Hobbies WEEKLY

CONTENTS

June 29th, 1949 Price Threepence Vol. 108 No. 2800

How to make a Child's

SMALL WHEELBARROW

MOST kiddies like to help in the garden or on the allotment or on the beach. So it would not be a bad idea to make the child's wheelbarrow illustrated, so they could be of real assistance in cleaning up litter and carting the produce home or enjoying a game on the beach. The barrow is a small edition of the real thing, and this makes it more attractive to the child than it would be if merely a toy.

The article can be made from almost any wood available, and as hardwoods are scarce, deal will most likely be used for the purpose. Use a substantial thickness, say, 1in. or ⅞in., as a barrow has to stand some rough usage. The parts of the body are drawn in Fig. 1.

Trial Assembly

These parts can be easily pencilled in on the wood direct, and sawn out. Try them together at first, when it will be seen that owing to the splay of the sides and ends, it is desirable to bevel off the edges of both the front and back pieces to enable them to bed well to the sides.

Fix the parts together strongly with glue and nails or screws, the latter for preference. A stronger hold will result if the ends are set back about ½in. from the ends of the sides; there is less risk of the wood splitting. Any portion of the end parts which may stick up above the sides should be neatly bevelled off.

Leave for a while for the glue to get hard, then upturn the barrow and plane the bottom edges level all round to provide a good fit for the bottom boards, as owing to the splay, they will, obviously not be flat as they should be.

Bottom Boards

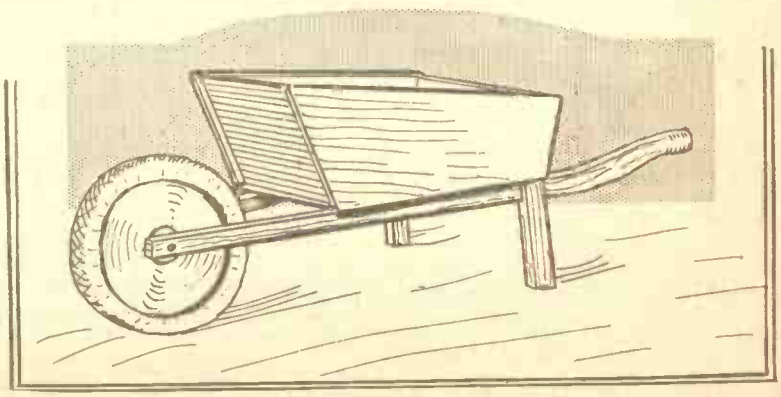
The bottom boards should, if at all convenient, be laid on to run lengthwise, not across. Owing to the width, two or more boards will be necessary, and if tongued and grooved all the better. If not, then the boards should be either dowelled edge to edge, or be glued and cramped together before nailing.

Nail or screw the bottom on securely, and take some care over the job, as the nails must be driven in at the same angle as the splay of the sides. Make preliminary holes with a bradawl, the better to guide the nails in at the proper angle. When fixed and satisfactory, clean off any roughness with a vigorous rubbing with glasspaper.

Undercarriage Parts

The underpart consists of the long handle bars and legs, the former being long enough to extend beyond the barrow in front and provide the bearings for the wheel. Both parts are shown in Fig. 2. The handles are curved upwards a little, and can be marked and cut out from a 3in. wide strip of wood. Note that the curved portion extends only for a distance of 9ins., the rest being straight. The part gripped by the hands should be rounded off and made smooth for the kiddies' fingers.

At approximately where shown,



cut grooves across, 1½ins. by ¼in. for the legs to fit in. The legs are cut from 1½ins. by 1in. wood, or if available, 1¼in. wood. From the top of each leg, saw out a piece ¼in. thick, as shown in the diagram. The legs can then be screwed to the handles, making a very secure fixing, as some strain comes on them.

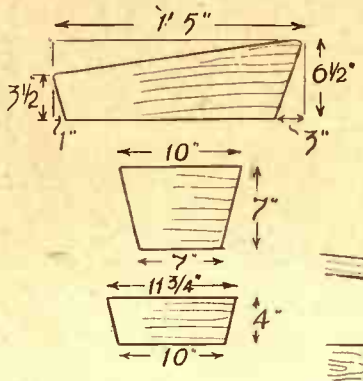


Fig. 1—Parts of the body

The Wheel

Before proceeding further, a wheel should be obtained, as the handles, which are fixed below the body, must be the correct distance apart to suit it and wheels vary a lot. It is always better to buy a wheel in preference to making one, unless a lathe is available, and any suitable wheel of 9ins. diameter should suit.

There seems to be plenty of such wheels about now and reasonable in cost. Advertisers of them will be found in our pages. A bolt of the right thickness usually makes a good axle, but it will be found better if the ends of the handle bars are fitted with wedge shaped blocks, as in detail, Fig. 3, to provide parallel sides to the bearings.

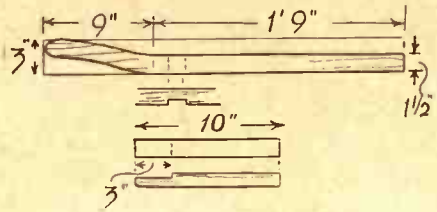


Fig. 2—Handles and wheel bearings

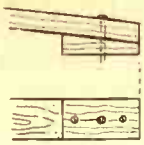


Fig. 3—The wedge

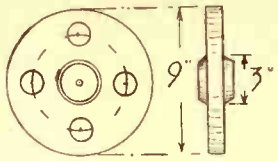


Fig. 4—Home-made wheel details

Fix the handles bars to the bottom of the barrow with bolts, allowing ample room for the wheel to run between. The exact shape and angle for the blocks can then be accurately assessed, and the blocks fitted on with a pair of screws. Bore the holes for the axle bolt, then fit the wheel in position. For silent running a rubber tyred wheel is far the best, but if the little barrow is to run on soft earth, an iron wheel with a broad rim is better, if a little more noisy.

For those who may choose to make a wheel themselves, an idea for quite a good one is shown in Fig. 4. The circle should be struck on thick wood, and be sawn out as accurately as possible, or turned in a lathe. The latter is, of course, much the best. The rim should be kept flat, but the sharp edges slightly rasped off, or they may tend to splinter under pressure of the barrow. Bore the axle hole exactly in the centre.

Wheel Finish

On each side of the wheel, glue a 3in. disc of thinner wood, hardwood if available, and see the holes in both discs and wheel are accurately in alignment when fixing all together. The edges of the discs should be bevelled off a little for appearance's sake.

Though not essential to the working of the wheel, it will look more professional if a few 1¼in. holes are bored through, where shown, to imitate spokes. Those able to fit an iron rim, or to get a local smith to fit one, will be repaid by the longer wear resulting. Another point, if the axle hole is bushed with a length of brass tubing of a suitable bore, the wheel will run easier and truer.

The barrow should be painted or varnished. If for a very young child, a coat of gay coloured paint would make it more attractive, but a varnish finish would suit in plenty of cases.

THE CRAFTSMAN'S NOTES

A Glass-Cutting Hint

AMATEURS trying to cut pieces of glass for pictures and other purposes do not always find it easy. The reason, perhaps, is that they draw the cutter along too many times, thus making several slight indentations not in line with each other.

Place the glass on a thick wad of paper, hold the straightedge securely in position, then draw the cutting tool firmly along the whole length once only, with sufficient pressure to give a deep impression first time.

A few light taps with the back end of the handle along the line at the other side of the glass should then be sufficient to break the two pieces neatly apart.

* * *

Making a Book-Box

IF you have a fairly large thick book which you no longer want, you might like to transform it into an unusual case for holding miscellaneous stamps, cigarette cards, or small oddments.

The idea is to cut a block of paper right out of the middle so it leaves a kind of box. A rectangle should be marked on the first leaf, leaving about 1in. all round. Then, with a sharp blade and rule, cut this rectangle out. Remove a small wad at a time till you have penetrated down to the last page. Do not touch the covers.

The pages as they remain in the book will now be nothing more than frames, hollow in the middle, and these must all be gummed together to make solid sides.

Then gum the whole down to the back cover of the volume to make the bottom of the box, and leave the top cover free for use as a lid.

With a little ingenuity a small press-stud could be attached to keep the "lid" from coming open if the book-box is stood on end.

* * *

Dowelling for Neat Joints

DOWELLING is often worth while when boards have to be joined edge to edge, the finish being much neater than battens fixed across. When constructing a blackboard and easel, for example, the board had to be made from four separate pieces of timber. However, by dowelling these together and smoothing up the joints the result was as smart as a single board. In another instance a door too short to fit a new frame was lengthened with a piece dowelled along the top.

The dowels are cut as required from round rod available in different thicknesses. Holes of the same diameter are drilled at intervals along the edge of each board, making sure that the drill is held perfectly upright so that each dowel will enter at the correct angle.

Accuracy is essential to get each pair of holes to correspond exactly, the boards being squared up and held firm while the positions are marked along the edges.

A shallow V-shaped groove ought to be cut along the whole length of each peg to allow the escape of any excess glue and air. Apply the glue, make the joint firm with a mallet, and clamp or tie the boards together till set.

The Craftsman.

Chocolate, sweets or matches delivered in the drawer of this

TOY SLOT MACHINE

NOW that sweets-rationing has ended, chocolate, etc. slot machines will be reappearing. Many children have never seen these in operation, so this present toy will be a great novelty to them, as well as highly topical. It gives a new angle on the perennially favourite game of "shops".

Fig. 1 shows its general appearance, though this has been left plain, lettering and decoration being to the maker's choice. Though there is a slot for coins, the machine is not really coin-operated. It would be comparatively easy to make it so, but, in the first place, such extra work would make this article extend beyond reasonable bounds, and, secondly, children playing "shops" do not use real money, but buttons, etc., or, more often than not, merely pretend to have money. The slot in the present model is, therefore, just decorative.

Each time the drawer is opened, however, the merchandise appears, as in the real slot machine. In the present model, this is in the form of ordinary matchboxes, which may be filled with sweets, marbles, or what you will.

