

HOBBIES WEEKLY

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MAY 25th 1955

VOL. 120

NUMBER 3108

★ FREE INSIDE ★

A Design Sheet for this MINIATURE GALLEON—

ALTHOUGH very little is known of the exact constructional details of British warships of the fifteenth century, enough information has been gleaned from old manuscripts covering this period to enable us to form a fairly authentic picture of their make-up.

In this, our 7ins. model of 'The King's Ship', two notable features are apparent. One is the fully decorated mainsail, which makes it a very colourful model indeed, and the other is the



'THE KING'S SHIP'

summer castle on the stern of the ship. This summer castle—a box-shaped cabin, in fact—rested quite uncomfortably above the rounded hull, and the intervening spaces were filled in with planking, which in no way formed part of the skin of the hull proper. This construction, we learn, survived for centuries in the 'flutes' of Holland and the 'cats' of the Baltic.

To start the construction of 'The King's Ship' trace the parts from the design sheet on to the appropriate thicknesses of wood, making sure that the pieces are spaced as economically as possible. Then cut out the pieces with a fretsaw.

Take the six pieces B and glue them together in two sets of three to form the left- and right-hand sides of the hull. Shape these sides to the sections shown in Fig. 1, and according to the dotted lines on piece A on the design sheet. When shaped, the two sides of the hull

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

For Modellers, Fretworkers
and Home Craftsmen

4^D

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are glued on either side of the keel A, and this done, the deck (C) and piece D can be added. The model should now appear as in Fig. 2.

Pieces E and F, which form the fo'c'sle, should now be glued together and attached to the deck, so that piece F is forward of piece E, and the shaped ends fitting as shown by the dotted lines on the keel. When the glue is hard, these pieces must be shaped so as to continue the contour of the hull.

Decks G and H can now be glued in place, and following this the piece I and

summer castle, can now be glued in position on the stern.

Now we come to the masts, the lengths of which can be gauged from the side view on the design sheet. They are shaped from $\frac{1}{4}$ in. round rod and are glued in position at the angles indicated.

Having completed this much of the model, it is now advisable to paint the decks and hull. Give the whole model, excepting the masts, a coat of white paint. Below the waterline is left white, and the rest of the outside of the hull painted brown. Two black lines are added along the bulwarks, and the

positions of which are indicated by dotted lines on the design sheet, and add the standing rigging and shrouds. These latter are tied to the masts under the crow's-nests, passed through the channels, knotted and then glued underneath. It will be noticed that there are no ratlines on this particular model, which facilitates construction of the rigging. Deadeyes can be represented by small blobs of Croid glue in the positions indicated.

Next cut out the sails from parchment and glue them to the spars. Lace with thread as shown on the illustration of the finished model.

The mainsail is decorated by three lions which are painted yellow on a red background. The other sails have no decoration. Attach the spars to the masts by tying with thread, and from the corners of the sails take the running lines as indicated on the side view of the design sheet. These can be attached at the most convenient points on the deck or hull as required according to the setting of the sails. They can be affixed to small staples made by cutting off the heads of fret pins, which are bent over and pushed into the woodwork.

The flags are cut from parchment, coloured according to the indications on

SEND FOR A KIT

For making this miniature galleon you can obtain Kit No. 3108, containing wood, cord, parchment, guns, nameplate and anchor, from any Hobbies branch, or post free from Hobbies Ltd., Dereham, Norfolk, price 7/6.

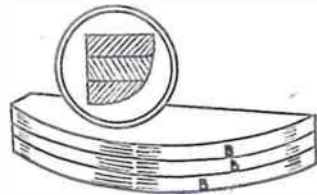


Fig. 1

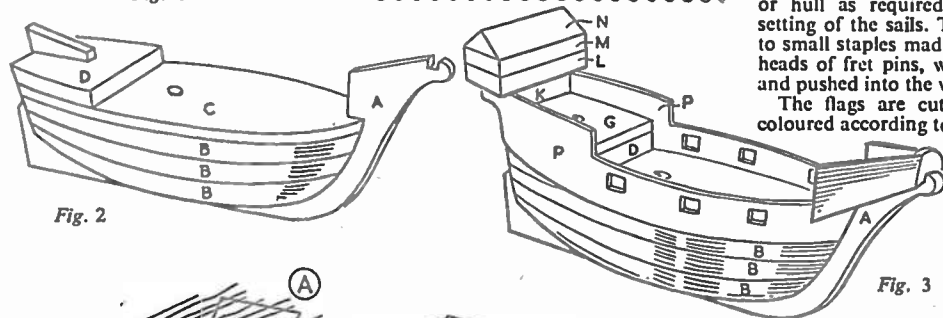


Fig. 2

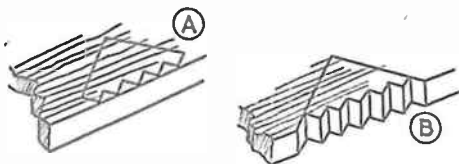


Fig. 4

stern J. Notice that the hole in piece I, which will later take the bowsprit, is cut at an angle to allow the bowsprit to slope upwards and outwards. This hole should be started with a fine fretwork drill and enlarged with a mousetail file.

Pieces K, L, M and N, forming the summer castle, can now be glued in the positions indicated on keel A by the dotted lines. The bulwarks P and T, which are cut from thin plywood, can now be added. When cutting these out, allow at least $\frac{1}{4}$ in. spare at the forward end to allow for trimming, depending on the curvature of the shaped hull. At this stage, the model should appear as in Fig. 3.

The next stage is the making and fixing of the deck fittings, consisting of the hatch and steps. Fig. 4 shows how these latter are made. They are cut from waste $\frac{1}{4}$ in. wood, the notches to form the steps being made with a razor blade as shown at B in Fig. 4. The small brackets (Q), which form supports for the

decoration as suggested on the design sheet can then be applied. For this the background should be black and white check, with alternating shields depicting the fleur-de-lis and Cross of St. George. The colouring for the fleur-de-lis is yellow on a blue background and the Cross of St. George is red on a white background.

Paint the windows of the summer castle on pieces O a dark blue, and the rest of the structure can be in brown with, possibly, a red roof to add colour.

The insides of the bulwarks can be finished in red, with the deck a buff colour, and lined lengthwise in pencil to simulate planking. The masts can have black bands painted round them at $\frac{1}{4}$ in. intervals, or for refinement you could substitute these markings with bound thread. In either case the masts are finished with varnish.

The crow's-nests can also be added at this stage after being painted brown, with a touch of red and gold on the main one. Now add the channels, the

the design sheet, and glued to the masts. After gluing the pennant to the mast, curl it by manipulation with the fingers to give it a realistic appearance.

The barrels of the six guns supplied in the kit are made up as shown on the design sheet and glued to the deck, poking through the gun ports. The anchor in the kit is attached by thread to a small staple to the fo'c'sle and hooked into the forward channel.

The model completed, the stand can now be made up. The galleon supports are trimmed to fit the keel piece and rounded base of the hull. The base of the stand measures 5 ins. long by 2 ins. wide and is cut from $\frac{1}{4}$ in. wood, the corners being rounded off to add to its appearance. The base and supports can be varnished, polished, or painted as desired, and the supports fixed to the base by screwing from underneath. The galleon will stand securely in the cradle thus formed without the necessity for any other fixing.

If the model is to stand on a side-board or any other highly polished surface, it is suggested that a serviceable finish for the underneath of the base can be obtained with the use of rayon flock, which will obviate scratching.

NOVELTY

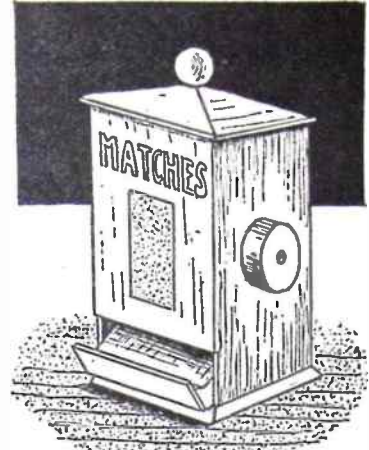
Match Delivery Cabinet

By H. A. Robinson

HERE is a novel cabinet to stand anywhere that matches are needed, and which by a half-turn of a knob on the side delivers a match into a small tray set in front. The only thing to remember is to keep the top container, which is reached by a loose lid, filled with matches.

