Hobbies WEEKLY

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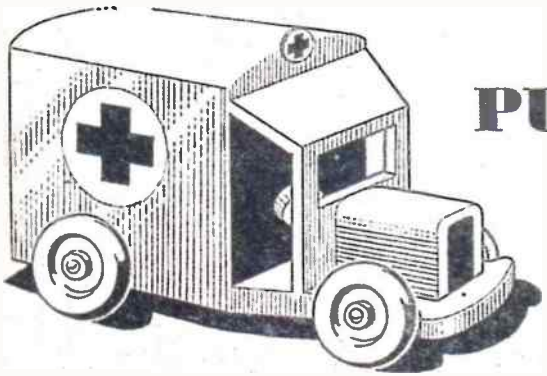


Details for making a

PULL-ALONG TOY AMBULANCE

PULL-ALONG toys always appeal to small children, and this toy ambulance will be a welcome addition to their collection. Like most toys of its kind, there is nothing difficult about its construction and yet when made it will be found sturdy enough to withstand the hard knocks it is bound to receive.

Services Type

In design it follows closely on the type of ambulance used by the services, and painting the model will not, therefore, present any difficulty as the main body colour is the same all over. More about this later.

First transfer the outlines of the patterns to the necessary wood. Avoid pasting the pattern down on to the wood as this is seldom a successful procedure. Instead, trace the outlines on to the wood by means of a piece of carbon paper inserted between the wood and the design sheet. This done, begin construction by cutting the base piece (A) from ¾in. wood. Next cut the two side pieces (B) from ¼in. wood and glue and screw them into the recesses either side of the base.

Now cut piece (C) which forms the back of the cab, and glue this into position in between the two sides. Small fretscrews can be used to advantage to make the toy stronger. These small fret-screws, incidentally, should be used elsewhere throughout the model wherever practicable, as the resulting ambulance will then withstand as rough a treatment as it is likely to receive.

A Design Sheet for this splendid toy is given FREE TO-DAY

Having got piece (C) into position, cut and chamfer the roof (D) and secure this in position. In case of any difficulty regarding the placing of this part, or any other, the two diagrams on the front of the design sheet should be referred to, as they give a clear picture of exactly where each piece belongs.

The seats inside the ambulance are made from the two pieces (E) and the two pieces (F) which are all from ¼in. wood. They are plain rectangular pieces, and they are glued in position as shown on the design sheet, i.e., with the pieces (E) flush against either wall and the pieces (F) angled to them so that they form in shape an inverted L.

The Doors

Now we come to the doors at the back of the ambulance. These are the pieces (G). In the first instance, cut out the whole piece comprising both doors, and then separate them down the middle on the line shown on the design sheet. They should be cut a little on the full side so that when in position and closed they will form a tight fit. The outer edge of each door should be rounded to the section shown on the design sheet. Now drill holes through the rear of the base at each corner and also at each corner of the rear of the roof. Through these run suitable pivots (fret pins) and hammer them into the top and bottom edges of the doors. You will then have

two doors firmly secured by the pins yet moving freely in the pivot holes, so that they can be opened and closed easily.

The idea of this arrangement can be gathered from the drawing of the back of the ambulance shown on the design sheet. Before testing the doors for fit when closed, run a small round-headed screw into the right-hand door about half way up and about ¼in. in from the centre edge. This screw will then represent the door handle and will enable the doors to be opened easily.

Now test the doors for fit. They should close in such a manner that when pushed to they fit quite firmly and stay closed. If they are too tight, glass-papering the centre edges will soon remove any excess not required. But do not overdo this or you will have doors which flap open at the least provocation and refuse to stay closed at all.

The after-part of the ambulance is now complete, and you can proceed with the construction of the bonnet and cab. The bonnet comprises the pieces (H) (2), (I) and (J). Pieces (H) are the sides of the bonnet, piece (I) is the radiator and the piece (J) the top of the bonnet. Cut them carefully and chamfer piece (J) according to the section shown.

The front of the cab, piece (M), and the roof piece (N) should also be cut now before the bonnet section is glued into position, and this will ensure correct placing of the parts when assembled. Note that piece (M) is chamfered on its two outer edges to conform to the shape of the chassis, and on the top edge to accommodate the slope of the roof. The roof, too, is chamfered, but in this case the chamfering is confined to the leading and rear edges, and is designed to ensure that the roof fits flush against the back of the cab and forms a flush face with piece (M) when it is in the sloping position seen in the drawing.

After these parts have been tested for fit, and before they are glued into position, cut the steering column piece

A COMPLETE KIT FOR ONLY 6/-

For making this toy ambulance from Design No. 2934, a complete kit of materials, including wheels, and screws for fixing them, can be obtained from any Hobbies Branch, or post free from Hobbies Ltd., Dereham, Norfolk, price 6/-, including tax.

(K) and the steering wheel (L). The column is cut from ⅜in. wood and the steering wheel from ¼in. Glue and screw the steering column in position on the inside of piece (M) and secure the steering wheel by a suitable pivot.

The bonnet and cab assembly can now be secured into position according to the dotted lines seen on the base piece on the design sheet. Reference to the constructional drawing on the design sheet may also prove helpful.

Painting

The ambulance is now complete except for the wheels, but these are not added until after the model has been painted. As indicated earlier, painting is a fairly simple matter as the main bodywork is the same colour over all.

If you wish the ambulance to be one as used by the Army, this main colour should be olive green. If the Air Force, then the colour is R.A.F. blue. Those used by Naval shore stations are, naturally, dark blue.

Whichever main colour is chosen is used for the whole of the body, avoiding the rings on the two sides and the doors at the back. When the main colour is dry, these rings are painted white, and when these in turn are dry, the familiar red crosses are painted in them.

Before painting commences, of course, the worker should ensure that the finished woodwork is nicely smooth, and a coating of a good grain filler is advisable if the paint is to go on smoothly. After the first painting, another coat may be necessary to get the desired professional finish, and when the worker is quite satisfied that the result is perfect, the whole model should be given a coat of clear varnish.

When all is dry, a small screw should be placed in position under the front of the main frame. This is used to secure the string for pulling the toy along.

The last job is to screw on the 1¼in. diameter wheels. Those working from a Hobbies kit will have been supplied with four black wheels, but if the constructor is using his own material, the wheels he makes should, of course, be painted. To be sure that the wheels fit evenly and properly, the holes for the screws should be drilled. Make sure that the drill is slightly smaller in diameter than the screws to be used, and that the holes are bored perfectly square into the chassis. Nothing looks worse than a toy on which the wheels fit at a variety of angles or on which only three of the wheels contact the floor. This latter fault, of course, is not brought about by drilling at an angle, but by drilling one hole in the chassis slightly higher than the others.

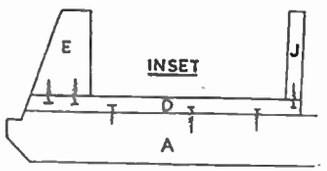
Modern Toy Engine—(*Continued from page 259*)

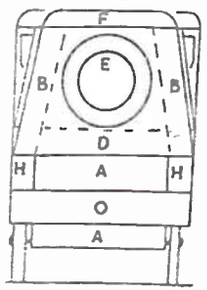
If it is available, a coat of red lead priming paint will be a great help, but if this paint is not about, aluminium paint will do almost as well.

Now for the painting generally. The original was painted olive green with the stripes (a) (a) (a) picked out in yellow. The shaded parts (b) (b), the chassis and wheels were painted black with the buffer beams in red. The boiler front was black, the rings being scored on the wood with the point of a pair of dividers. The cab windows are painted; they are not cut out. Readers may have their own ideas on colour schemes and blue or even black with red lining, should look equally effective.

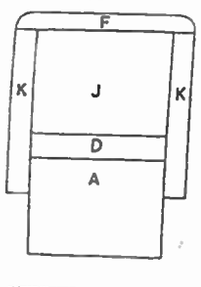
Whichever colour scheme is chosen, two or even three coats of paint are recommended before applying the finishing coat of enamel. Give a good rub down with glasspaper between each coat and you will soon have a surface which will be a credit to you.

The three stripes are best put on after the boiler has been painted and is quite dry. For each of the three stripes, stick on to the boiler two strips of adhesive paper separated by a gap of ⅛in., so that the gap will form the upper and lower edges of the painted stripe. It is then a simple matter to apply the yellow paint between and slightly over the edges of the paper strips. When the paint is dry, the paper strips may be damped and removed, leaving straight and clear-cut lines of yellow paint on the surface of the model.

