Hobbies WEEKLY

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How to make 10 in. Working Model of A "FLAIL" TANK

THIS weapon is said to have done splendid work in El Alamein in Egypt, and in France and Normandy. It is really an ordinary tank to the front of which is fitted a strong steel cylinder, connected to which are a number of chains. As the tank travels forward the cylinder revolves at great speed sending the chains whirling round and beating the ground before it.

This beating explodes the mines, thus clearing a way through for troops and other war traffic. It has not been possible of course to get detailed particulars of the actual flail attachment, but we have nevertheless been able to make quite a presentable model from the information allowed us.

Our model measures 10ins. long by 3½ins. high, and it is almost entirely made from wood. The fret-saw enters largely into the making of the tank which is simple to cut and construct.

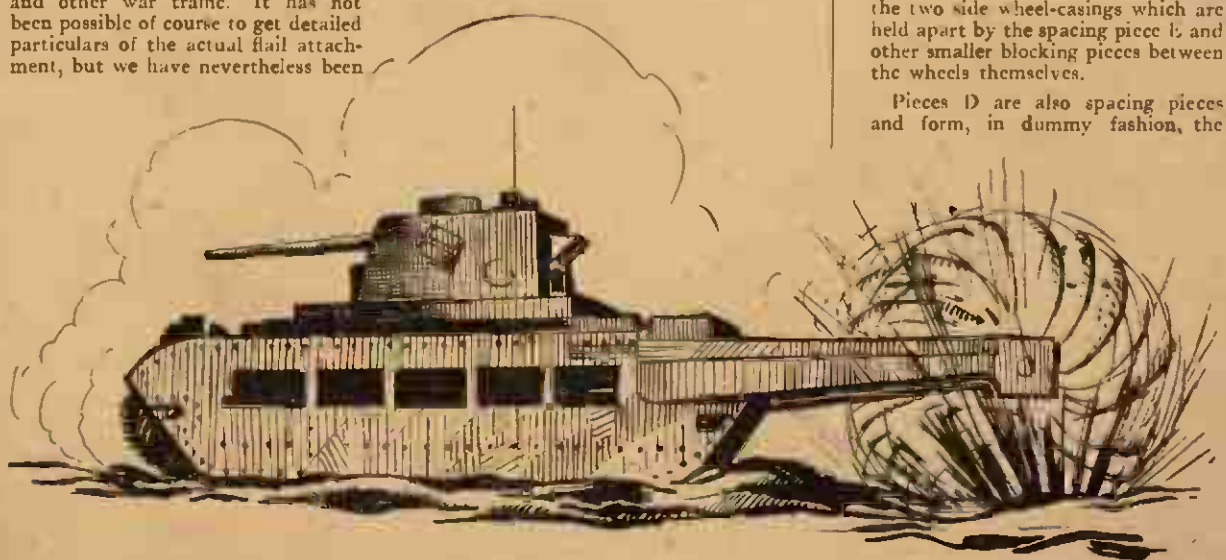
It is too, a working model, for the wheels which are partly hidden by the side "plating," are linked up to a front pulley construction which, when the belts are attached give the motion to the front chain cylinder

A useful side view of the tank with its "flail" attachment is given in Fig. 1 and the method of connecting up the belts is here clearly shown. Certain parts are lettered, too, which make the construction of the model simple when taken in conjunction with the other diagrams.

Body Work

A view of the parts which go to make up the body of the tank is seen in Fig. 2. In this, A and B are the two side wheel-casings which are held apart by the spacing piece E and other smaller blocking pieces between the wheels themselves.

Pieces D are also spacing pieces and form, in dummy fashion, the



tracks seen at the ends of the tank. The wheels work between each pair of sides made up by A, B, etc. Piece C is a body section made from a single block of wood and glued between the two sides B.

It will be noted that at one end of this block C, a recess is cut, to allow the pulley extension of the front wheel to fit freely.

In Fig. 3 the method of arranging the belts is seen. Belt A1 runs round the front wheel which has been grooved to form a pulley. All the other three large wheels are plain-edged discs. The belt A1 then runs to a smaller pulley fixed to a short spindle on which, again at the extreme outside end, is glued another pulley.

Pulley Bearings

From this pulley belt B1 runs to the end of the extension frame where there is another pulley which is connected to the spindle bearing the chain cylinder. In Fig. 3 the extreme end pulley is seen in the detail, connected up with the cylinder.

At the inner end of the short spindle, and working in the recess in block C, as previously mentioned, is a small plain disc about ½in. diameter. This holds the spindle in place, but at the same time allows it to revolve freely.

