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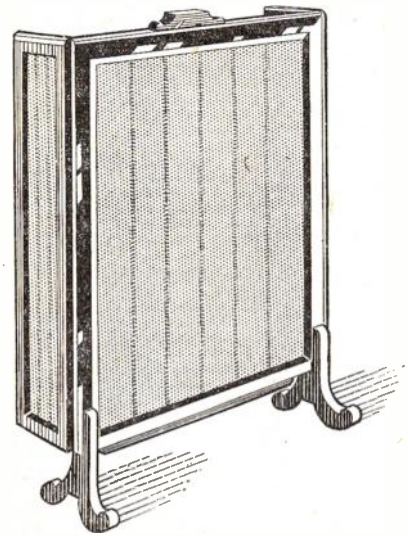
This Week's FREE DESIGN: A 'Nodding Donkey' Toy

It isn't hard to make

AN EFFECTIVE FIRESCREEN



The hinged side wings really hide the empty grate

THE average firescreen, while hiding the empty grate from the front still allows it to be seen from a side view, so to a certain extent fails in its purpose. In the design illustrated, hinged side wings rectify this failing, and completely shut out the grate altogether, a much more satisfactory arrangement, as most people dislike the desolate appearance an empty grate can impart, even in the summer months.

Moderate Requirements

Construction is quite simple, and the quantity of wood required very moderate. Wood, ½in. thick is mostly employed—a small piece of fretwood only being needed for certain parts mentioned in the article. Hardwood is preferable to the cheaper soft varieties, as stronger construction will, naturally, result.

Some useful dimensions are given in Fig. 1, which shows a front view of the screen, minus feet and panels. From this it will be seen that the screen consists of a main central frame, with side frames or wings hinged to it. The height is omitted, as this can be determined better by actual measurement of the grate, measuring from the hearth to the top of the opening. Add 2ins. to this, and then, by deducting 3ins. from the total (the effective height of the feet) the height of the frames will result.

Three Separate Frames

All three frames are constructed separately, and here it should be noted that while 1in. wide wood is used entirely for the main frame, this width is only used for the tops and bottoms of the side ones, the uprights being ⅜in. wide. Join the frames at the corners with the joint shown at (A) in Fig. 2. Ensure a close fitting joint by careful workmanship, then glue will make a sufficiently strong job. Prepare a strip of fretwood ¾in. wide, and cut this into three pieces, long enough for the tops of the frames, those for the side ones extending over the outer corner joints just ¼in. Round off the front edges, and nail and glue to the tops of all three frames, as at (B). These pieces are fitted to be level at the backs of the frames, and to overhang ¼in. at the front.

From a piece of the wood 1½ins. wide cut a lift to the pattern shown at (C). A piece of the fretwood is cut to fit to the top of this, it is large enough to overlap all round ⅛in., and can, if a neat job is desired, be fitted with ¼in. dowels as at

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(D) for attachment to the top centre of the main frame. If it is wished to avoid dowelling, the lift could be glued and screwed on, the screws, round-headed ones, being driven in near the ends where the wood is thinner.

Forming the Rebates

To form a rebate for the panels of the screen to fit in, strips of ⅛in. fretwood, ½in. wide (⅜in. wide for the side frames) are mitred at their ends and glued and pinned round the panel openings, overlapping the openings by ¼in. for the main one and ⅛in. for the side ones. The panels can be cut from thin plywood, strong cardboard, or in fact, any reasonably tough material to hand, not too thick. Cut them a shade less in dimensions to allow room for the material which is to cover them and come over the edges. At the same time prepare sufficient lengths of ⅜in. square fillets to go round the inside of the openings, and keep the panels in place, as at (E), a sectional detail.

Now, from the ½in. wood cut a pair of feet to the pattern given in Fig. 3. This is drawn over 1in. squares, and if a light coloured wood is employed, the squares might quite easily be pencilled in on the wood direct. The shape is easily copied, and could be just as easily sawn out with the fretsaw, if a coarse blade be used for the job. Glue the feet to the main frame, and add a couple of round-headed brass screws to each for security. These can be driven in from the front, and will not look unsightly at all.

Clean up the whole of the work with medium and fine glasspaper, and then stain and varnish, or otherwise finish as may be decided upon. Stain the panel near fillets to match, also the near faces of the panels themselves to tone with the remainder.

Coverings

For covering the panels readers may have their own ideas, but to help those who may prefer some advice on the subject, it is suggested that silk or sateen, a pleasing colour, be employed. The colour of the tiled or brick surround of the grate may well have some influence over this choice, the colour of the material either toning with it, or presenting a pleasing contrast. The material itself looks much better pleated than plain, and when cutting out, the necessary extra allowance for the pleats should be made. This need not be much if a small number of pleats are decided upon, for instance, ½in. pleats spaced 1in. apart for the main panel and spaced ½in. apart for the side ones. To do this part of the work neatly, lay the material flat on a board and pleat, and fix each pleat with a pin at top and bottom, the pleats, it is understood, being underneath.

Now apply a touch of glue to the edges of the panels, one at a time, of course, and press down on the material. Remove pins, and fold the material over the edges of the panel, and leave for awhile for the glue to set and hold the

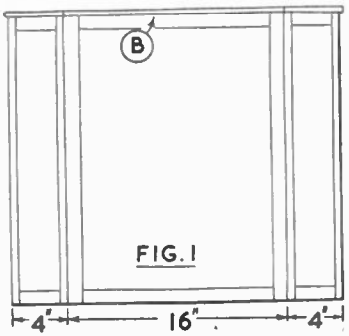


FIG. 1

stuff firmly. Be careful to avoid getting any glue on the material where it is likely to show up when in place, also to cut it wide enough to leave room for the panels to be placed over between the pins at top and bottom.

While the glue is setting, hinge the wings to the main panel, the hinges, of course, being fitted at the rear. Light brass hinges will do quite well, 1in. or 1½ins. long. Then push the covered panels in their openings, and nail the

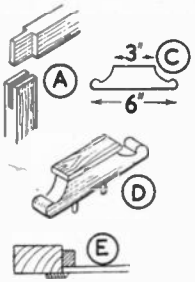


FIG. 2

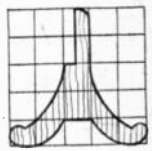


FIG. 3

fillets round to keep them in position. For the sake of neatness, the surplus material, at the rear, showing past the fillets could be trimmed away with a sharp pocket knife. (486)

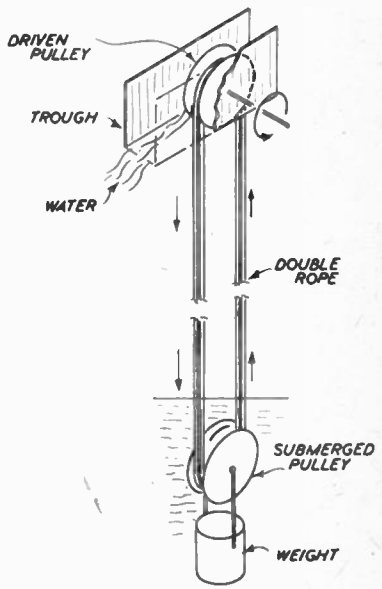
They were amazed by

THE ROPE PUMP

DELVING into some old literature on the subject of hydraulics, two engineers at the University of Illinois came across a reference to a simple rope pump. This 'pump' consisted of nothing more than a doubled rope running around two pulleys, as shown in the diagram. The lower pulley was weighted and submerged in the water whilst the upper pulley was fitted in a chute to collect the water.

On the face of it this seemed a most unsatisfactory method of lifting water but, prompted by curiosity, the two engineers decided to try it out. Arranging a lift of 25ft. and driving the top pulley by a small electric motor they were amazed to find that this rope pump could raise more than twelve gallons of water a minute through that distance. Water clings to the double rope running up to the top pulley and splashes off into the trough or chute, to descend 'dry'.

This efficiency of working compares very well with that of a standard pump of comparable power and there is every reason to believe that a lift well in excess of 25ft. could be achieved. If so, simple 'pumps' of this type, which need only the most elementary materials to construct, could possibly have a wide application for rural or occasional use. (464)



Alternative designs for a 'SPECIAL PURPOSE' BOOKCASE

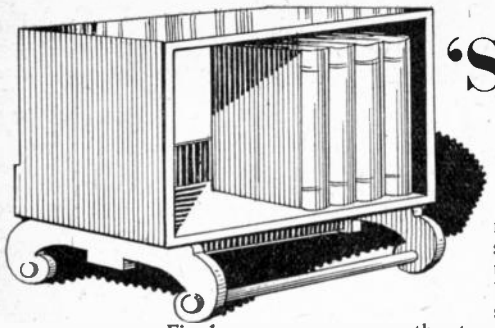


Fig. 1

SOME readers may wonder at the title of this article, and a little explanation is, therefore, necessary.

A reader had a set of eight volumes, all of uniform size and thickness, and he needed a suitable case to contain them. He gave us the size overall of the complete set of books, and we designed a case to hold them comfortably with also sufficient finger space for removing them when needed. The case was to stand on the floor, with feet arranged to lift it to a convenient height.

Designs for similar bookcases are shown here, as there may be other readers who would like to make one.