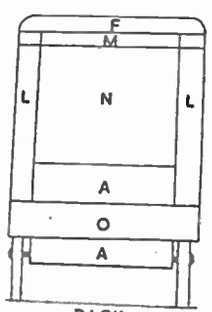




FRONT



SECTION OF CAB



BACK

How to make A MODERN TOY ENGINE

READERS will see from the diagrams that the toy described in this article has two great advantages—it is simple to make and most effective in appearance. As for the design itself, it is as modern as the age and it seems difficult to imagine the boy who would not be delighted to receive one of these streamliners as a present.

Construction

The best way to start is to gather the required material together and cut it to the sizes and shapes shown in the part list and diagrams. This presents no difficulty, as only the most simple sawing and planing operations are involved.

The boiler front (E) and the cab end (J) should be screwed and glued into position on the base (D) and the whole assembly (E), (J) and (D) secured with two or three good screws to the chassis (A) as shown in the small inset diagram.

All the joints in this model may be screwed and glued but care must be taken to ensure that the joints are true and square and that the screw heads are countersunk ⅛in. below the surface.

Construction may be continued by fitting the boiler sides (B) to (E), (D) and (J)—the top and bottom edges of (B) being planed so that they are horizontal when the boiler sides are fitted at the inclination shown in the front elevation.

Next fit the tender front (M), the back (N) and the sides (L), again screwing and gluing the various parts in their correct positions. The fitting of (M) and (N) involves the countersinking of the chassis (A) to the extent of at least ⅛in. to reduce the thickness of wood through which the fixing screws would otherwise have to be driven.

The top (F) may next be fitted, and finally the 'blinkers' (C), the overlays (H), cylinders (G) and the buffer beams (O).

The wheels may be made either from discs of suitable size cut and smoothed at home or bought ready made.

PART LIST

(A) Chassis (1)—21ins. by 3ins. by 2ins.
(B) Boiler sides (2)—*10½ins. by 3ins. by ⅛in.
(C) Blinkers (2)—*2ins. by 2ins. by ⅛in.
(D) Boiler base (1)—*11ins. by 3ins. by ⅛in.
(E) Boiler front (1)—*2½ins. by 2ins. by 2ins.
(F) Loco. top (1)—*14ins. by 4ins. by ⅛in.
(G) Cylinders (2)—1½ins. by 1in. by ⅛in.
(H) Overlays (2)—1in. by ⅛in. by ⅛in.
(J) Cab end (1)—2ins. by 3ins. by ⅛in.
(K) Cab sides (2)—*2½ins. by 3½ins. by ⅛in.
(L) Tender sides (2)—*7ins. by 3½ins. by ⅛in.
(M) Tender front (1)—3ins. by 2½ins. by ⅛in.
(N) Tender back (1)—3ins. by 2½ins. by ⅛in.
(O) Buffer beams (2)—4ins. by ⅛in. by ⅛in.
(P) Driving wheels (6)—2½ins. diam.
(Q) Small wheels (8)—1½ins. diam.
*Sizes before final shaping.

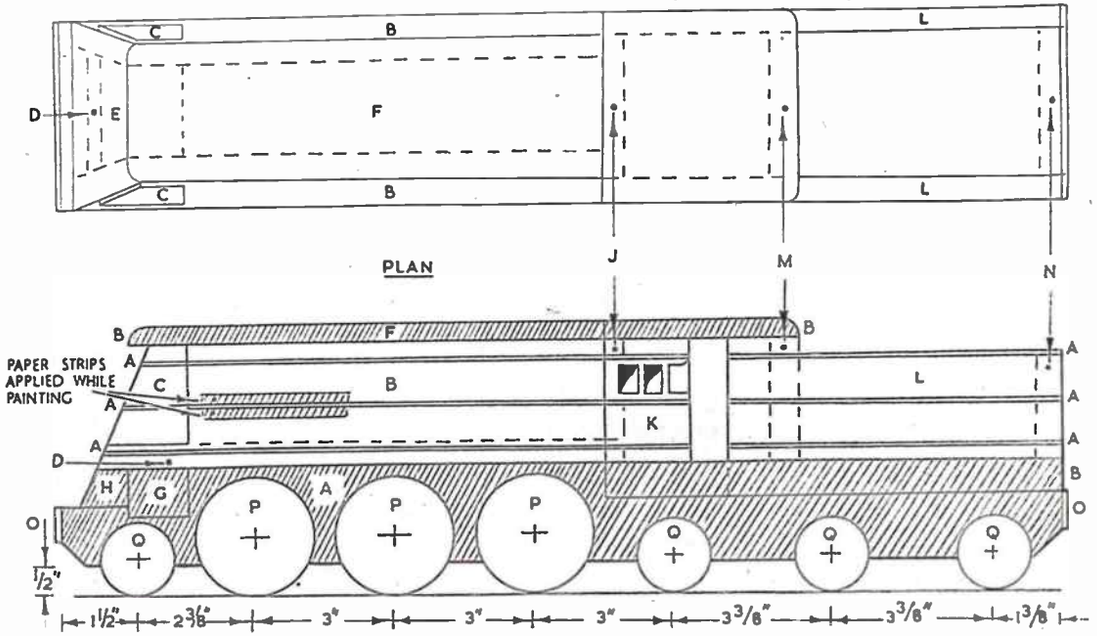
Finishing Off

First give a good rub down with glasspaper to remove any tool marks and other blemishes which if left would mar the smoothness of the finished line. This is particularly important in a model of this kind with long flowing lines and nothing in the way of ornamentation to break the surfaces.

Wood filler will need to be applied particularly to the holes left as a result of countersinking. If these are too deep to fill easily with wood filler, a spot or two of plastic wood will be helpful.

Glasspaper again after the wood filler has dried, but this time use a fine paper to get a good surface.

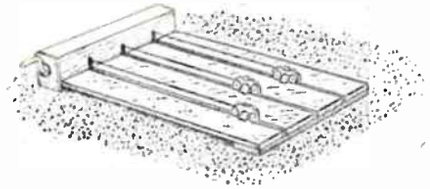
(*Continued foot of page 258*)



SIDE ELEVATION

Ideal for parties—a

RACE GAME



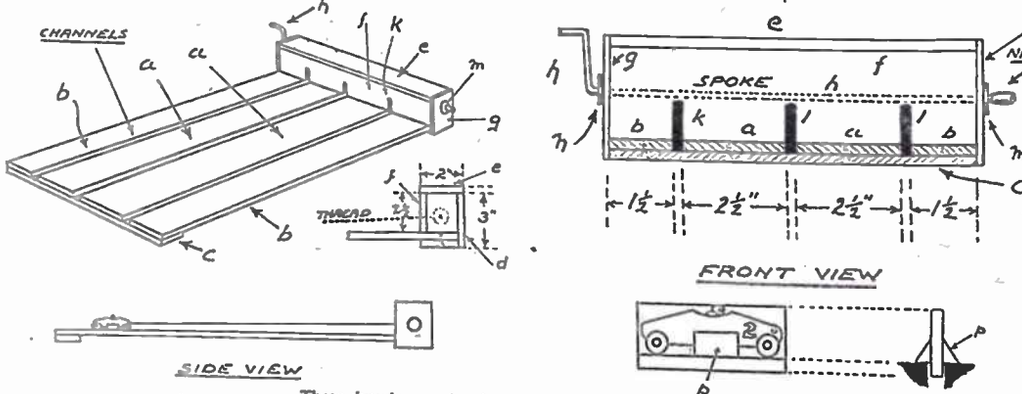
HERE is an excellent race game to give fun at parties, etc. There are three motor-cars fastened by threads of the same length to a spindle. When this is turned the lengths wind on, but never at an even rate as they pile up and fall away erratically. Also there is a varying elasticity and these two factors together make the motors never move at the same rate in any two races, thus one can never tell which is going to win till near the end. The winding on also is slow and a race takes quite a longish time.

