and preferably one of the well known hardwoods, such as walnut, oak or mahogany.

DIAGRAMS ON NEXT PAGE

Two wooden discs hold the reels in position and enable them to rotate within the case. This part is made first and then the case can be built up around it.

Cut two circular pieces of hardwood of 4in. diameter and ¼in. thick, and drill a ½in. hole in the centre of each. At a distance of 1¾ins. from the centre, draw a circle on each. Divide this into four by drawing a line through the

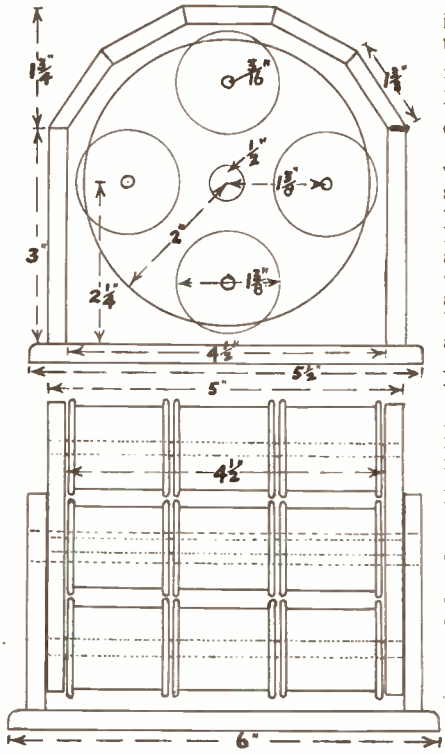
centre and another at right angles to it.

Drill four $\frac{5}{16}$in. holes at these points of intersection to take dowel rods of the same diameter — the dowels should not slide in easily, nor be too tight a fit, or there may be some difficulty when taking off and replacing the cotton reels.

The two discs are glued through the centre on to a $\frac{1}{4}$in. diameter dowel rod 5$\frac{1}{2}$ins. long. They are spaced 4$\frac{1}{2}$ins. apart, which is ample room for three average size cotton reels, and will leave $\frac{1}{4}$in. of dowel rod protruding at each end. Make sure that the discs are fixed exactly at right angles to the centre rod, and this job is made easier if the four dowels which hold the reels are cut to length and slipped in their appropriate holes. These should be exactly 5ins. long, and they will slip in easier if the ends are slightly rounded with a piece of fine glasspaper.

The case

When the glue is thoroughly dry we can cut out the parts for the case and fix them around the reel holder. The base is 6ins. long, 5$\frac{1}{2}$ins. wide and $\frac{1}{4}$in. thick, and has the edge rounded off on all four sides. Two end pieces are fixed first, and these are 4$\frac{1}{2}$ins. long, 3ins. wide and $\frac{1}{4}$in. thick. Drill a $\frac{1}{2}$in. hole in the middle of each and 2$\frac{1}{4}$ins. up from the bottom for the dowel spindle to rotate in.



Glue these in position, having first inserted the revolving reel holder, and then fix the front and back, each being 5$\frac{1}{2}$ins. long, 3ins. wide and $\frac{1}{4}$in. thick. Fine panel pins can be driven in from underneath to give added strength if desired.

For the lid, cut two pieces of $\frac{1}{4}$in. wood 4$\frac{1}{2}$ins. long and 1$\frac{1}{2}$ins. wide, and shape it as shown in the side view, so that the five sections are of equal length. Now cut the strips 5$\frac{1}{2}$ins. long and about 1$\frac{3}{8}$ins. wide from $\frac{1}{4}$in. wood. Chamfer the edges to make a good fit and the job will be made easier if the back and front strips are glued on and allowed to dry before fixing the others.

Fixing the lid

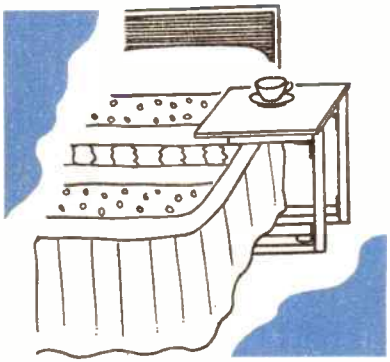
Instead of having a five faced lid this part can be rounded, if desired, by planing off the corners of the strips, and then well glasspapering with a fine grade paper.

Fix the lid in position with two small brass hinges screwed along the back edges, and this will conclude the construction. It is not necessary to fit a catch on the front, but a small neat one can be added if wanted.

French polish or a good clear varnish is the best finish for the cabinet, unless you decide to paint or enamel it to match some other piece of furniture.

(A.F.T.)

It's simple to make this Bedside Table



OF simple construction and hence easily made up by the average worker, this bedside table will prove a boon in the sick room or a most acceptable aid to mere early morning idleness.

The details of construction are given in Fig. 1. The support frame is cut from pieces of 1$\frac{1}{2}$in. by 1$\frac{1}{2}$in. softwood. The upright legs are 40ins. long, the base lengths and table arms 32ins. long and the base rail joining the two base lengths is 25ins. long.

Assemble the support frame, using dowel joints and strengthen the two angles at the base with screwed on 4in. metal brackets, as shown.

The table top, which is screwed to the support frame from underneath measures 36ins. by 30ins. and is cut from $\frac{3}{4}$in. plywood or blockboard.

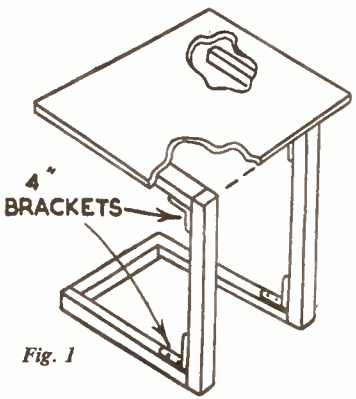


Fig. 1

Finishing is really a matter of personal choice. The table top can be covered with plastic or any of the modern surfacing materials, or a more modest finish, and a most pleasing one, can be attained by using contrasting shades of enamel, a dark colour for the supporting frame and the table edges with a lighter shade for the top of the table.

(P.P.)

In next week's issue F. G. Rayer will show how modellers can build an efficient transformer for use in the electric mains supply. The free design will be for a child's music box on which there will be dancing dolls. There will also be other gift suggestions so make sure of your copy.

Tips you should know

HOW TO CUT GLASS

THE best tool for cutting glass is, of course, the diamond. For the small amount the handyman has to cut, a wheel is quite suitable. It's much cheaper, and if you get one with several wheels, equally effective. As number one wheel gets dull, it's a simple operation to adjust the cutter to wheel number two.

Lay the glass on a perfectly flat surface with no bumps or other imperfections. If this is not possible, and the bench has irregularities, lay a folded dust sheet or piece of blanket over it. It is important that no pieces of grit or glass splinters should be allowed to work their way under the glass.

Regard one straight edge of the glass as being perfect. From this edge, take all the cutting measurements. First cut parallel with it, and then square with it. Keep the straightedge and square $\frac{1}{16}$in. less than the size required. The cutting wheel and diamond point are that distance from the actual guided side.

Here is an example. The glass required is to be 11$\frac{1}{2}$ins. by 8$\frac{1}{2}$ins. Hold the straightedge at 8ins. and $\frac{7}{16}$in., and the square at 11ins. and $\frac{7}{16}$in. Thus you will cut a piece of glass the correct size for an opening 11$\frac{1}{2}$ins. by 8$\frac{1}{2}$ins. It is advisable to cut the glass $\frac{1}{8}$in. less than the length and width of the opening to be glazed. If cut too tight there is a danger of breakage.

Re-glazing

Most of the work in re-glazing is in careful preparation. All the old putty must be removed, cleaning the rebate right back to the wood. Pull out the pins or sprigs which held the old glass. Failure to do so may result in more broken glass, so pull them out as soon as you discover them.

You may find as you proceed that the knife or chisel runs into the grain of the wood. If it does turn the tool around and cut in the other direction, the chisel, which by the way is best for the job, will ride over the grain without spoiling it. After all the old putty has been removed, paint the rebate. It makes the repair waterproof and the putty will not be constantly falling out. Most of the water found inside the window is due to this omission.