In size the cabinet is quite small, but solidity is given by a robustness in the construction. The front and back (A and B) are of $\frac{1}{4}$ in. plywood, measuring 3 ins. by 2 $\frac{1}{2}$ ins. and 3 $\frac{1}{2}$ ins. by 2 $\frac{1}{2}$ ins. respectively, while the sides, also of

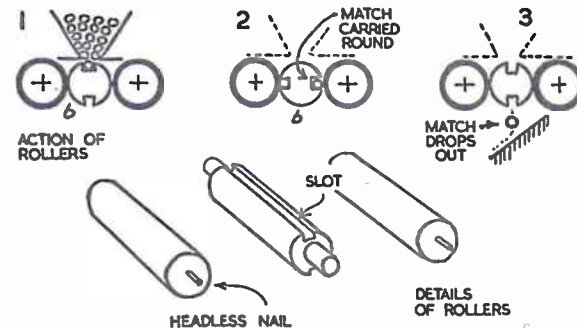
the same position in each side or the turning properties will be poor. For rollers (a) and (c), which have the nail axes, bradawl borings will suffice, but for (b) the holes have to be just the size of the reduced ends—and no bigger. Smooth running is obtained by rubbing the smaller ends of (b) and the inside of the holes with graphite or a little candle grease.



Prepare the middle roller by taking out the two channels which must only be an easy $\frac{1}{4}$ in. in depth, with a rather greater width. Complete the other two rollers by covering them with a layer of thin cloth tightly glued on and precisely joined, so that an even covering is given. The cloth makes for a better action in the roller system.

All is now ready for assembling the body. This is done by securing the parts

Continued on page 124



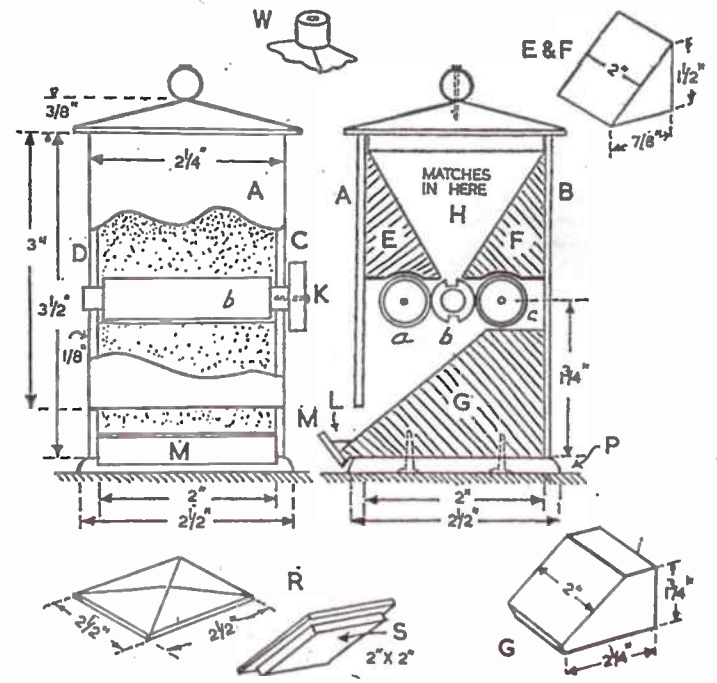
$\frac{1}{4}$ in. ply, are 3 $\frac{1}{2}$ ins. by 2 ins. In the final assembly the back and front overlap the sides and all are built round the blocks (E), (F) and (G), which makes very sturdy construction. The dimensions of these blocks are given in the detail. (E) and (F) are the same size and can be cut from the same triangular strip.

The match-delivery mechanism takes the form of three short lengths of $\frac{1}{4}$ in. dowelling (a), (b) and (c), their action being as shown in the diagrams. Matches are in the space (H) and a lower one falls into a channel cut along the length of roller (b). A half-turn of the knob (K) brings the channel-round to the bottom position where the match falls into the tray.

Care Needed

Some care must be used in making and setting the rollers. All are a shade under 2 ins. long to fit between the sides. Rollers (a) and (c) are cut right to the length and a small headless nail driven into the mid-points of the ends to act as axes, but (b) only has its diameter slightly reduced at the ends by careful cutting down with a knife. The total length of (b) is 2 $\frac{1}{2}$ ins.

The three rollers fit in 'bearing' holes in the sides and these must be in exactly



MAKING A BOOK-MARK

By J. MacIntyre

ART shops sell specially prepared designs suitable for bill-folds, book-marks, wallets, etc., but in buying these ready-made designs, one loses much of the pleasure of leather-work. Even in an elementary stage it is much better to try and express your own individuality and create original designs for your work. Many people have had no training in the fundamentals of design or in carrying out their own ideas, but a visit to the local museum and public library will uncover many invaluable suggestions.

accurate corner for the book-mark. Then again, curved corners and other rounded parts should be traced out with the use of a compass. Patterns ought to be cut from fairly stout paper—white or brown.

A word about cutting. It is wise to practise cuts on odd scraps of material to get used to handling the knife. The knife should be held perpendicular and at right angles to the leather surface.

Use enough pressure to slice the leather, and make sure the knife is always close to the steel rule. If you have exerted sufficient even pressure, one sharp stroke should have severed the leather. As a base for cutting, a wooden one is not very suitable because the grain of the wood is liable to deflect the knife sideways into the leather. Linoleum or sheet cardboard is much better. After it has been used a number of times it should be discarded.

Must be Pliable

Before the actual tooling of the leather begins it must be made pliable. This is done by dampening the leather on the flesh side until the moisture penetrates evenly to the surface of the finished side. Some leathers require less dampening than others and if moisture oozes when tooling begins, the leather should be allowed to dry somewhat. Practise on a small piece of leather until you understand just the degree of dampness demanded for tooling. A word of warning—moistened leather is very receptive to marking and the slightest scratch will leave a blemish.

The design may now be lightly attached to the leather with gummed paper, care being taken not to mark the leather. Tooling instruments are illustrated in this article. Modelling tools are held just as a pencil in writing or drawing. Usually either the liner end or the flat bevelling end will accomplish a better finish if drawn inward rather than outward. Then again, the traced design should be attached in such a way that the tracing paper can be lifted to inspect the work at intervals.

A few words concerning the tooling of lines and corners, etc. Tool all straight lines, using a straight edge; the leather may be turned with one hand when tooling curved lines. If necessary, go over the design several times until it is well tooled into the leather.

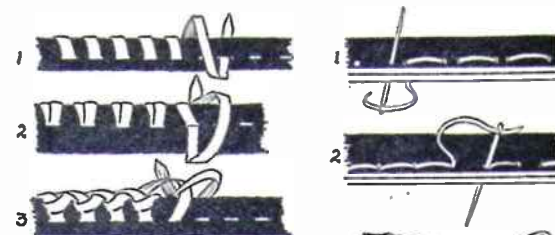
To add to the attractive appearance of the work, the background of the

design may be depressed with wooden or metal tools. Stippling, as this process is known, tends to leave the design standing out in contrast. To accomplish the work, one may use the tracing tool, or one of the specially prepared instruments which can be bought in any craft shop.

Using Stamps

There is another method of applying embossed designs to the surface of leather and that is by using stamps. These may be purchased, but large spiked nails with flat heads can be made into good stamps. They are clamped in the vice, and the nail head filed flat. Next the edges are shaped so as to form angles, squares, circles or even triangles. Needle files are ideal for the work of grooving the heads, etc.

To return to the finishing of the book-mark. After the design has been transferred to the leather—tooled and stippled—the ends can be fringed by using a sharp knife and a straight edge. With either a contrasting leather dye or a corresponding one all cut edges should be stained. Any small roughness on the edges may be rubbed lightly with glasspaper. Leather mellows beautifully if cleaned and polished with saddle soap, which will help to preserve the leather and deepen the colour. When applying, allow to dry for several minutes, and then polish with a soft pad.