To make the game there are required: two strips (a) 2¼ins. wide and 2ft. long, two strips (b) 1¼ins. wide and 2ft. long, both ¼in. thick, and two strips (c) 8¾ins. by 2ins. by ¼in. These form the base. Also needed are three strips, 3ins. by 8¾ins., 2ins. by 8¾ins. and 2¼ins. by 8¾ins. respectively for the winding box at the end, and two rectangles (g) 3¼ins. by 2ins. of thin plywood. The three main pieces for the winding box are shown as (d), (e) and (f) and at the base, strips are ¼in. thick. Lastly we need a heavy-gauge cycle spoke, a reel of thread, some ¾in. screws and a few odd pieces of ¼in. wood for the cut-out cars.

First fasten the strips (a) and (b) to the cross-pieces (c) as shown, so that there is a ¼in. channel between each strip. Use a screw at each point of intersection, taken up from below through the cross strips. Countersink the heads so that the base will stand evenly, and if in doing this the points slightly break the upper surface of (a) and (b), level off with a file. With care, however, the surface will not be broken, but you are working to fairly fine limits. Together these pieces form the 'speedway' and should be in the nature of a level platform with three slots of equal ¼in. width running from end to end.

The winding box can now be fitted. First, however, bore a hole in the middle of each end-piece to take the spoke (h), while in the 2¼in. strip which is to be the front, cut three narrow slots (k) terminating 1in. up from the lower edge and directly above the channels in the base. These are to take the threads and should have rounded edges.

Put together the back (d), top (e) and one end piece to start with. Now bend the spoke to form a simple handle at the end furthest from the nipple and adjust so that the nipple end will protrude about ¼in. at the other.



These drawings make the construction and operation clear

The threads also must be attached at this juncture. This is done by filing a small flat opposite each slot position, and after well gluing the end of the thread, securing it with a clove hitch knot, and then while the glue is still damp, winding on a length. When dry each thread will be very firmly attached, which is important as there must be no suggestion of slip when the spindle is turned.

All this being done, slip the second end of the winding box over the cranked end of the spoke, put the nipple end through the further side and complete everything with the addition of the front (f)—the ends of thread being brought through the slots. The parts are all joined by the ¾in. screws and better running is obtained if washers are inserted at (m) and (n).

Finally comes the making and fitting of the motor cars. The cars are cut-outs from any odd pieces glasspapered down to about a ⅛in. thickness so that the lower edges will fit in the base channels and easily slide along. To the sides of each car triangular pieces are glued as (p). These slide along the surface of the base and keep the cars upright. Colour the cars green, red and yellow respectively and mark in the driver and other details in black. Give each car a number or letter in white.

The threads are attached through holes in the bonnets. It is essential to see that the lengths are all the same and to this end the thread is taken through, brought a little way along itself and tied on to itself by a simple single knot. This it will be found gives a stiff slip knot and the position of the car in question can be adjusted by lengthening or shortening the loop.

To look well and be in tune with the coloured cars, the base should be painted green and the winding box any contrasting tint you have to hand.

The speedway is now complete. Youngsters will just like to see the cars moving forwards while older children can make a game out of the races by the losers paying forfeits in the way of counters into some centre pool. Each player can be given a definite number of counters to start with—coloured discs of card will do well—and the player to have the biggest number of counters at the end of a set number of races is the winner. Older persons will also readily find their own way of using the racing cars.

After each race the cars are readily reset for the next by giving them a steady pull—the spindle being allowed to twirl round untouched. (230)

A keen fisherman hands on some

TIPS FOR WINTER ANGLERS

THERE is much fishing to be done until the end of February. Indeed, many old anglers can remember when they made the best catches of the season during the late winter period, January and February.

Your winter fish is the chappie to make the line rattle in the rod-rings as he romps around in the greeny-brown water. Frequently, winter roach, chub, and perch are real rod-benders, to say nothing of the lithe winter pike. Provided always that the water is in fishable condition (heavy floods put paid to sport for a time) there is no reason why the enthusiast should not be as busy at this season as in summer.

Winter 'Swims'

Remember, fish have their winter quarters as well as their summer haunts. Weather and water temperatures play an important part with fish in the selection of their particular haunts at different seasons. In winter they seek the more sheltered and deeper 'swims'. Chub, for instance, haunt the deeper waters now, near the roots of trees, under overhanging bushes, in holes and eddies at bends and corners of the river. Roach seek the shelter of the deeps. In frosty weather perch gather in holes. After a flood they pack together at dyke-ends and in sheltered eddies; perhaps they will have been on short commons whilst the flood raged, and are hungry.

Thus, when the angler comes along and has the good fortune to drop a bait into their temporary quarters, he is in for a bit of sport. Pike seem more active as the winter progresses. If waters are not too discoloured with soil washings due to much rain, a turn with the pike-rod may well be worth-while. They haunt snug holes and 'lay-ups' under shelving banks. An eddy where the water is deep, and protected by bush, old willow tree, or clay bank, and near beds of rusting sedges which provide some form of shelter, are all good spots to try.

Shelter for Angler

During winter the angler as well as the fish looks for a bit of shelter, such as a tree, a bush, wall, or a fringe of tall rushes. Not only does such shelter protect the angler from the cold wind, but it also frequently keeps the water in the adjacent 'swim' nice and calm even when farther out in the stream the water is choppy.

Always try to have the wind at your back, and if a friendly tree trunk is handy, all the better. We recall one swim which had a willow tree with a hollowed-out hole right near the edge of the water—you could shelter in it and fish as snug and warm as could be desired; but you do not find one like that at every bend in the river.

It is a good idea to rove from one likely spot to another on a winter day's outing, trying all holes and corners and slow eddies under the bush-hung banks for perch and chub. If the river is in flood, but not over the banks, the angler should drop his bait into each promising little eddy inshore, and in every hole where the water steadies in its headlong rush. A good spot is found at a bend, where the water eddies round and round under a bank, fish it with red worm for bait, and you may be surprised at your 'luck'—dace, chub, perch, and roach may be there—and eager to sample a juicy titbit.

Keeping Baits

Useful baits for winter are maggots and worms. It is a good plan to lay in a stock of maggots and put them in one or more tins having good-fitting lids pierced with a few airholes for ventilation. Three-parts fill the tin with bran and put in a supply of maggots. Then bury the tin in the garden, under about 6ins. of soil. They will keep for some weeks like this, but may seem rather 'dormant' when you take out a supply for an afternoon's fishing.

However, a little heat will soon set them wriggling and lively. All you need do is to carry the bait-tin in your trouser pocket, when your own bodily heat will warm up the baits by the time you reach the waterside. Some recommend putting scraps of fat or meat in among the bran, but it is not really imperative; we have kept maggots buried for a month with nothing else in the tin but bran.

Worms can be kept in an old tub or box filled with a sort of 'compost' of old leaves, loam, and bits of old sacking, with a layer of moss on top—keep moist by watering a little from time to time. Take out any dead worms you may observe by a periodical inspection. When anticipating a day's fishing, select your baits a few days in advance and put them in moss ready for use. Keep the stock-tub in a place free from frost.

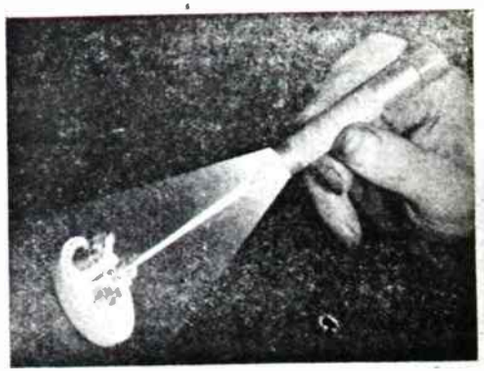
Clothes and Drinks

If you value your health, take any necessary precautions when you go afield in cold weather—chills are sometimes more easily caught than fish! A good old thick overcoat to keep out the wind. Underneath, warm woollen garments and a pullover that fits well up into the neck—two pullovers if needs be. A warm cloth cap—or, if it is inclined to be rainy, a sou'-wester. Stout, thick-soled boots well dubbined, or gum boots coming up to the knees, with thick wool stockings.

Take along a drink of good hot tea in a flask—this cannot be beaten as a stimulant when you are feeling the cold. Some prefer Bovril or Oxo—hot, of course. Avoid spirits or cold drinks. Alcoholic stimulating effects soon fade out, leaving one worse than before; Bovril is sustaining for some time. (244)

A Novel Screwdriver

A handy tool known as the Spotlight Screwdriver 'Minor' has recently been introduced by Messrs. John E. Buck and Company, of 47, Brewer St., Piccadilly, London, W.1. It has a ¼in. by 2¾ins. blade firmly set in a lens of transparent hard plastic, and is designed for work inside radios, or for dark corners. It costs 6/9, and all enquiries should be addressed to the company named.



