MODEL BATTLESHIP DESIGN FREE INSIDE

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A BICYCLE CARRIER SEAT

THE bike carrier seat detailed herewith has been designed for carrying young, light-weight passengers. Most kiddies are very light in weight so that any extra exertion on part of the cyclist is scarcely noticed.'

The seats are usually made in the form of " buckets " from plywood to be light, yet sturdy and comfortable. But, as plywood is a thing of the past, we must use what material is available meaning thin boards, such as that provided by old boxes.

A strong, neat, comfortable seat is possible, and the dimensions suggested will be found suitable for most children aged from 1 to 4 years old. The most important thing about the article is not the seat itself, but the carrier on which it is fixed.

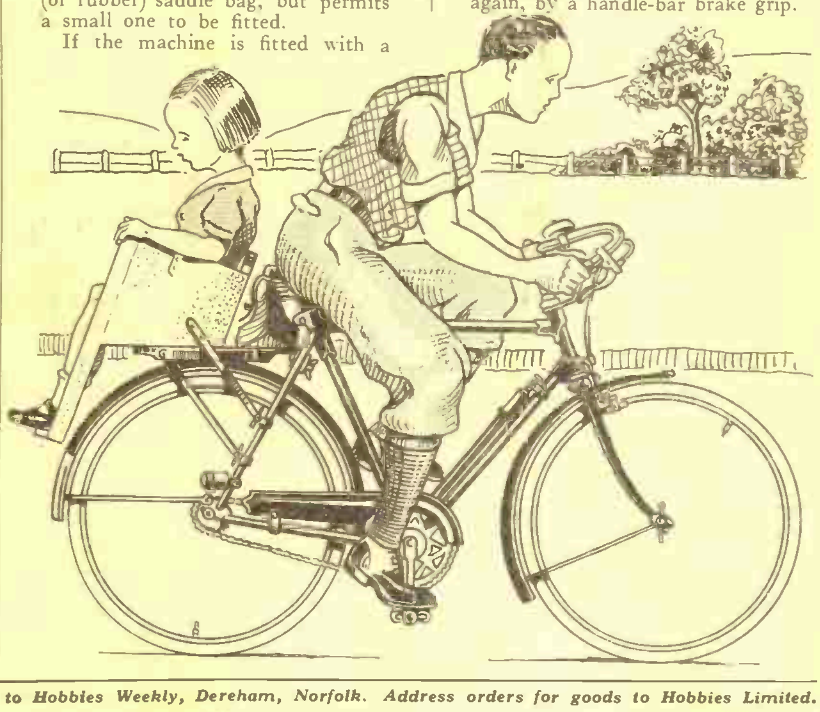
Fixed to a Carrier

A sturdy, heavy duty carrier should be obtained—one fairly long in the length, with flat metal not wire, stays as the latter are apt to bend too easily. The stays can either be the type that are attached to the rear wheel axle spindle ends or the diagonal fork pieces, this type being shown in the diagrams throughout.

Much will depend on the model of bicycle used, particularly with respect to the brakes, lighting arrangement and the type of saddle bag. For example, the back of the seat is apt to interfere with the large leatherette (or rubber) saddle bag, but permits a small one to be fitted.

If the machine is fitted with a rear calliper-type brake, the brake might be in the way for connecting the carrier (by its bolt and plate) to the upper part of the diagonal fork piece. It might also be necessary to shift the rear lamp to a new position.

That is a simple enough task, and so far as the carrier bags are concerned these could be attached to the side of the auxiliary seat. It will, however, be thus seen that the most suitable type of machine is one with hub brakes or the old-fashioned " direct " brakes, or else a sports model fitted with a front calliper brake and a rear hub brake that is controlled by a backward action of the pedals, or again, by a handle-bar brake grip.



Our illustration shows this type of bicycle and the best position for the seat on the carrier. By using a little ingenuity, of course, it is possible to fit the seat to almost any make of bicycle. All you really need is a design and particulars of the seat.

The Side Shape

To make the seat, first prepare the sides. You need two leg pieces 20½ins. long by 1½ins. wide by ½in. thick and two side pieces 10ins. long by 11ins. wide by ½in., or if you prefer, 11ins. long by 10ins. wide by ½in. The latter, of course, means that the grain will run with the legs and *not* against them as shown in the elevation at Fig. 3.

That does not, however, matter

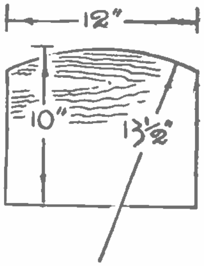


Fig. 2—The shape and dimensions of back

greatly. The leg pieces are dowelled to the side pieces, following which the shape is cut as shown. You will, it must be noticed, have to check the bottom edge of the legs for the cross-rail piece measuring 13ins. by 4ins. by ½in.

The seat edge is to slope away to 7½ins. as shown. The back piece is cut to size and shape given at Fig. 2, doing so from ½in. wood, although ¾in. stuff is preferred.

The seat bottom measures 12ins. long by 11ins. wide by ½in. or ¾in. It is simple to build up the required width from two 5½in. wide pieces, rub-joining them together or fixing together with corrugated nails.

A batten of wood measuring 12ins. by 2ins. by ¾in. is fixed to the front edge of the seat, at the top, this helping to strengthen the work somewhat, but it is added to keep the seat cushion from slipping off.

The Construction

Having prepared the various parts, construct the seat by attaching the bottom piece between the side pieces, flush at the bottom edge. Add the seat back, the bottom edge of same requiring to be planed to a suitable bevel (see dotted lines at Fig. 3).

Assemble with glue and 2in. oval nails. It is advisable to make holes for the entry of the nails with a bradawl so as to prevent the wood splitting. The leg cross-rail is fixed to the legs then a foot-rest piece added, the latter measuring 13ins. by 3ins. by ½in.

The ends of the foot piece are checked at the ends to fit nicely between the legs. The outer corners should be rounded over as shown. To ensure extra strength, angular blocking fillets could be glued to the inside corners of the seat.

Remove all rough or sharp edges from the work by glasspapering. The front edge of the seat should be rounded over, doing so with a spokeshave and chisel, or by rasping, then smoothly glasspapering.

To finish off the seat, give it two coats of brown enamel paint, or black stuff if you like. Other colours are showy.

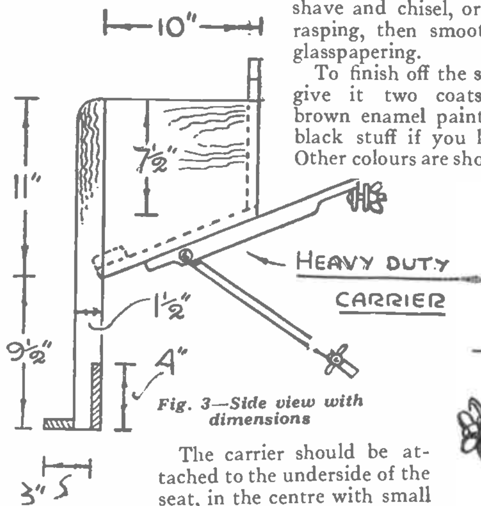


Fig. 3—Side view with dimensions

The carrier should be attached to the underside of the seat, in the centre with small roundhead carriage bolts about 1¼in. long by 3/16in. thick. This necessitates drilling four suitable holes in the top of the metal carrier, two at the rear end and two at the centre or thereabouts.

The carriage bolts are stronger than roundhead screws, if you use them. Seat the prepared carrier on the seat bottom and mark the bolt hole positions. Drill the holes through and insert the bolts from the seat surface so the shanks project sufficiently.

Put the carrier over them, then tighten on the nuts, these serving to draw the bolt heads down into the soft wood. If you wish to make the seat a stronger connection, a thin bar of metal, bent to act as a stay, could be fixed to the seat back and fork end of the carrier as depicted at Fig. 4.

When attaching the carrier to the bicycle frame, keep it sitting quite flat, or tilted upwards (at the rear end) slightly. Make sure that the batwing nut tightens the plate to the diagonal fork pieces as much as possible, for there is sure to be a lot of strain at that point.

The carrier stays do all the supporting. They also have to serve to keep the seat steady and from tilting sideways. It would be wise, therefore, to add a couple of extra stays, as suggested at Fig. 1.

However, these may prove unnecessary. An actual test will show you exactly what you reqiure to do for the best.

A "Safety" Belt

By the way, the leather straps from the carrier can be used as "safety-belts" for the seat. One strap, cut in half will suffice. The cut ends are fixed to the seat sides, at the top edge, with a couple of rivets or roundhead brass screws based with suitable brass washers.

The buckle thus meets in the

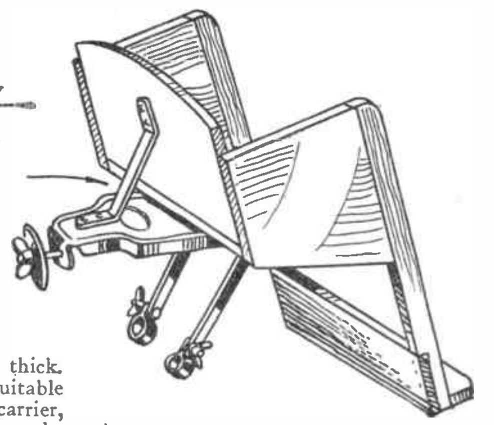


Fig. 4—General view showing metal stay behind back

middle. It will prevent a child from trying to stand up or wriggle out of the seat. A small thin cushion, long enough to fold in the centre to form a soft seat and back, is fixed to the work with large nail shaving roundheads. Leatherette-covered strapping tacs are ideal.

