

HOBBIES WEEKLY

IN THIS ISSUE

	Page
Checker Table	145
£200 Contest	146
Home-made Decorations	147
Book To Read	147
Make Your Own Crackers	148
Winter Care of Watches	148
Nut Bowl and Cracker	149
Make a Cino Screen	150
'Personal' Greetings	151
Try Flash Photography	152
Stamp Collector's Corner	154
Make a Performing Seal	154
Replies to Readers	156
Patterns for Performing Seal	159



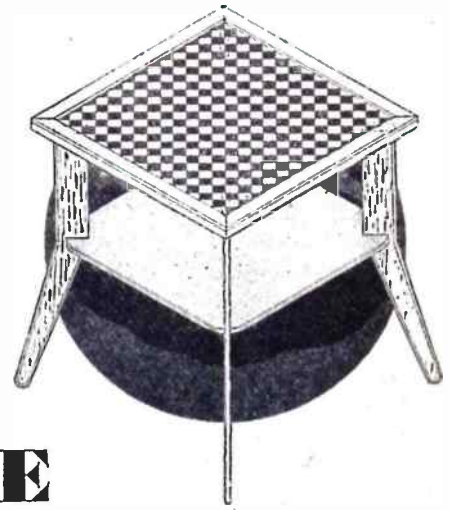
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 ☆ With the approach of Christmas ☆
 ☆ we publish in this issue several ☆
 ☆ articles with a festive theme — in ☆
 ☆ time for readers to make ready ☆
 ☆ for a happy holiday. To start with, ☆
 ☆ here are instructions to make a ☆
 ☆ handy games table ☆
 ☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆☆

*Ideal for
 games —
 especially
 on those
 party or
 'family'
 occasions*



THIS stout 'family' table will be found particularly useful when you are playing games; there's plenty of room on the shelf for all the scoring cards, counters and 'light refreshments' that seem to accumulate on these occasions.

CHECKER TABLE

Make the four legs first from $\frac{1}{2}$ in. plywood which has pleasing grain facings, or from any good hardwood. Draw their shapes directly on to the wood, hatched faintly into 1in. squares, using Fig. 1 as a guide. Cut them out with a fretsaw and make sure that the slots are 'square' and accurately cut. Clean up the edges with a file and glass-paper the edges and faces thoroughly. If preferred the sharp edges can be rounded off.

Next cut a 17ins. square from $\frac{1}{2}$ in. ply or hardwood (Fig. 2), trim true and

draw the diagonals faintly in pencil on one face. With a pair of compasses mark the radii in the corners and then cut with a fretsaw to suit. Mark the slots in the corners equidistant about the diagonals and cut them out. File the edges and finish the shelf all over with glasspaper.

The slots in the shelf 'mate' with the corresponding slots in the legs and should provide a neat 'push' fit. Glue the joints and make sure that the legs are at right angles to the face of the shelf from every aspect. Use a setsquare for this and adjust where necessary

Described by Gordon Allen

before the glue sets. The table top is made next. Cut a 24ins. square from $\frac{1}{2}$ in. ply and trim the edges smooth. Glue and screw this to the tops of the table legs, so that there are equal 'overhangs' at the corners. Use two countersunk woodscrews $1\frac{1}{2}$ ins. apart in each leg and make sure their heads are below the surface of the timber.

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

For Modellers, Fretworkers
 and Home Craftsmen



At this stage the mosaic design on the table top is introduced. There are several ways this can be done, any of which will produce an attractive result. Probably the easiest method is to utilise fairly large alternate squares of plastic such as Formica, which can be cut from offcuts — obtainable quite cheaply at most dealers nowadays. Stick these in place with the special glue recommended for this material after marking out the table top diagonally into the requisite number of squares.

Add a frame

No protective covering is necessary if you use this idea. All that is necessary to complete the table top is to add a framing. Commercial mouldings such as those supplied by Hobbies Ltd., are ideal. Cut four lengths, mitre them at the corners, and either glue or pin them to the table edges.



Preparing gold and silver 'tiles'

a thin flat coat of Durofix to one side of the foils and when dry glue the card squares to them. Keep under pressure until dry. Then trim away the foil round

With this method it will be necessary to protect the finished work with a thin sheet of window glass measuring 2ft. square. This can be secured with commercial moulding, as described earlier, but if you wish the job to be 100% home-made, Fig. 3 shows how the glass can be framed using plywood.

Finishing touches

Cut strips of 1/4 in. ply lin. wide and form them into right angles by pinning and gluing. Measure off the required lengths against the table edge, mitre the corners, and fix to the table top with panel pins driven below the surface of the beading. Seal all holes with wood-filler and glasspaper smooth.

The whole table can be enamelled, stained or varnished, according to individual taste, and other refinements such as the fitting of a plastic facing to the shelf are left to the discretion of the handyman.

the edges of the tiles, using a razor blade or modelling knife. Fix the tiles into a mosaic pattern on the table top, using tube glue. Some tiles will have to be cut diagonally into triangles to fit the pattern along the table edges.

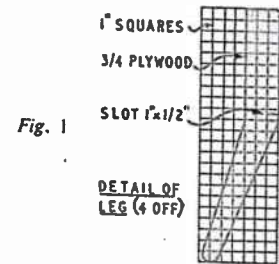


Fig. 1

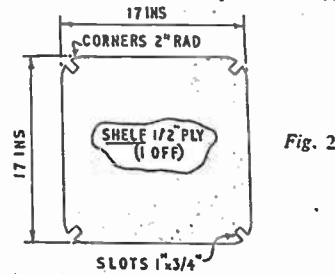


Fig. 2

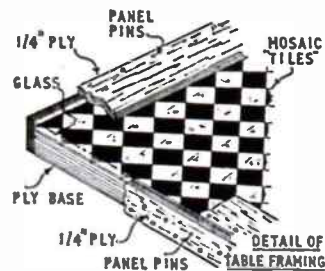
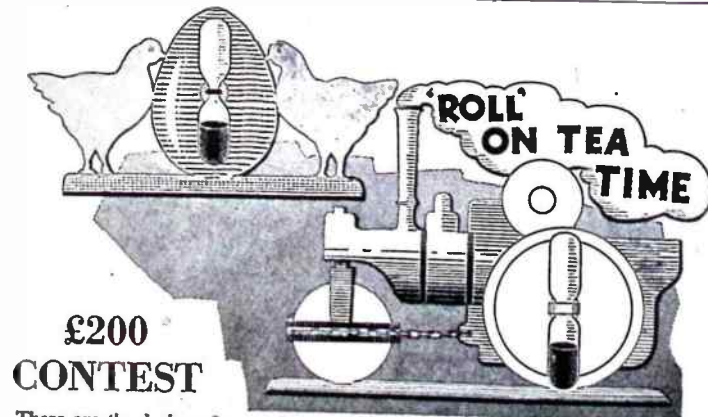


Fig. 3

Another method to finish the top is to apply squares of contrasting wood veneer, as used in marquetry. These are glued in place with cellulose cement glasspapered flat and smooth and either wax polished or varnished. Ordinary framing is fitted.

Possibly the most charming way to finish the top is to fit small square alternate gold and silver 'tiles'. The photograph indicates how the tiles are made.

First cut accurate 1 in. squares from Bristol board, smear one side of each with Durofix and leave them to dry. Rough-finished gold and silver tinfoil obtainable from craft stores in large sheets is used to face the squares. Apply



Get a kit containing instructions and rules from branches or Hobbies Ltd., Dereham, Norfolk, (post free). The closing date for entries is April 30th, 1957.

Gay and effective

HOME-MADE DECORATIONS

IT is fun to look forward to Christmas and to wonder what presents we shall give and what gifts we hope to receive. It is always so much pleasure to sit down in the evenings and actually make a present for each of our friends and relatives.

