THE FIRST NUMBER OF A NEW VOLUME

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Patterns for making a non-flying miniature

MODEL HELICOPTER

THE use of helicopters as a further mean of combating the U-boat menace has been proved a practical, successful proposition, tests having been carried out in Long Island Sound, as the U.S. War Department announced recently. During one test, a helicopter made twenty-four landings and take-offs from the deck of a tanker travelling at different speeds, doing so easily, without any mishap.

Consequently, a special small deck is to be installed on most Liberty ships to enable helicopters to be used at sea, thereby giving additional protection to Allied ships from lurking German submarines. Helicopters, of course, unlike ordinary heavier-than-air craft, can hover over one spot almost stationary and any altitude can be maintained at will.

The model shown at Fig. 1 has been based on the new Sikorsky helicopter. Readers will notice the peculiar shape of the fuselage, including the extended tail of girder construction which carries a rear propeller. A model of such an aerial machine will add further interest to your collection. The work is made easier by the provision of full size patterns which are printed on cover iv of this issue.

Make the fuselage first. It consists of a ½in. thick centre piece and two ¼in. thick side cover pieces (see pattern page). Glue the latter to the former keeping the nose ends flush, as indicated by the dotted lines at Fig. 2

The main shaping of the fuselage is shown at Fig. 2, with helpful half-sections at Fig. 3. Note how the tail tapers to about ¼in. thick at the ends. The top, front end, of the fuselage tapers inwards slightly to ⅜in.

Spokeshave the surface and "belly"

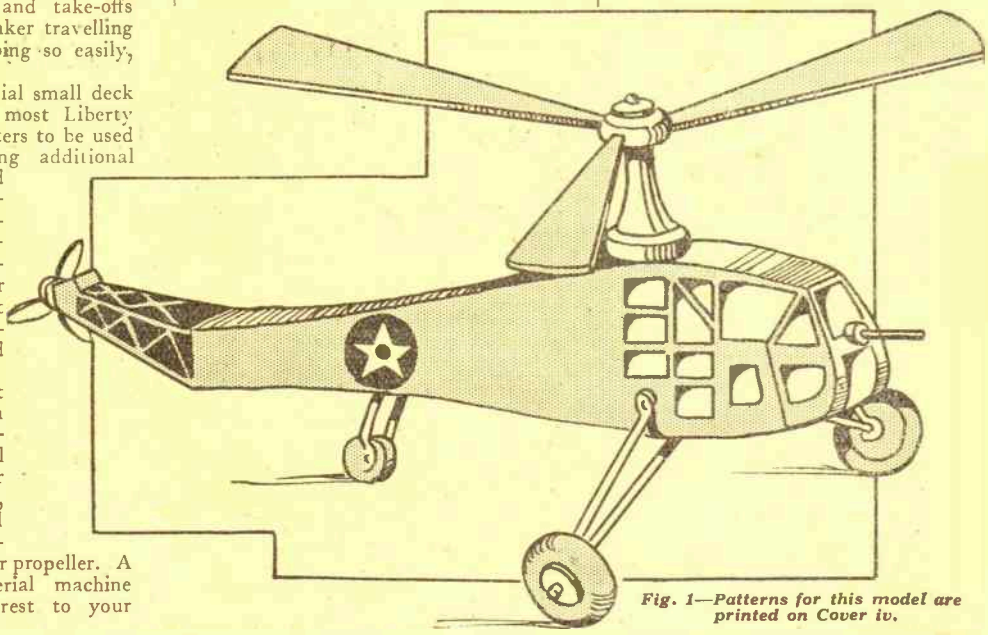

Fig. 1—Patterns for this model are printed on Cover iv.

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ot the work neat and flat. Do not have sharp edges. Remove by rubbing with a fine grade of paper. All edges need to be *slightly* rounded.

The Undercarriage

The undercarriage consists mainly of wire, flattened and drilled and shaped as shown on the pattern page. The axle piece is flattened in the centre first, then drilled for a couple of fine fretwork pins (or ordinary household pins) and bent, as shown.

The supports are similarly made, excepting that "eyes" are bent at one end to accept the axle (see front elevation). Fix the axle to the underside of the fuselage—in the position to be judged from the side view at Fig. 3—and attach the side supports.

Wheels

The wheels are cut from 3/16in. wood, rounded at the edges, then drilled and fixed on the axles—tightly. If you prefer "free" wheels, i.e., wheels that turn, drill the holes with a slightly thicker drill, insert the wheels, including a small metal washer, same being a tight fit on the axle ends.

The tail wheel is cut from ¼in. wood. The supports, or fork pieces, for same are pointed pieces of wire, with a flattened end in which tiny axle holes (to suit a pin or fretwork nail) are drilled. The drilling of these small holes is best carried out with a fretwork drill.

Make two suitable holes in the fuselage with a bradawl. To have the forks "leaning" slightly, as shown, the holes must be bored at an angle. Insert the fork pieces, then fix the wheel between them with a shortened pin. The pin axle, incidentally, should be a tight fit in the wheel; it thus turns with the wheel and must be free in the forks.