The glass should be tried for size before putting in the putty bedding. This must be very soft so that as you press in the glass, most of the putty is squeezed out. When satisfied that the glass is the right size, and the putty soft enough, put the bedding putty in the rebate. Do this by taking in your hand a ball of putty. Feed it into the rebate with the thumb. You'll find with a little practice the ball seems to unwind itself. When the four sides of rebate have been filled, without pausing, press the glass in place. Use a rubbing action, rather than pressure in one place.

Fixing sprigs

When it is nicely in the rebate the glass must be sprigged or it will push out again when cleaned from the inside. Sprigs are a flat kind of shoe-makers brad or pin. If none are to hand, use a round $\frac{1}{2}$in. panel pin, which has been flattened with a hammer.

Use a heavy firmer chisel for driving in the sprigs. Hold the sprig right to the glass with the finger tip, leaving the head exposed. Slide the chisel on the glass, using the side of it as a hammer. Do not at any time while driving the sprig, allow the chisel to leave the glass.

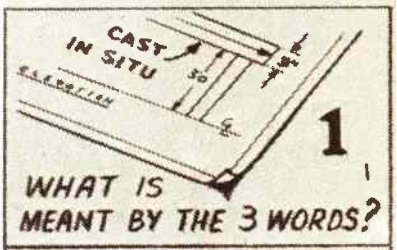
Fill in the face of the rebate, using the same ball of putty and thumb method, and then smooth the surface. The proper tool for this is the putty knife or glazier's knife. I prefer the end of a chisel. Try them both and use whichever you find makes the best job of it. Finish off by lightly dusting with a soft-haired dusting brush. The inside putty which was squeezed out under pressure is cut back flush with the woodwork.

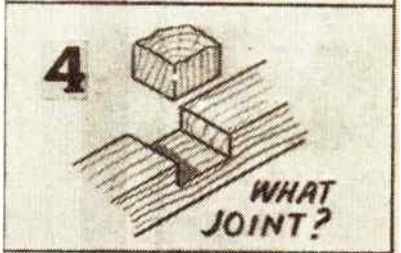
When glazing new woodwork be sure that the rebates are first well painted. If glazing a number apparently alike, as in a garage door, check each one for size. They may vary. An iron window with a fanlight and side-light may have as many as four sizes to the one frame.

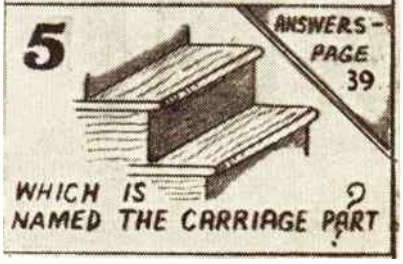
Care must be taken not to lose the spring clips when removing broken glass and putty from an iron frame. These are for holding in the glass and are the equivalent of sprigs. You have, no doubt, noticed $\frac{1}{4}$in. holes in the rebate webbing of iron windows. There are usually two to each square. The clip has one point behind the glass pointing down into the hole. The other points upward and is in front of the glass. At the top the position is reversed.

When kneading the putty for iron glazing, add a small quantity of gold size. You can get a small bottle at your paint shop. Don't mix more than you need for immediate use, as it soon goes hard and unusable. It is essential for glazing in ironwork, otherwise the putty takes weeks to harden off. In wood, the oil is drawn from the putty by suction, thus causing it to harden. (M.W.H.)

TWO MINUTE QUIZ by Ed Capper





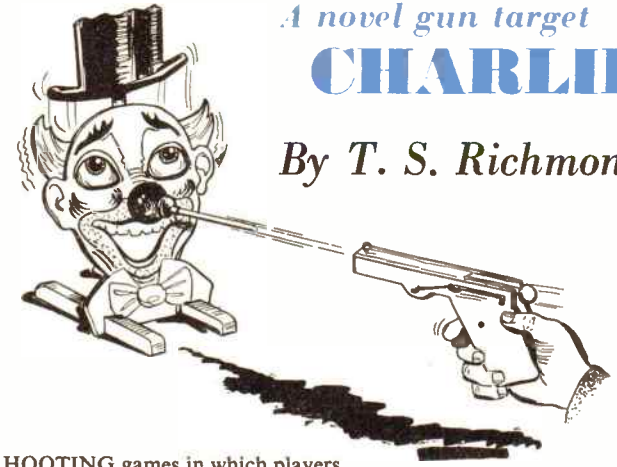


A length of plastic covered electrical wire stretched between two wall books makes an ideal indoor drier. Rub over with damp cloth to keep it clean.

A novel gun target

CHARLIE THE TRAMP

By T. S. Richmond, Jnr.



SHOOTING games in which players fire balls or other missiles at a target, provide all members of the family with an absorbing pastime of skill, and the design for a mechanical cut-out target described here provides toy-makers with an effective selling line, or present for a friend's birthday.

This amusing novelty target is, in fact, a splendid addition to the 'space gun' described in last week's issue, and it can also be used in conjunction with the toy revolver (as illustrated), the construction of which was fully described in the 19th September, 1956 issue of *Hobbies Weekly*, Number 3177.

The pattern of the cut-out target head and moving eyes piece (C) and top-hat (D), is given in Fig. 1. Full-size patterns are obtained by copying the shapes over 1in. squares. Plywood is recommended for all cut-out parts. Cut pieces (C) and (D) from plywood of about $\frac{1}{8}$in. thickness. The extending arm of piece (C) has a wood or cardboard washer glued to the front so that piece (D), pivoted on the wire, runs clear of the head when lowered.

The moving eye and hair piece (C) is held in position by twin rubber bands. It slides up and down, guided by two round-rod pins in alignment within the slots cut in the piece.

Blocks (A) and (B) are cut from $\frac{3}{4}$in. hardwood strip, and both have a centre hole and are mounted as shown in Figs. 2 and 3.

Obtain a table-tennis ball or other ball of about $1\frac{1}{2}$ins. diameter for the nose of the clown, and colour this red. Bore a hole into which will be glued the wire holder rod (Fig. 3) and bend the wire after passing through the hole in the face, so it may be anchored into the hole through block (A), glued to piece (C).

When the ball is hit by the missile (which can be a table-tennis ball or

● Continued on page 37

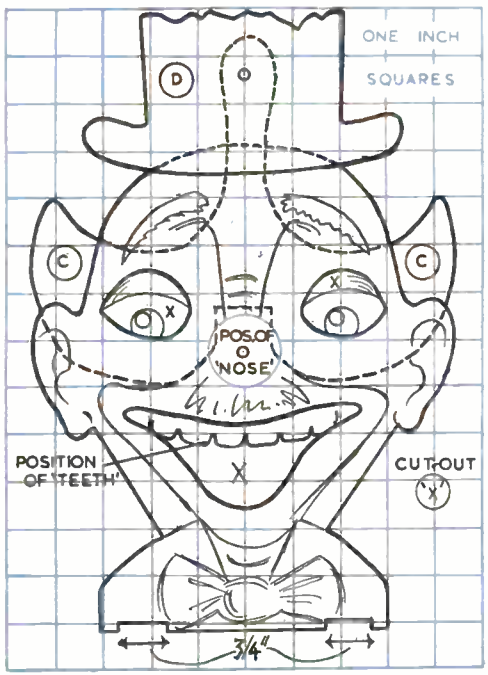


Fig. 1—The reduced scale pattern from which the face, hat (D) and moving eyes (C) units are copied full scale and transferred to wood for cutting out.