But why not make all your own decorations as well? Let your imagination run wild and really go gay with all

strong enough for the light paper being used. Do not make the paste too thin or it will have a tendency to soak right through, especially the crepe paper. A good paste can be made by mixing two heaped tablespoonfuls of ordinary plain flour into a stiff paste, free from all lumps, with cold water. Then add just sufficient boiling water to turn the paste a bluish colour, stirring all the

makes a hanger for hanging up in place.

Imitation frost may be made by crushing seashore shells. Choose those shells that have a mother-of-pearl appearance and quite a good imitation of frost is obtained. If only a little frost is required, then a few crystals of Epsom salts will do the trick very nicely.

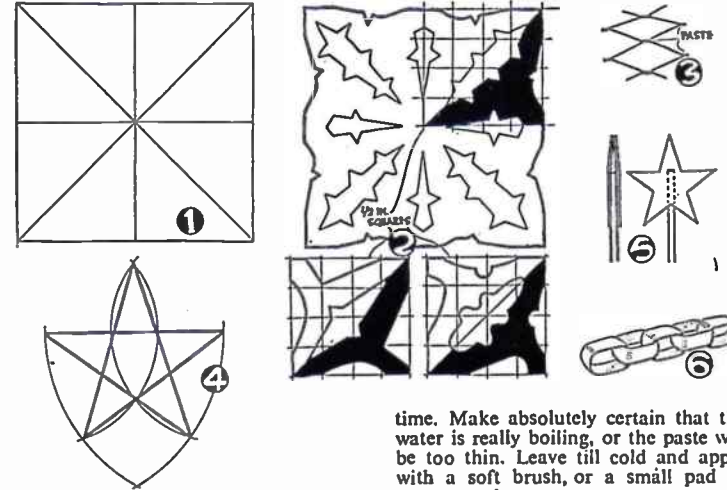
Imitation 'snow'

Snow is usually imitated by the use of cotton wool, but, unfortunately, in its untreated state this substance is very inflammable. So it should be treated to make it more or less fireproof. Such a fireproofing solution can be made up as follows: Ammonium Sulphate, 2 ozs.; Ammonium Carbonate, 1 oz.; Borax, 1/2 oz.; Gelatine, 2 ozs.; Water, 2 1/2 ozs.

Warm the water and dissolve the gelatine, then add all the other ingredients, stirring vigorously till all is dissolved. Apply by dipping the cotton wool into the solution and leaving aside to dry.

This solution has many uses for rendering all sorts of substances somewhat fire resistant.

Stars for the Christmas tree can be made of thin card with 'silver' paper pasted on both sides. To cut out a five-pointed star, draw a line the exact size that the star is required, and divide into eight equal parts. With a radius equal to the length of the line, draw two arcs as shown in Fig. 4. Then with a radius of 1/2 of the line, draw another two arcs, cutting the others as shown, and join up. If each point is covered with a different colour of 'silver' paper, a very bright star, indeed, is made. If a thin stick is gummed between two of these stars, it may be bound to the top of the tree as seen in Fig. 5. (T.H.M.)



kinds of decorations for just a few shillings. Paper chains, frost, snow and all the Christmas tree decorations can be made at home in a few hours. Just think of the extra pleasure when one of your friends says, "Oh! I do like your decorations—who made them?"

Effective

Simple chains (Fig. 6) are easy to make, yet they are quite effective. They may be made of coloured crepe paper or from the highly coloured illustrations taken from popular weekly journals and old comic papers, etc. Cut the paper into strips about 6 ins. long and 1 in. wide. Make a cardboard template the correct size, and the cutting will be made much easier. Cut several thicknesses at a time and the job will go apace.

Turn over the ends of the first piece overlapping the ends by about 1/2 in., then dab one end with a spot of paste and stick both ends together to form a ring. Repeat with the next piece after passing through the first ring, and so on till the chain is complete.

Flour and water paste is best to use, as it is not so messy as gum, and is easily cleaned up afterwards, yet it is quite

time. Make absolutely certain that the water is really boiling, or the paste will be too thin. Leave till cold and apply with a soft brush, or a small pad of cotton wool.

Fancy paper chains can be made just as easily. First make a template 4 ins. square and cut your crepe or coloured papers, several sheets at a time, into pieces of this size. Then take one piece and fold it cornerwise three times. This, when unfolded again, will have creases as shown in Fig. 1. Take the folded square and cut away portions of the triangle with a pair of scissors until a suitable shape is made. Then, when satisfied with the design, when unfolded, make a triangular template from thin stiff cardboard cut exactly as required. Use this template for cutting out the remainder of the folded squares.

String for hanging

Fig. 2 shows several good designs drawn on 1/4 in. squares. The heavy lines indicate the shape of the triangular template. To make these cut-out pieces into a chain, paste each alternate piece in the centre and then at the outside points and fit all the pieces together as shown in Fig. 3. The end pieces of the chain should be made of thin card cut out exactly the same as the coloured papers. A string through a hole in the middle of the card, looped and knotted,

Make your own Crackers

THE rewarding thing about making your own Christmas crackers, is that the little personal gifts can be slipped inside. This is well worth the trouble involved, and, of course, it is much cheaper to make them at home.

The following is a list of materials required, to enable anyone to make crackers possessing quite a professional appearance: coloured crepe paper (10ins. by 6ins. per cracker), white shelf or lining paper (9½ins. by 5½ins. per cracker), cardboard — not too stiff (5ins. by 2½ins. per cracker), snaps, scraps, mottoes, two cardboard or metal tubes, the long one 7ins. long and 1½ins. across. The short one 3ins. long and 1½ins. across, string and a small hook. The materials can be bought at stores.

The tubes may present a problem to some, but most husbands or sons will find it simple to turn these out in the workshop, and one set will last a lifetime. Failing this, however, a draper will probably be able to supply a length of cardboard tubing on which fabrics have been rolled.

Having obtained the tubes, decide upon the number of crackers to be made and prepare all materials.

First choose a strong table and underneath, well out of sight, screw in the hook and tie on the string quite securely. Next cut the crepe paper into lengths, 10ins. long and 6ins. wide. If fancy edges are favoured, cut the ends with pinking scissors. Cut the shelf or lining paper into 9½ins. by 5½ins. pieces, and finally the card, 5ins. long and 2½ins. wide.

Take the long tube and mark it right round 3ins. from one end. If metal, use something sharp to scratch it, but if cardboard, a pencil mark will do.

Making a start

To make the first cracker take one of the cut pieces of coloured crepe paper and lay it out flat on the table, then take a cut piece of lining paper and place over the crepe paper, leaving a ¼in. margin all round, the difference in size of the two papers. Finally place the card in the middle of the lining paper, its 5in. sides being parallel to the cracker length. This piece of card will form the stiff centre piece of the cracker. On the card place a snap and a motto.

Now all is ready for rolling, so put the rollers on all the papers, the 3ins. one at the right-hand end and the 7in. one with the mark nearest to the 3in. tube — both tubes should be touching end to end.

A tightly rolled cracker is always a

good one, so roll it as tightly as possible around the tubes. Still holding the roll with one hand, catch the string, and wind it twice around the cracker, just between the two rollers, and gently but firmly pull. This should pull the cracker right in, and push the small tube right out. At this point be careful not to tear the paper. Unwind the string, and through the long tube pop in the little gifts; shake them well down.

Carefully draw out the long tube, until the 3ins. mark is reached, and leave 3ins. of tube in the cracker, and wind round string twice, pulling as

before very carefully. Withdraw the tube. Stick on the scrap and pack in a box ready for storing in a dry place. The pull-in of the crackers will become loose if they are left anywhere in the damp, so if made well before Christmas, two small elastic bands will keep them neatly in place, and can be taken off later. The finished cracker should measure from 8½ins. to 9ins.

Having learned to make the basic cracker, you can add your own ideas. To make a harlequin effect, for instance, buy six different shades of crepe paper, and make two of each shade. If you want a 'party' effect, cover the middle part of the cracker with silver or gold paper (5ins. by 2½ins. for measurement), but *after* the cracker is made, and just stick the edges. To finish, buy a small packet of gold or silver dust, brush the tips of the cracker very lightly with gum, and sprinkle on a little dust. If well done the effect is quite glamorous. (M.R.)