Fig. 2—Top view of fuselage showing shape

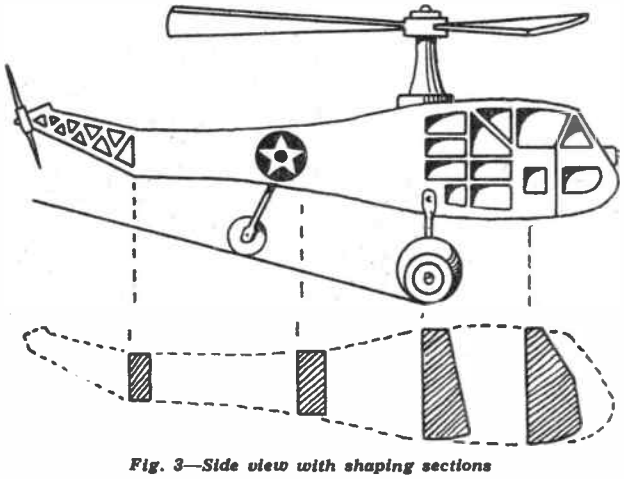


Fig. 3—Side view with shaping sections

The Propellers

The main overhead propeller presents little difficulty to make. The three blades required are cut from 1/16in. wood. The hub is cut from 3/16in. stuff, including the base, whereas the column is shaped from a ⅝in. length of ⅜in. dowelling.

It is better to file the column to shape on a long piece of the dowelling prior to cutting it to the length desired. Glue and pin the column to the base. The underside of the latter is glasspapered or trimmed to a bevel so the column sits upright when fixed to the top of the fuselage.

To fix the blades to the hub, drill three equidistant ⅛in. holes in its edges, then glue the ends of the blades and insert them in the hub. Insert the blades so there is a twist in them.

Having "capped" the top end of the hub with a thin wooden (or metal) washer, attach the propeller to the column, using a large-headed pin. It is advisable to have the column centred by drilling a fine hole for the entry of the hub pin. This saves undue hammering and inaccuracy.

Rear Propeller

The rear propeller is cut from stiff, thin card, including its washers. Glue the latter on at each side, then put a suitable twist in the blades and attach with a pin to the end of the fuselage.

The gun in the nose of the machine is made from a piece of wire (a beheaded wire nail would serve) and a piece of dowelling ¼in. in diameter. The easiest way to make the dowel "shouldering" is to drill a suitable hole in a piece of dowel rod, glasspaper a bevel on the end, then cut it to length. Attach the "gun" in front of the fuselage and glue the shoulder piece over it up against the fuselage (see Figs. 1 and 3). The model is now ready for the finish.

The Colours

Light, or dark, grey poster paint is about the best medium for the fuselage of the work, including the overhead propeller. The American star on both sides of the fuselage is painted white on a blue background, or alternatively, a white disc could be painted first, then the star shaped by means of the blue paint.

The wire undercarriage parts could be painted black. The fuselage windows are indicated with black paint and white stuff. Wheels can be black or grey. The girder work at the tail end is best done with black paint, the "girders" being left grey.

The painting must, of course, be done carefully and cannot be rushed. Give the body a coat of priming paint first and allow to harden into the wood before applying the second coat. Put thin lines on with a drawing pen to get them even.

The Editor's Notebook—

COMPARED with our miniatures a Lysander with a wing span of over 4 ft. is a real giant, and allows handling to get in every detail. Such a model has been constructed by Mr. Dennis Hale, of Kent Rd., Wolverhampton, and with it he has raised over £7 for the British Red Cross and St John Fund. This is one of about 20 different types Mr. Hale has made.

* * *

THE variety of hobbies it is possible to undertake is an endless source of amazement to me, and had I kept a list of them it would probably have reached from here to Timbuctoo! Anyhow, modelling in cork must now be added, although perhaps it is unnecessary to say that this particular hobby cannot be undertaken during the present shortage.

PROOF, however, of what could be done at a time when corks were plentiful is shown by a model church in cork. It was made by Mr. Albert Roberts of Leeds who died four years ago at the age of 76. The marvellous church is still on view in a glass case as the proud possession of his widow. The model was started when Mr. Roberts was 17 and finished when he was 21. The church is entirely in cork, stands a foot high and is surrounded by a churchyard "wall." It is a replica of St. Stephens Church, and what probably induced our late friend to undertake it is that he lived opposite the building and could work directly from it, much as an artist has his subject to follow. If you have ever tried cutting cork you will realise what a tribute this model is to the skill and patience of the worker!

The Editor

The handyman can easily make the housewife

A SHOPPING BAG

THESE bags are getting scarce now, and those that are available are dear. The one illustrated represents a type quite easily made, and with a good capacity. It can be folded flat, and so can be conveniently held under the arm when going shopping. Readers who spend some time in making useful articles for bazaars, sales of work, etc., could turn their hands to making these bags and be sure of a ready sale. The housewife, in any case, would be glad to have one.

Materials

Suitable materials for the bags are many and varied. For a good quality one American cloth, and Rexine, would do fine. Those living near an upholsterers' shop might be able to get some trimmings cheaply, large enough for making up.