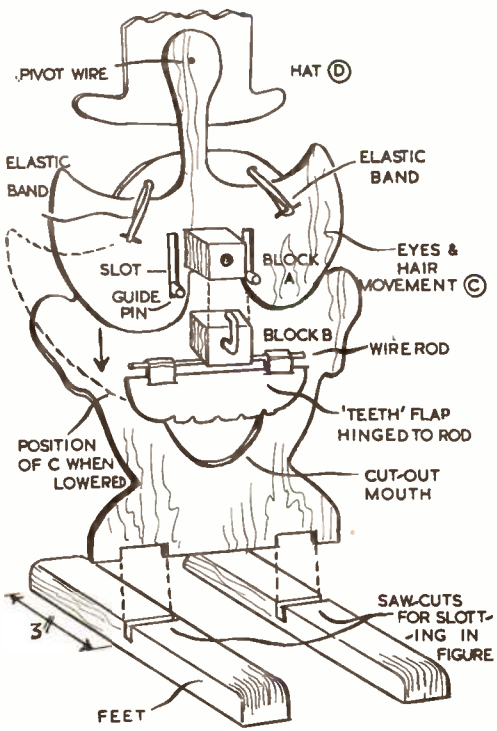
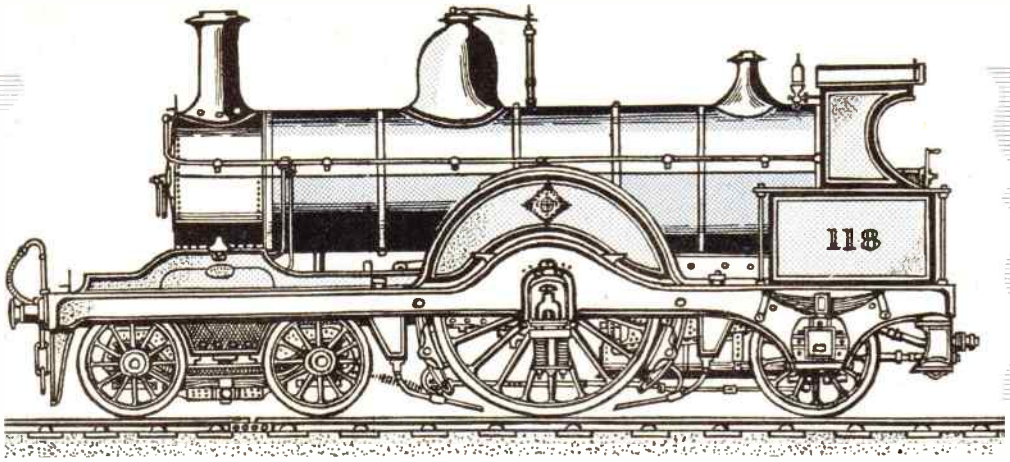


FIGURE 2

Interesting Locos—No. 14



OF the British inside cylinder 'Single Wheelers', perhaps the most noteworthy were the handsome 7 ft. 9½in. Bogie engines of the '115' class designed by S. Waite Johnson for the Midland Railway in 1896. They were often referred to as the 'Spinners' on account of the tendency of the driving wheels to spin round many times before finally getting a grip on the rails when starting away with a heavy train. These engines, nevertheless, were employed for many years on the fastest and heaviest trains on the Midland line, including the heavy St. Pancras–Leicester twins, which they often accomplished in 100 to 105 minutes for the 99¼ miles run. The 'Spinners' comprised fifteen engines and our illustration shows the fourth engine of the class No. 118, which is now preserved at Derby, and painted in the handsome Midland Red livery.

Leading features

This classic design carried the following leading features: cylinders 19ins. by 26ins., heating surface; tubes 1,105 sq. ft., firebox 128 sq. ft. Total: 1,233 sq. ft. Grate area 21·3 sq. ft. Working pressure 170 lbs. per sq. in. Weight of engine in working order 47 tons 2¼ cwts.

They were fitted with the sanding gear, which originated at Derby. This device forced a stream of sand into the line of contact between the driving wheels and the rails, thus giving the engine a firmer grip when starting. The tenders were of the standard M.R. six-wheel type of 3,250 gallons capacity.

In 1900 Mr Johnson built a further ten, known as the 'Princess of Wales' class. These had the cylinder diameter increased to 19½ins. and the pressure raised to 180 lbs. per sq. in., and were provided with eight-wheel tenders running on two four-wheel bogies. (A.J.R.)

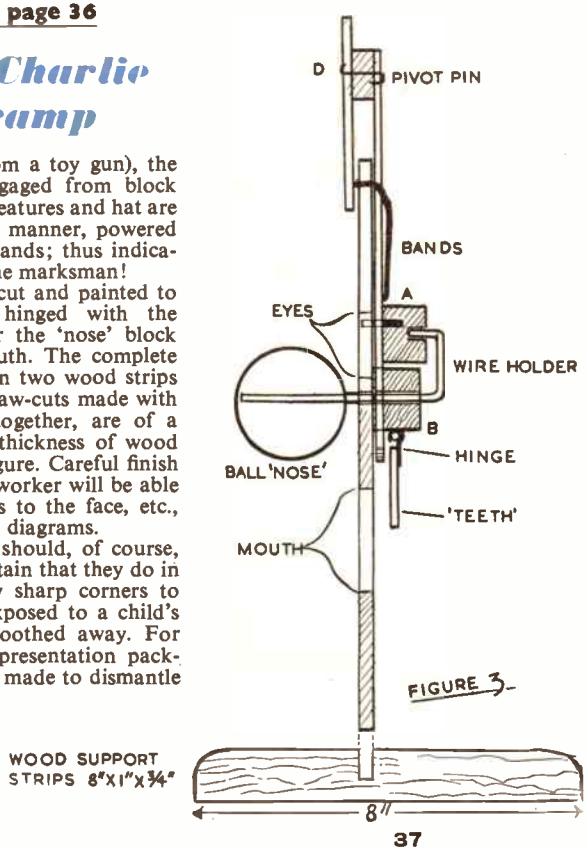
● Continued from page 36

Making Charlie the Tramp

round-rod missile from a toy gun), the wire holder is disengaged from block (A), and the moving features and hat are raised in an amusing manner, powered by the twin rubber bands; thus indicating a direct 'hit' to the marksman!

A cardboard flap, cut and painted to represent teeth, is hinged with the hinges directly under the 'nose' block behind the open mouth. The complete target is supported on two wood strips as shown at Fig. 2. Saw-cuts made with the strips clamped together, are of a width to accept the thickness of wood used for the target figure. Careful finish is called for, but the worker will be able to paint in all details to the face, etc., with the help of these diagrams.

All working parts should, of course, be tested to make certain that they do in fact 'work', and any sharp corners to metal components exposed to a child's hands should be smoothed away. For compact storage in presentation packing, the feet could be made to dismantle from the target.



Prepare by 'masking'

NOVEL PHOTOGRAPH ALBUMS

By S. H. Longbottom

HERE is an entirely new and fascinating method of making photograph albums, the basis being the preparation of sets of masks. We should mention that it is possible for you to devise many arrangements of shapes and sizes of pictures for each page, and the pages themselves may be composed of half-plate or whole-plate printing paper. The size depends mainly on how large you wish to make your individual pictures and also on the amount you can afford to spend. Titles can be neatly added in Indian ink wherever required.

Whether or not you use the patterns shown for making the album pages it is essential that you follow these instructions carefully, proceeding in exactly the same routine.

Preparing the mask

First requirement is a sheet of opaque paper twice the size you are to use plus an extra inch on both length and breadth. Larger sizes than this are all right and you may use thin, manilla card or the envelopes from packets of larger sizes of printing papers. The paper is folded down the centre to give equal halves so that we can prepare two masks exactly equal in size.

Now refer to Fig. 1 which shows the method of preparing the upper mask. You will see that we have an L shape guide which assists during the printing, and this is marked out 1in. wide. We also require ½in. from the left-hand edge as a suitable margin when fastening the pages together in album form and here indicated by the dotted line. Our next task is the setting out of suitable positions for the picture area of one mask. Draw a centre line, i.e. the centre after allowing for the ½in. margin on the left-hand side, sketching in an aperture for one picture, say on the right half. It is essential that such apertures are correctly prepared, using a set square to ensure perfect angles or the resulting picture will look most unpleasing when printed.

Having marked out the area for one aperture slip a protective piece of cardboard underneath the upper sheet of masking paper so that the opening can be cut out without damage to the underlying half of the paper. A sharp knife must be used for cutting and you must see that the corners are cut out quite cleanly, laying aside the piece removed which we shall need in a moment.

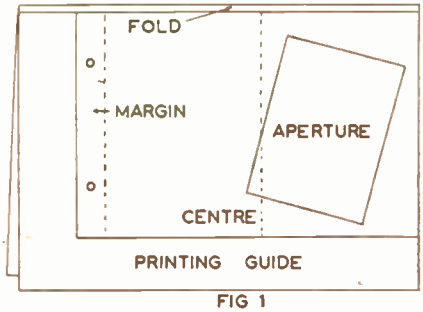


FIG 1

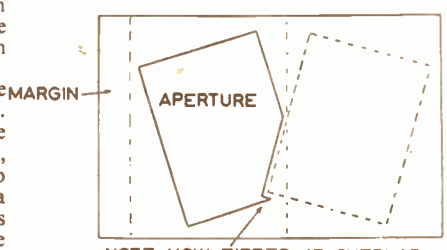


FIG 2

You may now remove the cardboard used for cutting out and you have a folded piece of paper with an aperture in the upper half. Now trace the outline of this aperture on to the paper underneath by running a pointed pencil around the perimeter, and giving an indication of the ultimate position of one picture on the page.