In order to keep the cushion bent in the centre, a piece of leatherette strapping could be tacked across it the ends being nailed to the sides of the seat.

Another idea is to bore single holes at each side seat, near the back bottom corner so that a length of cord can be threaded through.

Flying Propeller—*(Continued from opposite page)*

of wood, or several thin pieces glued together, the slots being cut in them before gluing them together, following which the shaft hole can be drilled.

When flying it, hold the holder upright and the propeller will fly vertical. If the holder is held at a slight outward angle, as at Fig. 1, the propeller will fly upwards at the same degree of angle.

If the shaft appears to stick in the holder, rub it lightly with candle tallow. Only a thin film is really wanted; too much grease will slow the movement of the propeller and thus be a hindrance rather than a benefit. If the shaft still sticks, try shortening it.

A little practice will soon get you accustomed to handling the article and fascinating flights can soon be obtained from this interesting piece of work.

You can get some good fun by making and using

A FLYING PROPELLER

IF you cannot have a flying model aeroplane, you can, at least, have a flying propeller! It is just as interesting and infinitely more easy to make. All you need is the three-bladed air-screw and a suitable holder, plus a length of fine twine.

Odds and ends are used. The propeller shaft holder is, for instance an old bradawl handle. The hub-spinner of the propeller is a short piece of ½in. dowelling; the shaft is a 2⅛in. piece of ⅛in. dowelling or celluloid knitting needle. The blades are shaped from 1/16in. thick wood, preferably a light, durable wood like satin walnut.

How to Use It

To start the propeller spinning at a quick rate, the fine twine (or a strong waxed thread) is inserted in an eye-hole in the shaft. It is then wound on the shaft by turning the propeller round with a finger.

The winding must be done in a clockwise direction (according to the angle, or twist, in the propeller blades) so that, when the twine is pulled away sharply, the blades clip at the air to draw themselves away from the holder. Consequently, the propeller flies through the momentum provided by the winding and unwinding of the twine.

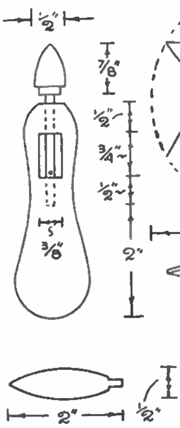


Fig. 2—Detail of holder and blade

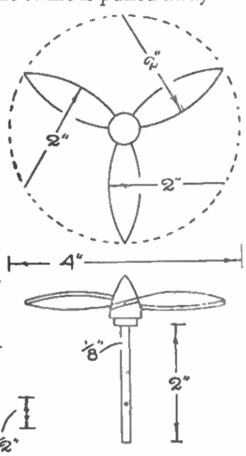


Fig. 3—Plan and side view of blades

Automatically Released

The twine automatically releases itself and the shaft of the propeller at the fullest capacity of the momentum—just at the right moment in other words.

Away goes the spinning propeller, hissing upwards, with a steady climbing speed, then as the momentum dies away, it drops back to earth, whereupon the whole performance can be repeated again and again.

The shaft on the hub of the propeller has a steadying influence on the revolving blades. It must not be too long or too heavy. The angle of twist on the blades moreover, must not be too great or too little. The best angle can be found by actual experiment.

When the twist is fairly acute, the propeller blades are greatly slowed down by the amount of air resistance. A very slight twist in the blades has the opposite effect. The propeller, in the first case, will dart away surprisingly and drop as quickly; in the second case, of course, the article just seems to spin slowly to the ground.

You must, therefore, experiment to find the "between" angle. As the blades are tenoned to the hub, you can test the twist prior to gluing.

Making the Propeller

The propeller is made first. To make the hub, get a piece of ½in. dowel rod about 3ins. or 4ins. long and level off one end dead flat and true by glasspapering. Find the the exact centre of the diameter, then carefully drill an ⅛in. hole ¼in. deep in the dowel. The hole is for the shaft and you must drill it dead straight, so work slowly and hold the dowel in line with the drill, turning the dowel from time to time.

When drilled accurately (as you can tell by inserting the drill in the hole and twisting it in the fingers so the dowel turns with it), mark off the length of the hub, this being ⅞in. as shown at Fig. 2. The end of the dowel is now divided into three and corresponding lines pencilled down the sides of the dowel.

The three holes for the blades are drilled into the hub approximately ½in. from the end. A 3/32in. drill should be used, but an ⅛in. one will serve. The holes are drilled squarely with the dowel length and truly at the angle marked at the end.

When drilled, cut the hub to length and pare it to shape with the penknife. A ⅜in. disc is pared at the shaft end, following which the whole shape is smoothed up by filing and glasspapering.

Shaft and Blades

Glue the shaft to the hub. We advise you, however, to drill the twine hole in it first in case you should split the wood. An ordinary fretwork drill should be used; the hole is bored about ⅜in. from the end.

A detail of one blade is shown at Fig. 2. Cut three to size and shape. If you want to get the correct shape,

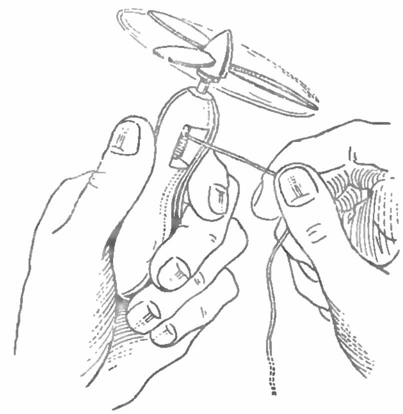


Fig. 1—The Propeller, about to be released, in its flying position

a full-size drawing could be made of the top plan of the air-screw given at Fig. 3.

Shaping

The shaping is all compass work, the latter being set to scribe a 2in. radius; there is no need to alter this radius. Draw a 4in. circle first, then divide the radii line in the manner shown, working from an upright central (straight) line.

When cut out, cut a tenon at each end of each blade to project about 3/16in. Have a slight taper on the tenons so they fit tightly into the hub holes.

When you have found the best angle (by inserting the blades and twisting the shaft between the fingers), glue the blade to the hub. They should be strengthened by applying a touch of plastic wood around the tenon shoulders and then levelling off the surplus before the plastic wood dries.

The Holder

As stated, to make the holder, you need an old, large-size bradawl handle. Remove the brass ferrule by sawing off with a hacksaw. A dead central 3/16in. hole is bored down the centre to a depth of 2ins. If you possess a 5/32in. drill, use it, for the shaft must not be too slack.

A ¾in. by ⅜in. slot must now be cut in the holder to provide an aperture for the winding twine or thread. This slot could be cut with a coarse fretsaw blade. However, it can be cut out with a chisel, ⅜in. holes being drilled through at the ends of the slot and then cleared squarely with a ¼in. chisel.

If you cannot find an old bradawl handle, almost any similar sort will serve, and at a pinch, you could shape a decent sort of handle from a piece

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There are several things to remember in making

A GARDEN SWING

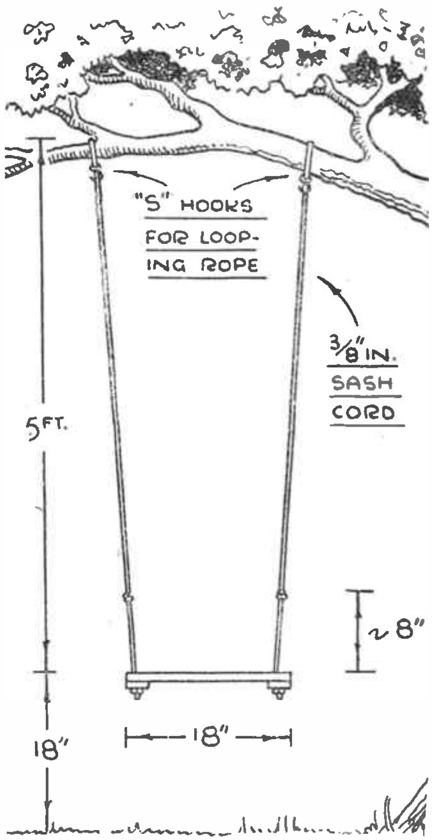


Fig. 1—The completed swing with measurements

IN many gardens there are trees strong and high enough for the erection of a swing for children. The fixing up of the swing presents little difficulties, but it must be done in such a way that (1) the swing is easily dismantled and (2) that the rope will not become frayed and (3) that the tree will not be damaged.

Then, again, the *length* of the swing will have to be considered. If the garden has only a solitary tree, with one strong jutting bough measuring say, 5ft. high, the length of the swing must be adjusted accordingly so that the seat height is 18ins. from the ground. This applies to all the different heights of tree boughs.

If there are no worthwhile boughs except short, twisted gnarled growths which may be situated fairly high up, a usual "run-about" swing could be fixed up, the tree trunk thus serving as a lamp-post, as it were.

