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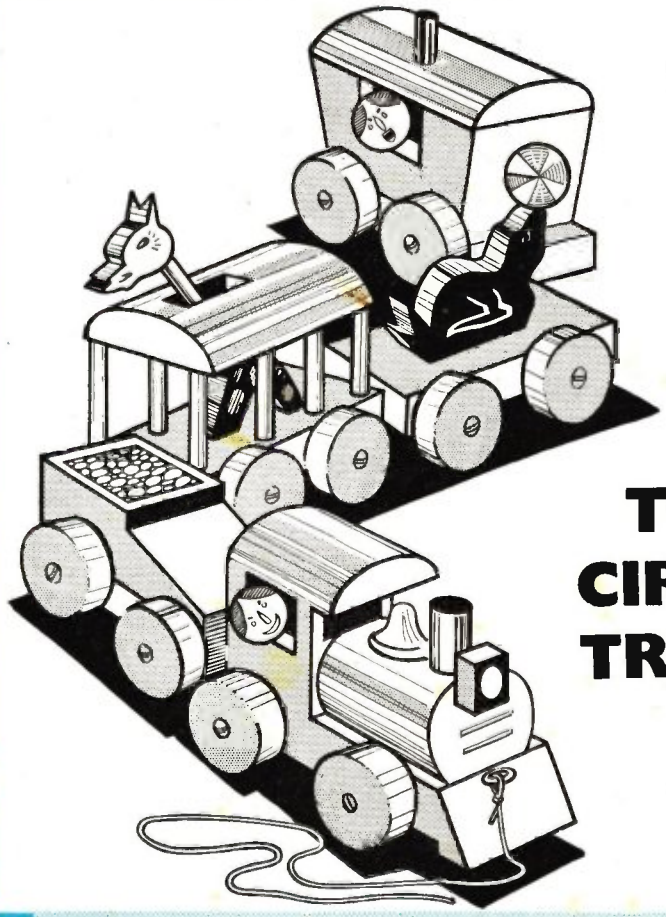


★ *FREE Design in this issue*

TOY CIRCUS TRAIN

Hobbies

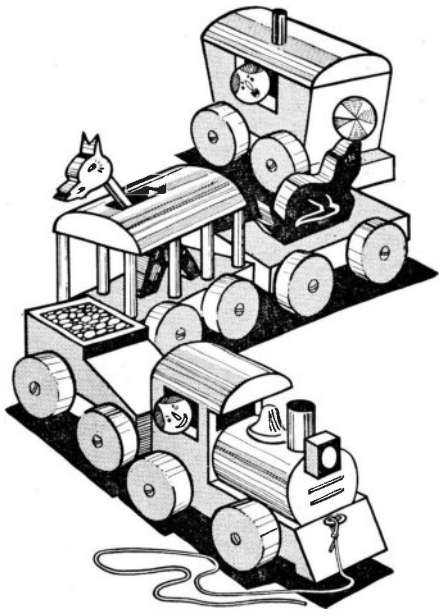
FOR CRAFTSMEN OF ALL AGES

6D.

Instructions for making

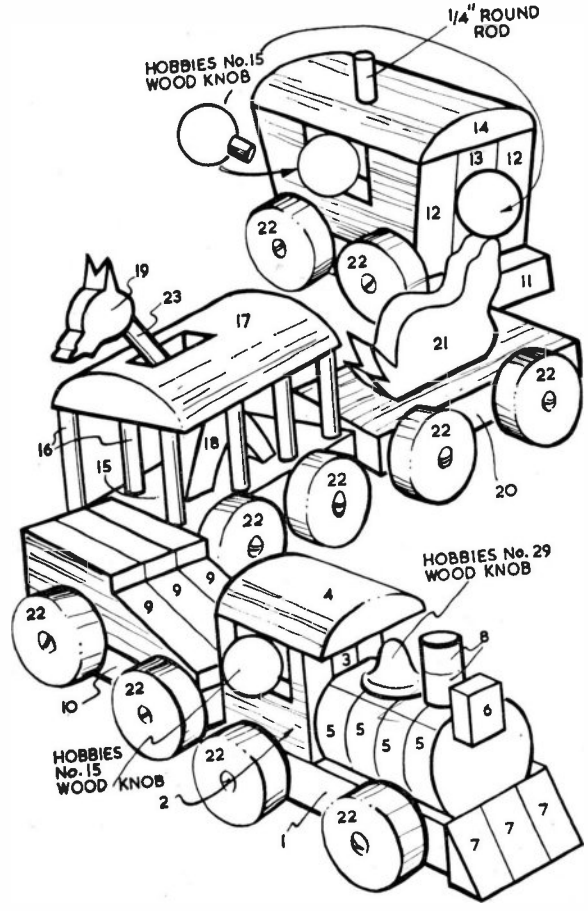
CIRCUS TRAIN

A PULL-ALONG TOY FOR BABY



THIS simple pull-along toy in the form of a circus train is very suitable for small children playing indoors. Of sturdy construction, it will stand a lot of rough handling and it is quite simple to make, being cut out with a fretsaw. The train would make an ideal gift for a youngster at any time of the year. If bought ready made a similar toy would be quite expensive and much can be saved by making it from these instructions.

There is an engine with driver, followed by a tender, two animal trucks, and finally a guards van, again with a figure peeping out of the window. Total length of the train is 18 in. and other trucks can be made and added to form a kind of menagerie on wheels. Wood used throughout is ½ in. thick and there are no joints in construction so the make-up is well within the capabilities of the average handyman. Such a toy would be very attractive if finished in brightly coloured paints, which are so appealing to young children.



All the parts which go towards the make-up of the various trucks, etc, are shown full size on the design sheet, from which they should be traced and then transferred to the wood by means of carbon paper. Cut out all parts neatly with a fretsaw then clean up thoroughly with glasspaper. Now shape all the pieces as noted on the design sheet, such as rounding off the cabin tops etc.

Make a start by assembling the engine as shown in the detail drawing. As there are no joints it is just a question of gluing the pieces together as indicated by numbers in the detail and then adding the various parts, such as the funnel, light, etc. The wheels are also cut from ½ in. wood and are screwed through into the base, ensuring that they spin freely light etc. The wheels are also cut from ½ in. wood and are screwed through into the base, ensuring that they spin freely on the screws. The driver is added after the truck has been constructed. Drill a ¼ in. hole to a depth of approximately ¼ in. to take the shank of the wood knob which forms the head and glue it in place.

Carry on in a like manner by assembling the tender. For the giraffe truck see the design sheet for the positions of holes which will take the bars (pieces 16). The giraffe itself should be painted before inserting it into its cage and its make-up is shown in detail on the design sheet.

The sea lion truck is a very simple assembly, a Hobbies No. 15 wood ball being inserted into a hole drilled in the animal's nose. The guard is fitted into his van in a similar way to the engine driver, and this is finished by gluing on a piece of ¼ in. round rod to act as a chimney.

Paint the various sections in bright colours such as reds, yellows, greens and blues. The wheels can be detached for this purpose and fixed firmly in position when dry. Couplings for the coaches are made by opening out a screw eye and linking it to a closed screw eye as shown on the design sheet. A cord is attached to the front screw eye to enable the train to be pulled along.

ANNUAL CLEAN-UP

By L. P. V. Veale

PRACTICALLY every housewife has an annual 'spring clean'. Stamp collectors could well follow this example with perhaps a change in the title from spring clean to autumn clean.

Some collectors continue an active participation throughout the year while others make it a seasonal hobby. For many the long light evenings are an irresistable urge for work in the garden or on the cricket field and it is only when the evenings draw in that they turn back to their stamp collections. Whether you keep going all the year round or only collect during the winter, it is certain that the collection will benefit from an annual overhaul, and this is just about the best possible time to attend to it. The seasonal collector will no doubt have a few odd specimens that have been given to him during the close season while the full time enthusiast will be glad of an annual stocktaking.