Make mother a present of

A BOX FOR NEEDLEWORK

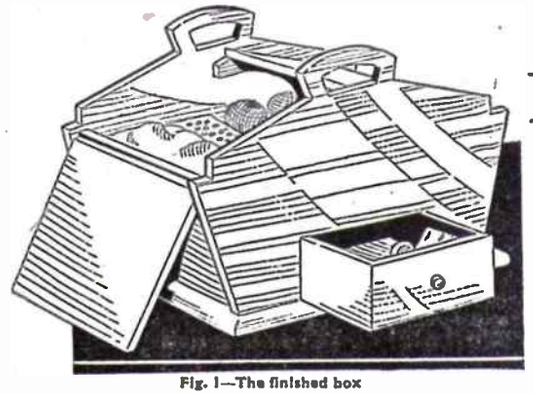


Fig. 1—The finished box

ILLUSTRATED in Fig. 1 is a novelty in needlework boxes. There is plenty of space for keeping light fancy needlework articles and woolwork, and below this is a useful drawer for silks, cottons, needles, etc.

The work of construction is straightforward, and no special tools beyond the ordinary household kit are necessary. Of course, the fretsaw plays a prominent part in the shaping, and in the general appearance of the box.

Commencing Work

Wood ¼in. thick is used throughout, except for the floor which might be ⅜in. thick. In commencing to make up the box, the sides (B) should be the first pieces marked out and cut.

In Fig. 2 all the necessary dimensions

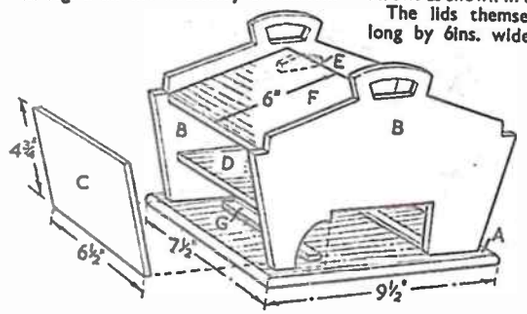


Fig. 3—Showing general construction

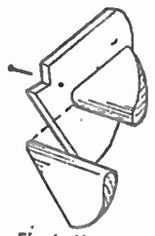


Fig. 4—How the lids are hinged

are given for this, and each side section is cut from a rectangle of wood measuring 12ins. by 8ins.

After one side has been cut out with the fretsaw it may be used as a template for making the corresponding side. Note, however, that the opening for the drawer will be cut from one side piece only.

The Base

The base (A) is just a plain square of wood measuring 9½ins. by 7½ins., with the edges rounded off slightly with the file and glasspaper. The ends (C) are also square pieces 6½ins. by 4¾ins., with their bottom edges chamfered to meet the base because they slope between the two sides. They are not fixed flush with the sloping edges of the sides as might be expected, but stand in ⅛in. from that sloping edge to make a stronger connection between ends and sides.

The floor (D) measures 9½ins. long by 6½ins. wide, and each end edge is chamfered, as shown in the detail Fig. 3, to meet the sloping ends. Before finally fixing the floor, the two drawer guides (G) must be glued to the base. These guides are simply small strips of wood about ½in. by ⅛in. They are put inside the opening for the drawer as shown, and their function is to prevent the drawer from running in unevenly from one side or the other.

The two lids (F) are hinged between the two sides by means of pivot pins or screws as shown in the detail in Fig. 4.

The lids themselves measure 6½ins. long by 6ins. wide on the slope. The lower edges of these must be rounded to fit closely against the ends of the box when it is required to open and close the lids.

To prevent the lids from falling too far into the box, the stop blocks (E) are fixed, one on each side as shown, and cut the correct angle on top to receive the lids.

A note regarding the lid pivot screws. Holes sufficiently large enough to allow the shank of the screws to pass through should be made in the sides, then the screws themselves are run into the lids. It will thus be seen that the heads of the screws move with the lids.

The Drawer

The drawer measures overall 6½ins. by 3½ins., and its general construction is shown in Fig. 5. It is made wholly from ⅛in. wood and the dimensions of all the parts may be got from the diagram.

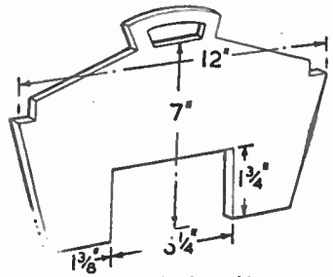


Fig. 2—Details of the sides

A complete box, or rather, tray is made up and glued together, then the piece of wood which was previously cut from the main front of the box is glued to the front to make a flush surface.

A small wood fillet or stop block must be glued to the base of the box inside to prevent the drawer from being pushed too far. This block would best be glued to the base before the floor is fixed and at the same time as the fillets (G) are being fixed.

Clean up all surfaces with fine glasspaper, and, if mahogany has been used, apply a mahogany stain to darken the wood. As a general finish, varnish may be applied or the surfaces may be french polished. (233)

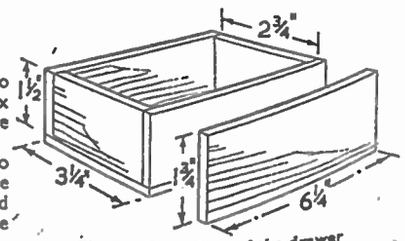


Fig. 5—Dimensions of the drawer

Books to Read!

A review of interesting books for craftsmen which have been recently published. Obtainable through newsagents or booksellers or direct from the publishers mentioned.

Your Puppetry

By John Wright

ONE of the most interesting additions to the Sylvan Press 'Your Home Crafts' Series, this book is the work of a man well known in the world of marionettes. His work for television, films and stage has brought these intriguing figures to the notice of a wide public, and their reputation has been built upon two outstanding characteristics—the beauty of the carving and the exquisite finish of the productions as a whole. Mr. Wright is, therefore, particularly qualified to write this book and he has made a masterly job. It is a complete introduction to the art of the marionette, and leads the beginner step by step to a high level of technical knowledge. All aspects of the puppeteer's complex art receive attention. Like all books in the series, this volume is adequately illustrated.

Published by The Sylvan Press, 24 Museum Street, London, W.C.1—Price 9/6.

• • •

British Trains Past and Present

by O. S. Nock

WRITTEN by a railway enthusiast who is also a considerable expert on the history and technique of the subject, this book is a welcome companion to his earlier work *The Railways of Britain*. In the present volume he concentrates more particularly on the engines and on the differing types of rolling stock which they have been pulling during the past century and a quarter. There are numerous illustrations including colour plates, and the whole book would be a worth-while addition to the bookshelf of anyone interested in trains.

Published by B. T. Batsford Ltd., 15 North Audley Street, London, W.1—Price 16/-.

• • •

Junior Woodwork

by Charles H. Hayward

FROM the press of a firm well known for its association with the craft of woodworking, and from the pen of a man who has wide experience of the subject, comes a book which will be of great value in developing a boy's constructive ability. Mr. Hayward presents all that a keen boy needs to enable him to make a start in this hobby, and to turn out really attractive pieces of work. As with all books from the House of Evans, this volume is profusely illustrated, and the standard of the drawings is high.

Published by Evans Brothers, Montague House, Russell Square, London, W.C.1—Price 8/6.

• • •

Flower Making

by Clara Kebbell

ANOTHER in the Studio Make-it-Yourself Book Series, this volume will be welcomed by those who like quiet hobbies which can be pursued with a minimum of space, and which do not interrupt their normal pleasure of listening to the wireless, etc. The making of artificial flowers has undergone a revival of late, and today flowers take strange forms and colours. But whether surrealist or natural blooms and arrangements are needed, the craftsman's approach to the subject is essential. The author is certainly a craftsman and her step-by-step instructions and illustrations are really well done.

Published by Studio Publications, 66 Chandos Place, London, W.C.2—Price 3/6.