A double length of ⅜in. sash cord—or hemp rope—is all that is needed, the rope being attached in the usual way by looping it around the tree trunk at a suitable height, the swinger (or is it swingee ?) getting between the rope in order to sit upon it.

If such a swing is adopted, ½in. rope should be used and a small cushion provided to ensure absolute comfort. This form of swing is useless on a thick-trunked tree ; the thinner the trunk the better the swinging.

Seat and Ropes

Assuming that the fair-sized swing elevated at Fig. 1 can be erected, make the seat. For this you need a board of ⅞in. wood 18ins. by 10ins. and two end batten pieces 10ins. by 2ins. by ½in.

The battens are glued and screwed to the underside of the seat pieces, following which the seat is cut and spokeshaved to the shape shown. The top edges should be slightly rounded over to prevent chaffing.

If you can only find two 5in. wide pieces of wood, these can be used, the battens helping to add strength to the joint. The battens must be added. They are there to prevent any likelihood of the seat splitting, particularly at the rope holes.

If ⅜in. sash cord or hemp rope is used, bore the holes through with a ⅜in. bit If you use ½in. cord, bore ½in. holes.

The seat should be well glass-papered then given two coats of varnish stain and set aside to dry. Meanwhile, prepare the rope.

For the length of swing shown, you need two 11ft. lengths. Fold each length to make a "double" rope 5ft. 6ins. long. About 9ins. from the free ends tie a "binding" knot.

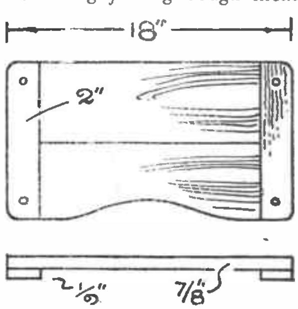


Fig. 2—Details of seat

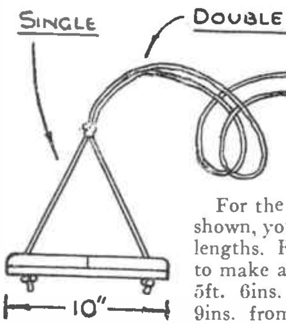


Fig. 3—An end view

This, however, should only be done after you have inserted a single S-shaped hook on the rope.

You need two of these hooks about 1¾ins. long. They are obtainable in brass and metal. One of the "eyes" must be prised open about ¼in. wide to permit the entry of the rope as shown at Fig. 4.

Attach the Seat

The best way to attach the seat to the rope ends is to thread the free ends through the seat holes and tie a single knot close to the ends (see side view at Fig. 3). To prevent fraying, the rope holes should be slightly countersunk at both sides of the seat.

The method of affixing the ropes to the tree branch is very clearly shown at Fig. 4. One merely throws the rope ends over the branch, the S-hook being inserted around it and the rope pulled to tighten the loop. For fairly high swings, of course, one requires the use of a pair of steps.

Note, from the elevation, by the way, that the ropes do not hang dead parallel together. Keep them more apart at the top, because this prevents the swing seat from twisting about.

See that the "runway" of the swing is clear of lumps and hollows and projecting "roots" from the bole of the tree, as these things might cause someone to trip and fall—in the way of the swing, this calling for much agility in order to get safely away from the returning swing.

The seat is within reason, but it is possible to have a much longer seat so that two children can swing at the same time. A seat about 22ins. long (by the width and thickness stated) would suit most youngsters, taking two comfortably.

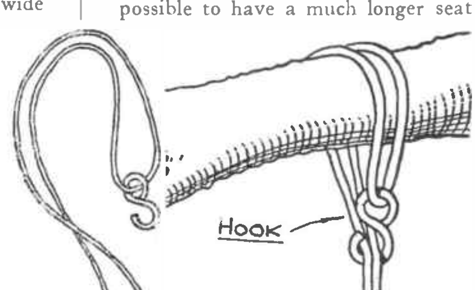


Fig. 4—How the hook grips the rope

In order to swing about together, the children link arms, or put their arms around each other, meanwhile holding on to the side ropes with their free arms. Thus, they each serve to support each other, thereby minimizing the chance (a very frail chance, of course) of toppling off the seat.

Another simple game to make with odd wood is a

CASTLE MARBLE ALLEY

THIS game can be played as a table game or a playground game to be played out of doors. It will afford great fun for youngsters, and an evening's useful and interesting amusement in the making up.

As will be seen from the illustration, Fig. 1, there is a hollow box frame consisting of a front with five circles and a battlemented top representing an old-time stone wall.

There is, at a distance of 3 ins. from this, a back wall having end walls which are halved and hinged in such a manner that the whole folds flat making for ease in carrying.

The method of joining the pieces and the arrangement of the hinges are simply explained in the large detail in Fig. 2. A shows the ends extended ready for play, while B shows how they fold inwards making a total thickness of only 1 in.

The Arches

The length of the front and the back wall is 12¼ ins. and the height 4 ins. In Fig. 3, the spacing out of the arches can be easily followed from the dimensions on the left of this diagram. The battlemented top to the front wall adds greatly to the attractiveness of this piece, and the measurements on the right make its outline quite clear.

All the cutting is done with the fretsaw, and ¼in. wood used throughout. The back wall is, of course, a plain piece 12¼ ins. long by 4 ins. wide. The end walls consist of two pieces 4ins. by 3ins. cut down their centres to form four pieces 4 ins. by 1½ins.

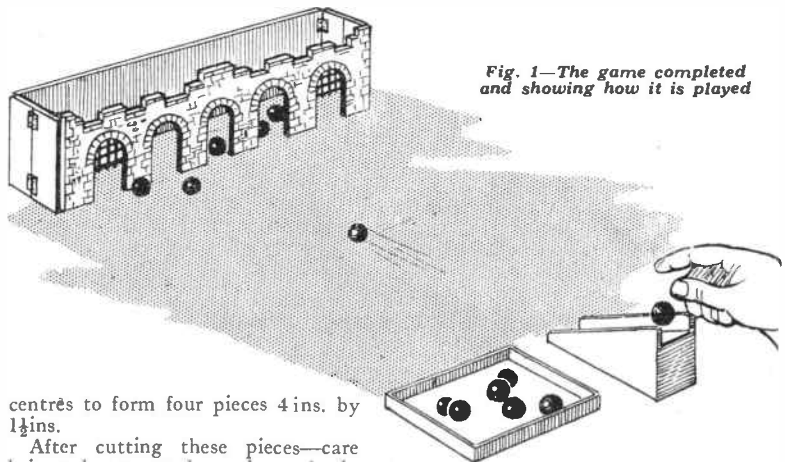


Fig. 1—The game completed and showing how it is played

After cutting these pieces—care being taken to get the angles perfectly square, clean them with glasspaper and add the two hinges which will hold each pair together.

Next add the inside hinges, marking their positions carefully in each of the end walls and keeping them well towards the extreme bottom and the top so that they can be later easily screwed to the front and back walls. Hinges ½ in. long would answer in all cases.

Painting Details

In painting the work, clean off the surfaces first and lay on a coat of flat paint to all surfaces. When this has hardened, rub it down lightly with fine glasspaper and then finish with a coat of light grey paint to represent stone.

It would, perhaps, be the choice of some workers to paint the walls inside with buff paint so the marbles can more readily be seen. With a fine brush and some black paint or Indian ink, line in the stonework as shown in Fig. 4, keeping the courses of the stone fairly regular as in the detail.

A Portcullis

A portcullis (as in the end arches) would add again to the attractiveness and could be put to two or more of the arches. Make this in thinner wood and glue it in place behind the front, painting it red.

The next thing to make will be the sloping chute down which the marbles are trundled. In Fig. 5 the construction and measurements for this are given. Two sides 6 ins. long by 4 ins. wide are cut to the slope suggested, and a piece of wood 1 in. wide glued or nailed between.

A block or two of odd wood will strengthen the chute inside, and make it suitable for handling. Smooth up all the surfaces with glasspaper and coat with paint.

To Play

Each player has, say, six marbles or steel balls and must so direct the "fire" by pointing the chute as far as he can judge to let the marbles run clean into the archways. The idea is to get all the marbles inside; he who succeeds in doing so is the winner.

All the marbles must rest definitely inside the walls; any that are knocked outside spoils the chance of a win.

A simple tray may also be made from card or wood for holding the marbles during the playing of the game.

For making up this game, sufficient wood can be got from two of Hobbies standard panels, viz. one K4 and one G4—all ¼ in. thick stuff.

