HOBBIES WEEKLY

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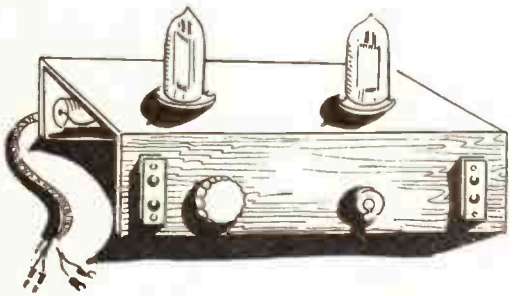
IN THIS ISSUE

★ *Compact and Economical*

THIS amplifier is designed for operation from dry batteries only, and is particularly suitable for record playing, with 78 r.p.m. records and any ordinary type of magnetic or crystal pick-up. It is compact and economical to run, and can be employed for any purpose where a small amplifier capable of good loudspeaker results is required, where no mains are available, and an accumulator is undesirable. Besides record playing, other applications will come to mind,



Described by radio expert F. G. Rayer

ALL-DRY AMPLIFIER

such as amplifying the signals from a crystal set, for use with a microphone, or in a baby alarm circuit.

For the filament supply, any 1·5 V dry battery is suitable. Batteries made especially for this purpose can be purchased, or a cycle or hand-lamp battery, *with cells wired in parallel*, is equally suitable. The valves require 1·4 V, and this is about the voltage of such dry batteries, on load. Upon no account must a 3 V or 4·5 V battery be used, as the filaments will be damaged.

For high tension, a miniature 67½ V layer battery can be used, or a full-sized 60 V battery. The latter is less portable, but has a lower cost and longer life than the miniature battery. For greater volume, a 90 V H.T. can be used.

Components

The circuit appears in Fig. 1, and components are also given in the Component List. There is not a great deal of latitude in the ·7 megohm (700,000 ohm) and ·1 megohm (100,000 ohm) values used with the first valve, and those actually used should be near these figures. The 700 ohm value should also be preserved. The other values are relatively unimportant. A condenser of ·05 to 2 mfd. may be used in the ·1μF position, if to hand. Similarly, the 25μF bias condenser may lie between 12μF and 50μF. The ·01μF condenser should have high quality insulation, as any leakage, however slight, will result in a positive voltage reaching the output valve grid, reducing valve life. No G.B. battery is necessary, as bias is developed across the 700 ohm resistor.

Chassis

This is made by taking a piece of aluminium 6ins. by 6ins. and bending two runners 1½ins. wide along opposite edges. Material of 18 or 20 S.W.G. is suitable, and straight bends will be possible if the metal is clamped between strips of hardwood in a vice.

Clearance holes are cut for the valve-

holders and two socket strips, and the sockets or tags of these must on no account touch the metal. The small volume control and switch are fitted in further holes, while a hole at the back, with grommet, forms an anchor point for the battery cable, of thin flex.

Fig. 2 shows the top of the chassis, but it must be noted that some valve-holder manufacturers place the bolt holes at a different angle to the sockets. So that the wiring plan can be followed, the sockets should be located as in Fig. 2, irrespective of the position of the bolt holes securing the holders to the chassis.

Wiring Up

Tinned-copper wire of about 22 S.W.G. is easiest to use, and will solder readily. Lengths of insulating sleeving should be slipped over each lead, unless some kind of insulated

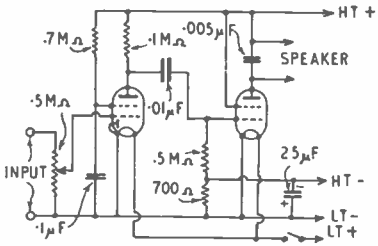


Fig. 1—Circuit

connecting wire is used instead. Some of the valveholder sockets are not used, but these must not touch the chassis, or other tags, leads or components.

All connections will be seen in Fig. 3, and should be reasonably short and direct. One point is marked 'MC'. This is a connection to the metal chassis, by means of a lead or tag held under one of the nuts securing the valveholder.

The bias condenser requires special attention if it has a metal case, as the case must not then touch the chassis. To avoid such contact, a few layers of brown paper or insulating tape can be wound round the condenser. This component will also have polarity markings, and the negative end must go to H.T. negative, as in Fig. 3.

Connections should be carefully checked, as in some cases errors in wiring could cause damage. Great care should be taken to see that the L.T. and H.T. leads are never confused and taken to the wrong batteries.

Valves

Those listed are easily and cheaply obtainable, but equivalents may be used. In the 1S5 position, a Mullard DAF91 or Marconi/Osram ZD17 would be equally suitable. In the 1S4 position it is in order to use a 3S4, DL92 or N17, if to hand, provided the filament pins are re-wired to suit these types. A

COMPONENT LIST

2 B7G valveholders.
·5 megohm volume control.
700 ohm, ·1 megohm, ·5 megohm, and ·7 megohm resistors.
·005μF and ·1μF paper condensers.
·01μF mica condenser.
25μF bias condenser.
On/Off switch.
1S5 and 1S4 valves, or equivalents.
Connecting wire and aluminium for chassis.

Mullard DL92 may be used, in which case the H.T. voltage can be increased to 90 V, if extra volume is wanted. With the 1S4 output valve, a 90 V battery can only be used if a resistor of about 17,000 ohms is wired between H.T. positive and screen grid, with a condenser of about ·5 to 2μF added from screen grid to chassis. This

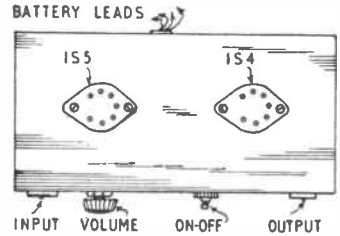


Fig. 2—Top layout and valve positions

replaces the direct H.T. positive connection to screen grid, shown in Fig. 3.

The valves are inserted in the positions shown in Fig. 2, and batteries connected. The amplifier should never be switched on without a loudspeaker having been plugged into the appropriate sockets.

Notes on Using

Any moving-coil permanent magnet speaker, with transformer for battery pentode, will be satisfactory. If a speaker is being purchased, this should be kept in mind, as it will mean that the transformer has a primary impedance of about 7,000 ohms, and a ratio of about 60:1. It will then give best results, with such an output valve.

A PM (permanent magnet) speaker is essential. Cheap ME (mains energised) speakers, offered by some component suppliers, cannot be used with battery equipment. Speakers with transformers for Triode Output, or Mains Pentode, should also be avoided, as the ratio is incorrect. As a result, volume will be reduced.

The speaker may be anything from 4ins. to 8ins. type, this dimension being the diameter of the cone. For proper results it must be mounted in a cabinet in the usual way.

If a pick-up is used, it is plugged into the sockets near the volume control. Leads from pick-up to amplifier should not be unnecessarily long, or run near the speaker leads, or howling may arise, especially when the volume control is turned up.

For use with a crystal set, the phone terminals of the crystal set are wired to the amplifier input sockets (those near the volume control). With some crystal sets it may be necessary to wire a condenser of ·0002 to ·0005μF across the phone terminals of the set.

If a microphone is used, it should be coupled properly. A carbon mike will give greatest volume, and must have its own dry battery and microphone transformer. The transformer secondary is wired to the amplifier sockets. The primary is wired to the microphone and battery, a lead between battery and microphone completing the circuit. About 3 V to 6 V is usually best, but

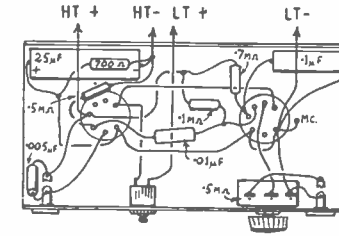


Fig. 3—Wiring plan

this can be found by trial, and the microphone battery should be disconnected when not in use.

A small, spare moving-coil speaker, with transformer, can also be used as microphone. So can a spare high-resistance earphone, but volume from this will be relatively small.

