

Hobbies

WEEKLY

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For playing "shops" or a money box you should make A CHECK TILL

MOST readers are acquainted with the check till, seen in so many shops. Here is a working model of one, which has several uses. It can be used as a toy by children playing at "shops" and also as a money box to encourage thrift. It has also its uses to older people in the home, providing a check on family expenditure. Though of reduced size, as becomes a model, it is quite large enough for practical purposes.

A sectional view is given in Fig. 1,

which will explain how it works. Two rollers, A and B, are seen, on which a roll of paper is wound, passing over a board C. A small aperture is left in the lid of the till through which the amounts entered or subtracted can be written down. As the drawer is opened, the roller B draws the latest entry on the paper under the glass panel in the lid.

Construction is entirely in $\frac{3}{8}$ in. thick deal and $\frac{1}{4}$ in. fretwood. The box, or case if you like, is shown in Fig. 2. This is made of the $\frac{3}{8}$ in. deal to the dimensions given. Note that the front end of the

box is shortened to leave a space for the drawer.

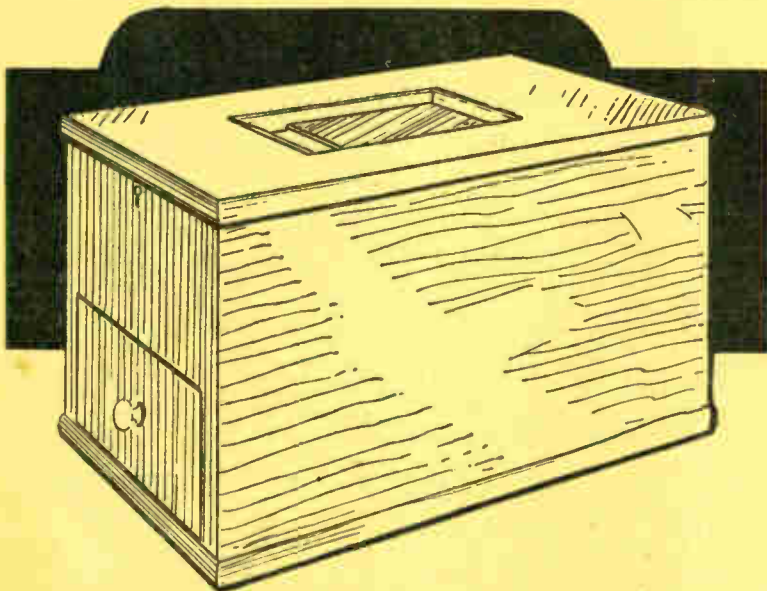
The rear end is full-size, of course. Make the bottom $\frac{1}{8}$ in. larger all round, so that the edges can be nicely rounded off. Fit strongly together with glue and nails, and when the glue is set hard, slightly round off the sharp angles at the corners.

The Drawer

The drawer, which holds the cash, is drawn in Fig. 3. Make the front of the $\frac{3}{8}$ in. wood and the remainder of the $\frac{1}{4}$ in. fretwood. For neatness, the sides can be rebated in the front. The bottom is fitted inside and nailed there through both sides and front. The divisions are cut $\frac{1}{8}$ in. less than the depth of the drawer and nailed across. Punch the nails down a little and glasspaper the sides of the drawer to make it a smooth sliding fit in the box. A small knob can be fitted to the front for drawing it out. Give both box and drawer a good glasspapering at this stage and slightly round off the sharp side edges of the drawer to match the rest.

From $\frac{1}{2}$ in. fretwood cut two pieces to size D in Fig. 4. Run a pencil line down the centre, as shown by the dash and dot line in the diagram, and at $1\frac{1}{8}$ ins. from each end and on the line, bore $\frac{3}{8}$ in. holes. At the top, cut out the part shown. In this the cross board C will fit. Now saw the parts across, making one $1\frac{1}{2}$ ins. wide and the other $\frac{1}{8}$ in.

A slight loss will occur here, but if a fine fretsaw is used this will not matter much. It might be as well, perhaps, to



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allow for this by making the part, say, $\frac{1}{8}$ in. wider when first cutting out. The holes in the lower halves should be sawn out to the edge to make slats for the spindles of the rollers to rest in. These lower halves are now glued inside the box, one each side, just above the drawer.

The cross piece C is cut to size, its long side edges, over which the paper passes, being rounded off and made glass smooth. Fit the upper halves of parts D in the box, one each side, and

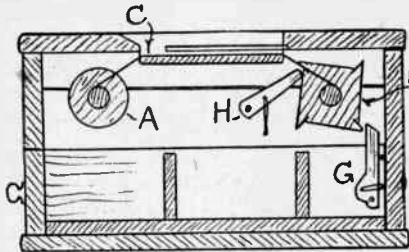


Fig. 1—Section showing mechanism

nail part C across. The whole of the upper part can now be lifted out when it is necessary to refit a fresh roll of paper, no glue or nails being used except to fix part C across, as just mentioned.

For the spindles of the rollers, cut two lengths of $\frac{3}{8}$ in. round wood rod to length given at D1, Fig. 5. Discs for these must be cut in $\frac{1}{4}$ in. fretwood. Cut three of E and one of F. The discs E are bored $\frac{3}{8}$ in. to fit on the spindles. The one at F is marked out on the fretwood in this way. Strike the two dotted circles, then divide into four equal parts.

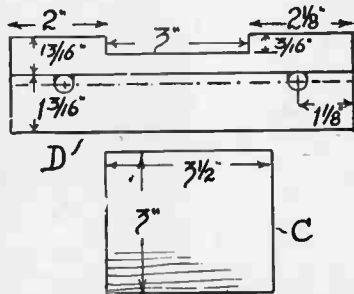


Fig. 4—Detail of sides and cross piece

The teeth can be drawn from one part to another, the lines just touching the inner circle each time. Saw carefully out and bore a $\frac{3}{8}$ in. hole for the spindle exactly in the centre.

Smooth Working

Glue the discs on their spindles, the one marked F on the left of what will be the rear roller. They should be just 3 ins. apart, outside measurement, as at D. In fact, a shade less for an easy fitting. Now lift out the upper half of side parts D and drop the rollers in place. They must work smoothly—a little glasspapering will help here.

From scraps of the $\frac{1}{4}$ in. fretwood cut one of pawl H, and one of catch pin G. The latter is fitted to the left-side of the drawer in the position shown in Fig. 1. It is important to see it extends above

the drawer $\frac{3}{8}$ in. and that it is placed far back enough for it, when drawn forward, to sink just below the top edge of the drawer, and so allow the latter to be drawn right out on occasion.

The Catch

Fit it in with a round-headed brass screw, and place a thin washer between it and the drawer side. A small nail or hook is driven in where shown and

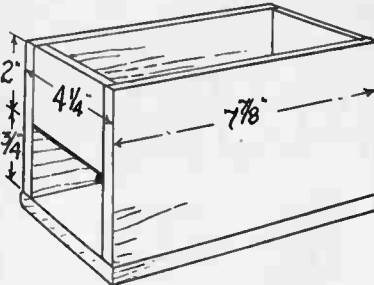


Fig. 2—The box frame without lid

a similar nail or hook just behind it, an elastic band stretched across the two keeping the catch back. A little higher up, behind the catch, a pin is driven in against which the catch will rest.

The action should be tested now, and if fitted correctly will drive disc F, and of course its roller, a quarter revolution forward. Get this right. To prevent the roller turning the wrong way, the pawl, H, is fitted at the spot shown in Fig. 1, a small elastic band keeping it pressed against the disc, just behind the nearest tooth.

Now roll a length of paper on to roller A. Pass it over C and then pin it to the roller B. A drawing pin will do this.

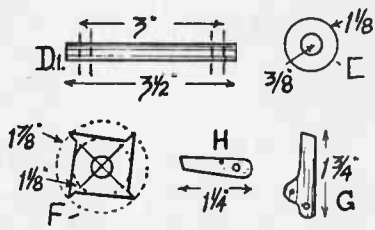


Fig. 5—Parts forming the mechanism

If all works OK, as the drawer is drawn out the paper will jerk about $\frac{3}{8}$ in. forward and repeat this each time the drawer is so opened.

If there is a tendency for the paper to become loose a little on roller A, a disc of thin velvet, or similar material, can be glued to one disc of roller A, and provide a kind of friction brake. Now to make the lid.

A plan view of this is shown at Fig. 6. It is cut to dimensions given from $\frac{3}{8}$ in. deal. At the distance from the fore end

given, saw out the opening. The top edges of this at sides and ends are rounded off a little; the fore edge is sharply bevelled down for a width of $\frac{1}{2}$ in. The sectional edge views show this. A glass window, or one of rhodoid or celluloid, if you like, is cut $2\frac{1}{2}$ ins. long and $2\frac{1}{2}$ ins. wide and inserted in the opening underneath, a suitable recess or rebate being worked round the edges for the purpose.

Rhodoid or celluloid could be nailed in place, glass could be cemented in or kept in position with strips of thin brass

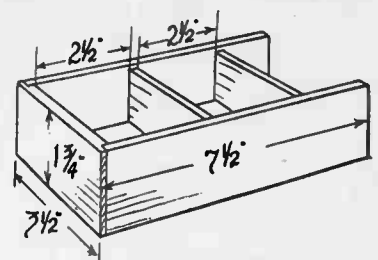


Fig. 3—The partitioned drawer

or tinplate nailed each side, as shown by the dotted lines. Now round off a little the outside edges of the lid and hinge it to the box. A lock can be added, or, as the till is only for play or family use, a simple hook and eye fastener.