SIMPLE STYLES & EDGE LACING

The book-mark should finally be pressed under weights. Cover the article with a sheet of paper or a dry, clean cloth, place weights, and if it is allowed to remain undisturbed for several days, the effect will be most pleasing.

Stitches and Lacing

Illustrated are several stitches and instructions for working. These are supplied as information to the lacing and stitching of articles which will appear in future editions.

Edge Lacing

- No. 1. Single whip-stitch. Made with narrow lacing.
- No. 2. Double whip-stitch. Made with narrow lace only. Same as single stitch, except lacing passes twice through each hole.

No. 3. Single buttonhole stitch.

Stitches

- No. 1. Running stitch for joining seams.
- No. 2. Double running stitch is made by sewing back over a line of single running stitches.
- No. 3. Single whip-stitch used to join edges of light leather.
- No. 4. Double whip-stitch is much stronger. Needle and thread is put twice through each hole.



MOISTENING THE LEATHER



TRACING DESIGN

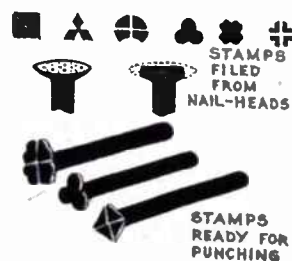


USING MODELLER TO TOOL DESIGN



FRINGING ENDS OF BOOKMARK

The composition or design chosen ought to be fairly simple with large curves and straight lines. Sharp corners, small circles, etc., are frightening things for the novice to tool. Once the design has been thought over and worked out to your own satisfaction, the paper pattern must be prepared. It must be stressed that careful planning and accurate pattern making are most essential for good work. The pattern must be as precise as you can make it. If necessary, use a set square to obtain an



STAMPS FILED FROM NAIL-HEADS

STAMPS READY FOR PUNCHING



DOUBLE-ENDED BALL-TOOL

STRAIGHT TRACER & MEDIUM MODELLER

DRESDEN TOOL MODELLING TOOLS



Preventing Condensation

IN our kitchenette condensation runs down the walls and under the lino, making the floorboards wet. I would be glad of any suggestions as to how I can prevent or combat this. (E.B.—Forest Hill.)

A GOOD anti-condensation paint such as Zat would be helpful in your case. It is excellent for kitchenettes and bathrooms. The makers of Broloc also market a good paint where condensation causes trouble. If you cannot buy Zat locally, it can be obtained from Concrete Paint Co., Maiden St., Barnstaple, Devon. As the condensation seems excessive in your case, if further trouble is caused to floor and lino, it would be a good idea to run a small zinc guttering round the wall, as near to the floor as possible. This need be only a strip of zinc 3ins. wide, bent

V-shaped and fixed tightly to the wall. A perceptible slope should be given it to run the water collected to one or two ends into receptacle, or a drainpipe.

Metallizing Baby Shoes

I UNDERSTAND it is possible to harden and thus permanently preserve babies' leather shoes to a degree which, when bronzed, gives both the feel and appearance of bronze, at the same time unaffected by the individual characteristics of the shoe. Please advise me of the method and procedure for above. (H.S.—Belfast.)

THE bronzing and hardening of baby shoes is effected by electroplating with copper. The original method was to fill the shoes with plaster of paris, when dry to apply a

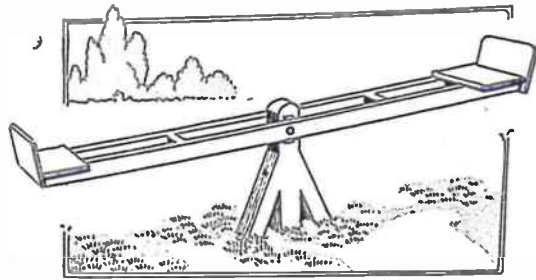
coat of linseed oil or quick-drying varnish, to carefully apply a coat of graphitic and then to plate in a solution of copper sulphate. A recent method dispenses with the plaster and thus gives a much better appearance. The method is within the scope of the home worker, but the details are too many to be stated here. You will find full instructions in the monograph 'How to Metallize Baby Shoes', which may be had from D. C. Williams, 16 Newton Rd., Southampton, price 3/-.

Lets in the Rain

CAN anything be done to my yellow Gaiskin cycling cape? I have had it about a year and the rain soaks through. I wondered if it could be treated with anything. (G.G.—Hillingdon.)

THERE is little that can be done to restore a worn cycle cape. Probably your best course will be to rub in some boiled linseed oil, using a clean fluffless rag for this purpose. Then hang the cape in a warm dry place to allow the oil to dry somewhat. Unfortunately this process results in a somewhat sticky surface, and to overcome this it is well to rub it all over with french chalk or fuller's earth.

A See-Saw for the Children



A SEE-SAW affords great fun for the children in the summer-time and the construction of the one illustrated is quite simple, as the detailed diagrams on this page will show.

Some little care must be taken in its erection. It should have a hard foundation of broken brick for the sole plate (B) to rest on, and earth and stones should be well rammed round on top and around the sloping struts (C).

Two Parts

The whole is made up in two parts—the supporting post and the moving see-saw. Taking the post first, Fig. 1 is a

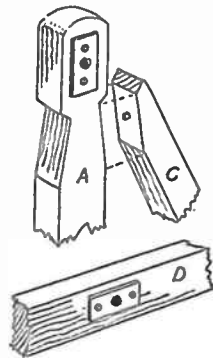


Fig. 3

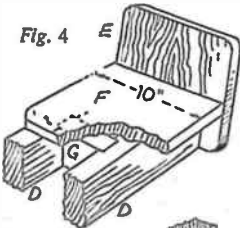


Fig. 4

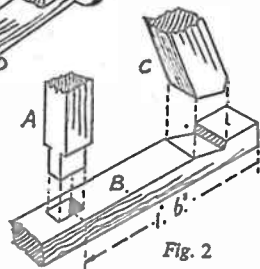


Fig. 2

the parts, and it is advised to coat the joints well with creosote before they are assembled.

The sole plate as shown is 3ft. long, but it may be increased according to the state of the soil in which it is to be laid. The struts are 2ft. 11ins. long before

The finished beam, as will be seen from the details, is made up of two lengths of 4ins. by 2ins. picked wood, the length being anything from 8ft. to 10ft. long. Cut the ends to a slight angle to allow the seat backs to slope comfortably, and at intervals along its length frame in four spacing pieces (G) 5ins. long by 4ins. wide by 2ins. thick. These latter pieces should be housed $\frac{1}{2}$ in. in and nailed securely to the beams.

The Seat Boards

Each seat board (F) is 10ins. by 9ins. by $\frac{1}{2}$ in. thick, chamfered along the back edge as shown and with the corners rounded off and made smooth. The boards are screwed to the beams. The sloping backboards (E) may be about 10ins. square and $\frac{1}{2}$ in. thick. Long screws will fix the backboards to the

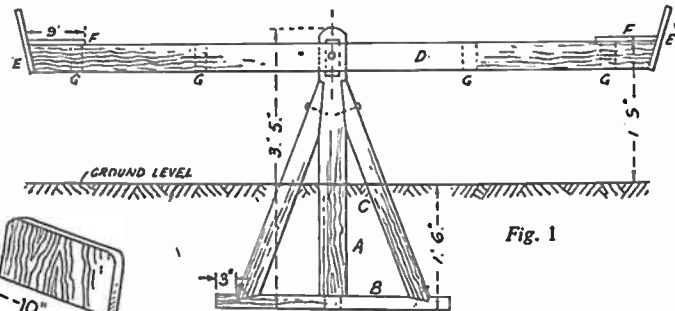


Fig. 1

seats and to the beams. Strips of hoop iron bent to fit round at the lower ends of the backboard and on to the beams may be included if thought necessary for safety's sake. The iron strips will be fixed by round-headed screws.

