

HOBBIES WEEKLY

IN THIS ISSUE

	Page
A Two-Seater Pull-Along Engine	289
Carving a Propeller	291
Making Shop Signs in Perspex	293
For Your Bookshelf	294
How to Make a Hay-Box	295
Home Telephones	296
Replies of Interest	297
A Small All-Purpose Cabinet	298
Renovating Upholstery	300
Making a Modern Tea-Tray	303



AUGUST 10th 1955

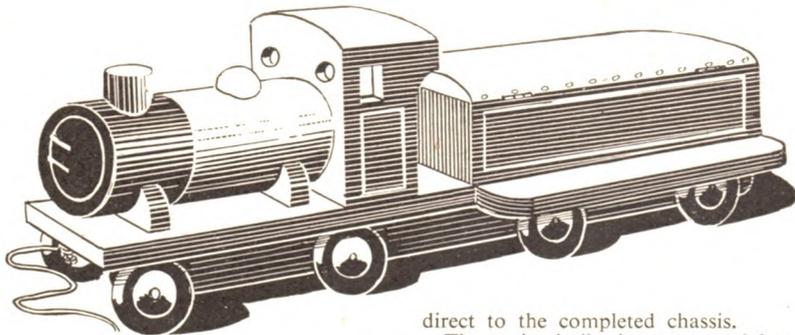
VOL. 120

NUMBER 3119

Make this grand toy for the kiddies

A REQUEST from a reader prompted the design of this large and attractive engine. It is 39ins. long overall and is large enough to take two small children on the tender. The addition of a padded seat and footrests gives a safe and comfortable ride.

The construction is quite straightforward and should present no difficulties to the average handyman. Wheels can be purchased from Hobbies



A TWO-SEATER PULL-ALONG ENGINE

Ltd., Dereham, Norfolk. They are rubber-tyred wheels of 4ins. diameter. The cost is 1/6 each, post free.

Study the diagrams carefully to get a clear picture of the construction and then commence by marking out the various pieces. The main floor on which the engine is assembled is cut from one piece of 1in. thick wood to the measurements shown in Fig. 1. The runners underneath are 2½ins. deep and are also cut from 1in. thick wood. These three pieces should be glued and screwed together. Countersunk screws should be

used and the heads covered with plastic wood.

The cab is made up from four pieces of wood as shown in Fig. 2. The sides and front are ½in. thick and the top ¾in. Notice the cut-out portions in the front and sides. All shaped parts are cut with a heavy grade fretsaw.

Screw to Chassis

The top of the cab is shaped to a curved section as indicated. The parts of the cab are glued and screwed together and the whole assembly is then screwed

direct to the completed chassis.

The engine boiler is constructed from three circles of ¾in. or 1in. wood and two semi-circles of 1in. wood. Screws are put through the two shaped supports of ¾in. wood into these semi-circles. The boiler construction is shown

in detail in Fig. 3. The semi-circles are first fixed in place with small countersunk screws and will then be held firmly in place with the screws through the supports. The boiler is covered with thin plywood which can be fixed with glue and small fretpins. The completed boiler is held in place by screwing through the supports into the chassis, and also by screwing through from the back of the cab.

The tender, which also forms the seat, is made up as shown in Fig. 4. Two sides and two ends are glued and

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

For Modellers, Fretworkers
and Home Craftsmen



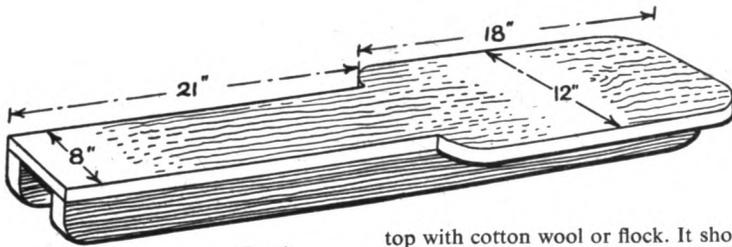


Fig. 1

top with cotton wool or flock. It should be covered first with a piece of sacking and then with strong cloth or canvas. An odd piece of deck-chair material would be most suitable. The covering can be held in place by large-headed tacks at intervals of about 1½ ins. round the edge. After covering, the lid can be hinged in its place on the tender.

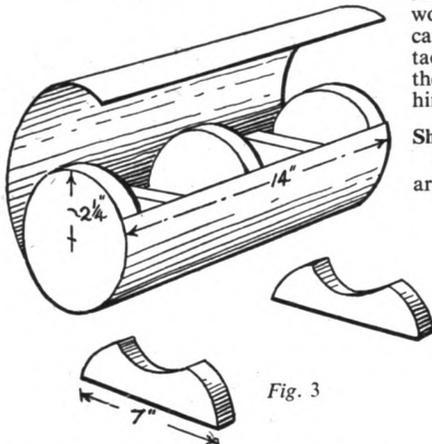


Fig. 3

screwed together, and the seat portion is made in the form of a lid, giving a roomy storage space for toys. Fix hinges to the lid, recessing to the depth of the hinge, and then pad the

Shaping the Funnel

The funnel and dome on the engine are shaped from odd pieces of wood.

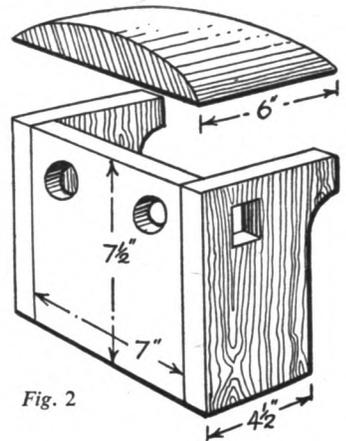


Fig. 2

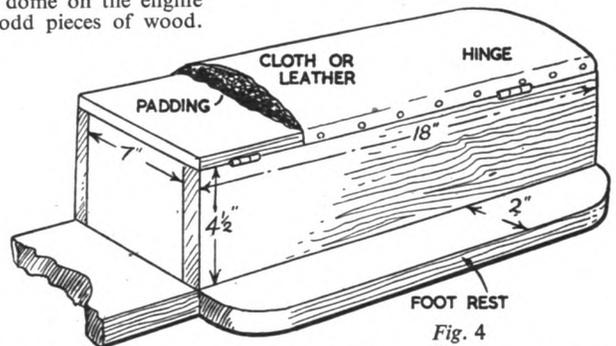


Fig. 4

The dome can be omitted if desired and the funnel shaped from a piece of 2 ins.

square wood. It is rather difficult to get the funnel to fit the boiler. The best method is to shape the funnel roughly first, then lay a piece of coarse glass-paper on the boiler, and rub the funnel along the boiler until it is a nice fit. It takes time to rub down, of course, but it is a matter of patience rather than skill.

The rubber-tired wheels can be fixed to ⅝ in. steel axles which should be drilled at each end to take a small split pin. Put a washer at each side of the wheel. Axles are then held in place by brackets as shown in Fig. 1.

Alternative Method

An alternative method is to screw the wheels direct to the runners, using 2½ in. round-head screws. The screws should protrude about ⅜ in. through the runners and are then filed off flush. In this case, however, the depth of the two runners must be extended to about 3 ins. deep. The engine is pulled along by means of a rope tied to a large round-headed screw fixed under the front of the engine.

Paint the whole toy with plastic enamel paint, giving two or three coats if required. Bright colours, such as red, green and black are preferable for a toy of this nature. (M.h.)

PBK 14 in South Africa

Handling PBK 14 in the breaking surf of False Bay is a 'tricky business' says Mr C. R. Bircher of 53 Recreation Road, Fish Hoek, Cape Province, South Africa. 'It's an excellent boat and quite safe even in the rough seas we get here,' adds Mr Bircher, 'but tricky to get back to land. Unless she is kept absolutely straight, the breaking surf will turn her sideways and over you go!'

These two lads pictured here are obviously enjoying the thrill and fun of handling this canoe, which was designed for 'Hobbies Weekly' by Mr P. W. Blandford. The framework of this particular craft was built of Philippine mahogany with 10 oz. proofed canvas over.

Details of the PBK 14, a 14ft. 2-seater, and other canoe and dinghy designs available on application to the Editor, 'Hobbies Weekly', Dereham, Norfolk.