• • •

Of Interest to Photographers

THREE new booklets which have just appeared in the lists of the Fountain Press should prove of interest to many of our readers. They are *How to Make a Box Camera*, by Geo. L. Wakefield, *How to Make a Vertical Enlarger*, by the same author, and *Flash Pictures with Box and other Simple Cameras*, by Rhodler Heath. The first two are priced at 1/6 and the third at 1/9. Each is comprehensive in its field and sound value for money. Little need be said of their technical qualities as the imprint of the Fountain Press is synonymous with accuracy in matters photographic.

Published by The Fountain Press, 46-47 Chancery Lane, London, W.C.2.

• • •

Model Steam Locomotives

by Henry Greenly
Revised by Ernest Steel

THIS revision of Henry Greenly's classic work on model steam locomotives enables the amateur and professional model maker to incorporate the latest devices and improvements in steam locomotives into his models. Before his death, Mr. Greenly was one of the leading names in the world of model locomotive making—indeed he still is, for many of his books and articles are still treasured among model railway enthusiasts. Mr. Steel has preserved in the book Mr. Greenly's personality, but has enlarged the original text and introduced many new and valuable diagrams and illustrations relating to the latest types of steam locomotives in British and other railways.

Published by Cassell & Co., 37-38 St. Andrew's Hill, London, E.C.4—Price 15/-.

• • •

Marquetry and Veneers

by Edward Kitson

THIS is a book which provides a wealth of practical knowledge invaluable to the beginner at this craft. The craft, of course, is an old one, but it is still of great interest and can be worked for pleasure or profit. It has the advantage of being a craft that requires only a small outlay for tools and materials and brings a satisfactory return in accomplishment.

Published by W. & G. Foyle Ltd., 119-125 Charing Cross Road, London, W.C.2—Price 2/6.

• • •

Pewter Work

by Edward Kitson

FROM the same publisher and the same author comes this useful work on the subject of pewter. This, as our readers probably know, is a pleasing material which can be worked with a few simple tools into a variety of pleasing and saleable articles. Pewter work can be made a spare-time hobby or the basis of a commercial venture, and whatever the reader's approach and object, it will be found a satisfying book.

Published by W. & G. Foyle Ltd., 119-125 Charing Cross Road, London, W.C.2—Price 2/6.

• • •

Aquariums

by Anthony Evans

ANOTHER in the 'Ist of Foyles' Handbooks is this latest work on the subject of a hobby which is growing rapidly in popularity. The beginner in this pastime is specially catered for with essentially practical advice presented by a research worker and journalist who has made aquarium keeping a special interest.

Published by W. & G. Foyle Ltd., 119-125 Charing Cross Road, London, W.C.2—Price 2/6.

Things you should know about

STORING CAMPING EQUIPMENT

IT is presumed that the camper and cyclist-camper at the end of the camping season will have made it his first care to see that all his equipment is properly stored until another season comes round. Much harm can be done to items or kit during the winter if they are just merely dumped away in some corner and forgotten until the call of the open grips one in the springtime, with its promise of good times again out-of-doors.

Unfortunately, it is often a matter of putting off until tomorrow the job we should do today. We lay aside the tent, and all the accessories, intending to do the needful overhaul, and, perhaps, the days slip by and insidiously damp and mildew are working their evil.

Sooner or later you have to tackle the job, and the sooner the better. If your equipment has been put aside temporarily, take the earliest opportunity of routing it out and thoroughly overhaul it, afterwards storing it carefully. The tent itself is of paramount importance. Inspect it, and note any repairs that need doing. If you cannot do the work there and then, suspend it from the ceiling of the storage place to allow the air to play round it, so that the all-destructive damp cannot reach it. Any tent, even if it is in good condition, must not be stored until it has been well examined and notice taken of any repairs or waterproofing (re-proofing) that may be necessary.

The tent comes first, and if stowage following your last camp has been hasty, make amends for it by seizing the first chance to drag it forth to the light and straighten it out, inspecting the seams, walls, roof, eyelets, and the whole surface of the canvas. There is no better time to do this than on a winter's day when your out-door activities are curtailed.

Do not leave this task until the eve of the next camping season; if you do, you may regret it. We know how easy it is to keep putting the job off in these days when we have so many other attractions to occupy our spare time. But a 'stitch in time' .....

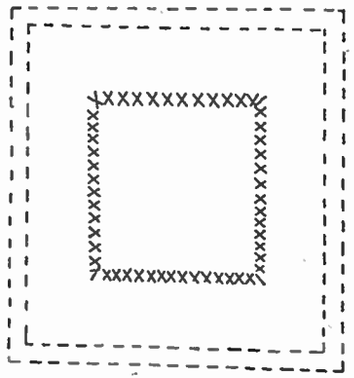
Thorough Overhaul

Now, having at last tackled the job, do it thoroughly. And do not put away that tent for final storage until you are perfectly satisfied that there is nothing more you can do—a tent demands fair treatment if it is to afford you the best shelter from the elements when you are dwelling under its roof.

It is always a good idea to give it a coat of waterproofing solution. But before you start on this, take care to do any patching that may be necessary. You will require a few tools and some pieces of canvas, a sailmaker's needle or similar needle, a ball of strong twine, and a lump of beeswax.

Patching

Patching is not a difficult task. Cut the patch much bigger than the hole or tear it has to cover, and carefully cut away



Patching a tent. The patch must be cut larger than the hole to be mended. Lay it over and hem round neatly, cross-stitching the edge of the hole to the patch

any jagged edges of the tear or hole. Turn in a hem all round the outside patch and press it down well with a flat iron, so that it lies tightly to the canvas to which it is to be stitched with your waxed twine or thread.

When this is hemmed neatly, the edges of the tear or hole should be sewn on to the patch with a neat herring-bone stitch. Afterwards press again, which will have the effect of making a good job of your patching and driving the wax into the thread holes. Small rents in the canvas which do not require a patch can be darned with the herring-bone stitch, and carefully pressed when done.

Look to all brass eyelets, and deal with any that show signs of needing securing more firmly. Oversew with your waxed thread. Pole seatings should be treated likewise.

If your tent is ready for re-proofing, obtain a tin of suitable re-proofing solution, and a brush. Spread out the tent on a flat surface and apply the mixture evenly all over, working it well into the seams. Granger's Solution or Mesowax can be recommended. But if you prefer to make up your own solution, try the following: Boil 1oz. of isinglass in 1 pint of soft water till dissolved, strain through clean linen into a second saucepan. Dissolve 1oz. of white Castille soap in 1 pint of water; strain, add to above. Dissolve 1oz. of alum in 2 pints of water, strain, add. Stir and heat the combined solution until it simmers, and apply with a soft brush, working the mixture well into the fabric. Give particular attention to the seams. The several preparations now to be had from the camp outfitter's reproof tents effectively, however, and with much less trouble than making home recipes. Let the tent get well dried, and then store it in a dry place.

Make sure that the guy ropes are still sound; renew if at all doubtful. Then the groundsheets should be tested for their water resistance—nothing is worse for you when sleeping on the turf than to have a groundsheet letting the damp come through. Camp blankets, if not in use at home during the winter, need a look over occasionally in case Mrs. Moth has been busy.

Utensils

The utensils used in camping when stored away, even in a dry place, may become rusty. Take care of all stoves, clean them occasionally and test the containers for holes. If the iron ring of a Primus shows signs of rust, black-lead it and brush it well to give a nice polish; this will defy the rust.

All spare ropes and lines will be no worse if gone over with a brush dipped in boiled linseed oil. Test them first, and discard any that are badly frayed or show signs of weakness anywhere. Runners and any other wood can be given a coat of out-door paint.

It is intended that this short article will be a reminder to you. It cannot be emphasised too strongly that it is wise to make a really good inspection of camp kit during winter, and put everything to rights and store in a dry, airy place ready for immediate use. Then, when the time comes, there will be no need for a lot of hurry and bustle. Besides, it pays to look after your gear, much of which can go wrong if neglected. Indeed, it is not a bad plan to spend an odd hour now and again during the 'off season' casting an eye over the many gadgets—as well as tent and its accessories—to make sure damp and mildew are not attacking anything and that the rust-bug is kept away. (242)

Notes for Amateur Photographers on

BROMIDE PRINTING AND SEPIA TONING

IF you were to ask any really amateur photographer from which branch of the hobby he receives his greatest enjoyment you would find some hesitation before you got an answer. Some folk would reply that every stage of the work gave them a thrill, others would differentiate between exposing, developing, printing and even mounting, but, in the end, most would agree that, if the enjoyment is linked up with expectancy, then the hobby becomes one continuous thrill from the time the spool is inserted in the camera until one of the resulting exposures becomes a mounted picture and is hung 'on the line' at the local exhibition or receives an award in a competition.