Winter Care of Watches

AS the chilly days approach, a greater care must be taken of watches. They are more liable to break down in winter than at any other time of the year, but if you stick to a few simple rules, there is no reason why your watch should not survive the roughest winter without catching a single 'cold'.

Cold causes the metal of a watch to contract and thus greater strain is put on the mechanism. In winter, a spring will break without any apparent reason, but the fact is your watch has caught a chill. Probably it was caused by the watch being taken off the wrist and put down on a cold surface such as a wash-hand basin or marble top.

If you do leave your watch on your dressing table when you go to bed, you will be playing safe by laying it on a handkerchief to keep it off the cold wood. In the morning, before you wind it up, heat it for ten or fifteen minutes on your wrist or in your pocket and you will find it pays.

Winding seems rather an unimportant factor in watch care, but actually incorrect winding has been the cause of many broken springs. Always, without exception, wind your watch in the morning, for it is like giving it a good breakfast. When fully wound, a watch is better able to resist shocks, chills and general vibration, which are the run of a normal day. If you wind it at night, it is half run down by the time you are running to catch your bus to the school or office in the morning, and the journey may be too much for your timekeeper.

Incidentally, always wind up your watch without any jerky movements — backwards and forwards is the best

way — for quick jerky movements result in inaccuracy and broken winding stems. Should the winding stem come loose, however, do not try to force it back or mend it yourself. Take it immediately to a watchmaker. Probably only a small screw has come loose, and he will fix it at once.

Great strain is put on your watch when it is dirty or needs oiling. It is always a good plan to let the watchmaker have a look at it before winter arrives, and the small cost of cleaning and oiling will be well repaid. Every watch needs oiling at least once a year — six months is better — but do not try to do the job yourself; it is far too delicate.

Dust gets into a watch no matter what you do, but you can keep it out to a certain extent. For example, if you go to bed with your watch on, you are asking for the fine fluff from blankets and sheets to get into the works. Take it off when gardening, cleaning the car or doing kindred tasks.

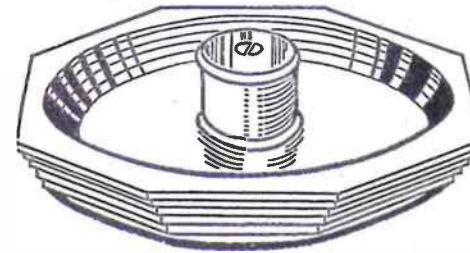
Many people prise the back off a watch and blow into the works, thinking this may remove some of the dust. It may, but it always leaves some of the water vapour from the breath on the parts, and rust — and breakage — is the result.

Wearing a watch on the wrist with least movement is a great antidote to broken springs, and, of course, everybody should not wear their watches on the left wrist — some folk are left-handed.

Poking a pin into a watch is like stabbing it in the back, only chaos can result. No matter what is wrong, trust it to a qualified watchmaker and you will not regret it. (W.A.)

With Christmas in view . . . make this

NUT BOWL AND CRACKER



THIS unique design of nut cracker may be made quite easily by the fretworker, providing the job is tackled in the correct order. In use it is very efficient; several light blows with the hammer will crack even the hardest nutshell. Light blows are, in fact, essential, as, otherwise, the nut kernels will be broken. The shells drop neatly into the bowl, which may be emptied at leisure.

To make the bowl, first obtain three pieces of wood ¼in. thick and planed on both sides. Either well figured walnut, oak, or mahogany is suitable, or two contrasting woods such as walnut and sycamore, or mahogany and beech may be used with very pleasing effects.

The bowl is octagonal outside and is made up with six layers built up with the grain of each alternate layer running at right angles to the last. This is to give strength to the bowl. The size of the six pieces, in order from top to bottom respectively, are an 8in. wide octagon with 7in. diameter circle inside, 7½in. and 6½in. diameter, 7½in. and 6½in. diameter, 6½in. and 5½in. diameter, 6in. and 4in. diameter, and the last or bottom piece is just a plain circle 4½in. diameter. Note that the last three pieces are cut from the 'insides' of the larger ones — and there will still be some wood left over. These sizes are as given in Fig. 1, which is a section of the bowl drawn on ¼in. squares.

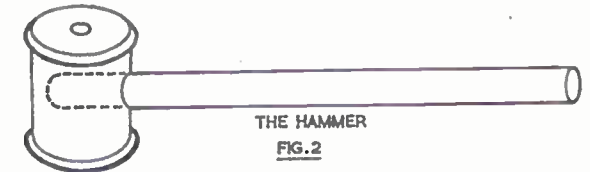
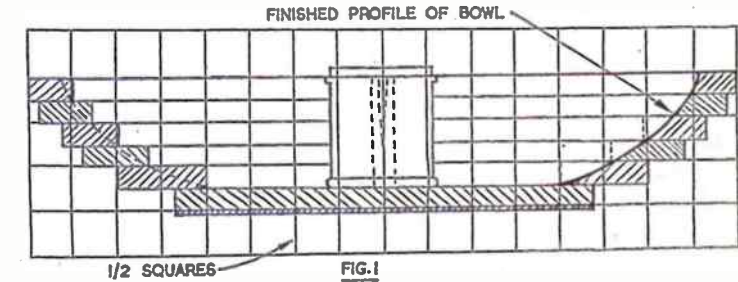
Mark out the shapes of the various layers directly on to the wood, making sure that the octagon and circle are concentric, and cut out each piece with a fretsaw. Ensure that the outside of all the pieces is the correct size and shape and then thoroughly glasspaper to give a smooth finish.

When all pieces are ready, place together to form the bowl, but do not glue. Mark the inside circle on to the piece underneath. With a chisel, gouge, or spokeshave, remove the unwanted wood to make the inside of the bowl a smooth curve from top to bottom, keeping the circular shape as nearly as

possible. The better this operation is performed, the better will be the appearance of the finished nut cracker.

Glue the sections together one at a time, as shown in Fig. 1, starting with the larger pieces at the top and finishing with the bottom disc which is glued into position last. When the glue is thoroughly set, glasspaper the inside till a nice smooth surface free from all lumps and rough edges is obtained.

for the anvil. The centre hole is again plugged with a suitable size of dowelling glued before insertion. The handle is made from an 8in. length of ¼in. diameter dowel glued into a hole drilled into the side of the cotton reel. Make sure that the handle is in the centre and is at right angles to the reel in both directions. Two brass plates, similar to the one already made are required for the working faces of the hammer, and are fixed in place with brass countersunk screws. The hammer is finished like the bowl. (T.H.M.)



The bowl is now ready for the anvil which is made from an empty cotton reel. Plug the centre hole with a piece of dowelling and glasspaper the ends flush. Glue the anvil into place, at the bottom of the bowl at the centre. The whole may be finished by staining and french polishing, or if made of two contrasting woods french polish only with clear shellac.

A brass anvil plate is required to prevent the wood from becoming bruised by the hammering of the nuts, and this is best made from a piece of sheet brass about ¼in. thick. The diameter being made to suit the particular cotton reel used for the anvil. Fix the plate with a brass screw countersunk into the brass plate till the top is flush.

A disc of felt glued to the underside of the bowl will prevent scratching the table or sideboard as the nut cracker is used.

It only remains to make the hammer. This is shown in Fig. 2, and is simply another cotton reel to match that used

MATCHSTICK MODELLER

OVER 65,000 matchsticks, a pot of glue, and a ton of patience. These are the ingredients of Mr. Wilfred Watson's latest success — a miniature church, nearly 3ft. tall, complete with bell tower, and all the trimmings.

Mr. Watson, of Victoria Street, South Normanton, is an underground colliery worker, and has been modelling for only a few years. However, he has already completed several smaller models, including table lamps and a church organ. The lamps took 2,000 matchsticks, but the organ was a much bigger proposition, and ran to more than 10,000.

He collects his matchsticks from relatives and friends, and is hoping to have enough soon to start on his next venture — still a top secret.