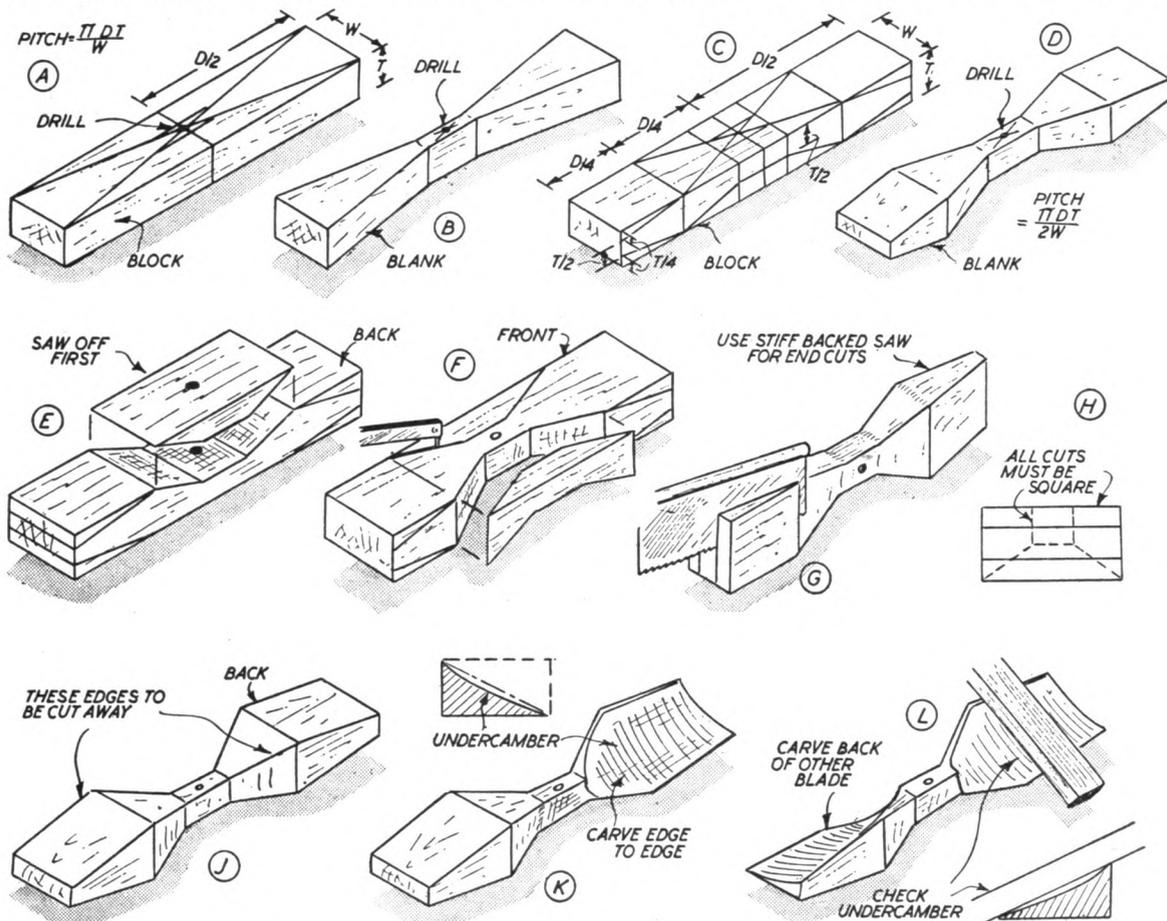
CARVING A PROPELLER

By R. H. Warring

PROPELLERS for model aircraft are usually carved from balsa. Choose hard or medium-hard grade, with a straight grain, for the block. Soft or light block is suitable only for folding propellers. Recommended wood density is 12lbs. per

cu. in. or 4ins. to get the required amount of blade area. A considerable proportion of the carved blade is trimmed away in the final stage, so a lot

of wood is wasted. The quartered layout (C) is more usual for propellers over 12ins. in diameter. The diagonal layout leaves an untapered blank (B) and the quartered layout a more complicated blank (D). Both, however, are equally easy to carve. For



cubic foot. Hardwoods are not recommended for they are more difficult to carve, somewhat prone to splitting, and generally too heavy.

There are two ways of marking out a propeller for carving. The starting-point in each case is a squared-up block of balsa in which the pitch of the propeller is fixed by the width and thickness dimensions (W and T respectively). The diagonal method of marking out (A) is simplest, but used mainly for small propellers. It can be used for larger sizes, but the W dimension may have to

be 3ins. or 4ins. to get the required amount of blade area. A considerable proportion of the carved blade is trimmed away in the final stage, so a lot

of wood is wasted. The quartered layout (C) is more usual for propellers over 12ins. in diameter. The pitch is calculated from D, W and T, according to the formulas shown. Thus for a required pitch, the other dimensions can be adjusted to suit. Diameter size (D) is usually fixed by the design. W is usually about one-tenth of the diameter for the 'quartered' layout and about one-sixth of the diameter for the diagonal layout, although it can be smaller if only a small blade area is required.

the remainder of the description we will assume that a 'quartered' propeller blank is being used.

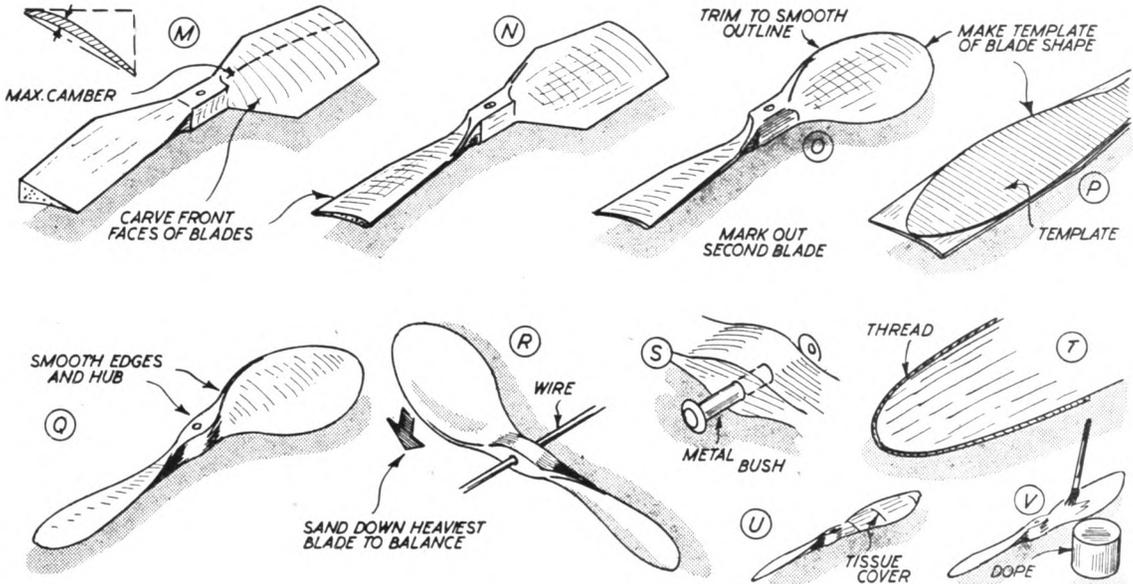
If the block is marked out as in (C), the various cuts can be made in the following order, which will avoid removing parts of the layout. First cut away the back piece (E) using a fretsaw or a similar tool. This leaves the markings on the front face undisturbed, so turn the block face up and cut away the two side pieces from the hub (F). The end cuts can then be made with a stiff-backed saw to complete the cutting out of the blank (G).

It is very important that all the cuts be truly square, as the outline edges of the blank act as carving lines in shaping the rest of the propeller. Check that you have cut square (H) and correct, if necessary. It is a good plan to drill the hub hole *before* starting to cut the blank, when the block is still square. It can, however, be drilled at this stage if you prefer.

make sure that you have got the same amount of undercamber on each blade.

Carving the underside edge to edge fixes the pitch angle of the blade along its whole length, so do this job accurately and finish by sanding down smooth. Carve right up to the edges, but leave the hub section still square for finishing off later. This need not be such an efficient part of the propeller in any

thick edges at several points along the blade. These must now be sanded down to the back of the blades, i.e. all the wood removed from the *front* of the blades, so as not to disturb the pitch angles established in the original carving. Then smooth down the whole propeller with glasspaper, carving and rounding the hub to blend into the blade roots (Q).



The blank should now be laid face down as in (J). The edges to be cut away are shown on this diagram, and it is important to carve these and not the opposite edges; otherwise you will end up with an 'opposite hand' propeller. The rule is, for a normal propeller, carve away the right-hand edge of the blank, facing away from you.

Carving is done from edge to edge (K) using a sharp knife. A cobbler's knife or a small kitchen knife is excellent for this job, and easier to handle than a modelling knife. A razor blade is an unsatisfactory tool for carving propellers.

As the blade is formed from edge to edge, scoop away wood from the centre, so that the final surface has a certain amount of undercamber. You will find it difficult to work in undercamber right up to the hub, so let the section flatten out and become slightly convex here, so as not to weaken the blade unduly. The majority of the blade, however, should have a small, but definite amount of undercamber.

The second blade is carved in the same way, simply turning the block round, end to end. The undercamber can be checked by laying a straight edge across the blank (L). Use this check to

case and does not need a very good aerofoil section.

Having finished the backs of the blades properly, turn the blank over and carve the top or front faces (M). This reduces the blades to an aerofoil section. For a good propeller, the point of maximum thickness and camber should come at about one-third of the width of the blade, all along its length. It will not hurt to get it a little forward of this, but never farther aft. The rear portion of the blade sections should be thinned right down, and the leading edge finished fairly sharp. The actual thickness of the blade should taper from a maximum at the hub down to about $\frac{1}{16}$ in. at the tip. The taper should be gradual and uniform, which will ensure that the propeller is as strong as possible.

Card Template

The propeller as carved so far will look something like (N). Do not bother to sand the front faces of the blades smooth yet, but mark on the outline required, and cut one blade to this shape (O). Make a copy of this shape on stiff paper or card, cut out, and pin or hold against the second blade (P). Mark round the template, and cut the second blade to an identical outline shape.

The result is that you have produced

The propeller must now be checked for balance. Push a length of wire through the hole in the centre of the hub and see if the propeller will balance level. If not, you can usually feel where wood should be removed from the heavier blade. Sand down the heaviest blade until the propeller will balance, but take care not to distort the aerofoil section or sand right through at the relatively thin tips.

All balsa propellers should be fitted with a metal bush. A screwed bush can be used, locked in place with a nut, or a bush can be made from brass tube, with washers soldered to each end (S). The bush should be a push-fit through the hub hole and should be securely anchored in place.

Final treatment of the propeller is then largely a matter of preference. Many people leave the propeller at this stage, others prefer to strengthen and waterproof the blades, or finish them with a gloss. The whole propeller can be covered with tissue to strengthen, and doped, or just given several coats of dope, sanding down smooth between each coat. A final polish with metal polish will then bring up the finish.

The edges of the blade are the most vulnerable part of a thin propeller, and

Continued on page 295

Making Shop Signs in Perspex

By Gordon Allen



Fig. 1—Display made with separate strips

OBTAINABLE in a score of delightful tints and shades, both transparent and opaque, and in varying thicknesses, Perspex can be used to fashion a multitude of fascinating additions to the home.