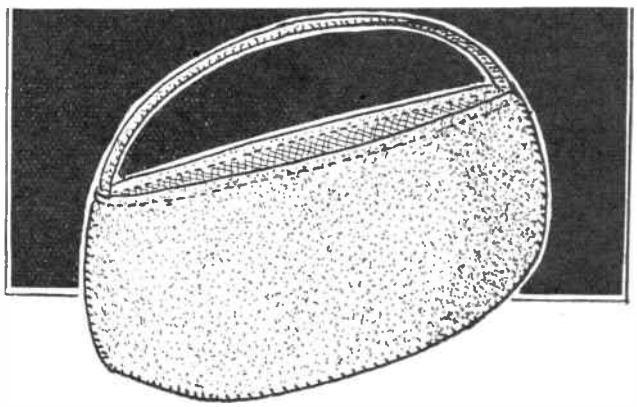
Even small pieces would do, which could be stitched together, patchwork fashion, to make large enough pieces for the purpose. Quite pleasing results are possible from such work. Cheaper bags can be made from canvas and similar strong materials.

A pattern for cutting out should be drawn first on stiff paper, or, if several bags are to be made, cut from cardboard, to last longer.

Shapes to Cut

Fig. 1 shows the pattern for sides and bottom, the two being combined. Draw it out in the following way. First draw a line A-B, and on this mark the distances shown, 2ins. 1½ins, and so on. On the line erect the perpendiculars A1, B1, A2, B2. Make marks on these at the distances given and draw the shape, noting the sides and top are curved a little.

Cut the completed shape out and pin to them material, which is doubled so as two shapes can be cut at once. Lay on a board and draw round the pattern with french chalk, or a soft lead pencil, if the material is a light colour.



Let the marking be clear, then cut the shapes out, ½in. away from the lines, the extra bit all round being for a hem. These two pieces are for the sides of the bag.

Remove the pattern, and fold it on the lines A-B. Then mark round the edge of part D to transfer the shape of it on to C, as shown by the dotted lines. Cut along these dotted lines, part C not being required, D being the pattern for the bottom piece of the bag.

Pin this on to the material and cut out, allowing ½in. all round for hemming as before. All these parts should now have the hems folded over inwards, and be creased by rubbing down with a knife handle, or tooth brush.

Sewing Requisites

For sewing, use a stout needle and strong thread. If you can get it use waxed thread, such as can normally be got from a shoemaker. Not the very thick kind, but the brown sort as used in boot stitching machines. If this is not to be got, an obliging shoemaker may wax a few threads, on request.

Lay the side pieces together, folded hems on the inside and stitch the ends with an over and over stitch, as in Fig. 2, the ends being from A to A1, and B to B1. A thimble may be necessary for this, as owing to the folded hems between four thicknesses of the material have to be penetrated.

Now take the bottom piece, hems folded inwards, and fit it to the side pieces. At the centre of each side fix the bottom in place with a single stitch, or tie. Then sew over and over from one tie to the end, then round to the opposite end, and finish off at the second tie (See Fig. 3).

A Neat Finish

Do this neatly, and be careful to see the bottom material coincides with the side pieces as to length, to avoid any tucks the folds of the hem can be adjusted, if necessary, to effect this, either closing it further in, or opening it outwards a little.

Turn the bag inside out, then sew the top hem straight through, using a simple running stitch, as done for hemming generally. While the bag is still inside out, the surplus hems can be reduced a little by trimming with the scissors, if considered desirable.

It is not really a matter of moment, as these hems, being inside, are not on view and so do not detract from the appearance of the finished bag. Turn the bag right side out and cut some strips of the material for the handle.

(*Continued foot of next page*)

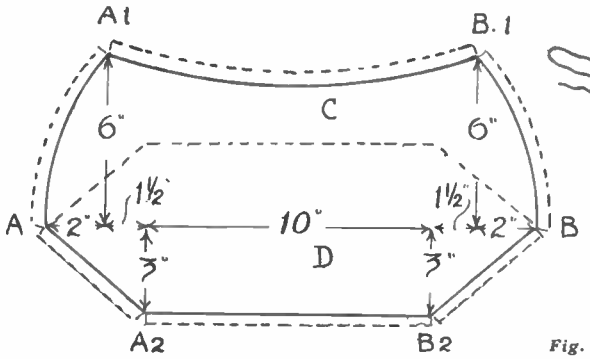


Fig. 1—Outline of shapes for sides and bottom

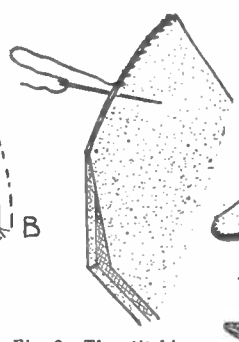


Fig. 2—The stitching

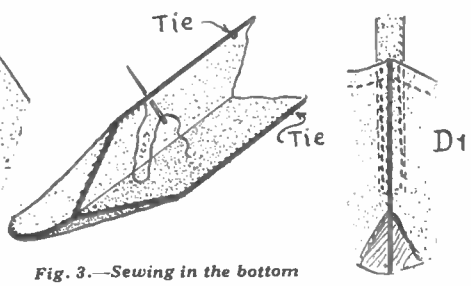


Fig. 3.—Sewing in the bottom

Fig. 4—The padding and stitching

Practical suggestions for cyclists given here in

SOME CYCLING HINTS

IN these days of accessory shortages, the cyclist must endeavour to "mend and make do" in every possible way with most items connected with his machine. Apart from a patriotic standpoint, it is an unselfish, sagacious thing to do.