Interior Bell

This completes the till. It should be stained mahogany colour for preference, and varnished. Suitable paper rolls for it can be made by buying a roll of plain shelf paper from the stationers and cutting it into 2 ins. wide slices. Any difficulty here; the paper could be cut into long strips of that width and then rolled up.

It is not thought necessary to provide an interior bell to ring when the drawer

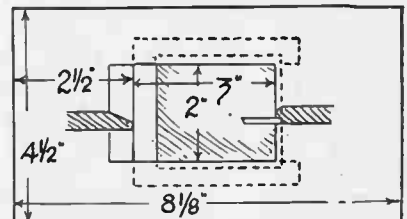


Fig. 6—Plan view of lid

is opened as the commercial type of till does. It seems an unnecessary refinement and a suitably small bell might be hard to obtain, in any case the absence of a strong lock may cause comment. It may be added here that the till is for home use and amusement and if any evil minded persons outside attempted to open the drawer for purposes of petty theft, they would not be deterred by a lock, but might well walk off with the till complete.

It is perhaps necessary to add that any amounts placed in, or taken out, should be entered on the roll beforehand, otherwise a blank space will be left on the roll. Also, for the same purpose, should it be desired to open the drawer to get change, remember to write 'change' on the roll before opening the drawer.

Kent County Committee of Citizen's Advice Bureau invite entries for a poster. Entry forms obtainable from any Citizen's Advice Bureau or Public Library in Kent. Posters to be sent, not later than Aug. 31st, to Hon. Secretary, Public Library, Rochester, Kent.

The home handyman will find delight in making this BEDSIDE CABINET

THOSE readers who may own, or can purchase, a few feet of deal or panels of plywood, $\frac{3}{8}$ in. thick and 11 ins. wide, may care to construct the cabinet, illustrated. It is designed for use in a bedroom, and if not wanted as a cabinet would serve equally well as a bedside table. As seen in the illustration, the design is quite plain but makes a handsome article if nicely finished. The work is simple enough, but care should be taken over the corner joints, to ensure strength and the neat rounded finish at the top and bottom.

Carcase Work

At Fig. 1 is a front and side view, the latter a sectional one. Cut the sides, top and bottom, the sides being $\frac{1}{2}$ in. less in length than the dimensions given to make the cabinet of the size stated. The corner joints are shown in details A, in Fig. 2, and need careful marking out and sawing, as they must be a tight fit, the subsequent appearance depending much on it. The ends are rebated $\frac{1}{4}$ in. by $\frac{3}{8}$ in., the latter being the depth of the rebate. The top and bottom are grooved for the tongues in the sides to fit nicely in, the grooves being $\frac{1}{4}$ in. by $\frac{1}{4}$ in. and spaced $\frac{3}{8}$ in. from the end edges.

Having cut and fitted the joints, cut the back piece, and see this is square across each end. All being well, glue the lot together, and nail the back as well. Use no nails in the corner joints, if at all avoidable. With good glue, and close joints, nails should not be necessary. Lay a board across the top, and place anything heavy you have over the board. Let it stand for about 24 hours to allow the glue to harden before proceeding further.

The next stage in the work is to round off the corners, as at B. A good rasping will do this as well as anything, finishing off with a thorough glasspapering, until a smooth surface is obtained. Inside the

carcase screw two fillets, as seen in the sectional view, for the shelf to be fixed to. These should be $\frac{3}{4}$ in. short of the full depth of the cabinet to allow the door space to fit in.

The Door

The door is a plain piece of the board, cut to the size of the opening. It is well glasspapered, especially the cross-grained edges, and at the back of it two 1 in. by $\frac{3}{8}$ in. battens are screwed.

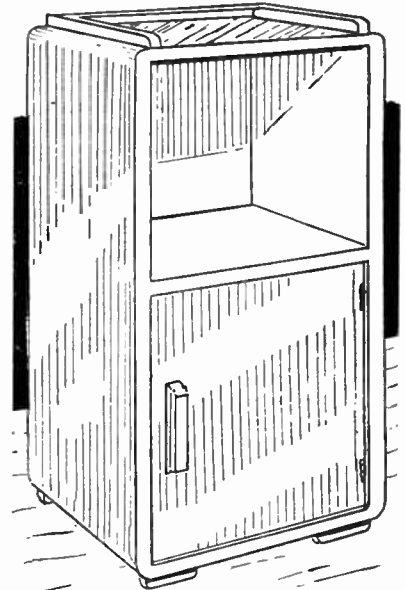
Note the top batten here is a full 1 in. below the edge, to clear the fillets, as seen in the drawing. The front edges of these should be bevelled off for neatness. Fit the door in with $1\frac{1}{2}$ in. brass butt hinges, recessing the hinges quite level in the door edge. Fit the door in just $\frac{1}{8}$ in. short of the front, to break the otherwise flat appearance.

The handle of the door, D, in Fig. 3, is a strip of wood $\frac{1}{2}$ in. by $\frac{3}{8}$ in. bevelled at each end, and with a simple groove ploughed each long side to provide a better grip. In the absence of a more convenient tool to do this, a screw, driven into a block of wood, and with its head projecting, say, $\frac{1}{4}$ in. can be used for the purpose, a tip most readers know. Fix the handle with two screws from the inside of the door. One of the cabinet ball fasteners could be added to hold the door in when closed.

Feet

Four feet are to be added to raise the cabinet from the floor. These are cut from spare pieces of the board to size given at C, and are fitted underneath with screws.

Let them be $\frac{1}{8}$ in. from the edges, back and front, and see the screws are well countersunk to not



scratch the floor. Three rim strips of $\frac{1}{2}$ in. by $\frac{3}{8}$ in. wood are prepared. These are to be nailed and glued to the top of the cabinet, just where shown at E. The front edges are neatly rounded off of the side strips, and the back ends are mitred to the back strip.

The nails should now be punched down, and the holes stopped with plastic wood. Then a final glasspapering should be given, using fine grade, to leave a smooth and glossy surface. Over this apply a first coat of red priming colour. When dry, and don't be in too much of a hurry, rub lightly over with a piece of worn glasspaper, and dust off.

Finish

A second coat of paint should be applied, and here it is advisable to use the undercoating recommended by the makers of the particular enamel you intend to use as a finish. Let this dry, then, in a warm room, free from dust, lay on a coat of good quality enamel.

A pleasing effect can be obtained, if the feet and handle of the cabinet can be coloured differently to the rest. The back of the cabinet should be treated the same as the rest. The colour, is naturally, a matter of choice, but any of the modern pastel shades would result in a handsome appearance if care is taken in preparing the undercoat.

Slow Plaster of Paris

WHEN using plaster of paris, moisten with vinegar instead of water. With vinegar it makes a putty-like paste which will not harden for about half an hour, and can be easily smoothed.

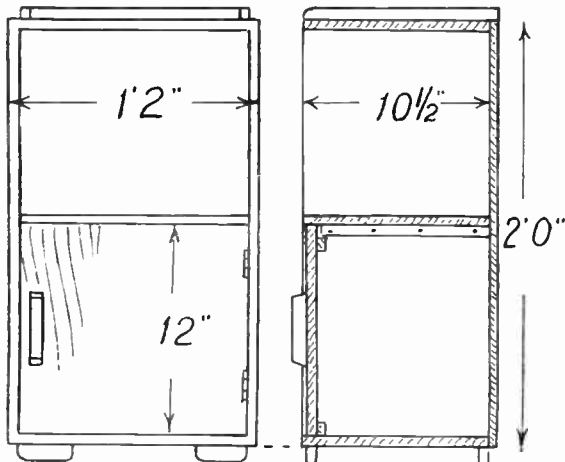


Fig. 1—Front and side section of carcase

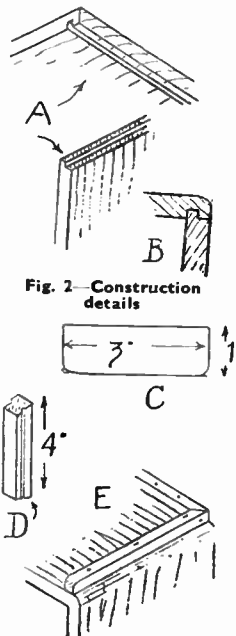


Fig. 2—Handle and feet

Some worth-while hints on BREAKING CAMP

A LOT is written about getting ready to go to camp, and being at camp, but not so much about breaking camp. Yet it is just as important that this part of the holiday should be carried out with a well-organised system as any other part.

Breaking camp properly means that you leave a good impression behind on the owner of the land and that your own gear will be in first-rate condition for the next time. It also prevents things being "lost at camp" which often comes about by rushed and careless getting away.

"Striking camp" is a real function of the alfresco life and if done perfectly can be very interesting in itself. Suppose now that the time has come to leave. The first thing to do is to pack personal gear and blankets. So that the blanket may be quite dry when stowed away in the kit-bags, striking should not be done till the morning dew has cleared right away. Indeed, midday or early afternoon on a normally warm day is the best time.

Clean "Irons"

With the personal gear should go away all plates, knives, forks, spoons and cups; which must be well cleaned before packing. There is nothing nastier than digging out, perhaps, weeks later, a fork that has not been properly cleared of fat.