But its beauty need not be confined to things around the house, for it can prove to be a most effective selling point for articles designed and made specifically as a commercial proposition. And no genuine home craftworker loses an opportunity to put an extra guinea or two in his purse through the medium of the skill and the materials at his fingertips.

For instance, really eye-catching modern shop signs can be made with Perspex, signs that will have a ready sale with local retailers and command a good price. Alternatively the same technique can be used to produce charming house-nameplates which, fitted to a post at the garden gate or hung by anodised chain in the porch, will be the envy of friends and neighbours.

'Square' Lettering

The easiest type of sign to make is that which features the 'square' form of lettering (Fig. 1) composed with straight strips of Perspex $\frac{1}{8}$ in. thick, $\frac{1}{2}$ in. wide. Such strips are cut with a fretsaw or light coping saw directly from the sheet of material, which is always supplied with a protective sheet of paper temporarily fastened to it. Parallel pencil lines are drawn on this paper and act as guides for the blade, which should be a coarse one.

Shapes of the letters required are drawn out neatly in pencil on a piece of thick card. The strokes of each letter must be $\frac{1}{8}$ in. thick and are represented by parallel lines drawn $\frac{1}{8}$ in. apart. By holding the long strips of Perspex over these lines it is an easy matter to mark off with a sharp tool the lengths and chamfers required for each stroke. After cutting, the edges are trimmed with a small, smooth file and are glass-papered. Then the outside edges of each piece are highly polished by rubbing them with cotton wool and metal polish.

To assemble the pieces, ordinary straight pins are pushed at short

intervals into the cardboard along the lines denoting the letters. The appropriate strips are slid into place, polished side uppermost, and are joined with a sparing application of special Perspex cement, obtainable at your craftshop.

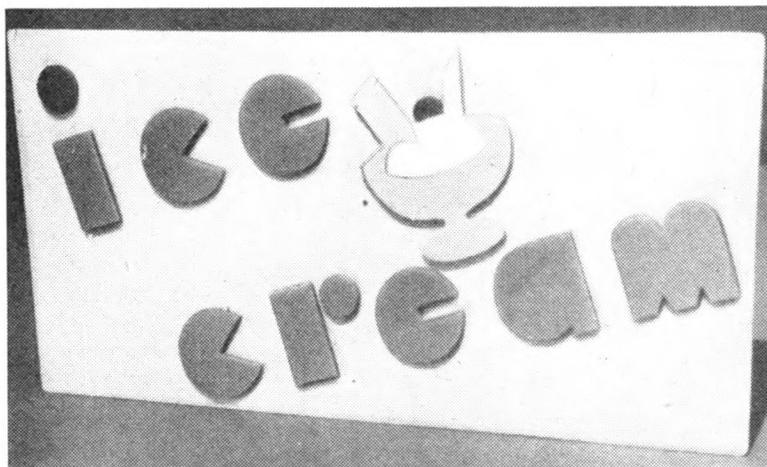
When dry, the letters are spaced out as desired on a backplate of Perspex $\frac{1}{8}$ in. thick, which should be attractively shaped and its edge polished. Positions are marked with a soft pencil and the letters are cemented in place one at a time. The finished sign can be screwed to a wooden background or can be supported by Perspex feet at the rear of the backplate.

Artistic Signs

Fig. 2 illustrates the type of sign that can be made by those who have a little artistic flair. Letters are fretsawed directly from the Perspex sheet after having been drawn on the protective paper. The lettering can be coupled with a simple and appropriate design made up, jigsaw fashion, from $\frac{1}{16}$ in. thick clear or opaque Perspex.

In this case the entire design is first drawn out on paper and each individual part of the design (for instance the wafers and cherry in the example) is cut out and stuck to the chosen Perspex with gum. After cutting, each piece is trimmed and fitted together over a piece of waxed paper—to prevent adhesion to the surface underneath. Finally the gummied paper is removed by soaking in water.

Fig. 2—Design utilising fretted pieces and modern lettering



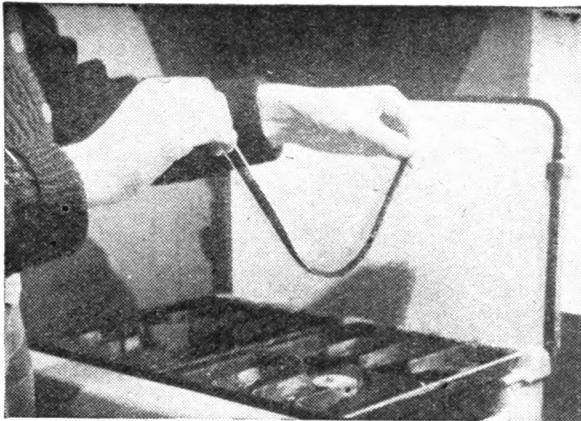


Fig. 3—A strip of Perspex being heated

For those who demand the rounded type of letter for their signs the following points should be noted. Perspex is easily worked when it is heated evenly and gently. A strip such as is used for the straight type of letter is held over a low-burning gas jet and is moved to and fro (Fig. 3). After about a minute it will be possible to bend the strip just like a piece of Plasticine.

Bend Round 'Cores'

To form the letters, heated strips are bent round 'forms' or 'cores' representing the internal parts of the letters which are cut from $\frac{1}{4}$ in. plywood and glasspapered quite smooth (Fig. 4).

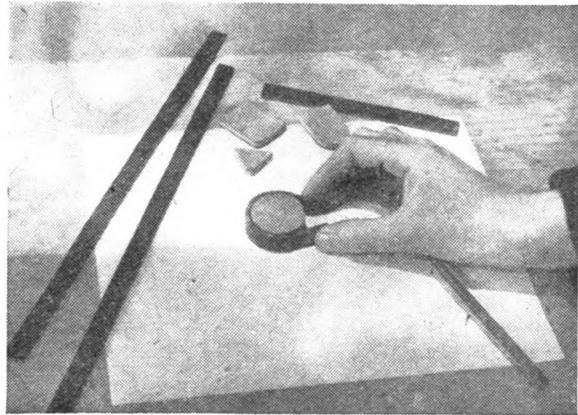


Fig. 4—Bending a Perspex strip round a wooden letter core

This must be done on a flat surface. After cooling, which is only a matter of seconds, the curved strips will retain their shapes and show no signs of springing. Final trimming and the addition of any straight legs is done directly over drawings of the letters as was the case in the first method.

Points worthy of inclusion in your 'sales patter' when you go to sell your work to the local butcher or chemist are: Perspex signs retain their colours; are easily washed, being quite water-proof; are hygienic; can be polished to look like new at any time, and are very nearly indestructible.

For Your Bookshelf

How to Make Marquetry Pictures by J. Anderson

MORE and more people are turning to some kind of hobby as an outlet for their creative instincts, and marquetry is claiming a goodly proportion of these. The beginner is offered an easy introduction to a fascinating hobby, while the enthusiast of the craft will gain much useful information from this book, which is profusely illustrated.

Published by Percival Marshall & Co. Ltd., 19-20 Noel Street, London, W.1—Price 4/6.

The Handyman's Complete Carpentry Guide

EXPERT writing supported by profuse and accurate drawings, make the articles in this book particularly easy to follow, and their subjects enjoyable to make up. Everything the amateur carpenter is likely to want to know or do is explained in crystal-clear

language. From furniture for the home to toys for the children—all these subjects and many more have been covered in this excellently produced book, which includes more than 800 illustrations, some of them in colour.

Published by Frederick Muller Ltd., Ludgate House, 110 Fleet Street, London, E.C.4—Price 15/-.

Sand Moulding and Metal Casting for Beginners

by F. Hayes

MR. HAYES has put all the results of his practical experience on the subject into this booklet, and leads the reader through the whole procedure, starting with the construction of the moulding box, to the final trimming and cleaning of castings. The illustrations enable the subject matter to be easily followed.

Price 2/6 post free from F. Hayes, 36 Westfield Avenue, Fareham, Hants.

McCall's Giant Golden Make-it Book

SOME grand ideas for the children to pass-away their leisure hours are included in this colourful book, with suggestions on over 100 articles to make. There are easy things for the very young, and challenging ones for the teenagers. The full-size patterns and carefully written instructions make each project well within the capabilities of the ages catered for.

Published by Adprint Ltd., Adprint House, Rathbone Place, London, W.1—Price 4/-.

1955 Kuklos Annual

CYCLISTS who enjoy touring holidays will find much information in this annual which caters for those who have their eyes on the Continent, as well as for those who believe in seeing their own country first. Routes are given in fine detail and there is, of course, the up-to-date section detailing accommodation where a welcome awaits the cycling fraternity.

Published by Ed. J. Burrow & Co. Ltd., Cheltenham—Price 2/6.

HOW TO MAKE A HAY-BOX

By E. S. Brown

THE hay-box was once a very popular means of retaining the heat of both solids and liquids for quite appreciable times, but during recent years this extremely useful appliance has become little known.