After this operation you may proceed to cut off the L shape, laying aside for the printing process, then completing by cutting out the other two pieces. You will appreciate that we now have two identical L shapes and two masks, one of these prepared and the other awaiting our attention.

To make the second aperture fit the first we take that portion removed from the first mask. You will recall that we have already pencilled in the position of one picture and all that is required is to place the cut-out portion in a suitable, yet balanced, position to match the other. There will be some overlapping when the oblongs are slanting but provision is to be made for this. Now pencil round the outline of the cut-out and when this is removed you have the position for the second masked picture area. Before final marking out of this aperture you should allow ½in. margin between the two pictures as shown in Fig. 2, while reference to Fig. 3 will reveal the result. Needless to say, ensure the angles are correct before cutting.

Other arrangements

The two masks described have been prepared for vertical pictures and were used for the illustrations, but you may easily modify to incorporate horizontal or even circular pictures to produce novel effects. No doubt you will be able to think of many more nice arrangements and Fig. 4 shows a combination of a rectangle and circle.

It may be helpful to mention that the circular mask was prepared by using a

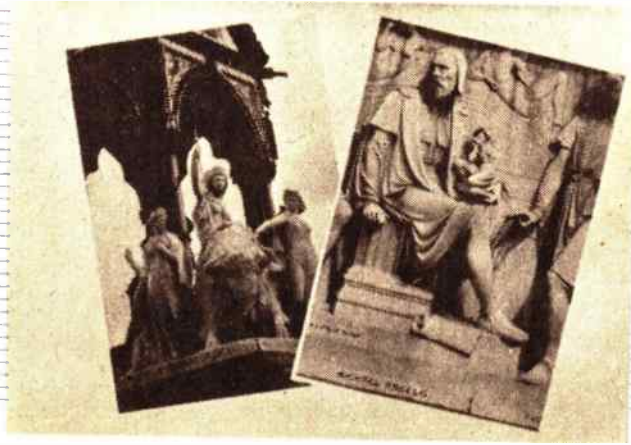


Fig. 3

pen nib trimmer, fitted in a penholder and fixed in a pair of compasses. These trimmers are used for all kinds of handicrafts and may be bought separately for a few coppers.

Printing hints

Some remarks about printing will be necessary here and this is where we require the L shaped pieces. When cutting out you produced two pieces and these should be stuck together in exact register, not only to make a firmer guide but also to balance the thickness of the printing paper plus mask. A small weight will hold the paper and mask together during exposures, but the L shape should be firmly fixed to a baseboard of hardboard by means of pushpins.

Place a piece of printing paper on the hardboard fitted to the L shape with a mask on top — it does not matter which one is used first — make the exposure. The negative is changed and the first mask replaced by its counterpart when the second exposure can be made. Providing you are careful in the original preparation of the two masks and you see that the masks and paper fit the L shaped guide each time without being disturbed, you should not encounter any difficulties whatever. It should be realised however, that when printing negatives of different densities on one piece of paper in this fashion it is most essential that accurate tests are made immediately before exposures are made. This is most important. Make test strips of various times but see that development of these is for the same length of time. It is not much use developing one strip for one minute and another for two minutes for we can't do this when the pictures have been printed on one piece of paper. You should also note from Fig. 3 that although the pictures are tilted at an angle they are still vertical in their own frames. This is done by manipulating the negative, or enlarger image accordingly.

When the pages have been completed you may make a suitable binding cover for top and bottom, scored to make a hinge, fastening the leaves together with silk cord or screw fasteners.

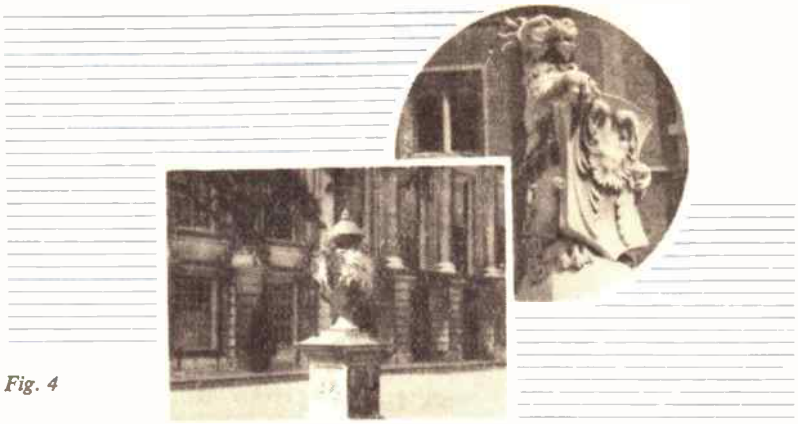


Fig. 4

The Tumbler and Dice Trick

THIS little trick will both entertain and baffle your friends and you are recommended to let them try their skill before showing that it can be done — that is, provided you are prepared to practise beforehand the deft hand movement required.

All you need in the way of apparatus is a tumbler, preferably with straight sides, and either a pair of dice or a pair of sugar lumps. The tumbler is held in one hand as shown in the illustration, the thumb holding the lower die against the tumbler, with the other balanced on top.

The task is to transfer both dice to the inside of the tumbler without the aid of the other hand.

By 'Mystifier'

The fun starts when your friends are asked to try this trick. It seems quite easy to jerk the uppermost die into the tumbler, but an entirely different matter in doing the same with that held by the thumb. What usually happens is that the one already in the tumbler is jerked out on to the floor! And even after many attempts the result will be the same unless the secret of the trick is known.

Rapid movement

As already mentioned, some skill in rapid hand movement is demanded, and even when revealed, it is doubtful whether your friends will be able to perform the trick.

This is the secret which should be noted carefully if you wish to perform this wizardry with success.

After the first die has been transferred to the inside of the tumbler with a quick upward jerk we are confronted with the second die held against the outside of the glass. You will know well enough that by jerking the tumbler upwards we only remove the first die, so the clue should be fairly obvious. We have to *lower* the tumbler slightly and catch the die as it falls.

Immediately the first die is inside the tumbler one must make a quick downward movement of the hand, but at the same time releasing hold of the die and tilting the tumbler towards the thumb. This tilting is part of the trick in catching the die. The downward jerk should actually begin a fraction of a second before the die is released, while the tilting action will enable the catch to be made quite easily. The whole operation takes a mere fraction of time, is almost too quick for the eye to detect, and your friends will be completely baffled if the secret is not revealed, thinking it is some sleight of hand. As we have mentioned before, you should never tell the secret of your tricks!

ANSWERS TO TWO-MINUTE QUIZ
(see page 35)

1. Concrete or plaster work cast on the job instead of being pre-cast. 2. Cumborio. 3. Came. 4. Notching Joint. 5. The vertical member supporting the tread.

'PADDLE' YOUR CANOE

While not suggesting that the foot paddles described here are as effective for propulsion as a pair of oars or paddles, readers might be interested in this adaptation to their craft. Described by A. E. Green.

YOU can 'paddle your own canoe' with your feet by adding a pair of wheels which, being geared and connected with treadle boards, enable a reasonable speed to be maintained with a moderate amount of pedalling.

The only structural alteration to any boat is the boring of a hole in each side through which the shaft revolves in a watertight stuffing-box and gland.

A general view (Fig. 1) shows the lay-out of the wheels, shaft, chain-drive and treadle boards in a boat ready for use.

The paddle wheels

The paddle wheels are about 24ins. in diameter and 10ins. wide. The boss or centre piece is made of good hard wood, and is secured to the shaft by means of two tapered pins driven through the body of boss and shaft. A fixed collar on the shaft and two locking nuts at the end are additional precautions to ensure the wheel remaining rigid. (See Fig. 2.)