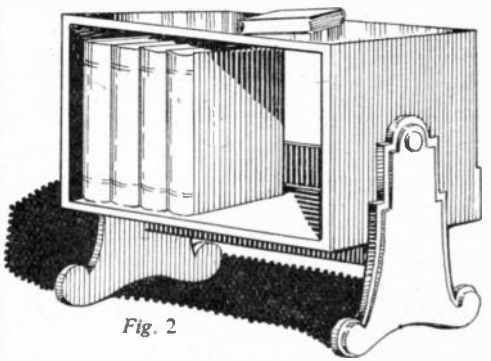


Fig. 2

made. The case itself should be stiffened by the addition of two flat brass angle plates screwed on the back of the top and sides (see detail Fig. 4). Note that angle plates should not be put inside the case. To avoid confusion we will describe the case shown in Fig. 1. The one in Fig. 2 is identical, however, except for the feet.

In Fig. 3 is a front view and end view with measurements included. The wood of the case should be not less than ¼in. thick. Two pieces will be required 16½ins. long and two pieces 11¼ins. long, all four pieces being 8ins. wide.

A detail of the method of setting out of the corner locking joint is given in Fig. 4. Usually, this kind of joint is machine made, but the home worker, if not proficient to undertake the proper dovetail joint for this angle fixing, may use the method here shown. A good fit should be made to all the tenons, and

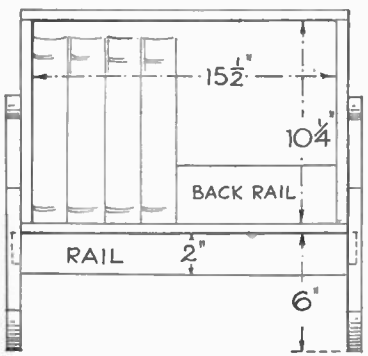
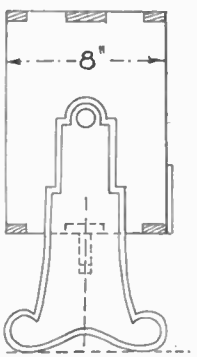
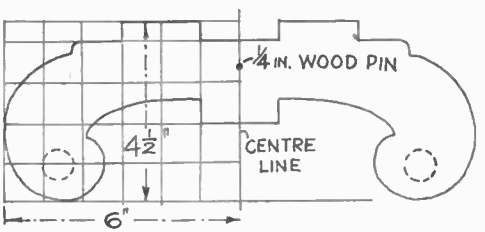


Fig. 3





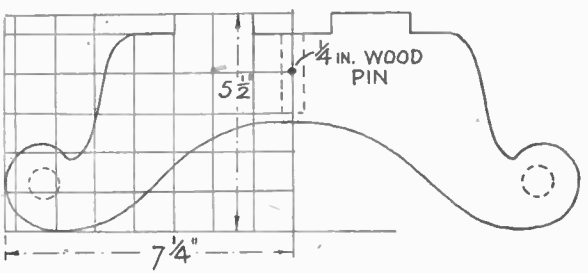


Fig. 6

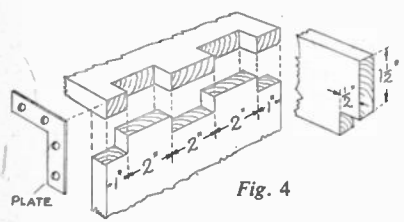


Fig. 4

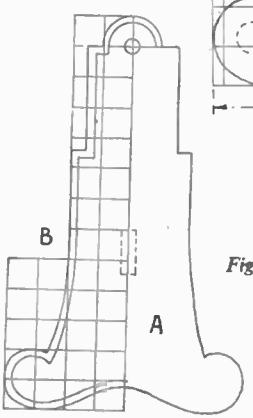


Fig. 5

The work in making them and putting them together is straightforward. The easily made pin joint, or corner locking joint as it is sometimes called, suggested for the bookcase itself, is cut with the fretsaw after carefully setting out.

It must be remembered that books weigh a considerable amount, and the whole article must, therefore, be strongly when knocked together and glued securely, the joints should be well glasspapered.

Test the angles for squareness with the set square or try square and then add a back rail measuring 16½ins. long by about 3½ins. wide. Fix the rail with glue and two screws each end, and round off the top edge with glasspaper.

The legs of the case may consist

(*Continued on page* 292)

How to Save 'Spoilt' Prints

A PROFESSIONAL photographer will generally say that it is not worth while reclaiming spoilt prints, better to do another. This is all very well for him, as his paper stocks run into many gross, but when, as is the case with the average amateur, the supply is regulated by packets containing only a limited number of sheets, things become different and print saving is worth while, especially as the remedial solutions (enough to treat scores of snaps) can be made up at a trivial cost.

Nothing can be done with the absolute 'dud' print, of course, but it is safe to say that 50 per cent of so-called failures could be brought to a state of usefulness (if not perfection) by the application of certain simple remedies. At any rate they are always worth trying. Here, then, are the remedies referred to.

Slightly stained prints, or those exhibiting an all-over yellow tinge, can be returned to a state of purity by immersing for a short time in a solution of hydrochloric acid, 3 drs., alum 1 oz. and water to 12 ozs. This treatment will clear the stains away if not too bad, give better whites and generally brighten up the whole effort. Indeed, so beneficial is this treatment that it is a sound idea to apply it to even apparently good prints for the purpose of getting an extra purity.

If prints are pale and 'washy' through under-development, they can be saved by bleaching and re-developing in Amidol. The results thus obtained are good, but the final picture will be found to have a rather warmer black than is given by straight development.

Over-developed and clogged prints can be reclaimed by placing in a solution of potassium iodide 30 grs., iodine 3 grs. and water 10 ozs. The prints (which must be well washed) are left in this till the whites show a slightly bluish tinge, when they are plunged into an ordinary hypo solution. The brightening and reducing effect will at once be seen. After another thorough washing this treatment can be repeated if desired, but care must be taken not to overdo matters or detail will be lost in the highlights and the prints become 'soot and whitewash'.

The process may be used also to get satisfactory results from thin, flat negatives that otherwise would yield only lifeless prints. Develop prints from such negatives darker than would seem correct and then treat as described.

A 'saver' which is not much known is the 'hypo-alum' toning. This is carried out by bringing the prints up nearly to boiling point in a solution of hypo about 2 ozs. and alum about 1 oz. (exact proportions do not really matter). As the prints reach a high temperature it will be found that they have changed from their black and white to a sepia tone. To finish, wash in tepid water to remove the solution which tends to 'cling', then rinse in cold water and finally glaze or dry as desired.

The toning is a 'saver', as many prints of poor colour become quite presentable in their new livery. Yellow stains also are generally so merged in the new sepia colour as to be unnoticeable, and many papers tend to 'clear' under the treatment.

Bromide and gaslight prints with 'scummy' surfaces, produced by old or dirty solutions, certain types of washing waters and other causes can be cleaned up by rubbing with a wad of cotton wool soaked in methylated spirits. Continued rubbing by the spirit, it should be noted, will tend to reduce the image slightly, which may at times be an advantage. The effect of this treatment on ancient and dirty prints is also rather remarkable as it cleans them up at once. Methylated spirit cannot be used on daylight papers, however.

A final 'saver' is a colour palette containing a little Chinese black, for with a finely drawn brush it is possible, with a touch of suitable colour, to render invisible any white spots or scratches that appear. The pigment should be used stiff and dry and the merest spot touched on at the desired places. It is really quite miraculous how the process of 'spotting' can improve a blemished effect, and, if carefully done, it is quite unnoticeable.

Prints can, of course, be dealt with singly, but it is more economical and in a way more interesting and instructive (for one can draw comparisons) to wait till a number with the same trouble are collected and then deal with them together. (470)

'SPECIAL PURPOSE' BOOKCASE

(*Continued from page* 291)

simply of two pieces of ¾in. or ½in. wood cut to outline, as at (A) Fig. 5, or each leg may consist of two thicknesses of wood, say, ½in. and ¼in. cut to shape and glued together as at (B) Fig. 5. The outer layer should allow for a margin all round of about ¼in. as seen in the detail. A mortise should be cut in the ¼in. layer of the legs to the dotted lines, but in the case of the solid legs the mortise may be either cut right through the thickness of the wood or omitted altogether and stout glued dowel pins run in from outside into the under rail.

This under rail should be not less than 2ins. wide with, in the case of it being recessed into the end uprights, a tenon each end 1½ins. wide as shown in detail Fig. 4. Countersunk screws are run through the extreme tops of the legs into the case, the heads of the screws being afterwards covered over with either plain wood discs ¾in. or ½in. in diameter or ready made turned wood buttons.

Two further countersunk screws may be run in farther down the uprights if required, the heads, in this case being filled with putty or a wood filler and neatly rubbed down to the surface of the leg.

In Fig. 6 we show alternative designs for suitable cross feet for the bookcase shown in Fig. 2. Here, on the left side of the diagrams a series of 1in. squares are given, and these will serve the worker when making the enlargements full-size. The outline of the leg of the first design (in Fig. 1) is similarly squared over for the sake of making the enlargement.

The feet in Fig. 6 should be of ¾in. wood, carefully cut to outline, not forgetting the two tenons along the top edge.

