

Hobbies

WEEKLY

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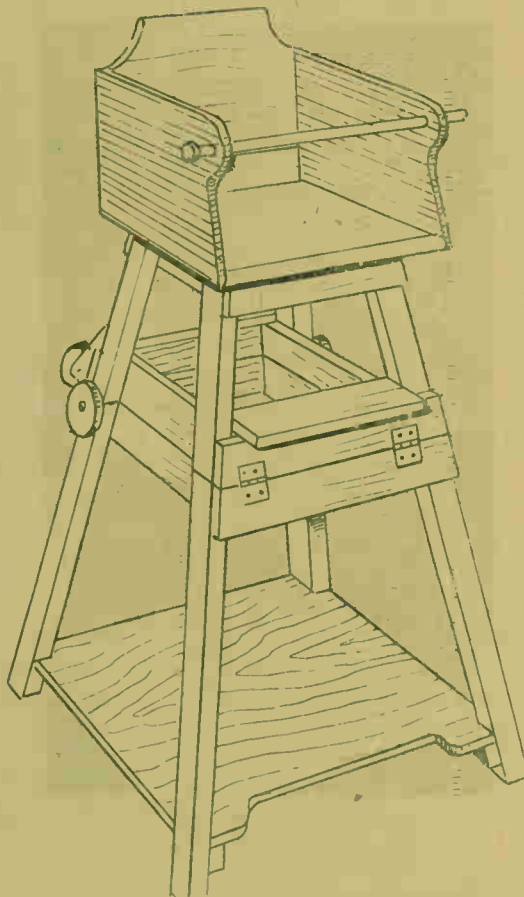
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May 5th, 1948

Price Threepence

Vol. 106 No. 2740

How to construct a convertible folding CHILD'S HIGH CHAIR



THIS is an excellent design of high chair, deservedly popular in the home. It folds so the bottom part serves as a play tray or dining table for the child. A few slight liberties have been taken with the professional article to simplify construction, so rendering it within the carpentry abilities of the amateur. Another point, worthy of mention, is the use of common hinges in place of the special ones generally employed.

A side view of the chair is given at Fig. 1 and a front view at Fig. 2. Most of the dimensions can be gathered from these diagrams. The detail, Fig. 3, shows the simplified construction.

The wood for the rails is $\frac{1}{2}$ in. or $\frac{3}{4}$ in. thick, that for the legs 1 in. square, or if to be cut from standard planed board, $\frac{3}{4}$ in. by 1 in. The top and bottom rails are $1\frac{1}{2}$ ins. wide, the middle ones 4 ins. wide. These latter rails are afterwards sawn in two. The splay of the legs is effected by cutting the rails to a slope of 10 degrees, as at A.

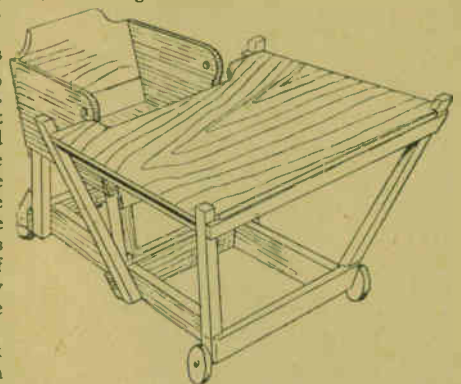
Fix the front and back pair of legs together with

the top and bottom rails, and note here how these rails, also the middle ones, are rebated at each end, as at A, to fit over the legs. The rebates will leave the ends $\frac{1}{4}$ in. thick. Fix the rails across with glue and nails, except the front bottom one.

Side Rails

This rail is to be removed later on, so is temporarily fixed with a single nail at each end. Let the glue set, then cut and fix the side rails, nailing these to the legs. It will be seen from Fig. 3, these side rails are not rebated, but butt up against the rails of the front and back.

The ends must be cut at the 10 degrees slope, like the remainder, of course, but to make the whole thing square are less in length. For instance, at the top the rails should be $\frac{1}{4}$ in. less on account of $\frac{1}{4}$ in. of the front and back rails already fixed between the legs.



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

The wood for the middle rails is now prepared. The exact length of these will be gathered from actual measurement across the legs, at the distance down given. When the glue is hard, the table can be nailed across. This is best cut from plywood or plywood substitute, if possible, but failing either of these, $\frac{1}{2}$ in. thick deal will serve.

The table touches the front legs, and is cut at the back corners to fit over the rear legs. It is nailed to the rails, either above or below, as preferred. If it is nailed above, when

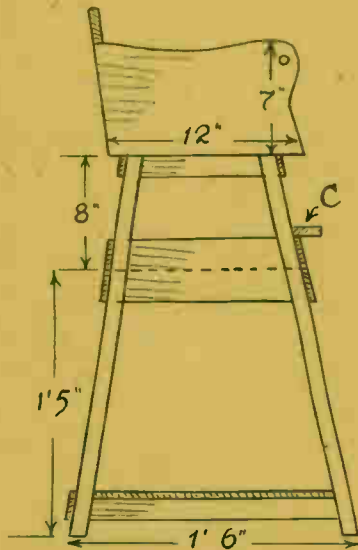


Fig. 1—Side view of chair in one piece

folded over the rails form a rim, if under, as in the view of the chair, folded, a clear space is left, $1\frac{1}{2}$ ins. higher, rather more convenient if the child is a little older. Readers can please themselves about this point. The front bottom bar can now be removed.

Cut into Two Parts

The chair is now sawn in two parts, through the middle of the centre rails, and the parts fitted together again with a pair of $1\frac{1}{2}$ in. iron back flap hinges. To keep the chair from tilting forward when lifted, a simple brass catch can be fixed as shown in the rear detail, Fig. 4, B.

MODEL FIRE ENGINE DESIGN

This week's large supplement design is for an attractive model of a modern Merry-weather Fire Engine. The wood, rubber hose, wire, etc., for all parts is supplied in Kit No. 2740 for 2/6 at Hobbies Branches or 3/3 post free from Hobbies Ltd., Dereham, Norfolk.

A footboard for the child's feet to rest on can be provided by hinging a $\frac{1}{2}$ in. by 3 in. strip of wood between the legs above the front middle rail, as at C, Fig. 1. It is hinged to the rail so that it can be lifted up out of the way as required.

If the legs are now fitted with suitable wheels, the folded chair can be easily pushed anywhere required. Ordinary metal or wooden wheels, 3 ins. diameter will do nicely here. The rear detail, Fig. 4, B, will be a guide to fitting these correctly, in company with the side detail given with it.

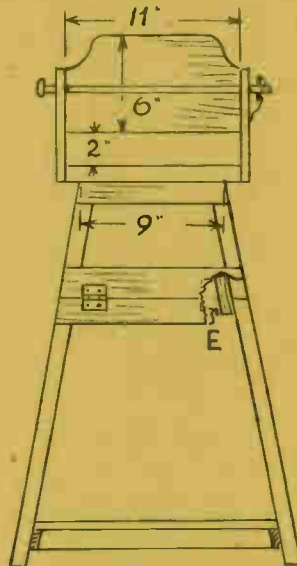


Fig. 2—Front view of chair and one hinge

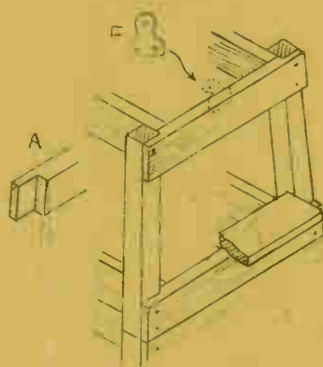


Fig. 3—Construction of framework

To the lower half of the legs, a wedge-shaped strip of wood, the same width as the legs and cut to a 10 degrees slope, is glued to provide a flat, the wheels being fitted to this with suitable round-headed screws. Drive the screws in at $\frac{1}{2}$ in. down from the top so that, using 3 in. wheels, the wheels will raise the chair $\frac{1}{2}$ in. above the floor.

Wood brackets 4 ins. long and 3 ins. wide are cut to the shape shown at D, Fig. 4. These are cut away to fit over the cross rails and are there screwed both to rails and legs. The

wheels for the top half of the chair are fitted to these, as seen in the diagram.

As these wheels raise the folded chair above the floor, it will be necessary to provide a pair of short legs, as shown in cut-away detail E, in Fig. 2, to support the middle part of the chair, and ease any strain.

WOOD REQUIRED

Legs (4) 2ft. 1in. long, 1in. wide, 1in. thick.
Narrow rails $\frac{1}{2}$ in. by $1\frac{1}{2}$ in. 9ft. run.
Wide rails $\frac{1}{2}$ in. by 4ins. 4ft. run.
Table 1ft. 6ins. long, 1ft. 4ins. wide.
Seat 12ins. long, 11ins. wide, 1in. thick.
Seat sides (2) 12ins. long, 7ins. wide, 1in. thick.
Backrest 11ins. long, 6ins. wide, 1in. thick.

The legs are pieces of wood $2\frac{1}{2}$ ins. long, and are nailed and glued, one to each of the legs at the top half of the chair, and should extend below the rail $\frac{1}{2}$ in.

The Chair Seat

The seat of the chair can now be made. Cut the sides of this to the shape given in Fig. 1 from $\frac{1}{2}$ in. or $\frac{3}{4}$ in. thick wood. Trim the back edges to a convenient backward slope, and at the front, bore a hole each side into which a stick can be pushed to prevent a young child falling out.

The bottom of the chair can be cut from slightly thicker wood. It is 17 ins. long and 11 ins. wide. Nail the sides to the bottom, then cut the back rest, seen in Fig. 2, and nail that between. The seat is fixed to the chair with brass plates, of the shape

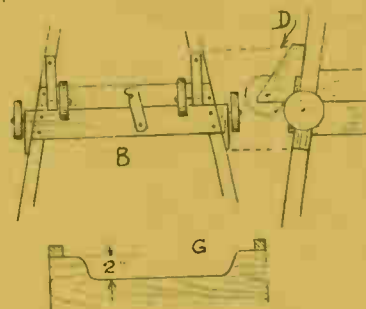


Fig. 4—Details of wheels and joining

shown at F, in Fig. 3, bent at right angles and screwed both to the rails and seat.

Now fold the chair, and it will be seen that the front edge of the table will need to be cut away a little, as at G, in Fig. 4, to allow necessary room. Trim the bottom edges of the legs a little, to bed flat on the floor.

Round off all angles and sharp corners, and glasspaper the wood all over to smoothness. The completed chair should be stained, oak colour looks nice, and then have two coats of varnish.

Wood, metal strips and glass can make a striking LANTERN LIGHT

THE lights of a room should always bear their full share in the decoration of that room. They should also emphasize the general colour scheme, and be in keeping with the general structural features and the woodwork of a room.

A room panelled, shall we say, in dark oak, with skirting to match, and, perhaps, a narrow shelf for china, calls at once for a wall bracket light in oak and copper or brass.

The little hanging bracket lantern described here would be suited to a panelled room or an entrance hall. Copper and brass are in poor supply so we have to fall back on the use of thin sheet steel or "tin" as it is so frequently and wrongfully named. Very good effects can be got by its use nevertheless, and it can be finished off in one or two ways, according to the variety of wood adapted for the structural part of the light.

Wall Plate

In Fig. 1 the wall plate is shown with measurements, its thickness suggested being $\frac{1}{2}$ in. Oak, of course, is the ideal wood for this but a piece of straight-grained deal would answer almost as well, and this could be stained dark and oiled or varnished

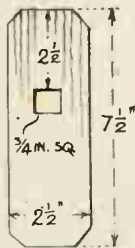


Fig. 1—Shape of wall plate

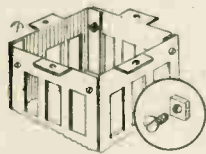


Fig. 4—The metal lugs

to give a good appearance. In the square hole shown a 7 in. piece of $\frac{1}{2}$ in. square wood is glued firmly and its sides finished off in the same manner as the wall plate.

Turning to the details in Fig. 2, the various metal parts are shown and the manner in which they should be secured is clearly illustrated. Ordinary sheet steel is suggested, that from ordinary clean containers or boxes being quite suitable when opened out

flat and hammered to make a workable sheet.

One or two ordinary tools will be required for the working up and the shaping of the various parts. A firmly fixed vice is essential, with a pair of "snips" or shears for cutting the metal, and files for smoothing and levelling the cut edges.

The strips of metal mostly about, $\frac{3}{8}$ in. to $\frac{1}{2}$ in. wide, must be marked with a pointed scriber to the measurements given and then cut and cleaned and the surface levelled and prepared for the finish of matt black paint. Round-head screws are best for the fixing, the holes being first set in with a centre punch and then either drilled or punched through with a stout nail. The roughness at the reverse side is filed away and the surrounding metal hammered flat. To angle up the metal, the vice will be used, a bar of square hard steel being first clamped in it for hammering the edges of the strips square.

Support Hook

It will be noted from Fig. 2 that the hook supporting the lantern is screwed to the top edge of the outstanding wood bracket, and that the two side strips of metal are brought round in front of it and screwed on each side. The supports of metal above and below the bracket

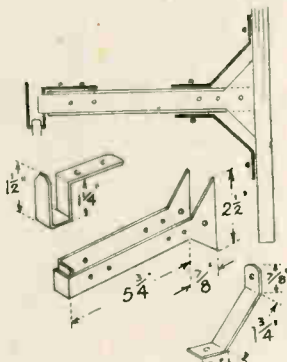


Fig. 2—The metal parts with sizes

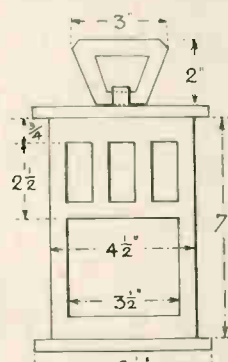
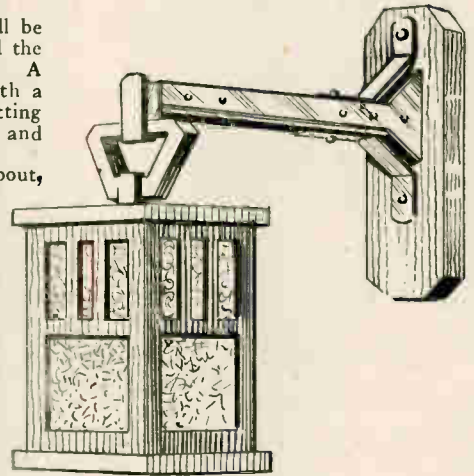


Fig. 3—Side elevation of lamp

are identical, are marked out and angled up to 45 degrees as shown, and are screwed through to the wood back and bracket.

The Lantern

The lantern is illustrated in Fig. 3, and the measurements can all be taken from this diagram. First mark out and cut the top and base. Each is of wood $\frac{1}{2}$ in. or $\frac{3}{8}$ in. thick, and the floor inside should have a bulb holder



attached to it to take a small ordinary electric light bulb or a candle bulb.

The body of the lantern is square and may be made in two lengths of metal 9 $\frac{1}{2}$ ins. long by 8 ins. wide. Or, to suit smaller pieces of the metal, the four sides may be entirely separate. In any case, whether there are the four distinct sides or only the two pairs, they will be angled up and held together by small bolts and nuts like those shown in the circled diagram in Fig. 4. They can be bought cheaply at any ironmongery stores.

The four openings in each side may be cut out with a proper metal-cutting chisel, or they may be cut through with a metal-cutting fretsaw. These special sawblades can be obtained from Hobbies.

Glass Sides

In cutting the sides note there are two lugs on each of these to take the screws of the top and floor of the lantern (see Fig. 4). Glass may be fitted inside the lantern and held in place by right-angle lugs of metal $\frac{1}{2}$ in. square, screwed to the top and bottom inside and allowing for the thickness of glass.

The glasses will be slid up to the top member and the floor then placed on, the lugs in the floor coming at the back or inside of the glasses, thus holding them rigidly in place.

The shaped loop on top of the lantern may consist of $\frac{3}{8}$ in. wood cut to the shape and measurements shown in Fig. 3, a metal clip being bent and carried through the top member of the lantern to hold it rigid. Or the clip may be angled up and fixed by two round-head screws to the outer surface of the top.

Books to Read!

These reviews are of some recent books published, which are of particular interest to readers. Obtainable through booksellers or the publishers mentioned.

Television Simply Explained

by R. W. Hallows

THOSE of us who knew the early excitement of amateur and often immature radio reception, find the same interest in the introduction and progress of Television. The younger generation can find it even more exciting by reason of their increased and widened knowledge. To many the elements of television are obvious—to many its mystery needs deep and mathematical knowledge. There are, as the author says, many books on the subject, but most are written by efficient scientists whose elaboration is often beyond the ability of the ordinary mind to cope with. Here, however, is a book which anyone can read and almost enjoy in its easy method of imparting knowledge. The thoughtful reader can follow its stages and simple parallels with comparative ease. There are no mathematics beyond simple arithmetic, no scientific jargon which is meaningless to the lay mind. The author, having been successful with his book on Radar, is now adding further aid to the average man with a clear, concise, and readable book on Television. He assures us that the "big-screen" television will undoubtedly come, and it behoves all of us who desire to keep abreast of the times to know something of why and how such apparent mysteries can be understood. This book certainly does a lot to help us learn. It is well printed, has both helpful diagrams and index and is well enough bound to warrant the frequent handling it is sure to receive.

(Published by Messrs. Chapman & Hall, 37 Essex Street, London, W.C.2—Price 9/6).

Lino Cuts

by H. E. V. Gillham

A BOOK which will be of particular interest to our readers who desire a pastime requiring few inexpensive tools, to yield a creative and interesting craft. With lino blocks you can produce an endless number of pleasing prints of your own design, without a great deal of labour, or time or room. It is a hobby which can be enjoyed at any age, and forms a restful recreation with lasting results. The chapters are easily progressive—commencing with tools and materials and simple examples, to some pleasing work in several colours. The book is well illustrated

with clear diagrams in black and white as well as examples in actual colours of some designs which can easily be completed. The chapters deal with designing, cutting and printing and give a number of suggestions of practical ways in which the resulting prints can be used—for calendars, Christmas cards, book prints, general cards, etc. One does not have to be either an artist or skilled craftsman to be able to undertake and enjoy the work so pleasingly explained by the author.

(Published by Thomas Nelson & Sons, Ltd., Parkside Works, Edinburgh 9—Price 4/6).

Teach Yourself Sailing

by C. Tyrrell Lewis

THERE should be little need to recommend a book beyond saying that it is one of the "Teach Yourself" series. The whole range of these yellow-jacketed manuals are real books of knowledge and reference—well written, clearly printed and amply bound. Sailing can be restful or exhilarating, and we know of no finer enjoyment than handling a boat and pitting your knowledge and strength against, or with, wind and tide. Mastery and self confidence can

be attained even with the beginners dinghy, and once the basic principles and practical experience are obtained, the thrill of running, hauling, tacking and stowing are known as immeasurable delights. The first single-handed venture will bring a desire of continuance and improvement, and those who study this helpful book can get the more out of the game than by learning the hard way. We can recommend the book thoroughly with the suggestions that it will provide much delight during the coming months, to anyone in the vicinity of inland waterways or river. (Published by The English University, Ltd., St. Paul's House, Warwick Square, London, E.C.4—Price 4/6).

The Electrical Handicraftsman and Experimenter's Manual

by H. R. Langman and J. H. Moore

ALTHOUGH this book was published shortly before the War, its usefulness has not depreciated nor the contents become out of date. Its re-issue now should meet a popular demand amongst the large number of our readers who can find interest and curiosity in the multifarious uses of electricity today. The pictorial type

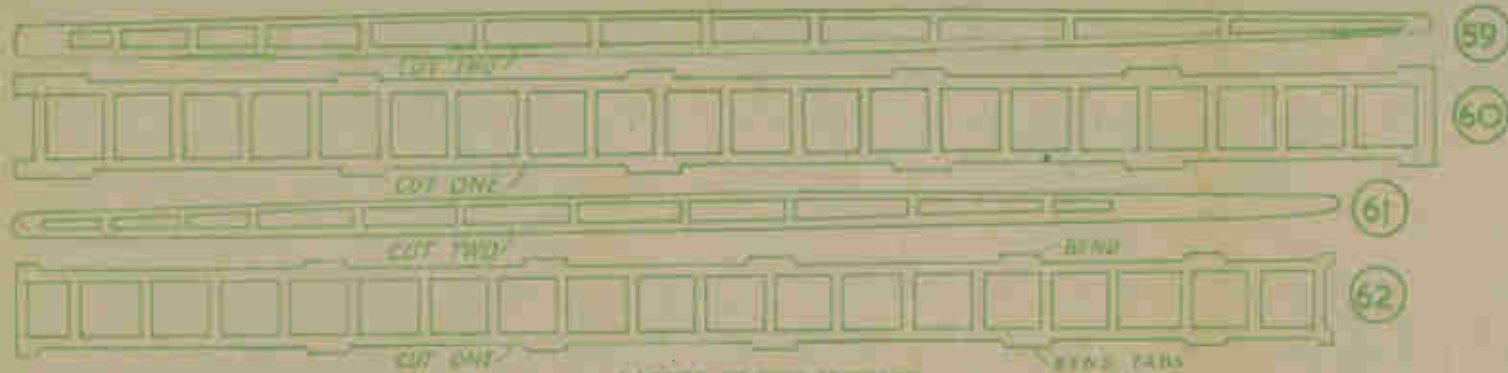
From the Editor's Notebook

HOW about making, as a hobby, a complete copy of the Bible printed, in a book 1½ins. high, 1½ins. wide, and ¾in. thick—about the size of a matchbox! It can be done, because Mr. J. A. Smith of Stanmer Park Rd., Brighton, has done it. And even smaller than that—down to books 5/16in. high and 3/16in. thick. Of course, you might not be as successful as Mr. Smith, because he went into his grandfather's book binding business years ago and gave it up 30 years ago. But it just shows!

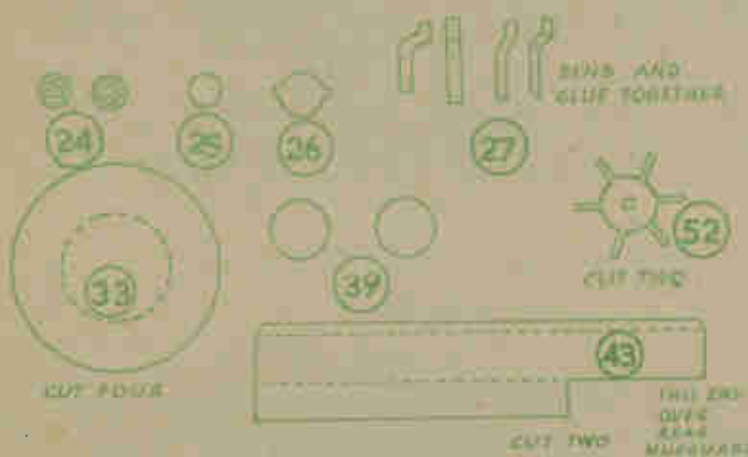
TWO readers overseas are badly in need of some designs published many years ago, and if anyone has them and can forward, I am sure all concerned will be very happy. Mr. David Knowles (a reader for the past 44 years) of 230 Wood Avenue, Westmount, Montreal, Canada, wants the pre-war designs of the Big Ben

Clock (No. 209 Special, published with the 1939 Handbook) and the Model Fort (189 Special), published with the 1935 Handbook. Mr. C. Hardy, 2 Kanika Rd., Whangarei, New Zealand, wants the Lord Mayor's Coach Designs (No. 1985 and 1986) and the Coronation Coach Design (No. 203 Special). If you have these designs, write direct to the addresses given, either telling the reader about it, or sending the sheets.

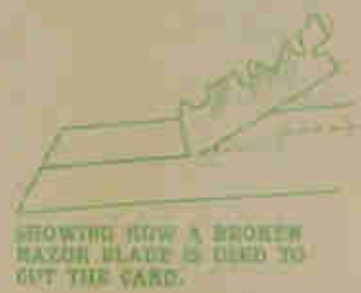
KNOWLEDGE of a plastic cement which can be moulded and shaped and which finally sets stone hard is useful to readers in their other work. I would recommend them to get the new Instruction Book on modelling with Pyruma, which the manufacturers have just published. It is a 16-page booklet costing only 3d. at Hobbies Branches showing things to make and how to make them. **The Editor.**



LADDER (K TWO SECTIONS)



CARD
THESE PIECES ARE ALL MADE FROM THIN CARD

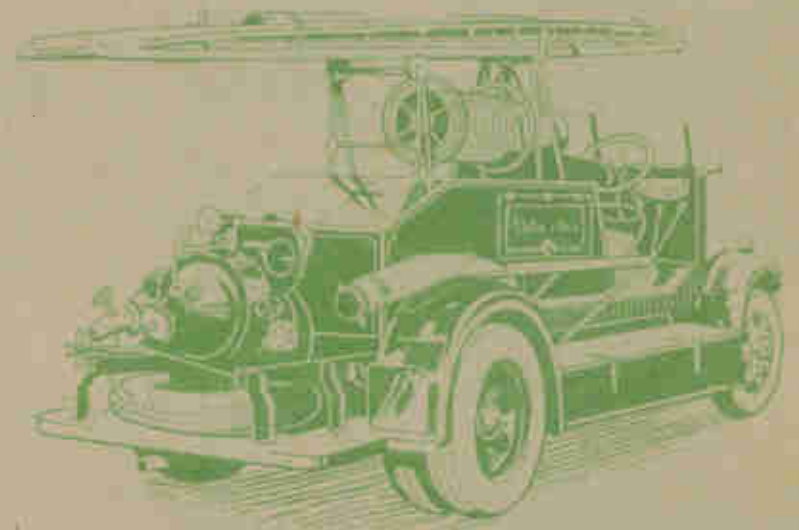


NOTE: This design sheet is only presented free with the current issue of Hobbies and may vary with back numbers. Further copies may be obtained.