H. A. Robinson says

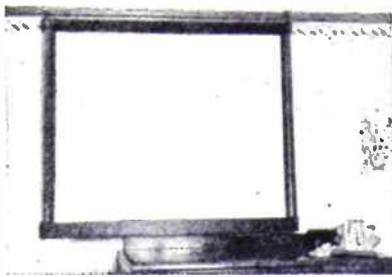
MAKE A CINE SCREEN

IT is important in any design of cine screen that there shall be some method of giving the canvas a final stretching after the general setting up. The screen described here makes full provision for this and is easy to construct.

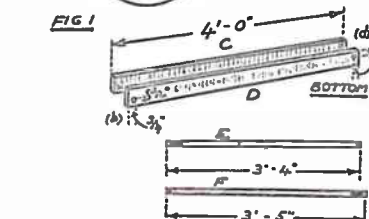
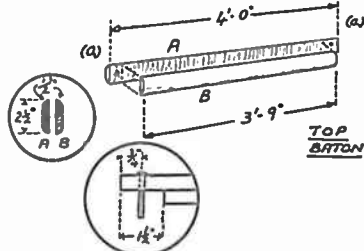
Four strips of light $\frac{1}{2}$ in. wood 2 $\frac{1}{2}$ ins. wide are required. The first two (A) and (B), Fig. 1, are 4 ft. and 3 ft. 9 ins. long respectively. (C) and (D) are both 4 ft. in length. The outside edges of (A) and (B), which together form the top batten, are rounded to a nice curve (see inset to Fig. 1) to facilitate the rolling of the screen.

Two pieces of fairly hard wood (E) and (F) are also required. The one is 3 ft. 4 ins. long and the other 3 ft. 5 ins. Both are square section and each has a slot $\frac{1}{2}$ ins. long and $\frac{1}{4}$ in. wide taken out of the top, a $\frac{1}{2}$ in. from the end. At the further extremity a $\frac{1}{2}$ in. hole is bored, again $\frac{1}{2}$ in.

The actual material of the screen is a



(b) and (d) in the (C) and (D) lengths. These are again $\frac{1}{2}$ in. in, but $\frac{1}{2}$ in. from the top edge at one end and $\frac{1}{2}$ in. from the lower edge at the other, their centre lines thus being 1 in. apart vertically. The first pair are to take two $\frac{1}{4}$ in. bolts and the second two 2 in. bolts. All the bolts are $\frac{1}{2}$ in. diameter and supplied with wing nuts and washers.



rectangle of fine weave canvas 3 ft. 9 ins. by 3 ft. 2 ins. This is first given a coat (or two if necessary to cover well) of flat white paint. When dry, this base is followed by two coats of aluminium paint. Rather more than a quarter pint of this will do the job well. Finally, put on a dark blue border as Fig. 3. This is 1 in. wide and at the sides. Top and bottom are not painted blue as the battens complete the edging here.

This size of projection area is suitable for an ordinary house room, or it could be used in a small class-room as found in some church buildings.

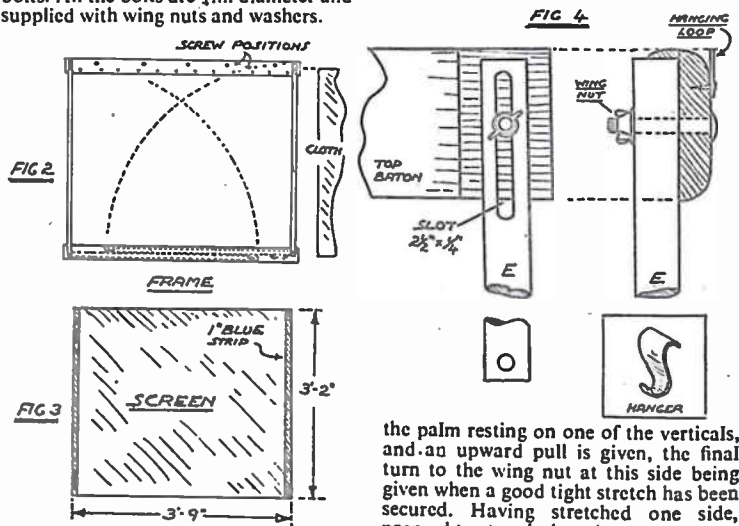
Bore a $\frac{1}{2}$ in. hole (a) at each end of the (A) piece, $\frac{1}{2}$ in. in, and at the two points

lengths to bring everything tightly together. The heads must be countersunk.

With the screws taken firmly home extremely strong top and bottom battens are thus formed with the screen held securely along upper and lower edges.

The strips (E) and (F) are now fitted. These are held to the bottom batten by the 2 in. bolts which go through the holes (b) and (d). As well as holding, these bolts act as a pivot allowing the pieces to be swung up or down.

In the rolled-up position these strips lie flat as in Fig. 2 (the staggered lower centres allowing them to lie one over the other). Unrolled, they swing upwards as per the dotted line, the slots in the upper ends fitting over the upper bolts (Fig. 4) the wing nuts and washers being removed so that they can be set in position. Washers and nuts are now replaced and lightly screwed down. Just before the final turn, however, the fingers are placed under the top strip,



the palm resting on one of the verticals, and an upward pull is given, the final turn to the wing nut at this side being given when a good tight stretch has been secured. Having stretched one side, proceed to stretch the other.

To complete the colouring the woodwork of the screen can now be painted in the same dark blue that was used for the border.

To dismantle the screen for transport and storage the wing nuts are taken right off and the (E) and (F) pieces released. These are turned down and the screen rolled on to the top batten — with the rounded edges.

Two lengths of strap for holding the screen when rolled, complete the outfit. These are secured round the ends of the battens and *not* over the canvas.

'PERSONAL' GREETINGS



Express your good wishes this way says S.H.L.

A MERRY CHRISTMAS

This is a completed card ready for the signature and decking. Block lettering has been used for simplicity but the text shows ways of utilising fancy typescript.

IF you want to send a really personal wish this Christmas, there is nothing better than the cards you have made yourself. They are quite easy to make, and any number may be printed once the negative has been prepared. The size may be half-plate, quarter-plate or post card. The card may be horizontal, vertical or folded, with a wish of your own composition. The picture may be either a seasonable scene or a happy personal snapshot of the entire family.

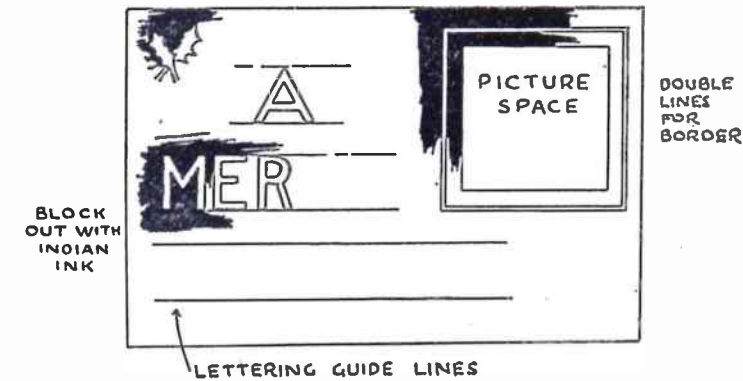
Preparing the negative

The first requirement is the negative. This is made from tracing paper, a space marked out for the picture area and guide lines drawn for the lettering. The card shown in the illustration has been prepared for a 2 in. square picture, but with a little modification, the same idea may be adapted for a $\frac{1}{2}$ in. by $\frac{3}{4}$ in. negative. With the position of the space decided, a border is marked in double lines, about $\frac{1}{4}$ in. from the edge of

simplicity, the example has block lettering, but reference to a variety of newspapers may produce a more decorative kind of type. Then there is the question of a little Christmas motif. Perhaps you would like to include a small sprig of holly in one corner, or, perhaps, a robin, snowman or star. One of these small motifs adds to the festive spirit of the card.