Its working principle is very similar to the vacuum flask, as it depends upon its heat retention upon the heat-insulating properties of the medium

special is required for the box can be purchased from the local grocers or made up by oneself. The only point to observe is that there are no gaps between the boards of which the box is made. The dimensions can be roughly estimated by the size and number of utensils for which the hay-box is required. There must be a minimum of

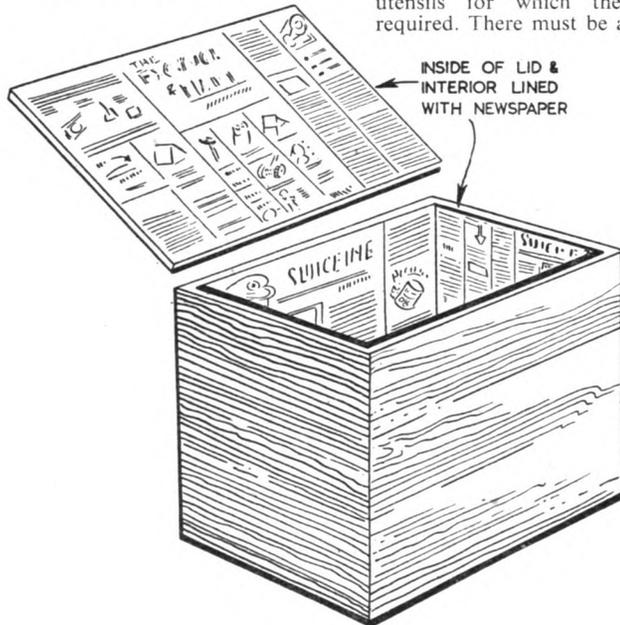
it is lined with several layers of newspaper, care being taken to see that each sheet has a generous overlap. The newspapers are pasted on one side, then placed into position within the box and smoothed into place with the hand or a soft brush. All the interior of the box, including the bottom, should be so covered with a minimum of five to six layers, then placed aside to dry. The inside of the lid should also be treated accordingly.

A cushion is then made up from some cheap hardwearing material to the size of the interior of the box, with a depth of 6 ins. This is then filled with clean dry hay and the open end sewed together. This cushion must be a tight fit within the box, otherwise the heat retention will suffer.

How to use the Box

The box is now filled with hay, pressing down and adding more until it is completely filled. The hay should not be tightly rammed down or too loose, and a little experimenting may be necessary to obtain the correct degree of packing. The box is now ready for use, and the correct procedure is as follows. The food and liquids must be at boiling-point, with tight-fitting lids when placed in the hay-box. The utensils must be pressed down into the hay until in the middle of same, and further hay placed on the top of the utensil covers, which is then followed by the cushion and lid. These last two items are really the weak-links in the hay-box, and they must be a very tight fit to retain the heat satisfactorily.

If desired, for the sake of appearances, the exterior of the box can be glass-papered down, then given two coats of hardwearing paint or enamel.



used. In the case of the vacuum flask the insulation is by means of a high vacuum and a silvered reflecting surface, while in the instance of a hay-box, as its name implies, hay is the medium used. Other materials such as glass-wool, asbestos wool, etc., can also be used with varying results, but hay gives consistent results and, moreover, has the great advantage of being exceedingly cheap to purchase.

Ideal for Picnics

It must not be assumed that the hay-box is as efficient as the vacuum container, but it does keep food, etc. quite hot for upwards of 6 hours, provided that it is properly constructed, and is extremely useful for campers and also for car picnics. It is rather apt to be bulky, however, and proper provision must be made for its packing and conveyance.

The first essential in making a hay-box is, of course, the box itself. Nothing

9 ins. of hay around each utensil and the dimensions of the box must be in accordance with these requirements. Having obtained or constructed the box,

● Continued from page 292

Carving a Propeller

these can be protected by cementing thread around the propeller outline (T). This is quite easy to do, and the protection afforded is well worth while, if you have spent a long time working the blades down to a nice thin aerofoil section.

Tissue covering (U) can be used with or without thread protection for the edge. Ordinary lightweight tissue can be used, applied with tissue paste or dope. If paste is used, a coat of dope over the top is necessary. If the tissue is put on

with dope, further coats of dope are optional.

A plain doped finish has the virtue of making the propeller waterproof, so that it will not pick up moisture when the model lands in damp grass, etc. It adds very little strength. For a shiny finish, the final coat should be of high gloss or paper varnish. If a coloured effect is required, use a translucent colour dope, or a wood dye, but not pigmented colour dope, as this would add too much weight.

You can have lots of fun with

HOME TELEPHONES

VARIOUS home telephone circuits can be fitted up quite easily, and a number of uses and amusement purposes for them will readily come to mind. For both receiver and 'microphone' earpieces such as used with headphones are satisfactory. Various ex-service telephone receivers can also be purchased cheaply.

The simplest possible home phone circuit is shown in Fig. 1, and is useful for initial experiments. Two earpieces are used, connected by the 'line'. The latter will be required with any telephone circuit, and can be of twin flex or thin, insulated bell wire. With earpieces of this kind, an electrical current is produced when sound waves strike the

Says *F. G. Rayer*

telephone must not be expected from these simple arrangements, as no amplification is provided. But with suitable earpieces, volume will be sufficient for ordinary conversation.

Call Circuits

When the telephone in Fig. 1 is to be brought into real service, some means of calling the person at the other end of the line is required. The simplest way to do this is shown in Fig. 2. Here, one lead is common to both earpiece and bell circuits. When the push is operated, the bell rings, and a person at the left-hand

This can be used with advantage in home phone circuits to give two-way calling up, and to enable two 'line' wires to be sufficient for both bells and receivers.

Simple types of receiver hooks for home use are shown in Fig. 3. That shown at (A) is made from a stout springy wire. The earpiece has a loop, and is hung upon the hook. The weight of the earpiece thus keeps the hook down against the lower terminal. When the earpiece is lifted off, the hook springs up and transfers the circuit to the upper terminal. This circuit change can be turned to useful purpose, as will be seen.

A somewhat more robust and efficient

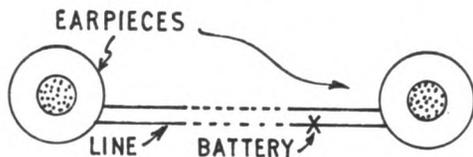


Fig. 1—Simple home telephone circuit

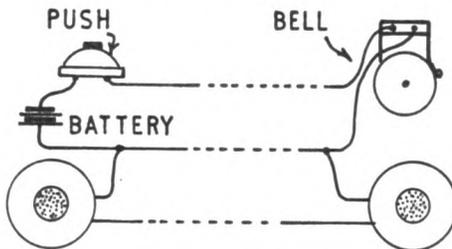


Fig. 2—Adding a bell or buzzer

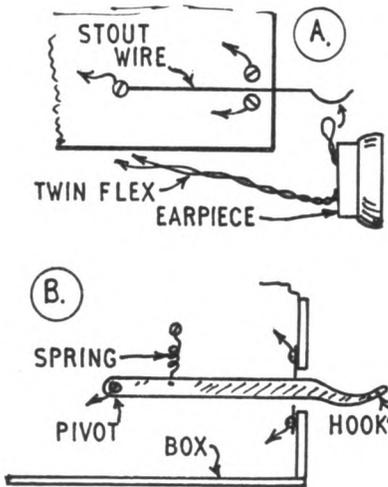


Fig. 3—Receiver hooks

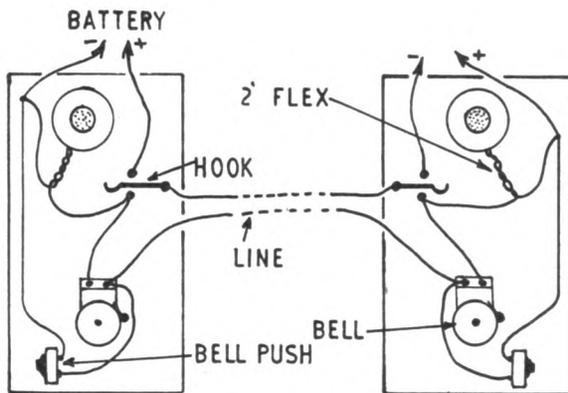


Fig. 4—Complete home telephone circuit

diaphragm. These currents pass to the second earpiece, causing the diaphragm there to vibrate, so that the spoken words are heard. With this simple circuit, the earpiece is alternately employed as 'microphone' and receiver. With some earpieces volume will be slightly improved by adding a dry battery of $1\frac{1}{2}$ to 6 V or so in one lead, as indicated.

Volume equal to that of a G.P.O.

set of equipment can thus call someone to the right-hand set.

This very simple arrangement is useful in many cases where edge of construction is desired, and the person at the right-hand position will not need to call the person at the left. It can also be improved upon later, if necessary, to permit of two-way calling up.

When a telephone is lifted from its rest, spring contacts change the circuit.

The contact hook is shown at (B). Here the hook is a flat strip, held in the 'up' position by a small spring. The hook may project through a slot in the side of a box, which can be used to house battery, bell, etc. Two small pieces of metal are screwed in place, so that the hook contacts one or other according to its position, exactly as with (A).

For good contact, the spring should not be too strong, or the weight of the

earpiece may not bear the hook down upon the lower contact with sufficient pressure. The points of contact should also be clean and bright. A loop of wire may usually be fitted to the earpiece without difficulty, so that it may be hung in place. When not in use, the earpiece is always hung up in this manner. A few feet of twin flex should be used for wiring to it, so that it may easily be held to the ear. If a twin receiver unit, such as sold by ex-service stockists, is used, then there will be no need to transfer the single earpiece from ear to mouth when listening and speaking.

Complete Circuit

Two complete units, for two-way operation, are shown in Fig. 4. Each unit is exactly the same as the other, except that the polarity of one battery is reversed. This is essential. Each unit has a bell or buzzer, and bell-push, for calling the other person. There is also a spring-loaded receiver hook, such as shown in Fig. 3, in each unit, and an earpiece, with flex and loop, as described.

When both receivers are on their hooks both batteries are disconnected. This is the normal position in which the units are left. If the person at the left desires to call the other, he lifts his receiver and places it to his ear. His hook rises, switching his battery to the distant person's bell. When the bell-push is depressed, the distant bell thus rings. When the person at the right

hears this, he lifts his earpiece, thus allowing his hook to rise. Both batteries, both earpieces, and both bells are now in series, and conversation can be carried on in the usual way. The resistance of the bell windings is so low,

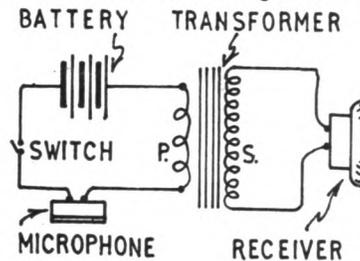


Fig. 5—Circuit for carbon microphone

compared with the receiver windings, that their presence in the circuit makes no difference. With the usual type of earpiece, current will also be so low, in the 'talking' position of the hooks, that the bells will not ring.