It must be remembered to make the mortises 1in. in at least from the outer surface of the ends, so as not to weaken the floor at this point. Glue the tenons in firmly and then add the rail which will be about 13ins. long. The position of the dowel pins for fixing the legs to the rail are given in the enlarging details Fig. 6.

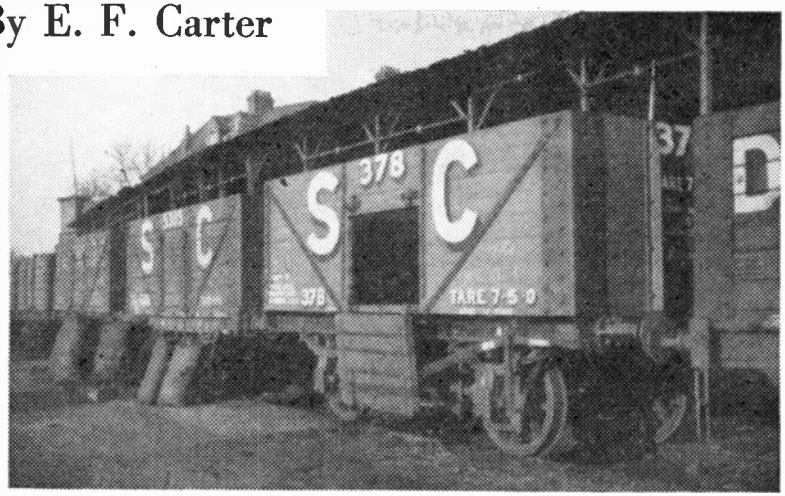
If it is decided to have cross rails connecting the outer extremities of the feet, as shown in the sketch Fig. 2, then holes should be made for them to be securely glued. Turned rod about ¾in. diameter would answer well and would materially strengthen the feet. Wood discs could be added to cover the end joints.

Clean up all surfaces of the woodwork with fine glasspaper, and finish with stain or paint according to taste. Oak, of course, is the ideal wood for such an article as this, and looks well with a coat of light stain and french polish.

DESIGNING AND BUILDING MODEL RAILWAYS

By E. F. Carter

IT is not generally realised that a great deal of additional realism may be obtained on a model railway at very little extra cost, by making and fixing small fitments and details to some of the inexpensive locomotives and rolling-stock already in use. Wonders can be achieved in this direction with such 'O' gauge engines as the 'Duke of York' and 'George V', but the reader may be 'put off' by the prospect of metal-work and soldering which is entailed; fearing that a perfectly good locomotive may be spoiled in the process.



A three-quarter view of a high-sided wagon

Frankly

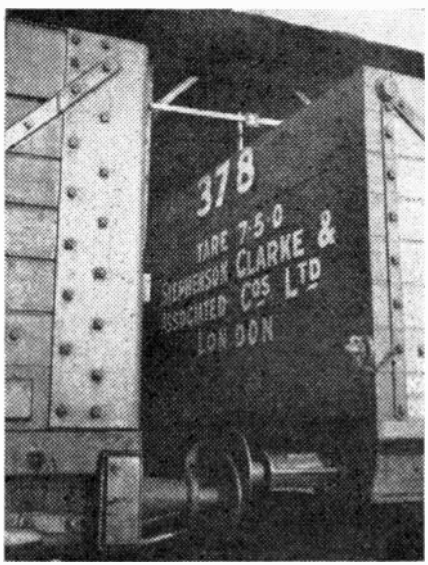
To be quite frank about metal-work and soldering, it is an art which must be learnt if it is intended to go ahead in model railway work in a thorough-going way. Soldering is quite easy once certain principles have been mastered, and it is like many other things—practice makes perfect. So there is no reason why the sundry little jobs should not be carried out quickly, strongly and neatly, if a few simple rules are observed.

It must be remembered that the soldering-bit, the work, and the solder must be really clean and free from all traces of grease. The bit must also be sufficiently hot, for it is impossible for even an expert to solder with a half-cold 'iron'. The soldering-bit, the pieces of work being joined, and the solder must all be at the same working temperature. If this is not the case, a 'dry joint' will be made which is unsightly and is devoid of any strength.

These two rules are all that are needed to produce good work, but they must be followed to the letter. There is no such thing as 'clean enough' or 'hot enough'. Near enough is worse than useless for the production of a sound neat joint.

Scraping the pieces of the job with a sharp pen-knife is a well-tried way of obtaining cleanliness, and the tip of the soldering-bit should be filed clean—down to the copper—with a medium coarse file before heating it in the gasring until the flame of the latter is tinted a bluish-green. When this takes place, it should be removed from the flame and rubbed with a piece of solder which has previously been dipped in 'flux'. If the 'iron' is clean, the solder will adhere to the bit and 'tin' its surface by covering it with molten solder. The 'iron' is then ready for work.

If an electric iron is being used, then no trouble will be experienced with a dirty bit when once it has been cleaned and tinned, but with an ordinary 'iron', if the extreme tip is allowed to actually be in the gas-flame, the tinning will be burnt off very speedily, and re-tinning will, perhaps, have to be done right in the middle of a difficult job. To avoid this, the tip of the bit should never be allowed in the flame,

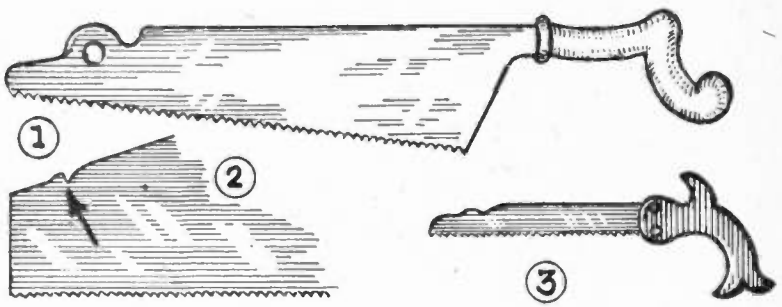


Two close-ups showing wagon detail

(*Continued on page* 294)

Why the Notch on The Saw?

MANY modern handsaws have a notch on the back as indicated by the arrow in Fig. 2. What is its use? So far as the writer's enquiries have gone—and they have been pretty extensive—no satisfactory answer has been given. The most usual explanation is that by reversing the saw one can use this notch to clear a cut of sawdust—which seems a rather feeble reason, as the 'set' of the saw teeth is so designed to clear the cut. At the same time, the writer notes that in a catalogue of saws, a 'Farmer's Hand Saw' for green and wet wood is shown with a rather pronounced notch on the back, and sawcuts in green and wet wood are most liable to clog up.



Hole in the End

In Fig. 1 we see an illustration (copied from a contemporary source) of a Dutch handsaw of 1694. The hole at the end will be noticed at once and it is difficult to imagine that it serves any other use than to enable the saw to be hung up on a nail on the wall. The rest of the shaping seems purely ornamental. It must be remembered that in the old days tools were made individually by hand and meant to last at least one lifetime: they were often handed down from father to son. (The present writer has a set of moulding planes over 150 years old, in perfect working condition). Thus tools were often decorated.

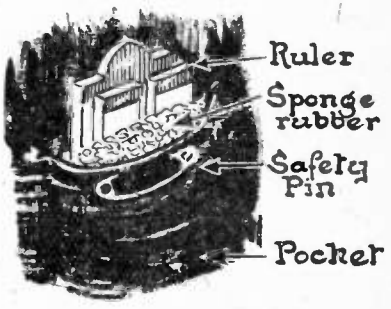
In Fig. 3 we see what a writer of King Charles II's days calls a 'tennant' (tenon) saw. There is no hole—perhaps the maker decided to put it in a rack or box instead of hanging up, but retained the decorative curves that would have surrounded a hole. Later, one presumes, this curved feature gradually shrank until it got so small that one maker had the impression that it was an extra saw tooth and shaped it so.

Thus, the present writer's opinion is that the notch on the end of a modern saw is a relic of the days when a hole was made in the saw for hanging-up purposes. This is just a theory, of course, but it seems perfectly reasonable and better than most other 'explanations' offered. (320)

Keeping The Ruler In

A FOLDING foot-rule projecting from a pocket is almost a badge of the handyman, but the ruler is very apt to slip out when its owner is bending down.

There is a very easy way of preventing this—just a small pad of sponge rubber pinned to the top inside of the pocket. In the drawing, the safety-pin has been shown fairly prominently merely for diagrammatic purposes, but it can be so adjusted to be fairly inconspicuous. (321)



DESIGNING MODEL RAILWAYS

(*Continued from page* 293)

but the body of the iron should be allowed to absorb the heat and convey it to the tip by conduction.

When soldering two pieces of metal together, both pieces, the 'iron' and the solder must be really hot. If the bit is properly tinned, the film of solder on it will quickly conduct the heat from the bit into the pieces of metal being joined. This is why it is that it is impossible to solder with a cool or dirty 'iron'—the heat of the bit has no solder-medium through which to travel to the pieces being soldered, thus it cannot ever raise their temperature high enough to melt the solder with which they are to be joined.

This soaking of heat from the 'iron' into the work should be watched for by noting the melting of the solder on the work as the latter assumes the same temperature as that of the soldering-bit. Thus it will readily be apparent that it is impossible to join two pieces of metal by soldering if they are resting upon thick metal or are held in a metal vice, for the heat of the soldering-bit would rapidly be drained away into the large bulk of metal long before the pieces being joined were made as hot as the 'iron'. Always rest small work on a flat surface of hardwood, otherwise no success can be expected.