Fibreglass Plastic Kit

Re-Fab Ltd., of Arkwright Street, Nottingham, have introduced a handyman's kit of fibreglass plastic, working with which requires no special tools or heat and which turns within three hours from a liquid or paste into a glass-hard yet resilient substance which can then be filed, drilled, tapped and painted or sprayed. It is claimed that weight for weight Re-fab has the tensile strength of mild steel and bonds to even rusty surfaces.

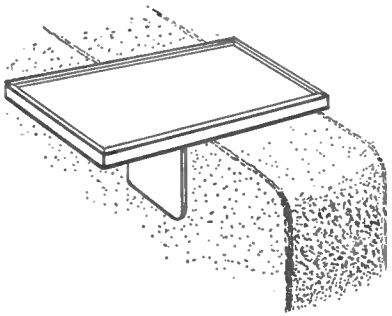
The pack, costing 12/6, includes a tin of stable plastic and two bottles of the additives which harden it, together with about 3 sq. ft. of fibreglass, and a filler powder which will stiffen it enough for use on vertical surfaces. It is cheap enough to make the repair of a leaking bucket economical and as it withstands temperatures up to 200° Centigrade it can also be used on boilers, silencers, etc.

Some indication of cost may be gained from the fact that one layer (with some filler) would be enough for a pitted car-wing, while for one with moderate sized holes in it, one layer below and one above would probably suffice.

Take your ease with this

Armchair Adjustable Tray

Says W. Russell



ALL too often, a well-deserved rest is interrupted because a cup of tea refuses to balance on the arm of the chair. But with a little effort, a small but serviceable tray can be constructed, which will fit on the chair as shown in the illustration. It can be adjusted to suit most armchairs, and will fold flat when not in use.

The measurements suggested are arbitrary, and may be altered to suit individual requirements. In the diagrams, the underside of the tray is shown. Apart from the runners, wood ¼in. thick is used throughout. Any timber may be employed, but a hardwood such as oak is recommended. Plywood is suitable, especially if oak-faced board is used for the tray itself. A panel of one of the new plastic-faced materials would be admirable, as the surface is durable, unaffected by hot liquids, and obtainable in a variety of colours.

Fig. 1 shows how the runners are fitted to the tray, which measures 12ins. by 8ins. They are made from lengths of wood 1in. by ½in., with a ¼in. rebate cut along one edge. A section is shown at (A). The runners are glued and pinned along the under edges of the tray as in (B), the ends being sawn flush.

Two hinged flaps are needed, and their construction is given in Fig. 2 (A). The flaps themselves measure 6ins. by 5½ins., and the upper corners are rounded. They are fixed by small brass hinges to pieces of wood measuring 6½ins. by 1½ins. With the hinges open, the flaps should stand at right-angles.

The flap mountings are inserted in the rebate along the runners, one from each end, with the hinges towards the middle of the tray, as shown in Fig. 2 (B). One mounting is fixed at the end of the tray, while the other is adjustable to any position along the runners. The movable mounting should be a fairly tight fit, so that it will remain in position when in use, the flaps gripping the sides of the chair arm.

The tray is completed by a narrow fillet of wood glued and pinned round the edges. Fig. 2 (C) shows a section of the moulding, which should be mitred at the corners. As the height is 1in., there will be a projection of ¼in. above the level of the tray to provide a small lip round the edge.

When completed, the tray is well rubbed down with glasspaper and finished according to taste. The movable flap is drawn to the far end of the tray when it is desired to fold flat.

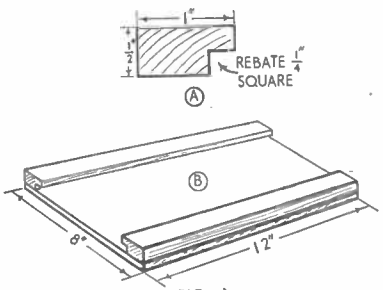


FIG. 1

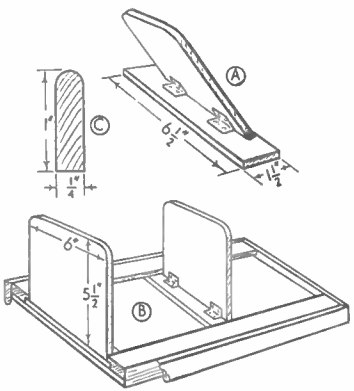
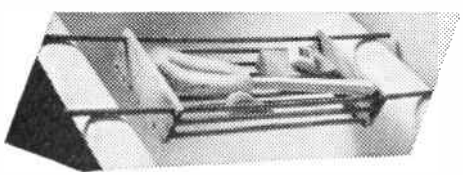


FIG. 2.

Rack for the Bath

Described by S.H.L.

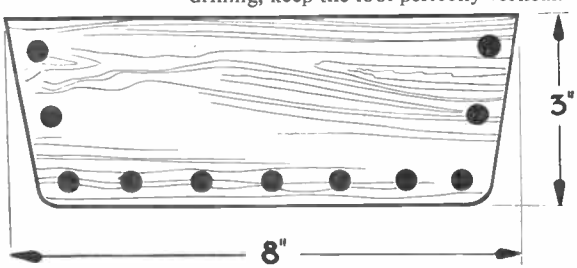


THE old-fashioned wooden bath rack may not be so shiny and attractive as its modern, chromium plated counterpart, but it will certainly last much longer, particularly if your family includes any growing boys!

Construction is simplicity itself. Two end pieces of ½in. wood, planed and smoothed, measuring 8ins. by 3ins. are clamped together and marked out to the shape shown in Fig. 1. Holes are drilled for ⅜in. dowelling at distances of 1in. apart, then the shape cut out while still clamped together. Rasp and file the edges until quite smooth. Note that hardboard or plywood cannot be used for these end pieces owing to the action of water.

Adjust Length

Two dowel rods at least 2ft. 6ins. long are required at the top to allow the rack to rest on the bath sides, but the length should be verified to meet your own requirements. Nine more rods are then needed to finish the job. All the rods are held in place by tight fitting. When drilling, keep the tool perfectly vertical.



Famous Fighter Aircraft

HAWKER HURRICANE

Details of this famous 8-gun single-seater are given by D. G. Norton

THE famous Battle of Britain Hawker Hurricane was the first single-seater fighter in the world to be capable of a speed of over 300 m.p.h., carrying a full war load. It represented a distinct departure from normal practice in the R.A.F., where all fighters since the 1914–18 War had hitherto been of the braced biplane type. It was also the first R.A.F. fighter to be fitted with a retractable undercarriage, and the first to have a totally-enclosed cockpit for the pilot.

Other new introductions were a variable-pitch propeller, and wing-flaps which served to reduce landing speed.