When the lettering and decoration

paper negative with a piece of Scotch tape. Note that the shiny side of the negative should be on the upper side, or the picture will be printed in reverse. Incidentally, silhouettes make very good pictures for this class of work. The completed negative may then be bound



This shows how the negative was made. Note that the double lines for the picture border must not overlap at the corners or the solid black border will reveal the error.

the card. Remember that in the finished print there will only be one line, but two lines are necessary as shown in the sketch. Next we decide on the message. Draw pairs of guide lines for the lettering in the desired position. Now you may not be very good at lettering, but this is quickly remedied. It is a simple matter to place the tracing paper over some appropriate newspaper headline, tracing out each letter until the words are formed. Care should be taken to keep all the bases of the letters in alignment and perfectly level. For

have been completed, we come to the final preparation of our negative. Cut out the picture space, outline each letter carefully with a pen and indian ink, taking care not to allow any line to overrun or it will leave a mark on the finished card. Then, with a small paint brush, fill in all the larger areas with the indian ink. This process is shown quite clearly in the sketch, giving us the master negative from which all our prints are made.

The small chosen negative for the scene is now attached to the tracing



The folded type of card. The basic idea remains the same but a slight modification in making the negative has been necessary.

to a piece of glass of the corresponding size, again with Scotch tape, and we are ready for printing in the normal manner.

You may use an ordinary printing frame for the process, or lay a piece of printing paper under the glass. Double weight paper, of the same thickness of post cards, will make the best cards, using an ivory base for a nice warm tone. Make one or two test exposures of the scene negative before proceeding.

Continued on page 153

On festive occasions

TRY FLASH PHOTOGRAPHY

FLASH photography is so straightforward that it is almost impossible to fail, and there is no reason whatever why it should be looked upon as something rather difficult, to be attempted only by experts with expensive equipment. Indeed, anyone who can take a good outdoor shot can take a good flash photo. There is, in fact, less chance of disappointment with the latter, because the light which the flashbulb will give is always known exactly, so that a suitable exposure is guaranteed.

Taking shots of this kind need not be expensive. The small bulbs which are satisfactory for taking pictures in the average room only cost a few pence. Nor need any film be wasted, since

games and sports. With all these there is no need to rig up special lighting, to give a time exposure, or to employ a tripod for the camera. Instead, the snap is taken exactly as with an outdoor shot in sunshine.

It will be remembered that simple cameras with no means of focusing should not be nearer than about 8ft. from the subject. But many cameras can be focused down to 3ft. or so, for close-up pictures.

Firing the Bulbs

The simplest circuit is shown in Fig. 1, and this is used in many flashguns. The battery is of the ordinary dry type used in handlamps or torches, and can be 3 V, 4½ V or 6 V. When the circuit is

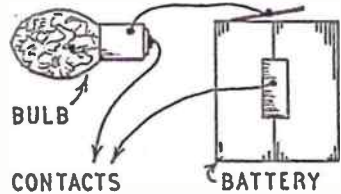


Fig. 1—Simplest firing circuit

exposures made with such bulbs can be mixed with outdoor snaps, and developed with them.

Even the very cheap box camera is not ruled out — the light is sufficient for small aperture lenses, such as will be fitted here. Old cameras without flash contacts can also be employed with perfect success, by using the 'Open Flash' method. It will thus be seen that anyone can try his hand at flash pictures. If a battery is to hand, the expense need be only that of a bulb or two.

Suitable Subjects

Once the photographer has begun to think in terms of flash pictures, a host of indoor subjects will become possible. The flash is of short duration, effectively 'freezing' ordinary movement, so no posing is required. One of the particular benefits of flash lies in the ease with which pictures can be taken of subjects otherwise quite impossible.

Christmas time will furnish a few scenes well worth taking, while children's parties and similar occasions will allow of a good shot or two. Children will not normally be afraid of the brief flash of light, unless some adult has warned them into a state of nervous apprehension.

Youngsters with their toys and pets give other good subjects, as do indoor

completed the current blows the thin filament in the bulb, which ignites the magnesium foil or wire with which the bulb is filled, giving a brilliant flash of short duration.

Even small batteries will fire such bulbs, but a fairly large battery is more reliable. Should the battery be of the kind with very small cells, particular care is necessary to see that it is in good condition, or the bulb may not fire, or may only fire after a delay. As the current only flows for a fraction of a second, one battery will fire many bulbs, if necessary.

If the camera has synchro-flash contacts, the two leads shown go to these. This is best arranged by using a small plug connector of the kind intended to fit the camera. With simple cameras, no other adjustment is required, but if a range of shutter speeds is provided, the shutter should be set to 1/25th second.

Should the camera have no flash contacts, the bulb may be fired separately. To do this, a simple push switch can be wired to the two leads in Fig. 1. The camera shutter is then set to (B) for a

Says F. G. Rayer

brief time exposure. To take the shot, the shutter is opened, the bulb fired, and the shutter at once closed. The shutter must not be left open unnecessarily, especially if the general lighting is good, or other images may make faint impressions on the film. If the camera is operated with one hand, and the flash circuit with the other, there will be no need to have the shutter open for more than a second or so, at the most.

Making a Gun

Bulbs can be obtained with various

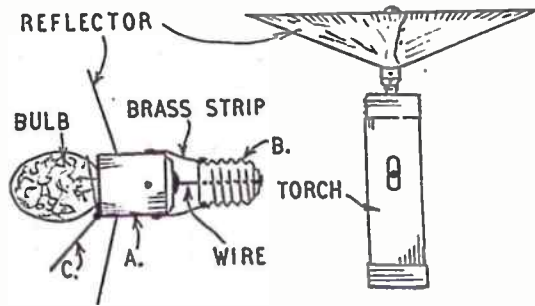


Fig. 2—Open flash unit for torch

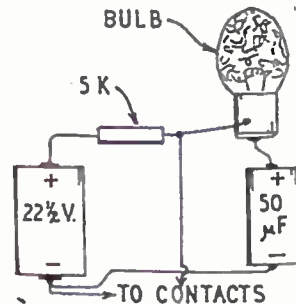


Fig. 3—Capacitor firing

bases, to plug into a holder. If this holder is fitted to a box containing the battery, the simple flash-gun is completed. A tin reflector behind the bulb will help to throw light upon the subject.

A unit for open flash shots can be made up as shown in Fig. 2, and screwed into a torch. The bulb can then be fired by operating the torch switch.

The bulb-holder (A) can be the kind

used for baseless bulbs, and only costs a few pence. A piece of wire is soldered to the bottom 'pip' of the holder, and two small strips of tin or brass are soldered to its barrel, as shown.

A fused torch-bulb is now taken, and the glass, etc., carefully removed, leaving the part (B). The pip is drilled through, and the wire soldered here, and cut off. The brass strips are then soldered to the outside, as illustrated. When completed, (B) is screwed into the torch, and the bulb inserted in (A). With this type of holder, pressing the small lever (C) ejects the spent bulb.

A reflector is also desirable for this type of gun, and can be made by cutting a disc of shiny tin or aluminium about 5ins. to 6ins. in diameter, removing a narrow segment, and drawing round to form a shallow cone. This reflector is soldered to the holder (A).

Capacitor Firing

Some ready-made flash-guns use a condenser to fire the bulb, as this will give more reliable operation, even if the battery is somewhat discharged. The constructor who wishes to make up a gun of this kind can follow the circuit shown in Fig. 3.

A 22½ V Deaf Aid battery is used, and a 50µF, 50 volt condenser of the kind made for radio receivers. The resistor can be of any value around 5,000 ohms. The parts are held in a convenient case, with a holder for the bulbs, exactly as with the 3 V circuit. It is important to observe the polarity shown, when wiring in the battery and condenser.

Normally, the flash contacts will be open (or the gun disconnected) and no bulb will be in place. When a bulb is inserted, current flows through the 5K resistor, charging the condenser. This takes up to about 20 seconds, according to the state of the battery. The gun may be fired at any time after this slight delay. When this is done (contacts closed) the condenser discharges through the bulb, firing it. Even if the battery is weak the bulb will still fire, since the battery only has to deliver a slow current to charge the condenser in the first place.