Suppose you make a rather unusual start with a 'gift-box' for all those stamps in which you have no further interest. However humble your collection, almost certainly you have a few stamps that you no longer need as swops and these would be most acceptable to anyone who is about to start the hobby. Do not include torn stamps — they are not even worth giving away; ask your pals to help and you will be surprised to find that by Christmas you will be able to delight somebody's heart, possibly the inmate of an orphanage.

If you have ever been fortunate enough to visit a stamp exhibition then you should be prepared for the real clean up. You will be aware of the care with which all specimens are mounted, and will have noted that each stamp must be as clean as possible with not a trace of paper on it. That is what you must try for in your collection. Should you find a specimen in the album with paper attached, take it out and put it face upwards on wet blotting paper. A piece of blotting paper at the bottom of a photographic dish is excellent. Leave the stamp until the paper peels off easily, then gently lay it face downwards on some white, dry blotting paper. If you put it face upwards it will stick by the time it is dry.

There are two distinct advantages in using wet blotting paper as opposed to floating the stamp in water. In some cases water on the face of the stamp spoils it, as for example the chalk surfaced stamps of Great Britain. Also you will find that there is less tendency for the stamp to curl up as it dries. Now having cleaned off all the paper from the back of the stamps in your collection you have greatly enhanced the appearance and at the same time you have made it possible to see what the watermark is.

Another item in the tidying up process is the removal of old stamp hinges from the page of the album. Cut a piece of blotting paper very slightly bigger than the hinge to be removed. Moisten and lay it on the hinge. Now comes the test of patience. Leave it for a few minutes and if the hinge does not come off the page easily, you must put another piece of blotting paper on and try again. When you do get the hinge off there will be a damp patch on the album page. Blot the moisture away with a piece of blotting paper and leave to dry. On no account must you try to wipe the page dry with a piece of cloth; otherwise you will destroy the surface of the paper.

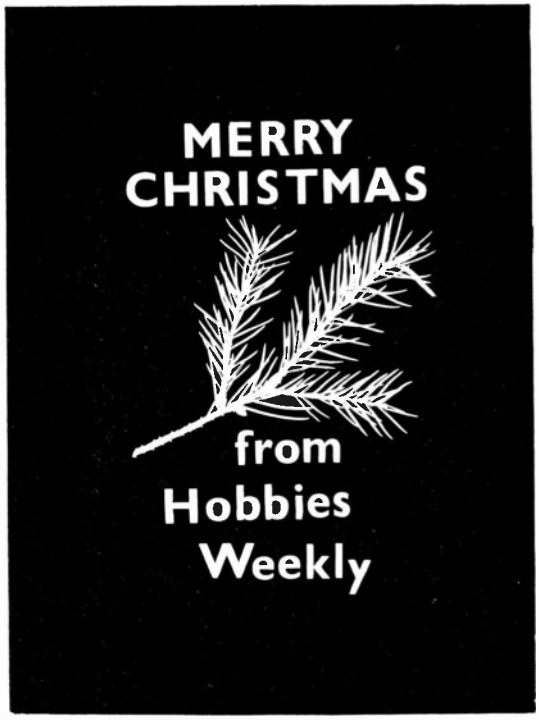
If you are going to make a really good job of this tidying up, then you need a catalogue. A new one is rather expensive and is not by any means a necessity. One which is a year or two old will give illustrations of most of the stamps and you can reckon that any others are fairly new issues and will go at the end of the arrangement.

This quite common stamp was first issued in 1906 and the design was repeated in 1938

If you decide to rearrange the stamps from any one country the best thing to do is to take all the stamps of that country out of the album, clean the pages and also the stamps and then use the catalogue.

If you have a number of stamps to arrange then a stock card would help very much indeed and one of these is very easy to make. Take a thin sheet of cardboard about the size of the page of your album and cut some pieces of paper about ¾ in. wide, or better still get some transparent cloth used by surveyors for making plans and cut the strips from this. Very carefully apply some glue to the bottom edges of the strips and also on to the edges then stick this on to the cardboard; the strips should be about ¼ in. apart. Allow to dry; then using your catalogue find out the dates of the issues that you have and place these in the pockets of your stock card. This will mean that you will have all the stamps sorted into their years of issue. Should you make a mistake it is quite easy to move a specimen as they are only slipped into pockets.

You now have to decide what spaces you are going to allow for future exchanges — it would be very foolish to rearrange all the stamps and mount them in the album and then next day exchange another stamp and have to rearrange all again or else put the new specimen out of order. The catalogue should help you to decide what space to leave. If a stamp is very valuable then you are less likely to get one, so do not leave space for it.



'PERSONAL' CHRISTMAS CARDS

ALTHOUGH the Christmas card shown in the illustration has been made by a photographic process, no apparatus is required for this work and anyone can prepare similar cards bearing their own names. We merely use a sensitized photographic paper for the card, make a 'negative' on a piece of glass and use two developing solutions plus a light for the exposure. They make a real personal novelty and are far cheaper than the commercial card.

If you have never done any photographic printing there is no need to be alarmed for all you need is a packet of photographic postcards. You may buy quarter plate size (3¼ in. by 4¼ in.) or postcard size (3½ in. by 5½ in.) and I would suggest that you ask for double-weight and the hard grade.

It does not matter if you do not have a darkroom, for you can obtain 'contact' paper which can be processed in a shaded corner of a room providing you insert a low watt bulb and work out of the direct rays of the light. You may also erect a temporary shield while developing. If you have a darkroom and a red safelight you may use bromide paper which is faster working. In addition you will require a small packet of developer powder and a small packet of fixer. These are obtainable from any photographic dealer. It is assumed that you will have some pie dishes large enough to process these small-sized papers.

Our first requirement is the 'negative', which is made on a piece of thin sheet glass of convenient size with the aid of some transferable lettering now available at most stationers. The lettering used for our example is known as Blick Dry-print costing 2s. 3d. per sheet and there are many different styles at our disposal. Some lettering is bold, some is fancy, while there are written styles which you may prefer.

You will appreciate that our lettering must be correctly positioned and centred so we prepare a plan on paper, bearing a rectangle the same size as the finished card. Draw a vertical line down the centre, with horizontal lines at right angles. These are your guide lines. Count up the letters in each word and the centre one, or the space between the middle ones in the case of an even number of letters, should be on the centre line in each case. We also have to allow for the space between letters, some being wider than others. In the example one 'R' in MERRY is central with two other letters at each side; so it is best to start with the central letter.

Locating the wording

With the greeting roughly planned out and guide lines ruled on the paper we place the small sheet of glass on top and begin adding the letters. They are self-adhesive and attached to a transparent paper bearing printed guide lines. We can thus lay the first letter — say the central 'R' — on the centre line with the guide lines on the transparent paper exactly in alignment with the guide lines of the plan.

If this method is followed with each letter we can work backwards or forwards from the central letter to complete a word. A letter is transferred to the glass by merely rubbing over with a ball-point pen, the paper then being peeled away. A protective backing sheet is supplied with the lettering and I find it advisable to use this underneath the other letters to prevent them from sticking to the glass. When a letter has been positioned I also cover it with the backing sheet and rub over with a finger to ensure adhesion. Should you make a mistake, or tilt a letter, you can easily correct by scratching away with a knife and applying another letter.

Gradually we thus print the 'message'. We have used block letters for simplicity but as stated it is possible to use different letterings to make your own effects. The symbolic motif in the centre is merely a sprig taken from the fir tree in my garden. This was laid on the glass during the printing process, but you may cut out a few holly leaves from black paper to add this touch, or perhaps a few stars.