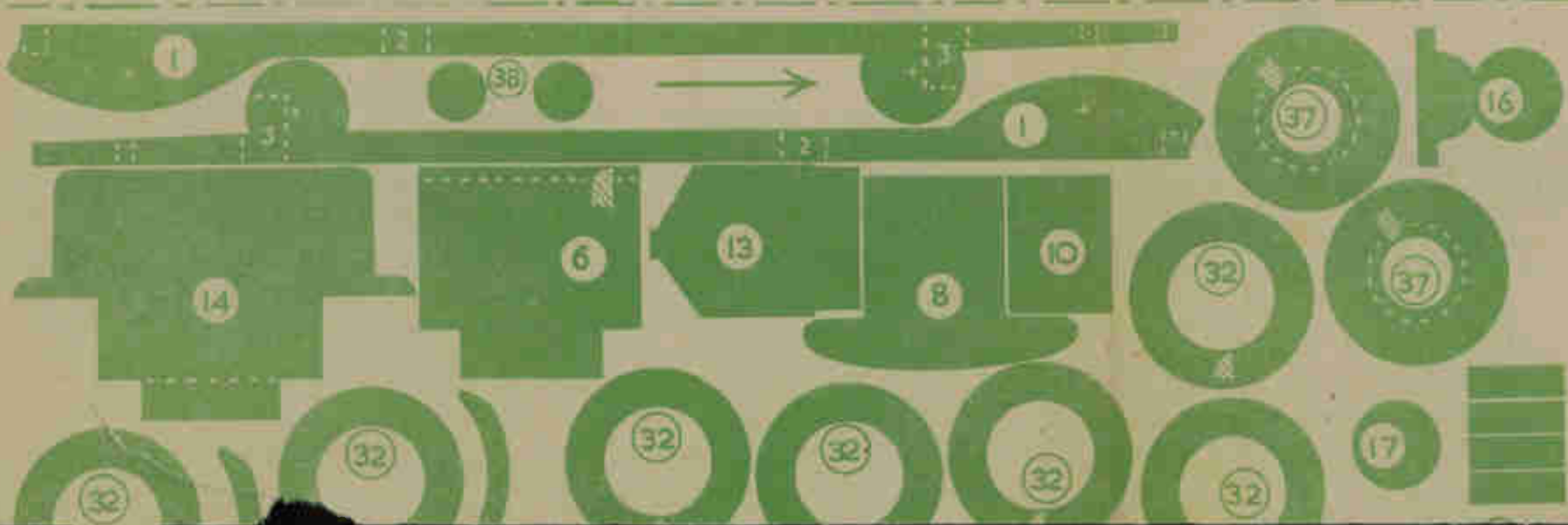
SUPPLEMENT TO HOBBIES No. 2740.

MODEL FIRE ENGINE

SIZE: 1 1/2 IN. LONG, 2 1/2 IN. HIGH, 2 1/2 IN. WIDE.



PANELS OF WOOD REQUIRED FOR THIS DESIGN
ONE G2 ONE H4
The price is shown in Hobbies Weekly, May 20th, 1948, but is subject to variation. See the current edition of Hobbies Handbook, or write for price to Hobbies Limited, Donham, Notts.



THE ARROWS INDICATE THE DIRECTION OF GRAIN OF WOOD.

A MODEL FIRE ENGINE

THE model made from the patterns on the other side is quite a small one; nevertheless, with care and patience it can be made very realistic and true to life. Before undertaking anything, read through these instructions and study them in conjunction with the various detailed drawings and numbered parts shown. You should have a good idea of how the pieces go together, and where, before you actually commence construction itself.

Everything is quite straightforward, but as the wood is no thicker than $\frac{1}{16}$ in. or $\frac{1}{8}$ in., you will have to employ care in handling some of the tiny parts. Do not be in a hurry to fit the pieces but go carefully, shaping them as required, and fitting them as strongly as possible.

Odds and Ends

In addition to wood you will need some white card about the thickness of an ordinary postcard and as tough as possible, with the addition of odd pieces of wire and short lengths of plastic tubing which is obtainable at most cheap stores and hobby shops. The parts shown should be drawn out direct to the wood, and the cutting is done with the fretsaw and a pen-

between the chassis (1). Note their position as dotted lines on the design pattern. Get them upright and in line with the ends of the sides (4). Piece 5, forming the footboard, lies in front of 2, projects beyond the chassis (1) with its front edge covered by 6. The top edge of this piece is rounded before fixing.

The little fillet angle piece 7 is shown in place in Fig. 1. The back of the seat is 8, coming between the two sides, and behind it comes piece 9. The front end of 9 is slightly chamfered to continue the slope of 4, and when placed in position flush between the sides, the back end will project slightly above (see Fig. 4). It must then be chamfered down to be the same shape as the sides to where it meets the top of 3.

Radiator and Bonnet

Part 10 forms the small seat and 11 to 13 the radiator and bonnet. The four pieces of this unit are glued together, the top of the bonnet rounded, and then the whole lot glued in place on the top of part 1. Notice that part 11 (the sides) taper inwards towards the front. Rub the ends down, therefore, for the radiator piece 13 to lie flat, and the whole thing to bed on to No. 6. A detail is

piece of glasspaper round a stick, as shown at 1 in Fig. 2.

The outlet pipe seen on the assembly (22) is also fitted with a thin projecting card collar behind which you can add a very small pin capped by a tiny wheel washer. This is the valve wheel added before 22 is put in position. The part is cut from a piece of wood, shaped and finally rounded as seen at (2) Fig. 2. The L pattern supports between the platform 14 and 3 are composed of two paper strips bent and glued by tabs at each end. They are shown as 27, must be cut carefully from card glued to an L section, as shown at (3) Fig. 2. If carefully cut and glued together, they form quite a substantial fitting.

Now turn to the front mudguards made from 28, 29, 30. Part 28 is $\frac{1}{16}$ in. thick, but to bring the wheels in line with the sides, the thickness must be tapered from one end to the other, as shown in Fig. 3. Glue this piece to the side of the radiator to stand on part 1 and close to part 6. Then glue together two of the semi-circles of part 29 and 30.

In cutting these, by the way, notice the arrow of direction. In one pattern it is across the mudguard, in the other it is upright. By having one of each glued together, you make a much stronger unit. The two pieces thus formed are then glued to the edge of part 28 (already fixed). Now shape off with file and glasspaper to round them nicely on the outside, and finally scope away a little on the inside front to form the floor. This is all shown in Fig. 3.

The rear mudguard—each is com-

stiff card between. You can cut the outer circle of the card level with the "tyres" afterwards, and then round off the outside edge.

The central hub plate 34 is a circle with its outer edge shaped inwards slightly and glued in on to the card. The back central washer 35 is actually screwed to the main body and countersunk with its head well below the surface. Two tiny spots of glue on the main wheel will then hold that part in place on the washer.

Rear Double Wheels

Each rear wheel is a double one built in the same way, except that the inner portion of the wheel is solid and forms the base through which the fixing screw is driven. The central hub to the outer wheel is sunk instead of raised, and the screw head when fixed can be covered with a small slip of paper. Details at Fig. 5 show all these clearly.

Reverting to Fig. 4 we see how parts 41 form the platform box along the sides. Two pieces glued together have a small added part at the back 42. This long unit is glued just below the seats (4) and on to the projecting end of part 2. To provide a further ground on which to glue two little rectangular strips (40) are glued in. They come (see Fig. 4) just inside the mudguards and to them the unit of $41\frac{1}{2}$ is glued on.

The principal parts of the model are now complete, and if you desire, can be painted now before additions are made. The hose reel, ladder, supports, driving wheel, etc., are shown in independent panels on the sheet, and should be self-explanatory. The front behind 6 is a piece of card 54

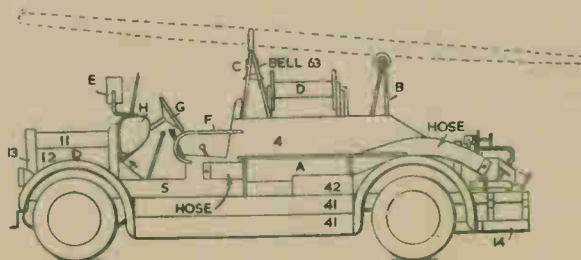
the hose reel by the side of the driver, and the gear levers and foot pedals of pins as pictured.

Some of the additions which can be added by painting or little bits of wire or wood are as follows. There could be nuts on wheels, exhaust pipe showing at the back of the chassis, driving mirror, hinges, etc.

The large hose is $\frac{1}{8}$ in. circular rubber tubing (supplied in the parcel) with lines around to show armouring. The hose on drum can be made from white plastic tubing. The main hose, by the way, is laid in the trough along the side of the main body on the sloping struts leading to the foot platform, shown in detail A.

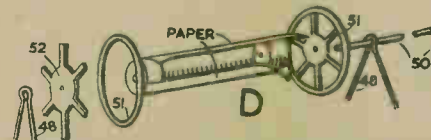
Painting the Model

The colouring of the model is undertaken carefully with a fine brush, the first coat of body colour being put on and allowed to dry. The bonnet top of the tank and wings are black, with thin lines of gold. The main portion of the model is red, although the ladder is painted for imitation varnished wood. Tubing is brass, wheels are red, as is the turbine and engine parts. The seating can be of imitation leather, red or brown.



Side view of lettered parts

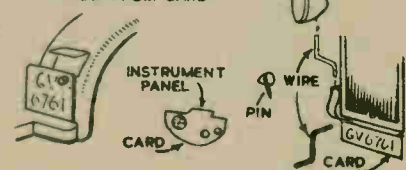
We are indebted to Merryweather & Sons Ltd. for their helpfulness with photographs and details in the preparation of this model.



World Radio History
Details of hose reel and holder



STEP AND REAR No. PLATE MADE FROM CARD



Interesting details to add



1/8 in. WOOD
 CUT ONE OF EACH 1/8 in. THE PARTS WILL OCCUPY THIS POSITION ON ONE OF PANEL.

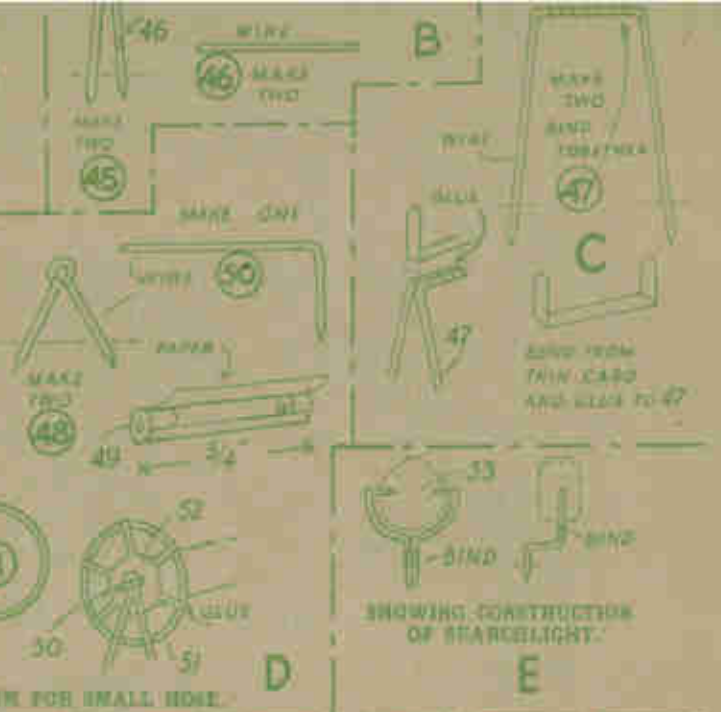
SLAVE TO SECTION WHERE INDICATED



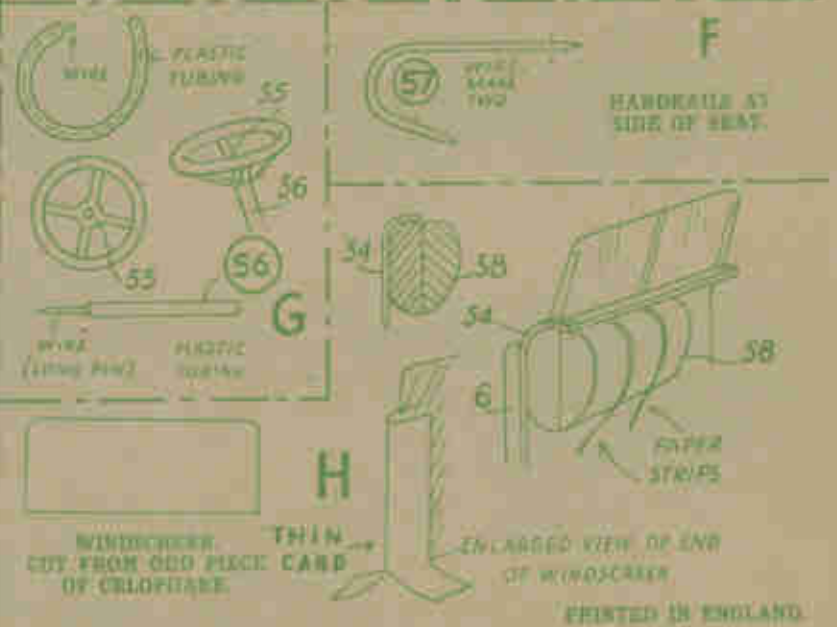
1/4 in. WOOD
 CUT ONE OF EACH OF THESE PIECES FROM 1/8 in. WOOD.

SHAPE TO SECTION WHERE INDICATED.

ROUND OFF



SHOWING CONSTRUCTION OF STARLIGHT.



WINDSCREEN. THIN CUT FROM ODD PIECE CARD OF CROLOPLANE.

ENLARGED VIEW OF END OF WINDSCREEN

PRINTED IN ENGLAND.



Fig. 1—Showing general construction of bodywork

SECTION THROUGH 28

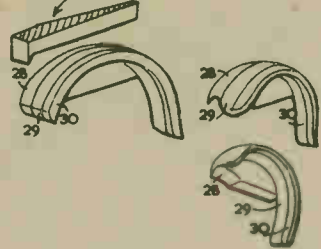


Fig. 3—The front mudguards

knife. By the way, the pieces shown in the panel from a $\frac{1}{4}$ in. board, are laid out so that they can be obtained from an ordinary G2 Hobbies panel.

The construction is in numerical order and in addition we have put together on the sheet the various small additional parts like the turbine, the hose reel, etc. These are clearly lettered as a group, and their position on the actual model is again indicated in the drawing herewith. Study the side view in conjunction with the detail at Fig. 1.

Chassis Parts

Cut the parts out carefully, and clean them with glasspaper before gluing together in their numerical order. Parts 2 and 3 are cross struts

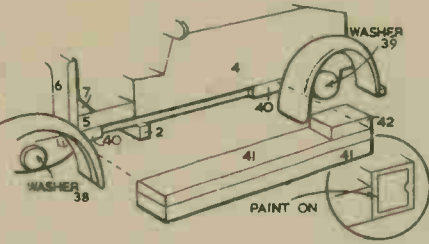


Fig. 4—Mudguards and tool box on step

given in Fig. 1 of the radiator shape and a back view showing how part 9 is sloped down part 3.

The rear platform which forms the rest for the spare wheel, is part 14, glued and nailed to the under edge of part 3. There will, of course, be a space between this and the projecting pieces of part 1.

Pump Unit

Now make up the turbine pump unit. It is constructed from parts 15 to 26, and they are shown as an exploded view in Fig. 2 as well as in their assembled position. The fitting of parts 17 and 18 should be done together before adding them to the total assembly. Glue together, and then rub a channel across with a

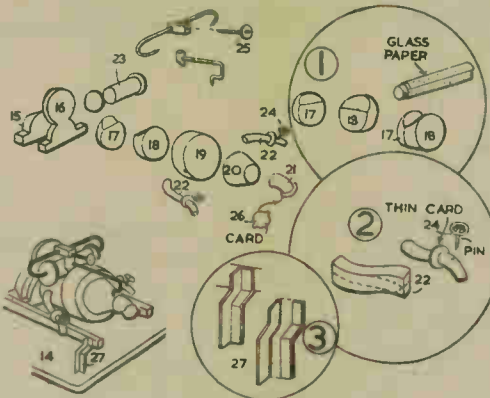


Fig. 2—Details of the pump unit

posed of two pieces No. 31 glued together and shaped as can be seen in the picture of the finished model and in Fig. 4. To form a basis for the wheels, a washer is glued centrally under each mudguard. The front washer is 38 and its exact position is marked by a small cross on the pattern of part 1. The rear washer automatically centres in the drop shaped piece. They can also be seen in Fig. 4.

Wheels

A detail of the wheels is given in Fig. 5. The front ones are cut as two $\frac{1}{4}$ in. rims, and then the inside circle of them nicely rounded off with glasspaper. When correctly finished, glue them together with a piece of the



Fig. 5—Make-up of the wheels



Driving seat handles to add

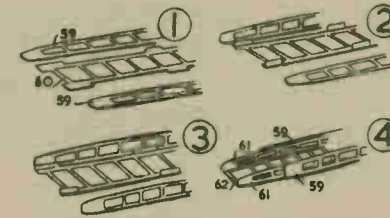


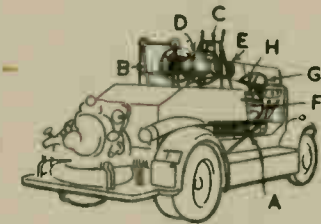
Fig. 6—Stages in ladder making

turned slightly at the top to the rounded shape of the tank beneath.

A piece of celluloid is fitted as a wind-screen above. A detail is given here of the hose reel made as shown at D. A circle of wire is glued to the gear spokes and a pin fitted through the wire support into the wooden ends of the central drum. These two end washers (49) are cut from $\frac{1}{4}$ in. wood with a hole in the centre, and paper is glued to hold them $\frac{1}{4}$ in. apart. A bent bracket of wire is put through each end to form a pivot.

Additional Details

Various additional refinements can be added as shown in the diagram, including a bell hung just in front of



Position of special units

The ladder is cut from fairly stiff thin card. It is delicate work cutting the rungs, and these can be just painted on if you desire. The ladder is made up of a flat portion with two raised sides. The tiny lugs shown are bent up slightly so the sides can be glued to them.

Notice that the ladders are slightly bowed, which is brought about by the rounded edge of the sides. Their construction is shown in one of the details, and the finished ladders are painted red. If given a thin stringing of cellulose tape in the angle of the sides, the completed ladders are reasonably strong, and will slide along each other quite satisfactorily.

of illustrations readily help the reader to understand the many mechanisms, appliances and apparatus which can be put to practical use. The chapters cover a wide range of experiments to undertake, and are specially written for the amateur who can make his own apparatus from readily obtainable "bits and pieces" and not have to procure expensive manufactured parts. There are no "class room" exercises, but every chapter is straightforward constructional work, written in easy terms. Included in the many suggestions and range of subjects covered are the making of electromagnets, solenoids, armatures, etc., experimental electrical apparatus, models for exposition of physical phenomena and so on.

(Published by *The Technical Press, Ltd., Gloucester Road, Kingston Hill, Surrey*—Price 10/6).

Handicraft in Plastics

by Benjamin T. Richards

FROM the interest shown in our recent series of articles on plastic work we know that many readers are anxious to add this hobby to their other abilities in craftsmanship. Here is a book which covers the work very thoroughly, written by an author who not only knows how to do the operations, but can explain them in simple language and illustrate them with helpful photographs. A wide range of articles which can be made is

shown under headings of one-piece articles, simple jointed construction and complex constructions, which lead the worker steadily through progressive stages as his experience increases. Addresses of suppliers of the different materials are also provided, whilst the early chapters show in detail and diagram the various tools and apparatus required. The general term of plastic is usually too widely used, and a short note is also given distinguishing the two groups of thermo setting plastics as distinct from thermo plastic material—a point not usually appreciated by the beginner. Altogether a valuable book on a subject which will grow more and more interesting to the amateur craftsman as the actual material becomes more easily obtainable and less expensive.

(Published by *G. Bell & Sons, Ltd., York House, Portugal Street, London, W.C.2*—Price 3/6).

The Motor Cyclist's Workshop

by Torrens of "The Motor Cycle"

THAT this book is now in its fifth edition is proof of its popularity and value, and the youthful owner of a motor cycle can find a great deal in its pages which will help him to maintain and improve his "steed". It is a complete guide to workshop practice which can be applied by the average motor cyclist, and apart from ordinary repairs and maintenance, deals with soft soldering, pipe bend-

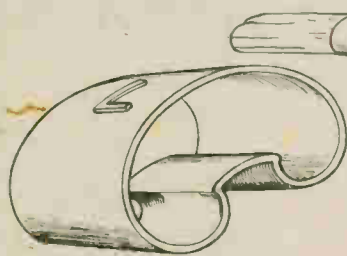
ing, fitting new bearings, enamelling, relining brakes and even a section devoted to tuning for speed and efficiency. There are 27 chapters in its 147 pages, well illustrated with clear drawings, and the whole well bound book is a handy size (4½ ins. by 7 ins.) to keep in jacket pocket or tool bag.

(Published by *Iiffe & Sons, Ltd., Dorset House, Stamford Street, London, S.E.1.*)

Camera Tips for Beginners

ALTHOUGH only a small book in area, it is packed with practical information and pictures which cannot but help to improve the photography of any reader who follows its suggestions. It is written principally for the beginner and gives concise knowledge on subjects appertaining to the efficient use of the camera. Indoor and outdoor subjects are dealt with as well as pages and pictures devoted to subjects for the seaside, the city, portraits, etc. There are no intensive technicalities and such a book will show the reader how to alter his conventional and often meaningless "snaps" to pictures which will be alive with interest years after they have been taken and which will be a worthy addition to any album or exhibition.

(Published by *The Fountain Press, 46/47 Chancery Lane, London, W.C.2*—Price 9d.).



AN attractive set of six serviette rings puts the finishing touch to the meal table, and they will be doubly appreciated if each is marked with the initial of its user's Christian name. The rings shown are made in 3/32 in. thick transparent or opaque Perspex, with the letters in 1/16 in. thick material of a contrasting colour.

First make the bending former from 1½ in. thick close grained hardwood.

It is a good plan to mark both inner and outer edges on both sides of the wood, then the block is cut out with a bow-saw, working to the outer lines. Trim back to the inner lines, including the bridge piece, by paring round with chisel and

gouge. Finish off with a file and fine-grade glasspaper. Remember that the smoother you make the surface, the less chance there will be of transferring grain marks to the Perspex when bending.

Cut a strip of paper 1¼ ins. wide and wrap it round the former, trimming the end until you have the exact length required. Now cut six strips of Perspex to this length, trim the edges with the plane, then polish them. Heat the material and bend it round the former.

Shaping

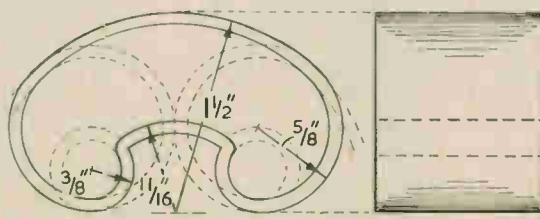
Start from the top of the former, bending each end and finishing under the "bridge". Do this, because a certain amount of length is "lost" in

the bending operation. This was allowed for by cutting back the bridge part of the block to the inner line.

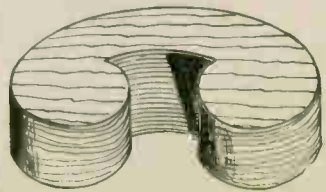
Next cut and bend the bridge pieces, round the ends and cement them to the main parts of the rings.

Initial Letters

The letters are cut from 1/16 in. thick Perspex and cemented to the rings as shown in the leading sketch. They are of course heated and curved to shape before cementing in position. If you are not sufficiently practiced in lettering to lay out your own, cut out suitable letters from old magazines and stick them to the Perspex to act as templates when shaping the material.



How to lay out the profile



How the bending former is shaped

A novel all-roof construction for making A DOG'S KENNEL

WE show a novel design of dog's kennel which can be easily and cheaply made up, using scrap wood, cardboard and roofing felt. As can be seen, the kennel is all roof, with triangular end or gable pieces. The dimensions are 28ins. high by 20ins. wide by 20ins. or 24ins. long.

This size of kennel will suit most small terrier dogs, and as the kennel is merely covered with cardboard and felting, it should be kept in a shed. While the kennel will stand up to weather conditions, it is not damp-proof; in fact, no kennel is damp-proof, if kept in the rain. But, the thin covering of cardboard, supplemented with roofing felt, makes the kennel more prone to dampness, and if you value your pet and are concerned regarding its state of health, the kennel should be kept in a place where it is protected from the rain and wind. Dogs, by nature, are hardy animals, but it is no good stretching the point by having them bed in a damp kennel.

A kennel, after all, is simply a house for a dog—a place of its own, where it can sleep, protected from draughts. Although it may be well constructed and covered, kennels, like wooden sheds, are not damp-proof, and whenever possible, must be placed within a shed or outhouse, such as the doorless type.

The Gables

The gable frames are made first. The front gable is shown at Fig. 1, being made from 2in. by ½in. wood, such as deal or pine. The rear frame is similar, but minus the front packing pieces; these help to form a neat entrance to the kennel.

Prepare four uprights as detailed,

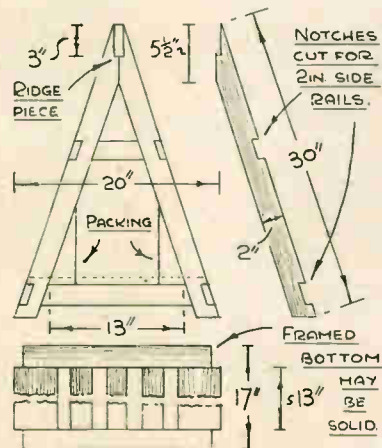


Fig. 1—Front, with details of bottom

then make the top and bottom cross rails. These are either dowelled to the side uprights or half-lapped and screwed. The ridge piece, measuring 20ins. or 24ins. long by 3ins. wide by ½in. thick, is attached between the gables, then the 2in. by ½in. side bars attached, using screws or oval nails.

You will note that the length of parts is given either 20ins. or 24ins. If you want a 20in. long kennel, parts are cut to this length, such as the ridge piece and side bars, including the framed bottom. If a 24in. length is preferable, cut the parts to this size. Some dogs, particularly mongrels, cannot be depended upon to grow up like certain terriers. So a 24in. kennel will allow for these bigger fellows.

The Bottom

To save wood, the bottom is made up as a framework, consisting of two side rails, with cross pieces. When completed and fitted temporarily, the surface side is covered with cardboard or old lino material, then the work nailed in position, as depicted in the general constructional view at Fig. 2.

If desired, assuming you have sufficient wood available, the bottom could be made up from solid wood, butt-joining the various widths together. These can be 13in. long pieces which, when the glue has set, are trimmed and then dowelled to the 2in. wide side lengths.

Having assembled the framework,

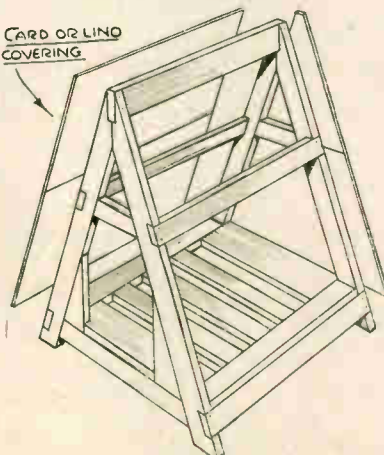
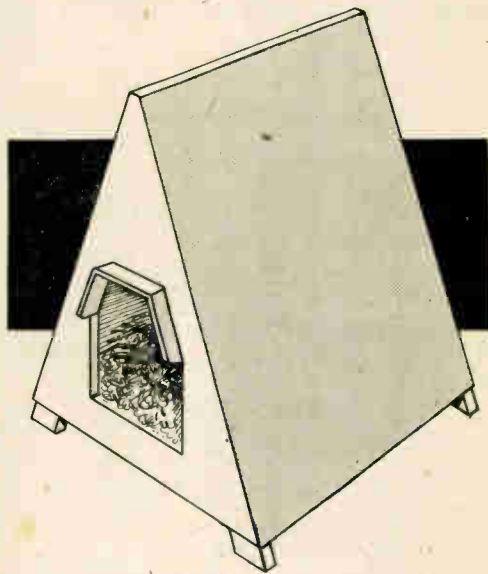


Fig. 2—General constructional details



Suitable for small pet dogs

as in the view at Fig. 1, the sides and ends are covered with old lino or cardboard from packing cartons. This stuff is tacked on, following which the gables are covered with felting, then a lengthy strip, 20ins. or 24ins. wide, draped over the apex of the work and neatly attached with tacks.