Except for waiting a few seconds after inserting the bulb, this circuit is used exactly as with that in Fig. 1. The light output remains the same, as the voltage applied does not influence this.

Guide Numbers

With a given type of flashbulb, the exact exposure will depend upon a number of factors. The most important of these are lens aperture, film sensitivity, and the distance between bulb and subject. So that no difficulty arises, bulb manufacturers issue 'guide numbers' for each bulb. The method in which these numbers are used to assure correct exposure is very simple, and can readily be applied, once it is understood.

The 'Photoflux' PF.14 bulb is a good one for domestic purposes, and with a fast pan film (31-33° Scheiner) the guide number for this bulb is 165. This means that the lens aperture, multiplied by the distance between bulb and subject in feet, should come to about 165. An exact calculation is never necessary. For example, if the bulb is fired 10ft. from the subject, then $f/16$ is suitable. ($10 \times 16 = 160$). Or suppose a box camera with fixed aperture of $f/11$ is to be used. The bulb should then be about 15ft. away ($11 \times 15 = 165$).

The following table will allow three types of bulbs to be used, with any of three kinds of film.

Bulb	Film	Guide Number
PF.14	28-30° Scheiner	130
PF.14	31-33° Scheiner	165
PF.14	34-36° Scheiner	260
PF.3	28-30° Scheiner	95
PF.3	31-33° Scheiner	130
PF.3	34-36° Scheiner	165
PF.25	28-30° Scheiner	165
PF.25	31-33° Scheiner	235
PF.25	34-36° Scheiner	335

Continued from page 151

'Personal' Greetings Cards

the lettering, being in black, will take care of itself. After washing has been completed, leave the cards stacked under a heavy weight, so that they will be quite straight.

So far, we have dealt only with the idea of black and white pictures, but you have several alternatives at your disposal should you care to experiment a little. For example, you may tone the prints to almost any desired colour by obtaining a packet of toner from your photographic dealer. There are green, blue, copper, red and sepia toners available. Moreover, you may care to try a little colour on the picture portion of the card. There are some handy booklets of colour stamps available at moderate cost. These are torn off as desired and placed in water for making the colour.

If you care to make a folded card in the customary form, all you have to do is to concentrate the design on one half. Of course, this requires a larger piece of paper than for a similar flat card. As an example, we may assume that you take a piece of paper 4½ins. by 6½ins., that is a piece of paper 4½ins. by 3½ins. Some only make a card 4½ins. by 3½ins. The idea of such a card is given in the sketch, but remember that the blank half of the card also requires to be

It will be seen that the more sensitive types of film allow higher guide numbers, which will mean smaller lens apertures and a greater distance between bulb and subject, if required. A fast pan film of around 32° Scheiner will do well for almost any purpose.

In all cases any aperture and any distance can be used, provided they come to about the specified guide number, when multiplied together.

The distance between camera and subject does not come into the calculation, and does not influence exposure. However, when the gun is fixed to the camera, its distance will automatically be about that of the camera from its subject. It will then be necessary to divide the guide number by this distance, in feet, and set the camera aperture to the result.

These guide numbers are for all ordinary shots indoors, and will be satisfactory for this purpose. Should any flash shots be taken out-of-doors, where walls and ceiling will not be present to reflect light, then the guide numbers should be divided by 2.

When using the open flash method, keep the gun level with the camera, or behind it and to one side, so that light does not reach the lens directly, or internal reflections may spoil results.

provided for by blocking out the particular portion of the master negative. Before folding such cards, it is a wise precaution to make a score mark with a blunt tool, or the emulsion, which is face outwards, will crack.

Another touch to add a professional finish to the card is the deckle edge. This is easily made by stacking the cards together, holding firmly on a table top, then tapping lightly with the edge of a ruler at irregular intervals along the edges of the cards. This applies to both types of cards.

You may have noted that it is not advised to add the signature by the same photographic method, for to keep the true personal feeling, it is essential that your own signature be written. The folded card provides a suitable place for some tiny verse you may like to include besides your signature, or some very special wish you would like to send a friend.

There is another advantage of making your own Christmas cards by this method. You have probably experienced the necessity of having to buy one or two more cards for people you had forgotten, just when the shops are busy. With the master negative, all you have to do is to make a few more at your leisure.



ALTHOUGH many of the German inflation stamps are worthless, some are valuable. A number of these are often accidentally sold among cheap world assortments. Consequently it is best to scrutinise such stamps before exchanging or giving them away.

hammer; and 'Pick and shovel fatigue'—9d. the set. Modern workers (men and women) appear on Labour Corps stamps, 1944—set of two, 4d. mint.

The City of Cologne, famous for many things is probably best remembered as the headquarters of Johann



The rapid fall in value of the German mark during 1923 caused frequent changes of postal rates. To prevent the issue of new stamps, the existing designs were surcharged with the new rates. Here are some interesting varieties to look for:—

8 T. on 30 pf. blue-green, with error—figure '8' inverted — 30/- mint, 45/- used. 20 T. on 200 M. carmine, error — surcharge inverted — £4 mint. 30 T. on 10 M. blue — surcharge inverted — £6 mint. 75 T. on 300 M. yellow green — imperf. — 20/- mint, 25/- used. 75 T. on 1000 M. yellow green — surcharge omitted — £15 mint. 100 T. on 100 M. purple — surcharge double — 70/- mint or used. 100 T. on 400 M. green — imperf. — 50/- mint. 800 T. on 200 M. carmine — surcharge double — 90/- mint. 2 M. on 300 M. green — surcharge inverted — £6 mint. 400 T. on 30 pf. brown — imperf. — £7 mint.

Exciting for Collectors

Thematic collectors will find German stamps exhausting but, nevertheless, exciting. The varied industries — where Germans have always toiled hard for their bread — have received extensive postal commemoration. Although modern machinery has considerably eased the workers' burden, the old methods are still practised in parts of Germany.

Pictorial of 1921 show: (A) Reapers scything corn — 150 pf. orange — cat. 3d. mint; (B) Blacksmiths — 60 pf. claret — 1d. mint; (C) Miners — 100 pf. green — 4d. mint; (D) Ploughman — 20 M. indigo — 4d. used.

A 1943 set show: Harvester sharpening scythe; Labourer wielding sledge-

CHECK FOR ERRORS

By R. Cantwell

posed of the finest essential oils and aromatic spices that the vegetable world produces. But the way he prepared and mixed them is a secret, known only by those who have inherited the business.

The German Saga

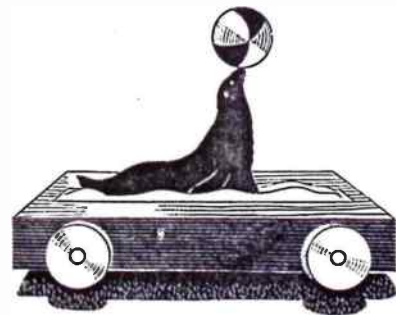
Cologne is depicted on the 2M. pictorial of 1924 — 4d. used; and Cologne Cathedral on the 10,000 M. olive of 1923 — 4d. used.

Berlin, the capital, has centuries of history behind it. It is pictured on the 15 pf. charity stamp of 1930 — 1/- mint.

Germany's history, from early times up to the collapse of the Hitler regime, makes an interesting story for the stamp album. So why not buy a cheap packet of German stamps. Begin with 100 different. And don't forget to check those inflation provisionals — you may be lucky.

Maria Farina, the inventor of Eau de Cologne. That was about 200 years ago. Farina's original perfume was com-

Make a Performing Seal



FOR THE STOCKING

TO make this Christmas gift you need only a small quantity of wood, some 1/4 in. diameter round rod and a piece of medium gauge wire 3 1/2 ins. long.

Finish off by painting the Seal black and the rest of the toy red or yellow. The ball should be green, white and yellow. Operate by pulling with string. (M.p.)