It is so easy to "squander" money needlessly. One is rather tempted by the newness of the various accessories so attractively displayed in shops—spare parts which, by the way, one may already possess!

Such things as new air-tubes, tyres, brake blocks, handle-bar grips, etc., should only be purchased when really needed. Leave the accessories you can do without for the fellows who, to a degree bordering on desperation, require them. If all keen cyclists were to do that, things would be a lot easier and more satisfactory for everyone.

New Grips from Old

Some rubber grips on handlebars, such as the cheap, thin variety one could purchase some time ago, are—to put it mildly—rather sore on the hands, particularly the palms. The soreness is more severe if the grips are fitted to racing (turned-down) handlebars, for then the whole weight of the body is thrown forward on the hands.

The discomfort can be overcome by cementing suitable lengths of 1¼in. diam. inner tube (old stuff, of course, minus any patches or big tears) over the grips with rubber solution. You will be amazed at the vast difference the rubber covering makes to the hard grips.

They will look new if the tubing is turned inside out and slipped on. Do not apply the rubber solution to the grips until you put the tubing on; the latter can be "rolled" back from each end in order to apply the solution to the grips.

Troublesome Air-tubes

Air-tubes often develop a mysterious "slow puncture" that is difficult to find. This is the worst kind of "puncture" to deal with.

If, after testing the air-tube in a bath of water in the usual way, there are no signs of a leakage, have a look at the metal valve sleeve *screwed* to the tube. The nut there, on top of the metal collar, may be slightly loose. It is only when the air-tube can be pumped up hard (while inside its tyre) that this looseness reveals itself in the form of a slow puncture.

To remedy the trouble, deflate the tube and, with the pliers or a small spanner, screw off the nut slightly. Rub some rubber solution around the valve sleeve hole in the tubing and press the collar in place again, then tighten the nut. To prevent the sleeve turning with the nut, hold the bent collar (which cannot slip around) with the fingers. Tubes, with all-metal valve sleeves, repaired as described will not give rise to the same trouble for a long time.

Worn Brake Blocks

When rubber brake blocks become badly worn it is quite easy to re-new their life again by "facing" them with strips of hard rubber. The blocks will likely be worn to a bevel, so cut the bevel away to give a straight flat surface to the block.

Good facing strips can be cut from the tread of an old, discarded bicycle tyre. Use the thick centre portion of the tyre. Cut off two pieces the length and width of the blocks. Smear rubber solution on the latter and allow to dry. The smooth lining of the tyre must be roughened by rubbing with coarse glasspaper.

Smear on some solution and allow to dry. Apply a fresh smearing to both surfaces to be joined, allow to get tacky, then press neatly together and hold thus until the solution has dried.

Substitute Valve Tubing

When valve tubes or tubing cannot be obtained, an excellent substitute can be made from the red-coloured rubber lining found in flex wire or electric cable. The wires can be easily withdrawn from the rubber lining which, when cut into suitable lengths, can be inserted over the air valve.

To save buying new pedal treads, which are made from wood, it is possible to retread your old rubber treads and make them like new again. Like the brake blocks, the four sides of each tread are covered with strips of rubber cut from an old bicycle tyre.

While the treatment is much the same, you will have to bind the treads on with twine and allow to set for a day or so.

Bulges in Tyres

One of the chief causes of "bulges" in bicycle tyres is undue rubbing. This rubbing is caused by wrongly-adjusted brake blocks, especially calliper brakes which press against the sides of the wheel rims.

These bumps, coming more in contact with the brake blocks, gradually wear weaker until, at last, a new tyre has to be purchased. The only thing to do when the trouble arises, is to remove the tyre and re-inforce the inside, at the weak spots, with strips of new lining (you often get usefull pieces of this material in repair outfits).

Adhere the lining right round the inside of the tyre, using rubber solution or a reliable tube glue. Have the strip a neat fit, for if put in wrinkled or slack, they will have no effect.

Avoiding Punctures

Too many punctures and repairs on an air-tube makes it un-fit for use. A great many of these punctures can be avoided merely by looking ahead and noting what might be lying about the roads and streets.

The majority of punctures are, however, caused by the use of tyre levers whilst fitting a tyre on the wheel. Levers are only required for removing a tyre. Tyres can be put on by the hands, aided by the heels of one's shoes or boots.

Air-tubes are easily "nipped" against the wheel rims when you are attempting to remove the levers, or in raising them up to force the tyre into place on the wheel groove.

Shopping Bag (*Continued from previous page*)

If in one length, one strip only will be needed, about 22ins. long and 2ins. wide. Of course, short pieces can be stitched together to make up the length, if trimmings of the material only are used. Fold the strip in two lengthwise, and turn ¼in. of each edge inwards for a hem.