The pivot bolt is $\frac{1}{2}$ in. diameter and long enough to take the two nuts and two washers when pushed through the beam. Fig. 4 is an enlarged view of one of the seats, a corner of which is cut away to show one of the cross spacing pieces. The pivot bolt should be kept well coated with grease, and all the woodwork creosoted on completion. (S.W.C.)

being trimmed to shape at the ends. Shape the top of the post, and 4ins. down bore a hole $\frac{1}{2}$ in. diameter for the pivot bolt. Two stout iron plates about 5ins. by 2ins. are attached by countersunk screws to the post as shown, and two similar plates will be required for the see-saw beams. One of each will be put on the inside of the beams before they are coupled up with the cross spacing pieces (G).

side view giving some useful measurements. The post (A) may be 4ins. by 3ins. in section, the sole plate (B) about 4ins. by 2ins., and the struts (C) 3ins. square. The parts should be properly framed together, the post having a stub tenon to fit into the sole plate, and the struts notched into the plate and the posts in the manner shown in Figs. 2 and 3. Coach bolts or long screws will form the fixing between

Some useful information about

Preparing Domestic Polishes

By E. S. Brown

MOST domestic polishes consist of a mixture of beeswax and carnauba wax in varying proportions. The higher the proportion of carnauba wax, the harder and more lasting will the resulting polish be. Plain yellow beeswax used by itself in a solvent of white spirits or turpentine is not really satisfactory for a furniture polish, as the wax, being of a soft nature, quite easily fingermarks and attracts dust. Carnauba wax, on the other hand, is one of the hardest waxes known, and a small proportion added to the softer beeswax largely overcomes these faults.

The solvent usually used in the preparation of wax polishes is either turps substitute or pure turpentine, the former being largely employed because it is cheaper. A paste wax consists of just enough solvent to break down the waxes into a plastic condition, while a liquid wax has a higher proportion of solvents added to ensure the correct consistency.

Remove old Wax

It is not advisable to apply many applications of wax polish to furniture without periodically cleaning same, as a gradual build-up of wax occurs which partially obscures the beauty of the grain beneath, and also tends to the formation of fingermarks and blooming. Every six months or so, the old wax should be removed by applying an equal mixture of turps substitute and benzine on a clean cloth, rubbing lightly and frequently changing to a clean portion. Do not overcharge the cloth with the mixture—it should be just damp. As the cleaning progresses, it should immediately be followed up with a soft polishing cloth, applying just sufficient pressure to bring up the original polish. After the furniture has been cleaned in this manner, it is then ready for an application of wax polish, which will be described later in this article, as each polish requires a different method of application, according to the composition and formula.

Quite a good furniture cream can be made by dissolving $\frac{1}{2}$ oz. of white beeswax in 4ozs. of benzine. If the wax is broken into small pieces before adding to the benzine, it will quite quickly dissolve. Older photographers may recollect the polish as one that was used in polishing the surface of the now obsolete ferrotype glazing plates, and can vouch for the beautiful sheen that it imparts. The cream is applied on a clean soft cloth, being very sparingly

used. The cloth is rubbed out on the furniture until nearly dry, then further application of polish made, and a fresh portion gone over. The procedure is continued until the whole of the piece of furniture is completed in this manner. It is then finally polished up with a soft polishing cloth.

Air-tight Tin

A reliable polishing paste is prepared by melting 3ozs. of yellow beeswax and 1oz. of grey carnauba wax together over a gentle heat, then adding 6ozs. of turps substitute that has been previously warmed. Stir the mixture well together and place in a tin to cool and solidify. The tin should have a well-fitting lid, otherwise the solvent will evaporate and leave the wax hard and unusable. The wax is applied as normally, using only the minimum quantity. The wax should not, however, be allowed to dry before polishing, otherwise great difficulty will be experienced in imparting a shine, and will result in a streaky surface. Instead, the wax should be polished off immediately after application, finishing off one portion at a time until completed. The whole is then finally gone over with a soft polisher, using straight strokes.

This polish is extremely long-lasting, and fresh applications will only be necessary after a considerable period. It will only require an occasional rub with the polishing cloth to restore its sheen. This polish also forms the basis for many other similar polishes and creams. For the latter, it is only necessary to add further turps substitute until the consistency is correct. A few drops of oil of lavender added and shaken into the mixture will impart a pleasant fragrance. An extremely hard-wearing floor polish can also be made by adding $\frac{1}{2}$ oz. of resin to the paste composition, application being made in a similar manner as for furniture.

For the Car

A car polishing wax, extremely resistant to the weather, can be made by increasing the proportion of carnauba wax to approximately 50%. Before polishing the car, it should be well washed down and leathered off and the surface of the finish prepared and cleaned with a polish such as Lifeguard or Karpol. The wax is then applied to small areas, being immediately followed up with the polishing cloth. The job should be done as quickly as possible to

avoid the wax drying and resulting in a streaky surface, and the car should not be polished in the direct rays of the sun or in damp, humid conditions.

A polishing paste for brown shoes is made by dissolving 2ozs. of yellow beeswax together with 1oz. of carnauba wax in 3ozs. of turps substitute in the method explained. The addition of $\frac{1}{2}$ oz. of lampblack or, preferably, ivory black makes a good polish for black shoes.

A very good polish for windows, mirrors and tiles is prepared by mixing 4ozs. of precipitated whiting with 8ozs. of water and 4ozs. of methylated spirit. The bottle should always be tightly corked to prevent the spirit from evaporating. When using the polish, it should be thoroughly shaken before and during use, and applied with a soft, clean cloth and allowed to dry. It can then be polished with a suitable polishing cloth. This polish is clean and easy to apply, is non-smearly and will make your windows and mirrors gleam and sparkle.

A red tile polish is prepared as follows. Dissolve 4ozs. of yellow beeswax in 4ozs. of turps substitute, then add 1oz. of red ochre and stir thoroughly together. Yellow tile polish can be made by substituting yellow ochre for the red ochre. The polish is applied in the usual way.

Polish for Chromium

A polish suitable for silverware and chromium is prepared by mixing 2ozs. of prepared chalk or french chalk with 3ozs. of water and 2ozs. of methylated spirit, then adding 1oz. of liquid ammonia. The polish should be well shaken before and during use, and allowed to dry before polishing with a soft cloth.

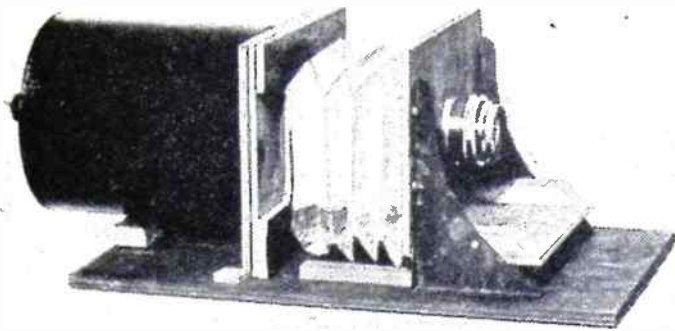
A useful metal polish for cleaning copper, brass, pewter, etc., is made by adding 2ozs. of whiting and 2ozs. of fine pumice powder to 4ozs. of paraffin and 4ozs. of turps substitute. The polish should be well shaken before use and applied as usually. If a quicker-drying polish is desired, the paraffin can be replaced with turps substitute.

ONE way of rounding sharp glass edges is simply to hold the edge of the glass in a gas flame until it is slightly red hot. When cool, it will be found to have an edge which is perfectly smooth. (E.M.B.)

Don't neglect the advertisement pages of 'Hobbies Weekly'. They are always worth your attention.

A HORIZONTAL ENLARGER

By F. G. Rayer



THE relatively high cost of ready-made enlargers makes many photographers consider the possibility of building such an item. Though the vertical enlarger has its advantages, the horizontal type is very much easier to construct. It can, of course, give results equal to the vertical type, and is used by some professional photographers. The model described here is horizontal, very simple to build, yet able to give results equalling those of an expensive enlarger.

If the step-by-step instructions are followed, in conjunction with Fig. 1, no difficulty should arise at any point. There is no reason why dimensions should not be adjusted to some extent, if necessary, to suit the materials available.