Tar and Paint

When attaching the roofing felt, the cardboard should be brushed with tar paint and the felt attached while the paint is still tacky. This will ensure good adhesion and help to make the kennel more damp-proof. The surface of the roofing felt should not be tarred, by the way.

You will find it best to apply a coat of oil paint, if the paint is necessary. The interior of the kennel should be brushed with creosote. And before allowing the dog to take up residence in its new home, the kennel should be left out in the open for a couple of days to air it.

Fresh straw should be placed within the kennel. Old mats, carpets, etc., should not be used. These only encourage unwelcome insects and doggie smells. The straw can always be burned and fresh stuff laid down at frequent periods.

Another reason why old mats, carpet, etc., makes a bad bed for a dog is that the mat or carpet is more comfortable than a straw bed. When the time comes for removing the old bed, and straw is used for a new bed, the dog badly misses the comfort of the old bed.

How you can mark out, cut and shape different LAMP SHADES

INSTRUCTIONS are often sought by readers on how to make patterns for cutting lamp shades. Some information on this interesting subject is given below, and it is hoped will be found useful. There are many different shapes, naturally, and it would take a text book to describe them all.

As this is impossible in the restricted space that can be allowed for an article, four distinct typical designs are dealt with, and readers will find that most other designs can be developed similarly with the instructions provided.

A Popular Shape

Fig. 1 shows the popular design of shade, perhaps, most commonly used. To develop the pattern for this, draw on a large sheet of paper a side elevation of the exact size of the shade, BC being the top diameter, AD the bottom diameter, and AB the height.

Extend the lines AB—DC to meet at E and from there, with radius EC, strike the arc FC. From E again, and with radius ED, strike arc DG. Measure off distance BC twice along the arc as at H and I, and to this add 1/7th of BC as well, then in line from E and J, draw line JG.

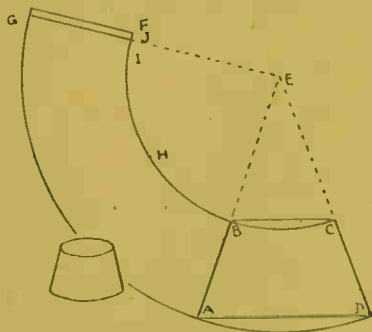


Fig. 1—The usual type (bottom left) and its outline

Add 1/2 in. or thereabouts for overlap, and cut out, if the drawing is done directly to the vellum paper, or transfer the pattern, if on ordinary drawing paper, to the vellum and cut that out. Glue the ends together and complete the shade with the wire inner rim.

A different, but popular form of shade is sketched at Fig. 2. This is made from four panels all alike, two of which will have overlaps added for subsequent gluing together. On paper, draw the side elevation AB—CD. Run a line down the centre. One curved side should be divided into 6 equal parts, as shown at E, F, G, H, I and C.

Measure these parts and transfer to the centre line, as at J, K, L, M, N, O. Now make line J equal to line E (which, like the rest, runs from the division marks to the centre line) line K equal to line F and so on to the bottom.

Then from the top, B, draw a curved line (shown shaded) touching the ends of these lines. From the centre to shaded line is half the pattern of one of the four panels.

Cut out on the shaded line, bend the pattern over on the middle line and pencil round the shaded line to transfer its shape exactly to the opposite side. Use this as a template, mark out the four panels, cut out, and glue together to make the shade. Do not forget, of course, to add a small overlap to one of each pair of panels for sticking together.

Square Pattern Shade

A square pattern of shade, with sloping sides, another popular design, is sketched at Fig. 3. This, again, is in four panels, which can, if the shade is small enough, be all marked out together on the vellum, and then will only need the overlap to be added to the last panel. A larger shade should, however, be cut as separate panels, and the overlap added to one of each pair for joining together.

Draw the side elevation AB and CD the exact size of the shade,

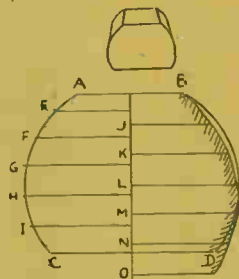


Fig. 2—The shade at the top made from this outline

viewing it sideways. From A draw line (perpendicular) AE and make it as long as line AC. Now, at point E, draw line FG as long as line CD.

Connect the ends of FG to AB. This is the pattern of one panel and can, if separate panels are to be cut, be used as a template to mark round in pencil their shape on the vellum. If to be in one piece, subsequently bent round to shape, mark one panel first, then lay the template against this and mark the second, as shown, and so on until the four are complete.

Some readers may desire to make the hexagon shape of shade, drawn at Fig. 4. There are six panels to this, of course, and to develop the shape of

one first, on paper, draw the side elevations of the shade, as at ABCD.

Draw a centre line, and from the centre of AB strike the semicircle. Without altering the radius, from points A and B, make marks E and F on the semicircle and from these draw the perpendiculars to line AB.

A Six-sided Cover

Repeat this procedure on bottom line CD, but extend the perpendiculars GH below line CD. Now make line KL equal to line AC and at right angles to this, draw line J right and left of the centre line to reach perpendiculars GH. The correct shape of one of the six panels is then shown by shaded edges and can be marked on the vellum.

It will be understood that most of the more intricate patterns can be developed by similar means. In some cases the drawing can be carried out on the vellum itself, but generally it will be found more convenient to draw on a stiff cartridge paper, and then cut it out. The pattern can then be laid flat on the vellum, and a pencil drawn carefully round the outline to the vellum.

What is understood nowadays by vellum is generally vellum paper. This is a good substitute, but is not so cheap as it used to be, and so it is more economical to space the parts of the shades with a view to avoid wastage.

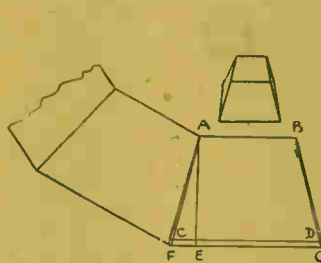


Fig. 3—The shape of the small drawing shade and how obtained

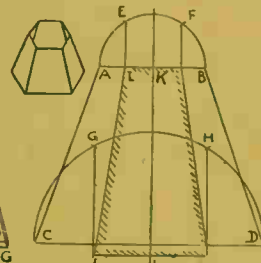


Fig. 4—The Hexagonal shape

For instance, referring back again to the circular shade, Fig. 1. It will be obvious that if the shade is a fairly large one, to cut it in one piece, will involve some waste of the material, whereas if the pattern is cut across to make two halves, considerably less of the vellum will be required. But do not forget, should you cut the pattern, to allow the necessary extra for the overlap for joining together.

Most shades require a wire supporting rim, but this is not relevant to the subject, and may be dealt with later on. In any case, a rim is not difficult to bend up from suitable wire.

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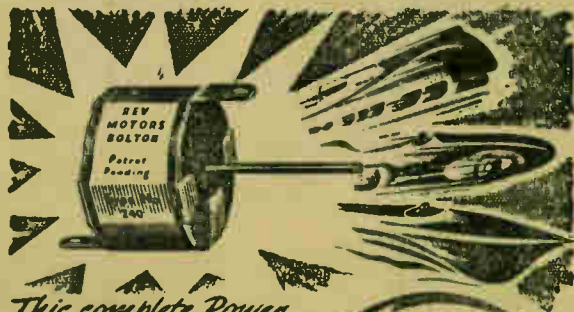
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Hobbies

WEEKLY

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May 12th, 1948

Price Threepence

Vol. 106 No. 2741

NOW that the sport of kite flying can be resumed, some instructions on making one of the well-known box pattern may be welcome. This pattern of kite is quite simple to make, provided the instructions are carefully carried out, the only really important item being to make each side the same so that a well-balanced article results.

For the sticks, cut four $\frac{3}{4}$ in. square section deal, to the length given at A, in Fig. 1. The wood must be free from knots and reasonably straight grained.

If you can get a suitable piece of planed tongued and grooved board, 3ft. long, of finished thickness $\frac{3}{4}$ in., all the necessary wood can be sawn

from it. Plane the sawn edges and take care to get the sticks all the same section.

Coloured Paper Covering

For covering the sticks, paper can be used, thin and tough, and preferably in two colours to make a pleasing contrast. This should be cut to the total length shown in Fig. 2, plus $\frac{1}{2}$ in. for pasting together. Divide, by pencil lines, as in the diagram, spread the paper flat on a table, and glue the sticks across the lines, with their ends $\frac{1}{2}$ in. over beyond the outer edge of the paper.

Treat the second paper strip similarly, gluing it to the other ends of the sticks, and let the lot remain undisturbed for a few hours to let the glue set. When set, glue the ends of the paper strips together (1 in. overlap.)

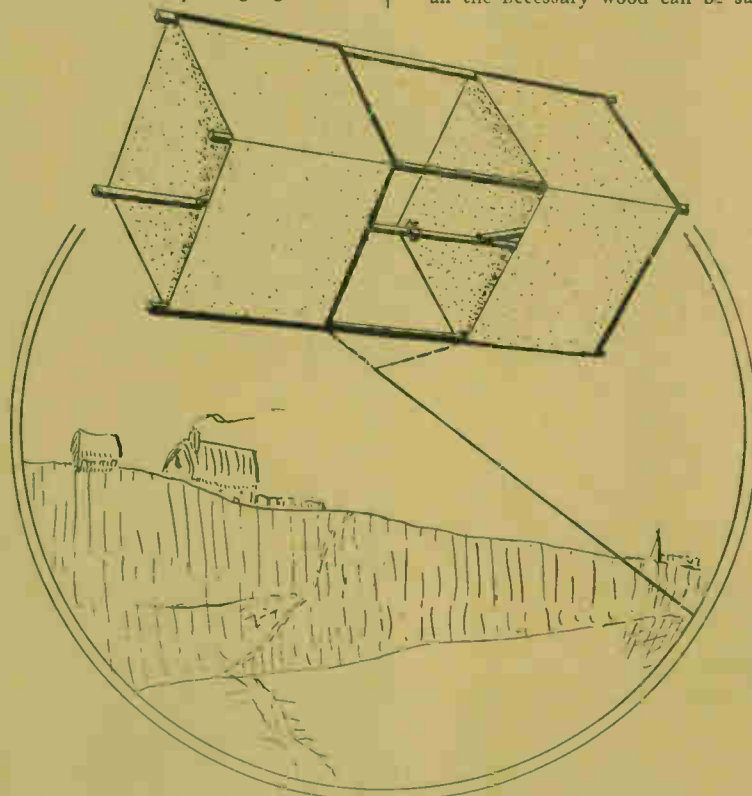
The kite is strained to square shape by means of cross bars at the centre of each paper band, as at C, Fig. 1. Fix these bars, cut four of $\frac{1}{4}$ in. by $\frac{1}{4}$ in. wood to length given at B. At each end of these bars cut a nick to fit over the kite sticks inside.

The Cross Bars

Each pair of bars should now be fastened together at their centres with a thin nail, driven through and clenched over. They can then be folded together flat, when not in the kite, for packing.

It is important that these bars should be just the correct length to extend the kite quite taut, but not,

How to make a BOX KITE



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

of course, too heavy a strain or the paper may be split. A little careful deepening of the nicks can, as may be necessary, be carried out with a file, but do not overdo this or the bars may be ruined for their purpose, and fresh ones made necessary.

If you can obtain the material, a thin but tough cloth, or silk fabric, is

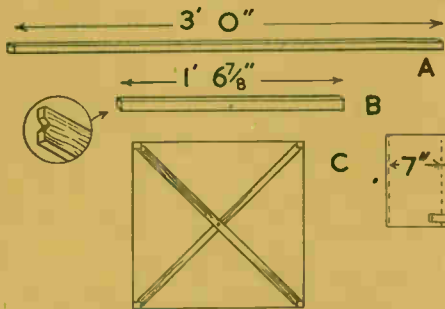


Fig. 1—The sticks, and an end view

far more lasting for the kite. Almost any thin stuff could be utilised, I should vote for parachute silk if you can get it. This should be cut to the same length and width as the paper, but instead of allowing 1 in. overlap to the length, allow $\frac{1}{2}$ in. which is ample.

Holding the Sticks

The sticks are not glued to this, but instead are held in place by strips of tape over each pencil line, as in the diagram, Fig. 2, and detail, D. These strips should be $2\frac{1}{2}$ ins. long, allowing

$\frac{1}{2}$ in. at each end for stitching in position, the sticks slipping in between the tapes and cloth, as shown.

When this is done, bring the ends of the cloth together and stitch the $\frac{1}{2}$ in. overlaps. Make a strong joint here by pressing the hems flat down and sewing a second time, this time through the double thickness of the hems and including the cloth as well. Now turn over $\frac{1}{2}$ in. of the long sides, and sew down to strengthen the edges. Fit the sticks in, pushing them through the tape loops, then

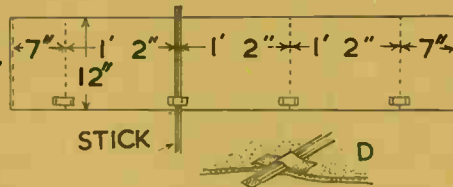


Fig. 2—The paper covering dimensions and fixing detail

extend, and strain to box form with the cross bars, as before.

In a strong breeze there is some "pull" on a box kite, so the bridle line, to which the kite line is knotted, should be of strong, but fine twine, or thread. This can be fastened to one of the sticks, where shown at E in Fig. 3, by boring suitably fine holes in one stick and threading the twine through, knotting it on the inside to prevent it slipping free. The exact spot where to tie the kite line is best found by experiment.

Unless the line is tightly tied, however, it may slip along the bridle line and alter the slope of the kite, a rather annoying matter. To prevent this happening, it is a good idea to use a double line for the bridle line, and knot it to form a line of small loops, as at F.

This can easily be done by tying it round a small strip of wood and repeating this until a line of loops result. The kite line can then be tied to the loop most convenient to trail the kite to the best angle to suit the

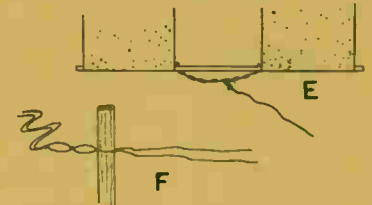


Fig. 3—Fixing the holding string

conditions of the wind and its direction.

How to Dismantle

The kite can be easily dismantled for carrying about by withdrawing the cross bars, and folding the lot together, with a tape tied at the centre.

With either paper, or fabric kites, it is a good plan to wrap the kite in a waterproof covering, in case of a rain shower, which would not do it any good.

Hints for those who combine the two hobbies of CYCLING AND PHOTOGRAPHY

IT is safe to say that many readers will be going cycling this year, if not for full tours, then for week-ends or long days. And probably, if keen on photography, they will want to take a camera. Here, then, are a few hints about combining cycling with this very pleasant hobby.

First with regard to the camera to take. If you have a choice, it should be of the film variety, as plate-holders add a lot to the bulkiness and the weight of necessary equipment. To say nothing of the need to periodically unload and recharge them. A similar number of exposures in film form can be carried in a side pocket or ruck-sack without even being noticed.

Films in Plate Camera

If your camera is plate, see if you can borrow a roll-holder. This is an attachment which allows of films being used in a plate camera. But they are very hard to get hold of at the moment.

The size $3\frac{1}{2}$ ins. by $2\frac{1}{2}$ ins. is the best all round for cycle work, as it gives the smallest print that can comfortably be shown around without enlargement. Smaller than this size invariably

needs enlargement before the picture is properly seen. Also equipment in this size is light.

Camera Carriage

For carrying the camera, many of the big saddle bags contain a division known as the "camera pocket", but actually a camera is not very safe in this. Should the machine rub heavily against anything (or fall over) the pocket, which is on the outside, is the first thing to take the impact, and cameras are not built to take too much rough handling.

It is far better to make a small pocket in the inside of the top flap (if the camera is not too large) seeing that the instrument is not pressing down too rigidly on anything hard within.

If you do not mind loads on your back, the safest place is slung over your shoulder, the camera, of course, being in its standard case. This carrying position eliminates all vibration—and cameras do not like too much of it.

This may all sound rather finicking but once a safe and convenient carrying place has been found, it will be retained throughout the whole

tour or ride. So a little thought to start with is quite worth while.

It is good, if possible, to get a delayed-action release—especially if touring alone, as this means you can get into your own picture. As well as being there, life will thus often be added to an otherwise blank scene.

For time exposures a cycle is quite convenient, as propped up it will form a rigid stand. A cyclist the writer knew had a little attachment fastened on the handlebars, to which the camera could be screwed.

Carry a Tripod

Incidentally, if any reader is keen on tripod work this is the easiest part of photographic equipment to carry. It can always be strapped along the top bar, or special clasps can be obtained to hold it, like a pump.

Finally, before starting out, it is good to make a little study of landscape and building photography which will probably feature largely in the pictures taken. Remember, distance requires less exposure than near items, and scenes with a big, wide expanse of bright sky must have a small stop and short exposure.

Obtain ease of operation and accurate tuning with STATION SWITCHING

THE modern receiver with some kind of push-button or automatic tuning enables the user to select, easily and accurately, any one of a number of stations. There is no need to operate the wavechange or tuning controls, certain stations being selected instantaneously at the touch of a switch.

It is quite simple to obtain this result in any receiver which has been built up. The advantages are ease of

As a wave-change switch is no longer required, it may be convenient to mount the new switch in the position originally occupied by it.

How the Circuit Works

Fig. 1 shows the circuit and from this the modifications which have to be made to an existing receiver will be seen. Even if theoretical circuits are not understood, the diagrams should make connections clear.

The centre arm of the switch is earthed. In the first two positions the normal tuning condenser is connected. In the second position, in addition, the long wave section of the coil is shorted. Manual tuning on either long or medium waves is, therefore, obtained.

In the next three positions the condensers A, B and C are connected and wave-changing arranged for two medium wave stations and one long wave station.

jecting screw prevents complete rotation.

The three central screws at the bottom all go to the point on the coil which originally went to the wave-change switch. The top screws are connected, one each, as follows:— To condenser A; to condenser B; to condenser C; last two both to tuning condenser.

All these condensers have their second contacts or terminals taken to the grid condenser. The tuning condenser will already be connected here.

Adjustments

With the switch in either of the manual tuning positions, the receiver will operate as before. Now turn the switch completely the other way and adjust condenser, A, until the Light Programme is correctly tuned in.

Turn to the next position and adjust, B, for the Midland, then turn to the central position and adjust, C, for the Third Programme. These stations will then be selected automatically, correctly tuned in, by turning the switch.

Many types of pre-set condensers suitable for A, B and C are obtainable. Both A and B will need to be about .0003 mfd., and C should be .0005 mfd.

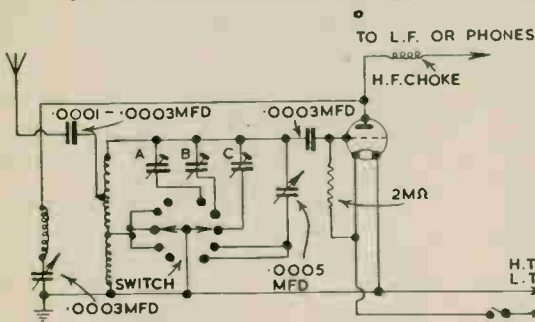


Fig. 1—The theoretical circuit

operation and accurate tuning, the stations automatically being brought in exactly in tune. Small one, two or three valve sets are particularly easy to modify and the system is well worth trying.

The Switch

Though switches which have a number of buttons in a row are often used, they are now rather difficult to obtain. A rotary switch can, therefore, be made up instead and mounted at some convenient point on the receiver panel.

The operating knob should have a pointer and Fig. 3 clearly shows how the switch will operate when wired up. Turned to the right, the Light Programme (on long waves) is received. The next switch position gives the Midland, and the next the Third Programme (both on medium waves).

These three stations are received accurately and instantaneously by turning the switch to the appropriate position. The next two switch positions give manual tuning on long and medium waves, the receiver then being operated exactly as before the alterations were made.

Automatic Reception

Four stations will be received automatically if the manual tuning control is left set to a particular station. Though the stations mentioned are usually most satisfactory, any desired stations can be provided for, as will be described.

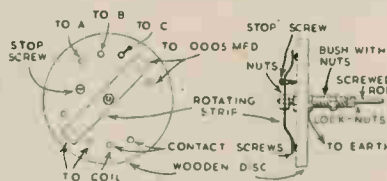


Fig. 2—How the switch is made up

The switch is made up on a hardwood disc about 2ins. in diameter and 1/4in. thick. A bush (taken from an old switch, tuning condenser, etc.), is fixed in the centre of this (see Fig. 2). A length of screwed rod or a long bolt forms an axle to which a springy rotating strip is fixed with lock-nuts.

Additional lock-nuts hold the rod forward so the rotating strip bears on the heads of small brass round-headed screws, these being in two groups of five as illustrated.

If a small loop is made in the appropriate connecting leads, the connections will be held under the screws quite securely when they are driven into the wood. A lead from the bush goes to the earth line (usually L.T. minus) and a knob is fixed on the projecting end of the rod.

Connections

The rotating strip should be about 1/4in. wide and 1 1/2ins. long. A pro-

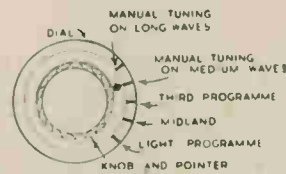


Fig. 3—How the switch operates Any alterna-

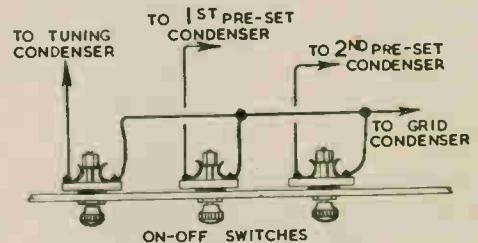


Fig. 4—A simple switch system

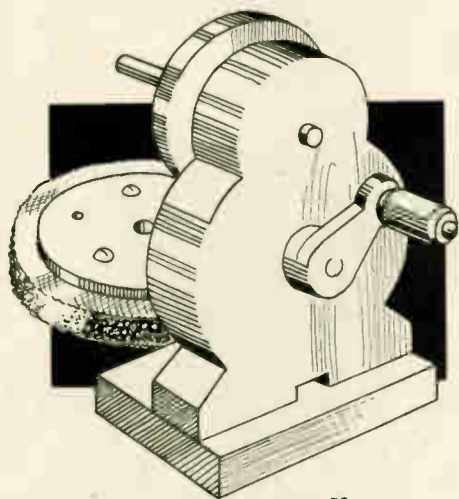
tives which give the correct capacity can be used. Insulated wires twisted together for about 6in. will do for the small capacities. Tuning can be regulated until correct by altering the degree of twisting.

Overlap Adjustment

It is easy to arrange metal plates with waxed paper between, so that the degree of overlap can be adjusted. About 1 sq. in. of overlap will give approximately .0001 mfd. The size of plates and degree of overlap can

(Continued at foot of page 54)

Workers in plastics will be delighted to make this BUFFING MACHINE



See patterns on page 59

THOSE of you who do not own a small bench grinder, as used by woodworkers, will be interested in the simple device shown herewith. In the normal way it is possible to fit buffing and polishing wheels to the spindle of a grinder, thus enabling plastic articles to be given a high polish, particularly rings, bracelets, bangles, etc., made from Perspex. Rounded edges or facets can be quickly brightened to a high gloss by means of a grinder and a couple of home-made finishing wheels, one for buffing and the other for polishing.

The principal parts of a grinder can be made from wood and as the important parts, such as the drive wheel and spindle wheel, need to be cut carefully from 3/16in. birch plywood or Perspex material, a full-size pattern page is provided on cover iii. Despite the material used, the mechanism works and is sure to

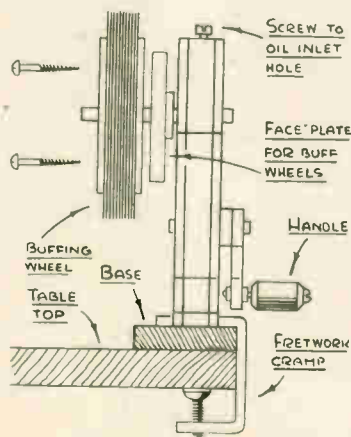


Fig. 2—End view showing parts

be better than the hand-polishing methods.

A small inexpensive all-metal grinder is, of course, the proper thing to use. The wooden type, however, will enable any reader to make a machine for himself from scrap wood.

It has a ratio of about 3 to 1, and if well made, should give no trouble to use. Perspex cog wheels are definitely better than wooden wheels, especially plain wooden wheels. Such can be cut easily with a fine fretsaw.

The Body Pieces

The body pieces are prepared first. The central flanging piece is shown on the pattern page. It should be traced out on 1/2in. wood, then carefully cut to shape, using a coarse fretsaw blade. If desired, two identical shapes could be cut from 1/2in. wood and be adhered truly together.

The cover pieces are cut from 3/16in. wood. The pattern outlines of the centre flanging gives the shape. When tracing the shape on the wood specified, be sure to indicate the centre of the cog-wheel spindle holes.

It is imperative that the cog-wheels are 1/16in. apart so the teeth "mesh" smoothly. If too near or too far away, the teeth will either "bind" or "miss" at the tips.

Having cut out the centre and cover parts, one of the latter is adhered to the former, as indicated at Fig. 1, using glue and short panel pins. The second cover piece should be affixed with screws only, following which the edges can be levelled by rasping and glasspapering.

The Base

The base piece (size and shape can be obtained from the pattern page) is cut from 1/2in. wood. The mortise should be a neat fit on the body tenon. Attach the base with glue, then remove the screwed cover piece.

The cog-wheels are not required, including two 1/2in. dowel spindles 2 1/2ins. and 1 1/2ins. long, respectively. It must be stressed again that the cog-wheels need to be cut out carefully. In this connection, the paper pattern could be adhered—with glue, not paste—to 3/16in. plastic material or plywood, then the teeth cut with a fine blade.

Glue has a stronger grip on Perspex than paste, of course, and is, therefore, not so liable to "lift" with the upward strokes of the saw blade.