Now cut a strip of some material—canvas, blanket-stuff, almost anything will do—for padding the handle to make it more comfortable to grip. This padding material should be folded into a strip of two or more thicknesses and be inserted between the handle strip, the latter being stitched from one end to the other.

The padding material, by the way, does not extend the full length of the handle but is about 3ins. short of each end. as shown by dotted lines in Fig. 4, C1. Sewing can be a running stitch, or just a simple over and over one.

The unpadded ends are then sewn to the ends of the bag, inside, with a through stitch, as done for the top hem or as at D1. Do this sewing well, as some strain comes on the handle and weak and faulty stitches will soon give way.

The inside end hems, over which the handle will be stitched, need not be flattened out, as then the needle may have to penetrate them as well as the bag .and handle material and make sewing a tough job. Just fold them to come inside the lines of the stitching and so clear of the needle.

An excellent wheeled model can be made in this

LAND YACHT RUNABOUT

HERE is a novel kind of model yacht that sails on dry land, much like the full-size passenger-carrying craft formerly seen on the sands of seaside resorts. Such a yacht as this can be run on dry sand or any hard concrete or macadam road or pavement.

The body part of the yacht is of skeleton formation with a mast and boom fitted to take the sail, the whole being mounted on wheels. A hard wood should be used for its construction if possible, as this will take any amount of hard knocks and tumbles.

The sketch and details should be sufficient to show the actual construction. Should a larger yacht he wanted care must be taken to enlarge all parts proportionatley.

Mast and Spars

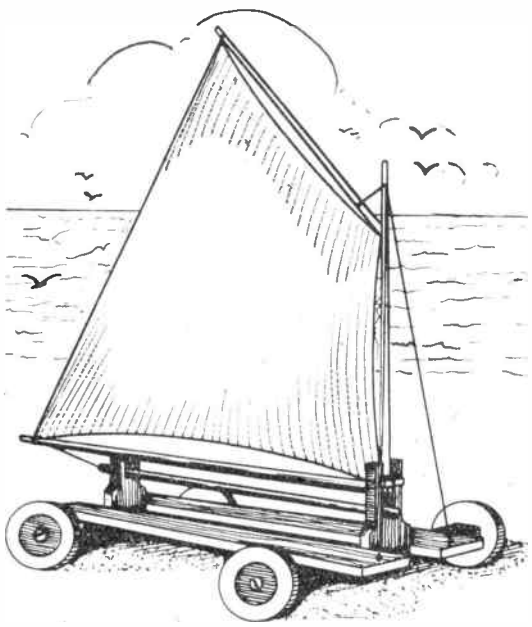
The mast, the boom and the stiffening spar are of ¼in. diameter rod, the former being 8ins. long and tapered slightly towards the top. The boom is just a plain piece 11ins. long, and the spar is 9ins. long and is fixed into slots in the uprights.

The first pieces to prepare will be the two "deck" pieces, one of which is shown at Fig. 1. These pieces are ¼in. thick and having drawn one out on the wood cut it out with the fretsaw. It may then be used as a template for obtaining the second one.

Two slotted uprights are next drawn out and cut (Fig. 2) from ¼in. wood, and nailed centrally to two axle bars consisting of ½in. square wood. The bow axle is 8ins. long and the rear one 6ins. long.

The reason for having one longer than the other is obvious, the yacht would have a tendency to blow over sideways were the wheels not spread out well at this point.

On top of the axle bars, and close against the slotted uprights will be fixed the deck pieces as shown in (Fig. 3) a view taken from the underside. The spacing and arrangement of the pieces are clearly shown in Fig. 4. The spat can next be dropped into place in the slots and a long thin nail put through each end to fit it.



Fixing the Mast

The body portion is thus complete, but the wheels will not be screwed on until the sail fittings have been fitted. To the lower end of the mast is screwed a small block of wood, (Fig. 5) which acts as a stop when the mast is in an upright position and held so by two guy "ropes" attached to the deck pieces in the front.

The pivot for the mast, (which folds flat upon the boom when not in use) is formed of a thin nail inserted in the bow upright. An enlarged detail of this is given in Fig. 6, which also shows the fixing of the spar. To the back of the mast is fixed, by means of screw eyes, the boom (see Fig. 7). It should be just above the top of the rear upright when in proper position and held by a cord attached to the end of the spar. At a distance of 5½ins. up the mast is attached the gaff, a spar which supports the top or peak of the sail.

The simplest way of fixing this is by means of a screw-eye and hook in a similar way to the boom. A neater job however may be made by bending wire into a hook and then binding it to the gaff with fine twine.

The wire hook should engage an eye formed and attached to the mast in the same way. A hole is made at the top of the mast through which will pass the cord supporting the gaff and also the cord from the mast to the bow.

The sail should be made from some light but strong linen material and cut to the measurements given in Fig. 4. The edges of the sail must be neatly turned down and hemmed. At the points of connection with the mast and boom have fine cords sewn on for that purpose.