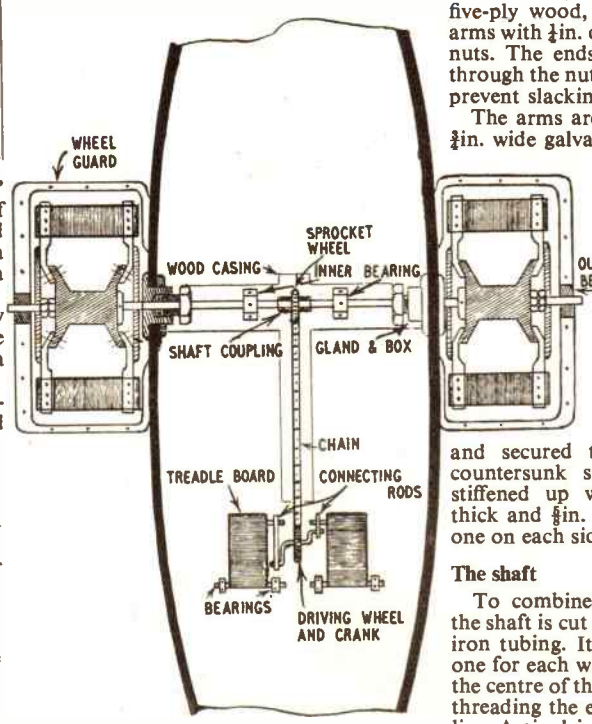


Fig. 1—General arrangement showing paddle wheels, treadles and drive.

The floats, six in number, are cut from five-ply wood, and are fastened to the arms with ¼in. diameter brass screws and nuts. The ends of the screws protrude through the nuts and are riveted over to prevent slacking back when working.

The arms are strips of ¼in. thick and ¾in. wide galvanised steel, set as shown, and secured to the boss with brass countersunk screws. The structure is stiffened up with two flat rings ¼in. thick and ⅝in. wide bolted to the arms, one on each side.

The shaft

To combine strength with lightness, the shaft is cut from a length of ⅝in. bore iron tubing. It is made in two lengths, one for each wheel, and held together at the centre of the boat, or thereabouts, by threading the ends into a screwed coupling. A pin driven through each shaft and the coupling prevents the ends from being twisted out when revolving.

The shaft revolves in four bearings. Two (Fig. 3) are placed inside the boat on one of the cross-pieces and support the shaft on either side of the chain wheel. Two others (Fig. 4) support the wheels at their outer ends, and are bolted to a frame — a strip of ¼in. by ¾in. galvanised iron, (see Fig.1) — bent to form a guard around the wheels, and fixed to the side of the boat with strong co untersunk screws.

The watertight stuffing-box and glands are very similar to those fitted to motor boats, so the complete units could be purchased at a Marine store.

With a lathe available, however, it is not a big job to machine them oneself. Made wholly of brass, each is in three pieces, namely:—outer plate and stuffing-box, gland nut, and inside ring-plate.

A smooth hole is bored through the side of the boat

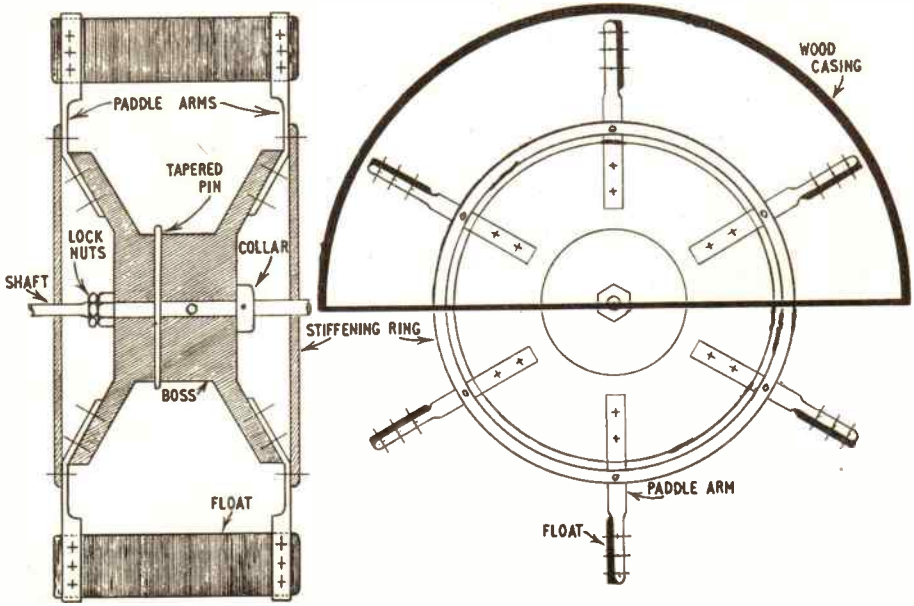


Fig. 2—Details of wheels.

so that the spigot of the outer plate can be fitted and jointed and secured with three screws.

The inner ring-plate is threaded on to the spigot and screwed up securely on to a hemp grommet to make a watertight joint, after which it, too, is held rigid with screws. (See Fig. 5.)

After the shaft is in position the stuffing-box can be packed with a lubricant packing and the gland nut screwed home. A piece of twisted yarn treated liberally with tallow makes an excellent packing for this purpose.

Motion is transmitted to the paddle wheels by means of a chain drive. The chain and toothed wheels of a disused

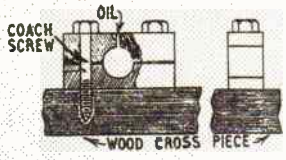


Fig. 3—Inner shaft bearing.

Fig. 4—Outer shaft bearing.

cycle will answer the purpose. The length of drive will be governed by the room available in the boat, and the pedals should be placed in such a position as to be operated comfortably by a person seated in the stern.

The driving wheel revolves on a pin fixed to a pedestal. This is fastened to the keel-board and gets its movement from wooden treads connected to it with short steel rods. (See Fig. 6.)

The treadles (Fig. 6) are made from teak wood, 12ins. long, 6ins. wide, and ½in. thick. They are hinged into bearings at the lower end by means of an iron plate ½in. by ⅜in. fastened across the back with screws, and having its protruding ends rounded to suit the bearings.

The connecting rod pins are formed in a similar manner, and the two rods are of such a length to place the treads at an angle of about 60 degrees from the horizontal — this being the best angle for foot work. The small toothed wheel is fitted to the shaft in line with the driving wheel, and is held in position with a small set-screw and key.

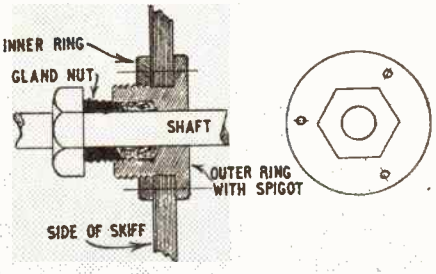
Building the paddle wheels

As the size of various parts will depend on the proportions of the boat, the figures quoted are merely comparative. The details of construction, however, will be general for all sizes.

The boss is turned in the lathe from a piece of 14in. diameter oak about 8ins. wide. Gouge out the centre piece to about 8ins. diameter, giving it the 'cotton-reel' shape for lightness, but taking care to leave the flanges at least ⅞in. thick. Whilst in the lathe bore a ⅜in. diameter centre hole, and face up the ends. This will ensure the circumference running concentric with the bore.

With brace and bit, drill two holes through the body for the steel tapered pins. Before taking the boss from lathe mark a horizontal centre line along the

Fig. 5—Stuffing box and gland.



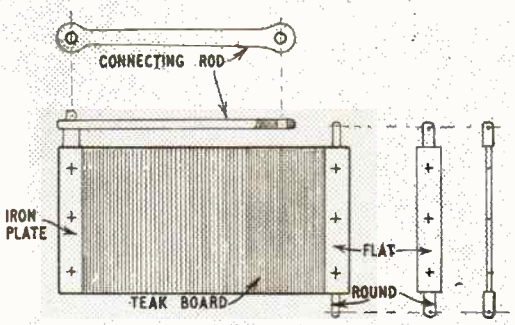


Fig. 6—Details of treadle fittings.

body and around the ends.

Divide with compass the ends into six equal parts (see end view, Fig. 2). This gives the centre line of each paddle arm and ensures correct alignment. It is important that all six arms are at the same angle when fixed to the boss. Support the finished boss on a short spindle and revolve, and after checking, mark and drill holes for the stiffening rings.