If the person on the right desires to call that on the left, the procedure is exactly the same. Care should be taken that the two line wires are not crossed over at one unit, or the circuit cannot operate.

Construction

Units such as shown in Fig. 4 may be made up in many ways. Shallow boxes would be satisfactory, with bell and battery inside, the bell-push being on

the front, and the receiver hook projecting through one side.

It is possible to use two earpieces, in series, instead of the single earpiece shown at each unit. One earpiece can be fitted to the front of the box, and act as microphone. The other can have a flex lead and loop, and be lifted off the hook to use for listening only.

If there is any doubt about the suitability of the phones, receivers or earpieces, they should be tried by means of the circuit shown in Fig. 1. This is particularly so with some types of radio headphones, which will not give very loud results.

Loud Phone

If really loud results are wanted, some means of amplification will be required. Without using valves, that most suitable is shown in Fig. 5. Very powerful results can be achieved with this.

A proper type of microphone is now used. This is of the carbon granule type. It does not generate a current itself, but offers a varying resistance to the current provided by the battery. This fluctuation in current is stepped up by the transformer, which has a step-up ratio of about 100:1. The secondary of the transformer drives the receiver, which may be an ordinary earpiece such as already described.

Ringing and two-way circuits can also be built up around this type of microphone, of course. But for many purposes, the circuits in Figs. 1, 2 and 4 will give enough volume.



Removing Paint from Canvas

I HAVE a concert scene which is painted in places with ordinary flat paint which I would like to remove without damaging the canvas. I shall be glad of your advice and also wish to know of a good distemper with which to paint scenes. (J.G.—Middleton.)

IF the concert scene is done with an oil paint, it can be removed by swabbing with turpentine—if a water paint, a good beating with a stick will remove most of it. The canvas is then painted over with a strong size, to which a little whiting has been added. When dry it is ready for repainting. It is possible, however, to paint over the surface without removing the paint already on it. For painting, proprietary brands of distemper should be suitable, but if there are many colours to be employed, why not mix your own?

These are easily prepared on the usual lines of whiting and size, with the addition of suitable pigments, such as Naples yellow, the siennas, umbers, Vandyke brown, ivory black, indian red, vermilion, french ultramarine, ochre and madder lake.

Treatment for Brick Floor

I WISH to put some sort of glaze on a rough brick floor. I have been given a preparation of 2ozs. resin, 2ozs. shellac dissolved in 1pt. methylated. Can you tell me whether this will be any use, or, perhaps, suggest something else? (E.W.—Falmer.)

WE recommend you wash the brick floor over with hot soda water, and when dry, brush on raw linseed oil to stop suction. Leave for a day or so, then we suggest you paint the bricks with the following:—red oxide and

linseed oil, with the addition of a little driers. With a rough floor it is difficult to obtain a gloss, but the varnish you mention could be tried, though it would be wise to test its drying quality first on a small corner of the floor. You could, as an alternative, apply a coat of hard gloss paint.

Fixing Boards for Counter

COULD you make any suggestions for fixing 3ins. by 3/8in. tongued and grooved oak, which I am using for covering in the sides of a counter I am making? I was thinking of screwing the oak and filling in the countersunk screw-heads with plastic wood, but wondered if there were any other ways. (F.A.—Basingstoke.)

THE neatest method for your purpose is secret nailing of the oak boards, done by driving nails in through the angle between tongue and board, the nails being driven at an angle and well punched down. The board fitted to it next will, of course, cover the nail heads. Alternatively, the boards could be nailed, or screwed on from the front, and the line of nail or screw heads hidden by a small moulding, glued and pinned over.

A Small All-Purpose Cabinet

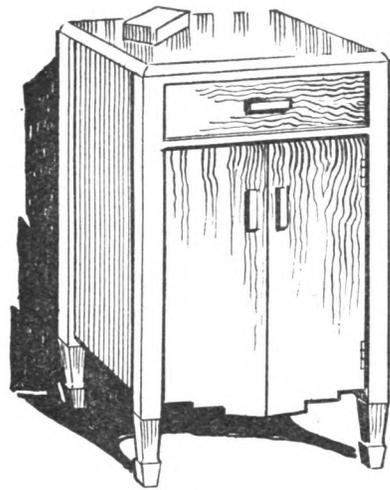


Fig. 1

THE illustration shows this useful type of cabinet, built on modern lines and of pleasing appearance. The cabinet stands 36ins. high, and is 21ins. wide and 14ins. from front to back. There is a spacious cupboard measuring 21ins. high, which may be divided up by a shelf, and also a conveniently-sized drawer.

Fig. 2, which is a section through the cabinet, front to back, shows clearly the construction of rails, door, and back, and also of the drawer. Fig. 3 gives all

necessary dimensions when preparing the wood; and Fig. 4 is a perspective diagram of the internal construction showing the drawer runners and guides

and the strengthening angle blocks between legs and rails. Fig. 5 shows the method of dowelling the rails to the legs, and Fig. 6 the construction of the drawer.

The four legs are 36ins. long and 1½ins. square in section. The front two will have one groove each, while the rear two will have two grooves each. All grooves should run to within 6½ins. of the foot of the legs, see Fig. 2, and they should be ½in. in from the outer face of the legs as Fig. 5 shows. The legs are connected up by the pairs of rails (A), (B), (C), (D), (E) and (F), and their position can be calculated from Figs. 2

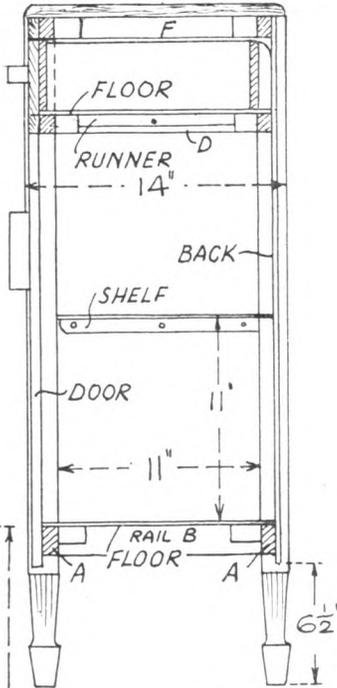


Fig. 2

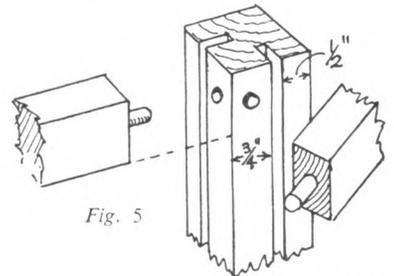


Fig. 5

and 3. The lower rails (A) and (B) are 18ins. and 11ins. long respectively, and are 1½ins. by ½in. in cross section, while (C, D) and (E, F) are also 18ins. and 11ins., but 1in. by ½in. in section. The dowels must not project more than ¼in. beyond the ends of the rails, but may go into them for a depth of ½in. When

●Continued on page 300

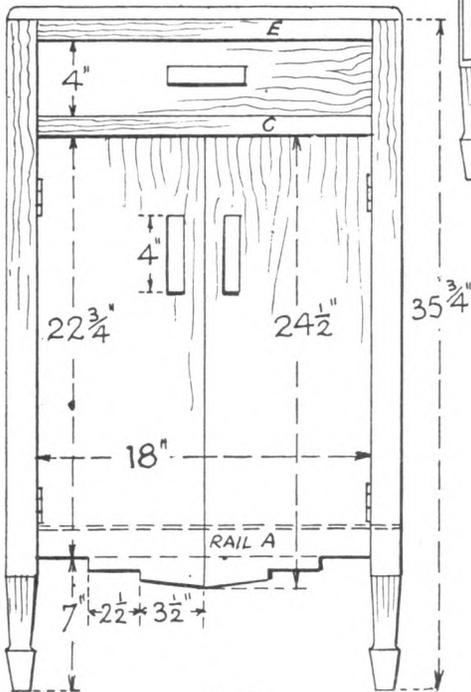


Fig. 3

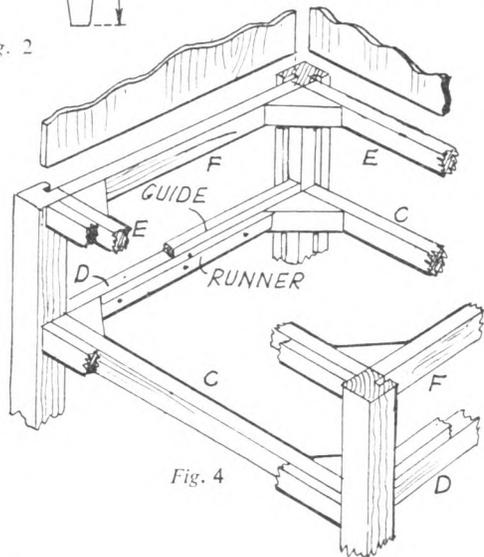


Fig. 4

London's most fascinating Exhibition



THE MODEL ENGINEER EXHIBITION

aug 17-27
11am-9pm

and the
Exhibition of
Inventions

adults 3/-
children 1/6



New Horticultural Hall Westminster

T. JAOUES

All kinds of MODELS! Every sort of CRAFTSMANSHIP!