We now come to the printing stage, when as many copies as are required can be made. Your packets of developer and fixer should be mixed with water, a separate bottle for each one, and when ready poured into separate dishes. A third dish is required for rinsing between the two, and this should contain water.

If we are to save paper it is necessary to first make a test print, thus determining the length of time for the exposure. Cut off a generous strip of paper from one sheet and lay it on the table underneath the working light. A reading lamp is ideal, since it can be switched on and off; without this the next best thing is a piece of card which will mask the light as required. A 25 watt bulb is ample but it is essential to maintain the same distance from the light with each exposure. Moreover, it is advisable to use a watch for timing instead of trying to guess.

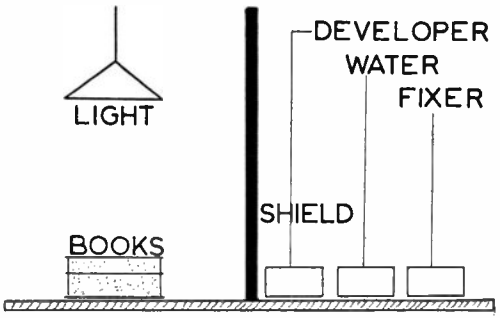
The paper is on the table and we now place the negative on top, giving a first exposure to the light for 5 seconds for the whole strip. Now cover about one inch with a piece of cardboard, exposing for another 5 seconds. Proceed similarly for the whole length of the strip, giving a variety of exposures for say 5, 10, 15, 20 or 25 seconds. Place the strip in the dish of developer, process for 1½ minutes, rinse in the dish of clean water and transfer to the fixing solution, where it should remain for at least ten minutes. This should produce a scale of tones ranging from grey to black and the correct exposure time for printing your cards is the first to produce the best dense black.

Ready for printing

All that is now required is to place the glass negative on a complete piece of paper, expose for the decided time and process as mentioned. Be sure to rinse in the water before placing in the fixer, keep the prints below the surface of the latter, and be sure to wash in running water for 30 minutes. This will avoid stains. You should also do the processing in a corner of the room well away from light, which would fall on to the paper in the solution and perhaps cause fogging.

After the prints have been washed in clear water they may be removed and laid out to dry on blotting paper. When dry they may curl a little but this can be remedied by laying under a heavy weight for a day or so.

There is nothing difficult about this process providing you make the test strip as stated and adhere to the correct timing for exposure and development. Do not be in too great a hurry to snatch the prints out of the developer for this may cause them to look patchy, with uneven blacks.



The arrangement for the printing. Note that a few books will bring the paper nearer the light while maintaining a regular distance

You are thus able to produce any number of your own personal greetings cards at a very moderate cost, apart from the fun you have in making them. If you wish to add your signature in handwriting it is possible to write this on the glass with Indian ink or process black but the glass must be clean and free from grease. A rag saturated with methylated spirit will clean the glass for such purposes.

STIRLING MOSS HAS A GO

Stirling Moss tries his hand on the Airfix Motor Racing track at the National Model Show. In a trial run the victor was 10-year-old Martin Mason. Said racing champion Moss: 'On these things children always win!' Airfix had a fully-working four lane Motor Racing Circuit in their display.

B.R.M. Racing Car

Mercedes Coach

NEW 'MATCHBOX' MODELS

B.R.M. Racing Car. A detailed model of a famous British Grand Prix racing car. Overall length 2⅜ in. (67 mm.) and scale 54 to 1. Price 2s.

Mercedes Coach. This model of a short-wheelbase Continental touring coach has full interior seating. Overall length 2⅞ in. (73 mm.) and scale 90 to 1. Price 2s.

A FLEET OF WOODEN

These little ships for the garden pond, or bathtub, will delight any young child

A fleet of toy ships whose simple lines make them very suitable for young children can be made very quickly. Although these sturdy and appealing toys are made largely from inexpensive offcuts, their finished appearance, in varnished wood with touches of bright enamel, looks most attractive. They can also be used as pull-along toys by screwing four 1 in. diameter wheels to the sides. All of the hulls are made from inch-thick wood, and all of them are 9 in. long and 3 in. wide.

* * *

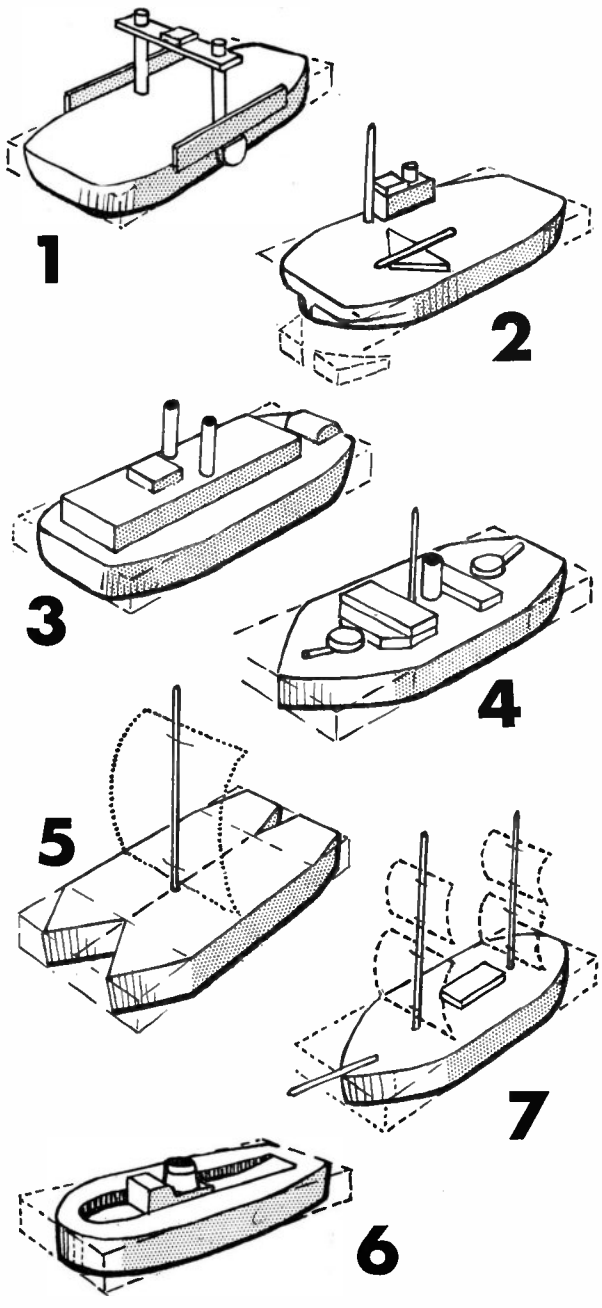
A CAR FERRY (1) has the block of wood for the hull cut away to a width of 2 in. at each end. Two 3 in. long funnels of $\frac{3}{8}$ in. diameter dowel rod are glued into holes in the deck, and a $3\frac{1}{2}$ in. length of $\frac{3}{4}$ in. by $\frac{1}{4}$ in. wood, drilled to take the funnels, is glued in place to make a platform between them, $\frac{1}{2}$ in. down from their tops. A $\frac{3}{4}$ in. square of wood is glued to the middle of the platform to make a wheelhouse. Two 5 in long sides of $\frac{3}{4}$ in. by $\frac{1}{4}$ in. wood are pinned to the hull for bulwarks, and the paddle-wheels are 1 in. diameter wooden wheels with the top $\frac{1}{4}$ in. cut off. The funnels and paddles are painted in red enamel, while varnish or floor sealer is used for the rest of the woodwork.