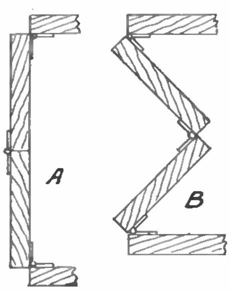


Fig. 2—Plan showing hinged ends

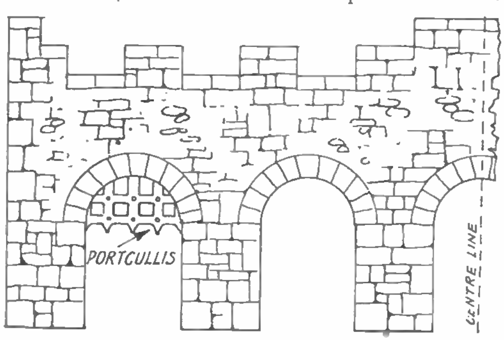


Fig. 4—A guide how to paint the front

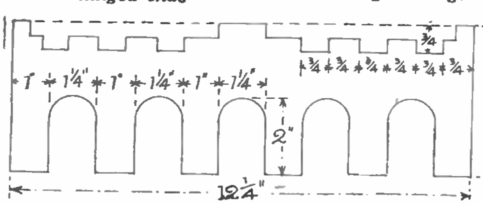


Fig. 3—How the front is marked out for cutting

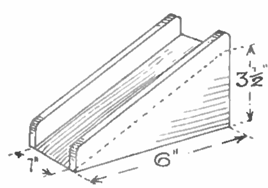


Fig. 5—The chute

The handyman should know these points about

METALS, SOLDER & FLUX

SOME of our readers perhaps do not realise that there is a solder and flux for various kinds of metals. You should not use *one* kind of solder and only *one* kind of flux for every job. Many do, however, which doubtless explains why some of the soft soldering jobs undertaken are never quite successful.

Soft Solder

Soft solder is composed of an alloy of lead and tin, and the proportion varies with the metals for which the solder is prepared. Thus, we get a solder containing more lead than tin and vice versa. Naturally, the higher the lead content, the higher the melting point of the solder.

There are four distinct grades of solder, (a) two grades for the tinsmith and (b) two grades for the plumber. The tinsmith's coarse grade solder contains equal parts (1 to 1) of lead and tin; used for all general work in tinplate. The tinsmith's fine grade contains 1 part of lead and 2 parts of tin. It flows easily and is used for joining tin together, including sheet brass, copper zinc, etc.

A plumber's coarse grade has lead, 3 parts; tin, 1 part; and is a solder used for all manner of joints in water pipes. It is easy flowing and handled. A plumber's fine grade is the same as the coarse grade, but is used principally for joining gas pipes. It contains 2 parts of lead and 1 part of tin.

The Flux

One cannot solder properly if the wrong flux is used. A good flux is a vital necessity. It does not, however, as many amateurs are inclined to imagine, *clean* the surfaces to be joined together, flux merely prevents the formation of a coat of oxide on the metals (caused by the heat from the soldering bit, if not the solder itself).

Cleanliness is absolutely essential. Dirty surfaces will not adhere properly, and a coat of oxide means a dirty surface. Flux removes grease marks, soot and oxide. But, it must be the right sort of flux, there being four different fluxes for the various metals.

1.—Flux for tinplate, iron, copper and brass. An equal quantity of zinc chloride and water mixed together.

2.—Flux for zinc and galvanised iron. Made from 1 part of hydrochloric acid and 9 parts of water.

3.—Flux for lead and pewter. Tallow or turpentine is the best thing to use.

4.—Flux for various other metals. Merely resin. All work, however, must be cleaned thoroughly beforehand by filing or scraping and rubbing with emery cloth.

Points about Flux and Solder

It must be pointed out that, apart from the above table of fluxes, there are various prepared fluxes on the market, all being very efficient. These are generally in the form of a paste, such as Fluxite..

Zinc chloride and water (killed spirit) is a good general purpose flux. One can purchase the chloride in sticks or crystals, it being sold in weight. A sufficient quantity should be made up in a glass bottle with (preferably) a glass stopper. To use it, a small glass jar (a meat paste jar) is needed and a pencil brush, the former for holding a little of the flux and the latter for applying it to the work.

For general home work, the amateur will find that the best solder is tinsmith's fine grade. It is obtainable in ¼in. square sticks and is sold by weight.

The Best Size Bit

The best soldering iron to use (where light soldering jobs, such as wireless and other electrical work, is concerned) is one having a 4oz. bit. A lb. bit is more suitable for cake tins, trays, chimney cowls, etc. If one does much tinplate and wire work, an 8oz. bit is ideal.

Unlike the tinsmith, a plumber uses large quantities of solder at a time, apart from pure lead. This is often in the case of repairs to the large "feed" pipes at cisterns. The joint is always a "knobbly" affair.

Instead of a soldering bit, therefore a blow-lamp is required, including a melting pot or iron ladle. You see, after applying the solder to large pipes, re-heating and melting, by means of the blow-lamp, is necessary so as to ensure a sound joint, apart from "working" the molten solder neatly around the pipe joints.

At the same time, a good soldering iron is wanted for the small jobs, such as in respect to the joining of ⅜in. iron (or lead) gas pipes and so forth. To save frequent re-heating a fairly large soldering iron is used.

There are, of course, three kinds of soldering irons, such as the usual straight square-pointed type, the pencil-pointed-type and the "hatchet" or "inverted" type. These may be fire-heated, gas-heated or electric-heated.

Undoubtedly, the electric soldering iron is a good investment. It never becomes cold and is always clean and free from soot. Of course, to keep the point (bit) in good condition, it will need to be frequently filed, heated, then lightly filed and tinned, ready for the next job in hand.

Electric soldering irons are normally obtainable in various weights and shapes (including gas soldering irons). They are suitable for use with A.C. or D.C. current. Unlike the old-fashioned soldering irons, a steady temperature can be easily maintained throughout. Unfortunately, they are now almost unobtainable.

More Practical Hints

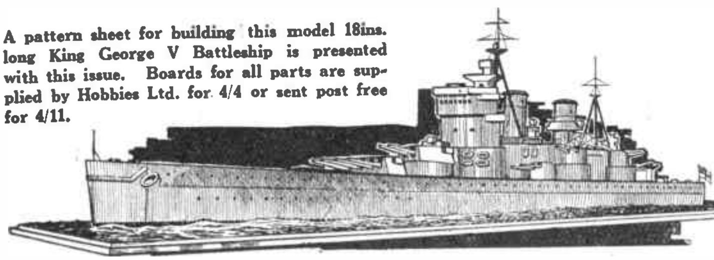
So far, we have not mentioned "cored" solder. This is a wire-like solder, having a "core" containing a suitable flux, such as resin. It is very handy for small work, especially if done with the aid of a blow-lamp. Often, the solder is just hollow in the centre or solid like a piece of wire.

To test the quality of solder, just bend it. If it crackles slightly, it is good quality stuff, containing a good percentage of tin in its composition.

It should also be mentioned that care must be exercised when acid fluxes are used. Being of a corrosive nature, any surplus left on the work is apt to "eat" into the metal. Be sure, therefore, to wipe away any remains of the flux after the work has been soldered. Avoid using such fluxes on any delicate work (electrical apparatus, scientific instruments, mechanical devices, etc.).

Waterline Model of a Battleship (No. 2480)

A pattern sheet for building this model 18ins. long King George V Battleship is presented with this issue. Boards for all parts are supplied by Hobbies Ltd. for 4/4 or sent post free for 4/11.



Following our locomotive, we have details for a

MODEL RAILWAY WAGON

IN our issue of March 24th we gave instructions for making a clockwork locomotive. This loco was of such size that we were able to suggest a good amount of realistic detail, and the model also ran on a simple track, or could be made to run on the ordinary floor surface if desired.

This week we are giving instructions for making an open 10-ton wagon to go with the loco. This unit is a useful addition to their rolling stock to this useful and workable scale.

The wagon details of course are worked out to the same scale as the loco, and a glance at the illustration of the finished wagon makes it clear as to its fine appearance. There are four thicknesses of wood used in its construction, 1/16in., ⅛in. and 3/16, and ¼in.

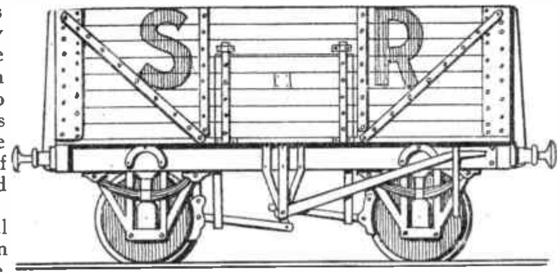
Panels of Wood

For the 3/16in. portions, one of Hobbies J3 panels will be found sufficient, while for the small amount of ¼in. stuff used one G4 panel is suggested. A small panel, one G2, should suffice for the ⅛in. thick pieces, and a piece of 1/16in. wood about the same size as the latter viz. 9ins. by 4ins. will do for all the thinner parts including the flanges for the wheels. A side view of the wagon with its appropriate scale drawn is given with it so the actual position of all parts may be made clear and where necessary, certain pieces scaled off and drawn out.

Included in one diagram, too, is a half-end view of the wagon and a half cross scetion of it through the middle. The latter is useful when the assembling is being carried out.

The construction of the wagon is made clear in Fig. 1 which shows it bottom upwards in the larger view. The frame consists of pieces D and E, fixed on the floor C.

The first parts to make up will be the sides A, measuring 9ins. by 2 13/16ins., and the ends B, 4⅜ins. long by 2 13/16ins. wide. Note that the ends go between the sides, and that to hide the nails or screws used as fixing there are angle plates made of stout cardboard glued on both sides and ends.