The first two things, then, are the packing into the kit-bag good dry blankets and scrupulously clean feeding gear. The packing of the kit-bags then continues until everything to the last boot brush is stowed away.

All this time the tent or tents still stand and the fire burns on. All personal equipment now being in definite bundles, bags, haversacks, etc., these are all taken and stacked just off the camp site so you may have a clear space for dropping the tents, cleaning the ground, etc.

Again, if the day is warm and the morning dews well dispersed, the tent will be quite dry and need not be removed from its bag on arrival home. Hence the importance of striking camp at the right part of the day. With plenty of room at our disposal, the dropping and packing can be perfectly done.

Laying the Tent

With a ridge tent or even a patrol type the correct way is for a person to stand at each pole—all the guys bar the two main ones being undone and the ropes rolled round the runners. The main guys are then shaken clear, the tent is raised a little and swung sharply down on to its side on the grass, as one might do a banner. This, it will be found, automatically flattens out the canvas—which is essential to good rolling.

The actual packing depends on the kind of tent, but in the patrol type the

ends are normally folded in and the canvas then made into a strip by bending over twice at about third divisions. Rolling is then from one end of the strip and is tightly done. When in the bags, put with the other gear off the camp site.

Cleaning the Ground

The ground is now clear of tents and equipment, but there is still much to do. Cleaning the pitch comes next. To do this, you cannot beat the old army method of several of you standing along one edge of the ground and then walking slowly forward in line across to the other side, each picking up every scrap of paper, matchstick or scrap of food (or, indeed, anything that should not be there) that comes in your strip. Thus the ground can be made scrupulously clean and any small items, which might otherwise be lost in the grass, will be found.

All the bits picked up are taken to the fire, which is still kept smouldering, and burnt. The ground around the fireplace itself is now cleaned, all small chips of wood, half-charred bits, etc., being thrown on and burnt.

Where to Bury

While one member is doing this, others should be disposing of any old tins or other items that will not burn, by burying them well out of the way. A good place is under a hedge; where they will not later be dug up by the hooves of cattle. If you have had a grease sump, this should now be filled, also any temporary latrine, and any other earth disturbance you may have caused.

The striking is now complete except for dealing with the fire. This is an important finality. Let it, as far as time will permit, burn itself down to a fine ash. If the camp has been small and short and you removed some turf to make the grate, this can now be carefully replaced and it will hardly be noticeable where the fire has been.

Final Clearance

If the camp has been longer, the fire area will have spread, but much can be done to obscure the burnt pitch by carefully-placed sods which will root and be growing within a week.

All is now ready to push off. It has been well-ordered and systematic and you should be leaving a pitch that will not annoy the farmer, for he is sure to come round to see what state his ground has been left in. A clean ground pleases, but one littered with paper, tins and ends of loaves can leave a resentment in the owner's mind that it takes many subsequent careful campers to eradicate—that is if he ever lets his land again.

A cheerful farewell now will undoubtedly lead to an equally cheerful welcome if you want to come again another time.

Tiled Fireplace

I AM going to have a try at making a tiled fireplace. Should I use ordinary cement and soft sand? (T.G.—Enfield Lock).

A METHOD of fixing these tiled slabs is as follows. Lay the tiles, face downwards on a flat surface, arranging them around a wooden frame the size of the grate opening. Then remove tiles and soak them in water overnight. In the morning re-arrange the tiles as before and nail strips of wood round to keep them in position. Mix Portland cement and water to a creamy consistency, and pour it over the tiles, forcing it into the joints and crevices with a brush. When set, cover with a cement mortar made with one part cement to two parts sand. Apply a thickness of about $\frac{1}{4}$ in., then lay on top either expanded metal or $3/16$ in. iron bars as reinforcements. Leave for a day or so, then apply a second coat of the cement mortar. When set, lift off the wooden floor and cover with a damp piece of sacking for a week or more.

Removing Heat Marks

THE other day I had the misfortune to place a warm plate on a polished table, which left an almost white mark. I tried to remove this with amateur french polish, and it has left an uneven surface, as though the wood has risen in the grain, and it is quite rough. It is also a lot darker than the rest of the surface. I should be much obliged to receive your advice on this matter. (A.R.—Morecambe).

FOR the mark on your table, try the following remedy. Apply over the stained portion, with a camel-hair brush, a solution of oxalic acid in warm water. This acts very quickly and should lighten at least the dark patch. Swill off with brown vinegar to kill any acid remaining. If the wood is still rough, rub it over with medium glasspaper. Dust off, and when quite dry, repolish the stripped area. This may prove effective, otherwise you will have to scrape the whole surface of the table and repolish the lot.

If you have any heat marks in the future, try removing them with warm camphorated oil on a clean rag, rubbing very lightly. Then rub again with a second rag sprinkled with a few drops of spirits of camphor.

An Electric Horn

IS it possible to make an electric motor horn (6V.) from an earphone and electric bell, to work off a 6 volt dynamo? (H.B.—Skegness).

AN electric horn consumes quite a high current, the pole of a strong magnet being arranged near the centre of a diaphragm so the latter vibrates, and the parts you have would not prove very suitable. Much more powerful magnets and a larger diaphragm are necessary, as the horn would be useless unless the sound it produced were amply loud. You do not say what type of dynamo is in mind, but if the idea was to fit an electric horn on a cycle, it must not be overlooked that the usual cycle-dynamo does not generate anything like the current necessary.

Some odd pieces of wood and colour paint can make these QUAINT HANGERS

HERE are some novel kinds of clothes pegs and coat hangers to make for the young people and so satisfy that urge they nearly all have for something which is their very own.

Fig. 1 shows a comic face clothes peg, the nose forming the peg, from which can be hung a coat or cap. The face, of course, can be made any size, but it should not be too small. About 6ins. from ear to ear is suitable, which makes

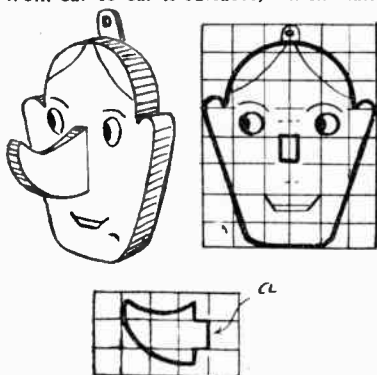


Fig. 1—A face and nose on lin. squares, with completed article

the total height, including the hook on top about 8ins.

To allow fairly rough treatment the block and nose must be sturdy, and to this end $\frac{3}{4}$ in. thick material is used for the face itself and $\frac{1}{2}$ in. plywood for the nose.

The two parts are held by a tight-fitting inset joint, as shown. If the rectangular opening in the face (which is $\frac{1}{2}$ in. by $\frac{1}{2}$ in.) is cut out with some care and the projection (a) on the nose taken down till it just fits, glue is all that is necessary to make a very firm job. The depth of the nose at the end is 2ins. to give a good bearing surface on the block.

As to colouring, enamel paints are the best for this, as youngsters invariably like bright hues. A clown effect can be given by first applying a coat of white and then working up the cheeks, lips and nose with bright red. Eye-brows and hair should then be black, also the pupils of the eyes.

This finish makes a very bright and

Cycle Freewheel Hint

AS a useful hint when a cycle freewheel gets clogged and will not catch, a few drops of paraffin put inside the freewheel will often overcome the trouble and save expense.

comical face. The main thing about the colouring is that the painting must be done with certainty. Any suggestion of daubing is fatal to success. A coat of good varnish gives the completed article a brighter appearance still.

This type of clothes peg lends itself to numerous variations and the reader will probably be able to think out ideas for himself. An elephant's face could be outlined, a firmly-fixed trunk forming the peg, or the block could represent a pig, an upturned snout being the extension in this case.

In all designs the block is finished with a brass hanger which screws on to the top back and which can be obtained in any hardware stores.

A Simple Plane

As well as clothes pegs, "Kiddies own" coat hangers can be readily made. These lend themselves to a wide choice of designs, typical examples being shown in Figs. 2 and 3. Fig. 2 is an aeroplane of no particular kind, the wings of which form the bow over which the shoulders of the coat goes. Again, the aim must be for sturdiness and the wings and body are brought together and permanently and rigidly fixed with a good half-joint held by glue and two or three small screws.

The measurement of the wings from tip to tip in the case of very tiny folk can be taken from the coat it will have to hold, but for rather bigger people but still small, about

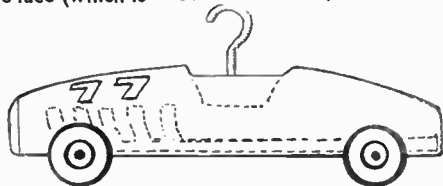


Fig. 3—The racing car type, with hook

1ft. across is a good width.

Wings and Propeller

The wings are made of $\frac{1}{2}$ in. ply, while the body is of a similar ordinary strip. The tail plane is about a quarter the width of the main plane and again is recessed into the body. A tough short piece of wood can be put across the top of the body to represent a propeller and if short this will not catch in the coat. The hanger is suspended by an ordinary large-sized screw hook which must reach far enough into the wood to give a good grip and stand a fair weight.

Colouring is grey with circles of two differing hues on the wing tips. A full red, white and blue design could be put here, but two colours are quite enough

to give relief to the hanger and suggest national colours. If desired, the projecting end in front of the wings can be coloured in a contrasting tint to suggest an engine.