If you have any bother, or do not wish to spoil the pattern page, the outlines of the cog-wheels could be

traced on thin card, such as a post-card, then cut to shape with scissors to make a template. The templates, together with a needle or a marking awl, are used to convey the shape directly on plastic material by scoring.

Such lines can be clearly seen on clear plastic material and cutting will be simplified. It is essential, by the way, that the spindle holes are dead in the centre. Any slight eccentricity may cause binding or slipping. There has been some allowance made for slight inaccuracies, of course, but it is necessary to be as accurate as possible.

Fitting the Cog-wheels

Apart from the cog-wheels, you require four washers 1/4in. by 1/2in., with 1/2in. holes. Take the drive wheel spindle, which is shorter, and glue one washer 1/2in. from one end of same, slip on the drive-wheel cog, then the

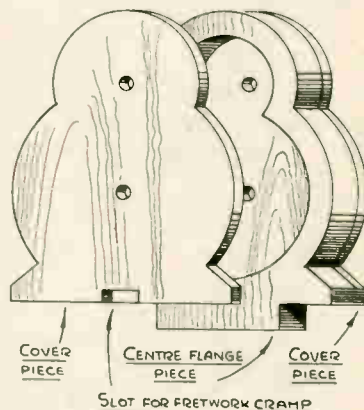


Fig. 1—How body pieces fit together

other washer and have all glued and pushed tightly together.

If using plastic materials for the cog-wheel, ordinary skin glue will not serve; use a cellulose cement (scrap celluloid dissolved in acetone and amyl-acetate) which sticks equally well to wood, as well as Perspex, etc.

The longer spindle is prepared in a similar way, then the ends of the spindles inserted in the body cover, and the other cover screwed back in place. Test the meshing of the teeth of the cog-wheels by twisting the spindles; rectify any teeth that stick by filing. This should not be necessary however.

Buffing Wheel Spindle

A face plate, cut from 1/2in. wood, is glued to the longer top spindle, further strengthened by a washer (see end view, at Fig. 2). The purpose of

(Continued foot of opposite page)

Two big advantages to be found in making this MARKING GAUGE

A USEFUL tool with many applications, and easy to make, is the marking gauge described. It has two advantages over the usual type of scratch or marking gauge. Firstly, the longer stock or handle prevents any wobbling in use, particularly when set to its full open position. Secondly, two sets of lines can be marked on a piece of wood without having to reset or make any adjustments to the gauge.

The Materials Required

All the pieces needed to make the tool can usually be found in the scrap box, and are 7ins. of 1½in. square hardwood, such as oak, ash or beech, for the stock. Two pieces of hardwood 7ins. long by ½in. square for the arms, and 2ins. of ½in. wide by 1/32 in. thick sheet steel or brass for the shield plate, and a couple of lin. wire nails.

Fig. 1 shows the gauge assembled for use, which, by turning can scribe

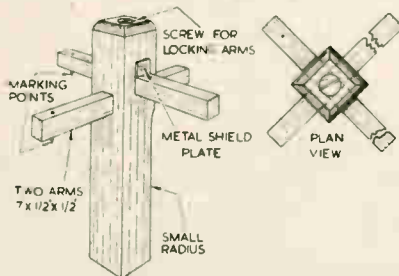
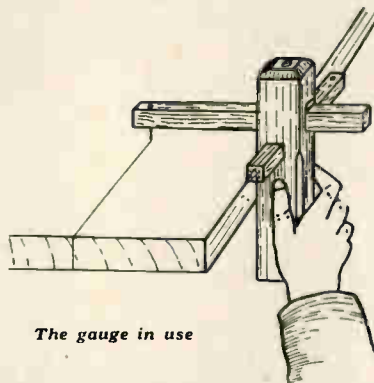


Fig. 1—Details of parts

two sets of lines. The small radius seen on one corner is merely for convenience in handling, but do not put radii on the other corners, because as much surface as possible is necessary to ensure accuracy.

The detail at Fig. 2 illustrates how the screw in the top of the stock clamps the two arms. This is done by cutting the two square holes so they



The gauge in use

break into each other in the middle of the stock. The upper hole is cut 1/32 in. longer, so the metal shield plate can be slid in and bent up as shown, to prevent it falling out. Consequently the screw in the top tightens down on to the upper arm,

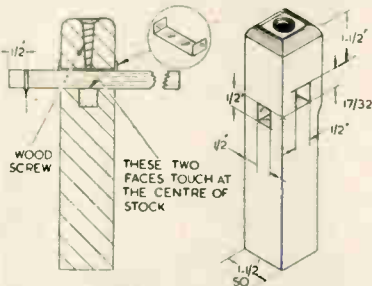


Fig. 2—A section Fig. 3—The stock

which in turn presses on the underneath arm and locks it against the bottom of the hole.

Plane down the two arms to ½in. squares. Then mark their outline on the stock as depicted in Fig. 3, making the upper arm 1½ins. from the top, and 17/32in. long. From the bottom of the outline of this square shaped outline continue a line to the

corner, which is then the top of the lower slot.

Place the underneath arm in position on the stock and draw around it as before, so two square shaped outlines are seen. Next, drill two 5/16in. diameter holes through the centre of the squares. With a small square or triangular file now cut out the two squares so they are an easy, but not sloppy, fit for the arms.

Clamping Screw

A small hole for the clamping screw in the top of the stock can now be drilled. After which, insert the 2in. wood screw. Drive the screw right home, then take out, and cut ½in. off the end, finishing off with a smooth file, for the cut portion must fit squarely on to the shield plate.

The stock can now be finished off by filing a radius on the top, glass-papering all over, and polishing. Do not put a varnish on the stock—it will only chip off if used.

To make certain that the nails serving as scratch points do not split the arms while being driven in, clamp each arm in a vice, drill a small hole, then drive the nail in. Turn the arms over so the point of the nail is uppermost, and file chisel points on the nails. Make certain that the wedge-shaped points which result are at right angles to the length of the arms.

Assembly

The job is now complete and ready for assembly. Put the arms into the stock, and place the shield plate in position, and bend the ends of the plate up to prevent it dropping out. Tighten the clamping screw and the tool is complete.

Tighten the screw so each arm is firmly gripped. Then tap the ends of the arms until the points protrude the correct amount for the job in question. Use the gauge in the ordinary way for "standard" marking gauge.

Buffing Machine—(Continued from opposite page)

this plate is to enable the buffing wheel and polishing wheels to be attached with screws when wanted. The handle is made up from an arm, a washer, a piece of ½in. dowelling and a 1½in. long by ½in. machine screw, with double nuts.

The dowel knob is inserted over the screw first, then a nut screwed on. The end of the screw fits into the arm and the second nut is put on and tightened against its neighbour, this fixing the bolt securely to the arm. The arm and its washer is glued to the spindle.

Suitable buffing wheels are made from 3in. by ½in. wooden discs and several discs, 4ins. in diameter, of

felt. The felt discs are sandwiched between the wooden plates and fixed together with three ½in. bolts and nuts or with screws. Three holes should be bored for the face plate screws, plus the ½in. central spindle hole. The felt wheel is the buffing wheel, the edges being treated with polish.

Polishing Wheel

The polishing or finishing wheel is made in from the same way, except that cotton, not felt, discs are required. No polish is applied to the edges, since the wheel is only a mop, i.e., removes old polish, dust, etc., and produces a glossy pattern on the

material. A little clear oil on a mop sometimes, if required, removes minute scores and abrasions which might otherwise be seen.

It is assumed, of course, that the plastic articles have been carefully smoothed with superfine abrasive paper, such as "flour" grade glass-paper or garnet glasspaper, as used by car polishers. After a final rubbing with rouge, the work can be buffed and mopped.

The use of this machine will certainly provide much better finish for any plastic article, and can also be used for brightening polished metal articles as well.

The handyman will find helpful hints when using METAL, SOLDER OR FLUX

SOLDERING can be easy—and very difficult. Few of us realize that any metal cannot be soldered by any sort of solder or any sort of flux. Thus, we have fellows who attempt to use one kind of solder and flux on all sorts of metals—and who wonder, somewhat dismally, why the metal, in some instances, fails to unite.

Now, in respect to soft soldering, the usual solder generally consists of an alloy of tin and lead. This may be used to join copper, brass, iron, lead, tinplate and zinc. It is usually a tinman's fine grade solder, easy flowing. Plumber's use a slightly coarser grade for gas pipes, and an even more coarse grade for all plumbing joints in water pipes. This solder requires the use of a blow-lamp.

The finer tinman's solder requires a heated soldering iron. The soldering bit or head must be of copper, of convenient size and shape, according to the type of work undertaken. An 8 oz. bit is ideal for general tin and wire soldering.

Zinc Chloride-Water Flux

A good general purpose flux consists of equal parts of water and zinc chloride crystals mixed. It is applied with a small pencil brush and should be kept in a glass jar. The principal purpose of a flux is not to clean the metal surface, but to prevent the formation of oxide thereon. Oxidation prevents the solder from adhering properly. The flux used, therefore, must eliminate oxidation.

The zinc chloride and water flux should be used on tinplate, brass, iron and copper only. The correct flux for zinc and galvanized iron sheeting is 1 part of hydrochloric acid mixed with 9 parts of water.

Lead and pewter requires a turpentine or tallow flux. For nearly all metals, resin serves as a flux. The joining ends or edges of the metals must be thoroughly scraped and cleaned. Aluminium can be united with a special aluminium solder and a flux, but an electric soldering iron is usually essential as greater heat is desirable.

Hard Soldering

So far, the writer has dealt mainly with "soft" soldering. Now, this method of uniting metals has its

limits, and the amateur is often inclined to over-step these limits, and then wonder what went wrong. In "hard" soldering, a silver solder is used, mainly for joining brass and copper.

Silver solder is an alloy of copper and silver zinc and thus quite distinct from ordinary solder. It is obtained in sheets of varying thickness or in wire form. Note, by the way, that it is supplied in two grades—soft and hard. The former is very easy-running, having a much lower melting point.

A Blow Lamp Needed

Whether soft or hard, both grades of silver solder require direct heat, as they "run" only when red hot. Thus, instead of using an ordinary soldering iron, a gas blow-lamp is wanted, or alternatively, so far as small jobs are concerned, one could use a mouth blow-lamp. This can be the usual type or consist of a bunsen burner and a mouth-blow-pipe. The latter is used to direct a hot jet of flame upon the solder. In actual practice, it is the metal itself which should melt the silver solder.

Consequently, to prevent loss of heat, and enable the soldering to be properly executed, the metalwork should be placed on firebricks covered with coke or cinders. In other words, a small brazing hearth is prepared.

The joints in the metal must be well cleaned and held neatly together by binding with wire, etc. A "soft" flame is used first to heat up the metal gradually and the same temperature maintained as much as possible throughout the soldering process. The flux used is powdered borax mixed with water to a paste and applied with a small brush.

Flux Applied First

The flux is applied prior to heating the metal. The heat, applied gradually, drives off the water and a glaze forms on the metal. This glaze is difficult to eradicate, so the flux should only be applied where essential, and not be plastered carelessly all over the metalwork.

When the flux has glazed, the flame is made "hard" by using a finer stronger jet of air, the tip of the solder wire dipped in the flux (this

must not be omitted) and the tip applied to the joint in the metal which must be hot enough to melt the solder. Alternatively, small pieces of the solder can be laid over the joint and melted thereon to run down the glazed or fluxed joint.

Always make sure, by the way, that the metal used does not melt before the solder. For example, it is useless trying to hard solder zinc or aluminium. These metals, like lead itself, have a low melting point. They melt away before the silver solder melts.

Brazing Metals

Another form of hard soldering is brazing. It is a special process used for uniting copper, iron and steel, particularly the latter. In this case, a brazing spelter is used. The spelter consists of an alloy of copper and zinc, being obtainable in strip, wire or granulated form, and having a varying melting point. Generally, the melting point of spelter is higher than silver solder.

The flux used for silver soldering also serves for brazing. Both processes are similar, but greater heat will be essential. The heat must be constant. This is difficult to maintain if using a mouth blow-lamp. If the cheeks are kept extended and the breathing kept normal through the nose, a continuous jet of air can be kept up, much like the player of bag-pipes.

Cooling Off

Once the joints have been united with the spelter or silver solder, the metal must be allowed to cool gradually upon the cinders. When cool, the work is set in a bath or basin containing a weak solution of sulphuric acid to clean it, following which the work is dried, filed, scraped and cleaned up for its finish.

It must now be realized that ordinary soft solder and flux is useless on certain metals, and just how you failed to make a success of a particular soldering job. "Oh, just apply some solder to it!" is a common saying with most people. If only they, like you, knew how wrong they are. "Some solder" means any sort of solder, and any sort will definitely not do, nor will any sort of flux do, either. You can tell them that!

Station Switching (Continued from page 51)

then be varied until the desired stations are tuned in. Temporarily connecting the tuning condenser will show if more capacity is wanted.

The proper pre-sets have a slotted screw which is turned with a screw-driver until the station wanted is tuned in.

The detail at Fig. 4 is almost self-explanatory. Three on-off switches are wired up as shown, all the condensers being returned to the earth line. If the left-hand switch is pulled out, tuning will be as usual. Either of two pre-determined stations can be selected automatically by pulling out

either of the other two switches, the pre-set condensers being adjusted as mentioned.

If the tuning condenser is left set at one station, three stations will be obtainable at will, immediately and accurately. You will appreciate the value of this operation on many occasions.

How the home carpenter can easily construct AN UMBRELLA STAND

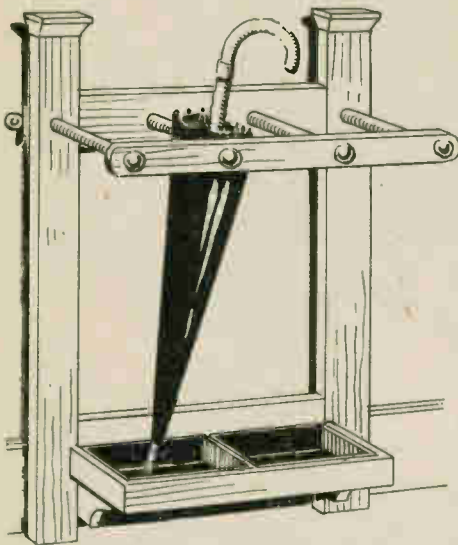


Fig. 1—The completed article in use

HERE is a design for a small umbrella stand, just the thing for a narrow hall. As thick hard wood is difficult to get now, the only wood to use is deal, but this latter can be made effective with wood stains or paint in art shades.

The stand (Fig. 1) consists of a simple frame of wood, two upright rails and two cross rails all halved together and glued for strength. The rack for the umbrellas is made up of a front rail with four outstanding pieces of rod let into it and into the top cross rail of the back frame. There is a shelf a few inches from the floor on which stands two metal draining pans to take the toes of the umbrellas.

The whole article stands flat against the wall, and is held securely to it by wall plates screwed on at the back of the main frame, with wall plugs of wood neatly set into the mortar joint of the wall.

Back Frame

First study the front view and the sectional view in Fig. 2. The two uprights are 28ins. long by 2ins. wide and should be from $\frac{3}{4}$ in. to $\frac{1}{2}$ in. thick. The cross rails are each 18ins. long by 3ins. wide, and of the same thickness, of course, as the uprights.

Cut the rails to the correct lengths and square at the ends and then mark across each where the halvings

come according to Fig. 1. Use a tenon saw for the cutting and a narrow chisel for the cleaning out of the recesses in the uprights. Note carefully in the marking out of the joints that the inner lines of the upright rails "run through" as shown in the detail of the top joint at Fig. 3.

To the underside edge of the lower cross rail, the shelf is screwed. An edging consisting of $\frac{3}{8}$ in. thick stuff 2ins. wide is glued and nailed on the three sides. The shelf measures 14ins. by 4 $\frac{1}{2}$ ins. and the edging strips will be mitred as seen in the detail Fig. 4.

Shelf Supports

To give the requisite strength and support to the shelf, a pair of brackets of simple shape are fixed underneath, screwed to the inner edges of the uprights as seen in the sectional view Fig. 2. The brackets are 4ins. by 2ins. by $\frac{1}{2}$ in. or $\frac{3}{8}$ in. thick. The tops of the edging pieces must be rounded off and made smooth with coarse and fine glass-paper.

Next procure a length of $\frac{1}{2}$ in. or $\frac{3}{8}$ in. diameter round rod and cut from it four pieces 5 $\frac{1}{2}$ ins. long. Drill two holes in the top rail, and one in each of the uprights to take the ends of the rod which must be fitted and firmly glued in. To the projecting front ends of the rods, glue on the front rail which is 18ins. long, 1 $\frac{1}{2}$ ins. wide and $\frac{1}{2}$ in. or $\frac{3}{8}$ in. thick.

Cover Discs and Caps

Get the spaces correct on this rail for the holes to be later taken up by the ends of the rods. Tap the rail firmly on with a mallet until the ends of the rods are flush (Fig. 3). Then cover the ends of these with wood discs cut from $\frac{1}{2}$ in. or $\frac{3}{8}$ in. stuff. The side rails are finally finished off at the tops by adding small cappings as seen in Fig. 3.

These caps are made from 3in. by 1 $\frac{1}{2}$ in. by $\frac{1}{2}$ in. or $\frac{3}{8}$ in. wood marked round carefully and chamfered on three sides. They are nailed on, or may be dowelled with one dowel each from the top, the dowel running $\frac{1}{2}$ in.

or more into the end grain of the upright.

Making Draining Pans

If suitable draining pans cannot be bought to fit the stand, make two from sheet iron or "tin". In Fig. 5 we give the necessary working dimensions for cutting and forming the metal. The dotted lines in the diagram indicate where the material is to be bent.

The corners are first brought up as shown at A, right-angles being carefully made by hammering on a metal surface. The final upturned corners must be turned in flat against the side, as at B, and soldered firmly.

All edges should be filed to get rid of roughness and finally rubbed with emery cloth before coating the pans with black japan enamel. The fixing plates should be screwed on at the ends of the top cross rail as shown.

The space occupied by the draining trays should be painted to preserve the wood at this point.

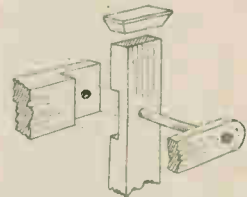


Fig. 3—Rail joint and cap piece

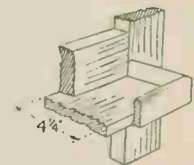


Fig. 4—Lower shelf

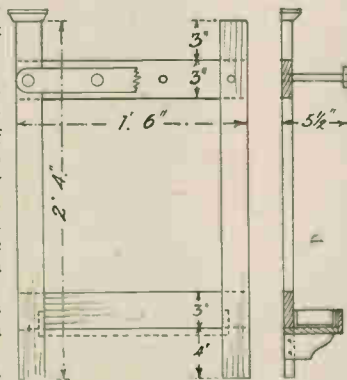


Fig. 2—Front and Side elevation

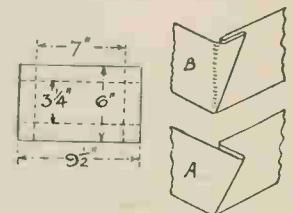


Fig. 5—Formation of a draining tray

It should be mentioned that if the wall to which it is intended to fix the stand has a skirting board, then two little blocks of wood the same thickness as the skirting should be added to the top rail of the stand. The latter will then clear the wall effectually and stand perfectly level with the wall.

Index for Vol. 105—to March
31st—now ready. Price 1/-
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Some simple ways in which the handyman can make CLOCK ADJUSTMENTS

"It just won't go since it stopped," one often hears regarding a time-piece. Now, clocks are sometimes very temperamental, and atmosphere has to do with periodical stopping. Even that sturdy, faithful piece of useful mechanism, the alarm clock, is not immune from attacks of depression, listlessness, weariness, or whatever you care to call it. It simply stops, and no matter how much it is shaken and set up in all kinds of positions, it refuses to tick.

Let's have a close look at some of these tired clocks. Ah, here is a neat little alarm-clock, made in America. There is no gong visible. That's inside, shaped like a tin lid. A check-up at the back shows that, far from being run down, the clock is run up—too much, in fact! The winding key cannot be turned a fraction, yet the mechanism does not work.

In the ordinary way, you wonder what is wrong. In this article, we tell you what's wrong. The spring is quite good; it is not too tight, either, but dry! A thin oil, applied to the tight coil, allowed to seep in, will make all the difference.

Springs do not uncoil easily when the lubrication has dried. A few drops of paraffin oil will help to soften the old, dirty oil and free the tightly-bound band of steel. If this has a poor effect, including the heat from a cosy room (heat helps to soften caked oil), the best remedy is to let down the main spring.

Balance Wheel and Escapement

To free the spring, the balance wheel requires to be shifted out of position. This is done by unscrewing a small set-screw sufficiently until the pointed pivot comes out of its conical socket in the end of the set-screw. As soon as the escapement wheel and its arm is free from the balance wheel side pin, the spring will start uncoiling, sending the final wheel in the chain (a form of sprocket wheel) around rapidly.

This letting down is good for the whole mechanism, by the way. The main spring needs a good, quick stretch. Dust and fluff will be scattered, but you will scarcely notice this, as the particles are very minute.

It may happen that the escapement arm does not entirely free the sprocket wheel, in which case it must be released at one end of its pivot to disengage it from the teeth of the sprocket wheel. In this case, the back plate must be raised up sufficiently.

The nuts must not be taken off, only partly unscrewed so that the back plate may be raised the maximum necessary for releasing the escapement. This must be done very carefully. Indeed, one cannot be too careful. There is always the risk of raising the back plate too much so most of the other spindles become disengaged, and what a trying experience it is to get them all back into position again!

Care and Patience

This state of affairs must be avoided, and with care and patient handling, can be avoided. It is a risky business which must be done. If you find it necessary, choose a time and place when you will not be disturbed. Be very slow and keep the fingers steady and firm. Shaky hands, due to nervousness, may upset all the spindles, or a few of them, and it will be some time before you manage to get them all back into their original position again.

"A woman came into my shop the other day, handed over a parcel, saying it was a clock her son tried to repair", a repairer told the writer recently. "When I unwrapped the parcel and saw what remained of a perfectly good time-piece, with loose wheels, nuts, springs in a jumbled heap, I handed it all back to the woman, telling her that it would probably cost her more than the clock was worth to repair it. A clock-repairer, my friend, is neither a magician or a fool!"

Things You Can Do

There are, however, many little things which the average man can do to help make the works operate properly. These are simple adjustments of a minor character, oiling, etc.

A clock, although properly adjusted by experts before leaving the manufacturer's workshops, will, in time, develop some little fault. It may, for

instance, go slow. This is due to some loss of tension in the spring, i.e., the driving or main spring. To counteract some of this loss, the swing of the pendulum is decreased by screwing it up a trifle higher on its rod or arm. The less swing, the more rapid the movement and the faster the clock runs.

In the case of watches and clocks without pendulums, we regulate the balance wheel spring. The oscillatory or reciprocal action is increased or decreased to make the mechanism fast or slow. If oiling is essential, a light, thin, lubricating oil must be used, and very sparingly.

Thick lubricating oils or grease must not be used. A drying oil, such as linseed oil, will ruin clock mechanisms. Paraffin oil is merely a form of cleansing oil and is definitely not a lubricating oil. Use it mainly as a solvent for oil which has dried up.

The Oil to Use

While most thin, light machine oils will serve for lubricating clock mechanisms, neatsfoot oil is recommended. Where pocket or wrist watches are concerned, the oil must be applied sparingly, using a feather tip. A tiny blob stretches a long, long way. It would suffice for the main spring.

If adjustments are necessary to the mechanism working the chimes in mantel-clocks, which often go out of order, so that the clock chimes wrongly, the correct timing is best adjusted by pressing down the chime switch, or lever, to stop the chiming, then turning the minute hand around slowly to make a complete revolution. When brought around to the correct time of day, the chimes lever is brought up, whereupon the mechanism should operate correctly.

If the clock strikes for, say, 1 o'clock, and chimes only a quarter of the full chime, stop the clock and chime and wait until near the half hour before releasing both mechanisms. At 1.30 of the hour, the clock will, when the hour hand is turned to indicate that time, strike once, and a half of the full chime will be heard, which is quite normal.

Stamp Collecting (Continued from opposite page)

stamps, but as these have been described before, we leave them out. It is also the date of the introduction of "secret dates". We illustrate the three cent stamp, with a drawing prepared by Mr. Gibbs to show where you can see the date.

Look at the white surround of the oval in which the portrait appears and you will see it. You will have to have a good magnifying glass for this and the other dates, as they are all

very small. The Royal Canadian Mounted Policeman appears on the 10c stamp and you will find the date on the grass at the bottom right hand corner, and in a similar place on the 13c.

Now you can search for it on all other stamps, except those which have a date as a part of the design. The present low value stamps have a ribbon border all round them, so look in the centre on the bottom and the

same with the new Peace set when you get them. Lastly there is the new Youth stamp which has the picture of a youth standing on a map of Canada. Look in the sea just off Labrador and you will find it there.

Do not forget that you can use these dates as a guide when you place stamps in the album. Catalogues are very difficult to get now, so here you have a way in which you can mount stamps correctly.

STAMP COLLECTOR'S CORNER

THE STAMPS OF CANADA

WE have had a very interesting letter from Mr. A. R. Gibbs of Hamilton, Ontario, in which, among other things, he asks why we have not mentioned the secret marks of the Canadian issues?

Well, this is not exactly an oversight, but, as no doubt many of you know, we cannot buy unused stamps from the dollar countries, and unless one can obtain a very lightly post-marked specimen of a Canadian stamp, it would be useless to use it as an illustration of a very small detail. These secret dates are very small, as you will see.

A Reader's Assistance

Mr. Gibbs has, however, gone to considerable trouble to draw diagrams to illustrate the position of these dates. Unfortunately space will not permit us to illustrate all of them, so you will have to be content



Fig. 2—An early Canadian stamp



Fig. 3—Examine the "T" in ITC

if we tell you where to look for those we cannot show.

As these dates were not shown until 1935, we will first of all describe some of the earlier issues of this vast Dominion. Canada issued her first stamps in 1851 and these stamps are quite valuable. Rather too highly priced for most collectors to have many so we will pass on to the stamps of the Dominion of Canada which issued her first in 1868.

On that date the stamps of Nova Scotia and New Brunswick became obsolete, while British Columbia started using the Dominion stamps in



Fig. 5—With the date in the sea

1871 and Prince Edward Island in 1873. The first Dominion stamps are quite plentiful; a portrait of Queen Victoria facing to the right. They call for no comment and most of you will have specimens at which you can look.

Jubilee Issue

The first illustration is of one of the very beautiful Jubilee set issued in 1897—a set which is well worth having. The 1897 portrait is a reproduction of a painting by Professor Von Angeli, an Austrian nobleman, who painted very few people other than royalty, but who made an exception in the cases of Disraeli and H. M. Stanley. You will notice the same portrait of Queen Victoria on the stamps of India, Southern Nigeria, British East Africa and the Uganda Protectorate.