Patterns on page 159

Piece (A) and the two sides (B) are cut from 1/4 in. wood and glued together. The Seal is 1/4 in. thick and is pivoted on the wire which goes through the sides. The wheels are glued to axles cut from 1/4 in. diameter round rod and the cam is situated on the front axle in such a position as to give movement to the Seal. Fig. 1 shows how the cam operates to give this movement.

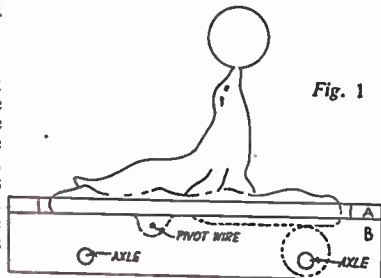


Fig. 1

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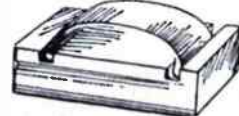
BLANCHARD'S RADIO

(Dept. H2), 13 GAINFORD GARDENS, MANCHESTER, 10

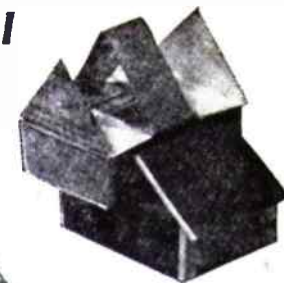
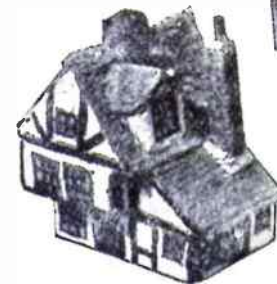
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Replies to Readers Is this YOUR Problem?

Making Aeroplane Dope

COULD you please tell me if there is any way of making my own aeroplane dope, and also tell me how to colour clear dope? (P.K.—London).

THE easiest way of making aeroplane dope is to thin down cellulose cement — such as Durofix — with a mixture of equal volumes of amyl acetate and acetone. This gives a clear dope. To colour it, certain dyes (giving a transparent dope) or pigments (giving an opaque dope) are used. Any of the standard pigments from an oil and colour shop can be mixed in to form opaque dopes. For transparent dopes, powder the dye and dissolve a few specks at a time by stirring into the dope, until the required depth of shade is reached. The dyes are: for pink, Rhodamine; red, Safranin; blue, Methylene Blue; violet, Methyl Violet; green, Malachite Green; yellow, Auramine; black, alcohol-soluble Nigrosine; orange Chrysoidine; brown, Bismarck Brown. These dyes can be had from George T. Gurr Ltd., 136/138 New Kings Road, London, S.W.6.

Staining Troubles

I MADE a bedside cabinet of oak, polished it with white polish, wanted it medium oak; glasspapered it off with wet and dry, put wood dye on, turned out dark patches. A friend told me to use oil varnish stain, but this turned out nearly black. Could you please tell me how to get it to a medium oak, and what to use? (A.G.—Belfast).

YOU must remove the present coating down to the bare wood, and it would be advisable to employ a proprietary brand of paint and varnish remover for the purpose, not the wet and dry method, as this tends to force some

of the old stain into the wood. After removal, wash over with common vinegar and when dry glasspaper to smoothness. With a powder stain dissolved in methylated spirit, stain the work the desired colour and finish with white hard spirit varnish.

Glazing Plaster Casts

CAN you please tell me how to make a glazing solution for plaster casts? (J.H.—Widnes).

VARIOUS degrees of shine are possible on plaster. A common finish is to paint with hot wax, which is polished with a cloth after it has cooled. For a bright clear gloss, a quick-drying clear lacquer is needed. Glazing lacquer 5749 is made specially for the purpose by Vinatex Ltd., Devonshire Rd., Carshalton, Surrey. A clear cellulose lacquer will also do.

Repairing a Bow

PLEASE advise on the best method of repairing an archery bow which has broken due to lack of oiling, etc. The break is in three parts and it is also bent through standing on end — will steaming and putting under weights straighten it? (J.A.—Birmingham).

THE break could probably be made good with a modern synthetic glue such as Aerolite or Cascophen. The latter would be preferable if there are any open spaces to be filled in around the fracture, as it has somewhat better gap-filling properties. If the fracture is incomplete, we suggest definitely breaking the pieces clear; then coating both faces of each joint surface with mixed hardener and resin and clamping up quite tightly and accurately, to dry in a warm atmosphere. Then clean up the

* * * TIMELY TIPS * * *

Improved Sawhorse

A STEPLADDER serves as quite a reasonable substitute for a sawhorse. Placed on its side, with the 'legs' open, the job in hand can be kept steady by placing a foot on it. Although perhaps, not the correct height for comfort and ease of working on long jobs, the stepladder will, however, serve for most purposes.

joint and bind with twine over its entire length; twine then painted with a (fresh) glue mixture. After two or three days to harden, soak bow for 1-2 hours in hot water, then clamp out straight to dry. This should take out warps.

Denture Cleanser

I WONDER if you are able to give me a recipe for cleaning plastic false teeth. (L.M.—Byfleet).

A CHEAP dental plate cleaner can be made by mixing thoroughly 5 ounces borax, 2½ ounces sodium bicarbonate (baking soda), 2½ ounces sodium perborate, 2 ounces potassium chlorate, 1½ ounces sodium benzoate, ½ ounce table salt and 20 grains menthol. All these must be in fine powder before mixing. For use, dissolve one teaspoonful in a glass of warm water, leave the teeth in overnight, then rinse with cold water.

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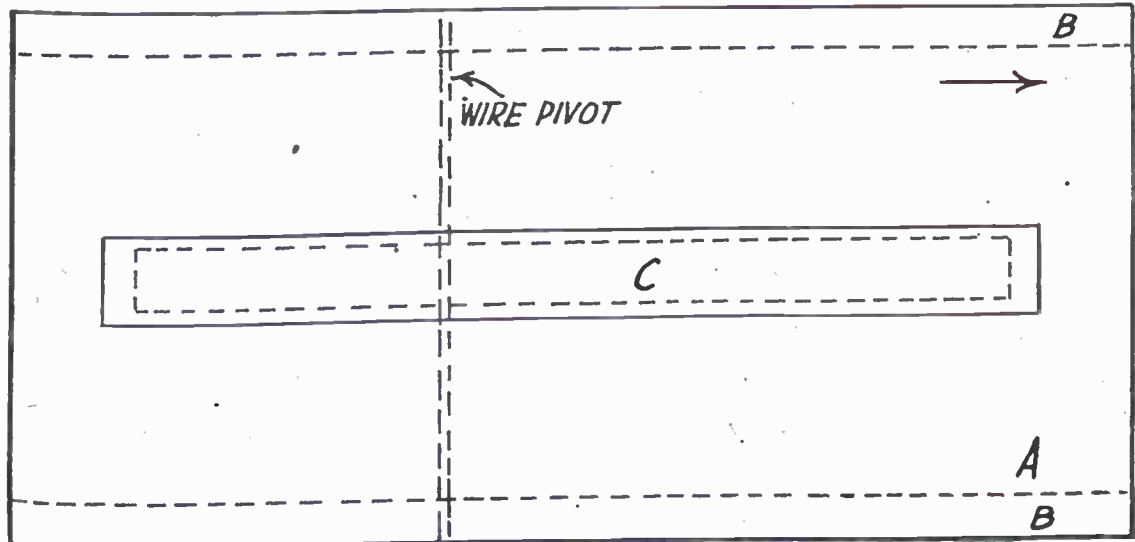
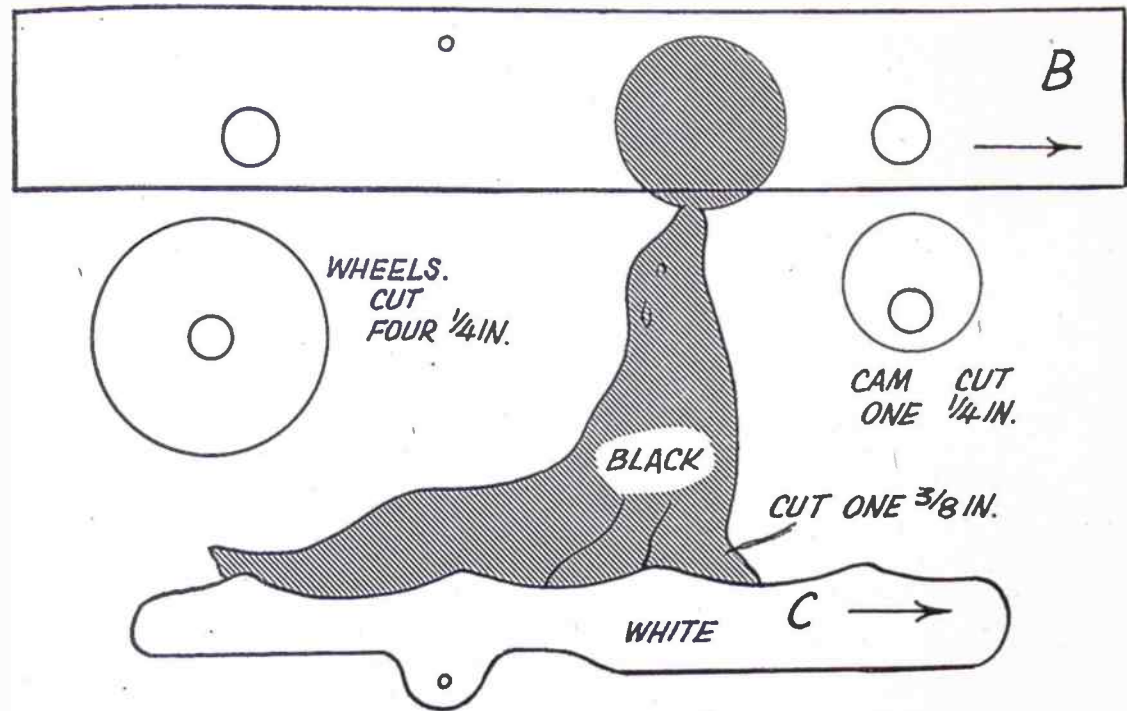