A Racing Car

Fig. 3 shows a racing car hanger. Here the upper edge of the car, bonnet and back is cut in one sweeping curve, although no car is quite like this. The wheels are cut out separately from this and attached with small screws and glue.

Plywood, $\frac{1}{2}$ in. thick is again used and a screw hook with a fairly long shank must be employed, as it has to come up from the curved section which represents the driver's seat. Colouring here is important. Red is good, but any bright paint will do. The main thing is that the tyres must be picked out in white and the number put in with some other strong colour.

Anyone with artistic ability might like to suggest a big exhaust pipe coming from the bonnet and going down the full length of the side as they do in racing cars. Also other items which are found in these speed machines. But a quite good effect can be secured without this finer finish, given that the colouring is

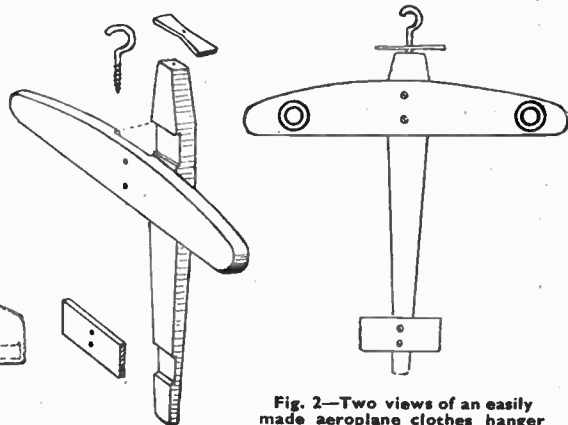


Fig. 2—Two views of an easily made aeroplane clothes hanger

strong and the outlines of the tyres, number and other things clear and well-defined.

As will be readily seen, a really wide range of coat hangers of this kind could be made, providing the top edge is a sweeping curve to conform with the standard "coat hanger" shape. This can be secured in animal and other scenes where the actual shape would not give it, by placing the items against a background of trees so outlined.

To anyone with a real gift for painting this idea of a scene painted before trees holds out great possibilities, as it is possible to put in pictures suited to the very young or rather older and to differentiate between hangers for boys and those for girls.

A device by which Clockwork Railways can be fitted with AUTOMATIC SIGNALS

AUTOMATIC electrical signalling, whereby an approaching train may be made to operate its own signals is easy to instal on clockwork railways. The electric power is obtained from ordinary flash-lamp or cycle-lamp batteries.

The home signal, the construction of which was dealt with in an earlier article of this series (January 19th), can be electrically

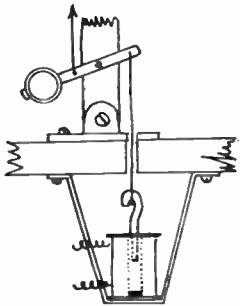


Fig. 1—Solenoid mounting

operated by means of a simple solenoid, the construction of which was dealt with in the last article; the size and amount of wire to be used for winding it being, however, slightly different.

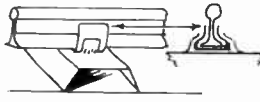


Fig. 2—A track circuit

From this arm, a thin rod of No. 24 S.W.G. bare copper wire extends to, and is looped round the piece of 4in. nail which does duty for a core or armature.

The solenoid is secured in place by a piece of "U"-shaped flat brass strip and is screwed up to the underside of the baseboard, through which a small hole is drilled to allow the operating wire to pass.

The Track-Circuit

This is shown in Fig. 2, where it will be

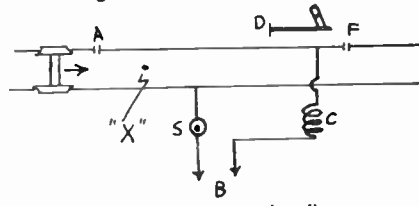


Fig. 3—Stop and start action diagram

seen that a section of track is treated so that the near-side rail is not in electrical connection with the off-side. The electrical circuit between the two is only completed via the wheels and axles of vehicles entering the track-circuited section which is incidentally placed immediately in advance of the signal it is desired that the trains operate.

Electric Signal Motor

If the solenoid bobbin is made as already described, but wound with about 250 turns of No. 30 S.W.G. enamelled or cotton-covered wire, it will be of sufficiently high electrical resistance, so to limit the flow of current from the battery, that the signal may remain in the "off" position for fairly long periods without undue drain on the dry-cell.

It will be seen from Fig. 1 that the solenoid is mounted vertically under the baseboard immediately underneath the tail-end of the counterweight arm.

If scale (chaired and wooden-sleepered) track is being used, it will only be necessary to remove the fish plates at either end of the rail on one side of the track-circuited section. In the case of tin-plate track, however, one of the rails along one side of the section must be removed from the metal sleepers and re-inserted after being wrapped round with small pieces of visiting-card. Thus there is no connection electrically between the iso-

lated length of rail and the metal sleepers carrying it (see Fig. 2).

The electrical circuit necessary to bring about automatic operation, is shown in Fig. 3. It will be seen that as the approaching train (engine) enters the track-circuited section at A, its wheels and axles complete the electrical circuit from the battery, the on/off switch, E to the solenoid, C, and so back to the battery; thereby lowering the signal arm, D.

On the train arriving at point, F, as its last vehicle clears the gap, the circuit is broken, and the signal returns to danger by its own counterweight—which should be slightly heavier than the moving parts of the solenoid.

To ensure successful operation, the signal must work freely, and the operating wire must pass through the baseboard by a sufficiently large hole to ensure such freedom is obtained.

Stop-and-Start

Should it be desired, this signal operator may be used in conjunction with the electric start and stop device described in the last article. In which case, by opening the switch, E, Fig. 3, the auto signal will not operate and the train should be brought to a standstill by means of the stop-catch.

On the lowering of the signal (by switching 'on') the train may be started by releasing the electrically-operated track brake, as previously described, which should be set in the track slightly ahead of the point, A, Fig. 3, where its position is marked with an "X".

Odds and Ends—(Continued from page 247)

parts which may be liable to damage in use by the youngster.

Those who have the Hobbies Handbook should go through its pages of designs with a view to using some of the parts of the patterns there, in conjunction with the odd pieces with which we are dealing. Many of the fretwork designs have features which can be readily cut out, apart from their main need in the complete fretwork design.

Attractive Figures

For instance, you have figurework shown in Dutch money box, perpetual calendars, weatherhouses, etc. These little figures can be cut out from the design itself and used as attractive little stand statuettes on their own. The picture of Cupid, for instance, or Father Time, can be utilised, and on one bracket there is an excellent circular picture of a galleon.

If these are cut from thin wood, they make excellent decorations even for furniture, cabinet doors, etc. Any of them would look well nicely cut out with the fretsaw, painted or polished, and then glued in place. They can be the central ornament on large cupboard doors, or even form a single wall plaque, or as an addition to such things as a bookend.

There is one design of an Egyptian Pipe Rack in which a very attractive picture can be formed of the camel with the Pyramid background. Although actually shown in a pipe rack pattern, this picturesque feature can be taken quite apart from its surrounding design, and used in one of the ways mentioned.

By going through the fretwork pages of the Handbook with these ideas in mind, you will, undoubtedly, find quite a number of patterns which suggest themselves, and which are worth while

using in conjunction with these odd pieces of wood.

Some attractive miniature work can even be done from the illustration of the article which is always shown on the Design Sheet. These are best cut in sheet metal such as aluminium or brass, using a metal cutting blade, and holding the work firmly down to the table, with the fingers quite close to the fretsaw.

Not all designs are suitable for this type of work, but if you look through your old copies you will find some.

As we said at the beginning, these odd pieces do accumulate, and if you have not previously saved them from the jobs undertaken, it is certainly a good plan to start now, then later when you have a range in your "junk" box, you can return to the suggestions here given, and find many little pieces of work which will fill up an odd half hour or so with your usual fretsaw and tools.

How discarded pieces of wood can be used for practical ODDS AND ENDS

WHAT happens to all the odd pieces of wood which you have left over from the various jobs? In these days of timber shortage, they certainly should not be thrown away and treated as so much waste. Of course, they accumulate and sometimes seem to be quite a nuisance in taking up room.

We are not referring just to the tiny pieces which are quite useless, but rather to the odds and ends of small pieces which may be cut away from a job in hand, but yet be useful in filling some purpose later. All too often they are just cast into a corner of the workshop, and then finally got together on a glorious "clearing up" day, either burned or turned out for salvage.

Odd Piece Box

Many of these pieces, however, could be utilised for some definite job if only a little thought was given to their prospective usefulness. It may not occur to you at the time when the part is being sawn off and thrown away, but later you may realise how useful it would have been if you had saved it.

In consequence, a good plan is to keep these pieces together and then periodically to sort them all with a definite plan of use in view. One of the stiff card cartons which you can obtain from a grocer would be sufficient to hold quite a number of the odd pieces, off-cuts, etc., which are the remains of a job.

Such pieces may vary in size, thickness and actual material, but there are many occasions when this does not really



Three examples of parts from pattern sheets, forming attractive features

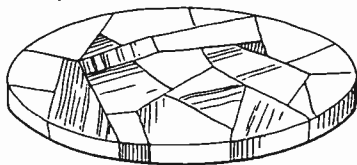
matter. The use to which they are put provides a covering of paint, or it may be that they are hidden as parts which will not need any finish at all.