Then Canada issued two more sets of Queen Victorian stamps. First that with maple leaves in all four corners and then with figures in tablets in the bottom corners. After that we have the very fine map stamp "We hold a vaster Empire than has been".

In 1903 the first issue of King Edward VII stamps appeared, and this was destined to be the only Edwardian issue. 1908 was the date of the Quebec Tercentenary, and to commemorate this, eight stamps appeared. The dates are printed on the stamps so you should have no difficulty in recognising them. King George V, and Queen Mary as Prince and Princess of Wales are on the ½ cent, Jacques Cartier and Samuel Champlain on the 1c, with King Edward VII and Queen Alexandra on the 2c. The rest of the set consists of various views of Quebec and Generals Montcalm and Wolfe.

From 1912 to 1931

In 1912 appeared the stamps bearing the portrait of King George V. The one type continued for a number of years, until 1931 in fact. There was a stamp in 1917 to commemorate the fiftieth anniversary of the Confederation and in 1927 a set of five to commemorate the sixtieth anniversary.

The 1917 stamp and the 2c of the 1927 set both showed the picture of the "Fathers of Confederation", whilst the 12c showed a very nice map of Canada with the two dates 1867—1927 on it. Macdonald, Laurier, and Parliament Buildings completed this set.

Some historical portraits then appeared, and in 1928 there was a

set with the portrait of King George V for the lower values. Above 10c we see Mt. Hurd, Quebec Bridge, Harvesting (with horses), the fishing smack "Bluenose" and, again, Parliament Buildings.

Unfortunately so many stamps were issued from 1930 onwards that it is impossible to mention them all. This is a pity, because there are some very fine and interesting specimens. One of the 1930 stamps shows a



Fig. 1—The 1897 Jubilee issue

picture of harvesting—this time with a tractor—showing the advance in agricultural methods. This stamp was overprinted in 1933 "World's Grain Exhibition & Conference"—"Regina 1933", an overprint which explains itself.

Transatlantic Crossing

The first transatlantic crossing was commemorated in 1933 by the issue of a picture of the S.S. Royal William, taken from a painting by S. Skillett. 1934 was the date of the fourth centenary of the discovery of Canada



Fig. 4—With an enlargement of the secret date portion



and this was commemorated by a picture of Jacques Cartier approaching land.

The same year was the 150th anniversary of the entry into Canada of those who left the United States after the War of Independence. The United Empire Loyalists they were called, and there is a statue to them at Hamilton, as shown on a 10c stamp. Then the 150th anniversary of the Foundation of New Brunswick with a 2c stamp showing the Seal of New Brunswick.

In 1935 we had the Silver Jubilee

(Continued foot of opposite page)

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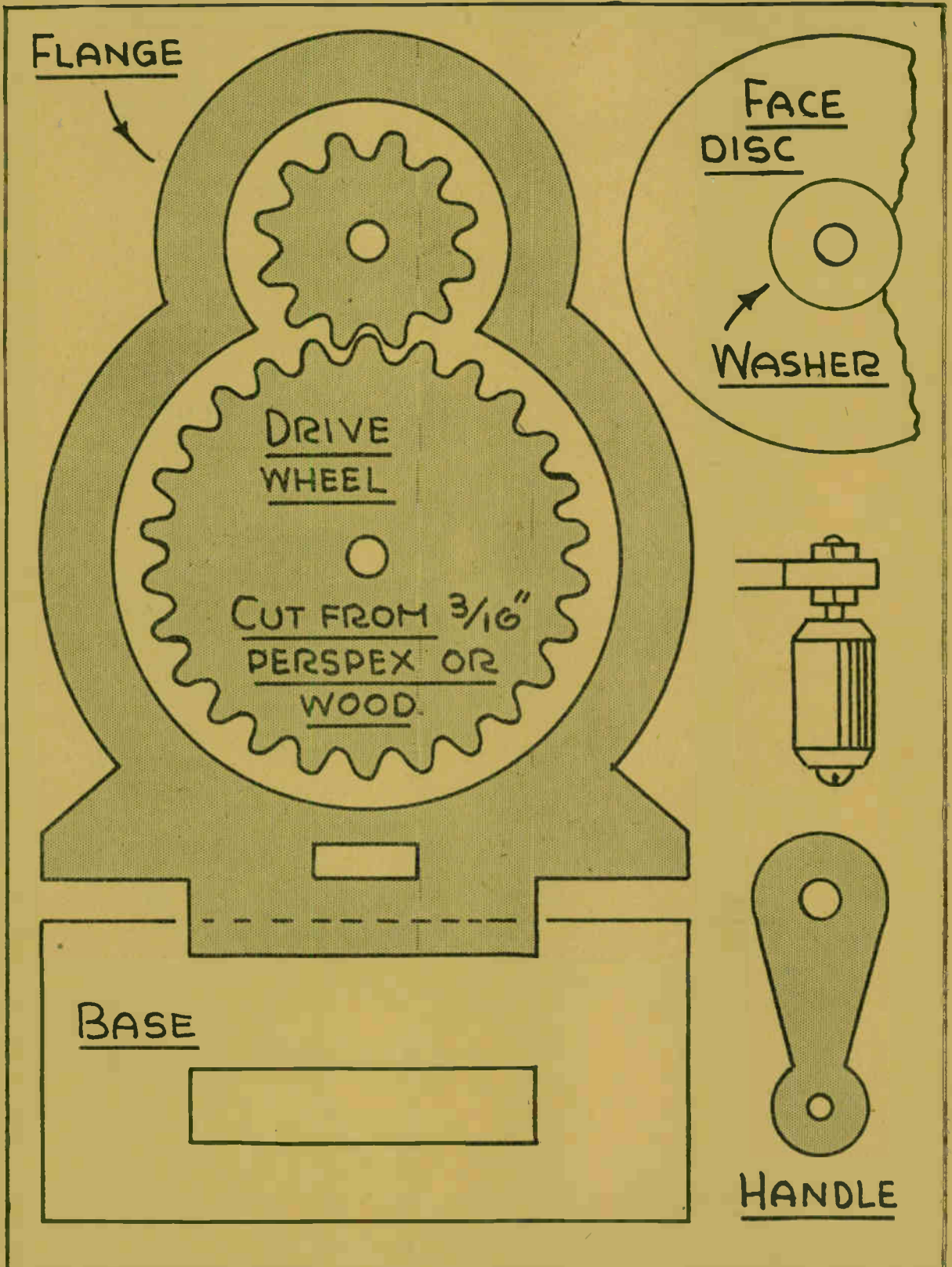
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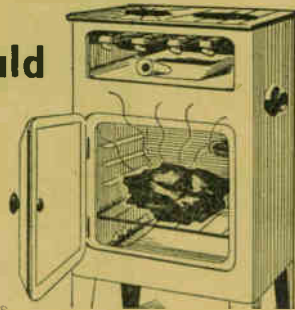
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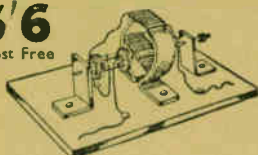
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Hobbies

WEEKLY

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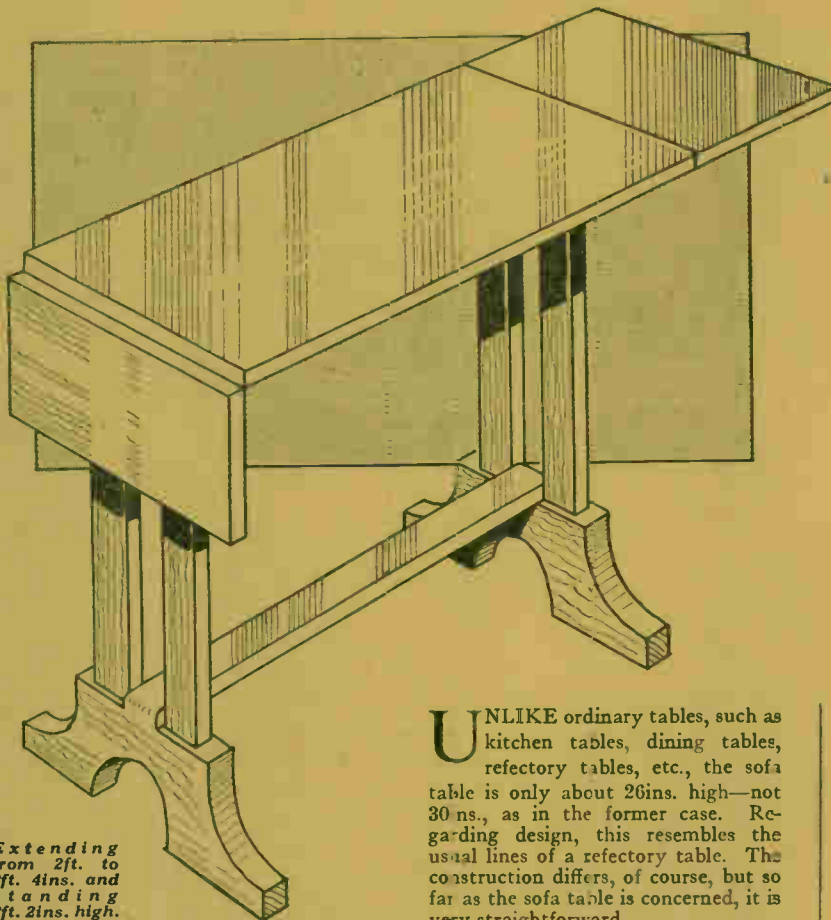
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May 19th, 1948

Price Threepence

Vol. 106 No. 2742

Instructions how the handyman can build A SOFA TABLE



Extending
from 2ft. to
3ft. 4ins. and
standing
2ft. 2ins. high.

UNLIKE ordinary tables, such as kitchen tables, dining tables, refectory tables, etc., the sofa table is only about 26ins. high—not 30 ins., as in the former case. Regarding design, this resembles the usual lines of a refectory table. The construction differs, of course, but so far as the sofa table is concerned, it is very straightforward.

Little wood is wanted, but the top, at least, must be made from $\frac{3}{4}$ in. stuff, and the feet cut from $1\frac{1}{4}$ in. stuff, the other parts being $\frac{1}{2}$ in. thick. Deal boards may be used, but if you have scrap pieces of oak or other hardwood which can be used, such is preferred.

The Leg Frames

The leg frames are made first of all. It will be seen that these frames consist of a top piece (10ins. by 2ins. by $\frac{1}{2}$ in.), two legs (18 $\frac{1}{2}$ ins. by 2ins. by $\frac{1}{2}$ in.) and a foot piece (14ins. by 4 $\frac{1}{2}$ ins. by $1\frac{1}{2}$ ins.). The top piece is recessed at the top edge 2ins. by $\frac{1}{2}$ in. for the table flap lopers or slides, then the ends cut to shape.

The legs are dowelled to be flush at both sides of the top rail, spaced 2ins. apart, and kept central. The opposite ends of the legs are similarly affixed to the foot piece, being kept central to show a $\frac{1}{2}$ in. break at each side, as at Fig. 1.

Side Rail and Stretcher

When both leg frames have been assembled, they are connected together with two cross rails (18 $\frac{1}{2}$ ins. by 2ins. by $\frac{1}{2}$ in.) and a stretcher rail (20ins. by 2ins. by $\frac{1}{2}$ in.), as can be seen in the constructional view at Fig. 2.

The side rail can be stump-dowelled between the frames or else be affixed with flathead screws, two screws to each rail end. The stretcher is secured with glue and a screw, the latter being driven in via the underside of the feet. It will be necessary, in this case, to bore a 1in. deep $\frac{3}{8}$ in. hole in the arch of the foot, so a 2in. screw may be used.

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

Note, by the way, the side rails are attached to provide a channel for the slides or lopers. These are 2ins. by 7/8in. slotted for a fixing screw. The lopers, when withdrawn, keep the table flaps extended and thus dispense with wooden or metal brackets.

If you wish to avoid going to the trouble of fitting special lopers, single metal table flap brackets could be attached at each end of the table, in line with one leg, i.e., the

there is less tendency for the wood to bend.

When the main top and flaps are prepared, ready for attaching (this means that the surface side has been smoothed with a plane and glass-papered), the table framework is affixed to the main top with screws. A screw may be driven in at the ends of the top rails, with other screws inserted through the side rails. The top, of course, is affixed central with

1 1/2ins. long may be used. Actually, a flap hinge should be used, as the screw holes are further inwards, well away from the end of the main top. When screws are driven into the end edge of a board, there is some weakness, the screws tending to split the wood. While butts can be used, the flap hinges are the most suitable type to use. Keep them 2ins. inwards from the edges of the main top and the flaps.

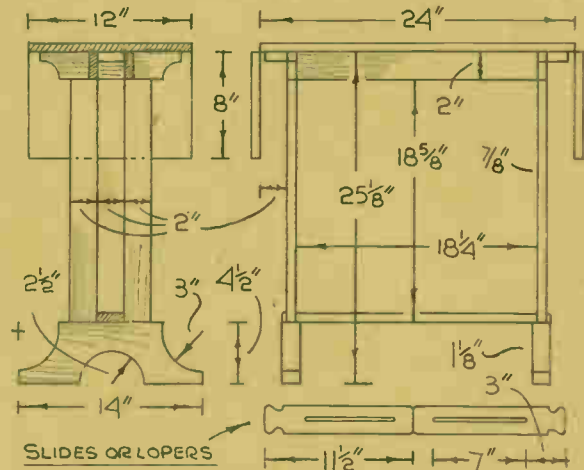


Fig. 1—End and side elevation with sizes

knuckle of the hinge is kept centrally with the top cross rail and one leg. The width of some brackets may be 4ins. The leg thus takes up some of this width.

Table Top and Flaps

The table top measures 24ins. by 12ins. by 7/8in. It could be made up to width with two 6in. wide boards, dowelled or rub-jointed together. The flaps are 12ins. by 8ins. by 7/8in. and this means that the grain runs with the length and thus across the grain of the main table top.

You may probably wonder at this. The reason is easily explained. The top rails, being screwed to the underside of the main table top, act as battens, and these serve to prevent the wood bending or warping unduly. If the flaps are cut so the grain runs continuously with the length of the top, there is no protection against warping or bending. By having the flaps run across, as in the illustration,

the framework, as indicated by the dotted lines at Fig. 2

Fitting the Lopers

Once the main top is affixed in position, the lopers are made and fitted. Details of these are provided at Fig. 1. The 7in. by 1/2in. slot in each is for a roundhead screw which, apart from keeping the lopers in position, acts as a withdrawing stop.

The screw, therefore, is kept near the leg frames, being driven through the elongated slot into the main top. You will have to use a 1 1/4in. by 8 roundhead screw, the head of which should be based with a small metal washer.

The End Flaps

The end flaps are fixed in place with 2in. butt hinges, or hinges

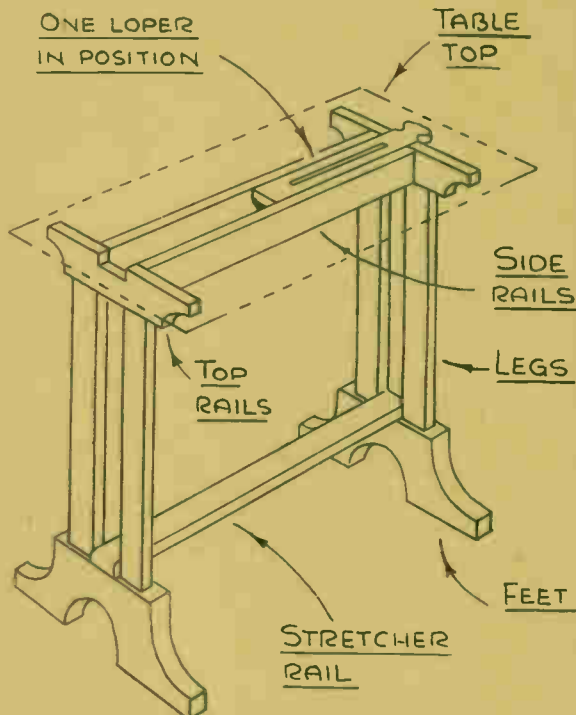


Fig. 2—General constructional view with named parts

If the lopers pull out stiffly or squeak when withdrawn, rub on some candle grease. If binding is due to tightness, a few light shavings must be removed. Allow for the swelling caused by the application of a water stain and a coat of thin french polish.

Polished Finished

A french polished finish is desirable. Oak, mahogany, walnut, rosewood, etc., are all possible finishes which may be used on deal. Before you start finishing off the completed sofa table, make sure that it sits rigidly on an even floor. It may be found necessary to plane the underside of the feet to make the table stand steady.

The table top edges can be kept plain or be moulded, using a thumb moulding. Another plan is to bead the edges, using a scratch bead tool (a screw driven in a flat block of wood, with the head projecting slightly, and the screwdriver nick filed so it scrapes away the waste wood; a flathead screw is used).



SMALL ROCKING HORSE TOY

This attractive toy stands 9 1/2ins. high, and is made with the patterns of this week's supplement design sheet. A parcel of wood (No. 2742) for all parts is obtainable from Hobbies Branches for 2/9 or will be sent post free for 3/6 from Hobbies Ltd., Dereham, Norfolk.

Make your place attractive with A GARDEN POOL

GARDEN pools can be made any shape—square, rectangular, hexagonal, circular, etc., or of an irregular outline. Owing to the amateur's difficulties in making the wooden "formwork" for the concrete lining, however, a rectangular shape is much the easiest to make. The pool must be at least 24 ins. deep, and be placed in a sheltered spot, otherwise it will scum up in summer and freeze rapidly in winter. Do not place it under a tree, however, otherwise it will soon be full of leaves.

A rectangular hole is dug neatly in the ground, 6 ins. deeper than the real depth of the pool, and 6 ins. wider all round. For instance, for a pool to be 5 ft. by 3 ft. by 24 ins. deep, the hole will be 6 ft. by 4 ft. by 30 ins. Concrete is poured in this to a depth of 6 ins.

The Concrete Mixture

The concrete is mixed as follows:—
Portland Cement 1 part by volume
Damp Sand 2 " " "
Coarse Aggregate 3 " " "
(i.e. small stones and finely broken old corks, etc. not larger than ½ in. diameter)

Water—From ¼ to ⅓.

When the base is sufficiently hard, the wooden framework is laid on it. This is a hollow frame (see sketch) of say, 1 in. timber, well whitewashed or oiled to prevent adhesion. It should be so made that it is quite strong, yet may easily be dismantled when required to be moved.

It is so placed, of course, so that there is a space of 6 ins. all round it, between its outer face and the earth surround. Concrete is then poured in, to bring the lining to earth level, care being taken to secure a good bond between the walls and the base.

A Pre-cast Wall

Leave for quite four days before removing the formwork. It is a great advantage to have the pool surrounded by a dwarf wall made of precast concrete slabs. These are easily made with a special mould, as illustrated. This is locked up and laid on a sheet of newspaper. Concrete is mixed as follows:—cement, 1 part; sand, 1½ parts; aggregate (small) 2 parts; water ½ part.

Note that this is a fairly stiff mixture. It is put in the mould, levelled off with a small float or trowel. The mould can then be unlocked and the wet slab slid away, on its newspaper,

and a fresh slab made. Keep them damp for 3-5 days and then stack on edge in the open to dry. Before laying them in position around the pool, soak them in water.

The cement in the pool is usually made waterproof by giving it a rendering made from 2 parts of clean sand, 1 part of cement, to which is added Pudlo waterproofing powder (1 lb. to each 20 lbs. of cement). Pudlo is obtained from builders' merchants, probably from the same place as you obtained your cement.

Plants

You cannot plant any kind of waterlilies anyhow, but discrimination is necessary to avoid disappointment. The best sorts for a small pool are:—*Nymphaeas* Exquisite (pink), *Sulphurea* (pale yellow), *Candida* (white), or *Purpurata* (crimson).

The leaf spread of these is between 2-3 ft. They can be obtained from nurserymen specialising in such things; you should see the gardening periodicals for addresses. Do not be led into

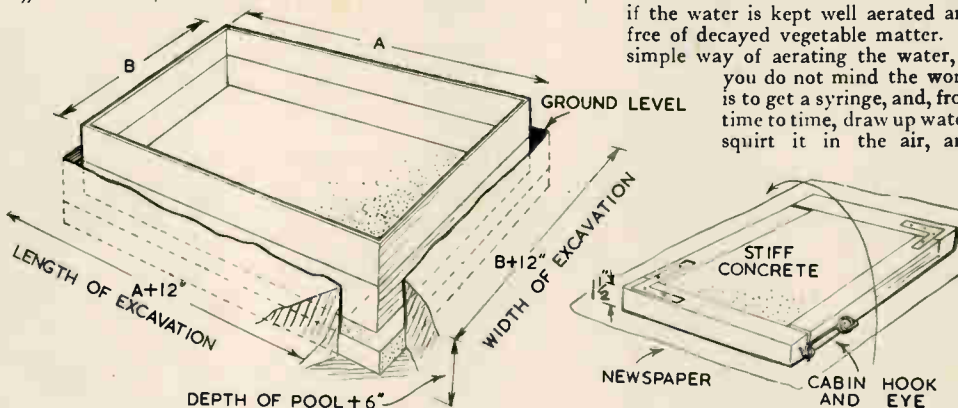
Plant the lily root firmly in the basket of compost, with just the crowns showing. Rig up a sort of "crane" over the pool, and suspend the basket from it (allowing plenty of spare twine), so the plant is only 3 ins. or so below the water.

When the first three or four leaves have fully developed, lower it another 4 ins. Leave for a full month and then let the basket sink to the bottom. Merely to throw the root into the water is suicidal for the plant. As just hinted, the pool must never be overcrowded.

One might mention, in passing, other water plants. *Nuphar advena* (large yellow flowers with red stamens) This is a good plant for a shady pool inclined to be stagnant. *Aponogeton distachyon* (water hawthorn), white flowers 1½ ins. diameter, scented like May blossom. *Limnorchis humboldti* (water poppy), yellow. These are planted in the same way as described for water lilies.

Fish

Remember that fish will thrive only if the water is kept well aerated and free of decayed vegetable matter. A simple way of aerating the water, if you do not mind the work, is to get a syringe, and, from time to time, draw up water, squirt it in the air, and



A view of pool frame, broken to show corner construction

buying such regal varieties as *Gladstoniana* which have an enormous spread. Not more than half the water surface must be covered by the expanded leaves otherwise the plants will die off.

The cement pool will have no mud bottom. The plants have to be rooted as follows. When they arrive from the nursery, take off the moss wrapping very carefully, taking care not to damage the string-like roots or the finger-like crowns. Find an old worn-out wicker shopping basket, or get a large "chip" strawberry basket. Make up a compost as follows:—Heavy fibrous loam (passed through ½ in. mesh sieve), 5 parts; well rotted (NOT fresh) stable manure, 1 part; coarse grade bone meal, 2 ozs. to the bucketful of loam. Definitely no peat or leaf-mould, as these will poison the water for fish.

The mould for pre-cast slabs

allow to fall back in the pool. Such plants as tape grass, Canadian water weed, water millfoil, and so on can usually be obtained at pet stores where aquaria supplies are sold. From such shops one can also get Ramshorn snails, water shrimps and other pond "scavengers".

Suitable fish are Goldfish (make sure they are outdoor varieties), golden rudds, golden tench, roach, dall, gudgeon, carp, bitterling and tench. Such swiftly darting fish as gold and silver orfe are suitable only for very large pools. Ants eggs are a well-known form of fish food and Messrs. Spratts sell a special pond-fish food.

If you always feed the fish at the same place at the same time, they will get to know when to expect you, and congregate in expectation. . . . an amusing stunt to show visitors to your garden.

The home carpenter should make this practical CUPBOARD BOOKSHELF

THE general idea of the fitting may be gathered from Fig. 1, which shows a spacious cupboard on the left of a bookshelf having a clear space of over 9ins. The overall measurements of cupboard and shelf are shown in Fig. 2, and from this diagram and those shown in the further details, the construction should be made quite clear.

The Lower Shelf

Commencing with the shelf, A, we have two 3in. pieces of $\frac{1}{2}$ in. stuff glued edge to edge, these narrow width pieces being more easily obtainable than the wider sections. One inch from the total width of 6ins. may be cut off and the rough edge then planed up. At each end of the shelf two tenons are formed (Fig. 3) each being 1in. long and 1in. apart.

The rail, B, is a plain piece running the full 18ins., and the end upright, C, and the sides of the cupboards, D and E, are notched out to receive the rail to which they should be screwed from the back.

The end (C) of the book shelf is $\frac{1}{2}$ in. thick and measuring 9ins. by 5ins. The lower edge of this piece may rest square on shelf, A, and be screwed or doweled to it. Or it may be tenoned in a similar manner to the end, D, of the cupboard as shown in the detail Fig. 4.

Shelf End

The shape of the shelf end, C, is given in Fig. 5, and the mortises also are shown. They are spaced and cut to fit exactly the tenons on the shelf A. The sides, D and E, measure 11ins. The side, D, is fixed to the

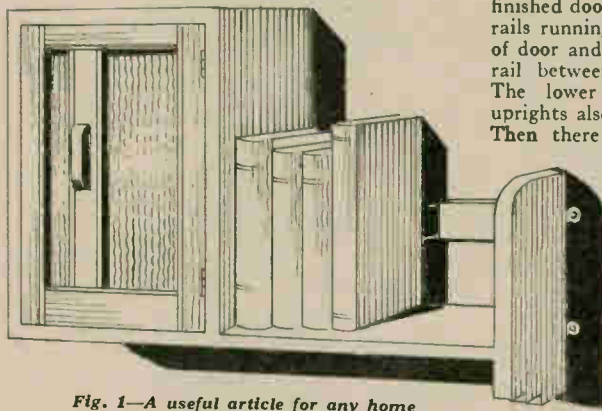


Fig. 1—A useful article for any home

floor by the open tenon arrangement shown in the enlarged detail Fig. 4. This makes a strong glued joint. The recesses, one in each of the sides as mentioned previously, to take the rail, B, can be cut with the fretsaw.

The top of the cupboard, F, is cut to the length shown and 5ins. wide. It should be cut full to allow for planing and trimming off neatly to the two sides and front edges of the cupboard.

The Back

Glue fillets of wood along inside the cupboard in the angle formed between the sides and the top. Similar fillets could also be added at the bottom of the cupboard.

If a back is thought necessary for the cupboard, it may be made in two sections—one above the cross rail, B, and one below. Each piece should be let in flush with the back edges of the sides and top and fixed by means of small fillets running round inside the cupboard.