Component Parts

The lamphouse is made from a large tin, without lid, and is approximately 5½ ins. in diameter and 7 ins. long. No ventilation is required with bulbs of normal wattage. A hole about 1 in. in diameter is cut in the centre of the bottom of the tin, and a Bakelite lampholder fitted, being secured by the usual screw ring. Twin flex runs from the holder to a plug or adapter, a pear switch being included in one lead.

An ordinary 40 to 100 watt pearl bulb is suitable for this type of enlarger, or a bulb especially for enlargers can be used. A powerful bulb is best since it will give a more brilliant image. The actual wattage is not important, except that small bulbs will give a dim image, while exceptionally large bulbs will cause excessive heating of the lamphouse.

Piece (A) is slightly larger than the end of the lamphouse; e.g., 6 ins. by 6 ins. Three-ply is suitable. An aperture to suit the negatives is cut in the middle. For 2½ ins. square negatives, this aperture may be 2½ ins. by 2½ ins. For 2½ ins. by 3½ ins. negatives, it may be 2½ ins. by 3½ ins. When completed, this piece is bolted to the open end of the lamphouse. Four small 6 or 8 B.A. bolts, with countersunk heads, will accomplish this, passing through the inner rim of the tin.

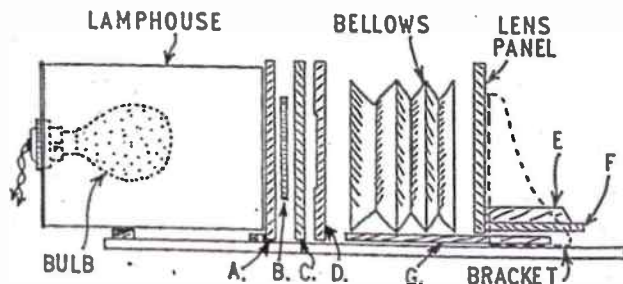


Fig. 1—Arrangement of the parts

(B) is a piece of flashed opal glass, and costs about 2s. It may be square, rectangular, or circular, so long as it is large enough to cover the aperture in piece (A). Piece (C) is of three-ply, the same size as (A), and has a cut-out to suit the opal glass. This aperture should be cut carefully, so that the opal glass is a push-fit into it.

Piece (D) is also of three-ply, 6 ins. by 6 ins., and is cut as shown in Fig. 2. The negative window is the same size as the aperture in piece (A). One ply is then carefully cut away to leave a shallow

channel in which the negative (or uncut 120 film) will slide. The other pieces are removed, as shown, so that the negative may be slipped easily into position.

With the opal glass in position, pieces (A), (B) and (D) are placed together and held in this position by a small bolt passing through all three pieces, near each corner. If all the pieces are drilled together, alignment of the holes will be correct. The parts should be glasspapered where the negative or film passes.

The baseboard is ½ in. or ¾ in. thick, and about 8 ins. by 13 ins. The completed lamphouse assembly is held square and level by small blocks near (A) and under the lamphouse itself. Two strips ½ in. by ½ in. by 6 ins. long, shown at (G), are screwed to the baseboard about 5 ins. apart. These should be smooth and true.

The lens panel is 5 ins. by 6 ins. and two strips (E) hold in place the piece (F) which is 5 ins. by 2 ins. Finally, a metal bracket is bolted each side the lens panel. These brackets are kept square by (F) and press against the outer sides of the strips (G). As a result, the whole lens panel assembly may be slid backwards or forwards, being kept vertical and level by the brackets.

The bellows are glued to piece (D) and the lens panel. This prevents light straying, which would cause fogging of the enlargement. With care, the bellows may be folded up from American cloth, or similar light-proof material. It is also possible to purchase ready-made bellows of all sizes.

An alternative is to fold a large piece of card so that it will completely cover the space between (D) and the lens panel, adding a dark cloth if light leaks unduly. A little leakage will have no great effect, provided other bromide

paper is kept wrapped and the bulb switched off immediately the exposure is made. If, however, the bromide paper becomes grey all over, this shows too much stray light is reaching it.

Lens

If a proper enlarging lens is used, results will equal those of an expensive enlarger. For 2½ ins. square negatives, a lens of about 3 ins. to 4 ins. focal-length is usual, with a lens of about 4½ ins. to 5 ins. focal-length for 2½ ins. by 3½ ins. negatives. The lens may be carefully

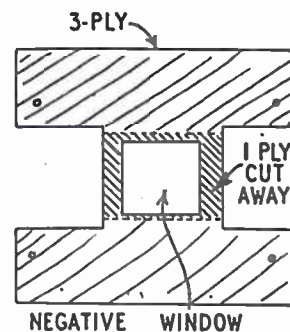


Fig. 2—The negative carrier

screwed into a hole cut in the centre of the lens panel, or screwed into a flange bolted to the panel. Flanges are obtainable from photographic dealers.

If the camera lens can be removed easily, it may be used. Some cameras have lenses which can be unscrewed for this purpose. In a few other cases it is possible to open the camera, set the shutter open, and use the lens as it stands in the camera. This, however, is not satisfactory with very small lenses, such as fitted to the cheapest type of camera, as the image is then very dim.

It is also possible to purchase, for a few shillings, a suitable enlarging doublet. Any other lens can also be tried, to see what results it gives. The larger the lens, the more brilliant will be the image. However, with cheap lenses definition will not be so good. To overcome this, it may be necessary to place a piece of card with a small central hole over the lens. This will reduce the brilliance of the image, but improve definition.

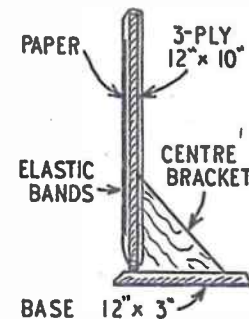


Fig. 3—The easel

A proper enlarging lens, or one from a camera, is best, if obtainable, although quite good results can be obtained with cheap lenses not really intended for photographic purposes. The latter will not, however, give such sharp enlargements.

Using the Enlarger

A clear, correctly-exposed negative should first be tried, and is inserted with the emulsion side towards the lens. A piece of white paper is secured to the easel, shown in Fig. 3. The bulb is switched on, and the easel moved backwards or forwards until the negative is in sharp focus.

If the picture on the paper is too small, the lens panel is pushed back towards the lamphouse slightly, and the easel moved away from the enlarger until the image is again sharp. By suitable adjustments any desired part of the negative can be enlarged to any required degree. A few trials will soon show the results obtained in this way. It is also possible to stand the easel at any distance, and focus by sliding the lens panel along the baseboard.

To make an enlargement, a sheet of bromide paper is fitted to the easel, the image having been previously focused. The lamp is then switched on. For a first trial, the bromide paper may be exposed in strips of 15 seconds each by holding a large piece of card between enlarger and easel, withdrawing it 1 in. or so every 15 seconds, until the whole area of paper is exposed. 'Surplus' or ex-service paper is very cheap, but the 'soft' kind of paper should be avoided, as it is not suitable for ordinary negatives.

The bromide paper is then developed. Kodak Bromide Developer would be suitable, diluted with nine times its amount of water. Or, for more contrasty results, one part of developer may be used to four parts of water. After the paper has been immersed for about 2 minutes development will be complete, and it will be possible to see which strip is best. A whole sheet may then be given this exposure. If the print goes very dark quickly, this shows the exposure is too long. If, however, the image will not come up satisfactorily, the exposure was too short.

The developed print is dipped in clean water for a few seconds, then placed in a dish of fixer. Fixing will be complete in about 10 to 20 minutes (the exact time is not important). The finished enlargement is then washed for 30 minutes in running water, and set aside to dry.