* * *

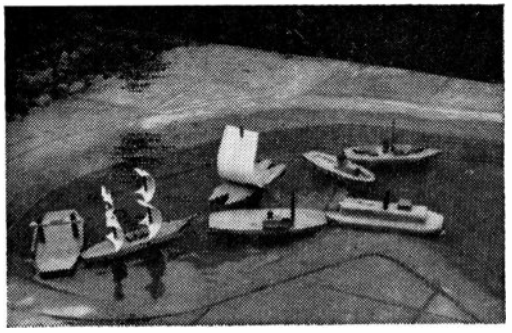
An AIRCRAFT-CARRIER (2) has a hull similar to that of the car ferry, but a $\frac{1}{2}$ in. thick triangle is cut away from each lower side of the bow. A 2 in. length of 1 in. square strip-wood is screwed to the right side of the deck, and a $\frac{1}{2}$ in. high funnel of $\frac{3}{8}$ in. diameter dowel rod is glued into a hole in this. A 1 in. square of $\frac{1}{4}$ in. thick wood is fitted in front of the funnel, and a 4 in. length of $\frac{1}{4}$ in. diameter dowel rod is glued in a hole drilled in the deck in front of the upperworks. Planes, made from triangles of $\frac{1}{4}$ in. thick wood with $\frac{1}{4}$ in. dowel rod fuselages are placed on the deck to balance the ship.

* * *

A RIVER STEAM-BOAT (3) also has the same shape of hull as the car ferry. A 6 in. length of 2 in. by $\frac{3}{4}$ in. wood is screwed to the hull, and two $1\frac{1}{2}$ in. lengths of $\frac{3}{8}$ in. dowel rod are glued in holes drilled side by side in the middle of this strip for funnels. The wheelhouse is a 1 in. square of $\frac{1}{2}$ in. thick wood, and the paddle-wheel at the stern is a 1 in. wide section of broomstick, split to make a semicircular shape, and pinned to the rear end of the deck. Paint the funnels red, and varnish the rest of the ship.



SHIPS



A charming picture of your 'fleet' in the garden pond

A WARSHIP (4) has a hull pointed at the bows and tapered at the stern to a width of 2 in. The funnel, placed in the middle of the ship, is a 1 in. length of ½ in. diameter dowel rod, and the mast in front of it is a 3 in. length of ¼ in. diameter dowel rod. In front of the mast, a 2 in. square of ¼in thick wood, with angled front corners, is pinned and glued in place, and a 2 in. by 1 in. strip of ¼ in. thick wood is pinned on top of this. A similar strip is pinned to the deck behind the funnel. Each of the two gun turrets is made by inserting a 1 in. length of ¼ in. dowel rod in an angled hole in the deck, and pinning a ½ in. thick slice of broomstick or 1 in. diameter dowel rod on top of it.

* * *

A CATAMARAN (5) also has a 3 in. by 9 in. hull, cut in two identical halves as shown. The mast is a 6 in. length of ¼ in. dowel rod, and the sail is a 3 in. by 6 in. piece of plastic cut from a detergent container. Paint this white to cover the lettering and cut two slits in it to enable it to be slipped over the mast.

* * *

A TUGBOAT (6) is shaped by tapering the box to a width of 1 in. with saw cuts, then rounding off. The stern is 1½ in. wide. The hull can be chiselled out to a depth of ¼ in. and a width of 2 in., if desired. The upperworks consist of a 2½ in. length of ¾ in. square stripwood, cut away to the height of ¼ in. at the rear to take the funnel. This is a ¾ in. high section of broomstick with each side filed away to make it the same width as the ¾ in. block on which it stands. Only the funnel should be painted; the rest of the boat is varnished.

* * *

A SAILING BOAT (7) has a 2 in. wide stern which is rounded off, and cuts for the bows which extend back for 2 in. The masts are 6 in. high dowel rods of ¼ in. diameter, fitted in holes drilled 3 in. apart. The bowsprit, also of dowel rod, is 3 in. long; it is pinned in a groove made in the deck. The deckhouse is a 1½ in. length of 1 in. by ½ in. wood. The woodwork is varnished or sealed, then the four sails are made. These are 3 in. squares cut from a detergent container painted white and slit to fit the masts. (A.L.)

IMPROVING THE TONE OF YOUR PRINTS

EXPERIENCED photographers can make mistakes at times and it may be true to say that not every roll film bears a full quota of perfectly exposed negatives. Apart from the difference in lighting during the course of exposing the film we can also overdevelop a little. We can also err when making the print.

Fortunately we can employ a chemical corrector which will remedy many defects and even make improvements in some cases. This is known as Farmer's Reducer and available in small packets prepared by Johnson for making stock solutions. There are a number of formulae available but the reducer is not exacting; some workers even throw a half handful of hypo crystals into a beaker and add sufficient potassium ferricyanide solution to make it turn deep yellow. Two solutions are necessary owing to its poor keeping qualities and I would mention that potassium ferricyanide is in the form of reddish, orange, hard crystals so it is advisable to crush before attempting to dissolve.

If you like to mix your own solutions here is the formula *for over-exposed negatives:* Formula 1

Solution A	Potassium ferricyanide	2 oz.
	Water	10 oz.
Solution B	Hypo crystals	3 oz.
	Water	20 oz.

It is assumed that you are sure that your developing time was correct and the negative obviously suffers from over-exposure, that is, it is too dense. In this instance we take 1 oz. of Solution A, 4 oz. Solution B and add sufficient water to make 32 oz. of working solution — smaller volumes being in proportion. This working solution keeps for about 15 minutes, when it becomes exhausted.

Place the over-exposed negative in a clean dish (preferably white so that you can see the chemical action) and pour in sufficient solution to cover the negative completely. Now keep your eyes on the negative, since action proceeds rapidly. When the negative appears to have been reduced sufficiently, remove it from the solution, placing immediately in running water; wash thoroughly and dry in a dust-free place.

The reducer made to this formula is what we call cutting, or subtractive. It removes equal densities of silver everywhere on the negative and while it reduces the density it in no way effects the contrast.

If you have never used Farmer's Reducer before it may be advisable to use a slower working solution by reducing th strength to ½ oz. Solution A, 1 oz. Solution B and water to make 32 oz. This is used in the same manner but reduction of the hypo content slows the action, which is easier to control. Action stops immediately a negative is placed under a running water tap. Incidentally, the negative must be clean and free from greasy finger marks.

An immersion in a reducing bath will brighten a dull print. Note how the water sparkles and the trees look better.

Note that the reducer has only a short working life when mixed, so it should be thrown away and a new bath mixed if further reduction seems necessary.

Over-development

You could be confronted with a problem of over-development — as distinct from over-exposure — which makes the negative too contrasty and in which case we must use Formula 2. When used in this manner the reducer is termed proportional. It decreases the image density in proportion to the amount of silver already there. This decreases density and reduces the over-all image contrast of the negative image.

Formula 2

Solution A	Potassium ferricyanide	¼ oz.
	Water	32 oz.
Solution B	Hypo crystals	2 oz.
	Water	10 oz.

The method is slightly different for this kind of correction and we use the two baths separately. Place the over-developed negative in the stock solution A from 1 to 4 minutes (depending on the amount of reduction required) giving moderate agitation, then place in stock solution B for 5 minutes. The negative is then given a thorough washing in clear water as before.

It may be advisable to treat the negative in solution A for about 1 minute and then transfer to solution B. Should the reduction be insufficient for your liking you can repeat the

process as often as necessary until the correct contrast is achieved. The negative *must* be washed before returning to solution A for such repeat work.

You will be well advised to make experiments with old negatives before giving these treatments to important ones you do not wish to damage.

The ferricyanide solution will last almost indefinitely if kept away from the light but the hypo solution will become stale if kept too long. It is best to mix the latter in small quantities shortly before preparing the working solution.