You have only to visit a club exhibition and to listen to the conversation that goes on among the members to get verification of this, for all at some time or other are relating some exciting incident they have experienced.

Most Enjoyable Moments

There are two aspects of the work which, throughout my many years of photography, have given me the most enjoyable moments. One is when I take the spool of film from the fixing bath and see a dozen jolly good results and the other is when I examine the first bromide prints, either contact or enlargements, from these negatives. If those prints please me, then I get a thrill every time I look at them or make repeats.

It is about bromide printing that I want to interest you, and if you will start doing your own work on the lines suggested then I can guarantee that you will get a thrill from your very first attempts, and will find an added pleasure that will never leave you. It will considerably enhance the interest in your hobby and will undoubtedly tend to a general improvement in your work resulting in less failures.

In a recent article, a full description was given of gaslight or contact papers and how to proceed to get successful prints, and you will perhaps remember that this class of printing paper required rather longer exposure than bromide.

There are many varieties of bromide papers, some of which are faster than others. There are matt, semi-matt, and glossy surfaces, and even these surfaces are again split up into different grades, each of which has its own peculiar characteristics suitable for bringing out the individual properties of the many subjects which we amateurs specialize in or like to include in our collection of negatives.

A print from a maritime scene taken about 1912 in the Thames Estuary. The boats are Leigh Bowleys, which went out of use about 1920

Most of these varieties are obtainable on white and cream tinted bases and on thin, medium and double weight paper. In some instances, thin card is used. It is obvious that with such a selection all tastes and requirements are very well catered for.

Of course, the primary reason for bromide being the most popular printing medium is the relatively short time required for exposing it to any illumination, even that of a paraffin lamp. Those of you who have started 'contact' paper will know that the standard distance suggested in my article was 12 ins. from the light. For bromide paper this distance should be 4 ft., which is a good standard for making contact prints. 'But for enlarging it is inadvisable to give any suggestion of a standard distance as this must vary according to the degree of enlargement. Do not confuse the mention of the word 'contact' with the gaslight paper; in this instance it is only intended to refer to the print one makes when using a printing frame with the piece of paper in contact with the negative.

Sort Your Negatives

As with all printing, it is advisable to sort all negatives to be printed into their groups of thin, normal, and dense or thick. This will prevent wasting paper by trying to guess exposure times. For a negative from the normal group with paper of normal speed and the electric light (40 watt) at 4 ft., the exposure time should be about 10 seconds. If you have to use incandescent gas, 10 seconds will be approximately right, but if a paraffin lamp is the only illuminant, then

the time must be increased to about 30 seconds with a duplex burner.

It has often been mentioned in these articles that it is inadvisable to have a lot of various chemicals on your hands, and that, wherever possible, it is better to stick to any one good formula. You already have some M-Q (metol-quinol) developer handy, so use that for your first bromide prints, but read the directions on the packet and you will see that for bromide papers you mix the powders in 10 ozs. of water, not four as for gaslight papers. After you have gained experience with M-Q, try Amidol. This can be obtained in the same sort of package, and is a chemical that many photographers consider the best for these papers. For the fixing bath use the same strength as for contact papers, i.e. 2 ozs. of acid fixing powder dissolved in 30 ozs. of water.

Development proceeds fairly quickly. 20 seconds should find the image gradually appearing and 1½ to 2 minutes should complete it. If the image shows in 5 to 10 seconds, this is an indication of over exposure, and, on the other hand, if it takes 25 to 30 seconds to show, it is under-exposed, and it is useless trying to get a successful result.

Use a 'Stop Bath'

I would advise the use of what is known as a 'stop bath'. This consists of a solution of potassium metabisulphite, a ½ oz. dissolved in 10 ozs. of water. If a print is placed in this immediately it is taken from the developer the action of development is 'stopped' at one (hence its name), and this is also a wonderful bath for preventing brown stains occurring on prints.

You will see that the procedure is practically the same as that detailed in the article on printing on contact paper. One point, however, is worthy of note; it is that bromide, as it is so very much faster, must also be more sensitive to light. Therefore, it is important that white light is banned in the darkroom except for the actual exposing. And do not make a habit of placing your packet of paper in a drawer or box after removing a sheet.

Finally, a word or two about those particular negatives, that are somewhat puzzling as regards exposure. For these, make a 'strip' test, and get four or more exposures on the one piece of paper.

Fill your printing frame in the usual manner and place it the right distance from the light, but place a card over the frame so that only a quarter of the paper is exposed to the light. Switch on the light for five seconds and then switch off. Then move the card a further quarter so that half the film is exposed and switch on for another 5 seconds. Move the card another quarter and give another 5 seconds exposure. Then expose the remainder of the paper for 5 seconds. When that paper is developed there will be four bands across the image, each of a different depth. One of these should give you a very good idea of the correct exposure required by that particular negative. Further, it will, to a certain extent, help you with any other negatives included in that group, and thereby save you time and paper. Remember, of course, that the first quarter of the paper has had 20 seconds exposure, the second 15, the third 10, and the last 5.

Sepia-Toning

Now that you have been given a fairly comprehensive lesson on making your own prints on contact and bromide papers many of you will want to know how to get that lovely sepia tone as an alternative to the black and white given by all this group of printing papers. It is one of the most pleasing, fascinating, and simple of all processes, and you can be successful with your first attempt because it is work that is done by the chemicals and not by individual skill.

At the outset, it would be as well to tell you that the best results are obtained on a print that has been correctly exposed and fully developed, and by this I do not mean a print that is dark because it is over-exposed. It is a chemical change that takes place and turns the black image into a brown or sepia. The black image is a product of silver bromide or chloride according to the emulsion, and becomes converted into silver sulphide by the toning process. It therefore follows that, unless there is a rich deposit of the silver bromide, brought about by exposure and development, the reaction cannot be as complete as it should be.

The print to be toned must be perfectly free from hypo., and, if it has been allowed to dry, or been made some time, it should be thoroughly soaked in clear water to permit the bleaching and toning solutions to act uniformly.

The formula for the bleaching bath is as follows: potassium bromide ½ oz., potassium ferricyanide ½ oz. Dissolve in water and make up to 5 ozs. Take ½ oz. of this concentrated solution and add 4½ ozs. of water. Place the bromide print face upwards in the dish and pour this dilute solution over it. In a few seconds the black image starts to disappear, and, when all the image has faded into a faint yellow, remove the print to running water to wash out as much of the yellow as possible.

The Toning Bath

While the washing is proceeding, prepare the toning bath as follows: Dissolve 1 oz. of sodium sulphide *pure* and make up to 5 ozs. of water. For use, take ½ oz. of this concentrated solution and add 3 ozs. of water. Place the washed print in another clean dish and pour the solution over it. The change is immediate, but leave the print there for about three minutes and then give it half an hour in running water.

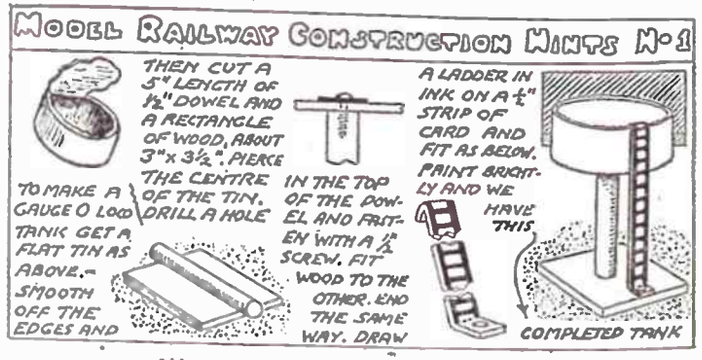
The concentrated solutions will keep well almost indefinitely, but see that the bleach is stored in an amber bottle or in a dark cupboard. It deteriorates if allowed to remain in daylight. The diluted bleacher will last a few days but the toning bath after use for the one day, should be emptied. Use an outside drain, as, being sulphide, it gives off a strong and objectionable odour, not unlike the smell of bad eggs.