Four wheels may be cut from ¼in. or ⅜in. thick wood 2½ins. in diam. and shaped rounded like a motor car tyre with a rasp and glasspaper. They should be painted red, with black for the treads and the inner discs as shown in the sketch.

Washers should be inserted between the wheel and the heads of the fixing screws.

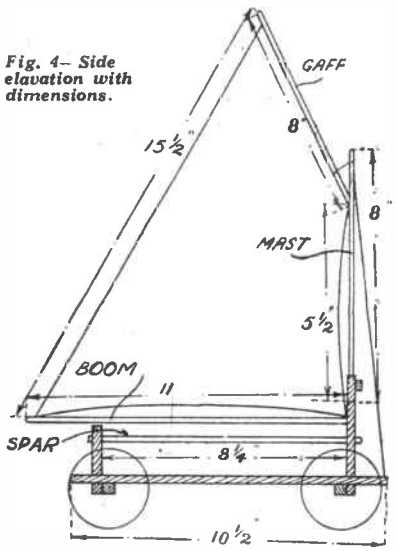


Fig. 4– Side elavation with dimensions.

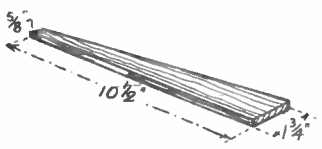


Fig. 1—Two deck boards

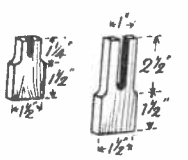
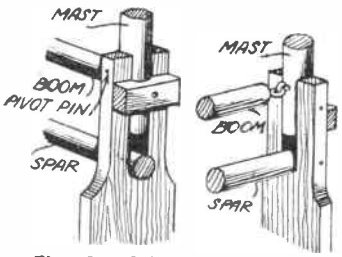


Fig. 2—Uprights

Fig. 3—Under view showing axle

Fig. 5—The stop piece



Figs. 6 and 7—The mast and spar fitting

Add to your layout by making a trough type

MODEL RAILWAY BRIDGE

THE accompanying illustrations show a quite realistic model bridge of the high-sided type with top cross-strengtheners, which would be both a useful and ornamental addition to any gauge O line.

Constructed principally out of one sheet of tin, the model can be fairly quickly made, and it's design allows it to "sit" very closely down on any tracks which may run beneath; thus looking well and saving the top track from having to climb higher than necessary which in many cases is a distinct advantage.

A bridge with deep girders running under the "deck" (i.e., where the rails are laid) would easily make the upper track have to climb another inch or so higher.

The Plate Needed

To construct the bridge first procure a small-sized hearth plate. These plates are made of tin, and the smaller, narrower makes, measure about 31ins. by 13ins.

Next decide what length your bridge is to be. It can, of course, be any end-to-end dimension that fits the special requirements of the railway for which it is being constructed. On the whole trough bridges look best if made of some considerable length, as in actual practice a bridge of this type would not be used for a short span, like crossing a road, etc.

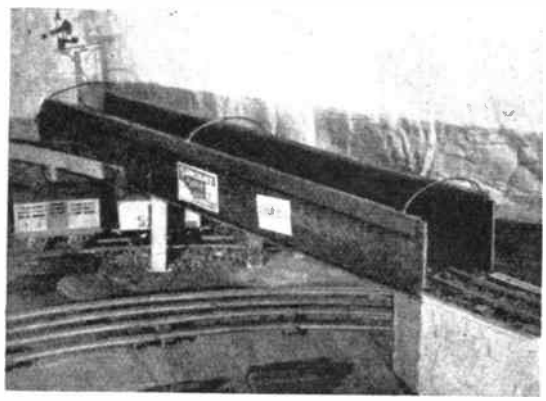
If the whole length of the tin can be used so much the better. If not, mark down the longer side a measurement agreeing to the length of your bridge and at this point cut the tin across with clippers. An old pair of scissors will do the job quite effectively as the material of these plates is not thick.

Now 4ins. from either side draw lines down the whole length of the sheet. Then carefully bend the material along these lines so the two side-strips formed are at right-angles to the middle strip. This makes a trough of a square-cornered U-section.

It is very important that the bending should be done accurately, and the best way to do it is over a length of wood 5ins. wide, as shown in the inset sketch.

If not accurately done it is easy for the trough to develop a twist, which is not readily straightened out again.

Next lay the rails on the "deck." Steel track with wooden sleepers will be secured by an occasional sprig inserted up through the tin from below, suitable small holes in the metal, first being drilled. With tinplate rails short bolts are used, the bolts running through holes bored in alternate sleepers, and then through corresponding holes in the deck below.