The floats are made from standard five-ply, and are the same size. They can be cut from a sheet with a hand saw and bolted to the arms as shown in Fig. 2. The floats should be liberally coated with shellac before the first trip.

When selecting a length of tubing for the shaft it is essential it be straight and smooth on the outside. Cut it into two pieces of such a length that when screwed into the centre coupling the ends will just meet, whilst the outer ends project about ⅛in. beyond the outer bearings.

The outer end of each shaft is threaded to a length of 5ins. to ensure that the securing nut bears hard on the wood boss. The remaining threads are then removed in the lathe to form a surface and shoulder in the outer bearing. The inner collar is held in position with a tapered pin.

Lining up the shaft

The correct alignment of the shafting is important. A shaft horizontally out of line will tend to propel the boat constantly to port or starboard, whilst a shaft at fault vertically will put uneven work on the wheels and cause erratic progress. The shaft, therefore, must lie exactly at right angles to the keel and be perfectly horizontal.

This position is effected by boring the stuffing-box openings in the correct position. To determine the vertical centre of these holes, first ascertain the load line, and bore your hole about 8ins. above it. (A small sighting hole at first.)

To ensure the centres being at right angles to the keel, tack a wood baton across the stern post and measure from it along the hull. Now bore holes and fit the stuffing-box and gland.

With the shaft revolving freely through these fittings, the spot for the inner and outer bearings can be found, and these should be assembled and fixed. The frame supporting the outer bearings also carries the light wooden splash casing. This is made from standard three-ply sprung to a semi circular sweep and held to the frame with small brass angles.

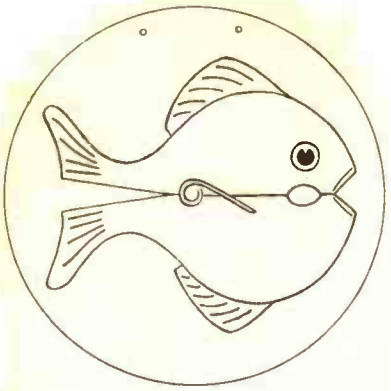
Gearing

As stated, the drive is made up from an obsolete cycle; the forked end cut down, inverted and flattened. The pedals are removed, their spindles shortened to ⅝in., and the connecting rods kept in position with washer and split pin.

The connecting rods are made from ⅛in. thickness steel plate, ½in. wide at the centre and shaped to ⅞in. diameter around the holes. The treadle bearings are similar to those for the outer shaft, but are bored ½in. diameter to suit the spindles. Fig. 6 shows the spindles for treadle ends, and driving pins for connecting rods.

The shaft and chain drive should be covered with a light wood casing to protect clothing from grease.

MAKE A NOVEL TOWEL HOLDER



By H. Ridgway

HERE is a useful novelty which holds a towel securely in the mouth of the fish. It is made from a 3in. spring clip clothes peg and scraps of wood.

You will need first a 4in. diameter backplate, cut from $\frac{3}{16}$in. wood or hardboard. Drill two small holes near the top, 1½ins. apart, for hanging the holder. Smooth well with fine glasspaper.

Secure these shaped pieces to the peg with glue, their fronts fitting flush with the side of the peg, Fig. 2. The surfaces which are glued must be level to ensure a strong joint. Drive in four ½in. fretwork nails where indicated by the dotted lines in Fig. 1. A wedge inserted near the spring coil will open the peg sufficiently for this to be done with a hammer and punch. Drill holes for the nails to prevent the peg splitting.

The appearance of the finished article is enhanced if you now cover the front of the fish with $\frac{1}{16}$in. wood, or failing this, thin smooth cardboard. To do this, place the cardboard shapes which you have already cut out on a sheet of tracing paper. Draw round them with a pencil, allowing on each a margin as wide as a

plates on the covering material, draw round them and cut out. Glue these cover pieces carefully in position, and trim and smooth the edges. A dome headed chair nail serves for the eye.

Apply a coat of size, and then enamel in suitable colours. The inside of the mouth is painted, after the rest of the enamel is dry. A strong rubber band or length of string passed round the tail will keep the mouth open to enable this to be done. To facilitate the painting, drive 1½in. panel pins a little way into the back

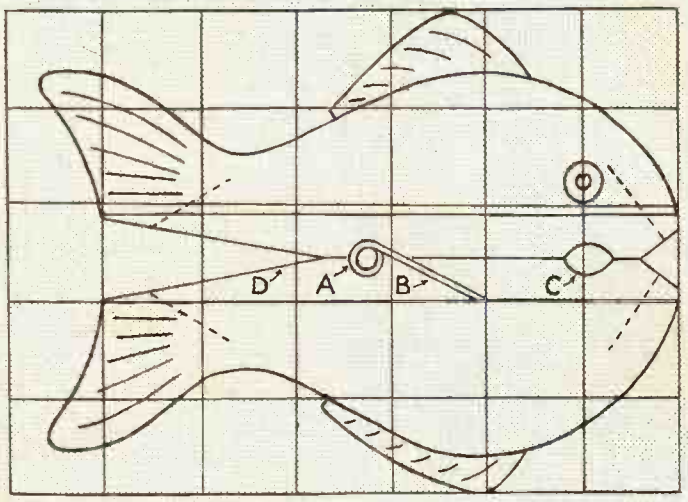


Fig. 1—Draw fish on pattern of ½" squares. Dotted lines indicate position of nails. A.B.C.D. refer to instructions for cutting cover pieces.

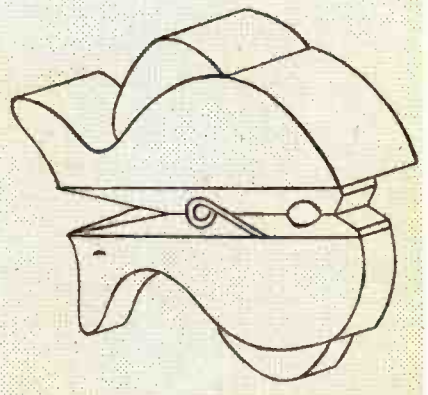


Fig. 2—Showing the position of shaped pieces on the peg.

Draw the two parts of the fish on a thin cardboard pattern of ½in. squares, omitting the middle part representing the peg (Fig. 1). Cut them out, and, placing the top half on a piece of wood 1in. thick, draw round the outline with a pencil. Cut out with a heavy duty fretsaw blade. Follow the above instructions for the bottom half, using wood which is ⅜in. thick. Smooth thoroughly with glasspaper.

half of the peg. When cut out, these paper patterns are secured to the fish with strips of Sellotape. The outline of the coil (A), the arm (B), the mouth (C), and the tail opening (D), (Fig. 1) will appear through the tracing paper. Mark these carefully on the paper with a pencil. Remove the paper, and complete the cutting out. Glue the paper patterns to thin cardboard, and cut them out to make the cover templates. Lay the tem-

of the parts, to serve as handles. Tie lengths of string to the nails, and fasten to a line while the enamel dries.

A suggested colour scheme is dark blue for the backplate, and light grey for the fish, with dark grey lines on the tail and fins. The eye is white with a black centre. The top half of the fish is secured to the backplate with glue and two ½in. fretwork nails.

When using the holder, press the tail, and place the loop on the towel in the fish's mouth.

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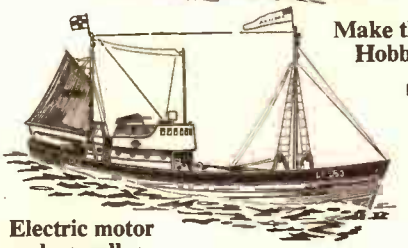

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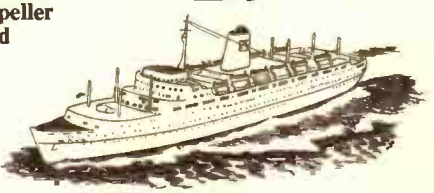

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Replies to Readers
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Building a Telescope

I AM in possession of a 6ft. searchlight reflector which I would like to build up for the study of stars, etc. In your opinion would the above be possible, and is it likely to be a success as a telescope? (P.F.—Bedford.)