Model engineers from all over Britain compete for cups, medals, diplomas and cash awards. Every kind of land, sea and air model — all incredibly detailed and accurate — can be seen at this most fascinating Exhibition. Also demonstrations by experts of the SKILLS involved, RADIO CONTROL of ships on the water tank, PASSENGER CARRYING Live Steam Track and MUSIC from a miniature model organ. Model makers can get new ideas from the ingenious exhibits in the EXHIBITION OF INVENTIONS organised by the Institute of Patentees which visitors can see side by side with the 'M.E.' Exhibition. Adults 3/- - Children 1/6

NEW HORTICULTURAL HALL

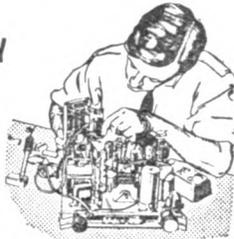
AUGUST 17-27 11 a.m. - 9 p.m. daily

GET THERE BY BUSES 11, 24, 29, 39, 76, 134 to Army & Navy Stores. 2, 36, 57, 69, 169, 178, 185 to Rochester Row. 3, 59a, 77, 77a, 88, 159 to Horseferry Road. BY UNDERGROUND to St. James' Park.

NEW! EXPERIMENTAL KITS

LEARN THE PRACTICAL WAY

Here is home study of the most effective kind under expert tutors. There is no better way of studying for an examination, starting a new hobby or for a career in industry. These special courses comprise the most modern methods of postal tuition, combined with a Practical Kit of parts (which remains your property).



COURSES FROM 15/- A MONTH

COURSES WITH PRACTICAL EQUIPMENT INCLUDE: Radio, Television, Mechanics, Electricity, Chemistry, Photography, Carpentry; also Draughtsmanship, Commercial Art, Amateur S.W. Radio, Languages, etc.

POST THIS COUPON TODAY

For FREE brochure write: E.M.I. INSTITUTES,
Dept. 31X, Grove Park Road, London, W.4.
SUBJECT(S) OF INTEREST

NAME

ADDRESS

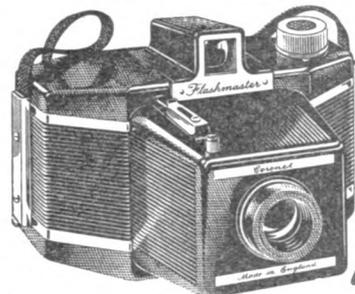
10/8/55

IC51A

E.M.I. INSTITUTES

The only Postal College which is part of a world-wide Industrial Organisation

The New Coronet Flashmaster



30/-

The easy-to-use Camera

Simple, economical, yet scientifically up-to-date, this eye-level viewfinder camera takes twelve 2½ in. sq. photos on 120 roll film. Everset shutter plunger threaded for cable release, and protected by safety slide.

Synchronised for flash, with two sockets into which Coroflash unit can be plugged. Complete with smart, securely fixed carrying strap. From most chemists or photographic dealers, or write direct.

TO CORONET LTD. DEPT. HW, SUMMER LANE, BIRMINGHAM 19
Please send free booklet 'Photography is Fun'

NAME

ADDRESS

cutting the rails to length, take great care to get perfectly square ends, and also see that the dowels are exactly in the centre.

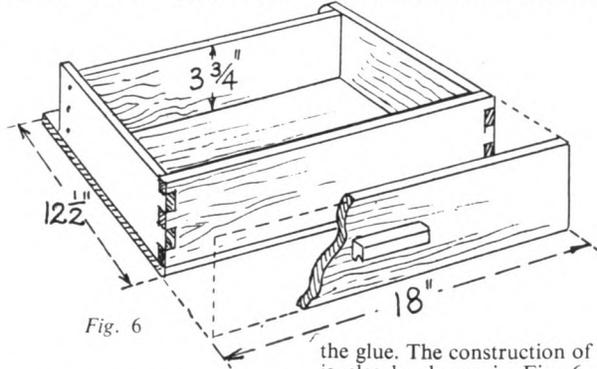
When assembling the parts, first make up the two end sections, consisting of a pair of legs and rails (B), (D) and (F), and then connect them with the front and back cross-rails (A), (C) and (E). Note that all the rails will stand on the inside of the legs beyond the grooves, so that the latter are left clear for sliding in the plywood side and back panels, which are $\frac{1}{4}$ in. thick.

In Fig. 4, one side panel and the back panel are shown ready to be slid down into their grooves. Before the three panels are added, however, a pair of drawer guides, and a pair of runners are fixed in the positions shown. The guides are $\frac{3}{4}$ in. by $\frac{1}{2}$ in. by 11 ins., while the runners should be 1 in. by $\frac{3}{4}$ in., cut to fit between the blocks. The guides are glued to the top surface of the rails (D), while the runners are fixed to the inside of these rails. Along the front of rails (C) and (E) must be glued strips $\frac{1}{2}$ in. thick and 1 in. wide to make up for the thickness of the door and the front rail of the drawer. In Fig. 4 it will be noticed that certain rails in the diagrams are broken through, so as to show the construction of the parts. All the rails may be of deal, excepting those

just referred to, which should be of wood to match the legs.

Careful measurements should be taken direct from the framework of the cabinet before the panels are marked out and cut. The doors consist of solid $\frac{1}{4}$ in. panels, cut to size taken direct

to fit round the legs before being fixed to the rails. The top of the cabinet is plain, made up in two or more widths of wood glued together and rounded on all four edges as shown. Screws driven through the rails from inside will ensure that the top is firm if used in addition to



from the actual opening. Note the simple shaping at the base of the doors, which can be done with the fretsaw. Brass hinges, 2 ins. long should be recessed into the edges of the doors as shown. Modern wood block handles are added.

Plywood, $\frac{1}{4}$ in. thick is used for the floor, and the corners must be notched

the glue. The construction of the drawer is clearly shown in Fig. 6. The sides, inner front and the back may be of $\frac{3}{4}$ in. wood, while the main front should be $\frac{1}{2}$ in. oak glued on and screwed from the back.

Clean off all parts with fine glasspaper and finish with oak stain and wax polish. The floor of the drawer is of $\frac{1}{4}$ in. plywood attached as shown in Figs. 2 and 6. (S.W.C.)

A job for the Handyman

RENOVATING UPHOLSTERY

By E. M. Blackman

THE renovation and repairing of upholstered furniture can be quite efficiently undertaken by an amateur. Where the webbing of a chair has given way, the necessary repair can be effected either by putting on new webbing or by replacing the old webbing with wooden battens.

In either case, the bottom sacking and old broken webbing should first be removed and the tacks carefully extracted.

If battens are to be used, they should be of hardwood about $\frac{1}{2}$ in. thick and 2 ins. wide. These should be nailed to the bottom of the chair, so as to be underneath the centre of the coiled springs. The springs should be pushed into position and secured by means of fine wire twisted around them and passed through holes in the battens. A new piece of hessian should then be cut to the pattern of the piece removed, and tacked on to the bottom of the chair.

If new webbing is to be fixed, the end of the first strip should be turned over for $\frac{1}{2}$ in. and fastened to the centre of the seat-rail with three or four $\frac{1}{2}$ in. tacks. The other end of the strip should then be passed through an upholsterer's strainer and stretched perfectly tight

across the frame. Take care that the web is straight and then, whilst still tightly strained, fasten down in the same way as on the other rail.

When this has been done, the strainer may be released, and the web cut off $\frac{1}{2}$ in. from the edge. Double this end over and nail down. Other webs should then be fixed in a similar manner, the space between each web being not more than 2 ins. Afterwards, cross-webs should be fixed from the front to the back of the frame, and interlaced with the others.

The wire spiral springs are obtainable in all sizes from 4 ins. to 12 ins., the wire being of different gauges to suit the various purposes for which they are required.

They should be secured to the web by stitching the bottom coil down to the webbing with some strong upholsterer's twine. Use a curved spring needle for this purpose.

If the re-covering of the seat is decided upon, the first thing to be done is to strip off the gimp, and with a small cold chisel knock out the tacks which secure the edge of the cover. This

should enable the cover to be lifted off, and the dust which has collected can be brushed away.

Next, see that the springs are upright, and if necessary replace by new ones which should be securely stitched to the underneath webbing, and the top stuffing.

When measuring the stuffed portion for the new cover, allow for tacking on, both in length and width. To hold the cover in position for fixing it on, tack it in the centre of the seat with the pattern, if any, straight across. Then secure it at the back, commencing in the middle and working towards the ends.

The tacks, $\frac{3}{8}$ in. in length, should be placed about 1 in. apart. The corners should be doubled round to the front or back, pulled down firmly with the pincers, and tacked through the double thickness.

Trim the edges of the material with a sharp knife and cover with suitably-coloured gimp. Nail the gimp down with the small black pins obtainable from ironmongers for this particular purpose.

Leather bandings can be securely fastened with gilt or leather-headed studs according to preference.

BLACK & DECKER DRILL

A first-class tool, the Black & Decker U-1 Portable Electric Drill saves hours on home and workshop jobs. Drills wood, steel, brick, etc. Steel capacity up to $\frac{1}{2}$ ". Also drives sanding discs, polisher pads, etc. Weighs 3 $\frac{3}{4}$ lb. Fully suppressed. £5.19.6 or 12/- deposit and 6 monthly payments of £1. Sent on receipt of the deposit. A.C./D.C. motor, voltages 110 to 250. State your actual voltage.



SANDER POLISHER (ELECTRIC)

5/-

DEPOSIT

The I. & G. Electric Sander Polisher does the job ten times faster than by hand with no effort. Sands wood, furniture, burnishes metal, polishes cars, furniture, silver. A.C. only 220/250v. State your actual voltage. Cash 75/-, or send 5/- deposit and 6 monthly payments of 13/6.