There are, to take a single instance, occasions in toy making when you want to stiffen up the parts with small blocking pieces on the underside or behind some moving piece. Then one of the odd parts of the waste board which you have in your box, can be cut, cleaned and used without having to go to a lot of trouble

in trying to find one hidden under the sawdust by the bench.

If you take any volumes of *Hobbies Weekly* you will easily find quite a number of suggestions for making small articles from these odd pieces. They will, of course, need to be sorted out for the occasions, and this, with the work involved, will be a happy change from the normal craftwork in hand.

None of the jobs need involve a great amount of labour, although the standard of workmanship should be quite good. The occasion, too, for the use of such articles may not arise immediately, but sooner or later there will be a call for them. You can offer them as little gifts to friends, or if you are requested to provide some work for a gift stall or a bazaar, then such little articles come in very useful.



A table mat from odd small pieces

Match Holders

Two simple types of match holder are illustrated, and whilst no size is given here, they are quite easily made from odd pieces according to what you have in stock. The actual shape need not be exactly as that given. The backboard in either case can be square or oblong, or even circular if you happen to have a piece that shape. If you have a number of thin pieces of wood, you may like to make up a simple mosaic mat, after the type also shown.

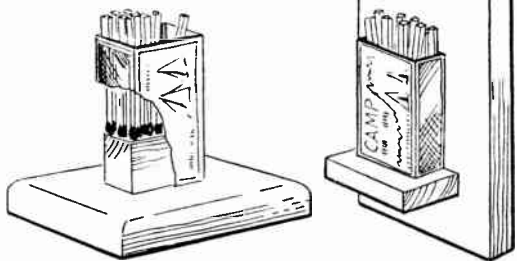
Indeed, you can if you have sufficient material, make a complete set of table



until the parts have all been glued together, then you can cut the outer shape—the circle, square or whatever it is—and so be sure to have both parts cut alike.

Calendars

These small pieces of wood can also be quite easily utilised for little calendar pad holders or even cut-out figures in miniature. The bases should be enamelled or polished to give a bright surface, but the actual cut-out figures are left with the picture



Two simple types of match holder from small waste wood

on the front, having their back and edges only coloured black or a similar shade to the bases.

It is, perhaps, not the time of the year when calendars will be most popular, but you should bear the matter in mind and obtain some of the 1950 date pads as soon as you can, in order to be working forward ready for autumn and Christmas when they are more likely to be popular.

If you have any young friends who like to play with tiny toys, these odd pieces of wood can be used for cutting out all sorts of miniature work. With a piece of $\frac{1}{4}$ in. thick wood you can make up a reasonably good model of, say, a motor car just cut from the solid block, or even an engine and railway coach.

They are, of course, quite small, and need not have any detail in them. Cut roughly from the solid block, they can be painted with a few features to make them obviously what they should be.

These solid little block toys are quite a joy to any youngster, because he can get quite a lot of fun from them and yet use them freely without feeling they will be broken or are too costly to damage.

You may be able to get a set of pictures, too, of birds or animals, which can be pasted down to these odd pieces and cut out for play use in the nursery. Here again, accuracy will not be so essential, and cut-out figures will be best without any delicate projecting

(Continued foot of opposite page)

An organiser with considerable experience gives these EXHIBITION HINTS

MODEL exhibitions are becoming more popular every year and we hope, in fact that they will become part of our national life. Smaller exhibitions, similar to the larger ones are an excellent means of raising funds, creating interest in our craft and doing a good job of work. It keeps people occupied and off the roads and it is for this reason that you want to organise your shows on a sound basis.

Start Early

First of all, it is not too early to start 12 months before the event. Long-term preparation is essential. Do not expect people to have models ready in five minutes. Do all you can to avoid clashing with other events in your town; it is wise to think of this first as it makes all the difference in a small place of, say, 6,000 inhabitants. It creates better feeling all round.

Now a word about borrowing models. No club can hope to put on a good show with their own models only. You must have variety. You can borrow, but give this borrowing business every thought and consideration.

Model Reception

The writer has seen more upset over this sort of thing than he thinks is good for the spirit of model-making. Appoint two suitable people, one to receive the models and take charge all the time and another to do cards and generally assist the display. This is very important.

Fix the time of receipt, be sure to be on time yourself and create confidence by letting the owner think that he is getting personal attention. Do not give him the idea he can dump it anywhere. If he has not got it in the right class ask him tactfully if it is his model. Do not sort of say "Is that yours" as though

their work up first. A good model-maker is very fussy about his work and likes it to look at its best. Book all names and addresses of those lending so you will be able to contact them for future shows.

The arrangement of tables is important, and a plan is shown in Fig. 1, which shows a good lay-out. This is done to avoid congestion when a group gets down to one model. If you think that a special model may create a traffic jam, then set this up at the ends of tables as shown. Note the seats all arranged at one end. Avoid crossways tables. Anything at an angle makes the show unbalanced.

Covering

Rolls of hessian are now available and apart from being pleasing to the eye it does help to cover up the legs of trestles. Also, it can be fixed to the tables and pleated at the corners without cutting it up. It is possible to go right round without making a split or join.

Consider the height of models. It is not advisable to have all your tables the same height; some models may need lifting to about 4ft. This is a good height for most children and prevents the grown-ups from bending down so much and causing a hold-up. Utilise cardboard boxes for this as they can be made up into very effective shapes before the exhibition. Boxes covered with suitable fancy paper can be used at the back of the table, as shown by end view at Fig. 2.

Suitable Shapes

Some ideas of the suitable shapes are given in the sketches at Fig. 3. Most grocers, chemists and general shops will find you some. Note the rounded ends which will be ideal for displaying small boat lay-outs.

Not the finished surface we now get by using, perhaps, three thin coats rubbed down. This is a very important point and well worth considering. Get together and discuss matters. It needs a little publicity, but it can do a lot of good and the idea is new.

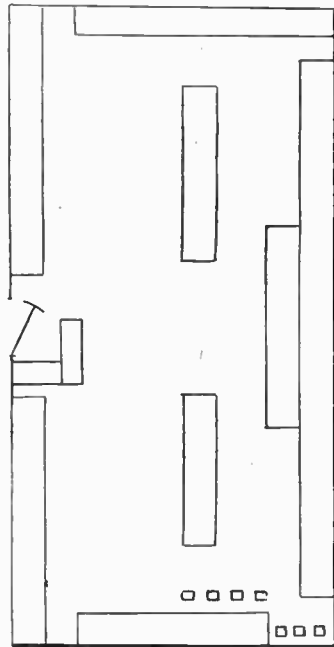


Fig. 1—Suggested lay-out of tables with chairs in one corner

You will find that a local printer will cut you up cards about 3ins. by 4ins. in different colours. They are not very expensive and you can use them for the different classes. Boats can be blue, aeroplanes yellow and so on; it does give some sort of regularity to the lay-out.

The arrangement of a few chairs is also essential and will be very popular with the ladies seeing the show.

Aircraft of the flying type are difficult to show but this can best be done by putting wires across the hall and suspending the planes. Rubber can be used for this, to avoid damage.

In regard to the models put in by the

actual club running it, the work must be of the highest order. If you go from show to show you will be surprised at the way some articles are put on display irrespective of finish. It is an idea to put the less well-finished ones at the rear; rough work models are not a good advertisement for the club.

All these minor details make for the success or failure of the effort.

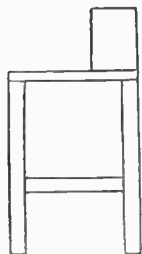


Fig. 2—Paper covered boxes

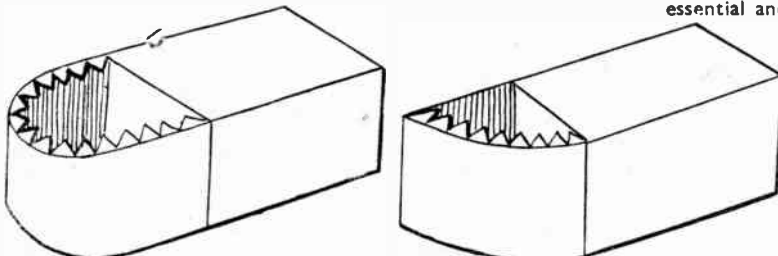


Fig. 3—Two shaped ends for stands, with stiff card turned in

he had lost his cap. The writer often acts as judge at exhibitions and makes a habit of walking around unknown to anybody. It is surprising what he sees and hears.

Hints on Borrowing

Give plenty of notice of your intention of borrowing models. People will lend, but they often have to touch

Recently the writer saw a very good idea in showing models. We all start in a small way and if we stay the pace still keep our old original models. A range of boats was shown which started with the first one made by the owner up to his present and latest.

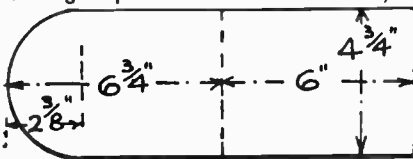
The improvements were obvious. Needless to say the first ones showed how we used to put paint on like jam.

Try your hand at the attractive job of making BRASS BOOK-ENDS

HERE is an experiment worth trying in the making of good-class book-ends. The ornamentation is obtained by an etched ground made through the action of acid of certain surfaces of the brass uprights which forms the book-end when mounted on wood.