For other Goods

It is most important to realise, however, that once the reader understands how the machine works, the dimensions may be adapted to use other sized "merchandise". Matchboxes, though convenient, are not necessarily the best, as they may soon lose their neat shape and become bulgy, and, perhaps, hinder the mechanical action.

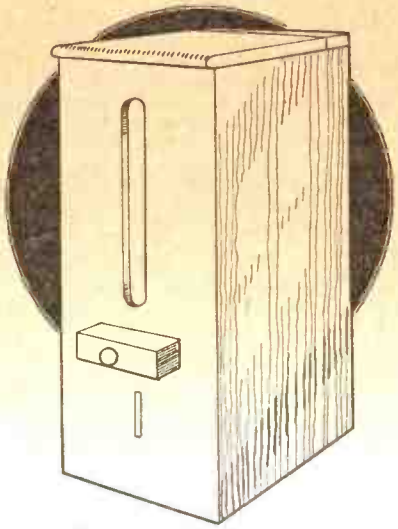


Fig. 1—The completed cabinet

One might use a number of identical flat tins such as are used to pack cough lozenges, elastic bandages, etc. Incidentally, the machine described has a capacity of six packages, but this can be very easily increased. One can also have two, or even three slots side by side.

Let us, therefore, inspect the simple mechanism. The two chief parts are the Drawer and the Magazine. The drawer, shown in Fig. 2, has, in its forepart, a recess to take the package. Its rear part is solid. The magazine is shown in Fig. 3.

The drawer rests on the runners, and the goods are stacked in the upper part of the magazine. The magazine is fitted into an outer carcase, but we need not worry about this at the moment.

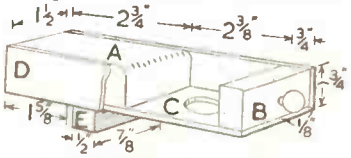


Fig. 2—Construction of drawer

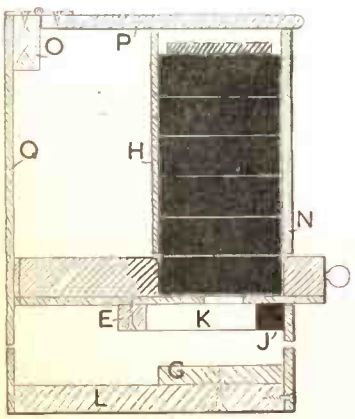


Fig. 4—Sectional view with drawer closed, showing matchboxes in solid black

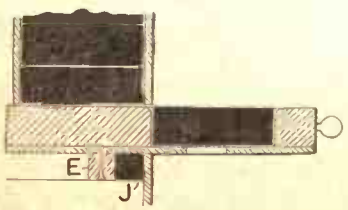


Fig. 5—The drawer open

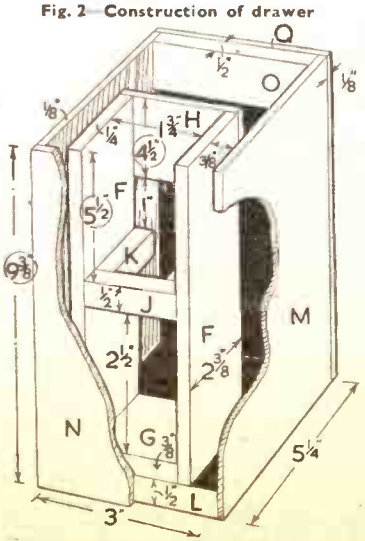


Fig. 6—Cut-away view showing construction

Ready to Open

The position, at the start, is as shown in the sectional view of Fig. 4. There is a pile of matchboxes with one already in the recess of the drawer. When the drawer is pulled out (Fig. 5), the matchbox makes its appearance but the rest of the stack of boxes is prevented from falling by the tail end of the drawer which now comes immediately under the magazine pile.

The drawer is prevented from coming too far out by reason of the stop (E), on the drawer, striking rail (J) of the magazine.

When the drawer is pushed back, the pile of boxes falls under its own weight, and assisted, also by a heavy weight at the top of the boxes. Thus the process is repeated, and if this is clearly understood, the reader will soon be able to make adjustments necessary. The dimensions given are in connection with using matchboxes measuring approximately 2⅜ins. by 1½ins. by ¾in.

The Drawer

Upon a floor (C) of ⅛in. plywood, 5⅞ins. by 1½ins. glue two blocks (A) 2¾ins. by 1½ins. by ¾in. and (B) 1½ins. by ¾in. by ¾in. so that a space 2⅜ins. is left between them. A hole about ⅝in. diameter is bored in the centre of the recess space so the box may be lifted by pushing from below, with a finger-tip.

Two sides (D) are now glued on. These are of ⅛in. material, 5⅞ins. long and ⅞in. wide. A stop (E) of ½in. square section and ⅞in. long is glued 1⅝ins. from one end, underneath, as shown. Screw this as well, as it has a lot of strain on it.

A knob at the front of the drawer can be fitted now. Note carefully the rounded ends to the recessed part

(*Continued foot of page 148*)

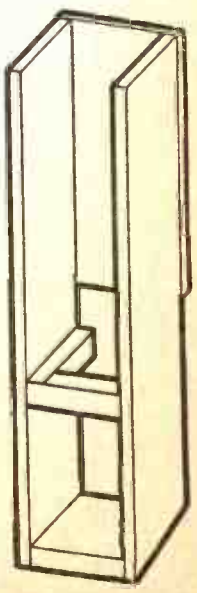


Fig. 3—The inner magazine framework

Followers of our metalwork series can easily make

A USEFUL FUNNEL

THIS funnel or tundish introduces the metalworker to radius work, but if the diagrams are carefully followed, the making of it should present little or no difficulty. A few scrap pieces of metal, preferably fairly thin, are all you require in the way of material but you will find that the article will, when finished, prove useful in a great variety of ways in the home. It is made in four separate parts—a top, body, spout, and handle respectively, and we will deal with its construction in that order.

The Top

For the top cut out a piece of material 9½ins. by ⅞in., with a ⅛in. lap as in Fig. 1. File the edges smooth and then throw off a ⅛in. lap along one long edge. Knock this right over and flatten down with a hammer. Next, bend into a circle, lapped edge outwards, round anything handy—a table leg, drain pipe, etc.

Side view

Top to funnel

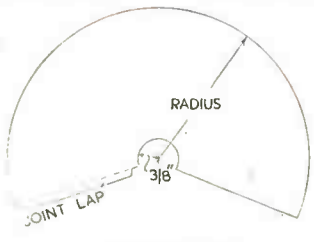
When you have it circular and the lapped edges meet, you should have a ⅛in. overlap at the joint. Clean this, apply flux, grip in position with a pair of pliers and solder firmly together.

The Body

The body is made in this way. Set a pair of compasses or dividers to 2¾ins. and describe a circle on your material, taking care not to lose your radial point. Reduce the compasses to ⅜in. and describe a second circle. Draw a straight line from any point on outside arc to radial point, then measure 9⅞ins. round the circumference and again join up to radial point, to complete the pattern.

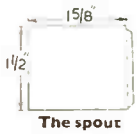
An easier way to do this is to cut a piece of string to the required length, lay it along the outside arc, and then draw lines from the ends to the radial point. Leave a ⅛in. joint lap as in Fig. 2. Cut out carefully and file smooth.

Next, bend into shape, a little at a time, round a piece of iron or wood, which must, however, not be larger than the finished diameter of the bottom of the body. Bend backwards and forwards a few times to break in the metal and take out bending lines. When finally in shape, grip with pliers, apply flux and solder.



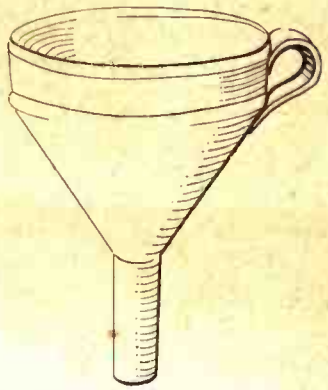
The funnel shape

For the spout cut out a piece of material as in Fig. 3 and bend round the end of a poker, into a small funnel, after breaking in as done with the body. Grip in position while still on the end of the poker and solder firmly along seam.



The spout

Next, using an edge of the bench iron and narrow end of a hammer, gently ease a slight flange outwards on the top end. Knock it out just far enough to ensure a flush fit on the taper bottom of the body piece.



All you need for the handle part is a narrow strip of metal 2¼ins. by ⅜in., which can be easily bent into shape with the fingers.

To Assemble

First place the flanged end of the spout in position on the base of the body, taking care to see the two joints run in line with each other. Solder firmly together right round the outside.

Next, rest the top piece in the open end of the body, seeing both are perfectly circular and that, once again, the seams are in alignment. Tack lightly inside in about three places. Rest on a piece of round wood or iron clamped to the bench, and tap the joint close up with a hammer. When it is a neat fit, solder round outside.

All that remains now is to attach the handle and it is best to place this so it rests on the seam, soldering each end firmly in position. To complete the job, clean off the flux with a damp rag, file the soldered portions smooth, and finally give a good rub all over with smooth emery cloth.

Slot Machine—(*Continued from page 147*)

of the drawer. These are most important to the working of the machine.

The magazine is very simply constructed. Two sides (F), of ¼in. wood, 8⅞ins. by 2⅜ins. They are nailed and glued to a base (G) of ⅜in. wood 2⅜ins. by 1⅜ins. (this latter dimension being the width across the front of the magazine). A short back (H) of ⅛in. wood, 4½ins. by 2¼ins. is fixed where shown. Rail (J) is strongly fixed 5½ins. from the top. It is of ½in. section wood.

The other rails are (K) of ⅜in. section only. Note in Fig. 6 certain dimensions are put in a circle and shown out of scale purposely so that space can be saved. Mark out these lengths as indicated when encircled. The true proportion of the magazine is as in Fig. 3.

There is a gap of 1In. between the rails (K) and the back (H), to allow the drawer to pass. At this stage, the operation of the drawer must be tested.