The door of the cupboard is a simple $\frac{1}{2}$ in. panel 10 $\frac{1}{2}$ ins. long by 6 $\frac{1}{2}$ ins. wide. To the face of this is glued four rails to give stiffness to the

finished door. There are the two side rails running through the full length of door and 1in. in width, and a top rail between these, also 1in. wide. The lower rail fits between the uprights also, but this is 1 $\frac{1}{2}$ ins. wide. Then there is a third upright rail 1in. in from the left-hand side of door to take the handle, and cut between the two horizontal rails as shown in Fig. 2.

To give added character to the door, run a simple bead along one edge of each of the outer door rails and along both edges of the middle or handle rail.

We give here a simple way of doing so by running a screw into a block of wood as shown in Fig. 6. A block of some hard wood such as oak should be chosen, and the screw should be iron with the slot running vertically to form a cutting edge.

Beaded Edges

The wood to be beaded should be laid flat on the bench or table to which a "stop" block is fixed to take the forward ends of the rails during the process of beading, see Fig. 7. The actual section across the rail when beaded will look like the enlarged detail in the circle in Fig. 6.

A shelf or shelves may be added in the cupboard as desired, and the whole article then cleaned with glasspaper.

Four strong brass hanging plates should be added to the ends of the rails, A and B, and the whole then supported by stout nails or screws.

A simple square handle is added to the door as shown which must be hinged with a pair of $\frac{1}{2}$ in. stout hinges.

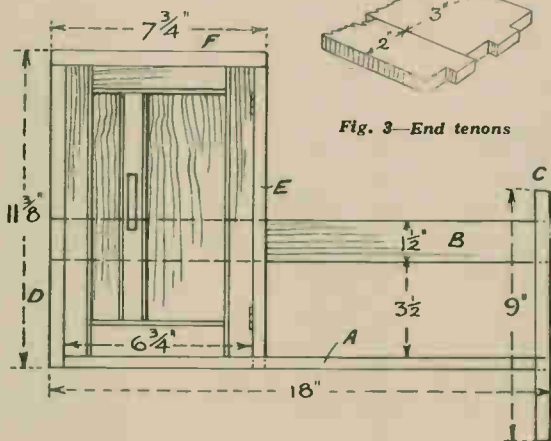


Fig. 2—Front elevation with dimensions



Fig. 3—End tenons

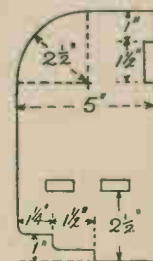


Fig. 5—The shelf end

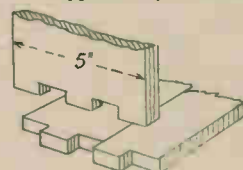


Fig. 4—The lock joint

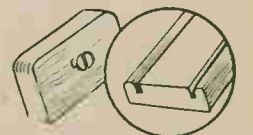
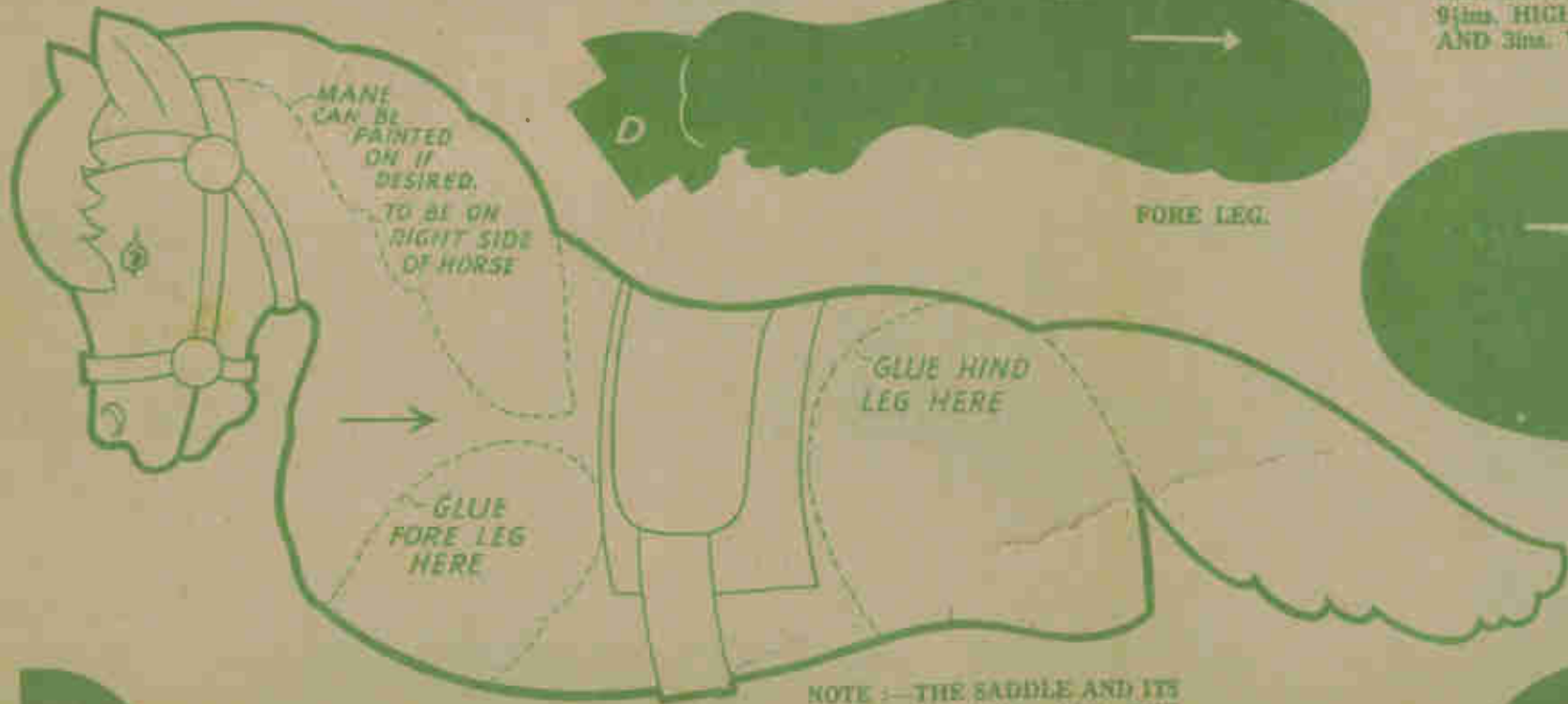


Fig. 6—The screw head and the cut bead



Fig. 7—Forming a bead on wood



THE ARROWS INDICATE THE DIRECTION OF GRAIN OF WOOD

NOTE:—WOOD 1/4in. THICK USED THROUGHOUT FOR THIS DESIGN. CUT ONE OF EACH PART SHOWN.

PANELS OF WOOD REQUIRED FOR THIS DESIGN
ONE H4 TWO G4
 The price is shown in Hobbies Weekly, May 1948, but is subject to revision. See the current edition of Hobbies Handbook, or write for price to Hobbies Limited, Dereham, Norfolk.



No. 2742
 19-5-48

SUPPLEMENT TO HOBBIES No. 2742

TOY ROCKING - HORSE



A SCIENTIFICALLY DESIGNED TOY.
 9ins. LONG,
 9ins. HIGH,
 AND 3ins. WIDE.

NOTE:—THE SADDLE AND ITS BANDING, AND THE TRAPPINGS ON THE



How to cut out and construct a SMALL TOY ROCKING HORSE

THE rocking horse illustrated on the other side, can be made from the printed patterns in $\frac{1}{4}$ in. wood, to form a pleasing, sturdy and lasting toy for any youngster. It consists, as can be seen, of two rockers with platforms between, on which is stood the outline of the horse. The parts are shown all full size, and can either be pasted down or—better still—traced off direct to the wood.

The various parts are cut with the fretsaw and linked up by means of mortise and tenon joints. The cutting of these joints correctly, of course, covers the rigidity or otherwise of the whole thing. Take care, therefore, to get the projecting tenons straight and true and fitting in fully to the respective mortises or slots.

Test all Tenons

Each one of these is lettered, and as the part is cut it should be tested out with its respective partner. Not only must the tenons themselves be kept with straight edges, but the longer straight lines forming the shoulder portions must also be true if the part is to bed nicely. This can be seen in the lower platform with its joint at A. The tenon projects into the side, but it is equally necessary for the long edges to lie flat where they can be glued.

As each joint is cut, lay it on the

two parts so that when finally put together it will be replaced in the same position. It is certainly not wise to paste down the design of the body of the horse, because the pattern shows where the position of the legs is to come, and also the lines and colours which are to be painted on to the wood. If you paste the pattern down, it will only have to be finally glasspapered away, and you will then have no reference marks to go by.

Cleaning and Fitting

Cut all parts, then, with the fretsaw and clean them up with glasspaper. Take care in doing this that you do not thin down the edges of the tenons or they will become loose in the mortises. When all parts have been tested separately with each other, the whole thing can be put together.

Note there is only one piece shown for the mane, and this is glued on to the righthand side of the horse—the opposite side of the pattern indicated. It comes in line with the arched neck, and when the glue is hard the edges of it should be shaped off to a nice curve. This will give a better imitation of the flowing mane which will be later completed by painting black or brown.

Glue the four legs in position according to the dotted lines shown, then glue on the cross platforms to fit the projecting tenons at the foot of the leg. It is as well to test these in

place before the glue of the legs and body has actually set, in order to ensure they fit comfortably. Glue the projecting tenons on the platform into one of the sides at B, then add the lower and larger platform at A.

The second side should be ready and can then be fixed on to the remaining three tenons to form a solid part. Wherever edges join each other, a thin film of glue should be provided as well as in the tenons themselves.

In the original cutting of these tenons, by the way, it is a good plan to leave them a little longer than actually shown, by cutting on the outside of the design line. When fitted together, these tenons will then project very slightly, and can be glasspapered down flat so they are quite smooth and level with the sides, so making a perfect joint.

Colour Finish

Leave the whole thing until the glue has set hard before you commence to paint. If the wood is soft, an original coat of grey should be applied and allowed to soak in before a second coat is put on.

The actual colours, of course, are according to taste, but it is as well to remember that kiddies find bright, glossy colours most attractive. Red, brown, yellow and black for lines can be introduced. The marking of the saddle, bridle, etc., can be done in brown, with a light line in black for marking out.

HEAD SHOULD BE
PAINTED ON, OR THE
SADDLE, ETC. MIGHT
CONSIST OF PAPER OR
CARD GLUED ON.

MANE
CARVE AND SHAPE
TO THE DOTTED
LINES.

THE TOY SHOULD BE
PAINTED OR ENAMELLED
IN BRIGHT COLOURS
AFTER A THOROUGH
CLEANING WITH GLASS-
PAPER.

NOTE—THIS DESIGN
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The amateur photographer should certainly try TINTING PHOTOS

IT is quite probable that every person has at some time or other expressed a wish to be able to paint, and it is certainly undeniable that we amateur photographers are particularly influenced by nature's colourings. For more often than not it is the colours in a landscape which first attract our attention. Some of us make the mistake of exposing on a scene because of the colour and before we have attempted to judge how it will appear as a monochrome.

Seeing that colour has such a pull, it is not surprising that the tinting of photographs is popular, not only among photographers but also with those who have never taken a photograph. There must be quite a number who have become so expert.

Colour Mixing

Photo-tinting has this very great advantage. All the sketching is already made for you and all that is required is to fill in with the colour most suitable for the subject. There are, of course, certain fundamentals which must be known and practised. For instance, the mixing of colours necessary to acquire a certain tint, also the application of the colours etc., but after a little experience it is surprising how easy and how very fascinating the work becomes.

The tints are obtainable in sets of nine of the most useful colours including blue, brown, crimson, flesh, green, orange, scarlet, violet and yellow. These are all aniline colours in concentrated liquid form and in small bottles. Placed upright in the box they are in a convenient position and do not require moving when in use.

Over Colours

Each colour is capable of very considerable dilution and also of intermixing with others for obtaining a whole range of tints. It is also possible to get excellent results by superimposing, i.e., when one colour

has dried another can be applied over it to secure a different tint.

It will be seen therefore that with such a set and one or two good brushes the amateur photographer has all the means at hand to become a budding artist and to be able to add some coloured prints of his or her own making to the collection and it has a most pleasing effect when a few coloured prints are placed in the album.

Let us now consider a few hints on how to start this work. Remember all

frequently. If you have a spoiled print soak this and keep it for testing the strength of the prepared tint which you intend to use.

Diluted Colour

Let us for the purpose of illustration assume that the print is of a beach scene with sky, sea, sand and a boat, and some cliffs. The best work is achieved by using very dilute colour, wash strength, and going over the section several times until the desired depth is reached.



A pleasing subject for colouring as mentioned

photographic papers can be tinted but there are some which take the colour better than others. Undoubtedly the matt surfaces are best. The glossy type because of the hardness of the emulsion, are somewhat more difficult.

The Process

Every print must be well soaked beforehand to get the emulsion absorbent. Then lay the print on a sheet of glass or other hard flat surface and with a sheet of clean white blotting paper remove all the extraneous and surface moisture, leaving the surface still in a very damp condition.

Keep the blotting paper close at hand for it will be required quite

So, as the sky is the largest portion of the print, take a brushful of the blue tint and dilute it with several brushfuls of clean water. Do this in one of the small paint dishes, and when it is down to a very pale blue try it on the spare print. Then wash the whole of the sky with it and blot it off again. Give it another coating, and, when this is blotted, the portion of sky nearest the horizon is probably deep enough and should be left untouched.

Third Coat

When applying the third coat, grade it so that more of the colour reaches and stays on the sky at the top edge of the print. If there happens to be a nice white cloud be sure to avoid colouring it.

For the sea you may use a wash of green, for the sand one of light brown and for the cliffs a darker brown.

Now for the boat with its sails. If it is only a short distance from the beach and stands out clearly you must use a fairly deep colour for the hull. Maybe it is painted white, and in that case do not colour it except to paint a green line near the gunwale and perhaps a light brown on the mast. If you think it will improve the picture then the sails can be made red.



The "Cutty Sark"

This excellent model is a 21in. Cutty Sark made from Hobbies Design No. 2186 by Mr. L. Page of Deene Close, Corby, Northants. The same reader has made our Mayflower Model (No. 2147) to which he had additions to make it even more realistic.

There are several things for ease and comfort to ensure HIKING WITH PLEASURE

HIKING is one of the best ways of spending a leisure day.

Perhaps, each spring and summer week-end you have at least a full day at your disposal—and what healthier or more interesting way of enjoying it than by walking, tramping, or hiking, whichever you prefer to call it, in the green countryside?

The important point is to make your day's walk a real pleasure. No "forced march" about it; no "fancy costumes" and no "smart clothes" that may look very nice indeed, but leave much to be desired from the practical side. Wear easy old clothes in preference to "posh" things. It is sensible to have loose garments that are serviceable even if they do not look smart.

Clothing Suggestions

What may one suggest? Well, shorts for freedom of leg movement; but if you do not like to show your bony knees to all and sundry, then a pair of good old slacks, even if they are a bit baggy.

A khaki coloured shirt with open-neck collar, will be comfortable and practical. You may have a pocket on one side to pop little things like a map into. The hiking jacket should be loose-fitting, and provided with big pockets having protective flaps. You cannot have too many pockets when tramping. For girls a plain linen skirt is of more general use than shorts.

Get your new walking boots, or shoes, whichever you prefer for the job, well "broken in" first. This is done by going little walks each evening after the day's work. Keep your foot-wear well dubbined to render same soft and easy to the feet.

Footwear Hints

Another tip, lace up your boots a bit slack; this will be found beneficial. Hand-sewn brogues are much liked by some hikers, but boots are also recommended, as they give more support to the ankles on cross-country walks. Whatever else, do not set off for a day's hike in thin-soled, town footwear. For girls good flat heels, and not high-heeled ones, which may be all right for city pavements.

A haversack to carry a bit of lunch, camera, map, etc., is all you need. If the weather looks like being showery, or if the B.B.C. weather report says "rain likely later in the day", take a lightweight rainproof "mac" or good cape.

Then comes the question of distance. Do not try to go too far in a day. It is better to start with a target of ten or twelve miles, than to give way to a desire to boast to friends that you

have tramped 20 to 30 miles. A slow and steady pace must be set—do not rush for four miles and then slack off to a dawdle at the end of the fifth.

To hurry and then slack at intervals is more tiring than an even pace. Arrange to allow yourself a break—"fall out" for ten minutes at the side of the road—every hour or so. This enables one to carry on through the day without feeling all in, towards the finish.

Take the Picturesque

Remember, the pleasure of a tramp is not to be measured in miles alone. Avoid roads, stick to country paths, grassy bridle-ways, old lanes, and the field paths. Always get over a stile, as Richard Jefferies advised.

Take an interest in the places you pass through—the village with its old cottages, its stone cross, its ancient

the milage to reasonable bounds, behaving properly and treating the country folk with respect, return home happy, pleasantly fatigued, bronzed, and smiling.

Alone or in Company

There are those who delight in a solitary tramp, feeling independent of others, to go as they list and where they list. But many prefer one or more companions. "Happy is the man", says Will Grant, "who finds a walking companion who knows how to keep silence and when to talk, who is in unison not only with yourself, but with all vibrant chords of Nature around".

That is the whole point. If you must have company, see it is the *right* company. Some other trampers, of course, love to go in a crowd, with a leader or guide. It is certainly a sociable idea, but usually the programme is too rigid; either you are having to wait for the crowd to catch up with you, or the crowd is kicking its heels impatiently waiting for you or some other loiterer.

An Occasional Bus

Do not scoff at the idea of taking a 'bus. It is foolish to tramp along a motor road with its endless traffic and let a 'bus go by that is speeding for a prettier spot that will make a good starting-place.

Plan your route beforehand—you will get more out of the walk by that means than going haphazardly. Carry a useful map of the district—the O.S. One Inch to One Mile maps are the best of all. March by the map if possible; it will save unnecessary miles that often get you nowhere.

Of course, on such a day's holiday tramping you do not want to hasten from one objective to another or point to point. Arrange the schedule to allow of detours into pretty spots and always try to find the most picturesque country combined with the easiest walking. Stick to the fields and by-ways. Never hurry.

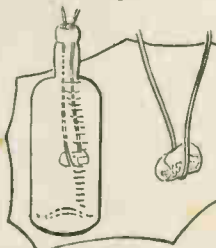
A Quiet Joy

With a halt here and there, a spot of sight-seeing, a chat with a friendly countryman, or half-an-hour exploring some interesting object, the day's tramp will be both easier and pleasanter. Think of all this now Summer is approaching.

With a suitable map, plot out some little excursion, using a 'bus or train to take you well out of the town or city, and then set your course through ways joyful with singing birds, wayside flowers, tonic-laden air, and lovely scenery. Do not let your week-ends slip by this year without giving the idea a trial, at least.

Removing Cork from Bottle

A CORK that has been pushed inside a bottle can easily be removed by the following method. Insert into the bottle a piece of string forming a loop in the shape of a U. After doing this, shake the bottle so the cork rests on the string in the neck of the bottle. Give the string a sharp upward jerk and the cork will come out.



church, its old watermill, and similar delightful old-world buildings.

As to the "don'ts"—Avoid passing over growing crops, don't forget to close gates behind you, do not frighten sheep or other animals by shouting; and do not omit to treat all private property with respect. Do not walk too far or too fast, realise your own abilities on foot; do not land yourself in an out-of-the-way spot at sundown, miles and miles from anywhere. Especially avoid getting belated on a wild moor at nightfall. Plan your route with all this in mind.

Food to Eat and Avoid

Drop in at some farmhouse or wayside cottage providing refreshments for a rest and a snack. In your haversack carry marmalade sandwiches, ginger biscuits, an apple or two, a bar of chocolate. Avoid alcohol and meats whilst tramping.

Sensible hikers watch all these points, and by taking the right food, maintaining a steady pace, limiting

There is lots of fun and interest in keeping a FRESH WATER AQUARIUM

IN the formation and keeping of a fresh water aquarium you will find that you have a hobby which has many advantages over those of your friends. Firstly, it is one that costs little, which a great asset these days. Secondly, it is exceptionally clean, and that should react favourably with the powers that be. Then lastly, it is highly interesting, and will give you cause for justifiable pride because it is something that you have made yourself.

Suitable Container

To begin, you will need a container in which to house your pets. This may be a fairly large glass jar, or, if your aquarium is not going to be a big one, an ordinary drinking glass will do.

However, the best type is one which is longer than it is high, and one of those glass covers which are used by florists to put over wreaths, fills the bill quite well.

By the way, never use a goldfish bowl such as can be seen in many pet shops. These have an opening which is too small to allow sufficient oxygen to get into the water, and, as a result, your aquarium inhabitants will suffer great discomfort. A stand to support your container can be easily made from a few pieces of wood.

Preparation of Tank

The next job is to prepare the tank for the creatures which will spend their lives in it. Now, before we go any further, it is best that you should know something of the connection between aquatic plants and animals.

In a pond or stream you will always find, that in addition to the creatures who have their homes there, it has an

abundance of plant life. Perhaps you thought that the plants were there to make the water look more beautiful, but this is definitely not the case. You see, fish require oxygen in order to live, and this they obtain from the water, giving back, afterwards, a mixture of oxygen and carbon.

Now, the plants require the carbon, and, being equipped with the means of splitting the carbon and oxygen, they use the carbon and give back the oxygen to the water. This is once more breathed in by the fish, and so the whole circle begins again.

We can see, therefore, that plants are necessary for the well being of your aquarium. Some aquatic plants require no earth, but draw their nourishment directly from the water. However, others do, and preparation must be made for them. It is necessary, then, to get some sand from a nearby stream and wash it thoroughly, then put in into the tank. You may, if you wish, put some clean stones in as well, but these will only be for effect and are not really necessary.

Plants to Insert

What plants are used is a matter of personal opinion. Any weed that is found growing in a pond or stream will do, but you will only require a little. Plants increase in an aquarium, just as they do in the stream. Of course, the fish will eat some of them, but do not let this worry you, for the plants will grow quicker than the fish can exterminate them.

Now for the inhabitants. Possibly, your first thought will turn to fish, for they form the main body of creatures found in an aquarium. Well, you have a fair choice. In practically

any pond you can find minnows, sticklebacks (there are more than one variety), roach and perch. Any of these make excellent pets, and look very beautiful as they dart about in the clear water.

Then we have the other creatures, of which you will find that water fleas, which are in reality relatives of the crabs and lobsters, make very pretty additions having transparent bodies. They are, by the way, good food for your fish also.

Snails and Insects

Then it is a wise plan to include some water snails. These keep the water clean, and as they breed very quickly you will not need to put many in to start. In addition there are the fresh water insects such as water boatmen, water skaters, and water scorpions, all of which make interesting study, and help to make your aquarium look more natural.

However, do not attempt to put all of these in at once. Overcrowding is one of the worst things that you can do, and it is far better to understock than to carry things too far.

If you wish to give your fish a change of diet, a few ants' eggs may be dropped in occasionally, but the best food is the water flea.

Aerate the Water

To ensure that your tenants are kept really fit you will find it a sound plan to aerate the water for five or ten minutes each day. This will ensure a full supply of oxygen, and can be done with a small syringe. Do not be afraid of hurting them by doing this, the fish love the bubbles and will swim around and through them having great fun.

Tinting Photos—(Continued from page 65)

Do try to remember that with almost every picture you have it is the wash and the way this is applied that will give the best effect. It is very seldom indeed that a strong solution is needed and more seldom still the concentrated strength. One instance is where it is desired to pick out the flowers in a garden or vase.

Foreground Strongest

Use full strength for those in the foreground, and a slightly weaker strength for others. For this particular work and subject it is most necessary to have a really good brush, one that you can bring to a sharp pencil-like point. This small work with the concentrated tint is usually on very small details only.

In the illustration on page 65 you have a subject which lends itself very well indeed for a small amount of colouring only. A weak wash for the

sky, a wash of deep green for the tree and a grey for the cottages on the left with a deep red-brown for the roof.

If you have a print with similar front gardens as this then you will be able to test the use of small spots of concentrated colour. Do not attempt to colour a white-washed cottage for it will show up better if left white and the surroundings are coloured.

Unwanted Paint

Some may be troubled as to how to remove the tint if it is placed too freely or the wrong colour used on an object. If you have only just begun work on the print place it under the tap and, although it may take some time, the colour will eventually wash out.

If the work is well advanced then the method usually adopted is to keep filling the brush with clean water and applying this to the colour to be removed.

In the last article you were shown how to sepia-tone your prints, and you will be surprised how this toning process helps to beautify a tinted print. Of course, the toning must be done before any attempt is made to tint but there is no doubt that the extra process makes for more pictorial results.

Clean Brushes Essential

Finally, keep the brushes clean, use the blotting paper freely and the colours sparingly and do not attempt to tint a print when it is dry. If you find that the colour refuses to be absorbed and remains on the surface in tiny globules, then it means that the surface of the print is greasy or too hard. Further soaking is necessary for some makes of contact paper may require soaking in warm water beforehand.

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Hobbies

WEEKLY

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May 26th, 1948

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Vol. 106 No. 2743

A Simple Toy Working MOBILE CRANE

WE give here another type of mobile crane to make up, and the illustration on this page gives an excellent idea of it during action. With the jib of the crane at the angle shown, the length of the model is about 10ins. long, and its height 9 $\frac{3}{4}$ ins. The four truck wheels can be obtained from Hobbies for 1/3 the set. They are of metal with flat rubber tyres, very realistic for the job in hand.

Inside the cabin there is the winding drum, while outside, there is a crank and handle for raising the load. After winding up the load it is automatically held until the drum is released again by the raising of a little lever which is attached to the pawl.

Commence work upon the truck and its wheels. Figs. 2 and 3 show an underside and a topside view respectively of this, and the floor piece, A, should first be marked out and cut. It measures 5 $\frac{1}{2}$ ins. by 3ins., and 3 $\frac{7}{8}$ ins. from the front end a point should be set and a circle from it made 3/16in. diameter. Cut this out to receive the upright spindle on which the cabin turns.

Next cut the two sides, B, to the full length of, A, and the two axle bars, C, all being shown in Figs. 2 and 3. All parts of the crane are made from 1/2in. wood with the exception of the floor, F, and the axles, C, which are 3/8in. thick and shown in detail in Fig. 4.

Glue and nail the axles 1in. in from the ends of the floor as seen in Fig. 3, and then make, D, two pieces 3ins. by 1in. and nail them on.