Never attempt to solder long seams or bulky articles with a small 'iron'. The bit should be larger than the combined bulk of all the items being joined. Remember, too, that aluminium or aluminium alloys can not be soldered by the orthodox methods outlined.

The reader should not be tempted to try his hand at fitting details to an engine until he has become really proficient at tackling some of the simpler soldering jobs in an experimental way, and it is a good plan to keep to the rebuilding of simple tin-plate rolling-stock for the first efforts with a soldering-iron. With a little ingenuity and care, some of the very cheapest tin-plate wagons can be made into quite good models by adding dummy brake-gear, spring couplings and buffers, and many other easily-fitted details; whilst 'non-locking' buffers fitted with screwed shanks can be fixed simply in place with a nut—without even the use of the soldering-iron. Similarly the over-sized single-link couplings found on cheap wagons and passenger stock can easily be replaced with the three-link variety without any tools other than a pair of pliers and a screw-driver. (476)

Do Your Own Armchair Repairs

THE repair of spring-seat upholstery is not a difficult job and is one which is well within the capabilities of the handyman. The repair most likely to arise is when the springs of an armchair or settee become damaged or displaced to such an extent that the chair seat becomes distorted with a consequential loss of comfort in use.

To start a job of this kind, turn the chair or settee over so that the seat of the piece of furniture is supported by one or more boxes of suitable size. This will enable the springs and other parts to be easily reached and the work to be tackled in comfort.

The first thing to do will be to remove the hessian or other material which forms a dust cover for the underside of the furniture. This is invariably secured with tacks. Sometimes a displaced spring can be restored to its proper position and stitched there without disturbing the webbing which supports the springs. If so, all well and good, but if the damage is severe, it will be as well to remove and replace the whole or part of the webbing. Before doing this, however, it is advisable to take a sheet of paper and make a rough sketch showing the layout of the webbing, the position of the springs and any other details likely to act as useful signposts when it comes to getting the job together again. Fig. 1 gives some idea of the appearance of a typical sketch.

Notice in particular the general run of the construction. The springs are, or at least should be, stitched at one end to a piece of canvas which lies immediately under the padding of the seat and at the other—and lower—end to the strips of webbing. Fig. 2 shows a section of one of the springs and the method of fastening. If the webbing is damaged or seriously worn, it will have to be replaced, but removal is a simple matter, as the strips are only nailed to the framework of the chair.

It sometimes happens that when a chair seat becomes damaged the 'underlay' of the seat—normally made of horse-hair or flock—becomes rucked and lumpy. This should be worked out evenly again if possible and generally speaking this can be done from the underside without disturbing the outer covering of the chair seat. Torn parts of the canvas can be darned or patched in the usual way.

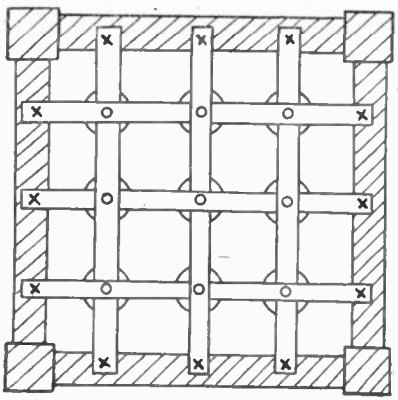


FIG 1

X. = NAILED POINTS
O. = SEWN TO SPRING

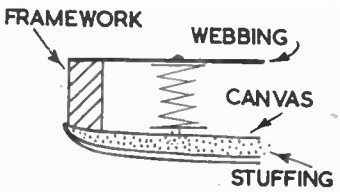


FIG 2

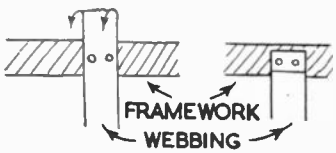


FIG 3

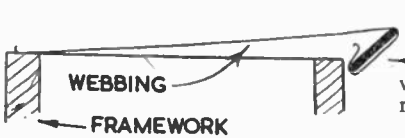


FIG 4

Webbing

When it comes to re-webbing, it will often be found necessary to compress the springs to get them clear of the work. This is quite simply done by compressing them by hand and securing them in the closed position with a turn or so of string. The webbing used should be of good quality and of the same width as that removed.

This is where the sketch will be most useful, for now it is necessary to make a webbing framework exactly as it was when the chair was made—the webbing going over and under each cross piece in turn. The webbing is secured with nails—two being driven in as shown in Fig. 3 and then two more after the end of the webbing has been turned over. It will be necessary to stretch the webbing as tightly as possible before it is secured to the framework. One efficient method of doing this is to wrap the free end of the webbing round a piece of wood about 3ins. or 4ins. long as shown in Fig. 4 and to use the wood—being notched against the framework—as a lever with which to tighten the webbing. Nail up while the webbing is still tight and the resultant job will be highly satisfactory.

When the webbing framework is complete, the springs can be released in turn and sewn with string to the places where the webbing strips cross.

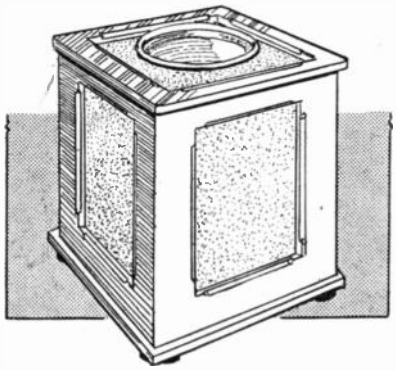
The dust cover should be renewed or replaced when the job is finished. (489)

SHATTERPROOF BOTTLES

To protect bottles of chemicals, especially those in powder or granular form, wrap the bottles with cellulose tape. Then if they are accidentally dropped and broken, the bottles will not shatter and scatter the contents.

Mother might like this

Flower Holder for the Table



A COMBINATION of plastic material with fretwood is employed for the flower holder, illustrated. Unfortunately, it is not possible with pen and ink medium to do justice to the finished article, as the beauty and sheen of the plastic cannot be successfully imitated, but well made, a pleasing effect results.

Fretwood $\frac{3}{16}$in. thick is suggested for the wooden portions of the holder, with $\frac{1}{8}$in. perspex for the plastic parts, which consist of the four panels at the sides and the top. For containing the flowers use is made of a common 1lb. jam jar, concealed inside.

Cut two panels to the dimensions given in Fig. 1, and don't forget to add $\frac{3}{16}$in. for the bottom tenons. Cut out the panel opening, and stop chamfer the outer edges of the opening, as seen in the general view of the article. Prepare some strips of deal, $\frac{1}{8}$in. square section, and glue these against the edges to form a rebate for the perspex material. Note, these strips are $\frac{1}{4}$in. down from the top to leave room for the top panel to lie on but level with the side and bottom edges. They are shown in the diagram by dotted lines, and can also be seen in the detail constructional sketch, Fig. 4.

Now cut the remaining two sides, this time 4$\frac{1}{2}$ins. wide, with other dimensions as before, also panel openings. Glue and nail these to the sides all ready cut to form a square, and across, at top and bottom, glue similar strips of deal. The vertical strips of the two sides first done will serve for the others as well, so can be omitted from the last two. When the glue is set hard, very slightly round the sharp corner angles of the sides, and see all nails are well flattened down. They could be lightly punched down in fact, and the holes stopped up level with plastic wood to conceal them completely.

The top and bottom of the box are shown in Fig. 2, half only, the left half being the bottom. Cut this to the size given, and in the centre, strike the circle with the given radius, and saw carefully out. Keep the disc removed, as this is subsequently required to go back as a cover to the hole. It may be as well here to measure the diameter of the jam jar you propose utilising, to see it passes easily through the hole. It should do so if of standard size.

Now cut a ring of the fretwood, 3ins. inside diameter and 3$\frac{1}{2}$ins. outside. Glue this ring over the hole, as shown in the drawing by shading lines, cutting away those parts that would otherwise not pass the deal slips at the bottom, and it will act, obviously, as a stop to prevent the cover falling through inside. See it passes the jam jar all right. Now stand the box central on its bottom part, and pencil round the tenons to mark their position on it. Cut the mortise slots, and glue the sides in place. Complete this part of the work by gluing 1in. discs of fretwood underneath, one near each corner, to serve as feet.

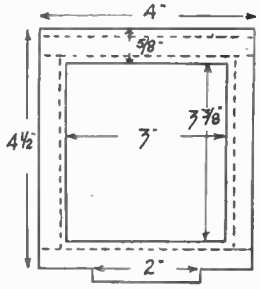


Fig. 1

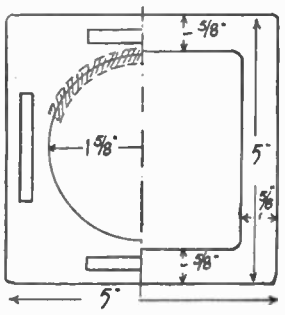


Fig. 2

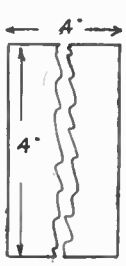


Fig. 3

Cut four panels of the perspex, a neat fit in the panel openings, and fix them in place with slips of wood, glued in the rebates. Detail, Fig. 4, shows these, and depicts the constructional work of the box interior corners as well. Now cut the top of the box from fretwood, to dimensions as shown in Fig. 2, right side. Mark out the panel opening and saw carefully out, especially across the grain, to avoid a breakage. The top is then, temporarily, screwed to the top of the box. Use small brass round-headed screws, and drive them in very carefully. One screw at each corner should be sufficient, as a little more room is available for the screws at the corners than in the middle of the sides.