R. H. Warring explains

How to make Railings for Models

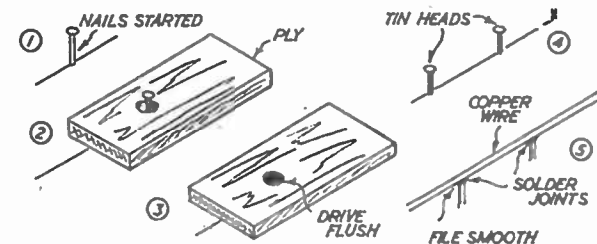
THE diagrams show five stages in making neat, uniform railings for model work. Panel pins are used for the uprights and tinned copper wire for the rails. Start by driving in the pins at regular intervals. A scrap piece of ply with an oversize hole is used to gauge the height of each pin. After starting the pin or nail, place the gauge over it (2) and hammer down until the head is flush (3).

Tin Heads

All the heads of the pins or nails should be filed clean and then tinned with solder. The copper wire rail is then

soldered to each head, in turn, using a very hot iron. Any surplus solder at the joints can be trimmed off or filed flush.

If the solder drags up when completing the rail joints, this is an indication that the iron is not hot enough.



Victor Sutton writes about

Craft Materials for the Model-Maker

THE very excellent qualities found in the good-class craft materials make them ideally suited to the model-maker, especially if he wishes to get the very best results. A further important point is that all these items are in small quantities, and this saves considerable wastage. Incidentally, I have invariably found the bottles and containers well designed, which is another great asset.

Gum water is chiefly used for illuminating purposes, and in body colour work to increase the lustre in shades such as vermilion, cerulean and the like which are liable to dry flat and 'dead' in appearance. For ordinary water colour, work in a few drops on a palette and dilute with water. The 1oz. bottle costs only 8d.

Gum arabic in the 1oz. bottle at 8d. is also a handy stand-by. This is a strong solution for mixing with water colours where it is desired to get a high gloss. It is also widely used for mixing with dry colours for water-colour painting.

Scenic Backgrounds

Most model-makers come to grief on making up a good scenic background or, often, on the sea effect. This is quite an art in itself, but much of the trouble occurs because the model-maker is not working with the best materials for the

job. What is used is known as Glass Medium No. 1. This is for first colouring and broad washes. Mixed with water the medium helps the colours to lie smoothly and mix more kindly with each other.

Glass Medium No. 2 is used for the second colouring, and this enriches and strengthens the tones. You can use it without water whenever you want to deepen the shade.

Available in Small Bottles

Oils and varnishes as used in craft work are always available in small bottles. Therefore, one can get the best in purified linseed oil in 1oz. bottles at 11d. This natural drying oil is purified and bleached entirely by natural means, and is free from lead or any form of artificial drier.

Model-makers should always strive to get the correct shade, and the wrong oils can, although very delicate, completely wreck the best piece of model work. Purified poppy oil is much paler

than linseed oil, though it does not tinge yellow so much with age. It dries very slowly.

One must be careful when using pale drying oil. It dries harder than poppy oil, but it will darken under the action of impure air or where models are stored in a loft where the air may become humid. The 1oz. bottle costs 1/2.

The artist gets his own shades mostly by using English distilled turpentine. This is a form of a volatile diluent used for thinning colours. It is generally used with oil or with a mixture of oil and varnish.

Good woodwork on a fine model often calls for that finish we see on the violin. This is achieved with what is known as light amber varnish. It is a genuine amber dissolved in drying oil and thinned with turpentine, and this gives it that paleness of shade, but which dries in a hard, resistant film. The 1oz. bottle costs 1/2.

In craft projects we often have to paint articles which will be subjected to heat, and a heat-resisting varnish as used for trays and teapot stands should be employed. Wood should be sized first. The 1oz. bottle costs 1/2.

Copal oak varnish is very elastic but rather slow-drying and somewhat tends to colour the article. It needs careful use and thought for the shade eventually required.

Cardboard sections on small boats can always be treated quite safely with paper varnish. This is used on paper after sizing, and has little colour shading.

Matt Varnish

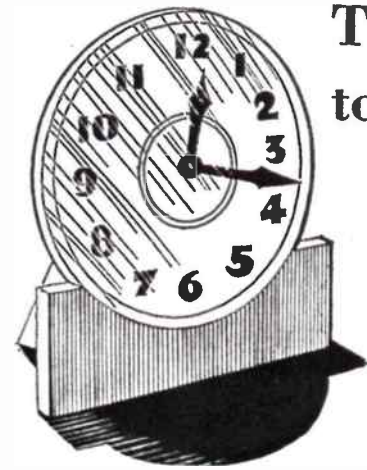
Winton matt varnish is another good medium for the model-maker. It dries matt surface, but it can be used on oil colour, water or poster shades, and it is definitely waterproof. Unlike glossy varnishes, it does not darken the tone of water colours. The 1oz. bottle costs 1/2.

Many boats have bright parts in gilt and other colours, and this can be protected with White Lac Varnish which is a solution of bleached shellac in spirits of wine. You can use it on metalwork, steel and pewter.

If you want a bright finish and a quick drying off you can use Japan gold size, as this contains large quantities of turpentine and best driers. It is a thinner version of oil copal varnish.

Make this Dummy Clock and

Teach your Child to Tell the Time



A full-size pattern is on page 127

The hands are movable and can be pointed to any position. If possible, the clock face should represent your own mantel clock.

There are only two parts to be cut out, the back and the support. The latter is a plain triangular piece which allows the clock to tilt backwards.

Cut the face from white card and paint the numerals in black. The hands can be cut from card and pinned to the clock face. Fix these fairly tightly so that they will stay in position when moved. (M.p.)

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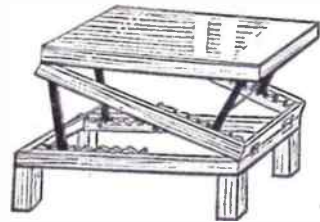
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Adjustable Footrest

Says A. F. Taylor

RELAXATION in an easy chair with the feet up is generally looked upon as something which is indulged in by the aged and invalids, and is held in contempt by the younger generation. What could be nicer, however, than an hour spent in this manner with a favourite book, or listening to the wireless.

A few easy chairs are made with a footrest that can be pulled out, but the majority have no such attachment. In this case a stool can be used, and you may be lucky enough to have one the correct height for comfort.

The ideal footrest is an adjustable one in which the height, and also the angle of the top, can be adjusted to suit individual requirements, and this is the subject of this article.

The measurements given need not be strictly adhered to, as much depends on the height and size of your easy chair, and they can be altered to suit your needs.

Construction

The rest consists of three sections, each one being in the form of a rectangular frame. The top one can either have a flat top of plywood or it may be upholstered, and the middle frame has a rack for adjustment at one end. The bottom frame, which also has a rack at the opposite end, is raised from the floor with short legs. Fig. 1 is a side view of the three frames showing the position of the racks and adjustment bars.

The wood chosen should match the existing furniture as far as possible, which in most cases is some well-known hardwood such as oak, mahogany or walnut.

All three frames can be made the same, but if the top is to be upholstered it should be made somewhat deeper. Wood 1in. by 3in. should be sufficient for most general purposes, and we will assume that the top frame is to have a ply top and will, therefore, be the same as the other two. Make them 18ins. long and 12ins. wide and the corners can be joined up in whatever way you like. They may be mitred, but probably the best method is an open mortise and tenon joint.

The racks are not cut in the actual

frames but are made from wood of the same size and glued and screwed inside the second and third frames as shown in Fig. 2. The spaces, or teeth of the rack, are about 1in. apart, but they may be further apart if you do not need so many adjustments.

Two hinges are used to join the frames

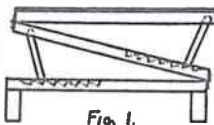


Fig. 1.

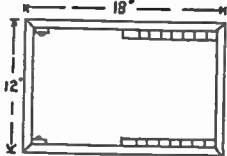


Fig. 2.



Fig. 3.

at the two ends, and these should be fairly substantial. The length of the four adjustment arms may be varied somewhat to suit individual needs, but about 9ins. will be a good average. Round off the top ends of the arms and make the bottoms pointed, in such a manner that

they fit the rack snugly in all positions.

These arms are also fixed to the inside of the frames with stout round-headed screws. Each pair may be moved separately but will be more rigid and easier to alter if they are joined together by a dowel rod fixed near the bottom.