Some negatives may be both correctly exposed and developed yet bear an overall fog, perhaps due to stray light or even chemical fogging. This can be dissolved by placing in a solution made from one part of Solution A (formula 1) diluted with one part of water.

Remedy for over-exposure

It may have occurred to you that if we can correct negatives in this way by chemical action we can also correct positive prints. I would mention that many an over-exposed print has been saved by immersing in a bleach bath after washing. In fact, some exhibition workers often deliberately over-expose the print then bleach as part of their standard processing technique. This produces more vigour.

When used with paper we find Formula 1 brightens the highlights considerably but does not attack the darker parts so much. You must ensure that the print has been properly-washed and it is advisable to soak dry prints in water before placing in the reducing bath. The process can be stopped for close examination and resumed if necessary. A second immersion will begin to show results in the medium tones and later on in the heavier tones of the picture. But never go too far, keep the print moving in the bath to avoid patchiness, watch the highlights and plunge into clean, running water when the effect is achieved. If a bath becomes exhausted before the desired effect is reached a new one must be prepared.

Having explained the value of Farmer's Reducer for general purposes I should also mention its value as a local print reducer. We may have a print with a fussy background we would like to erase or there may be a blemish we wish to remove. Here we resort to a small paint brush and use Formula 1 although much depends on the area to be treated.

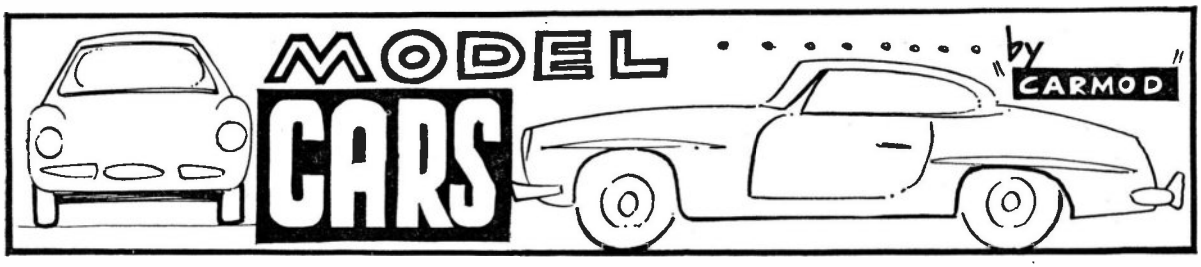
If I wish to remove a portion of a background I soak the print in water and then lay it on a sheet of plate glass. The latter is placed on the bench and laid at an angle so that the solution will be drained away from the part I wish to retain. The brush is loaded and painted over the background while a finer brush picks up some of this wash for approaching closer to the outline of the subject. Further applications will soon bleach out the entire background when the print is thoroughly washed. You must avoid overloading of the brush, for a solitary splash may result in an unwanted bleached spot!

This photograph shows how a fussy background can be bleached away. Only the right side has been treated.

A black spot can be removed similarly but here I use a fine brush which is partially drained on a piece of blotting paper before applying to the print.

Correctly used, Farmer's Reducer is a real boon to the photographer in many ways and so cheap that it is well worth keeping in stock.

(S.H.L.)



THE RACING ITALAS

VISITORS to the Montagu Motor Museum at Beaulieu in Hampshire invariably come away with the memory of the beautifully restored 1907 120 h.p. Itala racing car. It was this actual car which won the 1907 Coppa Velocita at Brescia when it was driven by the great Italian driver, Cagnot.

The car in the museum came to light in 1959 after laying in store for 28 years. Even today this car is capable of speeds of over 105 m.p.h.

As a very convenient basic for this chopping I used the Rio miniature of the 1906 Targa Florio Itala 24/40. Although very different in appearance, most of the parts of the Rio model can be re-formed and re-located to make up the Coppa Velocita version.

Strip down the model to its basic components but do not remove axles and wheels. This is quite easily done by removing the screws in the sump under the engine and below the transmission shaft. To get to the latter the shaft has to be eased away from its locating hole and swung backwards.

The 1906 Targa Florio car had a considerably longer wheelbase than the 1907 vehicle and consequently the chassis has to be shortened by 1 cm. This is best done by removing a section of the chassis 1 cm. wide from immediately in front of the rear springs, after which the two parts of the chassis should be cemented together and the join reinforced on the top-side with self-hardening modelling material.

Incidentally I have been using the adhesive sold under the name Plastic Padding for jobs such as this, and with considerable success.

The bulkhead/dashboard of the Rio model can be discarded and the bonnet section cut away from the rest of the body with a hacksaw through the slot which contained the bulkhead. The bonnet can now be cemented back into place behind the original radiator and on the chassis; at the same time the sump under the engine can be screwed back into place.

Lengthen the bonnet and form the scuttle with cardboard (see illustration). The steering wheel and its shaft can now be replaced, using the original slot location in the chassis. A bulkhead can be built up with Plastic Padding or Plastone within the cardboard scuttle and representation of three foot pedals should be set in place under the steering wheel. Cut these pieces from balsa wood.

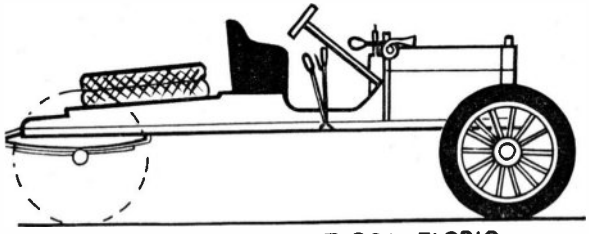
Remove the seats by cutting away the stud ends on the under-side of the body. These seats can now be divided and cut to the new shape as shown in the illustration. Build up the driver's seat pedestal with Plastone in position 5 mm. rearward of its original location. The riding mechanic's seat, which can now be cemented in place, is located considerably lower than that of the driver's and it is sufficient to use this seat in its original form, remounted directly on the chassis.

Turning the car over it will be seen that it is necessary to rebuild the exhaust silencer, as a large portion of this has been cut away when shortening the chassis. The silencer should be 16 mm. in length, which will mean building it up almost to the flywheel. The floor in front of the seats should be covered in thin card. It now remains only to fit the fuel tank behind the seats. This should be carved to shape from a balsa wood block. This completes the structural part of the conversion.

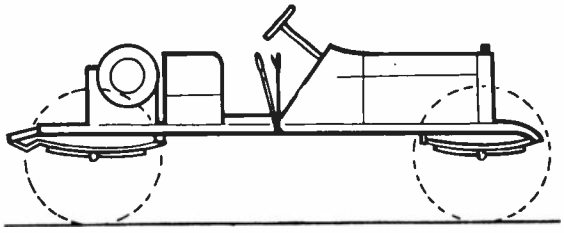
Now paint the model in Italian racing red. This should include the chassis, wheels, seat backs and tank. The floor is coloured dark brown, seats left in their original grey, brass hub-caps should be retained and the steering wheel left in its original black.

Although in its restored state at Beaulieu the car does not carry spare tyres, I seem to remember a photograph of it in its original form with one or two spare tyres mounted behind the petrol tank. I may be wrong here and it is difficult to check the point.

Rio 1/43rd scale models of antique vehicles are most excellent productions. They are produced in Italy but are imported here and fairly freely available. They are relatively expensive (about 30s. each) and it may be that some enthu-



1906 24/40 ITALA TARGA FLORIO



1907 120 H.P. ITALA COPPA VELOCITA

siasts will feel apprehensive at the prospect of risking chopping these fine models. However, the one I have just described is a considerably simpler chopping involving very little risk.