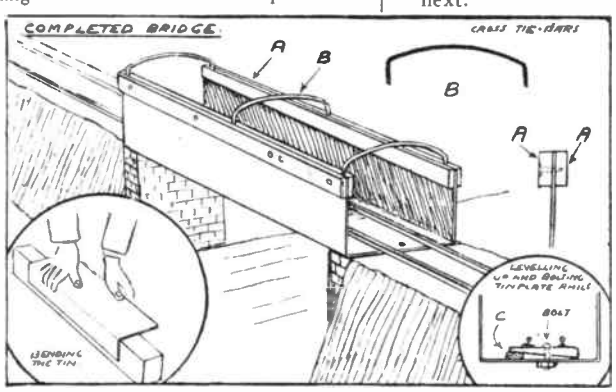
The realistic high-level line carried over the bridge

Alignment of Track

Align the track well down the centre of the bridge to prevent any danger of trains fouling either wall as they enter the trough. Tinplate lengths, too, are on the tilt, so bring them to the level by slipping slats of wood (see C in small diagram) under the narrower ends of the sloping sleepers.

Now prepare the four side pieces (A). These are ⅜in. by ⅛in. in section and the full length of the bridge. Laying two of the strips along the top of one of the sides with the tin edge between, drill four equally-spaced holes. Carry them through one strip, through the tin and just a little into the other strip.

Remove the strips and enlarge the holes in the tin till they will take quite comfortably the shank of ¼in. diameter screws. Replace the strips and join them up with ¼in. screws. Treat the further wall the same way next.



The strips make the upper edges of the tin walls quite rigid and automatically take out any waves that may have appeared. By fitting these strips quite parallel to the base and to one another (taking no notice of the lie of the edge) any inequalities due to poor bending can be rectified.

Longitudinally the edges are now quite rigid, but the sides will still move in and out with the spring of the tin, if pressed fairly hard. So complete rigidity is obtained (as in an actual bridge) by the cross strengtheners (B). These are made of ⅛in. diameter wire and are shaped as shown.

A Rigid Structure

They hold quite firmly simply by being pressed into holes bored vertically in the inner strips close to the walls. The holes should be just a trifle smaller in diameter than the wire, so when the ends of the wire loops are pushed in they will hold securely. When in position it will be found that they "lock" the bridge and make the structure quite solid.

Now comes the painting. Various colours are quite suitable, but grey or cream as a base is the best. When this is dry divide the sides with black lines into panels, surrounding each with a line of dots to represent rivet heads.

One of the usual failures in this work is that the rivets are shown too large. A mere tiny circle of black paint is all that is necessary. They should be carefully in line with each other and equally spaced apart.

Support Buttresses

To fit in with the rest of the railway, the bridge is laid on two wooden buttresses covered with stone or brickpaper, which are let into the ends of leading-up embankments. Small screws are taken down into their top edges, through suitable holes drilled in the ends of the deck.

If of any great span a central buttress will look effective, though not actually needed from a strength point of view.

There is much to interest in the building of

A HOME MUSEUM

THERE is plenty of scope now, in these days of souvenirs and relatives in the Forces going abroad, for the formation of an interesting home museum. No expensive instruments or apparatus is needed for this engrossing hobby. The only things required are patience, space and, above all, that passion for hoarding with which most people are endowed.

The collection can be housed in a neat cupboard or on clean shelves. The shelves should be covered with white paper as such sold for the purpose. If, however, fossils and other whitish objects are to be exhibited a black background shows them up best and black-out paper fulfils this purpose admirably.

Arrangement Counts

Great care should be exercised when laying out the collection, and symmetry should be adhered to as much as possible. There is a skill in arranging the specimens so as to show them all up with equal prominence. Even if your curios are not spectacular, a properly set-out and well-kept museum will attract interest anywhere.

Now for the real beginning of the museum—where to get the curios.

If you have the real spirit in you you will feel much more elation when you have worn out a pair of shoe-leathers searching for curios than if you walk into a shop and buy the whole lot as a set.

An obvious source of specimens today is your friends in the Services abroad. If, for instance, your brother has gone to Fiji, get him to bring you back one of the wooden models the natives make of the outrigger canoes they use for fishing.

Curios

A collection of native-made curios from all parts of the world is very interesting and still more so if you have a little tale to tell about each exhibit. You may perhaps specialise and get, as an example, carts and waggons modelled in all parts of the Empire.

A still more easy source is the Germans. Bullets, pieces of shrapnell, badges and a host of other war-like souvenirs make interesting additions to your museum. It is often worth your while to trace the origin of pieces of bomb shrapnel, etc.

A bent piece of steel may not look very interesting but if it was found in the ruins of the destroyed Town Hall and was part of the bomb that destroyed some ancient records or documents, its value is increased a hundredfold.

Second-hand shops provide another happy hunting ground of the ardent collector. Those interested in old weapons and armour can often find good bargains among old antique-shop keepers, who often have useful information to give about their goods.

Most people think of a museum as a collection of stuffed animals and it is true that, of all the sources of specimens sought by ardent collectors, nature proves the most abundant. No home museum would be complete without some representation of nature.

Butterflies and Moths

There would be a collection of butterflies or moths, for instance, although these necessitate a lot of space in a nest of shallow drawers, which the handyman could make out of old cigar boxes. Specimens of various leaves and bark from trees with their fruit are interesting.

There is usually a taxidermist somewhere in the larger towns if you know where to find him. He would stuff, for a few shillings, any birds or fish etc. you caught for your collection. With regard to the smaller animals such as frogs and things like worms, which are too small to be stuffed, they should be preserved in alcohol.