Making the Feet

The feet, which are fixed to the bottom frame, need not be more than about 1½ins. square and about 4ins. long or a little more if the rest is needed to be taller. A variation from the square leg is shown in Fig. 3, and is made up of two ½in. boards mitred at the corners. Both types are well glued and screwed or pinned through from the top of the frame.

As the footrest is not meant to sit on, ½in. ply will be stout enough for the top, and if possible choose a piece which is faced with a wood similar to the rest of the frame. Covering the ply with a piece of material and lightly padding it is a pleasant alternative and it makes the rest more comfortable.

Cut a piece of tapestry or leather-cloth about 1in. larger all round for turning over the edges. Put a few thicknesses of cotton wool or old blanket for padding, and then glue the edges of the covering to the underside of the panel. Finish off by staining or polishing to match the existing furniture in the room.

Continued from page 115

Match Delivery Cabinet

together with glue. Frenails or small screws are not really necessary, but can be added if desired. First glue the three triangles to one side. Then put the rollers in position and set on the other side, gluing well. Also glue into place the front and back and if the box now formed can be kept under pressure while drying so much the better.

The knob (K) is next put on, this being merely a disc of wood held to the end of (b) by glue and a single fine screw. This disc and roller (b) are the parts which will get the most handling and so should be well made.

When the box is dry, put on the base and complete the tray. The block (G) protrudes a shade (with the protruding end bevelled inwards). To this sloping end is glued the strip of wood (M) 2ins. by ½in. Also the small triangular strip (L) is glued in as shown to give a flat base to the tray.

The base (P) is ½in. thick and measures 2½ins. by 2½ins., the edges being bevelled back to 2½ins. by 2½ins. to meet the lower edges of the box. For greater robustness here, two screws can be inserted into (G) in addition to gluing.

Lastly comes the lid (R). This is built up, with a main piece 2½ins. by 2½ins. shaped to a shallow pyramid ½in. high. On its mid-point is fitted a piece of wood with a single screw, a ball if possible. If not available use a short piece of dowel (W) fitted by slightly flattening the top of the pyramid. Under the pyramid is glued a second piece (S), 2ins. by 2ins. by ½in., which sits in the top of the box.

For finish the cabinet looks well stained to a dark colour with the word 'MATCHES' painted on in yellow or red. A strip of glasspaper is glued at the mid-centre of the front for striking the matches on.

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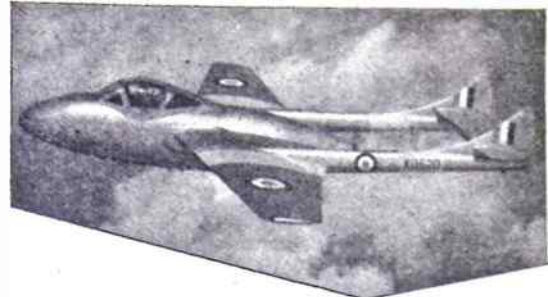
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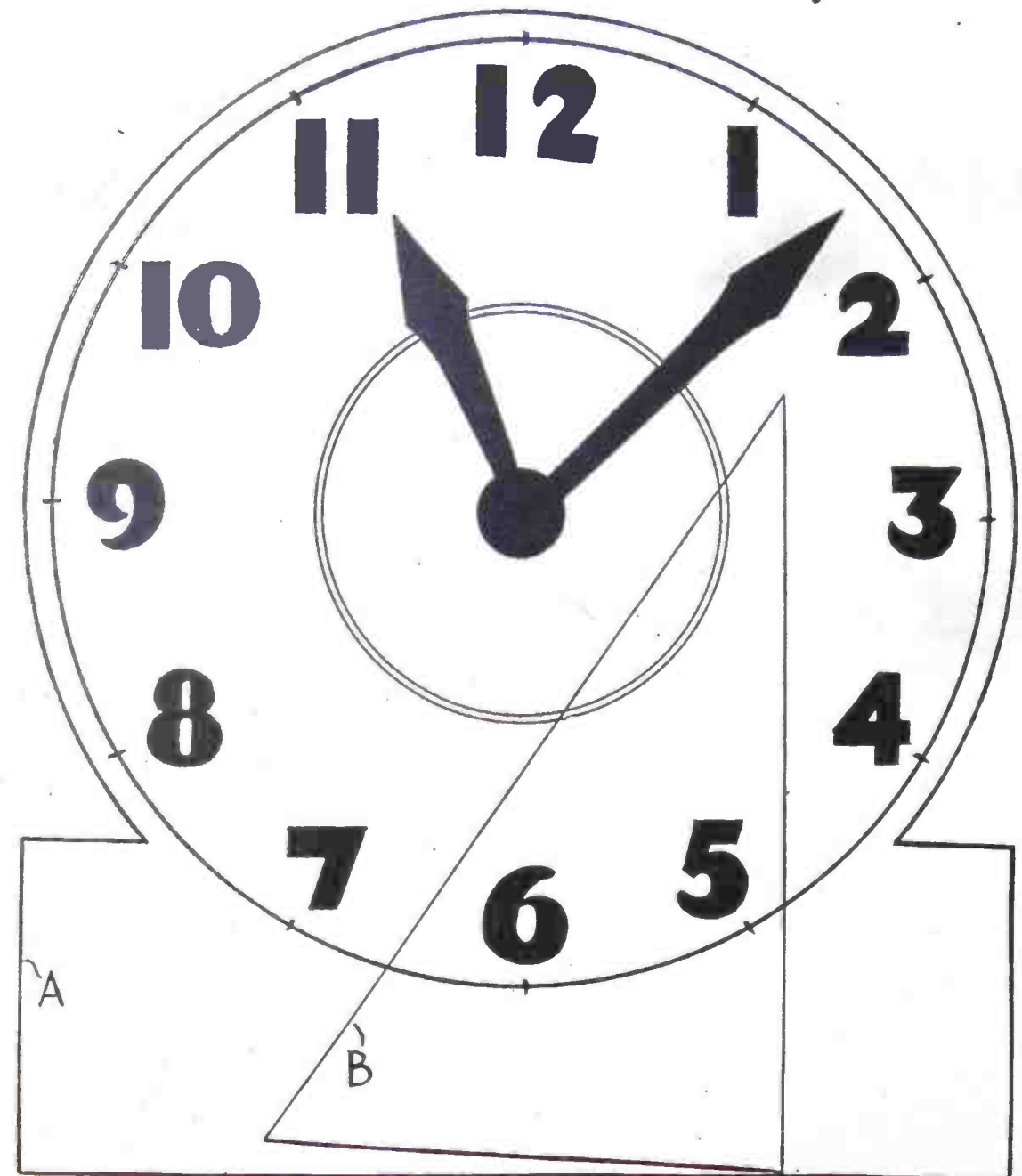
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SEE PAGE 122

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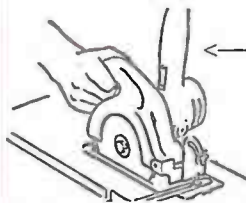
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DESK 161