Other Rio miniatures include the 1907 Peking-Paris Itala, 1932 Alfa Romeo P3 Grand Prix car which the great Nuvorari and the then young Enzo Ferrari made their names, Fiat Mod. o and 501 in several forms are also available in the series as are the Fiat Balilla, a Detroit Chalmers and Mercedes 60 h.p.

The prize of the Rio collection is the most beautiful Isotta Fraschini Tipo 8 available in forms of Sedanca de Ville, with a Victoria pram-type hood, and limousine. Construction kits of this Isotta Fraschini are also offered.

Rio models can be obtained from many model shops including Auto Models, 70, Finsbury Pavement, London, E.C.1, and from Marc Europa Models, 9, Sussex Arms Yard, Tunbridge Wells. Prices vary a little according to supplier.

ANTIQUE BLACK ALUMINIUM

ALUMINIUM is light and soft, a good metal to work with although it is difficult to solder. Pure aluminium does not corrode easily and it is an excellent conductor of electricity.

Quite a few of the designs produced by Hobbies Ltd, could be made in aluminium but one drawback is its indistinguished colour. Painting is not the answer because this destroys the character of the metal and anodising, though effective, is a fairly complex process calling for a controlled d.c. supply.

One solution to the process is to use black aluminium, which gives an imposing antique finish that seems made for fretwork. This finish we can achieve by a chemical process which covers the metal with a layer of oxides. The process is easy to carry out, can be employed at normal room temperature and unlike some similar operations, does not call for really toxic chemicals.

To make about a quart of blackening mixture add sixteen fluid ounces of commercial hydrochloric acid to one pint of water. Pour the acid slowly into the water, stirring continuously with a glass rod. Now add one quarter of an ounce each of arsenious oxide and copper sulphate, and half this quantity of ferrous sulphate. Unless you have weighing equipment it will pay to order the exact quantities from your local chemist.

This mixture contains acid and arsenic, and therefore should be treated with respect. On the other hand it is no more dangerous than many of the proprietary preparations sold for use in the home. Take the commonsense precautions of keeping the solution in a glass-stoppered bottle, and of washing your hands and utensils after you have used it, and nothing should go wrong.

This preparation will give a fine antique black finish to any aluminium object but before it is used the metal must be thoroughly clean. Mere washing is not good enough; it must be cleansed in an alkali bath if you are to avoid a patchy finish. Make up the bath by dissolving two and a half ounces of caustic soda in a quart of water. Keep this, too, in a glass-stoppered bottle. Now you are ready to go to work.

Let us suppose that you have a flat aluminium object which you wish to treat. Most of the articles cut out with a fretsaw are flat, so this is a typical example. Your first need is for vessels to hold the cleaning and the blackening solutions. For these, what could be better than glass photographic dishes ? These are cheap, easy to obtain, will not be attacked by the chemicals and can be cleaned after use with the minimum of difficulty.

Fill one dish with the alkali solution and another with the colouring mixture and stand them both close to a sink. Drop the aluminium carefully into the cleaning fluid and leave it for about five minutes. It should not be necessary to add that the metal should be as clean and bright as possible beforehand.

Now pick out the aluminium with a pair of tongs and rinse it very thoroughly under the running water tap. Shake off as much of the water as possible and then place the aluminium into the blackening fluid.

This is a quick-acting solution. As you watch, the metal will change in colour from white to grey, from grey to black. When it grows no darker the process is ended. Leaving it longer will make no difference at all, because the layer of black oxides is a protection as well as a colouring. Lift out the blackened aluminium with your tongs and again rinse off thoroughly under the tap. The colour, which is much harder than the metal itself, will not be harmed.

While the aluminium is draining, pour the contents of the two dishes back into their respective bottles. Both solutions can be used over and over again, especially if you make sure that the metal is as dry as possible before putting it into the second bath. Renew both solutions when the blackening process begins to take a very long time.

Now wash your hands, the tongs and the dishes. In this way you will avoid the possibility of a mishap. By the time you have put the bottles away the metal will be practically dry and ready for finishing. It will be a dull black and your purpose is to give it a glossy patina suggestive of antiquity.

This is a matter of patient polishing with a soft rag. On no account use metal polish, which would take off the colour. Just rub away steadily and the patina will grow. If you wish you can pick out highlights by rubbing with jewellers' rouge or some other mild abrasive. The lights will merge imperceptibly into the darks and with care you can achieve some fine artistic effects.

The final process is lacquering. All oxidised metal finishes should have a protective coating of lacquer but do not make the mistake of using a high-gloss varnish because this will destroy the eggshell sheen imparted by your polishing and produce a rather cheap and 'stainy' effect. Perhaps the best protection is a very thin coat of the matt varnish used by artists to protect their pictures. After this has dried thoroughly, repolish very gently and you should have achieved a perfect antique finish which will last for years.

(C.N.)

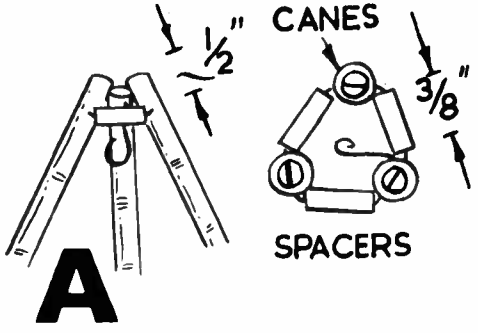
HANDY AIDS FOR ANGLERS

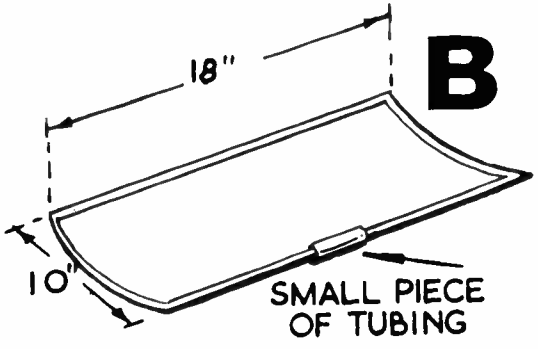
By C. A. Guy

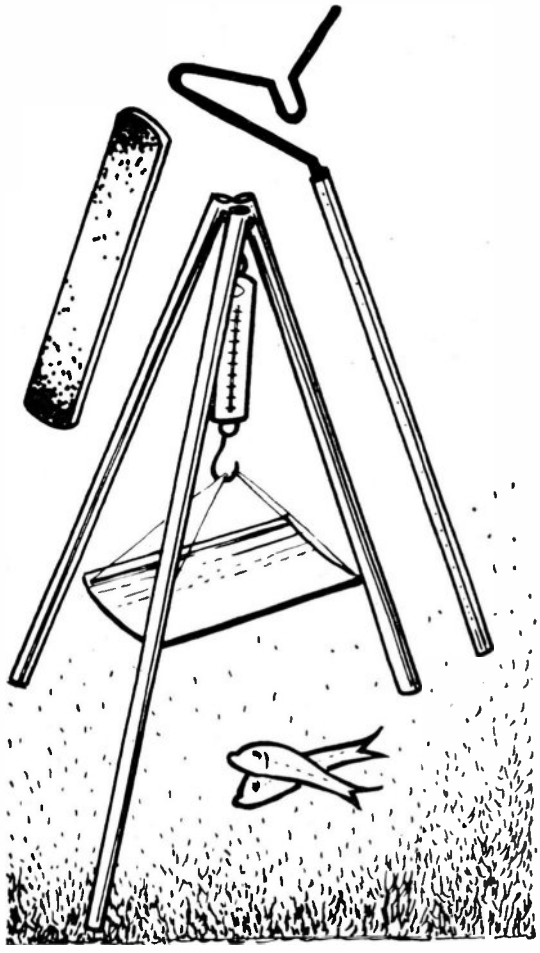
HALF the fun of angling must surely be the weighing of the catch, or at least the more sizeable fish. Most anglers carry a small spring balance in the tackle box for this purpose. Various methods are adopted for holding the fish, but the more common seem to be either to weigh the fish in the keep-net, or to wrap it in a piece of cloth, which is then hung on the hook of the balance. With a large slippery fish, this can be quite a problem. It is also difficult to get an accurate reading with a hand-held spring balance, as every movement of the fish is transmitted to the hand via the balance.