ELECTRIC PAINT STRIPPER

4/- DEPOSIT

and
4 monthly
payments of
7/6



Old paint peels off like magic with the Horvell electric paint stripper. Easy, even strokes remove paint, varnish, etc. Four-sided blade for angles and corners. A.C./D.C.—state your actual voltage. Cash price 30/-, Post & Packing 1/-. Extra flex 1/- a yard. Spare element 5/6. Leaflet free.

ROLLS RAZOR

ONLY 3/6 deposit

and 8 monthly payments of 7/-

This famous Razor is now offered on easy terms. Each set contains sharpening mechanism (strop and hone) to keep the blade keenly edged for years. The most economical safety razor yet made. Cash price 53/3, or terms as above. Also in leather pouch with spare blade 79/6, or 5/- deposit and 8 payments of 10/6.



PIFGO ELECTRIC SHAVER

Only 4/- deposit

Shave free for 14 days with this new electric shaver. Send 4/- deposit (returnable). Precision made in cream plastic with matching case. A.C. only 100/110 or 200/250v—state actual voltage. ONLY 79/6 cash, or your 4/- deposit and 8 monthly payments of 10/6. 12 months' guarantee.



ELECTRIC PAINT SPRAYER

Cash 75/-, Or 4/- deposit and 6 monthly payments of 13/6

For 4/- deposit



Paint easily, evenly, twice as fast with the Burgess Electric Sprayer. Sprays paint, varnish, etc. Complete with sturdy glass container, flex, nozzles for ceiling spraying and extra nozzle discs for different liquids. A.C.—state your actual voltage. Fully guaranteed. Leaflet free.

NEW SUNBEAM SHAVEMASTER

14 DAYS TRIAL

10/-

DEPOSIT Returnable

Choose the NewSunbeam



Electric Shavemaster for quicker, better shaves. 210/250v. A.C./D.C. Cash £10.10.0. Or 10/- deposit for 14 days' free trial, 15/- payable at end of trial, and then 8 monthly payments of 25/-; dual voltage model 11gns, or terms available, 5 years guarantee. Send for leaflet of this and other Shavers.

BARGAIN DISTRIBUTORS (Dept. 124), 5 Silver Street, Luton

AS DEMONSTRATED ON T.V.

DECRA-LED

transforms plain glass into fashionable

LEADED WINDOWS

No glass to cut—no windows to take out—no tools to buy. You can DO-IT-YOUR-SELF. A 10/- DECRA-LED Trial Kit will do three panes 30" by 18" in traditional Diamond design.

New full scale motif designs are now available. You can use them on any size or type of window.

If unobtainable locally, direct from **TRADE ENQUIRIES INVITED T. BROWN & CO. LTD., Dept. 1, 50 WOOD STREET, ASHTON-UNDER-LYNE, LANCASHIRE**



Obtainable from Handicraft and Woodwork Supply Stores, Ironmongers and Decorators.

KITS for OLD TIME SHIPS

Hobbies range of Ship Models includes Elizabeth Jonas, Cutty Sark, Victory, Mayflower, etc. Complete kits of wood, sail material, guns, pulleys, cord, etc. with full-size patterns of parts and planed wood ready to cut out, shape and construct. A fascinating pastime.

Kits for models 7ins. long and upwards

Ask for free illustrated lists at Hobbies Branches or from Hobbies Limited, Dept. 99, Dereham, Norfolk.

HARD HITTING

ACCURATE

Webley AIR PISTOLS

AIR RIFLES · ACCESSORIES

Write for Catalogue

WEBLEY & SCOTT Ltd., 166 WEAMAN ST., BIRMINGHAM, ENGLAND



BRANCHES: LONDON

78a New Oxford St., W.C.1 (Phone MUSEUM 2975)
87 Old Broad Street, E.C.2 (LONDON WALL 4375)
81 Streatam Hill, S.W.2 (TULSE HILL 8796)

GLASGOW

326 Argyle Street (Phone CENTRAL 5042)
Head Office & Factories—HOBBIES LTD., DEREHAM, NORFOLK

MANCHESTER

10 Piccadilly (Phone CENTRAL 1787)
BIRMINGHAM
100a Dale End, Birmingham 4

SHEFFIELD

4 St. Paul's Parade (Phone 26071)

LEEDS

10 Queen Victoria Street (Phone 28639)

HULL

10 Paragon Square (Phone 32959)

SOUTHAMPTON

25 Bernard Street

BRISTOL

30 Narrow Wine Street (Phone 23744)

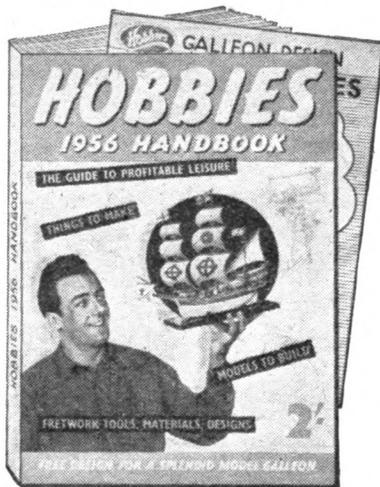
BUILD YOUR OWN FOUNTAIN PEN

Complete kit of parts with full instructions for assembly. An ideal constructional gift. A real fountain pen with maker's guarantee.

8/9 Cash with order

A. FOWL

143 HUMBERSTONE DRIVE, LEICESTER



IT'S HERE!

152 pages packed with interest for the handyman, modeller and home craftsman — all for 2/-
FREE DESIGN for a model galleon

Stripwood Toy Making Jigsaw Puzzle Cutting
 Coloured Marquetry Picture and Instructions
 Modern Furniture Patterns

CATALOGUE OF HOBBIES FAMOUS TOOLS AND KITS, Etc., Etc.
Make sure and get a copy from your newsagent, Hobbies branch or stockist NOW. Or send 2/3 P.O. to Hobbies Ltd., Dept. 99, Dereham, Norfolk, for a post-free delivery.

WOODEN WHEELS, stock clearance bargains, 1" plain 2/6, 1" recessed 5/- gross. Recessed round tread, 1½"-10/-, 2"-15/-, 4"-70/- gross. Doll's house fittings and papers. Brochure S.A.E.—Jasons, 135 Nags Head Road, Enfield, Middlesex.

KUKLOS ANNUAL. Indispensable cyclist's handbook. Tours, resthouses, money-saving hints, 2/10, post free.—Burrow, Publishers, 2 Imperial House, Cheltenham.

STOP SMOKING!! Quick guaranteed remedy. Free Testing Sample!!—Triumph Remedies (H3), Exeter.

STAMPS FREE—Empire Packet including Pictorials and Victorians with approvals.—Robert J. Peck, 7A Kemp Road, Bournemouth.

BUILD your own T/V and learn about its operation, maintenance and servicing. Qualified engineer-tutor available whilst you are learning and building. Free Brochure from—E.M.I. Institutes, Dept. HW.58, London, W.4. (Associated with H.M.V.)

HAVE YOU MADE THIS MODEL YET?

Send S.A.E. for
 illst. List of 100
 Gems to make.
 Micromodels
 Ltd., 3(H)
 Racquet Ct.,
 London,
 E.C.4

EVERYTHING
 NECESSARY
 FOR 2
 DOLS.
 SET
 S.XI. 2/6

BRAND NEW U.S.A. OFFICER'S SLEEPING BAG

MADE IN THE U.S.A. These are a gen. American issue, not to be confused with spurious imitations on the market. Real 100% wool inner zipped down the front, with an additional free waterproof outer, you can sleep in the open. Comfortable and warm yet rolls up into easy carrying pack. 29/11, post etc. 1/9.

WITH FREE OUTER

29/11
 POST ETC 1/9

GERMAN PRISMEX BINOCULARS

6 LENSES x 40 mm COATED

LENSES. Popular Squat Model

No Deposit CASH PRICE 69/6

For wide field viewing, finest value for German Prismex Binoculars. 5¼" x 4¼". Bending Bar for eye adjustment, centre focus. Splendid magnification, 3D viewing. Clear Bloomed lenses, wide angle. Sports and holiday use, day and night lenses. Lightweight model. With case lanyard and leather straps. Send 2/6 for pack. & reg., etc. 7 days approx., if satis. send 4/6, then 8 pags. 9/- in 8 months. **CASH 69/6. LISTS, TERMS. Headquarter & General Supplies Ltd. HOBWX/64, 196 200 Coldharbour Lane, Loughboro Junc., London, S.E.5. Open Sat., 1 p.m. Wed.**

GENUINE SWISS Musical Movements. Owing to large purchase now reduced to 14/6 each. Genuine Foreign Movements 19/3 each. P. & P. 9d. extra on all orders.—Richardson & Forder, 5 Chapel Place, White Hart Lane, London, N.17.

SWISS MUSICAL Mechanisms for cigarette boxes, etc., 18/- post free. S.A.E. for illustration and list of tunes available.—Dept. HW, Metwood Accessories, Church St., Wolverton, Bucks. (Trade supplied.)

PLYWOOD — HARDBOARD — at amazing low prices. Send S.A.E. for samples and prices to—N. Gerver, 10 Mare Street, Hackney, London, E.8.

'PAINTSPRAYING' HANDBOOK (1954 Ed.). Covers Car, Industrial & Flock Spraying. 3/6, post free, including catalogue of our Cellulose and Synthetic Paints and all Allied Sundries and Plant Hire.—Leonard Brooks Ltd., 81 Oak Road, Harold Wood, Essex.

FILM Star postcards. Lists free.—International Filmcard Club, 120 Bournbrook, Birmingham, 29.

TRANSFER graining paper—oaks, walnuts: 5 samples 1/-; complete range 3/-; roll 16/10.—H. Decano Co., 20 Clarendon Rd., Jersey.

MATCHBOX-SIZE crystal sets. All parts, crystals, instructions, complete 3/3, post free.—Bailey's, 44 Stanley St., C. Oldham.