It will be necessary to hold a spare piece of wood in front of the boxes, otherwise they will pull forward. Do not forget the weight on top of the pile of boxes. If everything is satisfactory, the carcase can now be made.

The carcase is extremely simple to make, as, except for the slots in the front, no very accurate fitting is required. It consists of a base (L) of ½in. wood, 5¼ins. by 3ins. with two sides (M) of ⅛in. wood, 9⅜ins. by 5¼ins. nailed and glued to the base. A back (Q) of ⅛in. wood 9⅜ins. by 3¼ins. is fitted.

At the top is a bar of 1in. by ½in. wood, 3ins. long which acts as a bearer for the hinges that take the top. The top is not detailed, but its general proportions can easily be gauged from the illustrations.

The magazine is screwed (not glued) to the carcase by a screw connecting parts (G) and (L). This enables the magazine to be removed for overhaul if necessary.

The front (N) is screwed on so it can be removed if necessary. It has three slots, the most important being a rectangular one to let the drawer pass. This, like the others, is best marked out from the assembly. A long slot at the top is for the purpose of seeing whether the machine is full or empty. The lower slot is for the coins.

The interior parts need no paint or decoration, but the outside needs painting in a colourful way. Hints can be taken from actual machines.

The concluding details on the collection of

BUTTERFLIES AND MOTHS

HAVING told you in our first article of the varied species, and of the apparatus needed for their capture we can pass on to actual methods of catching, setting and displaying.

Butterflies (*Papilionides* is the scientific name) are all daytime fliers, and are best caught by wandering round their habitat in their season, armed with a net and killing bottles. There are various ways of catching moths, and we will take each in turn.

Certain day-flying moths may be caught in the same way as the Butterflies, or by tapping the branches of trees, etc., a process known as 'beating'.

The night-flyers are attracted by a light (no one knows why), and may be collected by spreading a sheet on the ground, and standing a powerful (200 candle-power or more) lamp on it. The moths fly in and settle on the sheet, which is used to increase the bright area to which they are attracted.

Not possessing a suitable lamp, you can use the apparatus, shown in the diagram at Fig. 1, which can be erected in a garden. When a vertical sheet is used, care should be taken not to miss those moths which come to the side of it away from the light. The time to expect most moths at night is between 11.30 and 2.30 G.M.T.

Sugaring

The next method is that known as sugaring. A mixture of treacle, beer, and amyl acetate to make it smell, is painted on tree trunks, posts, thistle heads, etc., and the patches inspected at about 20 minute intervals between 9.00 and midnight G.M.T. The moths feed from the patch, and then when thoroughly drunk by the beer crawl up and round the tree, and may thus be found on various parts of the tree besides the sugar patch.

The fourth method is what is known as assembling, and for it we need to possess a virgin female of the species it is desired to collect. She is placed in a cage, which must be well ventilated. After a while, males of the same species, if there are any within a few miles, smell the female, and 'assemble' to her. This method works best with the moths of the super family *Bombycides*.

Early Morning Searches

If posts and fences are systematically searched early in the morning, numerous moths are usually found resting in cracks and crevices, or on the face of the fence. These usually drop off when the sun reaches them.

The last method of collecting moths is to search the blooms of plants such as Ivy or sallow, on which the moths feed. The method usually adopted is to spread as heet under the tree or bush, stand the lamp on it, and shake the tree. This brings down a shower of leaves, flowers and moths (sometimes it brings down the tree as well, so do not shake that hard!) and the moths are attracted to the light, where they may be bottled or boxed in small glass-bottomed boxes, which may be added to the list of apparatus.

It is a common illusion that the hobby is entirely a summer one. This is entirely wrong, and the only blank periods are the extreme end of December (when only the winter moth (*Cheimatobia brumata*) is to be found), and the end of April. The winter species are collected by searching trees for them in the evenings. The females of most species are apterous (wingless), and the moths are usually mating when found. All the species are fairly common or extremely rare, few are just scarce.

Setting

To set a butterfly or moth take an entomological pin of suitable size, and insert it in the insect perpendicular to the plane of the wings, so it emerges on the underside of the insect between the first and second pairs of legs. Push it well through the insect so there is room to push the pin firmly into the cork at the bottom of the groove of the setting-board.

Do this, and adjust the insect on its pin until the plane of the wings is the same as the plane of the surface of the setting-board. It is most important that the pin passes through the insect symmetrically, and that the pin is vertical and in the centre of the groove of the board.

Prepare two lengths of paper as long as the setting board and another $\frac{1}{2}$in., and as wide as the board on each side of the groove and rule lines across, using a square. Pin these firmly to the head end of the board, one each side of the groove, so that they cover the entire surface of the board except the groove.

The wings should be manoeuvred into the desired position with a setting needle, which is a needle, one end of which is inserted in a handle (a wooden meat skewer). The wings are flattened, and the paper laid over them. The needle is held in the right hand, and the left forewing is gently pushed up until its trailing edge (hind-margin is the correct term) is at right-angles to the body.

Wing Display

The left hand then brings the paper down on to the wing, and the needle is taken away. The wing should stay where it was put, and a pin is inserted through the paper (care being taken that the wing is not pierced in the process), outside the outer margin of the wing. The hindwing is now set in the same way, moving it up until a natural position is judged to have been reached. Another pin is now inserted behind the hindwing to hold that in place.

If you are ambidextrous, interchange the functions of the hands and set the right side. If not, turn the board round and work with the head towards you for this side. The result is shown at Fig. 2.

Leg Setting

The antennae of most insects should be set under the paper in the same way as the wing, but the feathery (pennate) ones look after themselves and should not be set. The forelegs of moths should be coaxed into view, and hooked on the edge of the groove of the setting board. The hindlegs may be treated in the same way. A pin is also inserted to support the abdomen. The insect should be left for at least a month on the board, and for at least six weeks if it is a Hawk (*Sphingides*).

Setting paper may be purchased in various widths from the dealer and is sold in 25 yard rolls. If other paper is used remember that it is an advantage to have it transparent.

The same method of setting may be used for Caddis-flies, Lacewings, Bees, Wasps, etc. For Dragonflies set the front (costal) margin of the hindwing at right-angles to the body, and push the forewing right up so that the two wings just do not overlap.

Displaying the Collection

It is customary to display insects in vertical rows, arranged in the scientifically correct order of species. A series of any species should consist of at least ten insects, some of which should be set upside down. Store boxes, when purchased, have usually a "cell" in the wall to contain naphthalene or some similar substance to repel mites.

Perhaps the most useful asset that a collector can have is another collector, and one is well repaid in this way to join one's local Natural History Society.

Painting China

I WOULD like to know the best method of painting white china, and the materials to use. (M.V.F.—Edinburgh).

FOR the work you contemplate doing, special colours to be ground in oil or water are required. The glaze is supplied in powder form, the articles after painting being either sprayed or dipped with it for stoving, a heat of 1,150 degrees Centigrade is required. This may be maintained for perhaps twelve hours, so a gas oven is not practicable. You will require a small muffle furnace for the stoving.

The following addresses, if still in business, can supply. For the colours and glaze—Wengers Ltd., Stoke-on-Trent, Staffs. For the small muffle furnace—Fletcher, Russell & Co., Ltd., Warrington.

* * *

Recording Unit

IS there any way of turning a portable gramophone into a recording unit, as I have a 16 mm. movie camera and wish to take recordings as well? (L.R.—Chatham).

IT is possible to make recordings, but the simplest type of apparatus is rather complicated. A microphone must be used and an amplifier capable of delivering about 5 watts. (This would require four or five valves in a mains-operated circuit.) The output is fed into a cutting head which is drawn across a blank record by means of a screw tracking mechanism.

If reasonably satisfactory results are to be obtained, the blanks are usually special aluminium and cost about 35/- per dozen. They can only be used once. By using home-made apparatus and a magnetic pick-up for recording, some saving in cost is possible, but even so £15 to £20 would be the minimum.

If you wish to continue with the plan, you should write one of the manufacturers of recording blanks, etc., and obtain a list of their current prices.

* * *

Magic Lantern Conversion

I HAVE an old magic lantern which previously had the old-fashioned 'lime-light' for its projection. I am going to convert it to be run by electricity and would be grateful if you could suggest the correct wattage lamp to get. (E.D.S.—Rainham).

THE most suitable bulb to use in an old type magic lantern, is the regulation projector bulb. These have a peculiarly compact filament with highly concentrated light emission. Use a reflector close up to the back of the bulb and place the bulb itself so that the filament is central with the lens and in the same relative position as the original 'lime-light'.

Most of these projector bulbs only work on 100 volts, and it would require a step-down transformer to reduce the mains voltage from 230 volts A.C. to 100 volts.

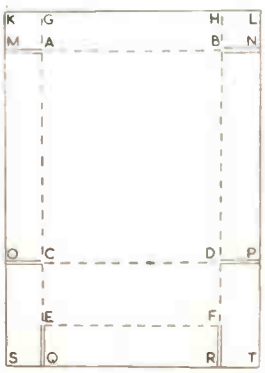
Probably you would get a fair result from using a 150 watt "coiled-coil" lamp (clear bulb) and placed horizontally on the centre line of the lens, and use a parabolic reflector around the bulb.

REPAIRING A COAL SCUTTLE

YOU do not have to be an expert metal worker if you follow this method. The familiar square type of metal coal scuttle illustrated in Fig. 1 lasts for many years, but the bottom is eventually worn in holes by damp from the coal and the scraping of the shovel. Putting in a new bottom in the way described here is simple and very cheap, and will add years of life to your old scuttle without spoiling its appearance or usefulness.

You will need a sheet of tin or other thin flexible metal, which is larger than the scuttle bottom. Many ironmongers stock sheet metal, but any large tin with the bottom cut out and the seam opened will be quite suitable, if it is large enough.