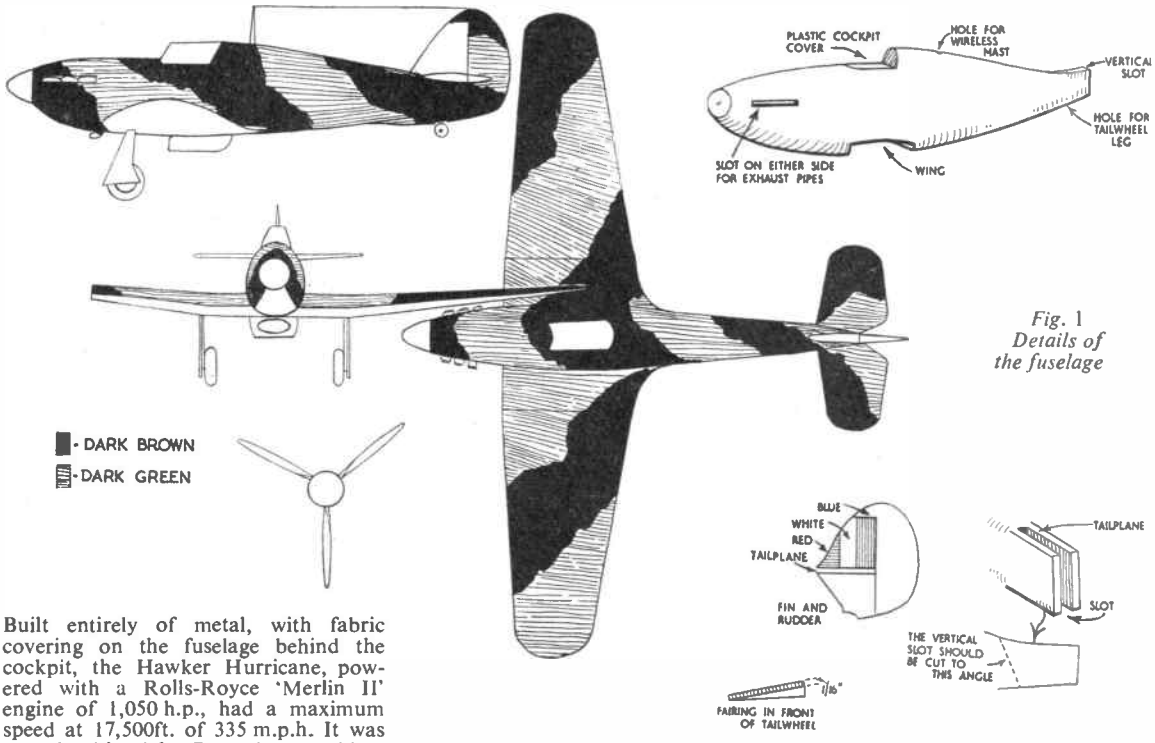


Fig. 1 Details of the fuselage

Built entirely of metal, with fabric covering on the fuselage behind the cockpit, the Hawker Hurricane, powered with a Rolls-Royce 'Merlin II' engine of 1,050 h.p., had a maximum speed at 17,500ft. of 335 m.p.h. It was armed with eight Browning machine-guns, four in each wing, and had a service ceiling of 34,000ft.

It achieved its greatest fame in the Battle of Britain when, with the Supermarine Spitfire, it was directly responsible for the rout of the German Luftwaffe.

HOW TO BUILD THE SCALE MODEL

To save space, the diagrams have had to be reduced. Drawings to a scale of 1/72nd can be obtained from the Editor.

Materials

A block of balsa 4¾ins. by ¾in. by 1in. for the fuselage; a sheet of balsa 7ins. by 2¾ins. by $\frac{5}{16}$in. for the wings; for the tail units a sheet of balsa 3ins. by 2ins. by ¼in.; sheet metal and 2ins. of 20-gauge wire, brass or galvanised. Tail and undercarriage wheels for the Hurricane may be purchased, or they may be made from linen buttons. The propeller may be made up from a shaped wooden spinner and blades cut from sheet metal; alternatively the complete propeller may be purchased, as well as the cockpit cover (in plastic).

Prepare the fuselage (see Fig. 1). Slots must be made to take the tail units. For the short exhaust pipes (see Fig. 1) cut two shallow channels in the fuselage, one on either side of the nose, $\frac{7}{16}$in. by $\frac{1}{16}$in. by $\frac{1}{16}$in. Insert a piece of balsa $\frac{7}{16}$in. by ⅛in. by $\frac{1}{16}$in., and glue. When dry, shape the projecting edge as shown on the 3-view drawing.

Next prepare the wing. See Fig. 2 for shape. It is best to make the wing complete with the fairing.

Now for the undercarriage. If the model is to be mounted on a stand as a 'flying' model, then the undercarriage can be ignored. It is sufficient to paint the pattern of the wheels and fairing on the underside of the wing (see Fig. 3). If the model is to rest on its undercarriage, then two holes will have to be made to take the undercarriage legs. (The undercarriage fairings may be made of sheet metal or thin card and having been cut to shape, may be glued to the undercarriage legs (see Fig. 3).) The fairing in front of the tail wheel is made from card and is glued into a shallow slot, made for the purpose.

The original Hawker Hurricane was all silver, with the normal cockades on the wings and fuselage. There were no red, white and blue markings on the rudder (this practice was abandoned in 1934).

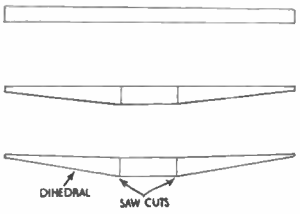
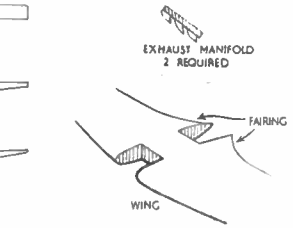


Fig. 2. Evolution of the wing



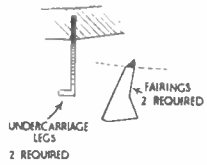


Fig. 3

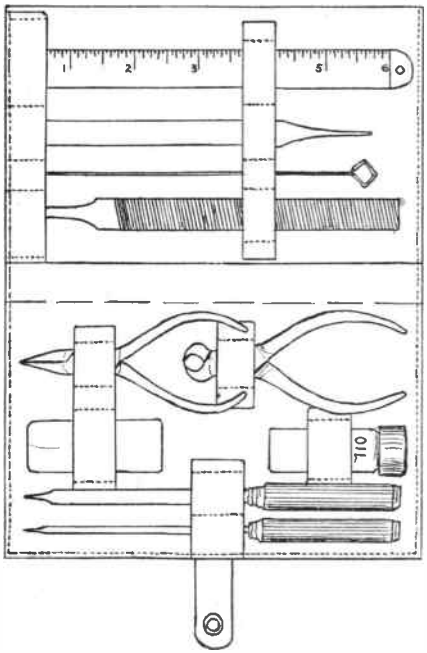
When the Hurricane was first issued to R.A.F. Squadrons, each machine was camouflaged. Upper surfaces dark earth and dark green. Under surfaces light blue. Red, white and blue rings were used on the fuselage sides, outlined with a yellow ring, and blue and red rings used on the wings.

By 1942, R.A.F. day fighters had their sides and upper surfaces slate grey and extra dark sea grey. Under surfaces light grey. Squadron code letters in light grey; serial numbers in black.

R.A.F. night fighters had *all* surfaces black. Squadron code letters in red or light grey.

All Hurricanes had their propellers painted black, and the exhaust pipes were grey. The machine-guns did not show but the holes in the wings may be shown with black dots in Indian ink.

A Handy Wallet for Tools



A NEAT little wallet containing a few useful tools can be very handy at times. Perhaps you have gone along to a friend's house to look at a wireless set or some other equipment that has broken down. A few tools picked up at random and put in your pocket is not an ideal method and you may find that you have left something important at home.

Under such circumstances a wallet to hold the tools is necessary. Its size and the type of tools which it is to contain will depend largely on the kind of work to be undertaken.

The wallet described here will be found very useful for most general purposes. For some specialized job it may be necessary to make a little alteration by substituting one tool for another, but this can generally be easily done without making any drastic changes in either the size or layout.

Although leather is the most serviceable material to use, there are many others which can be equally good, even if they do not look quite so nice. Felt and canvas, to mention only two, will make up very well and should be serviceable and strong.

New material can be obtained from most craft stores, but if expense has to be considered, the wallet may be made from second-hand stuff, provided it is in good condition. An old handbag, for instance, would be ideal, or a discarded felt hat can be made to serve a further useful purpose.

Before cutting up the material and sewing it together collect all the tools that are to go into it and lay them out on a sheet of paper. Arrange them as close to each other as possible, so that they are all easily accessible. Then draw the outlines with a pencil on to the paper.

You will now have a complete picture and can decide the size, shape and positions for the straps and pockets which will hold the tools in place. Perhaps you don't like the arrangement and think you can improve it—have a go, and set that out on paper. Once satisfied you can get on with the actual job.

Quite narrow strips of material are usually sufficient to hold the tools securely, and where pockets are required to contain tools which would otherwise slip out these need only be shallow. Pockets can be done away with altogether by using straps made of elastic which will hold any article tightly, but will not stand such rough treatment as leather.

Articles have appeared in *Hobbies Weekly* from time to time on leatherwork, so it is not necessary to give details about the actual work entailed in fitting up the wallet. You can leave the edges plain or they may be thonged.

The straps and pockets can be sewn on to one stout piece of material, but a better job is made by fixing them to a thinner piece and then sticking another piece to this to form the outer casing. The edges can then be sewn all round or they may be thonged. Not only is this a more professional method, but the appearance is greatly improved.