The whole box should now be glass-papered to smoothness, using a medium grade first and finishing off with the finest. The box can then be given a coat or two of art enamel or coloured lacquer. Take great care to avoid any of the paint trespassing on the perspex panels. In fact, it would really be safer to paint the box first and fit in the panels afterwards. If a second coat is necessary, rub the first down with worn glasspaper and dust off before applying it. For an article of this description a glossy surface is to be preferred.

Now cut the top panel of the box from the perspex to the size in Fig. 3. In the centre of this make a small dot with a centre punch or sharp nail, and strike a circle about 2$\frac{1}{2}$ins. diameter, or just large enough to allow the flanged rim of the jam jar to pass. Unscrew the top of the box, fit the perspex panel in and rescrew back again.

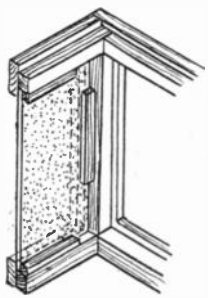


Fig. 4

Pass a jam jar up through the hole in the bottom, and replace the cover. A couple of metal clips should be screwed to the bottom of the box to keep the cover in place. The holder is now ready to receive the flowers, a little water, of course, being poured first in the jam jar. It may be added that the box can be enamelled to match the colour of perspex chosen, as far as possible.

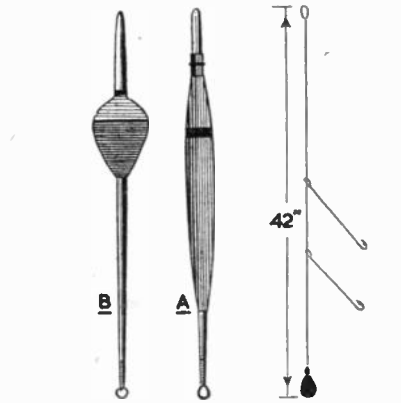
For making two panels, 7ins. by 14ins. of $\frac{3}{16}$in. fretwood will be needed, and one 8ins. by 10ins. panel of $\frac{1}{8}$in. perspex. (483)

Now is the time to begin thinking

ABOUT FISHING FOR PERCH

EVERY young angler knows the perch—or should do, for it is, in many instances, the first love of our angling career. At any rate, one can't mistake this fish, so striking in appearance, so fine and glittering as he comes, resisting strongly, to the bank when you have hooked him. He is of a dark, olive-green colouring, marked with black or dusky bars down his sides; he has brilliant crimson-tipped fins. His back is curiously 'hog-shaped', and noticeable is the big prickly dorsal fin and the lesser dorsal fin, both armed with sharp spikes. Beware of these keen-pointed, bony rays when you handle a perch, for they can make a painful wound in your hand.

Two points make the perch a splendid



A. TAPERED CORK ON PORCUPINE
B CORK ON PORCUPINE EGG SHAPE
2 HOOK PATERNOSTER

quarry for anglers young and old. (1) They go around in shoals. (2) They are not gut-shy and 'bite' boldly—there's nothing 'finicky' about the perch. We might add another recommendation; the perch is good eating when cooked, and you can't say as much for every species of fresh-water fish. Another thing, perch attain quite a tidy size in some waters—up to 3lbs. and 4lbs. When hooked, even a ¾-pounder fights like a Trojan, and provides good sport. In some waters, such as ponds, perch may run small, and seem to be 'Peter Pans'—they never grow up. River perch are excellent.

Haunts

Happily for the angler, perch thrive in all kinds of water, swift-flowing and stagnant. Rivers, weir-pools, lakes, meres, ponds, canals, moats, and drains all afford them a home. They seem to prefer sandy and clayey stretches of a river, and lurk around submerged timbers and tree-roots, wood-baulks and bridges. In lakes they prefer the deeper spots and channels.

During autumn, when the river is swollen by rains, the 'bush pockets' are good spots. A 'bush pocket' is a deepish hole situated between two bushes growing out of the bank, where the water is steadied up when the outside current is flowing fast.

In canals, perch lie about old lock gates, and by the walls of sluices. In ponds, try the openings between weed-beds.

A likely place in a medium-flowing river is a 'glide' between rush beds, where the water, fairly deep and smooth, flows gently, merely whispering in soft undertones against the green stems of the cat-tails. Weir-pools are always excellent spots.

Perch are in their prime condition in autumn and winter. Specially good months for fishing are September and October, when the autumn days can be very pleasant by the waterside.

LEDGER TACKLE. SHOWING RUNNING BULLET BETWEEN SPLIT SHOT

Methods of Fishing

Perch-fishing may be practised in several different ways, namely, with float tackle, with the paternoster, with ledger tackle, by live-baiting, and by spinning.

The beginner cannot do better than fish with float tackle. He will require a bottom rod of light cane with bridge rings and usual reel fittings, about 10ft. long; a plaited silk line 20yds. to 40yds. in length, size No. 1; a 'Nottingham' pattern reel; and a 1yd. gut-cast or a substitute such as nylon or other synthetic gut. Floats are either cork on quill or long cork body. Hooks Nos. 10 crystal, or, where perch run big in size, either No. 6 or 8. Some split-shot to weight and 'cock' the float completes his tackling.

Do not use a larger float than is necessary. By using a fairly small float, say, 3ins. or 4ins. in length (bigger for heavy streamy waters where more weight has to be used to keep the bait down), it is possible to dispense with a lot of shot which only disturb the water when you cast in your baited hook, a thing to remember if fishing quiet waters of a canal or pond.

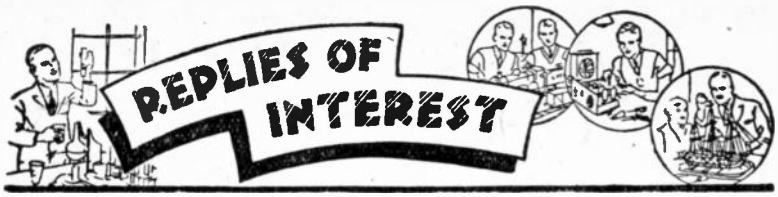
Adjust the float so that your baited hook is suspended about mid-water or between that and the bottom. Weight it so that the tip of the float is about ¼in. above the surface—you'll easily discover how many shot you want on the cast according to the size of the float used. Bait your hook well, throw in just above the spot where you suspect the fish to be lurking, and let it work down the 'swim' by gently paying out line from the reel. The best baits are well-scoured red worms (which should be kept in clean well-washed damp moss for a few days before use, to harden and 'scour' them) maggots, or grubs.

Remember, perch are unafraid of a bit of gut, so give a fish plenty of time when he 'bites'. The float will go 'bob, bob, bob', and dip under several times before going deep down; wait until it is disappearing well under before striking, to get the hook home in his hard mouth. Even small perch have large mouths and take a worm readily.

Paternoster and Ledger

The Paternoster tackle consists of the usual rod, reel, and line, but with a length of gut or nylon 2x strength on which there are two hooks, one fixed about 12ins. from the top of cast where the line is fastened, and the other about the same distance above the weight—a pear-shaped lead secured to the end of the gut-cast. This tackle can be baited with either live minnow or worms. Lower the baited tackle into a likely hole, allowing the lead to sink to the

(*Continued on page* 298)



Trouble with Crystal Set

I HAVE purchased a crystal set and can receive the Home Service all right, but when tuning in the Light Programme it is very faint and the Home Service is interfering with it. Can you tell me a way to cure this? (A.P.—Plumstead).

IT appears that the crystal set you have is insufficiently selective to tune sharply, and possibly insufficiently sensitive to receive other than the local station. Volume may be increased by using a really good aerial and earth, if those at present in use are poor. A long, high outdoor aerial is best; the earth lead should be taken to a metal object buried in damp soil. No really effective means of sharpening tuning exist without requiring modifications to the actual receiver itself. Such methods have been described in past issues of *Hobbies Weekly*. Some measure of improvement in sharpness of tuning can be obtained by wiring a small condenser in series with the aerial lead-in, but this will further reduce volume and can, therefore, only be done with success when signals are already amply loud. A further cause of poor volume might lie in the phones being of a type unsuitable for use with crystal sets.

* * *

Radio as Amplifier

RE your recent articles on making a magnetic recorder; I have constructed the mechanical gear for this machine, but knowing little of radio I am uncertain about the amplifier. I purchased a Cossor Melodymaker electric radio (old type) in working order, and would like to know if this set could be made into a suitable amplifier. It has extension L.S. sockets but no pick-up. I could design a new chassis if this is necessary. (R.M.—Durham).