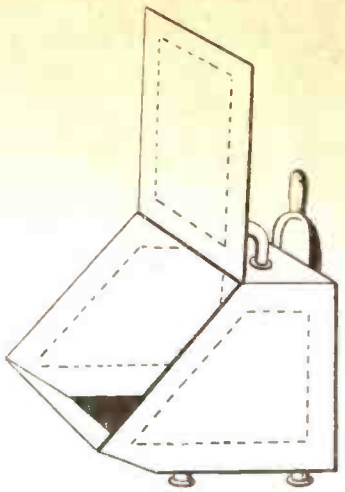
Use a penknife or sharp tool to mark out the metal sheet as illustrated in Fig. 2. ABCD is very



slightly smaller than the flat bottom of the scuttle. CDEF is slightly smaller than the front raised lip.

Dotted lines should be indented by gently hammering along them with an old blunt chisel or a screwdriver, care being taken not to cut through the metal. These lines are where the tin will be bent to form a tray, and the indentation will make a clean bend easier.

The double lines should be cut. If you have no metal shears, this may be done by resting the metal on a wood base and using hammer and metal chisel, or even with a pair of strong scissors.



The back, KLMN, and sides, MASQ and BNRT, are bent up to form the tray and the ends, KGMA and HLBN, are bent around the ends of the sides.

Fold the flap, EFQR, underneath and hammer flat. Put the tray into the bottom of the scuttle and push down into place. Bend the metal tabs, OCSQ and DPRT, in such a way that they fit flush with the slanting edge of the scuttle sides, and with the sharp edges out of sight between the tray and scuttle sides. Hammer flat.

Bolts and Nuts Fixing

Drill holes right through the scuttle sides and back and the tray sides and back. If you have no drill, a metal punch, or even a strong nail and hammer may serve. Make the holes level for the sake of appearance and not more than 3ins. apart.

Small nuts and bolts can be bought for a small amount and these are used to fasten the new bottom into place.

Insert the screws from the outside and they will be hardly noticeable. After tightening the nuts, if the screw ends are long, break them off with a pair of pliers, or cut off with a hack-saw before smoothing with a file.

The only final touches then necessary are to file any sharp edges on the new front lip to make them smooth and safe, and to colour the screw heads.

Radio enthusiasts will be interested in these
ECONOMY CIRCUITS

THERE are a number of occasions when it is of real practical benefit to be able to adjust a receiver to a more economical form of operation, or one which provides less volume. For example, a three or four valve set may be used, yet when listening to the local stations two valves would probably give all the volume required.

Therefore, by arranging a switch so the unrequired valve or valves are switched out, a very useful increase in the length of service obtained from the batteries will be obtained. Mains-operated receivers are not referred to, as in any case, the operating costs of these are very small compared with battery sets.

Or the listener may wish to use phones occasionally, and for these the power output of the valve normally operating the speaker is too high. So it is convenient and economical to switch this valve off, as will be explained.

Fig. 1 shows the usual detector—L.F.—power type of circuit in which the tuning coil and its associated components have not been shown, as no alterations are necessary here. It is only necessary to add a double-pole double-throw switch, wired up as shown, to enable the L.F. amplifying valve to be switched out.

When the switch is turned to the left the signal passes through the usual high frequency choke to contact, A, and thence through the transformer primary. Through contact, C, the L.F. valve is switched on, and operation is just as before.

When the switch is turned to the right, however, the signal is transferred to contact, B, and straight to the second transformer. The output stage will then operate the speaker in the usual way, but the L.F. valve filament is switched off (contact, D, not being connected). The receiver, therefore, works as a two-valver, and the extra valve only need be switched in when required.

In all these circuits a small rotary switch is recommended, and this is cheap. The length of the filament leads does not matter, but as the other wires should not be unduly long, the switch should be fitted fairly near the points to which it is to be connected.

With R.C.C.

Resistance capacity coupling is used in some sets, and Fig. 2 shows the circuit to use here. When the ·01 mfd. condenser is connected to contact, A, the valve is switched on and the circuit functions normally. But when this connection is transferred to contact, B, the receiver functions as a two-valver with a capacity fed transformer.

With small transformers, this method of connection gives a slight increase in quality of reproduction, as no direct current passes through the transformer winding. Sometimes, however, this causes magnetic saturation of the core in small components.

As in the other circuits, all battery and coil wiring will remain unchanged. In some receivers component values may be slightly different from those shown in Fig. 2. If so, there is no need to change the parts already present in the set.

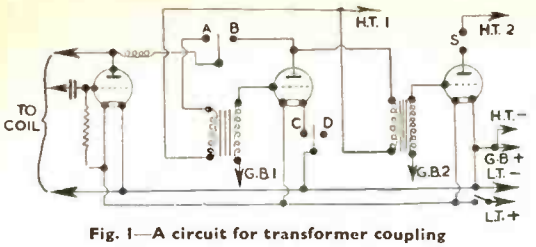


Fig. 1—A circuit for transformer coupling

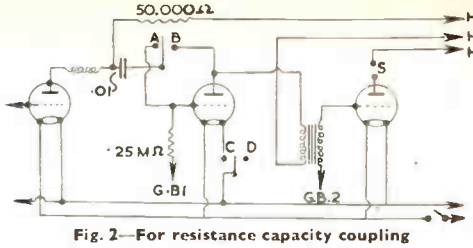


Fig. 2—For resistance capacity coupling

Headphone Listening

Fig. 3 shows a circuit which only requires a single-pole double-throw switch. When the switch arm touches contact, A, the output valve is switched on and operates the speaker in the usual way. When the switch is turned to contact, B, this valve is switched off, silencing the speaker. At the same time the headphones are connected through, B, and the condenser, C.

With a two-valver, this would change the circuit into a one-valve headphone set. With a three-valver (such as shown in Figs. 1 and 2) headphone operation with two valves would be obtained, and this is usually far better than with three valves, as mentioned.

With a three-valve circuit, the filaments of the two last valves could be connected together. Both these valves would then be cut out, and one-valve operation obtained.

The condenser, C, which feeds the signal to the phones, may be of any capacity, between about ·005 mfd. and 2 mfd. About ·01 mfd. is usual. As is the case with the transformer mentioned in Fig. 2, no direct current will pass through the phone windings.

A high frequency stage is not required when listening to the more powerful stations, and it can be switched out by using the circuit shown in Fig. 4. When the aerial is connected to contact, B, the H.F. valve is switched on through contact, D, and the set functions normally. But when the aerial is switched to, A, the valve is switched off at its filament supply and the signal is taken directly to the second tuning coil. The receiver then functions as a detector, with one or two amplifying stages, as the case may be.

The condenser connected between, A, and the valve anode prevents the H.T. supply being momentarily shorted if the switch is of such a type that contacts, A and B, are bridged during operation.

The same circuit can be used with other forms of coupling, as, for example, when the second coil is fed from a choke and condenser. As mentioned, all these circuits give a saving in both high and low tension current.

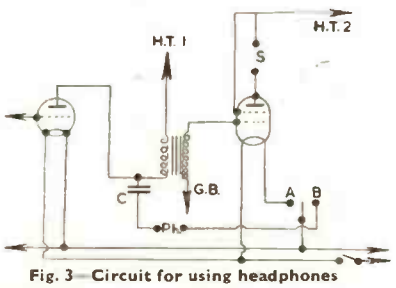


Fig. 3—Circuit for using headphones

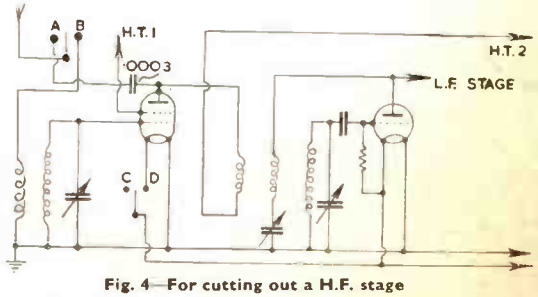


Fig. 4—For cutting out a H.F. stage

How to construct a simple but attractive Overbridge for MODEL RAILWAYS

A simple Semi-circular arched bridge over road

THE general appearance of any model railway line can be greatly improved by the judicious inclusion of bridges. Those which carry a roadway over the tracks are easiest to build, because their construction and placing do not necessitate sinking the baseboard below rail level, as is the case when the railway tracks span the roadway.

The modelling of an overbridge to span either one or two tracks does not present any great difficulties. It may be made with the simplest of tools, correct proportions being by far the most important part of the work. A bridge well built but wrongly proportioned will never do its maker justice.

As the road width of the bridge may be varied according to individual taste, it is only the front view (elevation) proportions which must be borne in mind. In "O" gauge the thickness of the wood used for parts, A, B and C, can be up to $\frac{1}{4}$in., whilst in "OO" scale half that thickness will amply suffice for strength.

The two piers (BB) are cut from $\frac{1}{4}$in. material to a width of $1\frac{3}{4}$ins. and $7\frac{3}{4}$ins. long. These are applied on the surface of the main front and back arch (A). The latter extends right across the full width of the structure from, X to Y, where it is joined by the wing-walls.

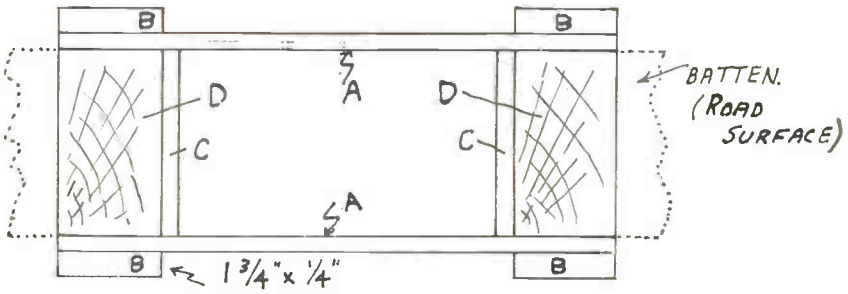
Two complete sides are thus made with the actual archway ($5\frac{1}{2}$ins. by 7ins.) duly cut out as shown, and the piers attached thereto. Two spacing pieces (DD) of the width desired for the roadway are then placed between the front and back pieces and pinned in place, thus making up the skeleton of the bridge.