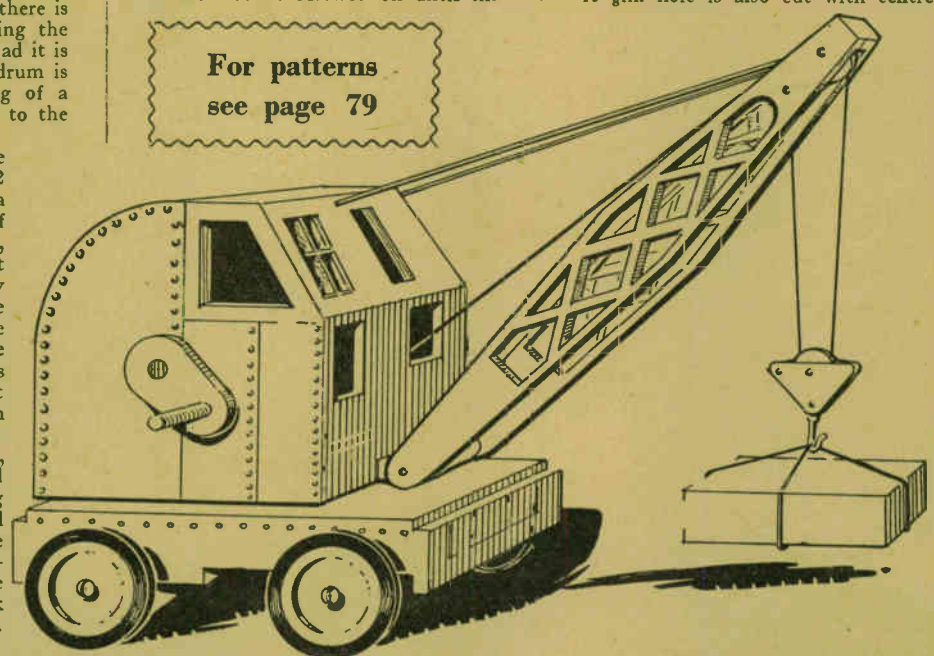
Next make the cross rail, E, also 3ins. by 1in. and cut a 3/8in. hole in to come exactly over the hole already made in the floor, A. The turntable disc, EE, is cut from 1/2in. or 3/16in. or even 1/4in. wood 2ins. in diameter and with a full 3/8in. hole in the centre. This will be glued on top of the floor as seen in Fig. 3. The truck wheels should not be screwed on until the

upper structure has been made and tested out.

The first part of the cabin to cut out will be piece, F—the floor, and this is shown in detail in Fig. 5. The 1 1/2in. by 3/8in. projection at the front edge is to take the lower end of the crane arm. The pivoting can be seen in the sectional diagram of the cabin, Figs. 1 and 6.

The front edge of this piece—piece, F, must be rounded to present a good appearance ready for the arm. A 3/8in. hole is also cut with centre

For patterns
see page 79



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

marked $1\frac{1}{2}$ ins. from back edge. The two sides, G, of the cabin are from a full-size pattern given. The small curved slot on the right is cut in one side only, as it is to take the handle of the pawl, screwed on inside the cabin.

The front, H (Fig. 6), is next marked out and cut. This piece measures $2\frac{1}{2}$ ins. wide and $2\frac{1}{2}$ ins. high, and in it are cut the two square openings seen in Fig. 6. The two sides, G, and front, H, can now be glued and nailed with small fret pins, H, being placed on top of the floor, F.

Cut the upper front, I, $2\frac{1}{2}$ ins. long by 2 ins. wide. Chamfer its top and lower edges to suit the top edge of piece, H, and the extreme top of the sides, G (see Fig. 1). The piece may be glued to the sides and front, H, or it

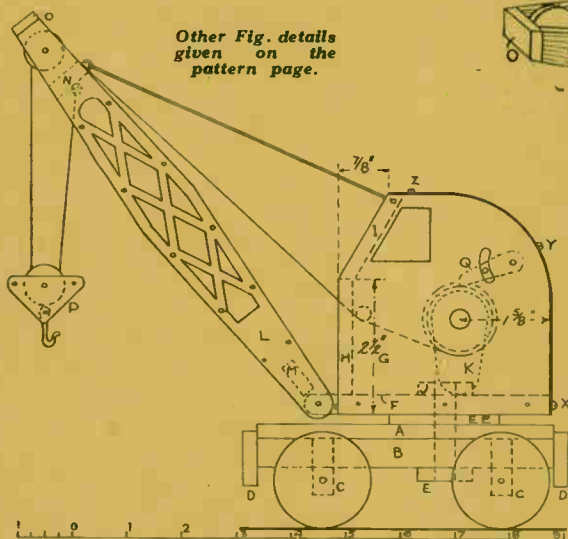


Fig. 1—Lettered side view with dimensions

could be only screwed to the sides and made removable for the sake of getting to the interior of the cabin.

Access, however, could be made by having the curved back of the cabin partly removable. That is, the lower edge of the tin forming the back could be secured with round-head screws as, X, in Fig. 1. Screws, Z, will make the permanent fixing of the tin along the top edge while screws, Y and X, can be taken out as suggested and the metal then turned up to get to the winding drum, etc., inside the cabin.

A disc of $\frac{1}{2}$ in. wood cut 1 in. in diameter and having a $\frac{3}{8}$ in. hole in the centre is next glued over the hole in the floor of the cabin and seen at, J, in Fig. 1, and also in Fig. 6. Through this disc and through the floor, a piece of $\frac{3}{8}$ in. round rod 2 ins. long is passed and glued securely. This spindle must turn freely.

Winding Unit

The cabin interior winding unit is shown complete at Fig. 7 on the sheet of patterns. First cut off a $3\frac{1}{2}$ in. length of $\frac{1}{2}$ in. round rod, and on one end of this glue the crank, K, again

shown on the pattern sheet. Get a large cotton reel (Fig. 7), and, after passing the main spindle through one side of the cabin, thread on the reel. Wedge it and glue securely to the spindle. While doing this the ratchet wheel must be glued on before the spindle is finally pushed right through the second side of the cabin. The drum must be kept to within $\frac{1}{8}$ in. of the inside of the cabin side so that when all is assembled the spindle will not pull out, but will turn easily between the two sides.

The pawl shown is cut with the

In brace, N, there must be an eye to take the end of the cord forming the winding cable. The crane arm is held at the foot by running a length of wire across, or by two round-head screws.

Running Lines

The pulley block is formed from two shaped pieces, P, shown full-size on the pattern sheet and held apart by three pieces of wire. The pulley revolves round the centre one of the three. A third wire below these will take the hook supporting the load.

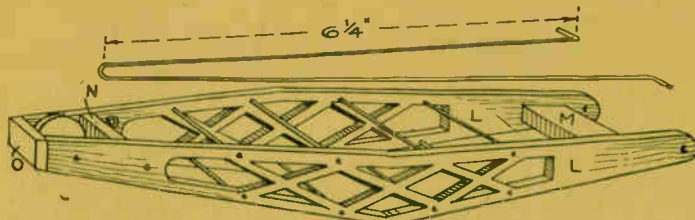


Fig. 8—Construction of jib arm, pulley and guys

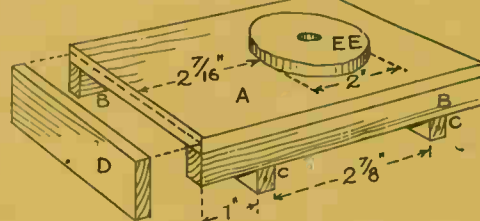


Fig. 3—Platform and turntable disc

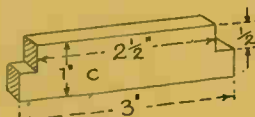


Fig. 4—Axle parts

fret saw to the pattern given. A little piece of round rod will be glued into the pawl (Fig. 7) and this will pass through the slot in the side of the cabin. Run a screw loosely through the pawl and into the side of the cabin. Note must be made of the direction of the teeth.

Jib Arm

The crane arm is made up as at Fig. 8. Two lattice sides, L, are first cut from the full-size patterns given. Cut and glue in two cross braces, M and N. The brace, M, must be $1\frac{1}{2}$ ins. long and the other brace, N, $\frac{3}{4}$ in. long. At intervals along the arm lengths of stout wire may be fixed into the sides, L (Fig. 8), and cut off flush with the outside surfaces. This makes for a very strong but light crane arm.

Cut and pivot a pulley wheel to the jib, and then glue and pin on an end flange piece, O, to the ends of sides, L. The crane arm is supported by a stout wire bent (see Fig. 8). The cranked ends of the wire fit into holes in the front and side of the cabin.

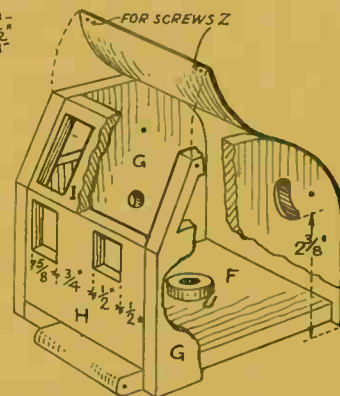


Fig. 6—Construction of cabin

The method of running the cord round the drum and the two pulleys is shown clearly in Fig. 1. The cable, being carried through one of the openings in the front of the cabin, must be taken under a cross rod or guide rod running from side to side.

The completed toy crane can be either painted or varnished, but the tin covering of the cabin should in any case be painted.

Pay as much attention to the painting as you have done to the construction, because the result will make all the difference to the appearance. Steelwork can be grey and black, wheels and body red, with careful lines, bolts, hinges etc. painted in black.

Practical little things can be easily made in the USE OF WASTE WOOD

THE present difficulty of obtaining wood demands care in its use, and saving of all odd pieces. The thrifty worker will have a special box in which odd pieces can be stored for future use. It is surprising, you will find, how this stock accumulates gradually, and no doubt many of our readers already have a store of odds and ends of material.

From time to time they may think this is purely a waste of room, but a little thought given to the matter will show how these apparently useless pieces can be put to good account. There are times when you do not feel like undertaking a large or elaborate piece of work, but when you want something to do for an odd hour or two.

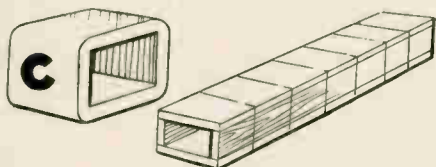


Fig. 1—Serviette rings cut from long narrow box of waste strips

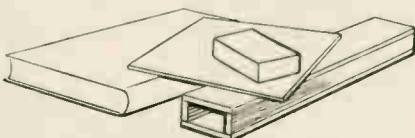


Fig. 2—Gluing the box together

In consequence, you should know of some suitable, simple, small job which can be easily and readily undertaken without a lot of preparation or material. This, in turn, means that you have to know roughly what you want to do, and for that reason, a glance through the pages of back numbers of *Hobbies Weekly* will be productive of many suggestions.

More particularly, however, this article will show you several everyday things which can be made from those very pieces which you have sometimes been inclined to throw away. Your wood box will probably contain a wide range of material so far as thickness is concerned, and what you actually have will largely rule the possibility of what you can make.

Acceptable Gifts

These odds and ends of small articles need not be for immediate use, but can be kept so you have ready-made gifts when a suitable occasion arises. It is often a failing that you suddenly want to give a friend something which you have made, and yet have not the time to do it there and then.

That is why it is always worth while having a reserve stock of such articles and novelties which you have made. You should, of course, complete them entirely, making, cleaning and finishing to a high standard and then putting them away in a dust-proof box or cupboard where you can easily get them when needed.

Serviette Rings

Have you tried your hand at making simple serviette rings after the style shown at Fig. 1? As you see there, the first operation is to make a long hollow box of $\frac{1}{2}$ in. or $\frac{3}{16}$ in. wood. That is where narrow strips come in, because they need not be more than $1\frac{1}{2}$ ins. wide. The length, of course, depends on the strips

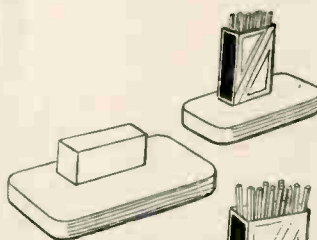


Fig. 3—Suggestions for a match holder

available, but do not attempt to make the box more than 8 or 9 ins. long.

The great point is to get sound joints. Apply the glue evenly and clamp the two sides between the other two flat and securely. If you are weighting this box down, be careful how you distribute the weight, or you will have the whole thing collapse.

A good plan is shown in Fig. 2. A book or another piece of wood the same height as your hollow box is put near the actual job. A piece of wood is stretched across to form a level

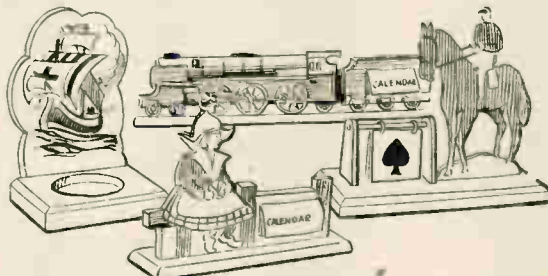


Fig. 4—How pictures can be used successfully as cut-outs

surface, and then the weight stood on this wood so that it evenly distributes the pressure over your object being glued. Afterwards you can mark off your long box with a series of pencil marks $\frac{1}{4}$ in. or $\frac{1}{2}$ ins. apart—it does not matter much which.

Then, holding the box carefully, saw through these lines and so reduce the whole thing to a number of suitable rings. Clean up thoroughly, round off the outer corners slightly and finish if you wish with stain and polish.

If the wood is a very common kind, not suitable for staining, then you can, of course, paint with a colourful enamel—a light blue, red, yellow. You may like to keep all the rings the same colour, or make each one different.

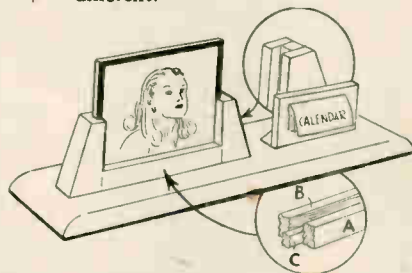


Fig. 5—A modern photo holder and addition

A further refinement is to add an initial to each. This initial, however is better omitted until you actually know to whom you are making the gift, then you can add the particular initial of their own surname. It may be that you are interested, or know of a society, hotel, boarding house or apartment house where you might easily be able to sell a number of these rings, in which case probably they might prefer to have them numbered rather than lettered.

Match Holders

Another suitable object for using up your odd pieces is shown at Fig. 3, where you have a simple match holder made from two pieces of wood, or a more elaborate one wherein a

tray is set for used matches. A plain rectangle of wood about 4 ins. by $2\frac{1}{2}$ ins. is used for the base, and it should be of fairly thick material, say, $\frac{1}{2}$ in. or $\frac{3}{4}$ in. to provide sufficient weight for standing.

The simple block forming the stand on which the matchbox is erected is of $\frac{1}{2}$ in. material, $1\frac{1}{2}$ ins. long

and lin. wide. This is glued very securely to the centre of the base and forms the block over which the matchbox stands. The base itself can be nicely rounded at the corners, or you can make a more elaborate shape if you desire.

If you are including a tray for spent matches, you can alter the shape of the base according to the tray available. In such a case you will have an upper base slightly smaller into which a cavity to hold the tray portion is sunk. This little tray can consist of a tin lid. If it is in itself $\frac{1}{2}$ in. deep, then the upper base in which it is sunk should be of $\frac{1}{2}$ in. wood glued to the base after the circle the same diameter as the tin lid has been cut out.

Cut-out Figures

Many of our readers know the possibility of cut-out figures, added to stands for ash trays, calendars, trump indicators, etc., and some suggestions in this respect are given at Fig. 4. The figures themselves can be actual photographs of friends, or you can often find suitable illustrations in the coloured pictures of some of the weekly and monthly magazines.

The whole of the figure should be complete to be realistic, and not only can they be people, but you can incorporate dogs or animals of almost any kind. They should stand naturally on the ground, and not be too tall or they will be top heavy.

Suitable Pictures

Have a look through some old periodicals, and you will frequently find just the pictures you want. Those with a clear, sharp outline are most suitable, but if there is a lot of delicate work to cut, then it is better to put in a definite shape as you see in one of the illustrations herewith. It need not be perfectly symmetrical or square, but can be shaped according to your own desire.

The wood should be about $\frac{1}{2}$ in. thick, and the picture is pasted down to it quite flat and free from air bubbles. Allow the paste to dry before cutting out, or you will tear away the edge and spoil the effect. The bottom edge must be perfectly straight in order to bed down flat to the base. Use a fine saw in order not to tear the paper, and cut carefully close to the line of the actual picture.

Cutting Hints

The edge as well as the back of the wood should afterwards be treated with a jet black. A better plan is to colour the edge of the wood to the same shape as the picture on the front. You may be able to incorporate a railway locomotive, in which case the depth of the actual engine can well be illustrated by carrying the colours of boiler, chimney, etc., round the edges of the wood.

The size of the base of these largely depends on the cut-out figure being used. Do not, in any case, make this

floor part too narrow, or the whole thing will topple over. Get it fairly thick—that is, up to $\frac{3}{4}$ in. wood—but round off the top edges to make it more attractive. A hard square edge to a thick base does not look half so nice.

The calendar pad can be added according to the size you can purchase; you can, too, obtain little trump indicators at some of the stores, and these can be fitted with the shape of the upright cut-out portion altered according to your need. If you want a pen rack for your desk, make a long front tray with a sunken recess in it, provided by a second piece of wood much as in the way mentioned for the match holder earlier.

Photograph Stands

The type of photograph shown at Fig. 5 is a very popular one now, and there is no reason why you should not make suitable holders from these pieces of waste wood with which we are dealing. The glass of the frame is merely stood upright between two slotted pieces at the end, and these can be fitted on according to the thickness, size and width of the glass which you are using.

The actual holder portion along the bottom is made in three pieces, as you see in the detail at Fig. 5. Two outer pieces A and B are, say, $\frac{3}{8}$ in. thick. The centre piece, C, is only of the same thickness—probably $\frac{1}{2}$ in.—as the glass. The pieces, A and B, can be lin. wide, but the piece, C, should only be $\frac{1}{2}$ in., so when glued between the other two, the groove is provided in which the glass stands.

Additional Uses

The further ornamentation and support part can be put along the edge of the photograph in the same way as the base, and as shown in the picture. This also consists as you see in the detail, of three pieces, two thick and one thin, glued together to form a solid block. This upright part fits close to the bottom strip, and the whole lot is glued down to a suitable base which extends about lin. or so beyond.

Here again, the question of intro-

ducing a suitable tray can be brought into effect by extending the base, forward or upright side of the picture according to the wood you have, and the fitting which you want to accommodate.

Strip Paper

In arranging for this groove for the glass, remember, too, that there will be a little edging round the whole thing to keep glass and photograph backing together. This edging strip is of the brown gummed paper now so popular in wrapping parcels as a substitute for string. You can obtain it at most stationers. Although sold about lin. wide, you can easily cut it down carefully to a pencil line to about $\frac{1}{2}$ in.

When the photograph is finally placed behind the glass—do not forget to clean the latter first—a piece of over-all card serves as a back cover, and then the gummed paper glued round to form an even, narrow framework coming about $\frac{1}{2}$ in. on to the front and back.

Instead of this brown paper, by the way, you may be able to get hold of some of the transparent gummed strip which is more effective and just as easy to handle, although it is expensive to purchase.

Finishing Notes

These are but a few of the suggestions for using the odd wood as mentioned at the beginning. Remember to take a good deal of care in the cutting, completion and finishing of such articles as these. Do not be in a hurry to get them done, but spend some time with the glasspaper block to clean and smooth everything before finally adding a nice coat of varnish—stain and polish, or paint.

In the case of both the varnish and paint application, do be careful not to apply it too thickly so it appears like treacle. The modern semi-dull cellulose finish is what you should aim at. If the enamel is too bright, then you can dull it slightly with a rubbing of very worn and very fine grade glasspaper, lightly used over the surface.

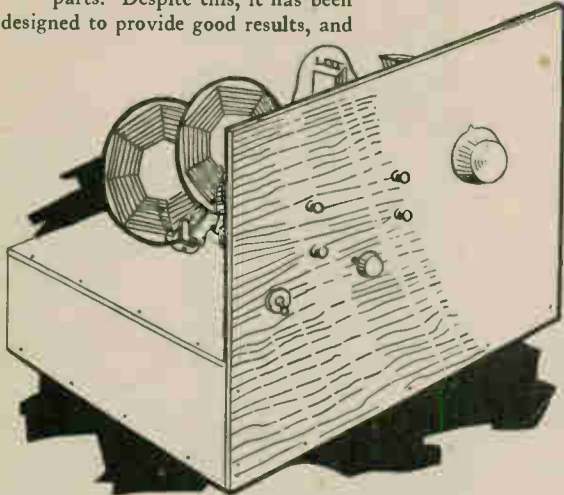
A Novelty from New Zealand

THE garage and car - notice the size compared with a matchbox - were made by Mrs. L. B. McLeod of Timaru, New Zealand, and both are completed from the reader's own designs. The car even has bucket seats, instrument dials on dashboard, and rear-vision mirror. Headlamps are circles cut from transparent comb glued to dowel, the chromium strip round the car is tinfoil fixed on with gold size. Mrs. McLeod, the mother of three young New Zealanders, is proud of many years' association with Hobbies and finds, as she says, that "the jolly old hobbies urge refuses to be stifled!" Well done, Mrs. McLeod.



How the radio enthusiast can construct a COMPACT ONE VALVER

THIS receiver is made as simple as possible and uses very few parts. Despite this, it has been designed to provide good results, and



after dark, the more powerful foreign stations can be received at fair volume on phones. Only small batteries are used, there being no accumulator or high tension battery, and these are contained in the base.

The receiver is, therefore, portable, and it may be used without an earth and with a few yards of flex as a "throw-out" aerial. Under these conditions, the local B.B.C. stations are received at satisfactory strength, unless listening is attempted in an area where reception is bad.

Reaction is obtained by a swinging coil. This gives a great build-up of

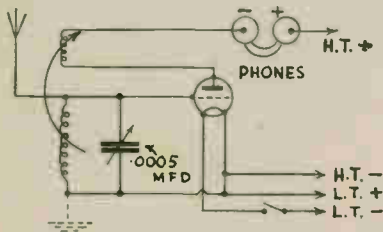


Fig. 1—The theoretical circuit

signal strength, especially on weak signals. It also simplifies the circuit so a tuning condenser, on-off switch, and valve and holder are the only parts required. The coils are wound on discs of card, and a pair of headphones, or a single earpiece, used for listening.

The Coils

Fig. 2 shows the coils. Two are wanted, each wound on a disc of stout cardboard about 2½ ins. in diameter. Seven slots about ¼ in.

wide are cut to within about ¼ in. of the centre. When winding the wire is passed backwards and forwards through the slots, a kind of spider-web "mat" resulting. The ends of the wire are secured by passing several times through small holes in the card. Ordinary 28 or 32 S.W.G. wire is most convenient, either enamel or cotton covered, and 50 turns should be wound on each coil.

The receiver is constructed on a baseboard 4 ins. by 7 ins. Side pieces 4 ins. by 2 ins. and a bottom 4 ins. by 6½ ins. form a box (see Fig. 6). This should be made from ¼ in. wood and tacked together.

A panel of plywood 7 ins. by 6 ins. is then tacked to the front, as shown in the illustration.

For the low tension supply, a single 1.5 volt cell is used, the cells which fit the larger types of torch being quite suitable. The high tension supply is provided by two grid bias batteries—either 9 or 10.5 volts may be used. They are connected in series to give 18 or 21 volts as the case may be (see Fig. 6). The batteries may be wedged in with slips of wood.

Wiring Up

Fig. 3 shows all the connections

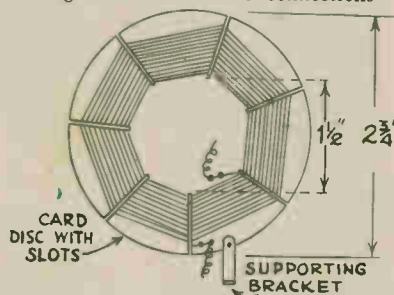


Fig. 2—How the coils are made

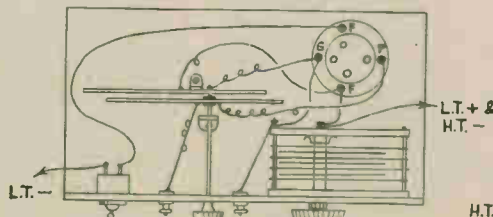


Fig. 3—The wiring diagram

except those from the lower terminals, which are shown in Fig. 4. Any type of on-off switch can be used. The tuning condenser may be either the solid or air-spaced type.

Short lengths of flexible wire are used for the battery connections. If the ends of the flat coils have been left long enough, they may be joined directly on to their respective wiring points. The four terminals on the panel may be marked to simplify using the set, Fig. 4 showing this.

Fixing the Coils

One coil is mounted upright on a small metal bracket, or a piece of wood behind the coil could be used instead.

The second coil has to be arranged so it can turn from a position similar to that shown in Fig. 5 until it is right before the fixed coil. To do this, the coil is fixed to a small strip which is secured with lock nuts to a rod which runs through a bracket and through the panel. (See Fig. 3). The panel end of the rod is fitted with an adjusting knob.

Wooden dowel could be used for this rod, a small block glued to the coil being a tight fit on its end. But whatever method is adopted, the coil should not be able to swing about on its own accord. There should be a little friction so that it will remain in the position set. If the resilience of the bracket holds the knob lightly against the panel, the necessary friction will be obtained.

Using the Receiver

The leads from the moving coil should be several inches long and coiled in a spiral so that they are not fractured during operation. When opposite, the coils should be very close together. If the insulation of the wire is poor, a sheet of thin card may be glued between them so that a short circuit between the coils is impossible.

Connections to the 1.5 volt cell may be made with crocodile clips. Plugs should be used for the H.T. leads.

Any type of 2-volt detector valve may be used. It will also be found that a low frequency or small power

(Continued foot of page 76)

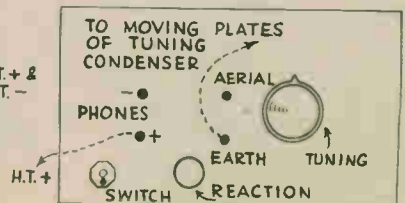


Fig. 4—A diagram of the panel

Points to remember when you are using A PINHOLE CAMERA

QUERIES that come to hand about taking photographs with "pinhole" cameras (details for the construction of which have been given from time to time in "Hobbies Weekly") suggest that quite a lot of interest is taken in this really serious angle of picture making. Here, therefore, are some details about using these intriguing little instruments.

First it should be realised that a pinhole camera is *not* a toy, but an apparatus capable of producing a very perfect result. Moreover, it has certain characteristics not possessed even by expensive cameras.

Everything in Focus

Thus, everything, near and far, is in good definition in a pinhole picture. You just *cannot* be out of focus with this kind of equipment. Also the picture gets bigger the further you take the film away from the hole, but it remains in good definition all the time without any special focussing arrangement.

Again, the size of the image on the film is directly proportionate to the "film to pinhole" and "pinhole to subject" distance; thus this type of camera is very useful in assessing size if the taking range is known.

Also, a pinhole camera takes in a very wide angle of scenery (about which more will be said in a moment).

Long Exposures Necessary

The main drawback with this kind of instrument is, of course, the inordinately long exposures which must be given to secure good negatives. But the gauging of these need not be haphazard, given that the hole has been pierced with a needle of known diameter.