THE manufacturer in question produced a variety of receivers, both battery and mains-operated, of various types, under the name mentioned. Because of this it is quite impossible to state whether the particular model you have would provide sufficient power and amplification for recording. Roughly three valves would be required in the *amplifier section* of the receiver. If the receiver is a superhet, frequency-changer and intermediate-frequency stages will be present—these will not serve any useful purpose in the amplifier. The rectifier may also be discounted. In view of this, if the receiver has less than about five or six valves, it may be insufficiently powerful. The actual amplification and power obtained can be ascertained by looking up the valve-type numbers in a valve list.

* * *

Painting over Creosote

I HAVE a wood hut which I wish to be in the same decorative colour as my house, but I understand that once the hut has been creosoted one cannot paint it. Kindly inform me whether this is correct, and if so, if there is anything I could use first to enable me to paint. (F.R.—Sutton-in-Craven).

THE ordinary paint of commerce does not take well to a creosoted surface, but if the surface is treated to a coat of glue size, and this is followed when the size is dry, by a coat of shellac or patent knotting, it is quite possible to paint over it with ordinary household paint. What we consider might be more economical if the colour is suitable, would be to use 'Macstet', which can be applied to any surface even a tarred one, without the previous treatment mentioned above, but it is only made in certain colours. If this appeals to you, write to the Devon Commercial Arts, Church Lane, Barnstaple—state colour required, and if suitable for creosoted work (which we think is the case). The colours supplied are buff, cream, pale green, white, brick red, French slate.

* * *

Adhesive

WHAT could I use to stick thin clear Cellophane to cardboard? (H.B.—Isleworth).

NONE of the common adhesives will make a joint between Cellophane and cardboard which cannot be forced apart. Commercially, joints are often stitched on a sewing machine. One of the cements with a pear-drop smell—Durofix or Sticktite—can be tried. Apply to both surfaces and leave to soften the Cellophane before pressing together. If the joints are only around the edges, use one of the transparent or coloured celluloid tapes, such as Sellotape.

* * *

Plastic Injector

I WOULD like to make a plastic injecting machine to use with lead moulds (soldiers, farm animals, etc.). I wonder if you could help me in any way. (R.C.—Biggar).

MAKING a plastic injector for moulding is probably beyond the scope of your facilities, unless you have a well-equipped workshop with machine tools. There is only one maker of a low price injector. This is B.R. Plastic Injector, made by The Small Power Machine Co. Ltd., 4 Sunleigh Parade, Alperton, Wembley, Middx. Write for details of the machine and moulds.

ABOUT FISHING FOR PERCH

(*Continued from page* 297)

bottom. Keep lifting the tackle every three or four minutes—without taking it right out of the water—to a fresh spot close by, thus searching every yard or so of the 'swim'. When a fish bites, give him plenty of time before striking. Let him 'run' with the bait after he has given two or three sharp tugs before you try to hook him.

When the water is coloured after rain, ledger tackle is often effective. Ledger tackle consists of the usual rod and line, with a length of gut or other substitute 2yds. to 3yds. long, and a round bullet with a hole through. This is held in position on the cast by a split-shot nipped on the gut immediately below the bullet. The hook, baited with worm, is allowed to lie close on the bottom of the stream. Give the fish time when he bites, which will be indicated by several sharp 'knocks' at the rod-top, and then you'll have him securely hooked. No float is required.

Whichever method you adopt you will find a sizeable perch as game a fish as any, providing plenty of fun. And when you get him into the landing-net and bring him to grass, he forms a picture calculated to call forth your admiration. Even fish of no larger than ¼lb. are plucky fighters.

Baits and Lures

General baits for perch include minnows, small bleak and gudgeon (when live-baiting), red and dew worms, brandlings, peeled shrimps, maggots, wasp grubs (in season), caddis grubs, live shrimps (which can be kept alive in damp sand or wet grass) and various kinds of larvae. The expert fisher who goes in for spinning uses a small bright spoon bait or an artificial minnow or wagtail. A tinselled 'fly' that glitters will also do the trick at times. When paternostering or float-fishing, do not stick at one spot too long, but move from place to place. Keep out of sight, for perch, though bold-biting, are also shy and sensitive. (488)

SCOUTS ON STAMPS

THE two new Jamaican stamps which have been issued to commemorate the First Caribbean Jamboree raise the question of the number of stamps having any connection with scouting which have been issued. Both the 2d. value and the 6d. indicate by the design the purpose for which they were issued. The map seen through the shape of the badge shows the scene of the Jamboree, while the map of the world on the higher value indicates the extent of the appeal of scouting.

The Start

A 'Scouting' collection of stamps would, if possible, start with the 3d. Mafeking Siege. During the Boer War the late Chief Scout, Lord Baden Powell, was in command of the force at Mafeking. At first, postage was paid by means of overprinting the words 'Mafeking Besieged' on the stamps of the Cape of Good Hope and also those of Bechuanaland, but during the 215 days of the siege the supply of these ran out, and the best that could be done was to print stamps in the town by a photographic process.

Not unnaturally, Baden Powell's portrait was chosen to adorn one of them, and Sgt.-Major Goodyear appeared on the other. And since it was Lord Baden Powell who founded scouting in 1908, a stamp bearing his portrait would be a fitting start to any characteristic collection.

In 1918 Czechoslovakia came into being. Formerly part of the Austro-Hungarian Monarchy it declared its independence on October 28th, and the first stamps were issued by the Revolutionary Committee of Prague. As scouts were used for the running of the posts the two stamps 10h. blue and 20h. red form most interesting mementoes.

Thailand used postage stamps to provide funds for her scout movement. In 1920 stamps were overprinted with a peculiar tiger's face and the words 'Scouts' Fund', the stamps in each case carrying a premium which went to the Wild Tiger Scouts' Fund. The tigers on these stamps are not very much better than those which appear on the early Afghanistan stamps.

A rather good picture of a scout comes to us on the two 1929 Russian stamps issued to commemorate the first All Russian Gathering of Scouts. The design is of a scout sounding the assembly.

The country which has issued more stamps in connection with scouting than any other is Roumania. She has issued sets on no less than eight different occasions, the first of which was in 1931 when five stamps appeared to assist the Roumanian Boy Scouts' Exhibition Fund. They were sold at double face value and such scenes as a Scouts' encampment, rescue work and recruiting are pictured. Probably the last two pictures explain why scouting takes such an important place in the designs of Roumanian postage stamps; they are of Prince Nicholas and King Charles II in Scoutmasters' uniforms.

A Scouting stamp from the United States

The 1937 Scouts' Badge stamp from Holland.

One of the 1918 Czech stamps distributed by Scouts

Roumanian stamp commemorating the 1932 Jamboree

Jamboree Set

The following year the set was for the Jamboree. Again the stamps were sold at double face value and the designs this time were scenes typical of camp life—semaphore signalling, tracking, cooking by the camp fire, and so on. These stamps were overprinted again for use the next year in aid of the Mamaia jamboree.

In 1935, a set was issued to commemorate the 5th anniversary of the accession of King Charles II. This time we see a scout saluting, a bugler, a colour party and a couple of scouts flanking the map of the country. These were not charity stamps and carried no premium; but in 1936 three stamps appeared for the purpose of raising funds for the Jamboree at Brasov, and badges formed the theme of the designs. They were the scout's badge, the tenderfoot badge and the badge of the town of Brasov. The 8th anniversary of the accession of King Charles II was the occasion for collecting money for the Boy Scout Fund, although the designs were not connected with the movement. The 9th and the 10th anniversaries also brought in money, St. George and the Dragon on the first and views on the next. It is rather surprising that a complete collection of the scout stamps of Roumania would give no less than 55 stamps and some of them would bear very characteristic scenes.

In 1937 the Netherlands and the Netherland Indies both brought out stamps for the scout jamboree. First there were the drummers and the scout tenderfoot badge, and two scouts appear on the Indies specimens. Lithuania raised money for scout and guide camps by overprinting the stamps issued for the First National Olympiad with a device so as to make them available for use in that capacity. Here you have the first mention of the guides as well as the scouts, but after this we shall find other stamps devoted to this cause.

Quick Dismissal

Turkey rather quickly dismissed the subject with one issue of a stamp

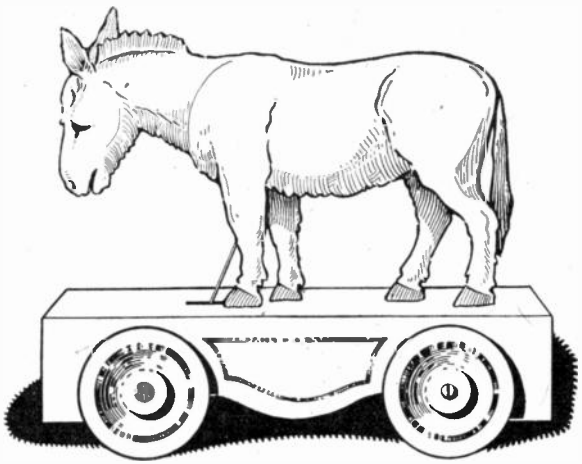
(*Continued on page* 300)

How to make

A 'NODDING DONKEY' TOY

THIS nodding donkey toy is of the well-tried variety which always seems to delight the young. Children, of course, love anything that moves, and the up and down motion of the donkey's head is bound to please them.

This attractive toy can be made with the help of this week's free Design Sheet No. 2962. A complete kit of necessary materials — wood, wheels, dowel rod, wire, etc., can be obtained from any Hobbies Branch, or post free from Hobbies Ltd., Dereham, Norfolk, price 10/1 including tax.