The smaller sectional diagram on the right in Fig. 1 shows the above details and the positions of most of the parts. Note here that the buffer plates D come flush with the end of the wagon B. The upright stiffening rails F on the ends are tapered slightly upwards and are spaced out as Fig. 1 shows.

The floor of the wagon fits inside the sides and the ends, the measurements for it being taken direct from the assembled parts. Having completed so far the box portion of the wagon, careful attention should now be paid to the details of the springs, wheel supports, etc.

Wheel Arrangement

Each wheel support, spring and cap overlay is made as shown at A, B and C respectively in Fig. 2. Parts A are ⅛in. thick, B ¼in. thick and C, 1/16in. thick. The springs are glued firmly to the supports, the axle holes of course being carefully placed to come exactly together, and the caps glued on after the axles and wheels are inserted.

All three parts—A, B and C—can be enlarged to full size from the squared diagram in Fig. 2, each square representing ¼in. Make a tracing of the outline of each of the three pieces and then transfer this outline four times on to the different thicknesses of wood. Next cut them out with a fretsaw, clean up and glue them together.

Fig. 2 clearly shows that the upper part of piece A is glued behind the side rail E and that the "flats" of the top of the springs come against the underside of these rails. This fixing is again seen in the cross section of the wagon.

The distance apart of the springs, etc. from centre to centre (the wheelbase) is 5 7/16ins. and this may be checked from the side view of the wagon.

Flanged Wheels

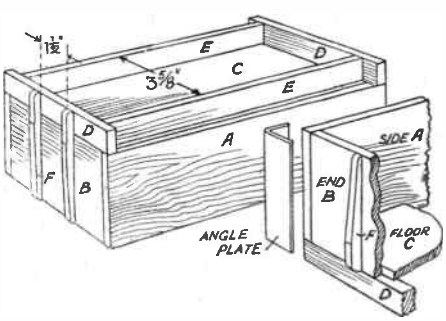
As the wheels are flanged to fit between the rails properly, we shall naturally require two thicknesses of wood for them. Four plain circles of wood, therefore, 1⅞in. in diameter must first be cut and a ¼in. hole made in the centre of each. On these discs will be glued similar circles of wood, 2⅛ins. in diameter and 1/16in. thick.

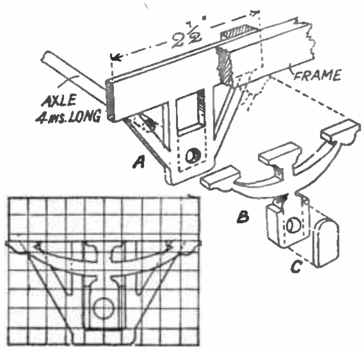
Holes ¼in. diam. will also be made in these and care must be taken in the gluing to get both holes exactly opposite so the axle will pass through and fit smoothly.

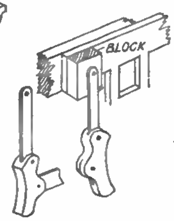
Cut two pieces of ¼in. round rod for the axles 4ins. long and see these pass freely throught the holes in the supports and springs. Rub the extreme ends for ⅜in. or so, with lead pencil to form a good running surface.

Finally, run the axles through the supports threading on the wheels so they come between the bearings. Run glue between the axles and the wheel flanges to fix the wheels and see during this process, that a measurement of 2⅞ins. is left between the inside of the flanges as seen in the end view and sectional diagram.

There are one or two details now to finish the wagon which will add and make all the difference to its final appearance. The box part of the







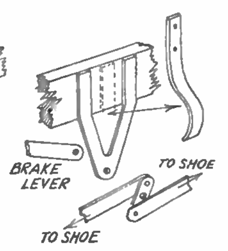
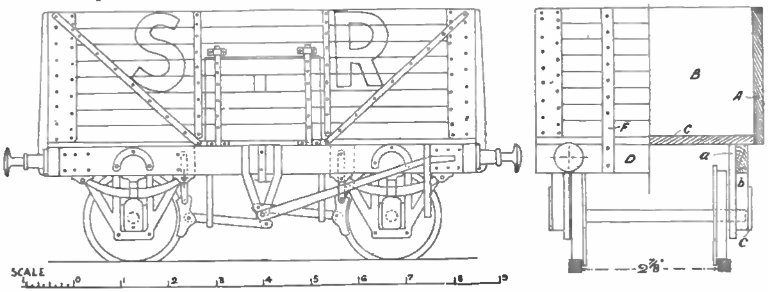


Fig. 1—An upside down view with end detail Fig. 2—Shape and fixing of spring Fig. 3—Brake shoe fitting Fig. 4—Brake bracket

wagon should be lined up to represent the planking. This can be done by running a steel point along a ruler placed at the proper intervals.

The strip iron running diagonally across the sides of the wagon and also that forming the hinges to the side doors can be represented by strips of tin holed and fixed with suitable fret pins. The sides and ends of the wagon should be painted brown and the underframe, springs and wheels black. The angle plates each corner of the box and the strip tin might also be painted black.



Side and end view with painted lines and scale

If it is desired to add brakes to the wagon to make the model as realistic as possible, the details given in Figs. 3 and 4 should be almost self-explanatory. Two small blocks of wood must be glued to the inside of the frame rails and in the position shown in Figs. 2 and 3.

To these will be hung the strip of metal supporting the brake blocks or shoes. These blocks are of wood shaped as shown, and slotted with it to take the ends of the metal strips.

The vee-shaped brake support and the brake levers (Fig. 4) are all made from strip tin. The actual lengths for these various units are scaled off from the side view of the wagon.

The short link connecting the brake levers is held to the vee support by a loose rivet so freedom of movement is allowed for if it is required to make the brakes to act. Two safety hooks are fitted near the brake shoes as shown in the side view.

All the rivets for the sides and ends and the angle plates can be represented by first lightly pricking in the holes in the proper places and by driving in ¼in. fret pins.

Now Ready

Readers who keep their Hobbies Weekly should obtain an Index to their contents. This saves a lot of time in sorting through back numbers and is always a useful source for ideas what to do next. The Index for 26 issues from October to March is now available for 10d. post free and is obtainable from The Editor, Hobbies Weekly, Dereham, Norfolk.

Index to Vol. 95

MISCELLANEOUS ADVERTISEMENTS, etc.

The advertisements are inserted at the rate of 3d. per word or group of letters prepaid. Postal Order and Stamps must accompany the order, and the advertisements will be inserted in the earliest issue. Fretwork goods or those shown in Hobbies Handbook not accepted. Orders can be sent to Hobbies Weekly, Advertisement Dept., as below.

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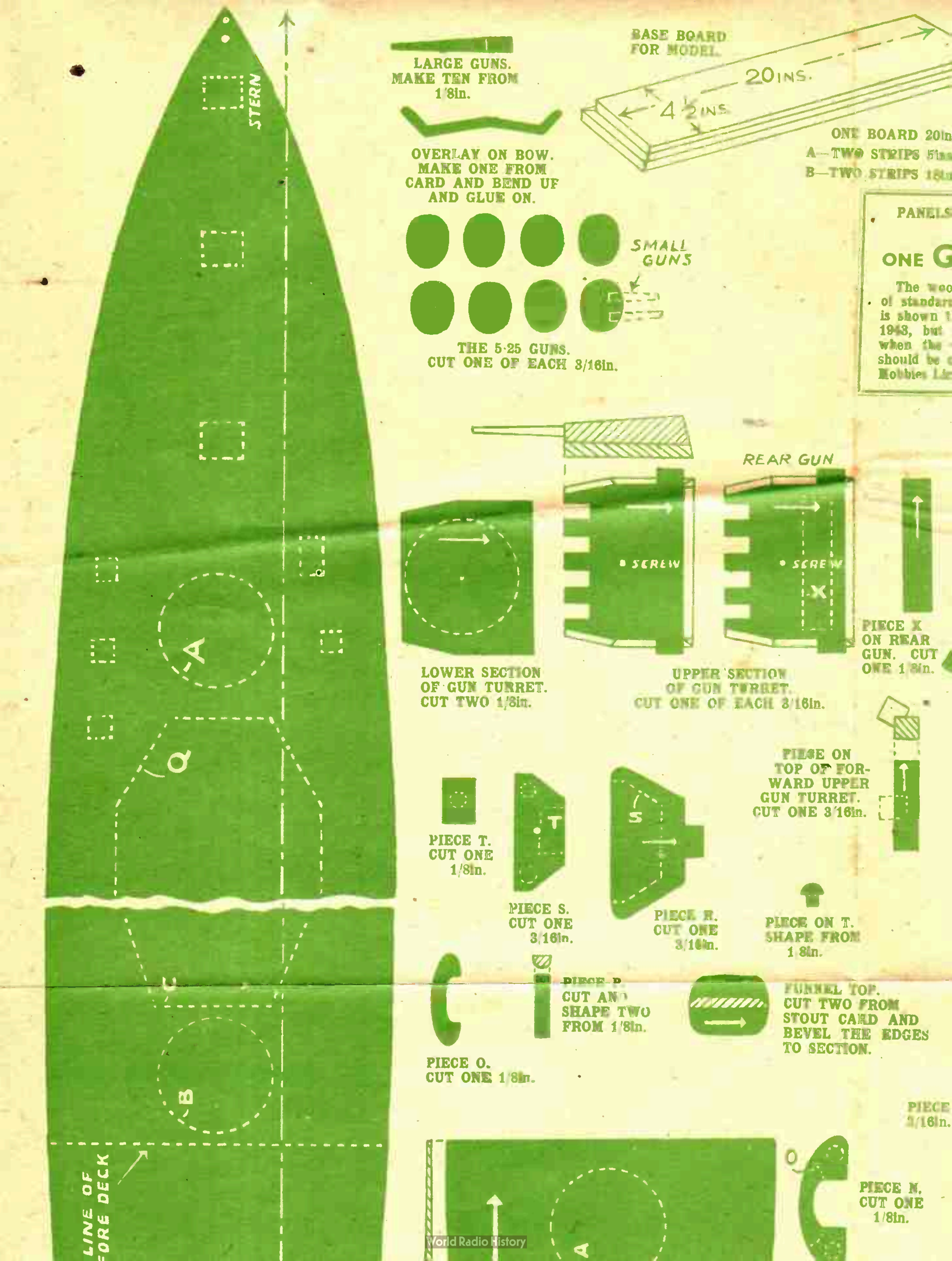
STERN
LARGE GUNS.
MAKE TEN FROM
1/8in.
BASE BOARD
FOR MODEL.
20INS.
4½INS.
ONE BOARD 20in
A—TWO STRIPS 5in
B—TWO STRIPS 18in
OVERLAY ON BOW.
MAKE ONE FROM
CARD AND BEND UP
AND GLUE ON.
SMALL
GUNS
THE 5·25 GUNS.
CUT ONE OF EACH 3/16in.
PANELS
ONE G
REAR GUN
SCREW
SCREW
X
A
Q
LOWER SECTION
OF GUN TURRET.
CUT TWO 1/8in.
UPPER SECTION
OF GUN TURRET.
CUT ONE OF EACH 3/16in.
PIECE X
ON REAR
GUN. CUT
ONE 1/8in.
PIECE ON
TOP OF FOR-
WARD UPPER
GUN TURRET.
CUT ONE 3/16in.
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S
PIECE T.
CUT ONE
1/8in.
PIECE S.
CUT ONE
3/16in.
PIECE R.
CUT ONE
3/16in.
PIECE ON T.
SHAPE FROM
1/8in.
PIECE P.
CUT AND
SHAPE TWO
FROM 1/8in.
FUNNEL TOP.
CUT TWO FROM
STOUT CARD AND
BEVEL THE EDGES
TO SECTION.
PIECE O.
CUT ONE 1/8in.
B
PIECE
3/16in.
LINE OF
FORE DECK
O
PIECE N.
CUT ONE
1/8in.
A