Two shorter pieces (CC) 3ins. high, and as wide as the roadway, are then pinned or glued inside the spacing pieces as shown in the plan. Their duty is to provide a surface upon which the bent card roof of the arch can rest at the 'spring' of the arch. The edge of this card is hidden over the arch by the main arch front and back pieces (AA).

It will be noticed that the curve of the arch is composed of two sections of $2\frac{1}{8}$ins. radius and one of $6\frac{1}{4}$ins., the latter being in the centre. This gives the arch a correct prototype appearance which cannot be obtained by a simple semi-circle.

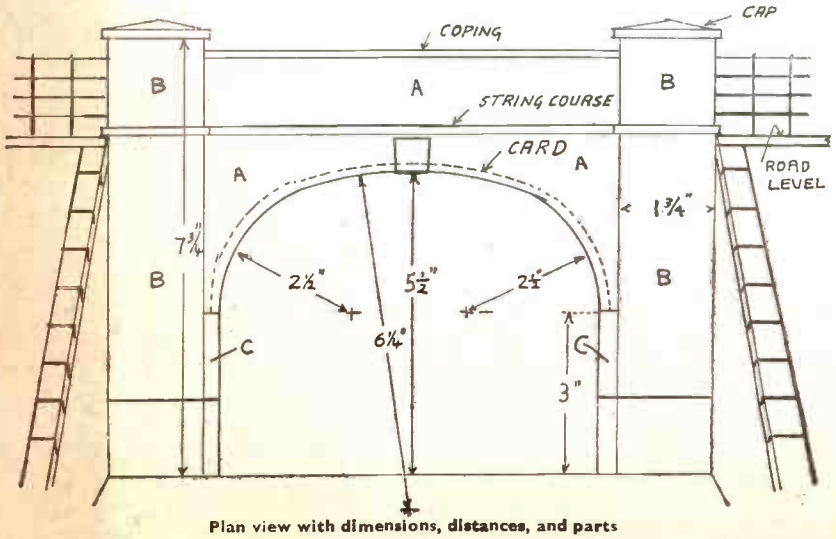
String-courses, formed from $\frac{1}{8}$in. square stripwood are added where shown, being glued and pinned in place. The two pier caps are made from $\frac{1}{4}$in. thick wood of 2ins. by whatever width is determined by the thickness of the pieces (AA), plus the $\frac{1}{4}$in. thickness of the piers. Thus the caps oversail the piers by $\frac{1}{8}$in. on all sides, except that of the pier facing the roadway.

The road surface may be built on a piece of scrap board as wide as necessary and 6ins. longer than the extreme width of the bridge across the piers. Upon this may be laid the road surface made up with sanded glue or emery paper strip, as desired.



Plan view with roadway batten removed

The wing walls butt up to the sides of the piers as shown, being made of triangular shape, and of such a size that they obscure the ragged ends of the embankments. They should be capped, as shown, with $\frac{1}{8}$in. by $\frac{3}{8}$in. stripwood, and small piers erected at their lower ends. These are also capped in the same style as that of the main bridge piers.



Plan view with dimensions, distances, and parts

Finish

The bridge may either be painted brick red, with white capping, or dressed with blue or red brick-paper in the orthodox style. If the latter method is adopted, the paper should be smeared with adhesive, and *not* the brickwork.

The paper should also be given time to expand after the application of the glue before being applied to the woodwork. If these two hints are not carried out, the brick-paper will dry ruckled and bubbly, and will not look at all nice.

A bridge of the type described is not at all difficult to make, and if the correct proportions are strictly observed, a model will be produced which will greatly improve the general appearance of a model railway whatever its gauge or scale. The front-view diagram is half-size for "OO" gauge, but dimensioned in inches for "O" gauge.

There is pleasure in making and using this

CHILD'S RUNABOUT SEAT

THE attractive little pull-along seen in our sketch will serve admirably for giving the tiny tots a ride round the lawn or garden. Its very attractiveness is got by its shaping, and, of course, by final decoration and painting after construction. It is quite a simple thing to make up, and should delight the fretworker, too, because there is some good work for his hand-frame or machine to do.

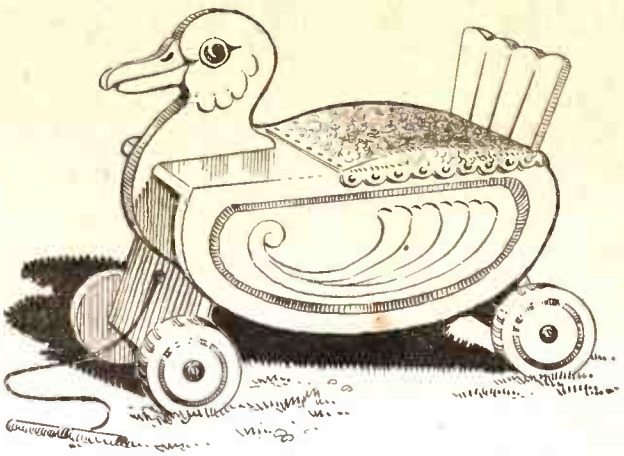


Fig. 1—A handy and attractive piece of work for a tiny tot

Construction

At the sketch, Fig. 1, we see a shapely padded seat, the head and tail of the duck realistically painted and the whole set up on four wheels. The overall measurements of the "trolley" may be seen in Fig. 2, but, of course, these may be enlarged somewhat as desired according to the age and weight of the youngster. It must be understood, however, that a thicker wood must be adopted if the model is made appreciably larger than that shown here.

Wood ½in. thick is suggested for the whole construction but with ¾in. stuff for the head. Some straight-grained pieces of timber should first of all be chosen for the sides, A, which may be first taken in hand. If two pieces cannot be got the full width required (9½ins.), then each side, A, can be made of two 5in. pieces of grooved-and-tongued board glued together ready for cutting to shape.

The Sides

In Fig. 3 we give a complete outline of one side, and exactly half of this diagram is ruled over with 1in. squares to facilitate the enlarging to full size. On a sheet of paper (light brown paper will serve very well), set out the inch squares as shown and follow each in getting the true curve. Set up the centre line on one of the prepared boards and pin the pattern to the latter, meeting the two centre lines where shown.

Draw over for the half curve, and then reverse the pattern for the second half of the curve, the line being visible on the paper from the imprint of the pencil from the previous lining in. Cut round the completed curve with a fretsaw and afterwards clean round the edges with coarse and fine glasspaper.

Note on the pattern in Fig. 3 where the holes are to be made for the screws, which go through the sides into the front and back boards, BB, see Fig. 4. These holes are again shown in the side view of the article in Fig. 2. The two boards, B, will next be cut. Their simple shape can be set out from the figured diagram in Fig. 4.

Interior Framing

Both boards are identical in shape and size. The top edges of each board must be bevelled as will be seen in Fig. 2 to fit snugly on to the top board, C—the seat. To get the positions of the screws which go through sides, A, into these uprights, B, it will be best to add the dotted lines to the latter just as shown in the diagram. This will give the slope of the two boards, which can now be laid on edgeways and the positions of the screws marked on from the holes already in pieces, A.

Bore shallow holes in the markings on the edges so that when the pieces are finally held in place, the screws will automatically find their positions, thus ensuring accuracy of slope and position. The screws should be countersunk into the sides, A, run well in and the heads afterwards covered with putty or a glue and sawdust compound.

The Seat

The seat, piece C, is next marked and cut out, note being made of the open slot into which the head of the duck will later be fitted and glued. The width of the slot will be ¾in., if that thickness of

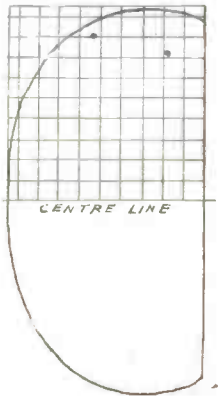


Fig. 3 Curve of side

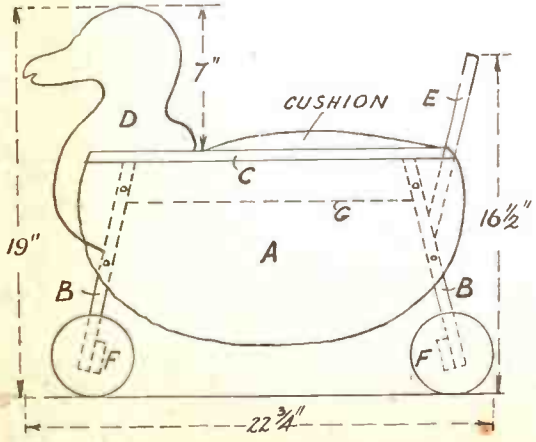


Fig. 2—Side view of parts with dimensions

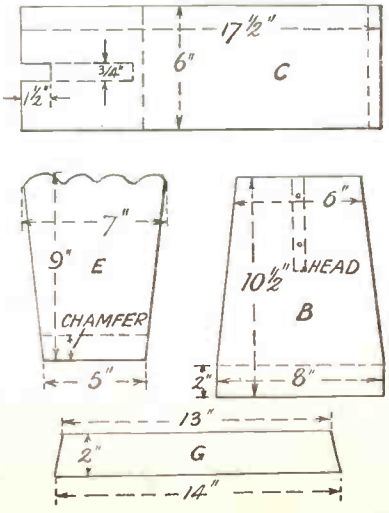


Fig. 4—Various pieces of the bodywork

Fig. 5—Head outline

wood is decided upon. The seat will lie on the sides, A, and will be glued and screwed to them, the edges being afterwards rounded off smoothly.

In Fig. 5 we see the outline of the duck's head, with inch squares running over it so that the full size outline may be made. A paper pattern should be made of the head, with eye and beak markings added so that after painting all over these latter markings may be transferred to the surface and these added finally in suitable colours.

The Head

The actual outline of the head should be made on the wood by means of carbon paper, the paper pattern over it being held down with drawing pins during the process. The cut edges of the head would look well if they were taken off and the whole rounded nicely with rasp and file, finishing with coarse and fine glasspaper.