The wallet may be kept closed with an elastic band, but it would be much better to fit either a flap or short tab and fasten with a press stud. If the tab is cut from an odd piece of material and sewn on instead of making the case and tab in one, it will save a certain amount of material.

The left side of the wallet can be made into a large pocket for such things as emery or glasspaper, string, wire or a note pad. For the pocket it is only necessary to cut the material about 3¼ins. to 4ins. longer, fold this over and sew or thong along the top and bottom edges.

A rule, pair of tweezers, or any other flat tool, can be very well accommodated on the front of the pocket without making the wallet too bulky or interfering with the tools on the other side. If a pocket is not needed, more tools can be fitted to this side of the wallet, but it would be advisable to fit a thin flap of material between to keep them from touching each other. (A.F.T.)

Light and portable

A TEA-TIME TABLE

HERE is an occasional table that will prove a great boon to the household. In the writer's case, it is in use every tea-time and supper-time. During the summer it has provided excellent service for al fresco meals out in the garden. It is extremely light and very portable—one can quite easily carry it with the meal already set out on it. Or, remove it complete with dirty dishes, to the kitchen out of the way.

The table folds up very simply, and when flat occupies slightly over 3ins. As the top is 2ft. square and it stands only 18ins. high, it can, when erect, be slipped under the kitchen table out of the way, and be ready for instant use.

Lastly, it is easy to make and quite cheap. When finished as described at the end of this article, it presents a most pleasing appearance.

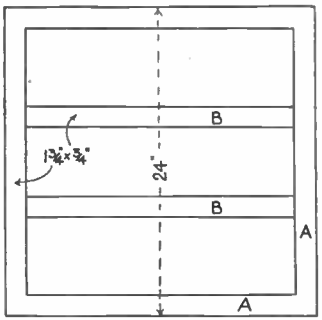


Fig. 1

When setting out to make the table, the first thing to do is to build the frame of the top. It must be noted that the dimensions given here may be altered to suit one's own requirements. The top may be made bigger or smaller, for instance, or the legs may be made longer. So long as the constructional details of the drawings are followed, there will be no difficulties.

Alternative joints

The top frame is shown in Fig. 1. It is made up of four outside battens and two inner cross battens. These are all 1¼ins. wide by ½in. thick. Any cheap soft wood will do. There are various ways of joining the frame battens. But, no doubt, simple half-lap joints are easiest. This is seen in Fig. 2.

For the junction of the cross battens with the outer frame, here again alternatives are available. However, the method shown in Fig. 3 is recommended for simplicity.

When the joints are all sawn, try assembling the frame on a flat, even floor. The outside battens (A) should be arranged first, then the cross battens (B) put in. It will then be seen if all the surfaces of the frame are flush and true. This is important, as plywood sheeting has to be attached to the frame eventually, so the frame must be quite flat. When satisfied on this point, the frame can be finally assembled. All joints should be glued and fixed with nails or screws. Ensure that a true square is maintained.

When the glue is set, place the frame on some ⅛in. plywood sheeting and draw round to get the exact shape and size. Saw out the plywood shape, keeping the saw inside the pencil line—if you don't, the plywood will turn out to be bigger than the frame, thus leaving an overlap.

Nail the plywood (and glue, if desired) to the frame, and see that it is flush with frame edges. If not, use the plane or glasspaper block.

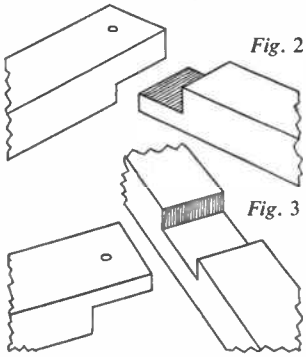


Fig. 2

Fig. 3

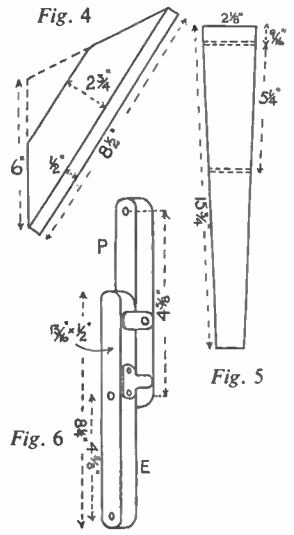


Fig. 4

Fig. 5

Fig. 6

On the underside of the top, we must fix, at each corner, a cross piece over the battens (A, A). This is to provide a base on which to fix the legs. Fig. 4 shows the details of this. The cross piece should be sawn from board or batten about 2¾ins. wide and ½in. thick. The cross cuts of the ends are at 45°.

By A. Fraser

There should be a cross piece at each corner of the frame, and glue, nails or screws can be used for fixing. Make sure that there are no projections beyond the edge of the frame (A). Use chisel and glasspaper block, if necessary. Before finishing the table top, it is convenient to leave it for a time and proceed with the legs.

Making the legs

The dimensions of the leg proper are seen in Fig. 5. Each leg is 2⅛ins. wide at the top, tapering to 1⅜ins., and is made from ¾in. thick batten. The top is rounded, as shown, and holes are drilled through the leg, from side to side, in the positions indicated. The diameter of these holes is considered later. The bottom edges of the leg are chamfered off.

Next, we come to the stay or brace which holds the leg in position when extended. This is composed of two pieces, (P) and (E) (Fig. 6). Each are made of ½in. by ⅞in. sparring (or thereabouts). The lengths are shown, and note that the ends are rounded.

It is necessary to understand the folding mechanism. Fig. 7 shows the leg in position with the stay straight and held rigid by the action of the metal stop plate (L) and the slip or swivel catch (K). To close the leg to the table top, the slip catch (K) is turned back. This allows the stay to 'break' as the leg is pushed in over. Fig. 8 shows the mechanism in intermediate operation, while Fig. 9 illustrates how the leg and the two parts of the stay fold down flat

alongside each other.

The metal parts can now be dealt with, preparatory to fixing the legs. These should be sawn out of sheet iron or some other hard metal. 20 gauge thickness will do quite well. Thicker would be better, but harder to work. A hacksaw will cut them to shape, finishing off with a file. The shapes needed, and the dimensions, are given in Fig. 10. You will need 12 of shape (a), and four of shape (b).

The holes which need to be drilled in these brackets (and, of course, through the legs and stays), will have their

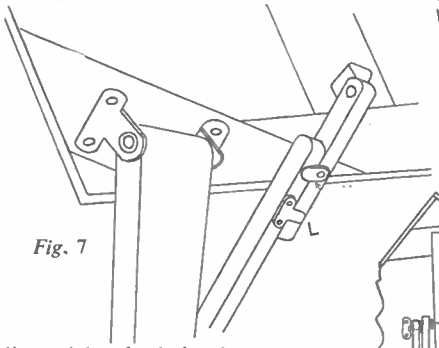


Fig. 7

diameter dictated by the bolts, bar, or nails used as members on which the legs and stays turn. In the writer's case, round-headed nails $\frac{3}{16}$in. thick were used. These were sawn off to leave $\frac{1}{16}$in. projecting after allowing for washers, and this was turned over with a hammer to make a rivet end.

The parts should be riveted together fairly tightly to keep the legs firm and stable. Although this will make the closing of the legs rather a stiff job at first, they will work easy with use.

Note that a washer or two, about $\frac{1}{16}$in. or so thick, should be interposed between the junction of the two stay parts (P) and (E), and another washer between the long stay piece (E) and the leg.

Fixing leg brackets

The placing of the leg brackets on the top frame should next be fixed. This should be done temporarily. Final fixing comes only after the top of the table has been completed.

Take first two opposite legs, folding up the stay, and place them as seen in Fig. 9. Leave a space, as shown, between the two legs, so that they do not obstruct each other on closing. In order to achieve this, it will be observed that the top edge of the leg, in each case, is slightly askew in relation to the cross piece in the corner.

Hold the legs firm and then pencil in the bracket holes on the wood. Drill these with a fine drill ready for screwing. Repeat the operations for the other two legs.