20INS.

indicate the direction of grain of wood.

ONE BOARD 20ins. by 4½ins. by 3/16in.
A—TWO STRIPS 5ins. by 1½ins. by ⅛in. } ONE LD6 PANEL.
B—TWO STRIPS 18ins. by ⅛in. by ⅛in. }

PANELS OF WOOD REQUIRED FOR THIS DESIGN

ONE G2 ONE K3 THREE LD6

The wood supplied for this design is composed of standard panels as detailed above. The price is shown in Hobbies Weekly, dated APRIL 28th, 1948, but is subject to change after that date, when the current edition of Hobbies Handbook should be consulted, or application made direct to Hobbies Limited, Dereham, Norfolk.

Hobbies DESIGN No. 2480 28-4-48

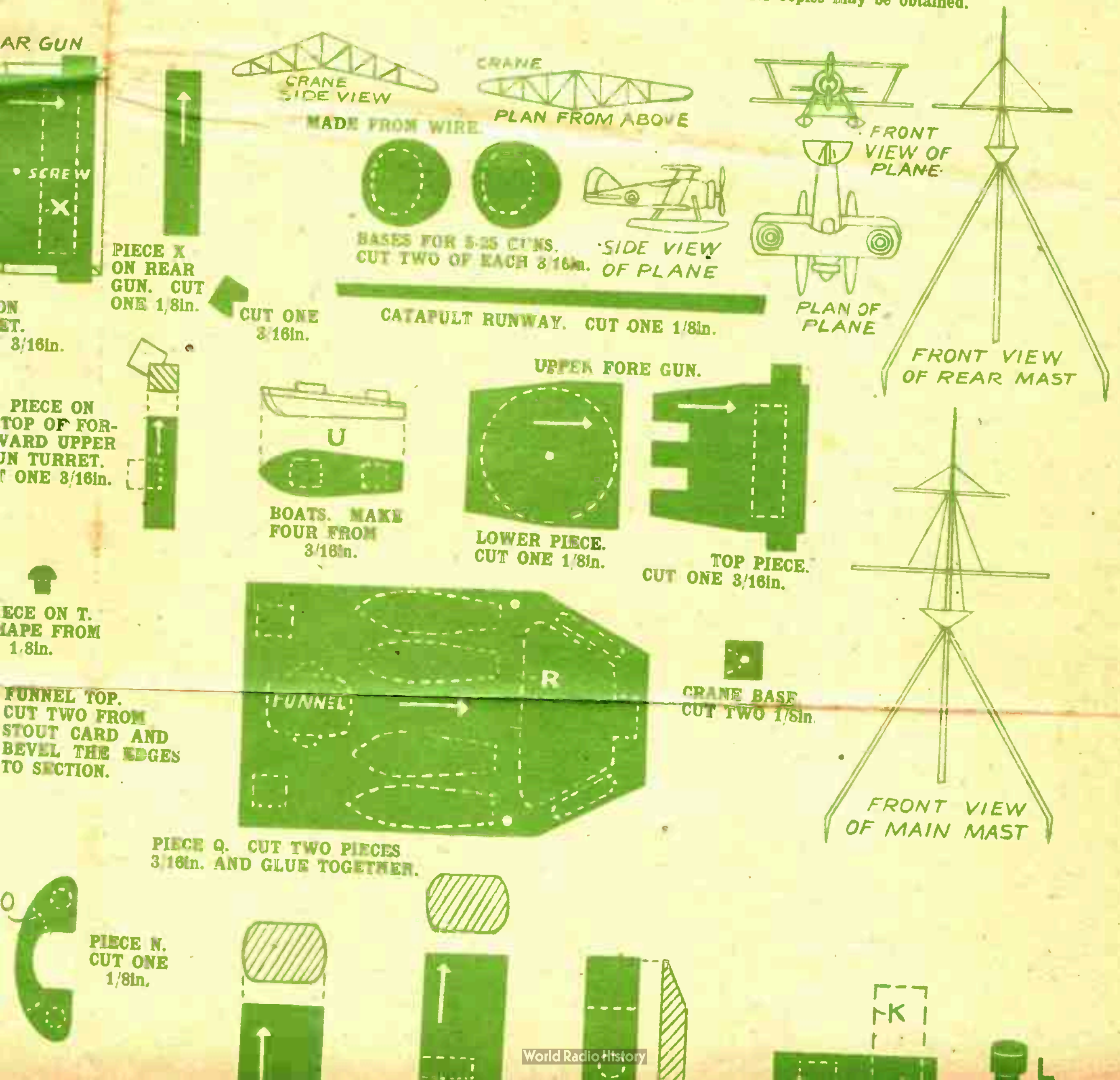
SUPPLEMENT TO HOBBIES No. 2480.