Before actually fixing the head to the seat, test for accuracy of fit, filing and trimming away where necessary. Now add the glue to both seat surfaces and the parts of the head which form contact with it and press well in place. Screws should be run through the front board, B, into the neck of the duck from the inside, see board, B, in Fig. 4, where the position of the neck is shown dotted and also the places for the screws.

To stiffen the whole construction the inside rail, G, may be added. This is a plain piece, cut to the shape and measurements given at G, Fig. 4. Test for accuracy again before gluing and screwing the rail in place. Screws are run in from the seat downwards.

Next cut and fix the tail rail, E. This must be accurately marked out and cut. Its lower edge is shaped to a wide chamfer which fits on to the back upright, B, as seen in Fig. 2. Glue will hold it at this point with the help of a couple of screws. Screws will also be put in where the tail board abuts the seat board.

Rails and Wheels

The only other two rails now to add are those narrow ones on the inside of the uprights, B, which are seen as F, in Fig. 2. These rails are 8ins. long, 2ins. wide and ½in. thick. They must be securely glued and screwed on. to make a firm fixing for the wheels.

The four 4in. wheels can be bought from Hobbies, together with suitable screws for fixing. These wheels are nicely turned and ready for painting. Thin metal washers should be added to the inside of the wheels and also under the heads of the screws. All the paintwork should naturally be completed before the wheels are screwed on.

Painting

White paint would seem the most appropriate for such an article as this, although it would rather show the dirt after being in use a little while. The decoration on the sides could be picked out in two shades of red or green while the beak of the duck would be yellow and the eyes blue.

Finally when the paint has thoroughly hardened a comfortable seat could be added. First lay over some suitable padding and cover this with a fine hessian or cloth. Then over all this stretch on a square of Rexine or imitation leather and close nail this to the seat and along the edges, as shown, with round-head brass nails.

A stout rope and cross bar could be attached to the front, as shown, if desired, for pulling the youngsters and toddlers around the garden. Or it would serve when out walking.

What you must remember if you want to ensure GOOD FIXING JOBS

IT is all very well to make attractive hanging cupboards, towel rails, mirrors, etc., but in order to fulfil their usefulness these articles should be properly fixed to the wall. An article hanging by a nail is a menace.

On the other hand, a screw is little

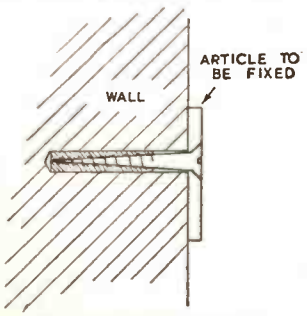


Fig. 1—Section showing plug and screw

better, unless it is fixed properly, and that is where many would-be handymen fail. They all know how to drill the hole, and they know that a plug should be used. But somehow the job, even with plugs, is a failure, so perhaps these hints will tell you why.

Long Plugs

Consider first of all a thin attachment, such as a splash tin for the wall behind the kitchen sink or the drilled lugs that hold a mirror. In such cases it is obvious that almost the whole screw must enter the wall, which means that the plain unthreaded shank of the woodscrew must enter the plug which you have placed in the hole.

But if you compare a No. 10 plug, screw, and drill, you will see that the diameters are equal. It should, therefore, be obvious that the shank of the screw will not enter into the hole if the plug is flush with the wall; there just is not room for it.

Wall Fixing

In such a case it is advisable to follow the system shown in the detail at Fig. 1. Simply sink the plug below the surface of the wall and you have a clear space for the screw shank to enter. Put a spot of grease on the screw and it will enter quite nicely without any of that wretched binding and tightening that

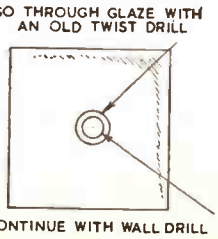


Fig. 2—Two holes in a wall tile

frays the screwdriver, the screw head, and your patience!

Incidentally, that spot of grease stops the screw rusting, and the chap who has to remove it will have an easier job.

So much for the screw that refuses to go in. Now what about the one that falls out? The common fault here is relying on plaster. Do not be too economical in length of screws, but use long ones that will go right through the plaster and enter the brickwork.

Fixing Tiles

Tiles are, perhaps, the worse things to plug because of their tendency to crack with the ordinary wall drill. The

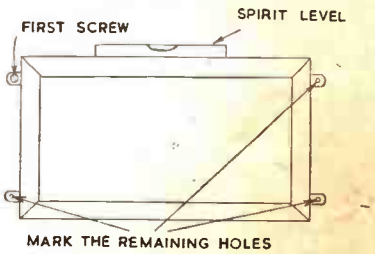


Fig. 3—How to fix accurately with a level

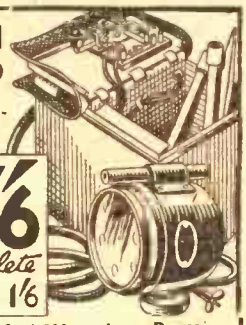
answer to this is to use an old twist drill and turn it slowly on the spot where the plug is required until the glaze has been penetrated. You can then tap away quite merrily without any fear of cracking your glaze. The two points are seen in the drawing at Fig. 2.

Using a Spirit Level

One last word about appearance. Always get the job level. To do this, fix the position of one screw. Drill the hole, plug it, and fix one corner of the job. Then put your spirit level on the job, centralise the bubble, and mark your remaining holes as shown quite clearly in the diagram at Fig. 3.

These little touches help to finish a job and give it the extra appearance and security that its manufacture or purchase deserves.

AMAZING Ex. Govt BARGAIN SIGNAL LAMP



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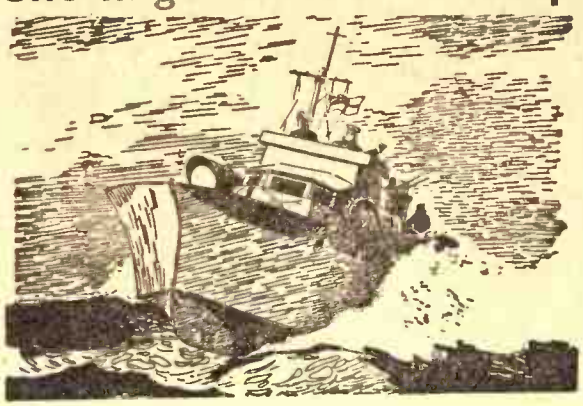

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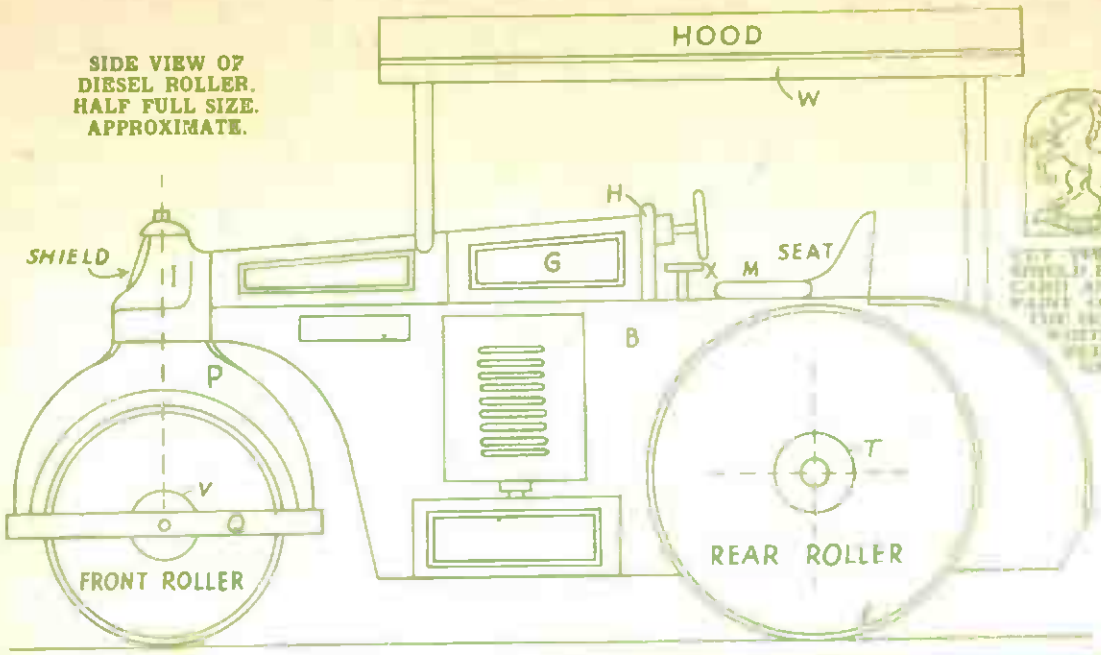
SIDE VIEW OF DIESEL ROLLER. HALF FULL SIZE. APPROXIMATE.



BOX ON LEFT SIDE OF ENGINE. CUT ONE 1 8in. AND ROUND OFF LONG EDGES.

COVERING FOR FRONT ROLLER. CUT ONE PIECE STOUT CARD TO LENGTH SHOWN AND GLUE TO THE TWO DISCS.

PIECE W. CUT TWO 1 8in.

PIECE S. CUT TWO 1 4in.

HOOD UPRIGHT. CUT TWO 3 16in. ROD. BACK.

FRONT AXLE. MAKE ONE 3 16in. ROD

PIECE R. CUT TWO 1/8in.

BACK AXLE. MAKE ONE FROM 1 4in. ROD

OVERLAY ON SIDE OF ENGINE. CUT TWO 1 8in.

AXLE

PIECE Q. CUT TWO 1 8in.

HOOD UPRIGHT. TWO 3 16in ROD FRONT

FRONT VIEW

HOLE FOR SCREW

STEERING WHEEL SHAFT. ONE 1 4in. ROD (3 16in. PASSED DOWN)

ROD FOR FRONT ROLLER CUT TWO 1 4in. AND GLUE INTO THE TWO DISCS AT U

PIECE P. CUT ONE 1 2in. AND RUB DOWN AT SIDES TO TAPER SLIGHTLY AS IN FRONT VIEW ON RIGHT.