The tripod shown here simplifies the weighing operation, and is kinder to the fish. Its weight is negligible and it is easily carried in the rod-bag.

The frame is simply three 3 ft. garden canes (approximately $\frac{5}{16}$ in. thick). A small hole is drilled through each cane $\frac{1}{2}$ in. from one end. Three small pieces of brass tubing about $\frac{3}{8}$ in. long will also be required as spacers. A length of







fairly stiff wire is then threaded through the holes in the canes and spacers as shown in Fig. 1 (A). The ends of the wire are twisted together and bent down to form a hook on which to hang the spring balance.

A framework is next made up from heavy galvanized wire as shown in Fig. 1 (B). This is covered with a piece of material such as canvas or heavy cloth in the form of a sleeve which can easily be slipped on and off for washing. Two length of cord are attached at the corners as shown.

In use the tripod is set up well away from the water's edge to avoid the possibility of a flapping fish falling back into the water before weighing — very annoying this (such a fish gets bigger each time you talk about it!). The spring balance is then slipped on to the hook of the tripod. Fish for weighing are laid on the cloth-covered frame, which is then hung on the balance.

With a few odd lengths of metal tubing, and a length of thick wire, a selection of ROD-RESTS can very easily be made up.

It is often an advantage to have rests of different length to suit varying bank conditions, such as hard and soft ground, high and low banks, tangled undergrowth or reed-fringed

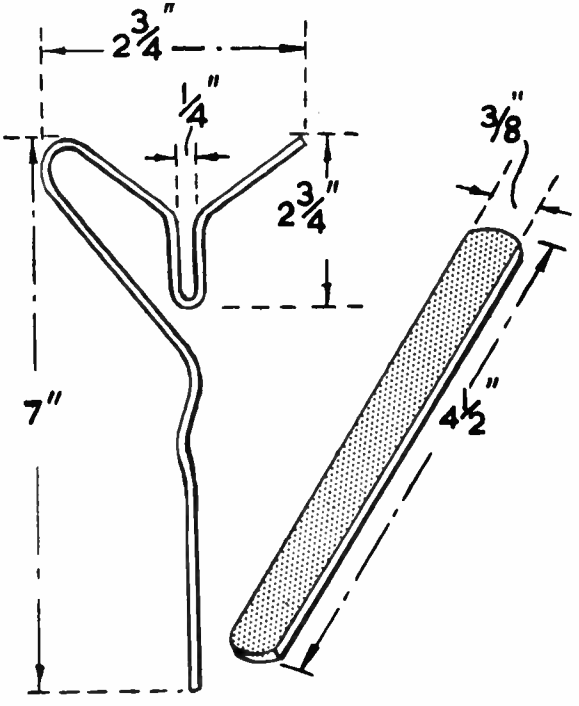
edges. About half a dozen sizes ranging from, say, 9 in. to 3 ft. 6 in. is usually sufficient.

The tubing should have an internal diameter of about ¼ in., though a little more or less does not matter. It is not essential for the tubes to be the same diameter, as slight variation is allowed for in the shape of the head.

Two or three heads are bent to the shape shown in Fig. 2, from heavy galvanized wire of the type used for fences. This is about ⅛ in. thick.

In use, the appropriate tube is pushed into the ground, and one of the heads is slipped into the open end. When pushed into the ground the end of the tube naturally gets filled with soil, so it is important to ensure the same end always goes into the ground, leaving the other end clear.

The value of sharp hooks with a small barb is appreciated by most anglers. Unfortunately, the majority of hooks sold are not really sharp and the barbs are too rank; this is especially noticeable in the larger sizes. A large barbed hook is very difficult to remove without tearing the fish's mouth.



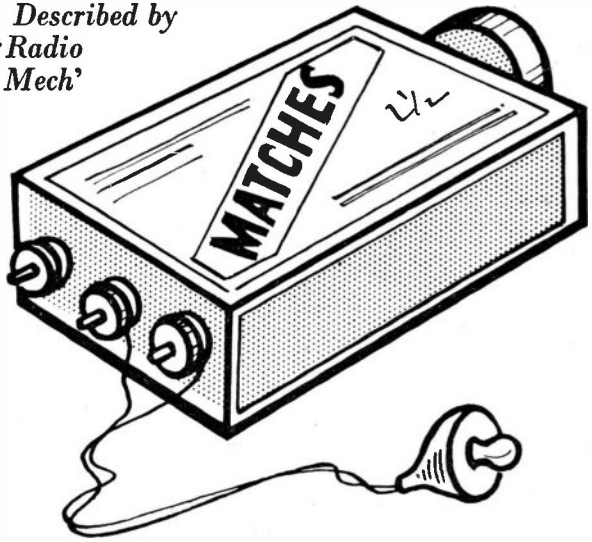
If a simple EMERY-STICK made up as shown in Fig. 2 is carried in the tackle box, hooks can be kept needle sharp all the time, and barbs reduced with just a few quick strokes.

The actual stick is a neat, professionally finished article made from an ice lolly stick. A strip of emery paper, cut to shape is glued on each side of the stick; fine on one side, slightly coarser on the other.

It is advisable to check your hook from time to time when fishing, especially if you have been snagged a few times, because you will find the tip of the hook often gets turned or even broken off, thus greatly reducing its penetrating power. A few rubs with the emery-stick will soon put this right.

A MATCHBOX RECEIVER

Described by 'Radio Mech'



To build this compact and efficient crystal receiver you need only the following items —

Matchbox; three 6BA bolts with nuts and terminal heads; piece of ferrite rod about 1¼ in. long and ⅜ in. in diameter; some 28 S.W.G. or similar enamelled, silk covered, or cotton covered wire; a crystal diode; A 300pF or 500pF bush-mounting compression trimmer; small wooden or other knob.

Fig. 1 is the circuit, and will usually give good headphone reception up to a distance of 50 to 100 miles or so from a BBC station. No battery, or other power supply is needed.

Assembly

Fig. 2 shows how to fit and connect the parts. The coil winding is about 65 turns of the insulated wire, on the ferrite rod. Secure the ends with adhesive or cotton, and glue the coil in the matchbox tray.

Three holes are pierced for the terminals, and these can be marked A, E, P and P as in Fig. 2. Scrape the insulation from the wire ends, where these are connected.

Trimmers of this kind are generally made for adjustment with a screwdriver, though they can be obtained with a small knob. If you have the screwdriver type, replace the short screw with a long one, so that the end projects, to take the knob. The latter may come from a household tube, or can be cut from wood or plastic. It can be a tight fit on the screw, and cemented. Or a nut may be placed each side of the knob, and locked in place.

Headphones

If you hace an ordinary pair of phones, of the kind used for crystal sets, these will be satisfactory. Headphones of this type can also be purchased.

For small size, a personal earpiece or personal phone can be used instead. This is a midget earpiece, attached to a thin twin flex lead.

For continuous listening over a long period, the ordinary earphones, with head-band, are most comfortable. A single earphone may be removed from the headset, and fitted with a twin flexible lead.

Using the receiver

Take the phone connections to terminals P-P, with aerial lead to terminal A, and earth lead to terminal E. This actually means that earth and one phone lead both go to the middle terminal.