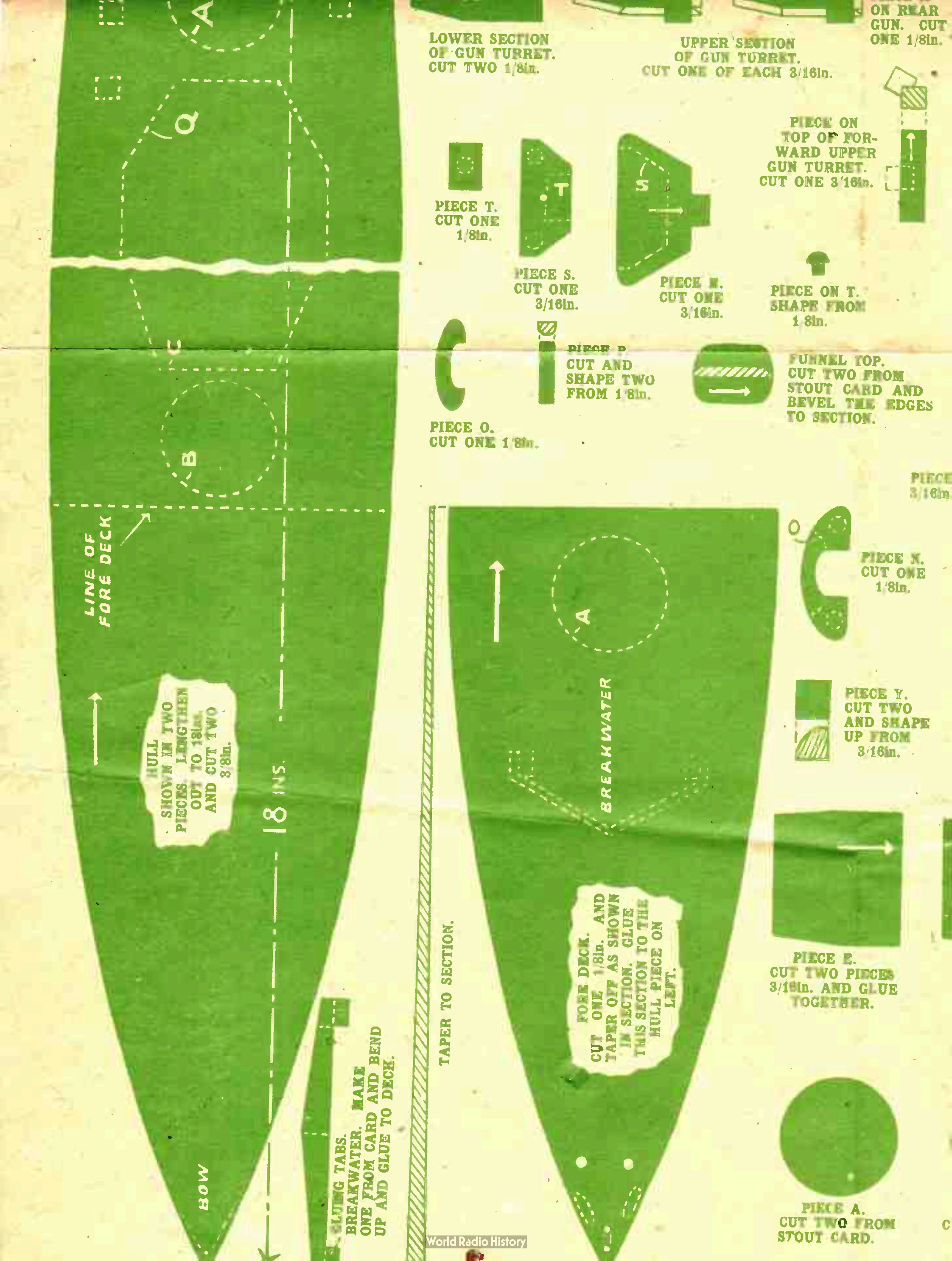
H.M.S. KING GEORGE V

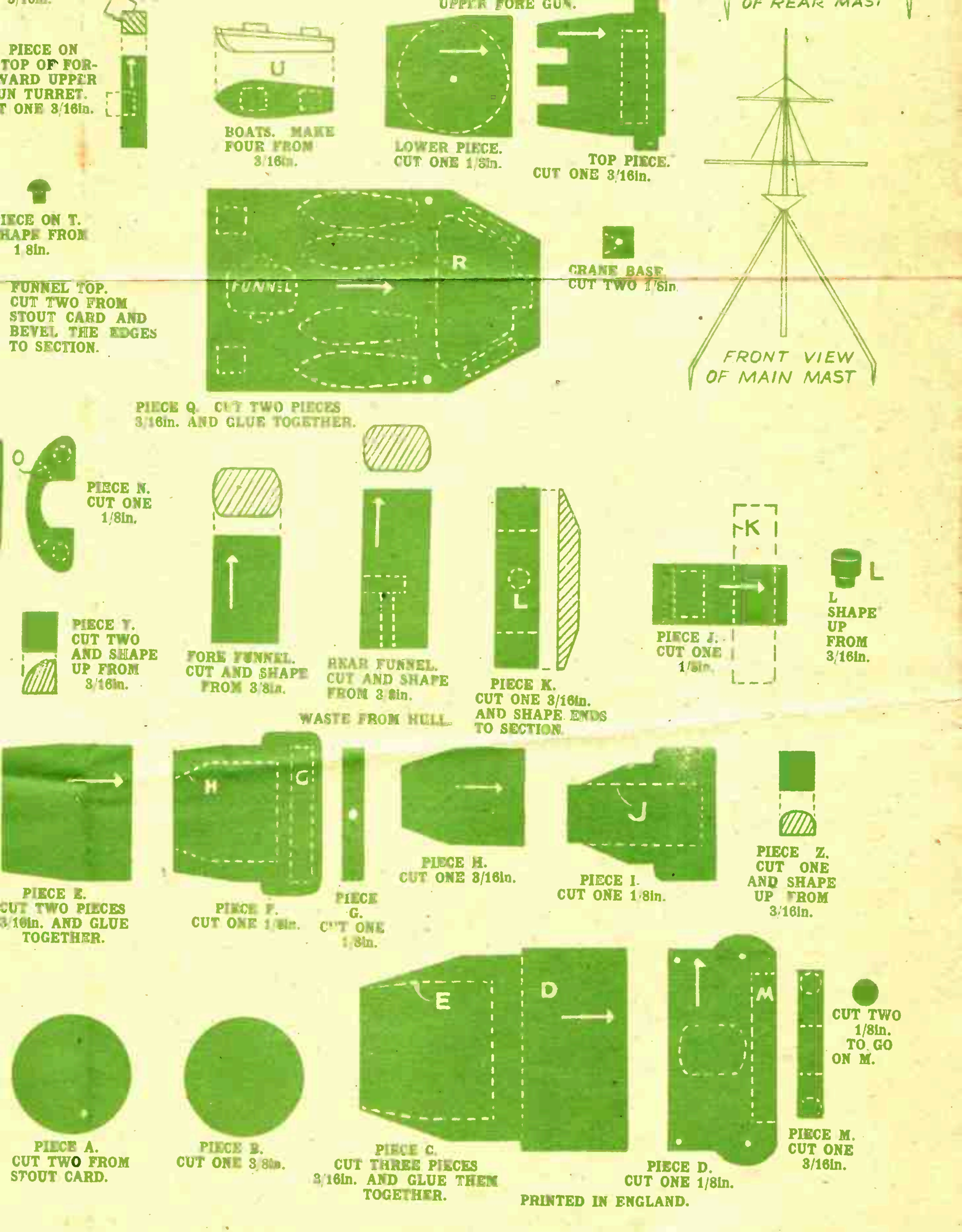
WATERLINE MODEL

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

SIZE OF MODEL WITHOUT BASE.
LENGTH 18ins.
BEAM 2¾ins.




ON REAR
GUN. CUT
ONE 1/8in.
LOWER SECTION
OF GUN TURRET.
CUT TWO 1/8in.
UPPER SECTION
OF GUN TURRET.
CUT ONE OF EACH 3/16in.
PIECE ON
TOP OF FOR-
WARD UPPER
GUN TURRET.
CUT ONE 3/16in.
A
Q
T
S
PIECE T.
CUT ONE
1/8in.
PIECE S.
CUT ONE
3/16in.
PIECE R.
CUT ONE
3/16in.
PIECE ON T.
SHAPE FROM
1/8in.
C
PIECE P.
CUT AND
SHAPE TWO
FROM 1/8in.
FUNNEL TOP.
CUT TWO FROM
STOUT CARD AND
BEVEL THE EDGES
TO SECTION.
PIECE O.
CUT ONE 1/8in.
B
PIECE
3/16in.
LINE OF
FORE DECK
O
PIECE N.
CUT ONE
1/8in.
A
BREAKWATER
PIECE Y.
CUT TWO
AND SHAPE
UP FROM
3/16in.
HULL
SHOWN IN TWO
PIECES. LENGTHEN
OUT TO 18in.
AND CUT TWO
3/8in.
18 INS.
PIECE E.
CUT TWO PIECES
3/16in. AND GLUE
TOGETHER.
TAPER TO SECTION.
FORE DECK.
CUT ONE 1/8in. AND
TAPER OFF AS SHOWN
IN SECTION. GLUE
THIS SECTION TO THE
HULL PIECE ON
LEFT.
BOW
GLUING TABS.
BREAKWATER. MAKE
ONE FROM CARD AND BEND
UP AND GLUE TO DECK.
PIECE A.
CUT TWO FROM
STOUT CARD.



3/16in.
UPPER FORE GUN.
OF REAR MAST
PIECE ON TOP OF FORWARD UPPER GUN TURRET. CUT ONE 3/16in.
U
BOATS. MAKE FOUR FROM 3/16in.
LOWER PIECE. CUT ONE 1/8in.
TOP PIECE. CUT ONE 3/16in.
PIECE ON T. SHAPE FROM 1/8in.
R
FUNNEL
CRANE BASE CUT TWO 1/8in.
FUNNEL TOP. CUT TWO FROM STOUT CARD AND BEVEL THE EDGES TO SECTION.
FRONT VIEW OF MAIN MAST
PIECE Q. CUT TWO PIECES 3/16in. AND GLUE TOGETHER.
O
PIECE N. CUT ONE 1/8in.
K
L
L SHAPE UP FROM 3/16in.
PIECE Y. CUT TWO AND SHAPE UP FROM 3/16in.
FORE FUNNEL. CUT AND SHAPE FROM 3/8in.
REAR FUNNEL. CUT AND SHAPE FROM 3/8in.
WASTE FROM HULL.
PIECE K. CUT ONE 3/16in. AND SHAPE ENDS TO SECTION.
PIECE J. CUT ONE 1/8in.
H
G
J
PIECE E. CUT TWO PIECES 3/16in. AND GLUE TOGETHER.
PIECE F. CUT ONE 1/8in.
PIECE G. CUT ONE 1/8in.
PIECE H. CUT ONE 3/16in.
PIECE I. CUT ONE 1/8in.
PIECE Z. CUT ONE AND SHAPE UP FROM 3/16in.
E
D
M
CUT TWO 1/8in. TO GO ON M.
PIECE A. CUT TWO FROM STOUT CARD.
PIECE B. CUT ONE 3/8in.
PIECE C. CUT THREE PIECES 3/16in. AND GLUE THEM TOGETHER.
PIECE D. CUT ONE 1/8in.
PIECE M. CUT ONE 3/16in.
PRINTED IN ENGLAND.