Now, before fixing the legs on, the table top can be completed. First, cut off some batten or strip to go along each side of the frame. This should be $\frac{3}{8}$in. thick and $1\frac{1}{4}$ins. wide. It should be mitred at each end, so that a good join is made at each corner. Glue and fix in position with nails. Any holes made by the nails should be filled in with plastic wood and glasspapered smooth. Fig. 11, showing a section through the table top, gives the position of this side strip.

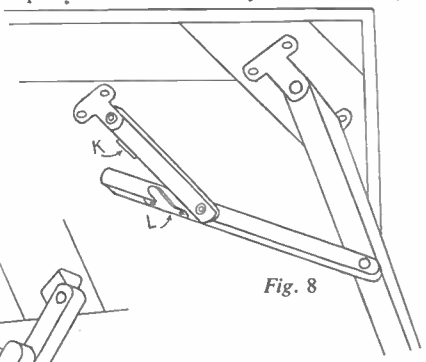


Fig. 8

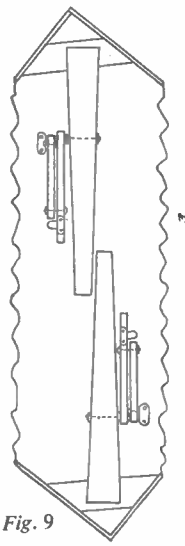


Fig. 9

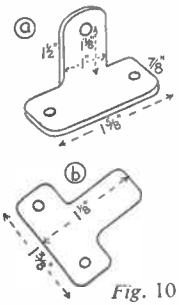


Fig. 10

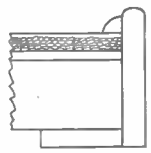


Fig. 11

Alternative coverings

The table top is next covered with some suitable material. Various possibilities are open. Sheet plastic immediately springs to mind, but can be rejected on two counts—first, the price, and second, the fact that plates, cups, etc., have a tendency to slide about too readily, when moving the table. A good alternative is a piece of linoleum.

A third alternative, adopted by the writer, to everybody's satisfaction, is to use a special product manufactured primarily for floor covering, called 'Hardura'. This consists of a layer of felt with a good thickness of plastic super-imposed upon it. The plastic surface is embossed with a pattern and is available in several colours. It provides a tough pleasing washable covering. In use it has a slightly springy touch and is very quiet—plates do not clatter when dropped on it. Neither do they slide, thanks to the embossed surface. The cost works out to about seven shillings.

A warm red colour was chosen and after the legs had been screwed into position (and tried out for operation) the plastic felt was cut with scissors to size, and then placed in on top of the table. It can be glued to the top if preferred.

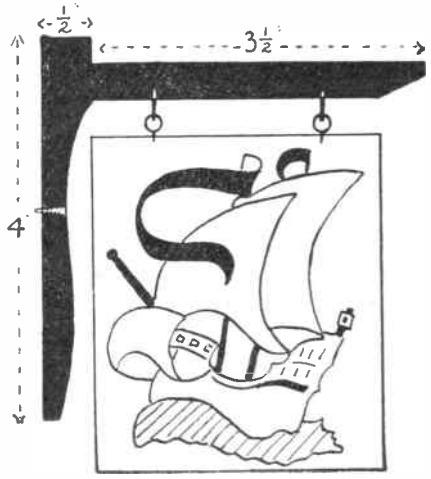
Quarter round beading, $\frac{3}{8}$in. in width was then nailed (after mitring the ends) into the junction of the plastic felt and the side of the table top. Fig. 11 shows the section through the table top with the quarter round beading in place. This keeps the edges of the felt secure and finishes off the table top nicely.

The woodwork was then painted a greeny turquoise colour — a pleasing contrast with the warm red of the plastic top. This completed a presentable and very useful household article.

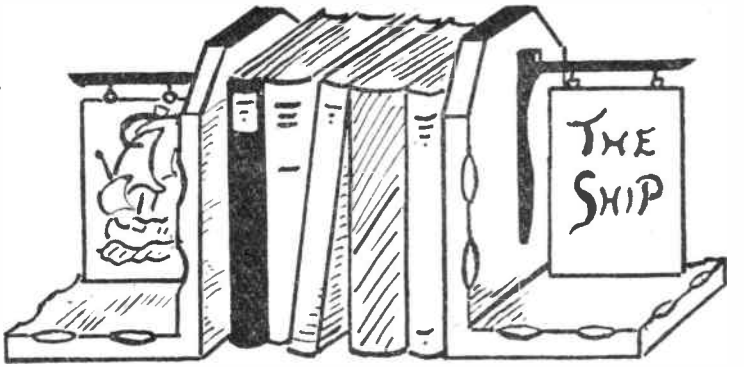
● Continued from page 280

INN-SIGN BOOK ENDS

To fix the end blocks to the base blocks, spread a small amount of glue very sparingly to the bottom of the end blocks, and to the complementary positions on the base blocks. When the glue is tacky secure each of the blocks together with long screws. Fill the countersunk holes on the underside of the base with plastic wood. Adopt the same screw and glue procedure in fixing the inn-sign supports.



ATTRACTIVE INN-SIGN BOOK ENDS



THESE attractive inn-sign book-ends do not present any difficulty in construction, for they are designed without any complicated joints.

The base and ends should be cut from ⅜in. wood. The size of the base is 4ins. by 4½ins., the end blocks are 5¾ins. by 4ins., mitred at the corners (Fig. 1). To imitate the effect of wood carving, a crescent of wood is carved away along each edge, on one side only, as indicated by the shaded portions. The deepest part of the crescent should be approximately ⅜in. Mark the position of each curve indicated in Fig. 1 by pencilling round the segment of a penny.

Use a fretmachine

This cutting operation can be simply accomplished on a fret machine, by holding the base and end blocks at an angle of 45° to the cutting table, and running the fret blade into a shallow curve to cut a scalloped edge. As the end block is to be fitted flush on the base block it is essential that a true right-angle surface is cut on the unmitred end.

Cut the signboard and its support from ⅜in. plywood 3ins. by 3½ins. (Fig. 2). If a number of these book-ends are to be made, it is a good plan to trace this design on to thin card, and cut a template which can be simply placed on the wood and pencilled round. The support should be glasspapered and finished in black enamel. Drill a ⅛in. hole in the centre of the vertical stem, and fix two chromium screw eyes to the horizontal bar.

Glasspaper the signboard smooth. With a small drill point, drill the holes

By J. R. Burt

on the top edge to take the chromium screw hooks, and screw them into position. If this operation is completed at this point it facilitates the painting of the signboard, as it can be handled by the hooks. Undercoat, and when dry, lightly glasspaper, then finish with a bright enamel in Cambridge blue. The edges of the sign should be finished in black enamel.

The decoration of the inn sign offers scores of ways to exercise ingenuity. A local inn-sign can be copied, or one in the locality of the friend who is to receive the present. For anyone of an artistic nature an attractive sign can be made by tracing the joker from a pack of playing cards and faithfully colouring it in enamels, the reverse side of the sign bearing the name 'Cap and Bells'. But all this takes time, and at the start of this article a quickly made project was promised. For this purpose use transfers. 'The Dog', 'The Swan', 'The Horse'—they all offer plenty of scope, but be sure that they are the right size.

Galleon transfers

A very gay series of galleon transfers can be obtained from 'Kaylee', serial No. JK 13. There are six real paint transfers to a sheet and they are all ideal for the inn sign as they are in pairs. Apply the transfer to one side of the sign and on the other, the words 'The Ship' in black enamel. It is unnecessary to do painstaking lettering; a quick free-hand style is just as effective.

Before applying the finish, the underside of the base block should have two holes drilled right through it 1in. from each side and ⅝in. from the back edge using a small bit. Countersink the underside of the holes so that when assembled the heads of the screws can be sunk and filled with plastic wood. Place the end block in position on the base block and carefully mark through the drilled holes the position for the screws. Now drill these positions to a depth of ¼in.

Fill the grain

The base and end blocks should be well glasspapered in the direction of the grain, using progressively finer grades of glasspaper, dust off, and then fill the grain with a wood filler, glasspaper and stain to the desired colour. French polish the four blocks, then leave as long as possible before finishing with a good wax furniture polish.