THE reflector of a searchlight is designed with a very short focus to concentrate the light rays and reflect them in a parallel beam. Unfortunately for your purpose, the short focus renders the reflector quite useless for a telescope, the mirror of which must be formed with a long focus to be of service. If you are interested in building a reflecting telescope, quite good results can be obtained with a 6in. mirror. Such a mirror can now be bought for £12/10/-, the eyepiece for £3/3/- and a prism for about £1.

* * *

Transistor Receivers

IS it possible to modify the transistor headphone receiver described in Hobbies Weekly dated February 13th, 1957 (by using more transistors if need be) in order to operate a small loudspeaker (2ins. or smaller) and still keep it very small? (R.P.—Bristol.)

A PORTABLE for speaker use will need at least three transistors. Very small speakers give much less volume than slightly larger units, with a given signal. If an indoor or other short extended aerial can be used, two transistors will give moderate speaker volume. The signal pick-up of the aerial in a very small portable receiver is extremely low, so that more amplification is required. (Note: A 2-transistor circuit was described in our issue of October 8th.)

* * *

Covering a Canoe with Ply

WILL you kindly inform me the simplest way to cover a 10ft. canoe in 3 mm. plywood? (P.V.—Romford.)

PLYWOOD will only bend one way at a time. It can only be used on surfaces which permit this. If your canoe framework is curved in cross-section, you cannot cover it with sheets of plywood. The only shape that permits this is 'hard-chine' (V or flat bottom and straight sides). Do not use ordinary plywood, as this is bonded with a glue which is not waterproof, and the ply will come apart when it gets wet. Use marine type (marked 'B.S.S. 1088'). This should be fixed with a waterproof glue (Aerolite or Cascamite) and small brass screws or brass shoe nails. At joints in the sheets, put strips behind and butt the sheets together, with glue and screws in the joints. Do the sides first, with the framework upside-down. Plane the ply edges level with the chines, then fix the bottom pieces and plane their edges level with the sides. It is possible to cover a curved surface with strips of plywood, but this is not recommended for a canoe. In any case, most people find that a canvas skin is adequate for the normal type of canoe.

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Aircraft Transmissions

I AM interested in short-wave listening, and would like to know what metre to get aircraft on. (M.S.—Matlock.)

AIRCRAFT and ground stations will usually be heard in contact on the wavelengths around about 60 metres. Other wavelengths are also used, and occasional transmissions of this kind will be heard between the wavebands assigned to commercial and amateur transmitters (17, 19, 20, 25, 31, 41 and 49 metre bands). At some time, no such stations may be heard, but at others they may be quite busy.

* * *

Canoe-building Costs

PLEASE let me know how much it would cost to build a PBK 20 canoe, firstly just as a canoe, and secondly, as a sailing canoe? Also what tools shall I need? (D.M.—Surlingham.)

PBK 20 canoe can be built for about £10. About half the cost is in the skin. Readymade paddles cost upwards of £2 each. The additions for sailing would probably cost £3. Not many tools are needed — tenon saw, small plane, coping saw, files, two or three cramps, drill, screwdriver, hammer, pliers, bradawl, small hacksaw. (Note: Building costs of canoes vary from about £7. Full-size plans available from Hobbies Ltd., Dereham, Norfolk and branches).

* * *

Gluing Veneers

I RECENTLY constructed several cabinets of birch plywood and decided to finish them with a sapele veneer. This I did, ensuring that the veneer was laid correctly as regards grain of wood, etc. I trimmed the edges of veneer to be joined, together, therefore ensuring a perfect butt join. This looked very nice on completion, but during the following day when the wood had evidently dried out, I found that the joints had opened up to the extent of 1 mm., thereby spoiling an otherwise perfect job. Could you tell me why this has happened and how it can be prevented from occurring again? The veneers I used were of first quality. The adhesive was P.V.A., but I found it necessary to dampen the veneer whilst laying, otherwise the edges failed to adhere correctly. (R.H.—Gosport.)

IT is thought your fault was in the choice of glue. When you dampened the veneers they expanded, and shrank again when they dried. The PVA glue remains slightly elastic when it sets, and this allowed the veneer to move over the plywood. It would be better to use an ordinary wood glue, such as Croid Aero or ordinary Scotch glue. In any case, dampening should be kept to a minimum.

* * *

Mould on Wines

I HAVE made and boiled some mead wine according to instructions in 'Hobbies Weekly', but am a bit anxious of the green mould forming on the top of the wine. Is this usual? (D.K.—Coulsdon).

PROVIDED the recipe has been followed, the ingredients were of the best quality, and the utensils used were quite clean and fresh, it is not usual for the mould to form on the top as stated. All utensils should be sterilized, and this is best done by putting them into boiling water for a few minutes. While the wine is working, it is necessary to keep the air (a carrier of bacteria) from entering the liquid. A good way to do this is by placing a piece of polythene material over the neck of the bottle and fasten it with an elastic band. This will allow the gas to escape, but will keep the air out. A fermentation lock will, of course, do the job, but to buy many of these can be expensive. Carefully remove the mould without disturbing the wine any more than can be helped, then strain it through sterilized butter muslin and re-bottle into *clean* dry bottles. The mould, if carefully removed, should not affect the wine.

TRY THESE WINE RECIPES

SOME readers who have followed our wine recipes with interest and much enjoyment have queried the use of white and brown sugar for the different brews. In many instances, either would appear to be optional. We have successfully brewed the potato wine with both kinds of sugar, though, admittedly, the warm colour obtained from the use of Demerara makes the finished product look most appetising. As a general principle, however, use white sugar, for white and light wines and Demerara for the red type.

Some wines may develop a mould on top, either in the bottle or fermenting pan. This, of course, should be removed very carefully as it appears. It can easily be lifted in one piece with ladle or spoon. Here are further recipes for wines to add to your store. (P.P.)

FIG

3 lbs. figs, ½ lb. raisins, 3 lbs. apples, 1 gallon water, 3½ lbs. sugar.

Cut up the figs and boil in the water until very tender. Strain. Chop up the apples and raisins and add to the water with the sugar. Stir often. Leave to ferment for one week and then strain. Stand for a further fourteen days before bottling.

CHERRY

2 lbs. black cherries, 2½ pints of boiling water, ¼ lb. sultanas, 1 lb. sugar, ½ oz. yeast.

Pour boiling water over cherries. When cold, mash cherries, then add sultanas, sugar and yeast. Leave the brew fourteen days, stirring daily. Squeeze out moisture from the pulp before throwing it away. Strain well and bottle, corking loosely for one month, then tightly.

BARLEY

¼ lb. barley, ¼ lb. raisins, 4 old potatoes (each about size of egg), 1 lb. white sugar, ½ oz. yeast, 2½ pints water, ½ oz. root ginger, 2 fresh egg shells.

Bring the barley to boil in the water then simmer for forty minutes. Strain the liquid off the barley. Put the raisins, scrubbed potatoes (cut into small pieces, not peeled), ginger and sugar into a vessel and cover with the liquid. When cool, dissolve the yeast in a little warm water and add. Crush the two fresh egg shells and add to the brew. Cover the jar with a thick cloth and leave it to stand for two weeks, stirring daily. Then strain well. Cork lightly for about one month, before fastening more securely.

WHEAT

1 lb. wheat, 2 lbs. sultanas, 1 lb. potatoes, 4 lbs. sugar, 2 grapefruit, 1 gallon water, 1 oz. yeast.

ROSE HIP SYRUP

2 lbs. ripe rose hips 4½ pints water
1 lb. white sugar

Mince the clean rosehips and drop immediately into a saucepan containing 3 pints of boiling water. Bring to the boil straight away, then remove the saucepan from the stove and leave 15 minutes. Pour through a scalded jelly bag and allow to drip. Return the pulp to the saucepan, add the remaining 1½ pints of water, re-boil and allow to stand without further heating for a further 10 minutes, then drain through the jelly bag as before. Combine the two extracts in a clean enamelled saucepan and simmer until it is reduced to approximately 1½ pints. Add the sugar and re-boil a further 5 minutes.

Bottle (use small bottles), cork and sterilize by placing the nearly full bottles in boiling water for 15 minutes. This syrup, like blackcurrant syrup, is an excellent source of vitamin C. A dessertspoonful a day is a recommended dose. The flavour can be varied by mixing with orange or lemon syrup and diluting with soda water when required.