In our illustration, Fig. 1, we see a pair of book-ends made from two pieces of brass $12\frac{1}{2}$ ins. long by $4\frac{1}{2}$ ins. wide. Each piece should be carefully cut and the edges cleaned up and made smooth. In Fig. 2 a plan is given showing how to strike the semi-circle for one end of the piece. That end of the piece which lies flat on the table need not be 6 ins., 4 ins., perhaps, would be sufficient, although a more rigid support is given when the books are in place if the base is reasonably long.

Clean the brass plates and polish them with a liquid brass polisher. On page 251 in this issue we give a full-size design for the etched work on the plates. Carefully redraw the decoration or trace it on to thin tracing paper so the original illustration is kept for future work. Now take the sheet of brass in your hand, holding it by its edges, and dust over the surface to be etched, in the case of the illustration shown, that is the smaller interior decorative panel, a thin coating of powdered chalk. The finely



ground chalk obtainable at the chemists is the best material to use for the purpose.

Now lay over the chalked surface a piece of carbon paper and on top of this again place the design, getting the latter properly in place in relation to the outside shape of the brass plate. The brass and the carbon paper and the design may be held together with paper clips or spring clothes pins. Then start from the top, trace over every line of the design with a sharp-pointed hard pencil.

Paint the Design

Next paint in the design with asphaltum paint or ordinary black grease enamel. Apply the paint to all the not-to-be-etched surfaces including, of course, the actual surrounding border. If the enamel should be too thick, thin it with turpentine or one of the turpentine substitutes. It must be remembered, too, to coat the back of the brass plates with the paint so that the acid shall not attack it.

The etching solution is made by

adding commercial nitric acid to water. The greater the proportion of acid to the water, the faster will be the action of it upon the metal and the rougher will be the etching effect obtained. A two-to-one nitric acid solution should answer for the etching, the liquid being used in a flat photographer's tray or similar shallow vessel. Should the etching proceed too violently, add a little water.

In mixing the solution fill the tray half-full of water, then slowly add the acid, carefully stirring to prevent it splattering about. It is a good thing to protect the hands and arms from possible acid burns by rubbing them with liquid soap. During mixing keep the face away from the etching fluid and do not inhale any of the fumes.

Handle with Care

Tie a piece of wire round the metal plates so they can be handled by the wire, and lower both plates of brass into the acid solution. At that time fine bubbles should be formed on the bright parts of the plate. Remove the plates from time to time to observe the progress of the depth of etching. The actual finished depth of the etching should be approximately $1/32$ in. When the desired depth has been reached rinse the parts in cold running water to get rid of the acid.

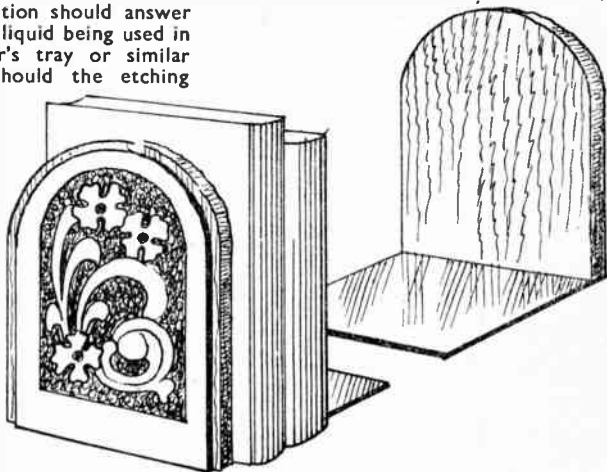
Next place the plates on several thicknesses of newspaper on the table or bench, and with a piece of cloth, rub the surfaces clean of the black enamel, using petrol or other suitable solvent, and make sure the surfaces and edges are clean. Finally wash with hot soapy water.

Now note, in Fig. 2, the cross dotted line and bend here. This may be done in the vice, the jaws being covered with thicknesses of card or felt to prevent the brass becoming marked or scratched. Test the angle with the set square or a metal try square.

Get two pieces of $\frac{3}{8}$ in. or $\frac{1}{2}$ in. thick wood 7 ins. by 5 ins.—oak is preferable, and cut to the outline shown on the full-size pattern. Drill holes, as shown, in the metal plates, and use small round-head screws for fixing the plates to the wood. The under surfaces of the lower plates may, if desired, be covered with green baize as a protection to the polished surface on which the book rest will inevitably stand.

It should be mentioned that the wooden uprights would look well if

polished or stained or even oiled and waxed. This work is done, of course, before the metal plates are attached. Some workers interested in this method of etched decoration may like to ex-



periment with a small decorative plate of metal.

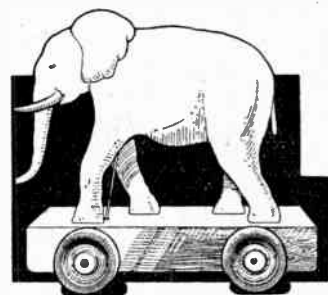
Two Alternatives

To this end we include on the pattern sheet two very simple full-size designs for tracing and transferring to the metal. The topmost design could almost take the place of the more elaborate book-end plate shown. In this case, a centre line should be drawn on the tracing paper and the semi-circular end of the plate drawn in for sake of position-finding.

The other little border design is again extremely simple in character and would be very suitable as an edging design to a box or even a plain frame.

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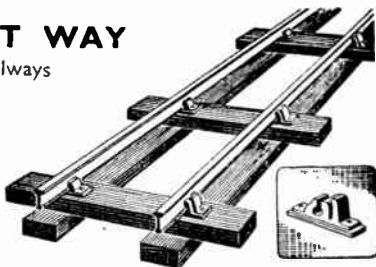
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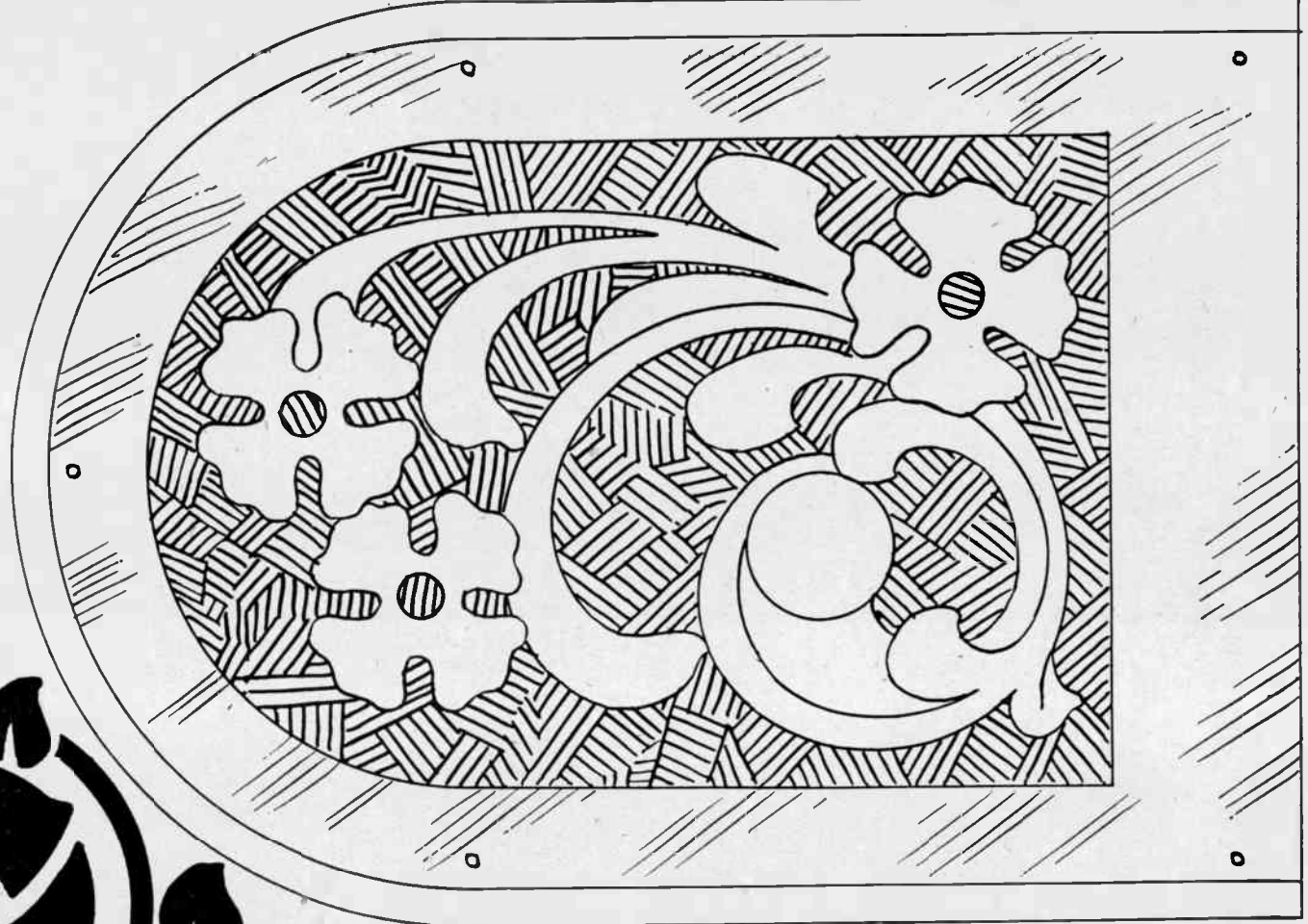
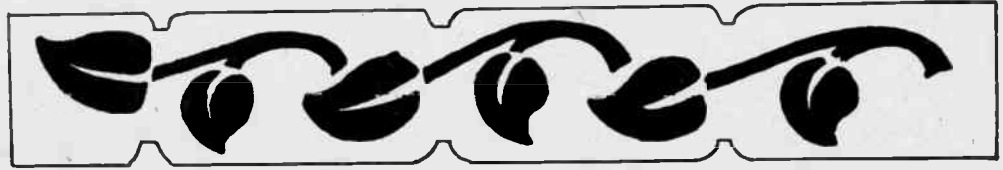
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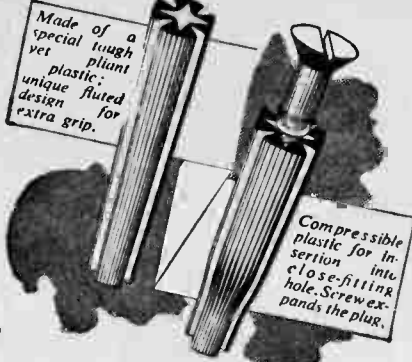
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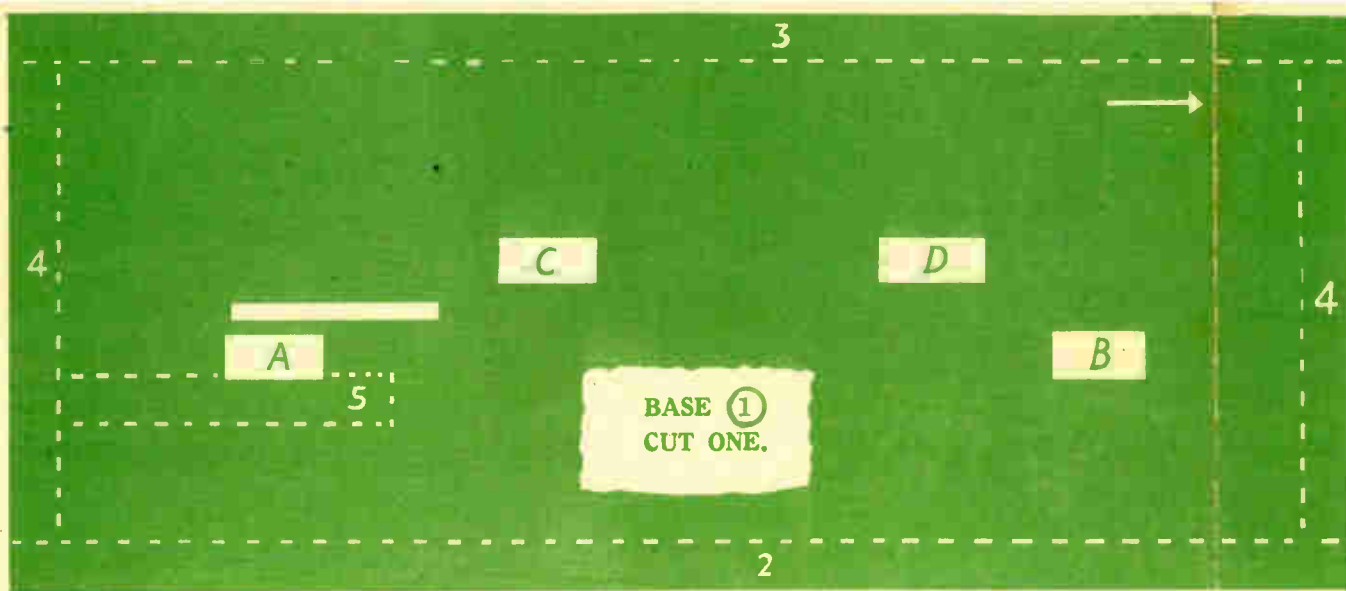
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BASE ①
CUT ONE.