● **Continued on page 279**

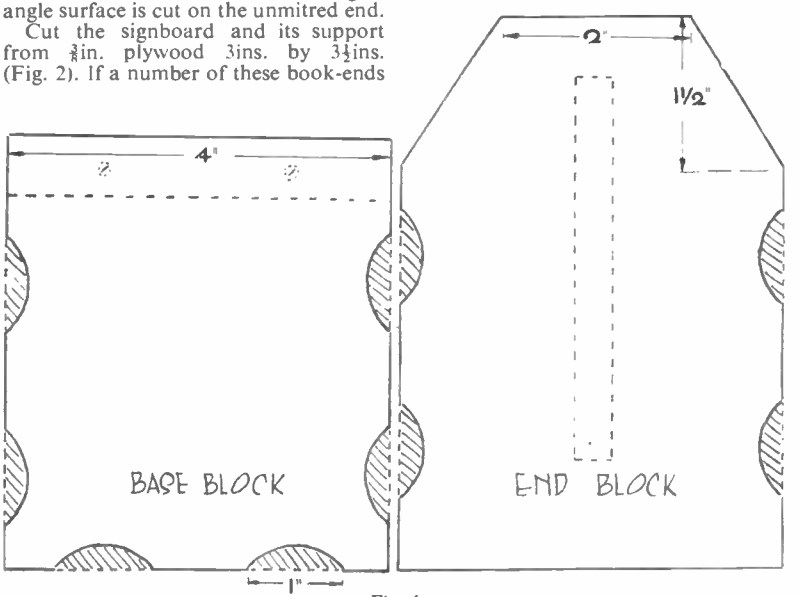
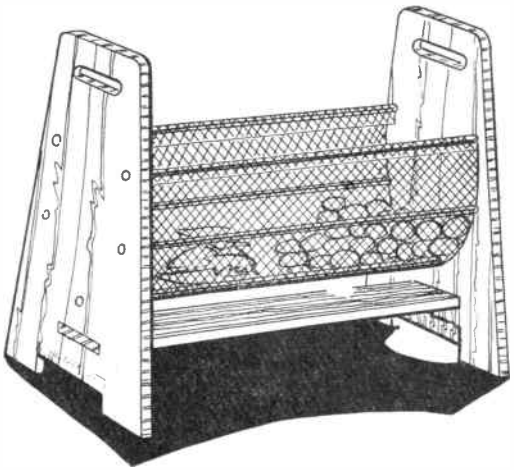


Fig. 1

A HANDY RACK FOR VEGETABLES



THE housewife will find this vegetable rack ideal for the kitchen, and the greengrocer will find a use for it in the shop. It is light and easy to handle, and the size can be modified to suit any particular requirement.

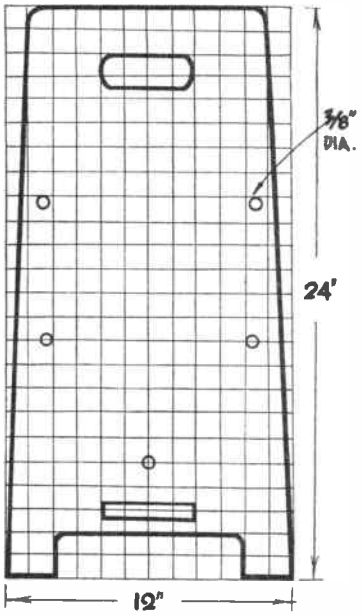


Fig. 1

The advantages of this type of rack over that made solely of wood are obvious. The vegetables are seen clearly through the wire mesh and you can tell at a glance when they need replenishing. This is a good point as far as the shopkeeper is concerned, because his customers can see the produce without handling.

The ends and floor are cut from ½in. wood, preferably hardwood such as oak. The ends are 24ins. high as shown in Fig. 1. They are 12ins. wide at the bottom and about 10ins. at the top. One method of marking out the sides correctly is to use squares. Draw out the squares with 1in. sides and draw in the outline.

The handles are formed by cutting out a portion at the top, about 2ins. down as shown in Fig. 1. The ½in. wide slots at the bottom are to take the ends of the floor. The length of the latter may be from 24ins. to 36ins., but for household purposes, 24ins. will be sufficient.

The floor should fit tight into the ends and a touch of glue will hold it in place. Do not, however, fix it until the dowels holding the wire mesh are inserted.

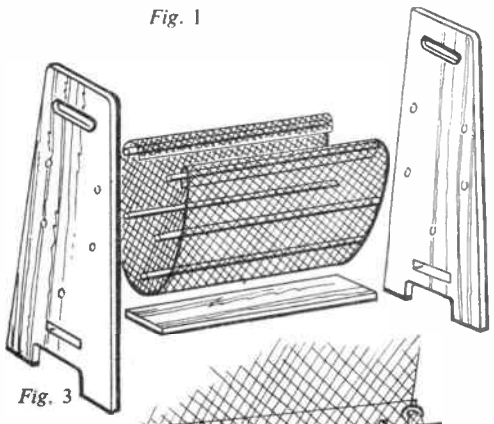


Fig. 3

Fig. 2

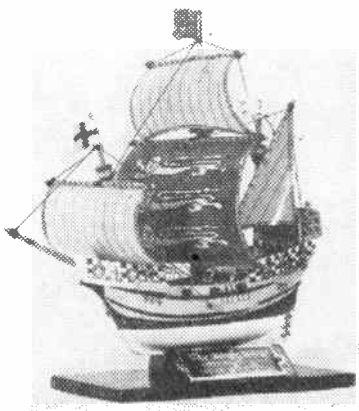
Cut the dowels the same length as the floor, and see that they fit nicely into the holes in the sides. You can use ⅜in. dowels throughout or ½in. to ¾in. dowels with a shoulder cut at each end. The latter is the stronger job, though not really essential.

Obtain some fine mesh wire netting and cut to fit exactly between the ends allowing for a piece to turn over each top dowel. Bind these at the top with plastic thonging or plastic covered single core wire as shown in Fig. 2.

When all the parts have been prepared and ready for fixing, they are assembled as shown in Fig. 3. Tap the floor and dowels in position a little at a time. Do not try to push the first one right home or you will not get the others in position. Remember that a little glue should be added to each joint.

The whole rack can be painted white or light green. The paint will help to preserve the wire netting which can always be given another coat when it becomes soiled. (M.h.)

An Excellent King's Ship



This photograph of an excellent model of the King's Ship has been sent to the Editor by Mr R. Thompson, 18 Glenmuir Drive, Glasgow, S.W.3. This galleon can be made from Hobbies Kit No. 3108 costing only 7/8 from branches or post free from Hobbies Ltd., Dereham, Norfolk

Uses for Gummed Paper

By J. MacIntyre

ORDINARY gummed paper has many uses around the home and workshop. It is quite cheap to buy and the rolls are in lengths of 120ft., or 800ft. commercial coils for larger work.

The rolls come in various colours: brown, white, red, black, blue and green, and a transparent tape is also manufactured. This transparent tape is very handy for repairing torn book leaves, manuscripts and sheet music, etc. Some points to remember: if any lengthy jobs are undertaken, the tongue should not be used for moistening, as the paper can leave an unpleasant taste in the mouth; a small tumblerful of water with your fingertip as a brush is much better; the coils should not be left in a damp place, because the rolls will stick together and lose their adhesive qualities; when moistening the paper use just sufficient water to make the adhesive surface tacky, as too much water will remove the sticky gum, while too little will not give a firm gripping surface.