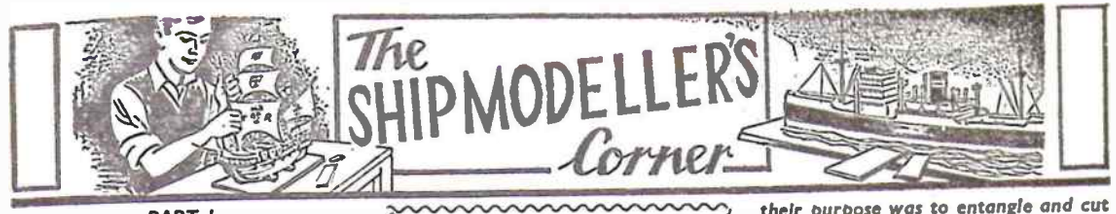
A sepia-toned print is considered more permanent simply because the sulphide of silver is more difficult to destroy than the bromide or chloride.

Better Results on Bromide

This process is applicable to both contact and bromide papers, but the latter usually give the richer tones and, incidentally, some brands of bromide give better results than others. But in every case it is the correctly exposed and fully developed print that gives the best result on any make of paper.

A 1 oz. bottle of each of the chemicals will last a good time and tone quite a number of prints. If desired, the two solutions can be obtained all prepared and ready for dilution. (246)





PART I

Building The 'ARK ROYAL' from Kit No. 211 sp.

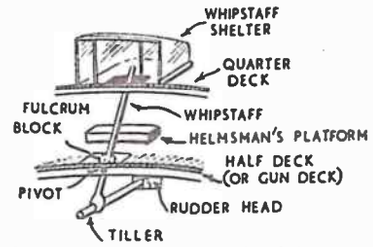
By 'Whipstaff'

IN building this model, perhaps the finest in our series of Old Time Ships, we will set out to make a model not only of beauty, but of real historical value.

To commence with, come with me while we explore all available sources of information, opened up to us by the researches of enthusiasts and the various writers who have put the results of their researches into many books of interest to the lover of ships and sea.

The scale of this model, among the largest in the series, allows the keen modelmaker ample scope for the addition of authentic details in both hull and rigging; in fact, in building the model several years ago from a Hobbies kit, I went to the trouble of laying the decks in separate planks, and adding various fitting and details to the different decks.

The 'Ark Royal', as we know, was built for Sir Walter Raleigh for an expedition to America, on which he hoped to accompany his relation Sir Humphrey Gilbert. However, he was prevented from going by the Queen.



A whipstaff arrangement. The helmsman stands on the platform, with head and shoulders inside the shelter, working the whipstaff from side to side as required

The vessel was built as the Anne Royal in 1587, but, while on the stocks, was purchased by Queen Elizabeth for the Navy, at a cost of £5,000, a large sum by modern values. She was then renamed the 'Ark Royal'.

Now, a point for our modellers who like to be really accurate. In most kit designs, for the sake of simplicity, especially for beginners, the tumble home of hull and upper works is usually slight. Actually, on these vessels the tumble home was excessive; as they carried many decks it was essential that the uppermost were as light as possible, and, usually, the uppermost decks were about one half the width of the vessel at the waterline level. I will show how to achieve this effect when we commence building.

The 'Ark' was almost certainly steered by whipstaff arrangement. This is shown in our sketch, and later we will add the whipstaff shelter to our deck fittings.

This whipstaff was a long bar attached to the tiller, which came in under the poop. Before being attached to the tiller it passed through a fulcrum block. Thus pivoted, the whipstaff could be worked from side to side by the steersman, thereby controlling the rudder.

Another noticeable feature of this type of ship is the extent to which the beak and poop deck project away from the hull.

General information relating to ships of this period is very little, but the following details will help with our model.

Guns were mounted at the break of the various decks in order to rake the waist if boarded by the enemy.

Fore and main shrouds led to chains (i.e. channels) on the outside of the hull at main deck level; the shrouds of the mizzen and bonaventure masts were usually set up inside the bulwarks.

At their upper ends, the shrouds passed through the lubber holes in the floors of the top-castles.

Yardarms sometimes carried shear-hooks. These were sickles of steel and their purpose was to entangle and cut the enemy rigging when alongside in boarding.

Usually three boats were carried, stowed inside one another, on chocks in the waist.

Small pivot guns were mounted on the rails of poop and forecastle, sometimes also mounted in an iron wheel on the top of a wooden staff.

Lion and Dragon figureheads were in use in this period. Sail embellishments and Heraldic designs went out at the close of the century.

Known Details

And now to known details of the 'Ark Royal' herself:—She was of 800 tons burthen, carried 430 men, according to some authorities, 425 being the figure given by others. Her armament consisted of 4—60 pounders, 12—18 pounders, 6—5½ pounders, 4—33 pounders, 12—9 pounders, and 17 small guns. This gives a total of 55 guns, which agrees with the number given in the Armada records. The weight of shot fired in a broadside was 377 lbs.

The three boats carried were a ships' boat and two pinnaces.

She had three bower anchors weighing 20 cwt. each and three smaller anchors and grapnels.

Her spritsail had a bonnet laced on and so had the foresail, mainsail and mizzen sail. Foresail and mainsail also had double-bonnets and single drabbler.

As Lord Howard's flag ship in the great defeat of the Armada, she carried the following: three flags of St. George, two of the Queen's Arms and an ensign of silk.

The St. George flags were flown at the fore and Bonaventure masts, the Royal Standard at the main and the Tudor Rose at the mizzen. A pennant with the cross of St. George in the head was flown at the spritsail yard.

In the foretop was a pennant with anchor, indicating that the Lord High Admiral was on board. Incidentally, this is the first appearance, as far as is

(Continued foot of page 268)

NOTES ON GUNS OF THE PERIOD

60 pounders known as Cannon.	12ft. long.	Bore 8¼ins.
18 pounders known as Culverin.	13ft. long.	Bore 5-5½ins.
5½ pounders known as Sakers.	10ft. long.	Bore 3¼ins.
33 pounders known as Demi-Cannon.	10ft. long.	Bore 6¼-7ins.
9 pounders known as Demi-Culverin.	11ft. long.	Bore 4ins.

Hints from an expert on

KEEPING FERRETS FOR PROFIT

FERRETS are not everybody's pets. For one thing, these animals are not so hardy as they look, and they take a bit of rearing—if you go in for breeding them to any extent. Yet they are interesting creatures, and many a youth inclined to rural pursuits keeps a ferret or two. Moreover, good-class ferrets can be sold at very fair prices; from 15s. to £1 each.

In keeping ferrets one has to bear in mind that only those who are prepared to take great pains and care with them

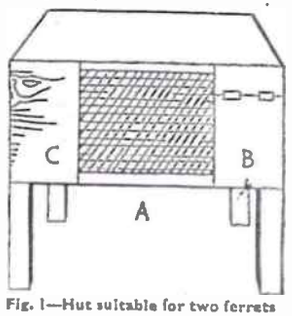


Fig. 1—Hut suitable for two ferrets

can hope for best results. It is most essential to have them well housed, and to maintain a high standard of cleanliness in connection with them.

First, do not think that you can make do with any old kind of soap box to house them. You must either make or purchase a suitable hutch. And this should be fairly large, warm, rainproof, light, well-ventilated, and raised off the ground as in Fig. 1. A likely hutch for a couple of ferrets should be about 3ft. long by 18ins. high and 18ins. wide, or round about those measurements. This should be divided into three compartments. At the right-hand of the hutch is the sleeping chamber (B), the middle part (A) is the run, and on the left is another compartment (C) to which the animals will learn to resort to do their 'toilet'.

For Cleanliness and Comfort

Such a hutch ensures cleanliness and warmth and comfort for your pets. The sleeping quarters should be provided with clean fresh hay or wood shavings—not straw. In the day quarters, place some peat-moss litter mixed with a little saw-dust (some ferret keepers recommend a tray of sand). In the third apartment you should have the floor made chiefly of wire-grating or perforated zinc. Put no hay, straw or anything else on the bottom, or the animals will not see any difference in their rooms.

Paint the base of the hutch with good waterproof paint. On top nail some felt or other waterproof covering. Raise the hutch on legs to keep it 2ft. to 3ft. off the ground, and place the completed 'house' against a wall, if possible.