1/4in. WOOD IS USED THROUGHOUT.



SIDE ②
CUT ONE.

SCREW
WHEEL
HERE

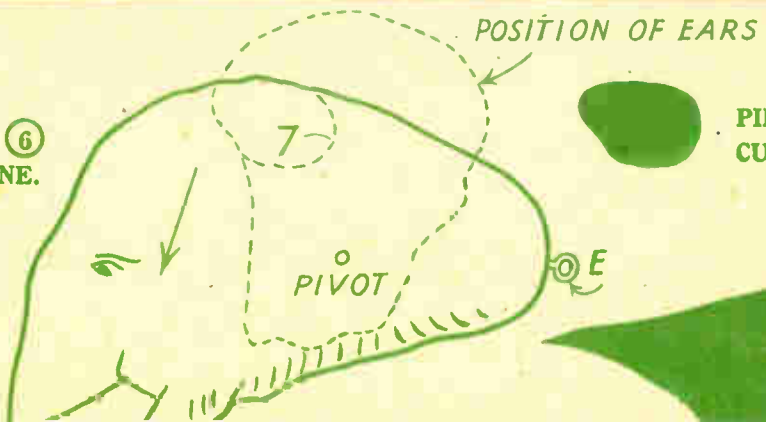


SIDE ③
CUT ONE.

WHEEL

WHEEL

HEAD ⑥
CUT ONE.



POSITION OF EARS

PIVOT



PIECE ⑦
CUT TWO.



EARS ⑪
CUT TWO.

ENDS ④
CUT
TWO.
SHAPE
TO
SECTION



PIECE ⑤
CUT ONE.
GLUE TO UNDER-
SIDE OF BASE.

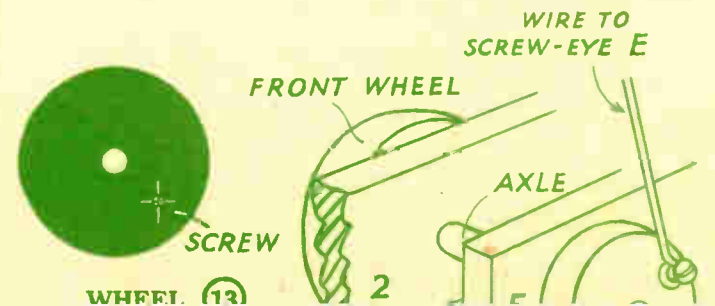
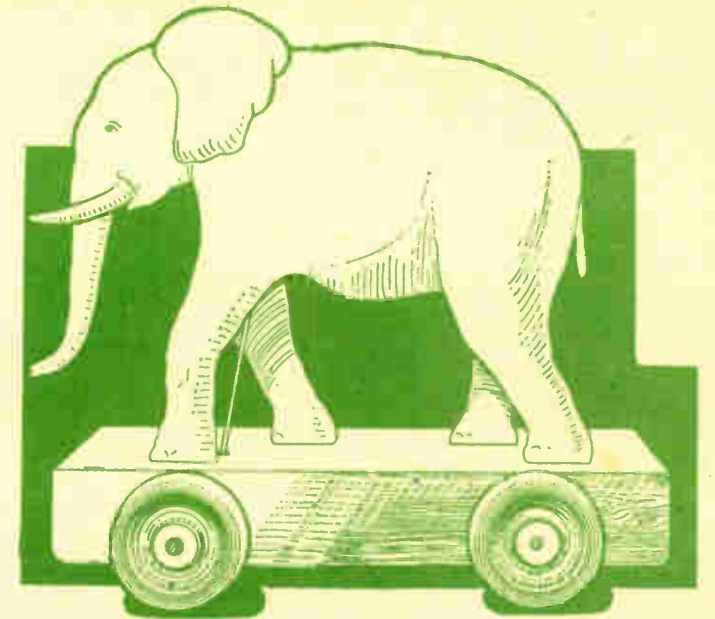
SUPPLEMENT TO HOBBIES No. 2808.

THE NODDING ELEPHANT

A PULL-ALONG WORKING TOY

SIZE 7ins. LONG.
7ins. HIGH.

THE ARROWS INDICATE
THE DIRECTION OF
GRAIN OF WOOD.



NODDING TOY ELEPHANT

THE novelty toy which can be built from the patterns shown the other side, comprises an elephant on a platform, the head of which nods up and down as the whole thing is pulled along. All parts shown are in $\frac{1}{4}$ in. wood, and apart from the boards, one requires a piece of wire, four wheels and a short length of $\frac{1}{16}$ in. axle rod. All these, of course, are provided in the kit.

The platform can be built first by cutting out the base and its four sides. Mark the position of the screw holes which will hold the wheels later, and notice that a $\frac{3}{16}$ in. diameter hole is cut in one side only, to provide the axle rod for the movement mechanism. The two ends are glued between the long sides, and the whole frame underneath the base. If necessary, stiffen up with small blocks inside the corners.

Base Fitting

The tenons on the elephant's legs should be made to fit tightly into their respective slots in the base at A, B, C, and D, but should not yet be glued in place. Now glue on the small piece to the underside of the base (No. 5). Its position is shown dotted on the outline of the base pattern. It is glued inside the front end and $\frac{1}{8}$ in. inwards from the side, part of it coming under the slot, A.

Note that the $\frac{3}{16}$ in. diameter hole comes in line with the side in which there is a similar hole. It is in these two holes that the axle revolves which works the eccentric wheel No. 13, which is shown in the detail on the sheet. The wheel No. 13 can be cut, the axle rod put through and fitted on it. The rod itself is 2ins. long, and the actual spacing of the sides part 5, and the inside wheel are shown in detail.