Put wheat, sultanas (chopped), potatoes (washed and roughly grated), sugar and the juice and thinly-pared rinds of the grapefruit into a bowl. Pour 1 gallon of hot water over and stir until the sugar is dissolved. When it is lukewarm, sprinkle 1 oz. of yeast in and leave, covered lightly, to ferment for three weeks, stirring each day. Then strain and bottle.

GOOSEBERRY

4 lbs. green gooseberries, 1 gallon water, 4 lbs. sugar, ½ oz. cream of tartar.

Wash gooseberries, put into pan with water, and boil for thirty minutes, stirring and mashing well to break up the berries. Strain. Stir in the sugar and cream of tartar, and allow to stand in a warm place for three days. Strain into a cask, cover bunghole with a folded cloth until fermentation ceases. Bung tightly and leave for three months. Drain off carefully into a clean cask, or bottle.

CURRANT

Take 2 lbs. of currants and pour 8 pints of boiling water over them. Add 1 oz. yeast. Allow twenty-four to forty-eight hours for 'working' and cork loosely at first. Ready for 'sampling' in a month.

. . . and now the Wine Club

PEOPLE with like pursuits tend to get together. Enthusiasts form hobby clubs, and thereby educate one another, and generally raise the standard of their craft.

Home winemakers, who have become more numerous in recent years, are now getting themselves organised. They are no longer satisfied with old country wine methods. This is a scientific age, and, naturally enough, a scientific approach is demanded.

New developments

New equipment has been devised. Improved yeasts have come on the market. Even the recipes are changing.

You may have noticed, that better and better wines are being exhibited at more and more shows. The bottles are attractively labelled, moreover, and are finished with professional looking capsules. It is necessary that an enterprising winemaker keeps in touch.

Beekeepers, and, of course, mead makers, already have their associations. Now it is the winemakers' turn.

The wine club is, even now, a young idea. Many groups are only in the process of formation. The Andover Winemakers' Circle, which was born in February 1954, considers that it was the first in the field.

This Andover club has gone ahead, and they are now producing and selling a monthly magazine — 'The Amateur Winemaker'. This publication, published by C. J. J. Berry, North Croye, The Avenue, Andover, Hants., is widely read, and it serves to co-ordinate much of the work of the clubs. It is, I believe, the only paper of its kind.

Within the clubs, members can exchange views, and, of course, taste each other's wine. The groups meet also for lectures, demonstrations, and outings to breweries and commercial wine cellars.

Winemakers have a wide range of interests, and lectures are not as difficult to arrange as might be imagined. Equipment suppliers, grape juice importers, yeast producers, and neighbouring wine clubs are invariably helpful. You can add to these, coopers, beekeepers, and gardeners versed in viticulture.

Although wine groups appear to predominate in Hampshire, there are clubs as far apart as Helensburgh and Cardiff, and new ones are being projected in Reading, Spennymoor, and Thames Ditton.

(E.C.)

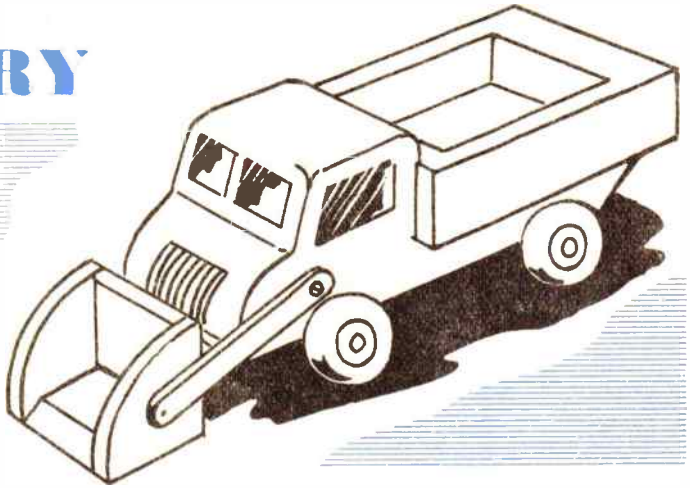
Full-size Patterns

SNOW LORRY

IT is easy to make this toy if you use a fretsaw for cutting out the full-size patterns.

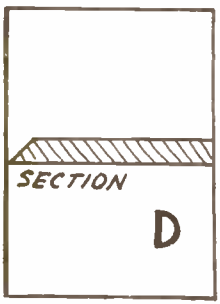
Cut three pieces (A) from ½in. wood and glue them together, side by side, to form the cab and main chassis of the lorry.

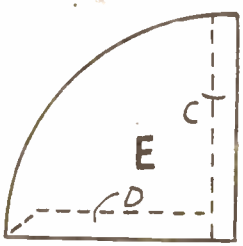
Cut two pieces (B), ¼in., and glue them one on each side as shown by the dotted lines. Pivot four Hobbies ⅞in. plastic wheels in position with round-head screws.

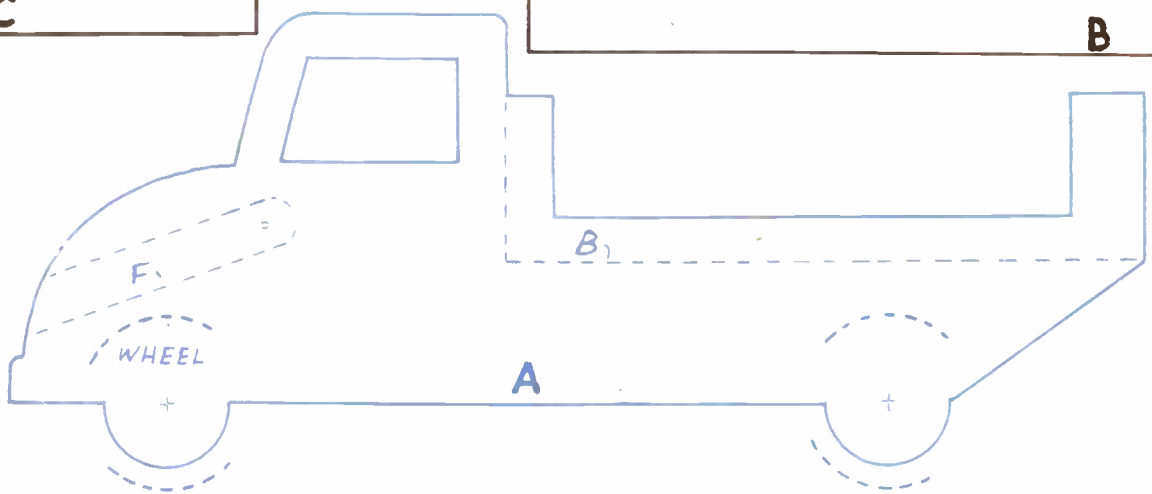


The plough, or scoop, is mounted at the front and pivots on two arms (F), which are cut from ¼in. wood and pivoted to the cab. Make the scoop from piece (C), (D) and two pieces (E), cut from ⅛in. wood and glued together.

Paint in a bright colour and mark the windscreen, radiator, etc, in black. Plastic wheels cost 1/4 per set of 4 (postage 3d.) from Hobbies Ltd, Dereham, Norfolk. (M.p.)







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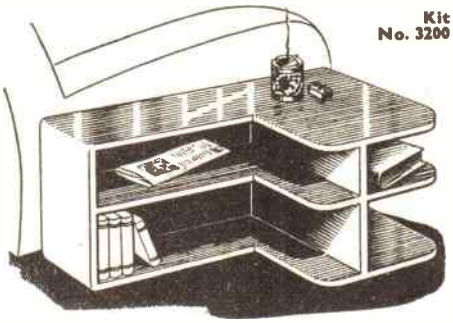

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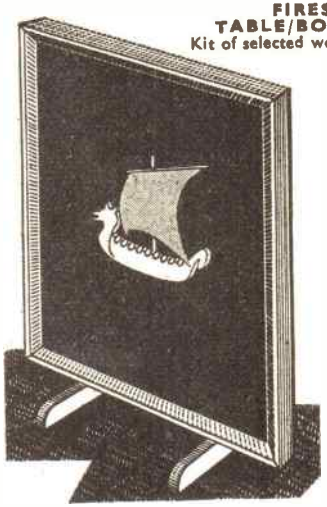

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