LOOK! Stamp tweezers, nickel plated, free. Send 2½d. requesting 25% discount approvals.—H. Rowley, 50 Waylen Street, Reading.

EVERY CAR THAT PASSES—YOU WILL FIND THE INDEX MARK ALPHABETICALLY ARRANGED IN WHERE'S THAT CAR FROM?

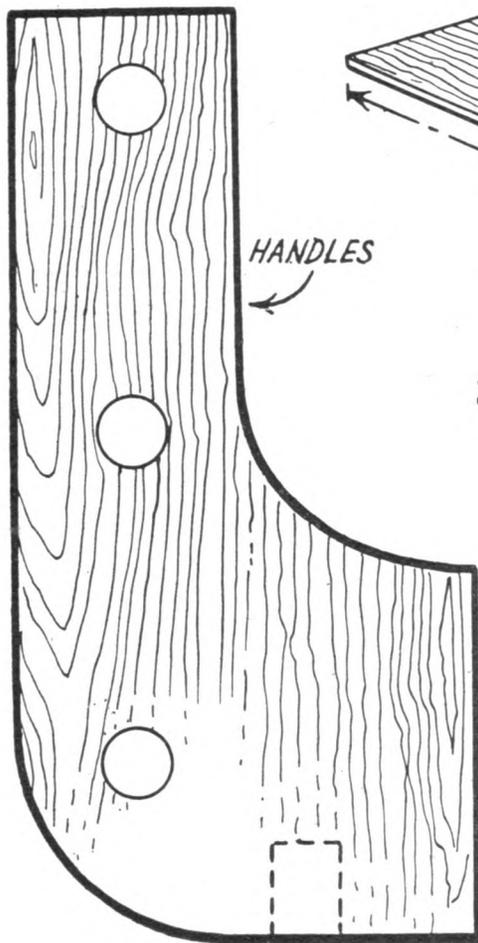
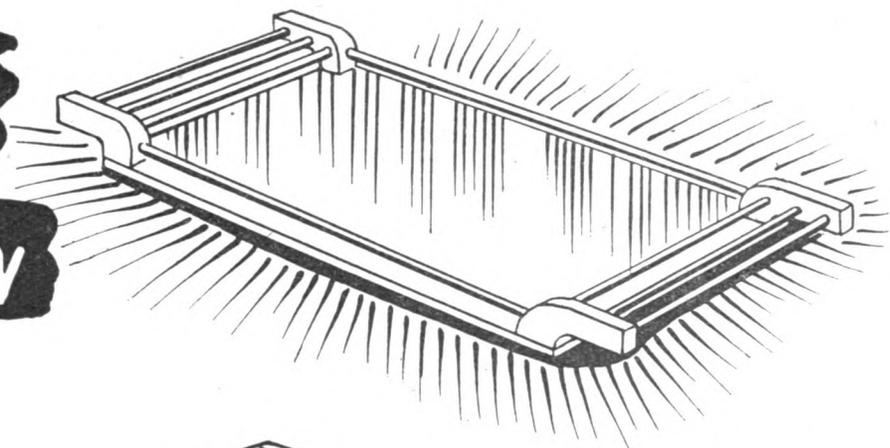
Price 9d.

from all Booksellers or from the Publishers (1½d. postage)

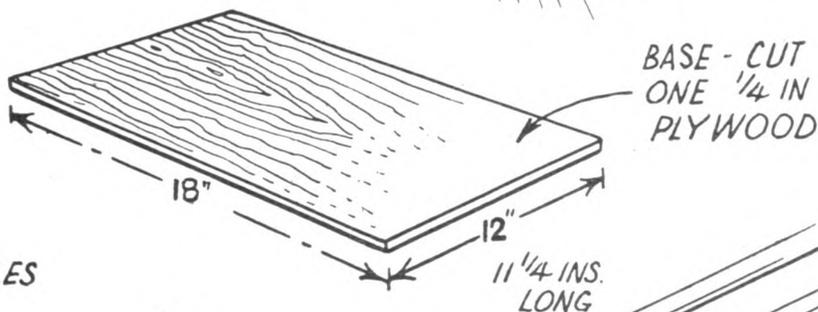
RALEIGH PRESS, EXMOUTH

MAKING A MODERN TEA-TRAY

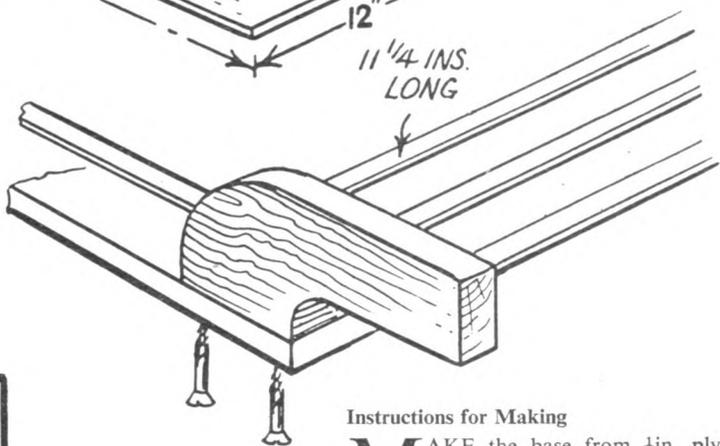
**USE
YOUR
FRET-
SAW**



HANDLES



BASE - CUT
ONE 1/4 IN
PLYWOOD



RUBBER
FEET
FOUR REQUIRED

Instructions for Making

MAKE the base from $\frac{1}{4}$ in. plywood or hardboard and the handles from $\frac{1}{2}$ in. wood. Four handles are needed and they are shown full size on the pattern sheet. Screw them to the baseboard as shown in the details.

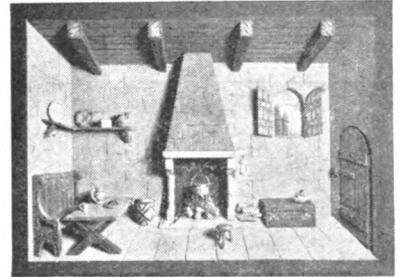
Cut the rails from $\frac{3}{8}$ in. round rod and glue them into the handles. Holes to take the rails should be $\frac{3}{8}$ in. deep. Finish off by applying brush polish or paint and add four rubber feet underneath. These feet can be obtained from Hobbies Ltd., price 5d. per set of four.

PICTURE CARVING by Playcraft

Offers for the very **FIRST TIME . . .**

a complete pack enabling all keen modellers to produce for themselves one of these beautiful three-dimensional wood pictures with the perspective, colour and character of an Old Master.

These kits are available in three attractive boxes, each identified by a full colour print of the actual picture and containing all the components and necessary tools
Price **22/6**



15th Century English Hall

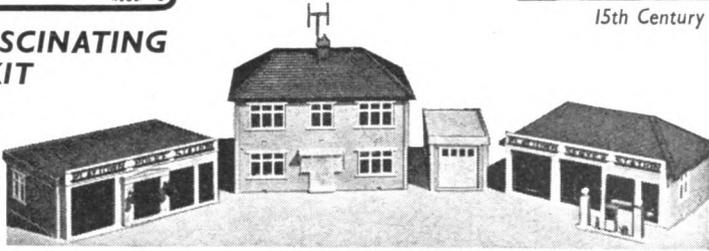
PLAYTOWN REGD.

★ ★ ★ ★ ★

THE NEW AND FASCINATING CONSTRUCTION KIT

by **Playcraft**

An interesting group of buildings made from these architect designed scale model construction kits. Prices from **4/6**



★ ★ ★ ★

Playcraft OIL PAINTING BY NUMBERS

★ **TELEVISION FAVOURITES**

(Choice of 6 subjects) see your favourite TV characters come to life **8/11**

★ **COLOUR CRAFT**

For the advanced enthusiast **14/11**

★ **DISNEYLAND**

Of popular appeal to the smaller child **12/11**

★ **JUNIOR ARTIST**

A set for the teenager **7/11**

From all High-class Art, Hobby and Toy Shops

PLAYCRAFT TOYS LTD., Finsbury Pavement House, 120 Moorgate, London, E.C.2



*Proof
against
Boiling
Water*

VALSPAR
REGD. NO. 40544

2-4 Hour LACQUER · VARNISH · WOOD STAIN

- ★ NO KNOTTING PRIMING OR UNDERCOATING REQUIRED
- ★ DRIES IN 2-4 HOURS
- ★ SUITABLE FOR ALL SURFACES—EVEN TILES
- ★ EASILY APPLIED, EASY TO KEEP CLEAN



Write for booklet and name of stockist to the Sole Manufacturers U.K.

GOODLASS, WALL & CO., LTD.
179/185, (AcB) Gt. Portland St. W.I. Est. 1840

PRINT YOUR OWN SNAPSHOTS

with this super

3/- PHOTOGRAPHY KIT

Think of it! Now you can make your own prints of holiday snapshots with this Johnson Print-A-Snap Pack. It's wonderful fun and so easy too. Each pack has everything you need for making perfect pictures from your negatives.



There are two sizes. One has 16 sheets of $3\frac{1}{2} \times 2\frac{1}{2}$ in. contact paper—that's for the camera that takes 8 pictures on each roll of 120 film. But if your camera takes 12 pictures to a roll, ask for the pack with 24 sheets, $2\frac{1}{2} \times 2\frac{1}{2}$ in. Get the Johnson Print-A-Snap Pack today and show the family what you can do.

Only 3/- a pack

- 1 pkt. developer.
- 1 pkt. fixing powder.
- 1 pkt. of the new Johnson contact paper, a cardboard printing frame and a sturdy wallet for keeping your prints in after you've made them, together with full instructions.

Ask any Photo-Dealer for the
JOHNSON PRINT-A-SNAP PACK