Elephant Body

Now build up the elephant to the small drawings at the bottom righthand corner of the sheet. Glue pieces 10 and 12 to the outline of side first. Then take part 6, glue on it No. 7 and add the

pieces is shown by the dotted lines on the pattern concerned.

The piece 12 forms the spacing piece the same thickness as the body itself, and the small piece 7 provides a similar spacing piece, so that the actual ears No. 11 may pass on the outside of the body itself. Note the position of the pivot pin in the head, and in the two sides. Bore a hole to take a wire through these temporarily. A small eyelet is screwed to the back edge of the head portion, and a 5in. length of wire is fitted round it with a small loop at the top.

Mechanism

The other end of this wire passes through the slot in the base, and is finally rounded on to the screw fitted on the wheel 13. See that the body part is working satisfactorily, and if you think fit, paint the whole body in natural colours before finally gluing into the base.

When the elephant is fixed in place, the wire between the head and the wheel can be finally turned on. Remember that if the trunk is raised, then the wire must be fitted with the screw at the lowermost position on the wheel.

Painting

As mentioned, the elephant is painted in its natural dull grey, and can be given a slightly darker paint where represented by the shading on the pattern. The base can be painted a bright green, and the wheels red, although, of course, these actual colours are not essential. Be careful not to get the paint into any of the working parts.

The wheels are screwed on in the positions previously indicated, and the final screw-eye or little staple is driven in the front of the platform to which the pulling chain can be fixed. If you find this chain gets in the way of the nodding head, then you can put one staple towards each edge of the platform carrying two pieces of chain up to a point where they will avoid the move-

NOTE: SHADING ON ELEPHANT PARTS SHOWS THE SHADOWS TO BE PUT IN WITH DARK GREY PAINT AFTER CARVING.

MIDDLE BODY SECTION 10
CUT ONE.

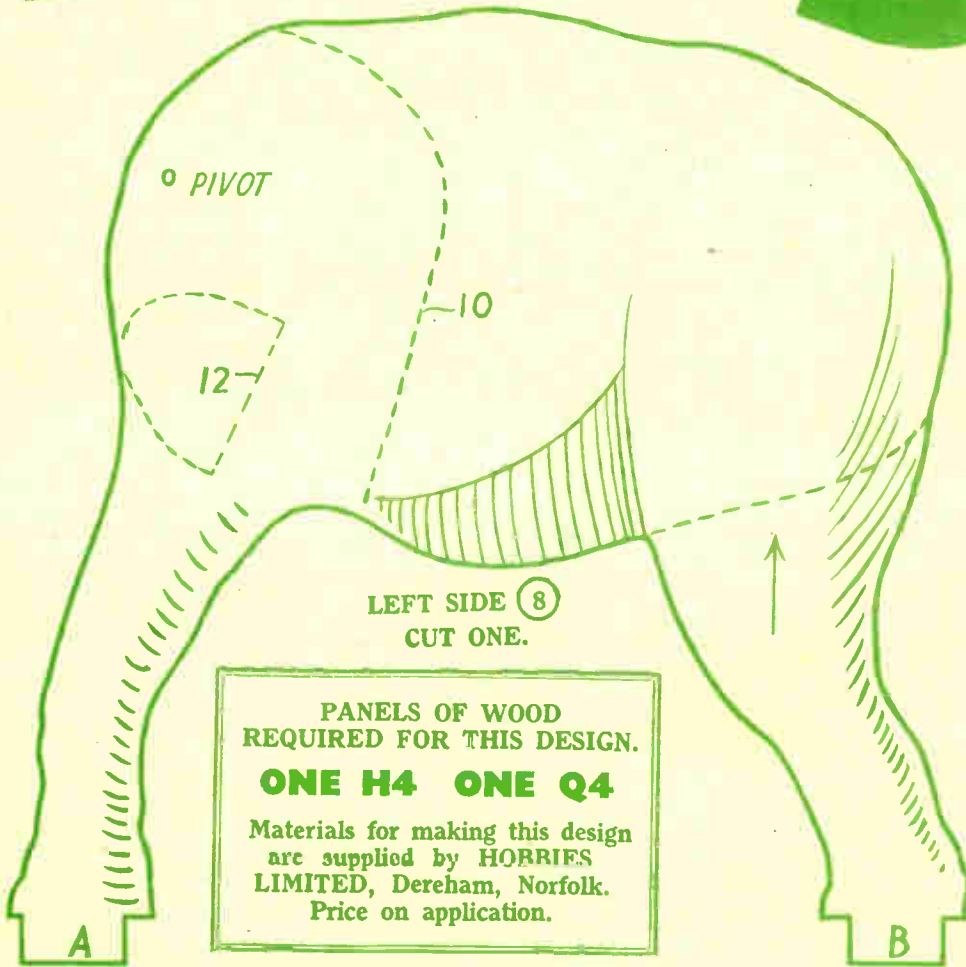
PIECE 12
CUT ONE.

CUT ONE.

SHOWING WORKING MECHANISM.



AXLE. MAKE ONE FROM 1/8in. ROUND ROD.

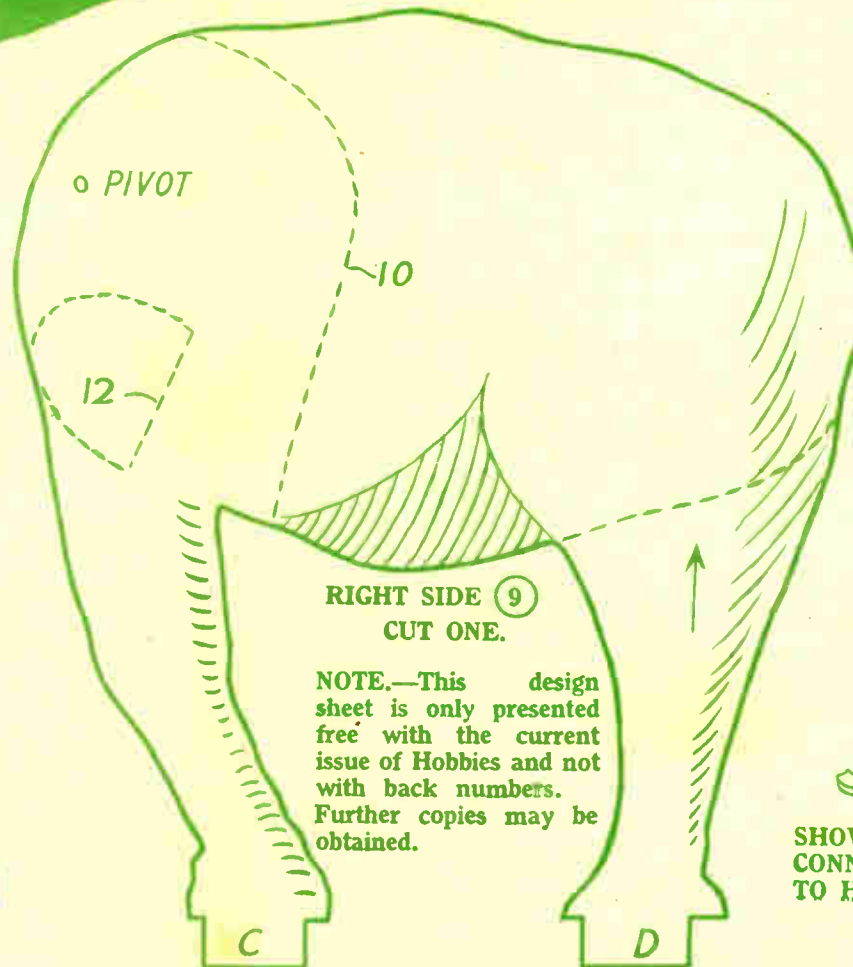


LEFT SIDE 8
CUT ONE.

PANELS OF WOOD
REQUIRED FOR THIS DESIGN.

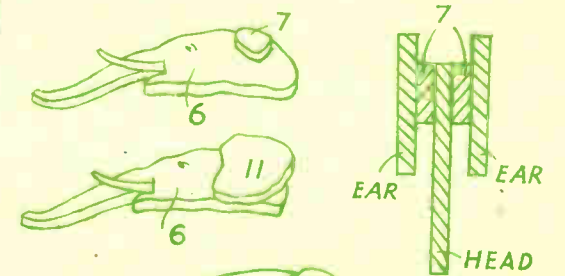
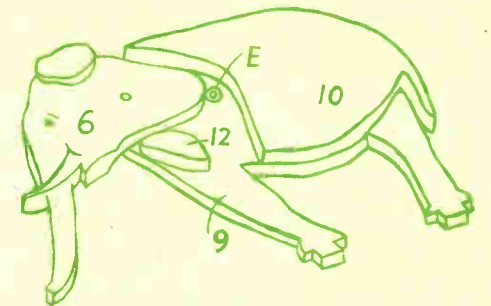
ONE H4 ONE Q4

Materials for making this design are supplied by HOBBIERS LIMITED, Dereham, Norfolk. Price on application.



RIGHT SIDE 9
CUT ONE.

NOTE.—This design sheet is only presented free with the current issue of Hobbies and not with back numbers. Further copies may be obtained.



SHOWING WIRE CONNECTION TO HEAD.

HELPFUL DETAILS OF CONSTRUCTION.

TO 13

PRINTED IN ENGLAND.