Eccentric Axle

The movement is imparted in the normal way with these toys—that is, by an eccentric axle and connecting rod which come into play when the toy is pulled along. Begin by making the base in its entirety, taking care with the front wheel assembly. It will be seen that whereas three of the wheels are merely screwed to the framework, the fourth (the left-hand front) has an axle running through the frame and connected to a circular piece on the underside of the toy. Details for making this assembly can be seen in the drawing on the design sheet, and the worker should have no difficulty.

When the base has been finished, proceed with the donkey itself. This is straightforward work. Note that the centre body piece consists, in fact, of three separate pieces—the head, chest and body.

Glue the centre body piece and the two outside pieces together. When dry, drill the holes for the two outer pieces where shown. These will take the pin on which the head piece moves. Do not fix the head, however, until the screw eye and connecting rod have been put in place and the rod connected to the disc on the underside of the chassis.

At this stage the mechanism can be tested by fitting the head temporarily with a suitable pin. When the action is satisfactory, the head can be permanently pivoted. The assembly can then be completed by gluing the chest piece into position.

Important

The most important job in making a toy of this kind is in its painting. First clean up the job thoroughly and apply a coat of good woodfiller. Then treat with one or two coats of undercoating and lightly glasspaper between each coat when dry. Finish the job with one or more coats of a good quality enamel.

Some workers may prefer to paint the donkey in its natural colours, but it will be found, generally speaking, that children prefer gay colours and would not be in the least perturbed if the donkey were bright yellow, with red ears and a green nose! When painting, be sure to avoid the connecting rod and working bearings or you may have trouble in making the toy work satisfactorily later.

Scouts on Stamps

(*Continued from page* 299)

showing a picture of buglers on the 1938 issue. Hungary, however, comes to the rescue of the guides with a set in 1939, the most characteristic design being the guides' salute, while another stamp of the set compares a girl in guide clothing with a girl in the national costume. This set is to commemorate the rally at Godollo.

Was ever the fascination of guiding better fostered than by the issue of the 1944 Health Stamp of New Zealand? Her Majesty Queen Elizabeth, as Princess Elizabeth, with Princess Margaret are seen in their uniforms, and this, no doubt, would be the first stamp to come to mind if asked to name some scout and guide stamps.

Of the more modern issues, the rather jolly picture of a scout from the Philippine Islands commemorates the 25th anniversary of the founding of Boy Scouts in the Islands. This was in 1948, and Australia, in the same year, has her Pan Pacific Jamboree stamp with the debatable thumb stick, and the United States has the portrait of Juliette Gordon Low on one of her numerous 3c. stamps. This lady is described as the 'Founder of the girl scouts of the U.S.A.'

In 1950 the United States had another 3c. stamp, this time to introduce, commemorate or propitiate the Boy Scouts of America, for one can find no other reason for it. One thing the stamp does do is show us the difference between the uniforms worn there and those worn here.

Well, there are other stamps—Japan for the Tokio Jamboree—and so on, and what a nice picture could be prepared for the club room if one had a nicely written up and framed exhibit of the scout stamps of the world. Many are to be found in the average collection and nearly all the others can be bought for a few pence. (450)

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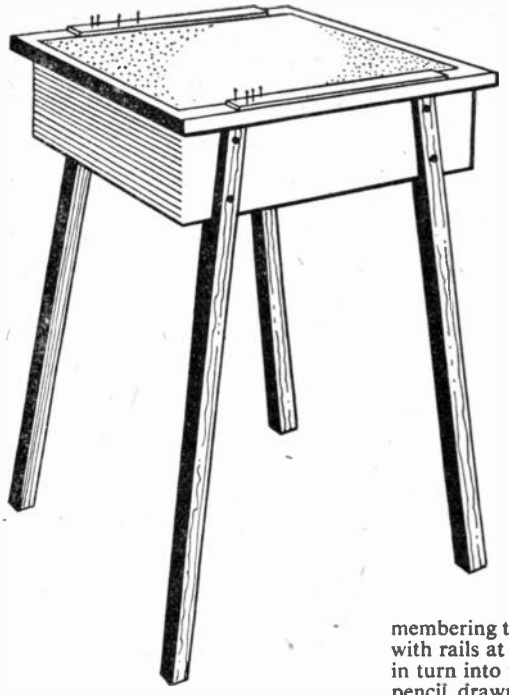
HANDY GAMES TABLE



THIS handy little table has been specially designed for games, such as draughts, cards and chess. It is of light construction for easy conveyance about the house or garden, and has a hinged top, which lifted reveals a commodious well beneath in which cards, draughtsmen, etc., can be held in safety. A scoring arrangement at the sides of the table top obviates any need for a separate scoreboard when such games as cribbage and dominoes are in force. Altogether, it is a worthwhile article of furniture for lovers of indoor games.

A side view of the table given in Fig. 1 gives dimensions and general ideas of the simple construction. It will be seen that no difficult joints are involved, and no cross rails which could be in the way of the player's feet. Apart from the top, the make up of the article involves only a box-like top, to which the legs are grooved in, and outwardly splayed, to add stability to the structure. Part of the box is shown in Fig. 2. It measures, as shown in Fig. 1, 1ft. 4ins. each way and is made up of ½in. thick deal of good quality. The corner joints suggested are of the simple but effective rebated pattern shown in detail (A).

After cutting the four sides, and don't forget that while two sides measure the full length, the other two will be ½in. shorter to make the square. Before nailing together, set out and cut the sloping grooves in two sides for the legs. The grooves are ¼in. deep and slope outwards, the slopes being gauged by setting out at 2½ins. in at the top, and 2ins. in at the bottom, as shown in Fig. 1. Now glue and nail the sides together, and screw on a bottom to the box of plywood. When the glue is hard, punch the nails down and stop the holes up level. Give the box a good glasspapering at this stage, then prepare the four legs.

These are cut from 1in. square wood; deal will do, but if stronger timber can be got—beech for example, all the better, remembering that the legs are not stiffened with rails at the lower ends. Fit each leg in turn into its groove, and mark with a pencil drawn across the bottom of the box the angle of cut for reducing the thickness of the legs to ¼in. where they lie in the grooves, as in detail (B). Prepare each leg separately, then glue in their respective grooves. Add a couple of round-headed brass screws to each to ensure a strong joint, and trim off the surplus corners rising above the box, also trim at the bottom ends to ensure the legs bedding flat to the floor.

For the table top, prepare a frame of ½in. by 1½in. timber to 1ft. 5ins. square, with halved corner joints, as at (C) in Fig. 3. Run a smoothing plane lightly over the face and edges of the frame, punch the nails down level, and then cover it with plywood. The latter is glued over, and a firm adhesion assured by driving in some panel pins all round. This is now covered with baize, or if dominoes is to be played, a good quality smooth surface American cloth, as dominoes cannot be shuffled on a cloth surface. The edges of the top are now to be covered with a lipping of wood, rather wider than is usual, not less than ½in. in fact.

The edges of the baize should be trimmed off level with a sharp knife to the table edges. The lipping should be as thick as the combined thicknesses of frame and plywood, etc., so when applied it will rise above the baize a trifle, say, $\frac{1}{16}$in. Mitre the corners and glue and nail the lipping to its edges. These nails should be punched down and stopped up level to be invisible

(*Continued on page* 302)

CUTTING LIST

Box sides (2).	1ft. 4ins. by 4ins. by ½in.
Box sides (2).	1ft. 3½ins. by 4ins. by ½in.
Box bottom.	1ft. 4ins. by 16ins. by ¼in. plywood.
Legs (4).	2ft. ½in. by 1in. by 1in.
Top frame (4).	1ft. 5ins. by 1½ins. by ½in.
Plywood top.	1ft. 5ins. by 17ins. by ¼in. plywood.
Lipping (4).	1ft. 6ins. by ½in. by ? (as measured).

One pair 1½in. brass butt hinges, and a hook and eye catch.

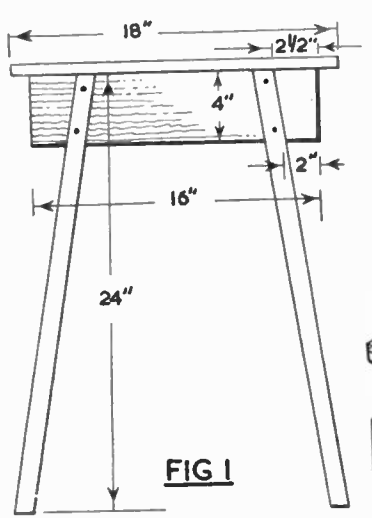


FIG 1

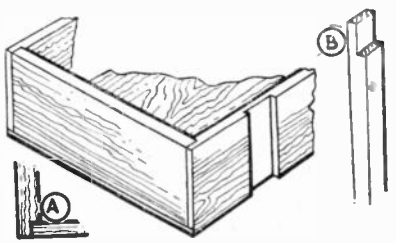


FIG 2

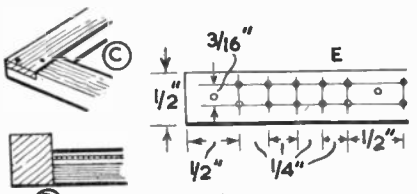


FIG 3

A straightforward means of
PHOTOGRAPH COPYING

PHOTOGRAPH copying is often regarded by the amateur photographer as entirely beyond his capabilities. Special apparatus such as double extension cameras are, of course, desirable for this work, but at the same time they are by no means essential.