In some localities, an earth may not be needed. If an earth is to be used, it can be a metal spike or other object in the ground, connected to the receiver by a length of bell wire or flex. Volume is increased by adding the earth.

Almost any aerial can be employed. A quite short indoor wire may be sufficient in some areas. In other districts, an outdoor wire will be much better. It may be possible to secure a cord at an upstairs window, and to stretch the aerial wire from this to another support, such as a post, tree, or other building. A single uncut length of wire is best, running right from the receiver. A small egg insulator can be fixed at each suspension point. It is not necessary that the aerial wire should be horizontal. Do not fold the wire back on itself to increase the length, as this is not efficient. Most outdoor aerials are from about 20 ft. up to 75 ft. or more long, according to circumstances.

For camping or temporary use, it may be found sufficient to throw a length of thin flex over a tree or other support, and to take an earth wire to a metal skewer or other spike pushed in the ground.

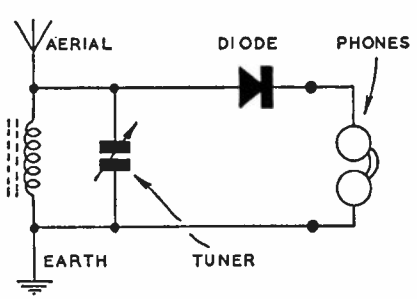


Fig. 1— (left) The circuit

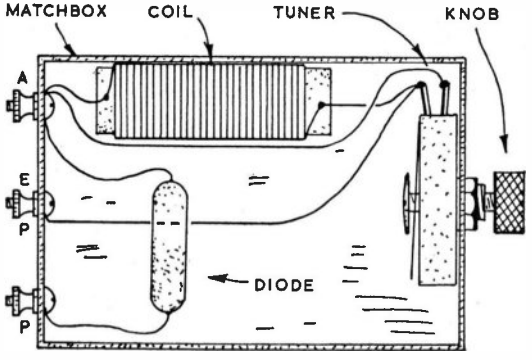
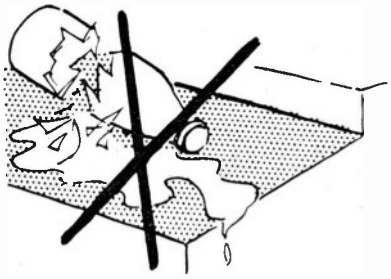
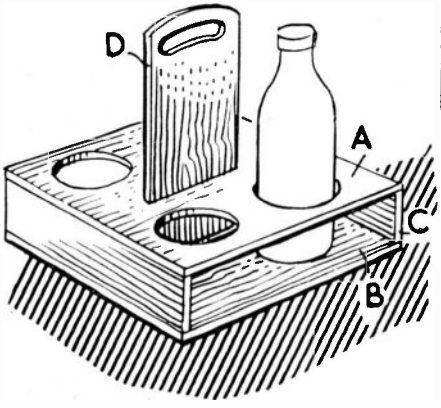
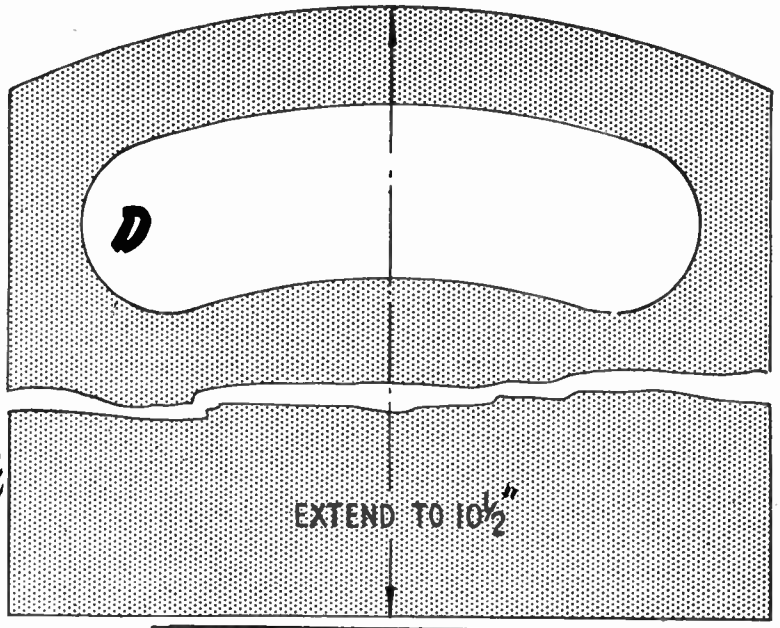


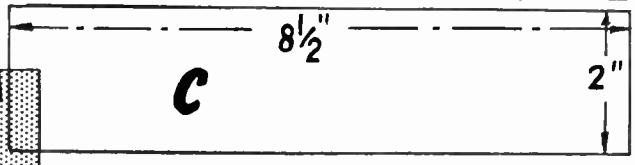
Fig. 2—(right) How to fit and connect parts

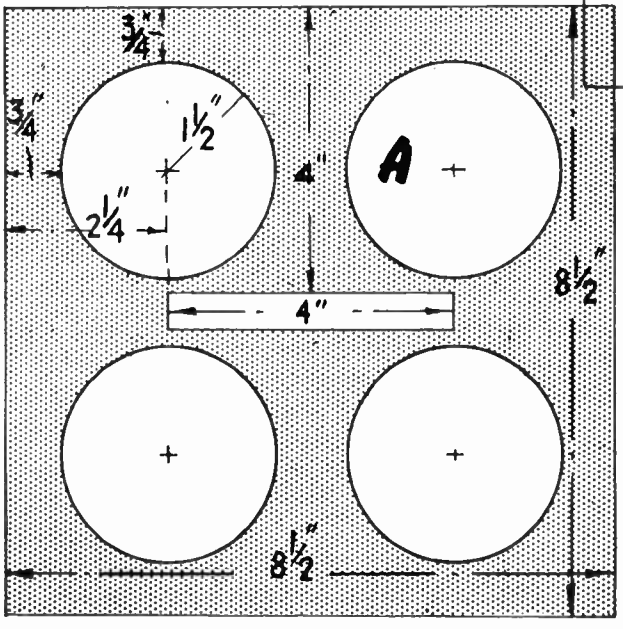
MILK BOTTLE HOLDER











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Cut one of A and two of C from ¼ in. wood to the sizes shown. The centre slot in A is to take the handle D, and is ½ in. wide. The base B measures 8½ in. square and is ¼ in. thick, and the handle D should be ½ in. thick. All parts may be cut with a fretsaw.

Screw together as shown in the sketch and finish by giving an undercoat and two top coats of outdoor quality paint.

(M.p.)

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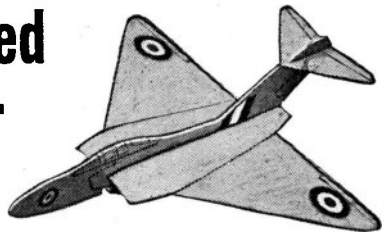

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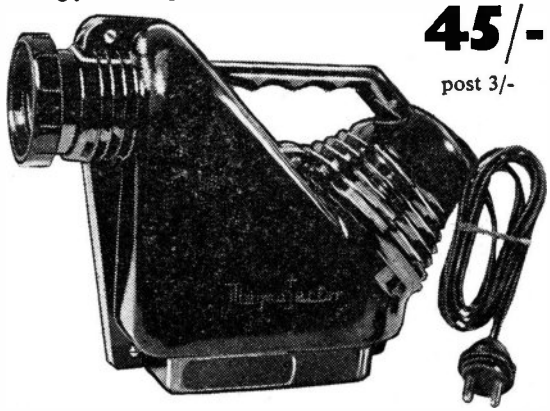

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