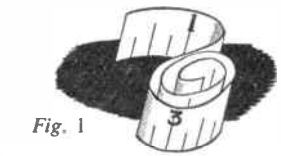


Fig. 1

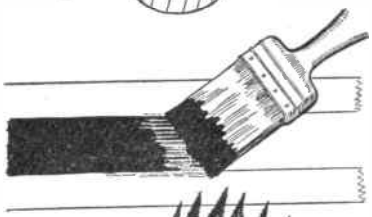


Fig. 2

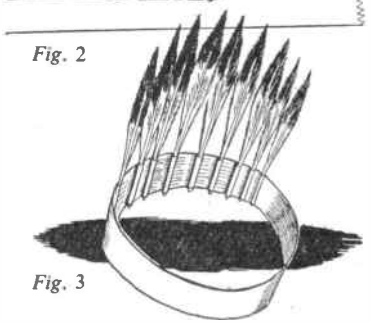


Fig. 3

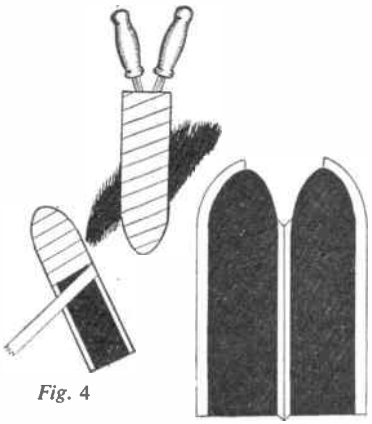


Fig. 4

A tape measure about the workshop always has its uses (Fig. 1). These can be made in any lengths appropriately marked off and stuck down to the surface of a table or work bench. You may also gum two lengths together and divide both sides into feet and inches.

Border and line painting often presents the home decorator with a problem. Gummed paper, however, is the answer. Carefully apply two lengths of it to the wall (Fig. 2), then paint between the strips and you will have a firm, straight line. By using a damp cloth you can easily remove the paper afterwards.

An Indian headdress for the junior members of the family is an idea that will be met with enthusiasm. Most poultry keepers will be only too glad to furnish supplies of feathers. For greater effect you should dye the feathers.

Cut a strip of gummed paper the required length to fit the head, place the feathers at intervals along the paper, moisten another strip and carefully cover the shank of each feather (Fig. 3). When the feathers have all been enclosed you have your feathered Indian headdress.

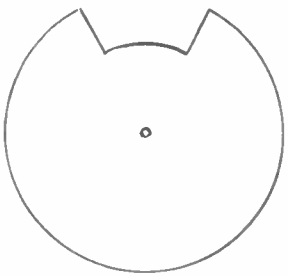
Lots of household or garden implements such as shears, knives, chisels and scissors will have a longer life if they are enclosed in paper sheaths. Two lengths of cardboard are cut to size for the particular blade, and these are taped over with two or three layers of gummed paper (Fig. 4). You will discover that these sheaths can stand a lot of hard use.

Photographer's Dodging Disc

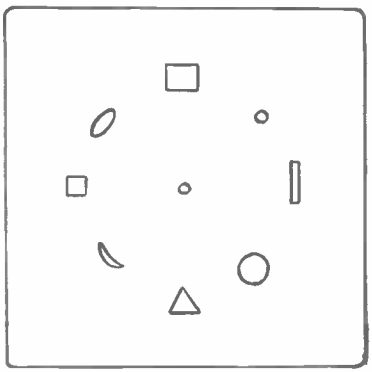
AN adjustable disc is most useful in enlarging where some areas of the print require a little longer exposure to darken the tone. Any shape may be cut out according to the user's particular needs, or slightly modified in use with the aid of an additional piece of paper to cover the holes.

The dodger may be made from stiff cardboard or hardboard for the base and cardboard for the revolving disc. The former is 1ft. square and the disc has a 5ins. radius with a sector suitably cut out.

The shapes should be arranged within a 2½ins. radius of the baseboard centre, while the disc sector should not expose more than the selected shape. A sharp knife, tension file or padsaw will be found helpful in making the holes, which should be finally cleaned with glasspaper or a razor blade. The two pieces are fastened together by nut and bolt or a rivet with a small washer at each side of the gadget to ease movement and prevent wear. (S.H.L.)



5" RADIUS



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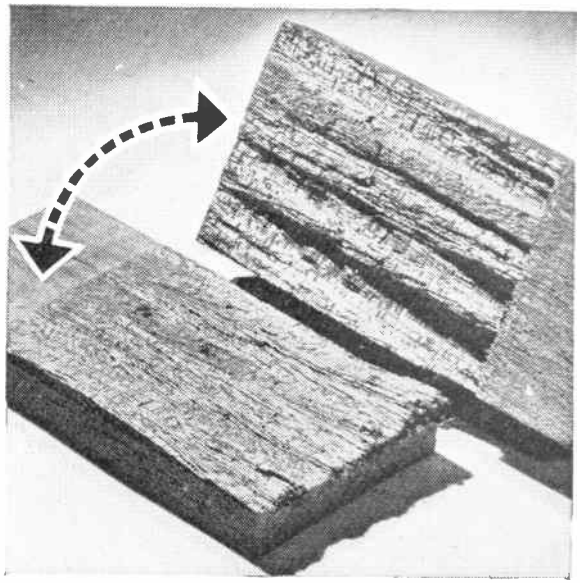

A hardwood lap joint, forcibly separated, showing how the glue has proved stronger than the wood. The joint was glued with CASCAMITE "One Shot" Resin Glue, but the same results are obtained with both CASCO P.V.A. and CASCO Cold Water Casein Glue.

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At most you will need a pencil, ruler, compasses, setsquare, small tenon saw, fretsaw, light plane or cutting chisel, handdrill, hammer, screwdriver, and a sheet of fine glasspaper. The material

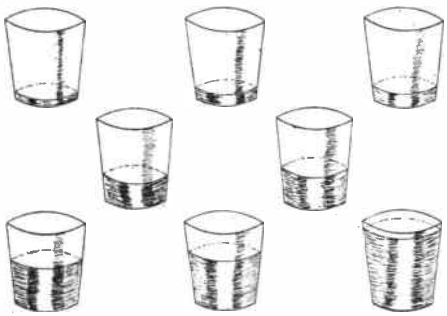

Fig. 1

requirements comprise eight thin-walled glass tumblers partly filled with water, three large-size discarded cigar boxes or a supply of ¼in. thick wood, eight ¾in. long screws, a handful of sprigs (pin-like nails), and a small pot each of glue, stain, and polish, together with nine rubber bands, a dozen steel pins, eighteen drawing pins, eight violin tuning-pegs, a couple of eight-stringed ukulele or banjo bridges, two 'A' and two 'E' violin strings. The latter are cheaply obtainable from any music shop.

The musical glasses should be laid out as in Fig. 1, containing approximately the amount of water shown.

Tunes do not at first come easily on the musical glasses, but practice will help to make perfect. Simply moisten the index finger of the right hand and rotate it round the dampened rim of the chosen glass in either direction. From a dull unmusical sound this action—if firm but light—will eventually produce a clear bell-like note.

As soon as you have acquired the necessary 'touch' (which really doesn't take very long), you can then start to 'tune' your glasses. This is done by adding to, or subtracting from, the water already contained in each—remembering that the former results in a higher note and the latter in a lower one. Perform this operation with meticulous care to ensure that the glasses are absolutely in tune.

Incidentally, the reason why eight glasses have been selected for a start, is that they provide a full octave. Thus, after mastering a few scales and exercises, innumerable well-known tunes written in C major, minus sharps and flats, may be played at will.

The musical pin-box (Fig. 2) is a very simple instrument which is easily made up, and can be kept permanently to hand. Just take one of the discarded cigar boxes (or make up a suitable box from the ¼in. thick wood) and erect a line of steel pins along the centre of the outside bottom face. These should be driven in to the required depth to ensure that they stand rigidly in position even while they are being played.

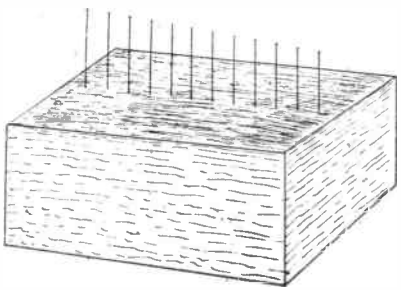

Fig. 2

The tone of each pin depends on the depth to which it is driven into the wood, being higher-toned the further it is inserted.