Waterline Model in Wo

KING GE

THE patterns on the other side of the sheet provide the opportunity of building a waterline model of the famous King George V. battleship. It stands on a baseboard just over 1ft. 8ins. long, the model itself being 18ins. with a beam of $2\frac{3}{8}$ins. All the parts are made in wood, other than the little fittings of wire, nails, cotton, etc.

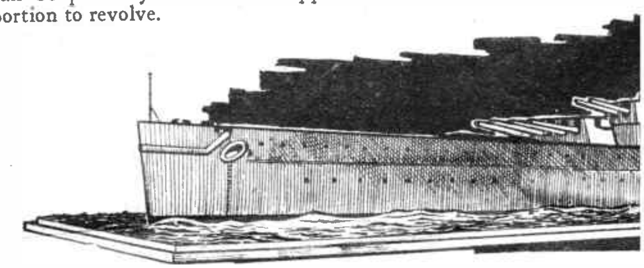
A parcel of wood is provided for all parts, and the panels shown are planed to the correct thickness. The various pattern pieces are marked out direct on to the wood to leave the pattern sheet for reference during the building.

The finished model, of course, is painted, and if possible an imitation "sea" put on to the baseboard. Notice that the hull is shown in two pieces on the pattern, and these must be extended so there is 18ins. distance between bow and stern. Having cut out the parts with the fretsaw, they are shaped and carefully cleaned before being glued in position.

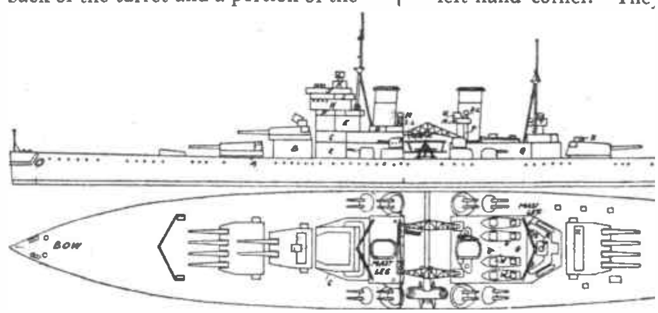
Reference to the side view and plan herewith should make the construction simple. The parts are also lettered on the actual pattern with dotted lines given on them to indicate where the adjoining pieces are to be put. Notice—having cut the hull—that the bow end slopes slightly forward upwards, whilst the stern is vertical.

The foredeck, too, must be tapered slightly from the bow end towards amidships. The taper is shown by the side section next to the pattern and can be done with coarse and fine glasspaper on a wooden block. Notice, too, the double line of the gun turrets along each edge. This is where a slight chamfered slope is cut.

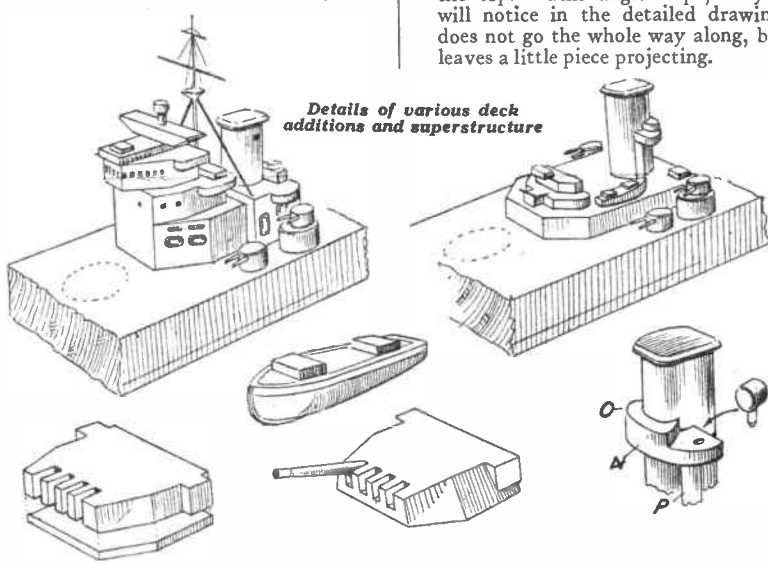
The gun turrets have to be shaped carefully from two pieces glued together. The lower piece is a plain part, and the position is shown upon it through which a flat headed screw can be put if you want the upper portion to revolve.



This upper portion of the gun turret is first cut to the outer lines shown on the pattern part, then the back of the turret and a portion of the sides has to be sloped inwards towards the top. This angle slope, as you will notice in the detailed drawing, does not go the whole way along, but leaves a little piece projecting.



Side view and plan of deck showing position of par



Details of various deck additions and superstructure

The front part is se
the gun barrels which
$\frac{1}{8}$in. wood to the shape
left-hand corner. The

and tapered towârds tl
good plan is to cut then
leaving a piece of the
whilst you glasspaper
to the shape required.

These guns are glued
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may like to put a thin
right through to make
pivot them for raising a

These two gun turret
fixed to the deck fore a
there is a twin turret a
at the bow. The mast i
carefully bent to the ex
length shown on the
bottom ends are filed t
then driven into the pa
shown on the side view.

Various small search
cut out from tiny wood
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On the sheet you ha
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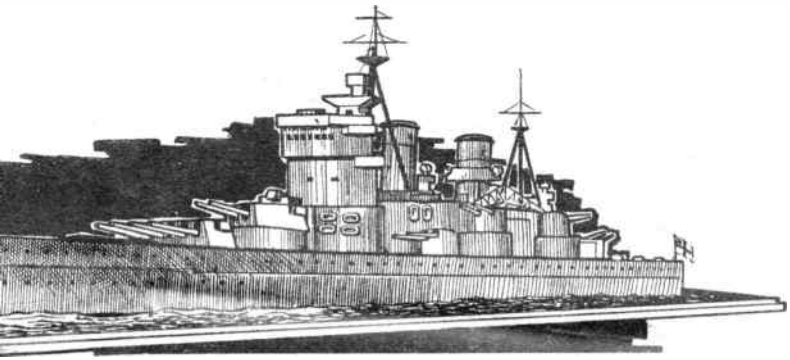
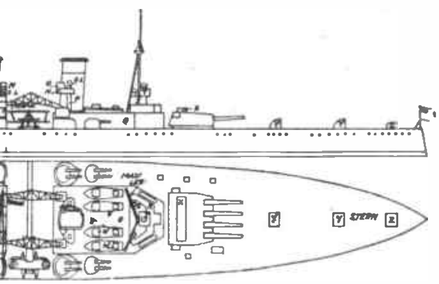
G GEORGE V



The front part is serrated to take the gun barrels which are cut from ⅛in. wood to the shape shown in the left-hand corner. They are rounded



eck showing position of ports

and tapered towards the muzzle. A good plan is to cut them in stick form leaving a piece of the stick to hold whilst you glasspaper one end of it to the shape required.

These guns are glued in the openings and, of course, if you are clever you may like to put a thin piece of wire right through to make it possible to pivot them for raising and lowering.

These two gun turrets complete are fixed to the deck fore and aft, whilst there is a twin turret above the one at the bow. The mast is made of wire carefully bent to the exact shape and length shown on the sheet. The bottom ends are filed to a point and then driven into the parts lettered as shown on the side view.

Various small searchlights can be cut out from tiny wood, and put on to short headless nails in the position shown. The pinnaces are shaped as shown and then added to the top of piece Q.

On the sheet you have a front and side view of the plane which can easily be cut from card and fixed together with cord or thin wire. Delicate fingers will be required, but no doubt many will make an excellent replica.

Two cranes are fixed to the part Q where a base is provided each side of the funnel. These cranes are also made in thin wire, a lattice work of cord being drawn round them as shown in the side and top view.

The crane lies in position across the plane runway which is a strip of wood glued to the main deck between the two funnels. It can be seen on the plan view where the plane is stood in position on the port side. Note, here, too, the crane is fixed near the aft funnel and the jib lies on the opposite side.

A good plan is to complete all these various parts and glue them in place with just a touch of glue. Do not, however, fix them finally until the painting of the hull has been completed

The main work of the ship all over is battleship grey, the lining of the deck is in very thin black lines about 1/16in. apart, and the small portholes, anchor holes, ventilator fronts, etc. can also all be drawn on in black.

The portholes can be white if you wish, but should really be jet black, and are added by the merest touch of the brush or stabbed on by dipping the end of a circular matchstick into the black paint and transferring to the side of the hull. Mark these portholes in a line before you start to do them.

Get the hull painted and dry before you finally glue on the various parts of the superstructure, and then finally paint these according to their needs.

The whole ship is then glued to the baseboard and an imitation sea washed on it in paint.