Methylated spirit is used, if you can get it, and it should be decolourised in the following way. Add strong clear sulphuric acid to the meths. drop by drop out of a fountain-pen filler, and shake after each addition. When the mixture turns to a pale yellow, cease adding the acid and add a saturated solution of caustic soda to neutralise the excess acid.

When the effervescence ceases, stop adding alkali and take off any crystals that have separated out. This mixture should be put into jars of suitable size and the animals arranged naturally in them. The jars should have air-tight, preferably bakelite caps, which should be screwed on tightly.

Minerals

A geological collection is also of interest. Specimens of rock, clay and mineral ores should be kept in the small screw cap jars that ointment is sold in. The jars should be labelled with the details of the contents and where they were found, etc.

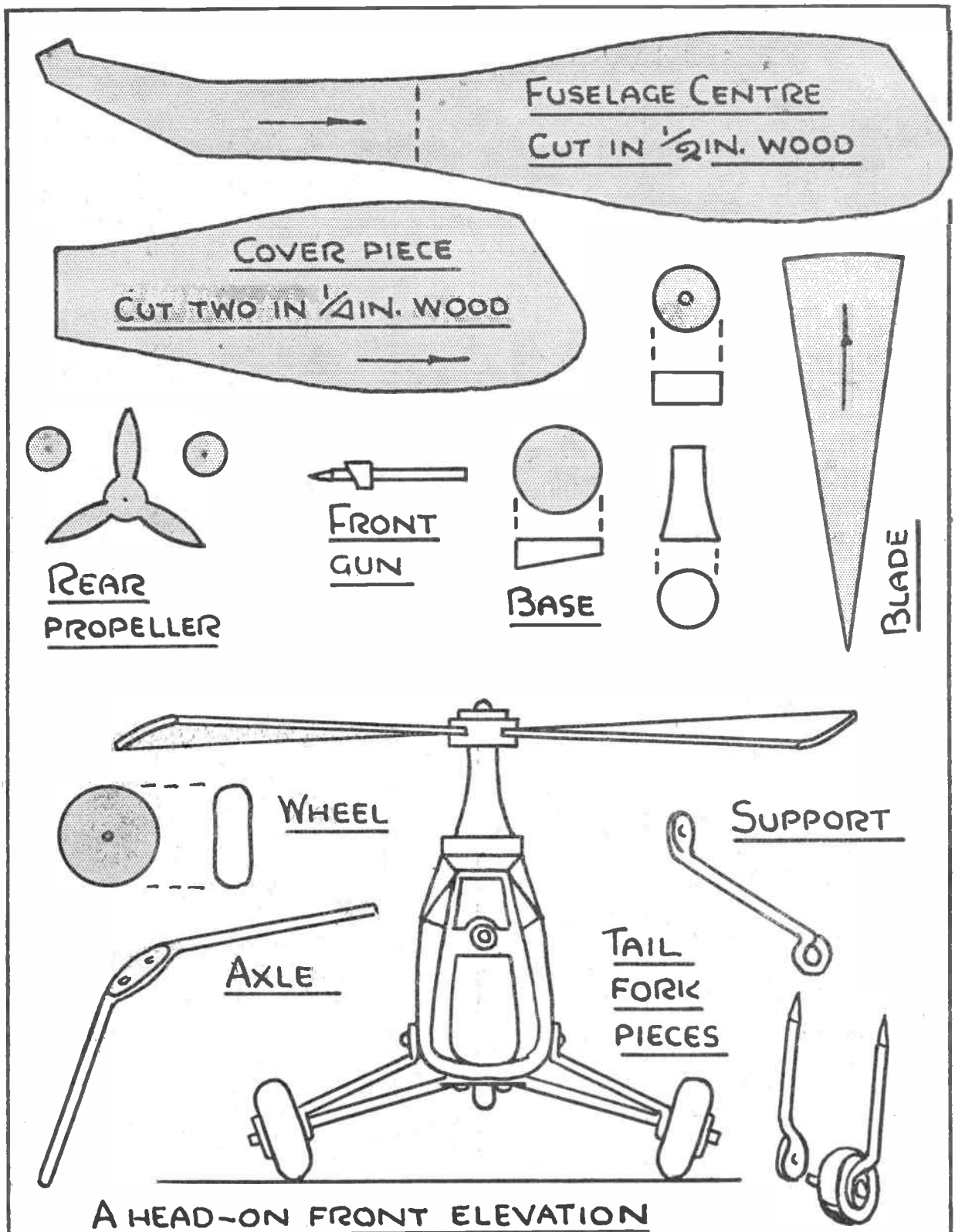
Those who are skilled in model-making can make their museums into collections of historic ships, railway engines, aeroplanes and racing cars, etc. A lot of museums consist largely of accurately made and beautiful models.

It is a good plan, when your museum gets bigger, to divide it out into sections, such as the Nature section or the Models section.

Readers making small collections of shells, or moths, or similar small articles requiring a partitioned flat box, may be interested in some of the instructions we have given in these pages from time to time. Details of issues which are still available are obtainable from the Editor.

Model Helicopter Patterns

See page 1



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