Another type of hutch (Fig. 2) is made with only two compartments of equal size, one for sleeping quarters, the other for the day run. Where the whole bottom of the hutch is made of wood, small holes should be bored through to allow all liquid and moisture to drain away. Hutches with wire-grating bottoms are preferred by some breeders. Otherwise a tray of sand to which the ferrets can have access will help to keep the hutch from getting saturated with offensive matter. The sand should be changed at least every other day. All the compartments should be cleaned out frequently and replenished, where necessary, with fresh bedding, etc.

A sliding wire door for the front of the hutch can be constructed by any handy person—to slide up when necessary for cleaning out the interior. Or hinged wooden doors to each compartment will serve the same purpose. Sometimes a hinged top to lift up is provided. Whatever method of access to the interior you adopt, have it as simple as possible, enabling you to clean out the compartments quickly and with as little trouble as possible.

Feeding ferrets need present no difficulty. Flesh of animals or rabbits; bread and milk; scraps of raw meat; dog biscuits softened with gravy or milk. A constant supply of fresh water must be available. Feed the animals twice a day—the main meal being in the evening. Allow each ferret to eat as much as it can, but do not let it gorge itself.

All foods given must be fresh and clean. All feeding containers should be emptied of residue and cleaned out daily. Small earthenware dishes and other similar receptacles as used by rabbit keepers are suitable.

It is in order to keep both sexes together, except just when breeding. Always, when breeding ferrets, see that the strain is good; never breed from weakly parents. It is wise to change male every time mated. Never mate ferrets with blood relationship if you know it.

Diseases

Ferrets are subject to certain ailments, some contagious. A thing to be careful about, if you breed them, is the young ones, which get 'the sweats' some few days after they are born; they sweat profusely for some reason and may die. Directly they begin, take out the litter, shavings or what not, from sleeping chamber and make them a bed of moist green meadow-grass, and they will

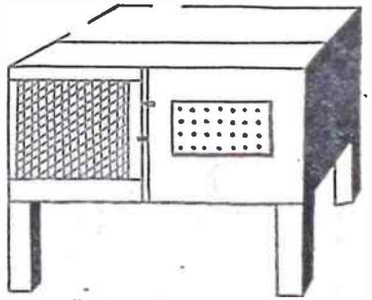


Fig. 2—Another type of hutch

generally come through the trouble all right.

Distemper is a disease that is fatal unless tackled early. Another ailment is footrot or mange.

Keep your ferrets warm and dry, avoiding all damp, wet, and cold as much as possible, and you should have little trouble from disease of any kind. Any ferret suspected of ailing should be isolated from companions; jills when in heat or with young should also be kept in separate quarters, in a box or hutch. (241)

Shipmodeller's Corner—*(Continued from page 267)*

known, of this design (the anchor) as the flag of the Admiral.

From the top gallont yard flew the streamer bearing the Lion Rampant of Lord Howard, and from the maintop a striped streamer. In the waist was mounted a large banner bearing the coat of arms of the Admiral, Lord Howard.

We have now covered the main known details that will help us, and in our next article will commence with the actual building of what, together, we will try to make your finest ship model to date.

The more we make, and the more actual research and patience we put into our hobby, the more accurate our models will become. (237)

Of use to gardeners are these

HOME-MADE IMPLEMENTS

THE gardener who is also a useful handyman is doubly fortunate, as he can save a bit of money and indulge himself in little tools to meet his own special needs—such tools as it would not pay any manufacturer to produce. This does not mean that such tools are without merit, but simply that they would not have a sufficiently wide appeal to justify full-scale production.

It is obvious that the basic gardening tools must be purchased. It would be foolhardy to attempt to make oneself a spade or fork, as these require special quality steel and skilful forging, but it is

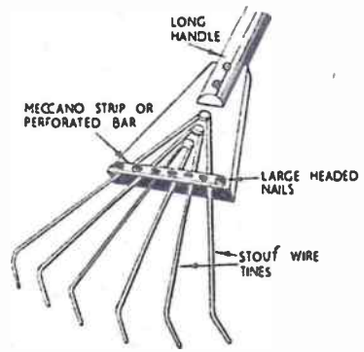


Fig. 1—The rake

surprising how many useful gardening gadgets can be produced from nails, wire, timber and odd pieces of metal which now clutter up the tool-shed, with a few broomsticks to provide handles.

A very useful garden roller can be made from a suitable round drum or container, by inserting an axle and filling the drum with cement. The frame and handle can be simply constructed of timber or metal bars or a combination of both.

The wire rake is a handy tool, for raking the lawn or for preparing a seed bed. Being light in construction it can be used without fatigue. It is a fairly simple matter to make a wire rake on the lines of the sketch, Fig. 1. The wires, cut to length and bent to shape, are secured to a triangular piece of wood by large headed nails, firmly clenched over on the underside. At the fastening where the wires diverge a piece of drilled flat metal or a Meccano strip may be used.

Using heavier gauge wire, a simple hand cultivating tool can be made. For this only three or five wires would be used, and these would be bent further at the ends, with the tips slightly flattened with a hammer.

The Wire Hoe

I used a home-made wire hoe for many years before one appeared on the market. In its construction a piece of flat bar was bent as shown in the sketch and attached to a handle. The extremities of the bar were drilled to take a fine gauge strong wire and this was attached as shown in Fig. 2, being pulled taut so that the bar exerted a spring tension on it.

Simple short-handled gapping hoes can be made from steel plate, and a piece of sharpened flat bar attached to a long handle will be a handy tool for cutting through the roots of thistles, without stooping.

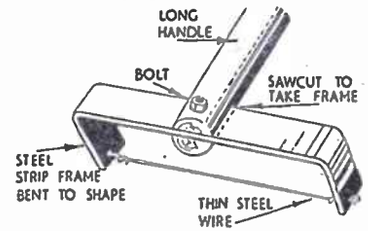


Fig. 2—Wire hoe

A daisy-grubber can be simply constructed from heavy gauge wire, and unless you have a factory produced article, will save the household dinner forks from damage.

There are many who have a bit more ground than can be tackled in the normal way with hand tools, yet have not enough to justify the expense of mechanisation. For them there is probably no substitute for digging itself, but a good deal of subsequent work can be carried out with the help of hand-drawn implements. Many excellent tools are on the market which can be pushed by manpower but there is no reason why the handy man should not try his skill in this direction. A simple and very useful tool is a miniature harrow, which can be quickly made at home. All that is needed is a square or rectangular wooden frame with two or three crossbars, through which are driven large nails to form the tines. The nails should be at least 6ins. long. Drawn over the ground in two directions it will greatly improve the tilth.

A friend was showing me a home-made seed drill (Fig. 3) with which he sowed his mangolds. It consisted of a treacle tin fitted between two small wooden disc wheels, with an axle carried in a forked handle. Four holes were drilled around the side of the tin and the implement was wheeled over the drills, which were previously marked out with a home-made marker. To fill the tin with seed the forked handle was sprung off and one disc, attached to the lid, removed. It was a great time-saver, and with varying size holes could be used for all sizes of seed.

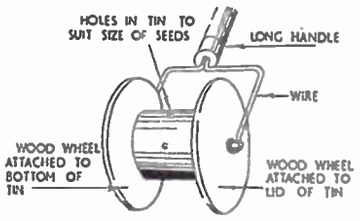


Fig. 3—Seed drill

Given a wheel to start with, no one need be without a reasonable wheelbarrow. My own first wheelbarrow was made—wheel and all—from odd pieces of wood and served me well for many years, only collapsing with old age.

The making and trying out of simple additional gardening tools is a fascinating pastime, and who knows, you may strike something useful which would appeal to a large-scale manufacturer. (213)

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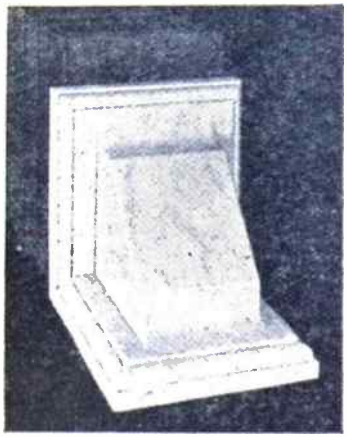

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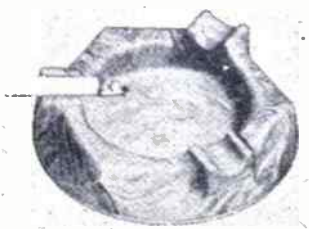

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