Most amateur photographers possess an adjustable enlarger which can be quickly and easily modified to make an excellent and efficient copy-camera.

Important Requirement

The most important requirement is the provision of a suitable baseboard with an even and shadow free source of illumination. Fig. 1 illustrates a simple

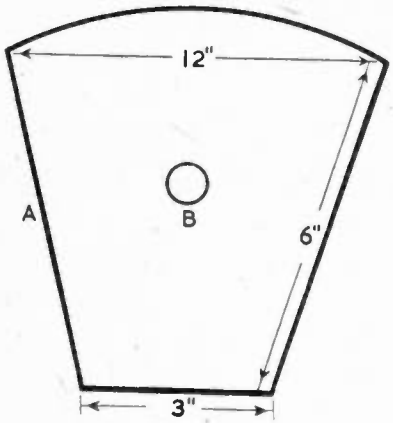


FIG 2

and efficient baseboard. The size is approximately 15ins. square, and four 25 watt gas-filled bulbs provide the light. The bulbs are wired in parallel, one at each corner of the baseboard as shown.

The four reflectors (A, Fig. 1) can be constructed from thin white cardboard from a blank as shown in Fig. 2. The blank is carefully curved into the required shape and is glued along the edge (A, Fig. 2).

The dimensions shown are approximately correct and the hole provided (B, Fig. 2) is for attaching the reflector to the bulb holder.

To copy a photograph, a piece of white card or paper the exact size of the photograph is placed on the baseboard beneath the enlarger. A clear and sharp negative is then placed in the enlarger and the enlarger light switched on. The negative is then carefully focused so as to completely cover the card. Should it not cover the card, part of the photograph will be cut off, so care must be taken to avoid this happening. There is no objection to the focused negative being slightly larger than the card. The only result will be a smaller copy negative.

When the focusing is complete, the enlarger light is switched off and the white card removed. The photograph to be copied is then placed in the exact position as that formerly taken by the white card. Should the photograph tend to curl, a sheet of clear glass placed over it will correct the tendency.

A strip of sensitized photographic film is next placed in the enlarger negative carrier and the entire top part of the enlarger covered with a thick cloth to prevent any extraneous light from reaching the sensitized film. Particular attention should be given around the negative carrier, as this is the point where fogging of the negative can occur. All these and subsequent operations are, of course, carried out in darkness; the only illumination being that provided by the darkroom safelight.

For all ordinary purposes, orthochromatic medium or fine grain film is perfectly satisfactory, but should the original photograph be much faded, then a panchromatic film is to be preferred.

In the case of very badly faded photographs in which the details are indistinct, much improvement can be

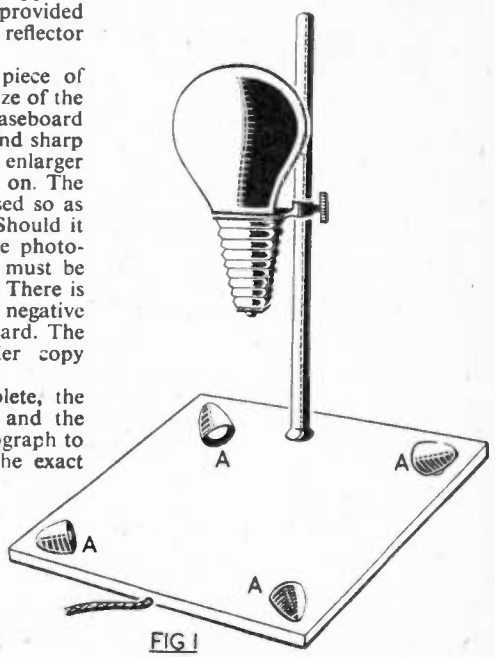


FIG 1

gained by thoroughly wetting the print in water prior to copying. The print can, of course, be safely dried again after copying.

When all is ready, the exposure is made. This is of quite short duration, one or two seconds being usually sufficient.

After Exposure

Upon exposure, the film is removed and developed in the usual way, using a fine grain developer such as borax to prevent any undue formation of grain.

Copies from the 'master' negative may be taken by contact printing or enlargement as desired. (426)

HANDY GAMES TABLE

(*Continued from page* 301)

afterwards. The whole article is finally cleaned up, then the table top is hinged to the box, to open as a lid when access to the games within becomes necessary.

The table should be stained oak or walnut colour, then given two coats of brown hard spirit varnish or clear lacquer, as preferred. Be careful to avoid getting any stain or varnish on the baize by laying a strip of tin along the edge inside when using the brush, in fact, it might be as well to stain and varnish before gluing the baize, only it is more difficult to get such a good fit for the material afterwards.

Readers who require the scoring arrangement can fit this by the following simple method. Cut some ¼in. wood (hardwood) ½in. wide and about 10ins. long, two being needed. Run gauge lines down each, ⅜in. apart, and divide off as in detail sketch (E). At the spots marked make tiny holes with an awl. Clear varnish these, and screw down to the top of the lipping on opposite sides. Now drill the peg holes on the awl marks, deep enough to hold the pegs without fear of them falling out. Of course, scoring can be done, using the usual score board if the additional work involved is considered troublesome, but there is not so much room on any card table but that a board is not slightly at least in the way, and sometimes gets knocked off with a player's elbow, and then out go the pegs. (487)

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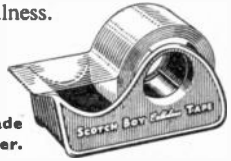

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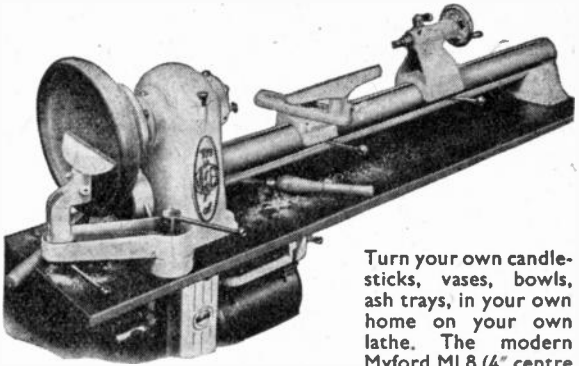

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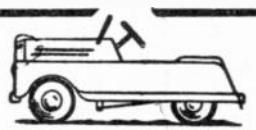

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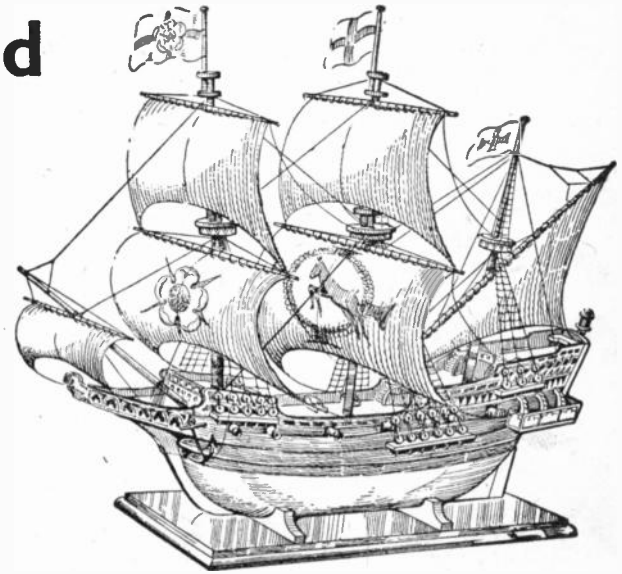

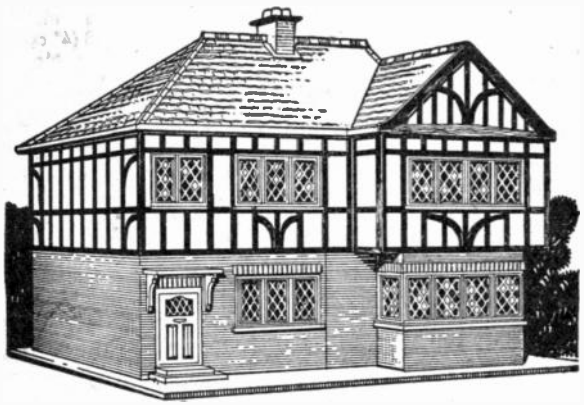

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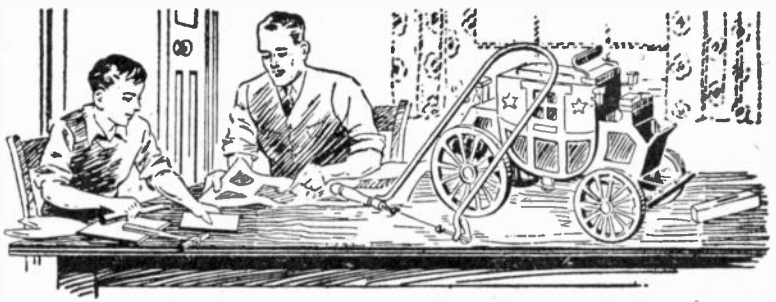

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