Band-box music can also be made by the same twanging action, but on rubber bands this time. Another of the discarded cigar boxes (or one made up from the ¼in. thick wood) is the basis of the instrument (Fig. 3). Along the back-side attach a row of, say, nine ¼in. square strips of graduated lengths. On top of each attach, by means of a drawing-pin, a stout rubber band.

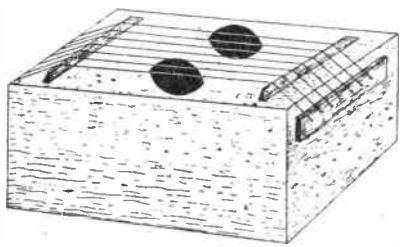

Fig. 4

To tune, simply stretch each band separately until, by 'twanging' it, the desired note is obtained. Then secure the opposite end with a second drawing-pin on either the top face or the opposite side of the box. After which it is only a matter of constant practice to build up an attractive little repertoire of popular tunes.

But quite the most intriguing method

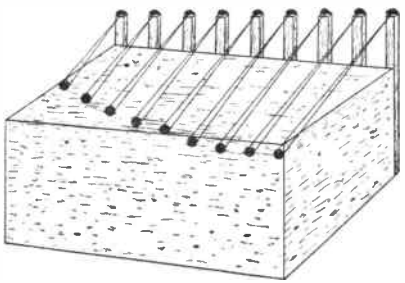

Fig. 3

of making simple music is that which can be produced with the aid of an Aeolian Harp (Fig. 4) operated quite effectively by the passage of air across the strings.

The basis of the Aeolian Harp is again a cigar box. Glue in position—one at each end and ¼in. below the top edge—a couple of strips of wood each 3½ins. long by ½in. wide by ¼in. thick. Into one such strip—evenly spaced—drive the eight ¾in. long screws, leaving approximately ¼in. projecting. The corresponding strip should then be drilled with matching holes of a size that will ensure a tight fit for the tuning-pegs.

Now take a look at Fig. 4, and in the top face of the box—each 1in. in diameter and positioned 1½ins. in from the sides—cut two sound holes. Halve the 'A' and 'E' violin strings to make a complete set of eight, tie one end of each (in any order, so long as they harmonise—that is, make a chord) to the projecting screw-heads, and pass all the strings across the top of the sound box, securing the opposite ends to the corresponding tuning-pegs. Insert the ukulele or banjo bridges—one at each end, parallel to and ¼in. in from the edges—beneath the strings, and tune-up.

Do remember, though, that the Aeolian Harp cannot function properly unless there is a fairly strong current of air to vibrate the strings effectively. Probably the best place to hang it is between a door and a window. (C.L.M.)

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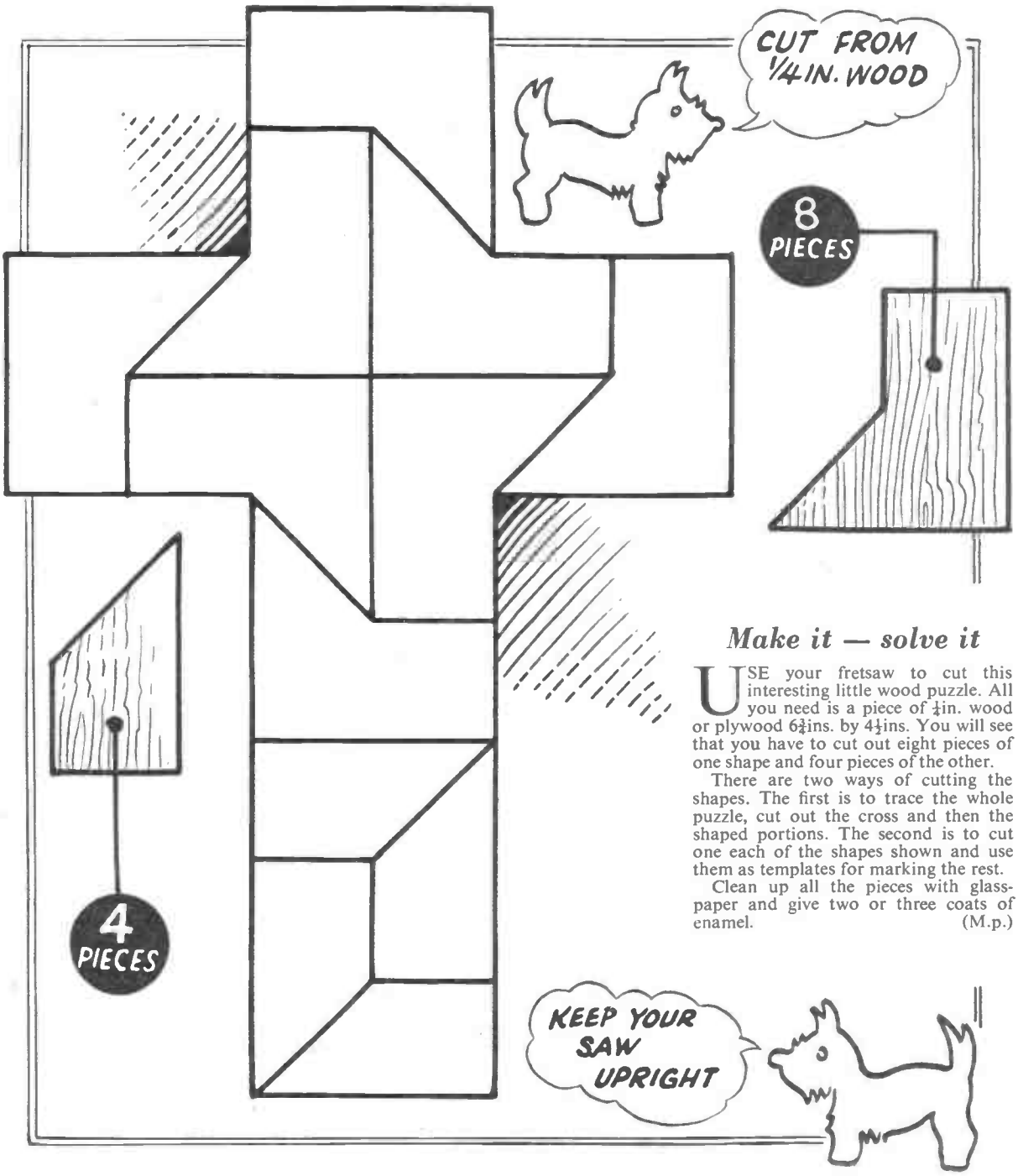

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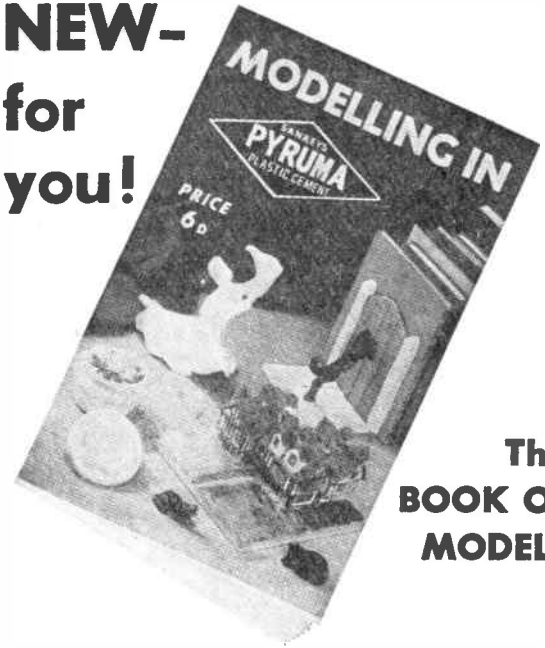

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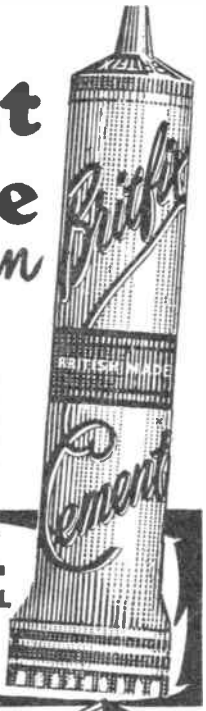

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