Sewing needles are graded under a series of numbers, and Mr. Alfred Watkins of Hereford, the noted photographic research worker, some time ago prepared a table showing the various needle sizes against figures they yield for use with a standard exposure chart. It also showed the best distances that the plate or film should be from the hole. Five of the most useful readings are given in the panel set out in the centre column.

Needle Stops

Thus if your pinhole camera is 8ins. long and a number 8 needle had made the aperture, you would calculate the exposure in the usual way against time of day, light, etc., from the chart for a stop of f 56 and then multiply the result by 60. The

exposure needed by the pinhole would then at once be obtained, in seconds. Or the figure could be reached if the original time given was regarded right away as minutes and not seconds.

For instance, against a certain time of day, lighting conditions, speed of plate, etc., the chart might give an exposure of 20 seconds for f 56. This, then, could be read as 20 minutes for the pinhole camera.

Rigidity Essential

With the long exposure taken, it is essential that the camera is rock steady. Indeed, if out in the open it is good to place some weight on the apparatus so it is kept perfectly rigid. From this it is obvious that views which contain even the least movement, like trembling leaves, cannot be secured with a lensless camera, but that buildings, statues, mountains and all completely stationary objects may be attempted with full confidence.

Needle Number	Diameter	Best film-to-hole distance	Calculate exposure with chart as for:
1	1/22in.	40ins.	f 96 × 60
5	1/31in.	15ins.	f 75 × 60
8	1/44in.	8ins.	f 56 × 60
10	1/54in.	5ins.	f 40 × 60
12	1/62in.	3½ins.	f 35 × 60

In all cases it is best to err on the generous side with exposure.

Always load with the fastest film or plate obtainable, as speedy material may well halve the exposure time (as it will in ordinary photography) but whereas the difference between a 1/25 second and 1/50 second is not of much moment (though one is half the other) an exposure of, say, 10 minutes against one of 20 minutes with a pinhole camera can make things much easier.

Moving Objects

With regard to long exposures on buildings, traffic may be passing in front, but if the people or cars keep on the move, they will not record on the plate and the strange result of an apparently empty road will be obtained.

The pinhole itself should always be made very cleanly and any burred edges rubbed down—a final examination for cleanness being made with a microscope. Copper foil is the

best substance in which to make the hole, this being stretched across a larger opening in the camera end.

Wide Angle

Amongst the good characteristics of the pinhole camera is its very wide angle of view. That is, it takes items in its pictures well to either side of the position at which the camera is being pointed.

This together with the fact that all objects close to the camera and far away are in the same focus, makes it ideal for getting pictures in cramped quarters or even in rooms. If indoors, the exposure would, of course, be very long, but if the camera could be left undisturbed for the necessary period, a picture would eventually be secured.

Wide Exposures

With a usual camera for normal work, the angle made at the lens by lines coming from the extreme limits of what is being included is between 20 degrees and 50 degrees. A pinhole camera may give anything up to 100 degrees, which brings quite a lot more into the picture.

It is not always realised that an ordinary camera can be readily adapted to pinhole work by merely removing the lens and fitting in a piece of copper or tin foil, with a hole carefully pricked in the centre.

An instrument thus made has all film-winding gear or plate-holding advantages ready to hand and so is very convenient. Also the pinhole can be closed in the ordinary way with the shutter.

Camera bodies minus lenses can often be picked up for a few shillings at a second-hand shop and the possibilities of this adjustment suggest a very quick way of making a simple pinhole instrument.

If adapting a camera body, this way, great care must be taken to see that light enters *only* by the pinhole. The inside of the foil also should be blackened.

A View Finder

Finally, a view finder is necessary with a pinhole camera to gauge what will appear on the plate. If a box is being used, lines drawn on the top from the middle of the back edge (just over the plate) to the outer corners of the front will give a good idea, if sighted along, of how much will be included. If the plate is not as wide as the front of the box, then the lines must be taken to points corresponding to the corners of a plate or piece of film if laying against the front.

How to build a Home-made Canoe in these pages soon

The first of an interesting short series on practical NET MAKING

THE art of plain netting can be easily learnt, and useful things from garden nets to hammocks made. Like everything else worth while, a reasonable amount of practice is necessary, but the knack is soon picked up.

The work can be rendered easier and more pleasant, if a gadget like that sketched in Fig. 1, is made. Apart from this, which is optional, the only tools required are a shuttle, A, and a mesh stick, B, so the outlay for tools is not expensive.

For the material, twine, or thin

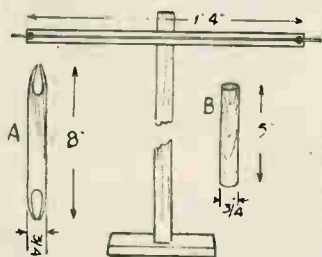


Fig. 1—The shuttle and mesh stick

string will serve nicely for most netting, though for things like hammocks, a strong cord is necessary, to stand the weight imposed on it. The gadget is a length of wood, say about 4ft. long, and about 1in. square let into a floor piece of fairly thick timber.

The crosspiece, $\frac{3}{4}$ in. by 1in., is notched into the upright near the top. At each end of this a screw eye is fixed, to hold a metal stair rod, or other rod, on which the netting is threaded.

The Shuttle

The shuttle is made of boxwood, or beech, or any tough wood, $\frac{3}{16}$ in. thick. It is cut to the shape shown and glasspapered to smoothness. On this the twine is wound. The mesh stick is cut from hardwood $\frac{1}{4}$ in. thick, its edges are rounded, and like the shuttle, it is made glass smooth.

The mesh stick will suit most kinds of netting, but anything out of the ordinary will need a special stick, cut to the size to form the mesh.

To pick up the special knot for making netting, study carefully the series of diagrams, numbered 1 to 4 in Fig. 2. No difficulty should be experienced but a sample knot or two should be tried to catch the knack, before actually starting the netting. Proceed in the following sequence.

Tie a loop in the twine, about 1in. long, first, as at 1C, place the mesh stick under the loop, with the latter hanging from a nail, as shown, bring the twine down and round the mesh stick thus forming a second loop, D,

then pass through C. This is the first stage, shown at 1.

Knot Making

To make the knot, refer to 2, and follow these instructions. Place the thumb on the twines, and pull them tight, see they do not slip, then with a movement of the wrist throw the twine to the left and carry the shuttle round loop C, and bring it forward between C and D.

Now draw tight and the knot is made. Really it is quite simple, and after a few sample knots are made enough confidence should be acquired

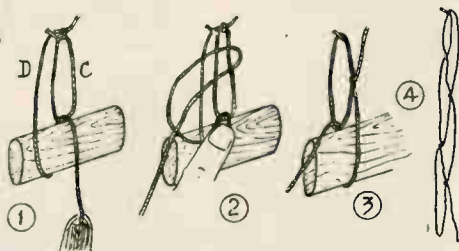


Fig. 2—Forming the special knot

to really start working.

Having arrived at stage 2, place the mesh stick again, under loop D this time, pass the twine round the stick and through loop D, as at 3. Hold tight with the thumb as before, and repeat the knot as in 2.

Now repeat this procedure until a series of loops are formed, as at 4, as long as required to make the width of netting desired. If the loops are pulled out, as in Fig. 3, it will be seen if enough are formed or more wanted.

Slip out the metal rod from the gadget, already described, and thread the loops on it, as at Fig. 3, then replace it in the screw eyes. Place the gadget between the knees, with the

feet resting on the floor piece, to keep it steady, then the work of forming the actual netting can be started.

With the twine to the left of the body, place the mesh stick under loop E and knot to it, as previously described. Repeat this under loops F, G, H, and so on to the end. Then slip the rod out, turn it round to bring the last loop made to the left, and start another row of loops, as before. Turn the rod each time for a fresh row of loops, so that work is carried out from left to right all the time.

As the netting increases in length, withdraw the rod and thread it through the meshes lower down. The finished part of the netting can then

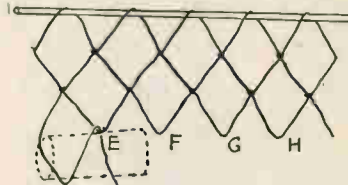


Fig. 3—The diamond loop netting

be thrown over the back of the gadget, out of the way. When the netting is completed, tie it off. It is then ready to use, though if intended for outdoor use, it should be treated with some preservative, as protection against the weather.

A Point to Note

The main point, throughout this netting, to obtain an even mesh, is to draw the twine tight round the stick, and to hold it firmly against any slipping while the knot is tightened. The nail, or hook, on which the first row of loops are formed, can very conveniently be driven in the gadget, just above, or below the rod.

(To be Continued)

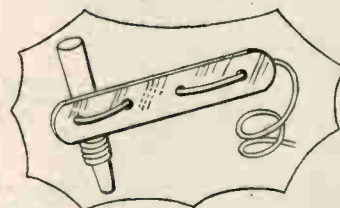
Chiselling Grooves in Wood

WHEN chiselling grooves in wood, it is a good plan to turn the chisel upside down with the bevelled side of the chisel against the wood. This will prevent the chisel from taking too deep a cut and splitting the wood.

Binding Neatly with Wire

MANY readers may have occasion to bind some cylindrical object with wire. The sketch here shows how, by means of a stout piece of wood or even a piece of stiff card, through which has been bored a few

holes, any such thing can be easily bound with wire, as tightly and neatly as possible. This method is



also useful in binding spars on galleons and in various ways on other types of model.

REPLIES OF INTEREST

Answers which we have sent to individual readers may prove of general usefulness to others, and are worth making a note of for future use.

Cycle Enamel Troubles

I HAVE painted my motor cycle frame with a good quality black enamel. It has dried with a brilliant glossy finish, but I find that petrol and oil is leaving dull patches. Is there any method by which I can make the enamel proof against this? (R.M.—Musselburgh).

YOUR problem is a common one. You should have allowed a week for the enamel to dry quite hard, despite the fact that it might be quick-drying stove enamel. Such enamels are really unsuitable for push-bikes or motor-bikes or cars.

The proper stuff is cellulose paint, but this usually needs to be sprayed on. Alternatively, after applying ordinary black enamel paint and allowing a "drying" period of twenty-four hours, the glossy surface could be protected by applying a coat of thin ebony french polish, this producing a really high gloss, professional finish if put on quickly with a soft mopping brush or a cotton wool pad.

Heat Resisting Stand

COULD you tell me of a suitable finish for a tea-pot stand which the heat will not affect? (J.A.—Didsbury).

THE tea-pot stand can be stained and polished in the ordinary way. When dry, however, the surface of the work (if quite flat) should be protected by means of three round-headed chair nails, these being spaced equidistantly.

The nails keep the bottom of the tea-pot up from the polished surface, although the water in the pot may be

boiling hot, the heat emitted at the bottom of the pot is slight and should not harm the polished finish.

Keeping a Tent

PLEASE give me advice for keeping an American army tent while it is not in use. I have not room to hang it up. (F.E.A.—London, S.E.8).

THE main thing to watch in storing a tent when the same cannot be suspended, is to store it somewhere in a cool equable temperature, neither too dry, which tends to harden the canvas, nor too damp, which would tend to produce mildew.

Make sure, however, that the tent is bone dry before folding it up. Then, if possible, give it a dusting with french chalk, fold carefully, but do not compress the folds more than can be helped.

If possible, put layers of crumpled paper between the folded over parts to keep the actual folds as open or rounded as possible. Cover up to keep off dust, and if there is risk of moths, spray it with "Flit" or some other insecticide.

Removing Varnish

I HAVE a fancy table whose wood is hidden with too many coats of varnish and which I would like to remove. (B.A.T.—Petworth).

FOR removing varnish, buy one of the proprietary preparations you can get at the oil shop. Here is one simple recipe you can try if in any difficulty about supplies:— $\frac{1}{2}$ pailful freshly slaked lime (hot), 1 lb. washing

soda. This should be applied with any old brush, and several applications may be necessary. Keep it away from hands and clothes. When removal is satisfactory, wash off with clean water and then wipe the wood over with vinegar to kill alkali.

Two-note Door Chime

PLEASE tell me the best method of making a door chime with two notes. (J.W.H.—Walton-on-Naze).

THE electrical door chime in which electro-magnets operate hammers which strike upon tubes, should not be difficult to construct. Two bells or resonant tubes should be fixed so that small hammers can strike them. The hammers should be pivoted, with an electro-magnet arranged near a magnetic core attached to each hammer. When either magnet is energised, it should draw the hammer up, when interruption of the current will cause it to fall, striking the bell or tube. For 3 to 6 volt operation, small magnets wound with 22 S.W.G. wire should prove suitable. For more powerful operation 18 S.W.G. wire might be used, and as the current would only flow when the chime was about to sound, a dry battery should work the apparatus for a long time.

The magnets are wired to two contacts arranged above the door in such a way that one is made slightly before the other. If worked from a bell-push, it should be possible to have one hammer longer than the other so that the chimes follow one another even although both magnets are released simultaneously.

One Valve—(Continued from page 73)

valve will work quite well. Although intended for 2 volts filament supply, they work satisfactorily from 1.5 volts. A valve of low consumption will make the cell last longer, and valves specially intended for use with a dry battery can be obtained. The filament consumption will be approximately half that of an average torch bulb.

High resistance phones should be used, and a few yards of wire may be used for an aerial. Upon turning the knob to bring the coils together, the receiver should oscillate. If it does not, the leads to one coil should be

reversed (correct connections are shown in Fig. 5). Careful adjustment of the coil and tuning condenser should bring stations up to good volume. With a very short aerial, the weak signal picked up makes adjustment quite critical.

Volume will be greater with a

longer aerial, but if a very long wire is used, the receiver will not oscillate. If desired, a small accumulator can be used instead of the dry cell. It is also possible to increase the H.T. voltage, either by using more grid bias batteries or a high tension battery, if more volume is required. But for normal phone listening this is not necessary.

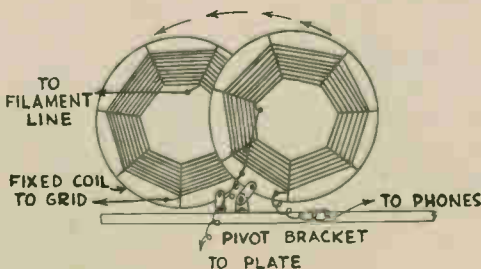
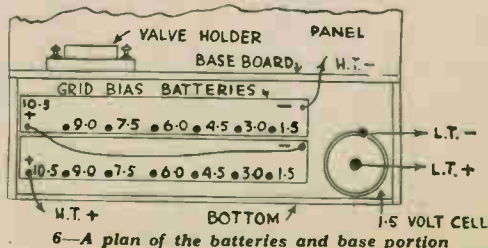


Fig. 5—How the coils are arranged



6—A plan of the batteries and base portion

An attractive and useful double-compartment COLLAR BOX

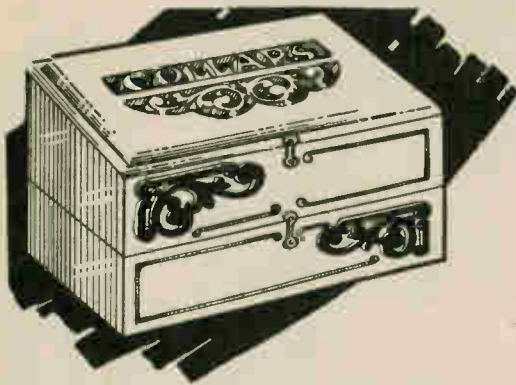


Fig. 1—Double tier box with overlays

THE attractive box shown in the illustration, Fig. 1, on this page, should appeal to those tidy men about the house, men, who instead of scattering their neckwear all over the place, prefer to have them all in one place and ready at hand. The novelty about the box is that it is in two distinct sections, these sections being hinged together to make one complete box.

Useful Boxes

By thus having the two shallow boxes, the matter of choosing and the replacement of the ties is much simplified. The size of the article overall is, length $9\frac{1}{2}$ ins., height $4\frac{1}{2}$ ins. and width also $4\frac{1}{2}$ ins. Wood $\frac{1}{4}$ in. thick is used throughout, and the fretsaw can do all the work of cutting the straightforward plain box work as well as more intricate cutting of the overlays on front and lid.

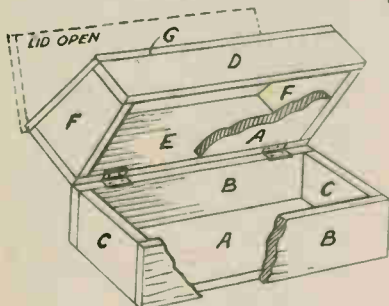


Fig. 2—Construction of boxes

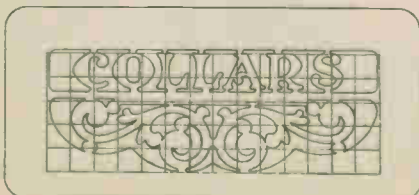


Fig. 3—Squares to draw out the lid decoration

In commencing to make the box, take in hand the lower section, this being more or less a simple tray made, as Fig. 2 shows, from the pieces A, B and C.

Note the actual construction of the box from Fig. 2, that pieces, C, go between the sides, B, and the floor, A, fits up into all these four pieces.

Having cut and glued up the various parts, the next job will be to clean down all surfaces. A stout piece of board with a sheet of glass-paper glued to it makes an admirable surface for rubbing down large areas such as the above. Two such boards should be provided, one with coarse glasspaper and one with a finer grade for finishing off.

If the glued joints have been carefully made and cramped up in the first place, the final cleaning off should make them almost invisible. A pair of $\frac{3}{4}$ in. brass hinges having been procured, shallow recesses should be made to receive them, as shown in Fig. 2. The recesses should be about $\frac{3}{16}$ in. in from the end of the box and deep enough to receive one flap of each hinge so that when the box is closed the two parts of the box meet exactly and form, therefore, a close joint.

Upper Boxes

The top portion of the box is similar to the lower portion, with the ends, F, more slightly tapered from back to front. Each end measures $2\frac{3}{4}$ ins. at the back or widest part and tapers to 2 ins. at the front. Set out one end, therefore, on the wood and cut round it with the fretsaw and use this cut-out piece as a template for drawing round to produce the other end.

Pieces D, E and G should be cut full, that is, allowance should be made in the marking out of these pieces for the slight bevels that will occur when the parts are being fitted

together. The bevels can be produced by careful rubbing down on the glasspaper board suggested earlier.

The floor of the upper compartment is similar to that of the lower box, and is let in similarly between the four parts D, E and F. The top lid, G, of the box will again be cut full, and should very slightly lap at the edges to allow for final cleaning off before being hinged to the box. All four edges should be rounded off slightly at completion.

Overlay

The overlay to be glued to the lid and which contains the lettering and ornament is given in Fig. 3. The piece of wood is $8\frac{3}{4}$ ins. long by 4 ins. wide, and then marked out with $\frac{1}{2}$ in. squares. Line in the design and lettering carefully through the squares, following each to get a true enlargement. Use a fine grade fretsaw for the cutting and then clean up both surfaces before gluing the overlay to the lid.

The small decorative overlays on the front of the boxes may be cut from thin wood or ivory or tinted plastic material. As the overlay designs are given as full-size patterns they may be stuck down direct to the material and cut out.

Varnish or Polish Finish

Apply stain varnish or polish to the completed box according to the kind of wood used. Hooks should be put to the front of the boxes with round-head screws as fastenings and if desired a panelled effect could be got by lining in with a dark stain before the finishing coat of polish or varnish is put on.

It would be a good thing to add a piece of green baize to the bottom of the box to preserve the polished surface of the table upon which it is likely to stand.

Alternative suggestions come to mind over this box. You can build it as two separate units if you wish, or just complete one portion only. Apart from collars it forms a handy dressing table receptacle, with the wording omitted and the top left plain.



Actual size pattern for the front corners

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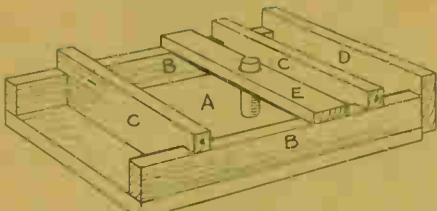


Fig. 2—Under view of platform

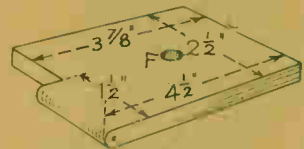


Fig. 5—The cabin floor

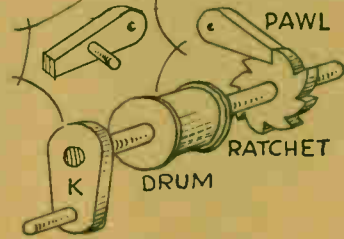
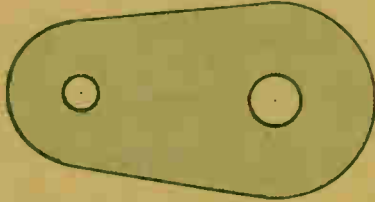


Fig. 7—How the winding mechanism is constructed

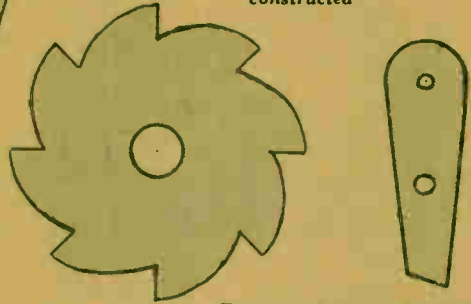


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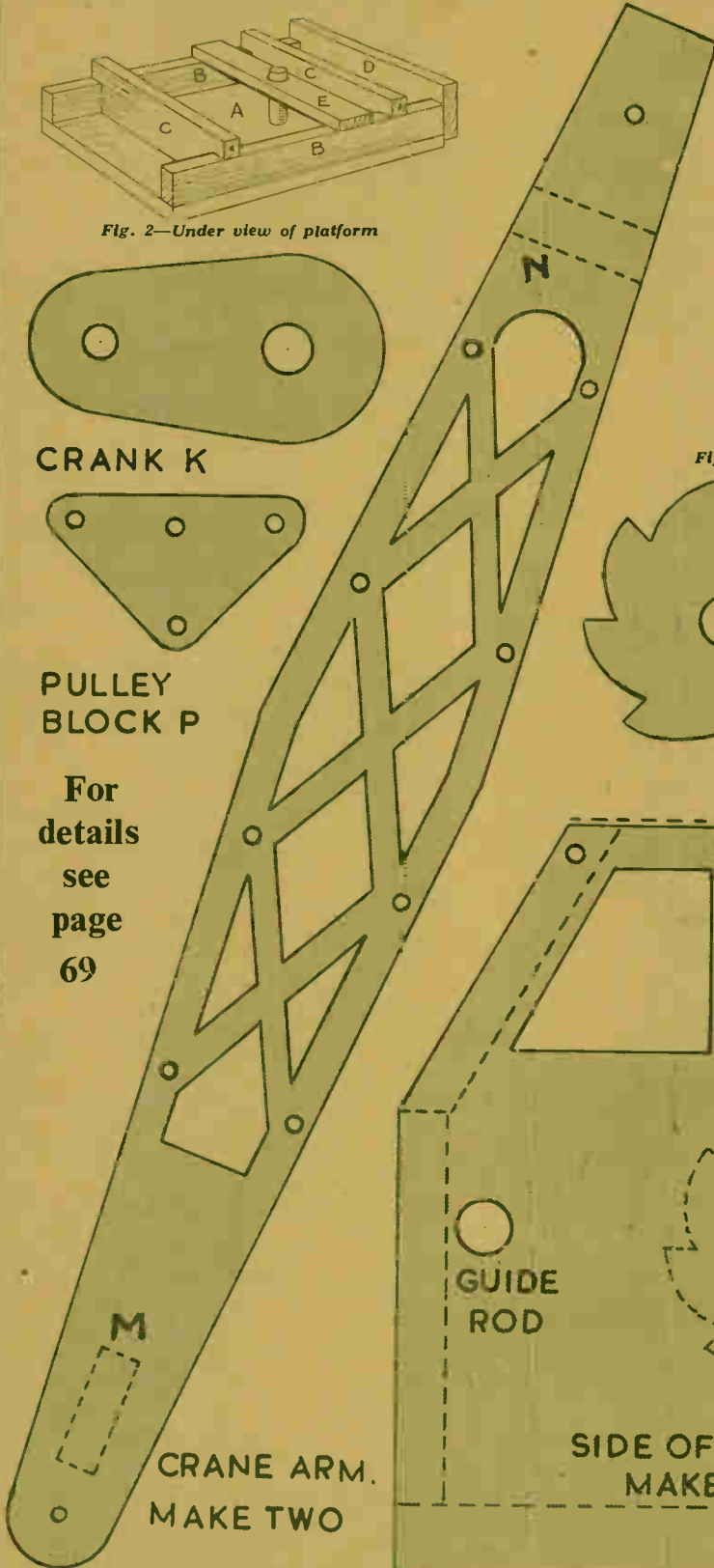


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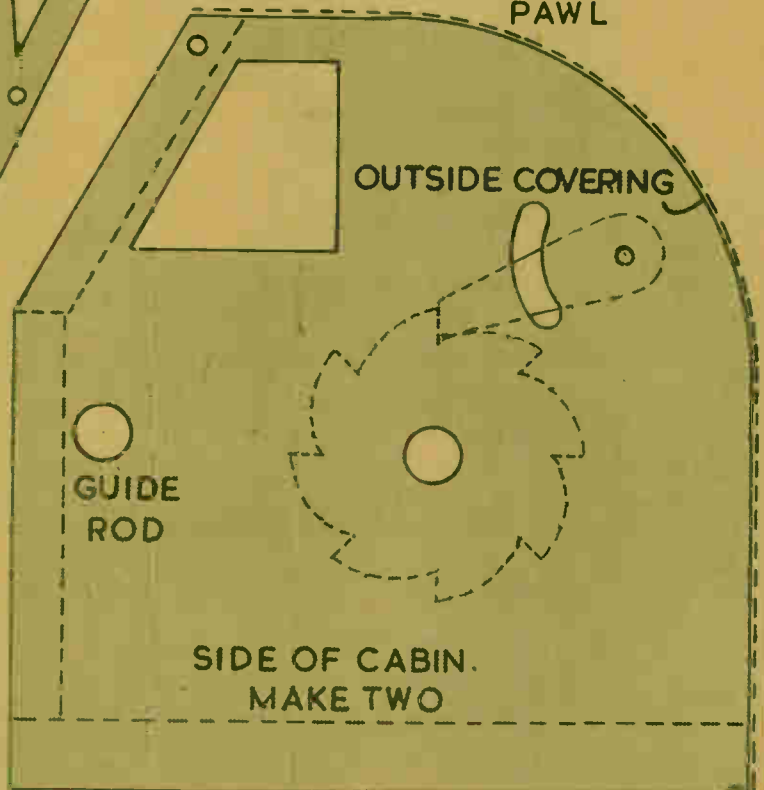
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