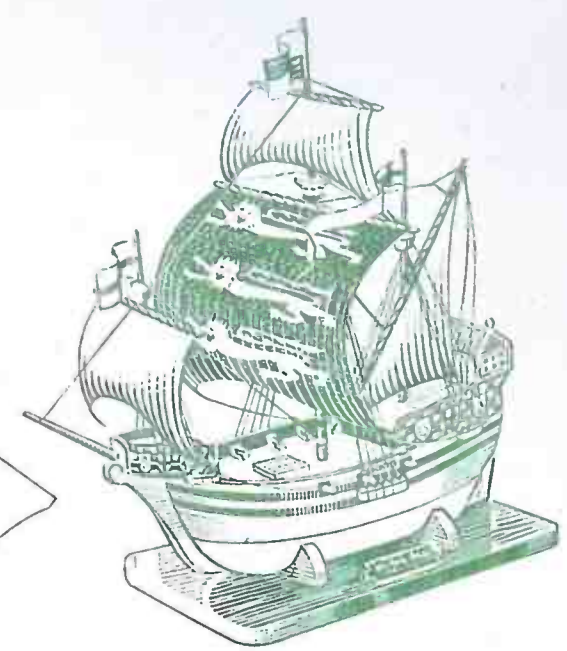
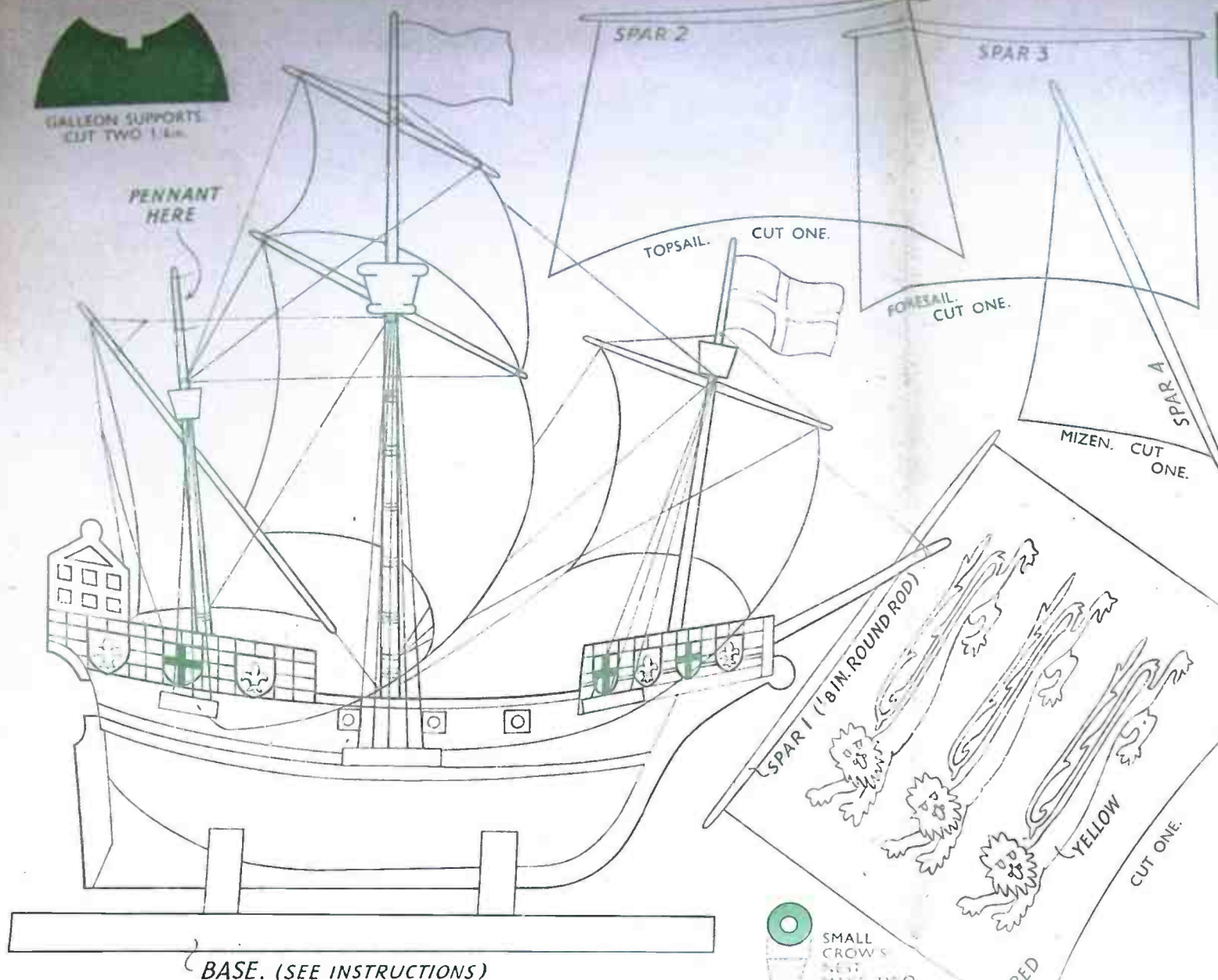
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THE KING'S SHIP

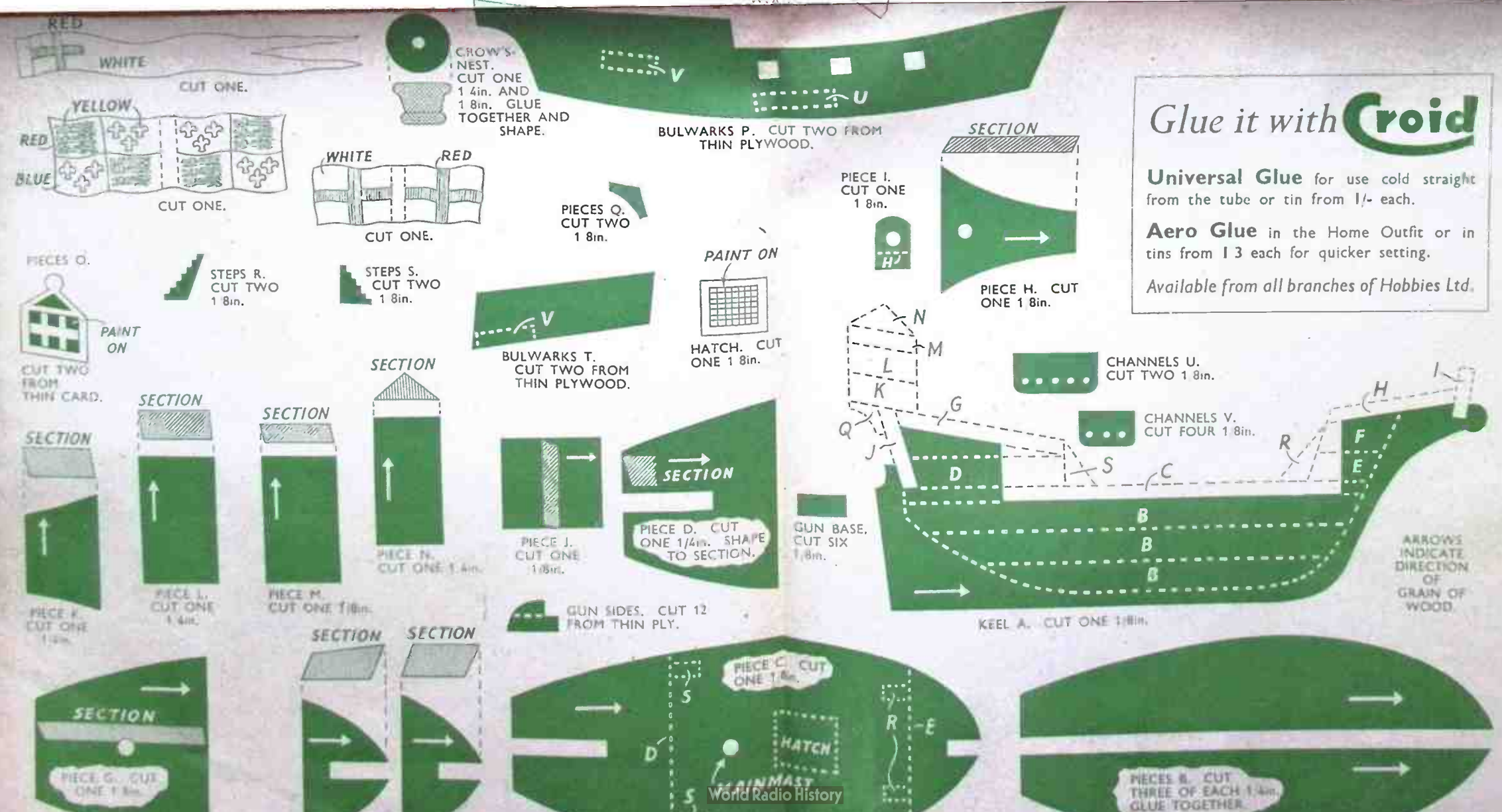
SIZE LENGTH 6 1/2 ins. HEIGHT 6 1/2 ins.



Materials required for this design
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