6¾"

3½"

HOOD

STEERING WHEEL. CUT ONE 1 8in.

WHEEL X. CUT FROM CARD

HOLE FOR WHEEL.

SIDE VIEW

TOP. TO SCALE CUT ONE TO SIZE SHOWN OF STOUT CARD.

SIDE

3⅞"

CUT ONE PIECE OF CARD Y.

SIDE

FRONT ROLLER CUT TWO CIRCLES OF 1 2in. WOOD AND CONNECT TOGETHER WITH RODS U.

SEAT L. CUT ONE 1/8in.

PIECE M. CUT TWO 1/8in.

PIECE N.

CUT ONE FROM CARD AND BEND AND GLUE TO SEAT.

CASING TO REAR OF ENGENE. FIXED TO THE TWO SIDES

DISC V. CUT TWO 1 8in. AND RUB DOWN SLIGHTLY.

REAR

FRONT

HI

WASHER H1. CUT ONE 1 8in. AND GLUE TO H.

PIECE H. CUT ONE 1 8in.

PIECES G. CUT TWO 1 2in. AND GLUE TOGETHER AND SHAPE TO SECTION SHOWN ABOVE.

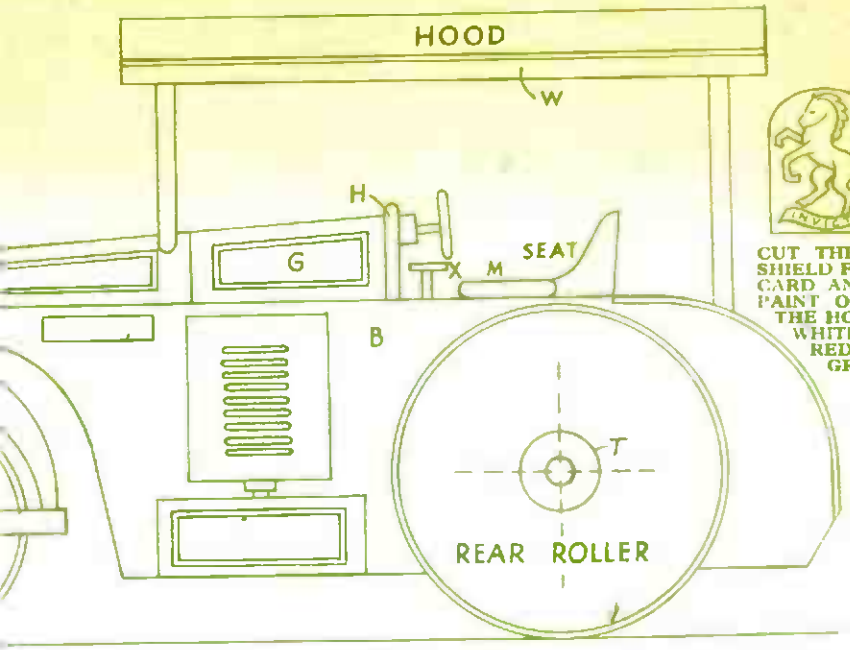
CHAMFER

Hobbies DESIGN

No. 2800 29-6-49

SUPPLEMENT TO HOBBIES No. 2800

MODEL DIESEL ROAD ROLLER



CUT THE SHIELD FROM CARD AND PAINT ON THE HORSE WHITE ON RED BACK GROUND

BOX ON LEFT SIDE OF ENGINE. CUT ONE 1 2in. AND ROUND OFF LONG EDGES.

COVERING FOR FRONT ROLLER. CUT ONE PIECE STOUT CARD TO LENGTH SHOWN AND GLUE TO THE TWO DISCS

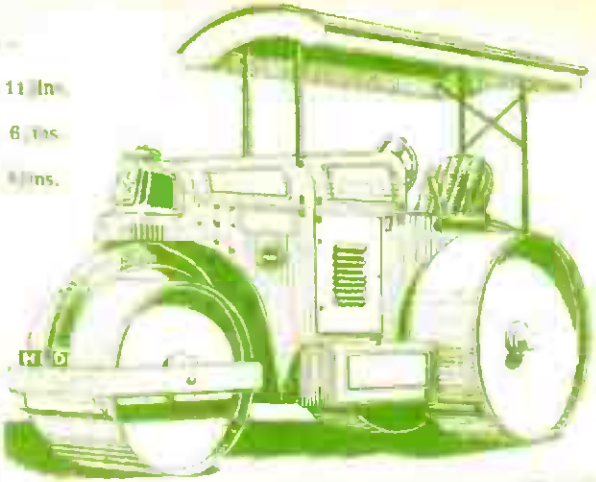
7¾

SIZE

LENGTH 11 ins.

HEIGHT 6 ins.

WIDTH 4 ins.



10¾

COVERING FOR REAR ROLLERS. CUT TWO PIECES STOUT CARD TO LENGTH SHOWN AND GLUE TO WHEEL DISCS

PANELS OF WOOD REQUIRED FOR THIS DESIGN

Two ND8 One H4 One G2

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

PIECE W. CUT TWO 1/8in.

PIECE S. TWO 1/4in.

HOOD UPRIGHT. CUT TWO 3 16in. ROD. (BACK).

FRONT AXLE. MAKE ONE 3/16in. ROD.

PIECE R. CUT TWO 1/8in.

BACK AXLE. MAKE ONE FROM 1 4in. ROD.

OVERLAY ON SIDE OF ENGINE. CUT TWO 1/8in.

AXLE

PIECE Q. CUT TWO 1/8in.

HOOD UPRIGHT. TWO 3 16in. ROD. FRONT.

HOLE FOR SCREW

FRONT VIEW

ROD FOR FRONT ROLLER. CUT TWO 1/4in. AND GLUE INTO THE TWO DISCS AT U.

STEERING WHEEL SHAFT. ONE 1 8in. ROD (3 16in. PARED DOWN)

PIECE P. T ONE 1 2in. AND DOWN AT SIDES TO ER SLIGHTLY AS IN NT VIEW ON RIGHT.

SIDE VIEW

6¾"

3½"

HOOD

TOP. TO SCALE. CUT ONE TO SIZE SHOWN OF STOUT CARD.

STEERING WHEEL. CUT ONE 1/8in.

SIDE

3⅜"

CUT ONE PIECE OF CARD

U

V

FRONT ROLLER. CUT TWO CIRCLES OF 1/2in. WOOD AND CONNECT TOGETHER WITH RODS

T

REAR ROLLER. CUT FOUR CIRCLES OF 1/2in. WOOD AND GLUE TOGETHER IN PAIRS.

FRONT VIEW ON RIGHT.

WHEEL X. CUT FROM CARD.

SPINDLE FOR WHEEL.

SIDE VIEW

SEAT L. CUT ONE 1/8in.

PIECE M. CUT TWO 1/8in.

PIECE N.

CUT ONE FROM CARD AND BEND AND GLUE TO SEAT.

3½"

HOOD

TOP. TO SCALE. CUT ONE TO SIZE SHOWN OF STOUT CARD.

CUT ONE 1 8in.

SIDE

3⅞"

CUT ONE PIECE OF CARD Y.

SIDE

CASING TO REAR OF ENGINE. FIXED TO THE TWO SIDES.

FRONT ROLLER. CUT TWO CIRCLES OF 1/2in. WOOD AND CONNECT TOGETHER WITH RODS U.

V

U

U

REAR ROLLER CUT FOUR CIRC OF 1/2in. WOOD GLUE TOGETHE IN PAIRS.

DISC T. CUT TWO 1 8in. AND RUB DOWN.

K

DISC V. CUT TWO 1 8in. AND RUB DOWN SLIGHTLY.

REAR

FRONT

HI

PIECE H. CUT ONE 1/8in.

PIECE I. CUT TWO 1 2in. AND GLUE TOGETHER.

SHIELD

SIDE VIEW

SHOWING HOW PIECE I IS

WASHER H1. CUT ONE 1 4in. AND GLUE TO H.

PIECES G. CUT TWO 1/2in. AND GLUE TOGETHER AND SHAPE TO SECTION SHOWN ABOVE.

CHAMFER

FLOOR A. CUT ONE 1/2in. AND CHAMFER END EDGES TO SECTION.

THE ARROWS INDICATE DIRECTION OF GRAIN OF WOOD.

PIECE C. CUT ONE 1/4in.

PIECE D. CUT ONE 1/4in.

PIECE E. CUT ONE 1/4in.

PIECE F. CUT ONE 1/4in.

F

C

D

E

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

SIDE B. CUT TWO 1/4in.

FLOOR A

PRINTED IN E

FOR THIS DESIGN

Two ND8 One H4 One G2

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SHOWN AND GLUE TO WHEEL DISCS.

TWO 3 16in. ROD. BACK.

NE 3/16in. ROD.

n. ROD.

VO 3/16in. ROD. FRONT.

RONT ROLLER. /4in. AND GLUE WO DISCS AT U.

STEERING WHEEL SHAFT. ONE 1 8in. ROD (3 16in. PARED DOWN)

OVERLAY ON SIDE OF ENGINE. CUT TWO 1/8in.

6¾" HOOD

STEERING WHEEL. CUT ONE 1 8in.

ONE TO SHOWN STOUT CARD.

SIDE

3⅞

CUT ONE PIECE OF CARD Y.

SIDE

CASING TO REAR OF ENGINE. FIXED TO THE TWO SIDES.

EAT.

FRONT ROLLER. CUT TWO CIRCLES OF 1/2in. WOOD AND CONNECT TOGETHER WITH RODS U.

U

V

U

REAR ROLLER. CUT FOUR CIRCLES OF 1/2in. WOOD AND GLUE TOGETHER IN PAIRS.

T

DISC T. CUT TWO 1/8in. AND RUB DOWN.

K

J

CUT ONE OF EACH 1/8in.

REAR

FRONT

DISC V. CUT TWO 1 8in. AND RUB DOWN SLIGHTLY.

HI

PIECE H. CUT ONE 1/8in.