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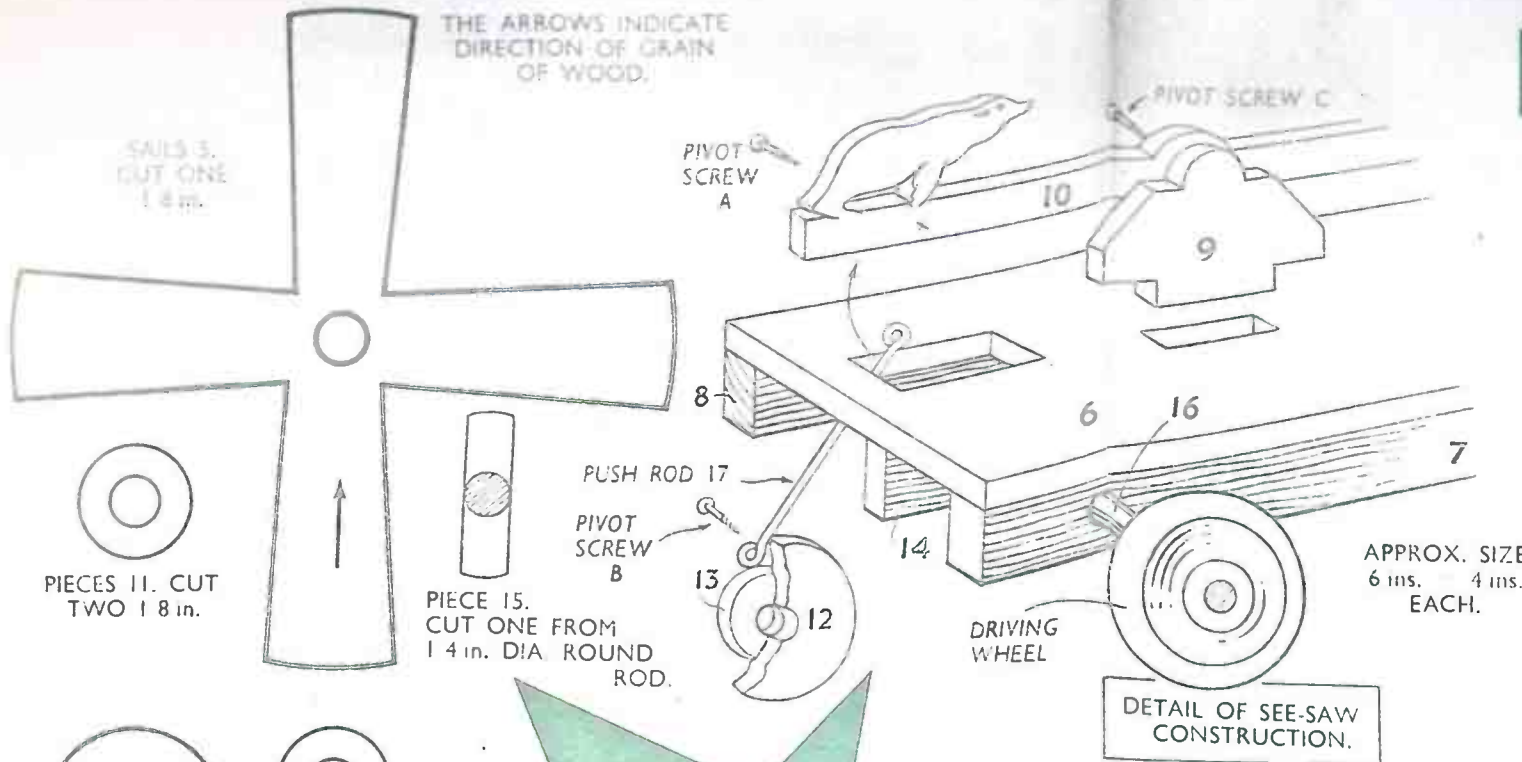
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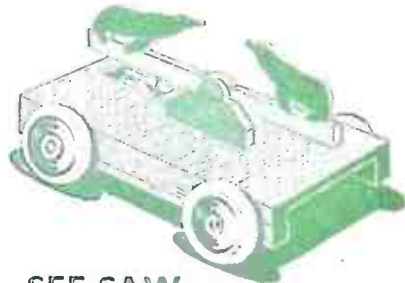


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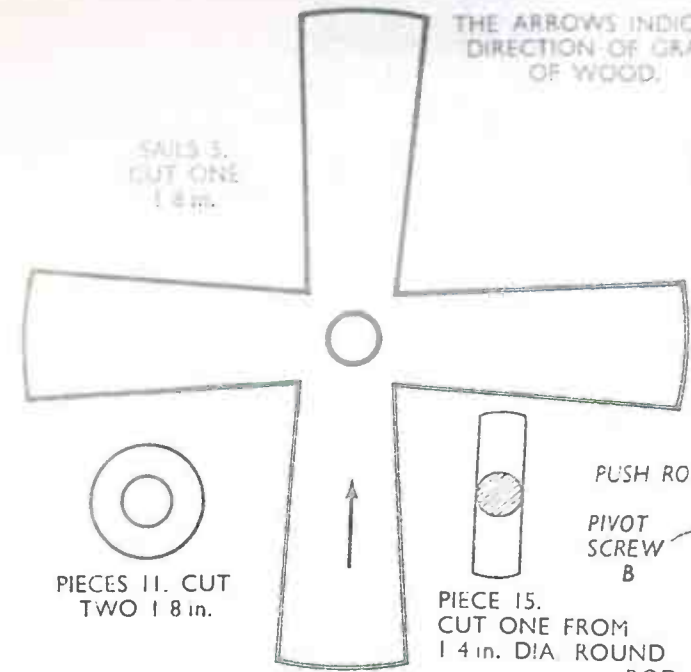
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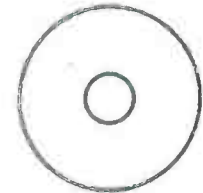
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