WASHER H1. CUT ONE 1/4in. AND GLUE TO H.

PIECE I. CUT TWO 1/2in. AND GLUE TOGETHER.

SHIELD

J

K

SIDE VIEW

BACK VIEW

SHOWING HOW PIECE I IS SHAPED.

CHAMFER

CHAMFER

FLOOR A. CUT ONE 1/2in. AND CHAMFER END EDGES TO SECTION.

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C

D

E

Y

SIDE B. CUT TWO 1/4in.

FLOOR A

PRINTED IN ENGLAND.

MODEL D

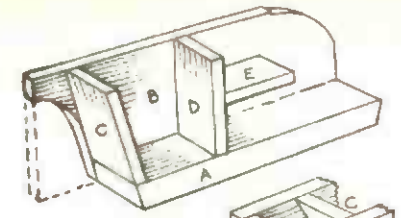
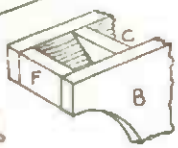


Fig. 1—Main body work



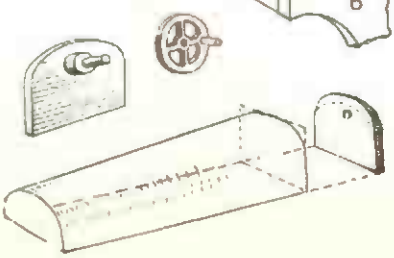
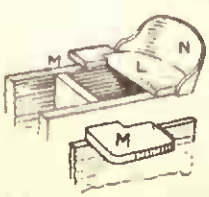


Fig. 2—Bonnet shape and steering wheel detail



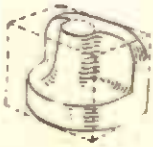


Fig. 3—Seat and side wings

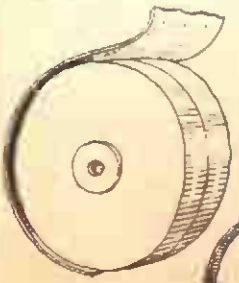


Fig. 4—Front end shaping

Fig. 5—Construction of roller and large wheels

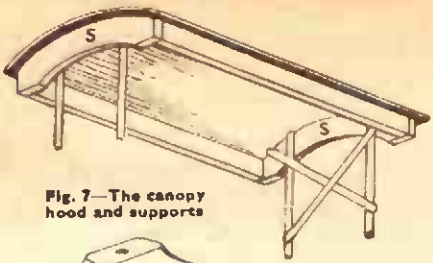


Fig. 7—The canopy hood and supports

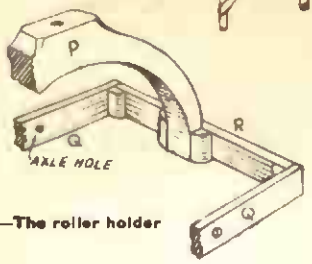


Fig. 6—The roller holder

THIS Model Road Roller is nearly 12ins. long when complete, and is of the type of diesel-engine-driven which has now superseded the old-fashioned tall funnel steam roller. The model is completed from the kit of wood, the parts cut out with the fretsaw, cleaned and constructed according to the following details.

The patterns need not be pasted on to the wood, but transferred to the boards by means of carbon paper underneath, or with the complete tracing taken off. The parts are lettered roughly to their consecutive building, and an idea of how to put the pieces together should be understood by reading this article and studying the detail diagrams also provided.

The Body Work

The whole thing is built up on the ¼in. floor A, to which the two sides are glued. In turn, the cross pieces, C and D, are glued firmly in, with the projecting piece, E, afterwards added. Notice the slope which will mean chamfering the edges of part, C. This constructional drawing is shown in Fig. 1.

During the whole construction, too, the side view of the whole thing from the top left-hand corner of the design sheet will be most helpful. This is half full size so that check and test can be made with rule and compasses for all parts being cut. The back end of the main body is covered with a piece of card, but this should be left until last to allow access to the inside. Holes for all axles and rods should be bored with a brace and bit to ensure accuracy and smooth running.

Engine Shape

The top to the main engine body is the sloping block piece, G. This is shown composed of two pieces ¼in. thick glued together, but if you have one piece ⅜in. thick it will save a lot of trouble. Both ends are rounded along the top which should be done from back to front.

At the rear end is then added the piece, H, into which a little hole is driven for taking the driving wheel column. This part, H, is glued on in line with the lower edge of, G, so the upper curve projects a little above. The wheel with its column and washer is glued as shown also in Fig. 2. The column wheel shaft is shown on the pattern ¼in. diameter and the 3/16in. rod provided must be whittled down and rounded to this.

The seat formation is shown in Fig. 3, the lettered parts being glued together as shown on the top of the main body. This seat is glued in

MODEL DIESEL ROAD ROLLER

THIS Model Road Roller is nearly 12ins. long when complete, and is of the type of diesel-engine-driven which has now superseded the old-fashioned tall funnel steam roller. The model is completed from the kit of wood, the parts cut out with the fretsaw, cleaned and constructed according to the following details.

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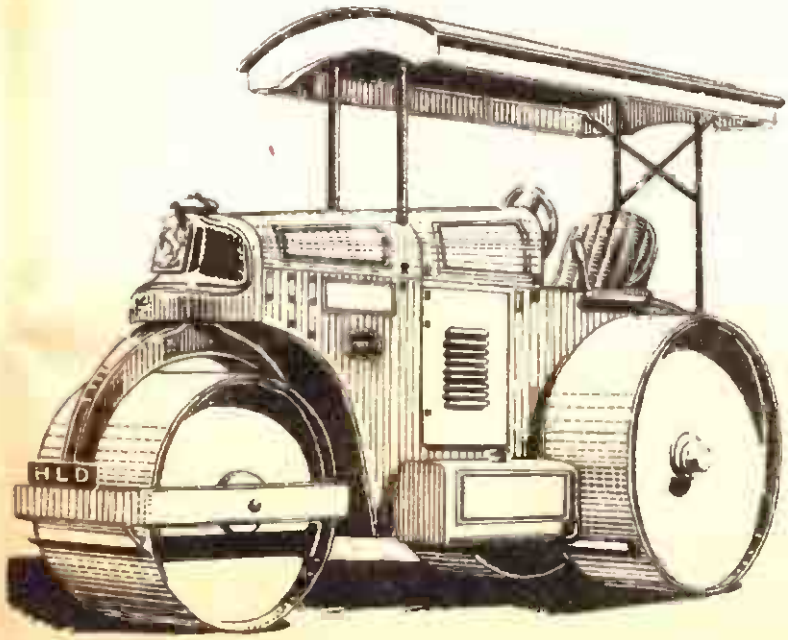

The Body Work

The whole thing is built up on the ¼in. floor A, to which the two sides are glued. In turn, the cross pieces, C and D, are glued firmly in, with the projecting piece, E, afterwards added. Notice the slope which will mean chamfering the edges of part, C. This constructional drawing is shown in Fig. 1.

During the whole construction, too, the side view of the whole thing from the top left-hand corner of the design sheet will be most helpful. This is half full size so that check and test can be made with rule and compasses for all parts being cut. The back end of the main body is covered with a piece of card, but this should be left until last to allow access to the inside. Holes for all axles and rods should be bored with a brace and bit to ensure accuracy and smooth running.

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The top to the main engine body is the sloping block piece, G. This is shown composed of two pieces ¼in. thick glued together, but if you have one piece ½in. thick it will save a lot of trouble. Both ends are rounded along the top which should be done from back to front.

At the rear end is then added the piece, H, into which a little hole is driven for taking the driving wheel column. This part, H, is glued on in line with the lower edge of, G, so the upper curve projects a little above. The wheel with its column and washer is glued as shown also in Fig. 2. The column wheel shaft is shown on the pattern ¼in. diameter and the 3/16in. rod provided must be whittled down and rounded to this.

The seat formation is shown in Fig. 3, the lettered parts being glued together as shown on the top of the main body. This seat is glued in place at the point where the recess is made for the cover card, W, previously mentioned.

The front of the engine is, again, composed of two pieces of wood glued together and shaped as shown in Fig. 4. The tiny shield of the Invicta is leaned against the shaped front when the whole thing is painted and finished.

Roller and Wheels

Roller and wheels are made up from complete circles of wood and glued to the spindles the length given. Remember not to glue the wheels on both ends of the spindles until the latter has been threaded through the model.

The construction of the roller and of the wheels is shown at Fig. 5 and in both cases the actual cover piece is composed of card, the sizes of which are given on the sheet. Washers are glued on each on the outside of the card, and then the front roller can be fixed in its holder which is a ¼in. shaped piece tapered slightly at the sides as shown.

Roller Holder

This roller support is fitted to a framework constructed as shown in Fig. 6 where you can see the small inside blocking pieces which stiffen up the whole thing. The holes drilled in the side pieces of the frame will, of course, take the spindle running through the whole roller, whilst the top of the roller holder pivots on a piece sunk into the underside of the engine top.

The Hood

A detail of the hood is shown at Fig. 7. The part is supported on four pieces of rod, the lengths of which are shown on the sheet. The front ones are shorter than the back, and are glued inside the drop sides to the hood and then the bottom end to the framework of the body. You can bore two small holes in the engine top to take a little of the rods and two similar ones at the back where they fit on the rounded portion. You see the position in the side view and in the picture of the finished article. The hood itself is made of a piece of card 3½ins. by 6½ins. and glued with an overlap all round.

Additional parts added are the radiator grill cut from ¼in. wood and glued each side of the engine. There is also a box which is rounded in the form of a rectangular tank and glued to the left-hand side under the radiator piece.

Painting

Much of the effect of the whole model, of course, is made by the way in which it is painted. Poster paint or ordinary enamel must be used, but must be applied carefully. You could finish the whole thing in green with the hood grey, wheels can be black with a grey road tread surface.

Other parts can be picked out with black to suggest the roller holder, the front of the engine, etc. Panel lines in red will add to the attractiveness and these can be followed from the picture of the finished article above.