The wheels of the tank are cut from ¼in. wood and are threaded up through the holes in sides A and B and held by spindles as seen in Fig. 4. The two top members F and G of the tank are shown with measurements in Fig. 5, and the gun and its turret in Fig. 6. A screw may be put through the gun turret so that it may be turned as desired.

The extension frame is shown complete in Fig. 7. It is made from 3/16in. wood, the same as pieces A and B, and is glued and pinned to the side A of the tank in the recess cut to receive it, see Fig. 1.

In the near side member H of the frame a hole large enough for a ¼in. piece of spindle to revolve freely in it is made. In the opposite side a smaller hole is made through which will pass a round-headed screw holding the end of the chain cylinder. A short piece of spindle is glued into the end of the cylinder which is ¾in. or so in diameter and 2⅜ins. long.

Belt Cover

To form an efficient cover for the belt running to the end pulley of the frame, a piece of metal cut from an ordinary tin is angled up as shown in Fig. 8 and nailed with small pins to the pieces H of the frame. To form the flail cut off a number of lengths of light-weight chain about 1⅜ins. long and attach it to the cylinder by means of tiny wire staples just as seen in the detail at Fig. 3.

Paint the tank and its front extension camouflage colours or dull blue grey. See the wheels revolve freely so when the tank is pressed down and pushed forward the belts come into action and carry round the chain cylinder effectively.

It should be mentioned that the scale included below Fig. 1 will be found useful for measuring off certain parts not figured or specially shown.

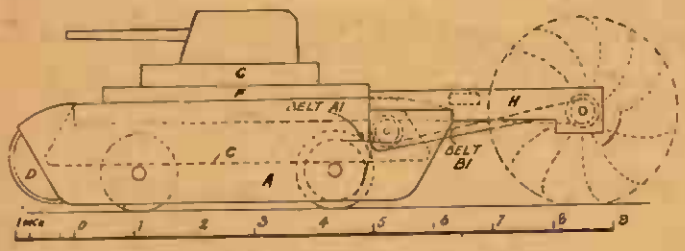
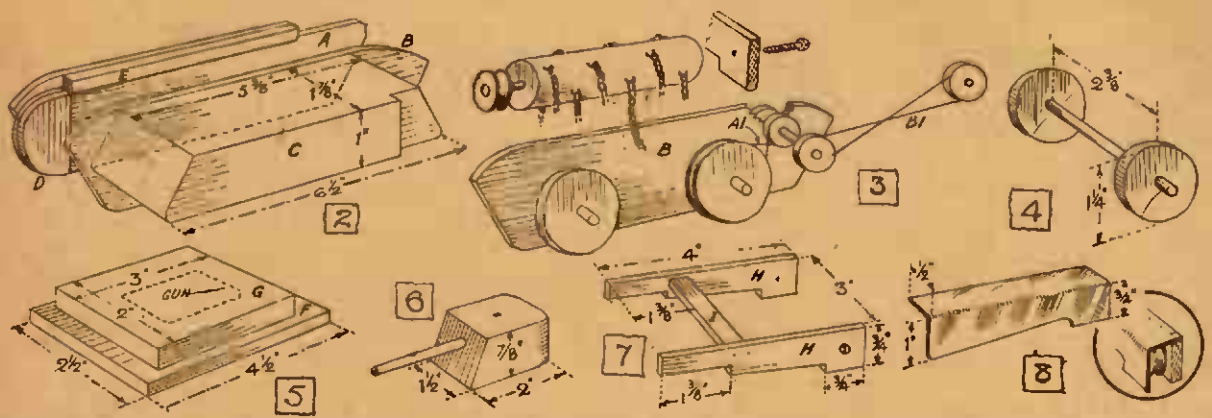
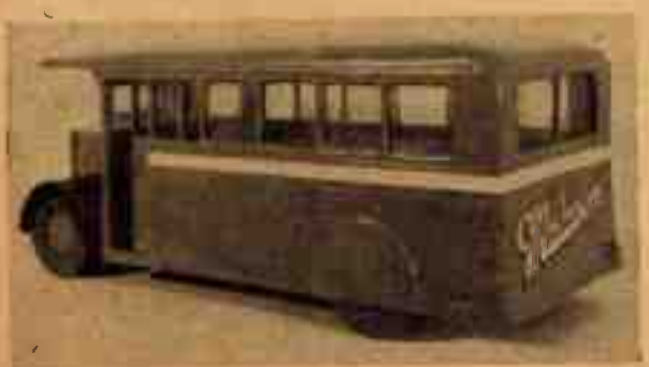


Fig. 1—Side view of parts with scale of inches



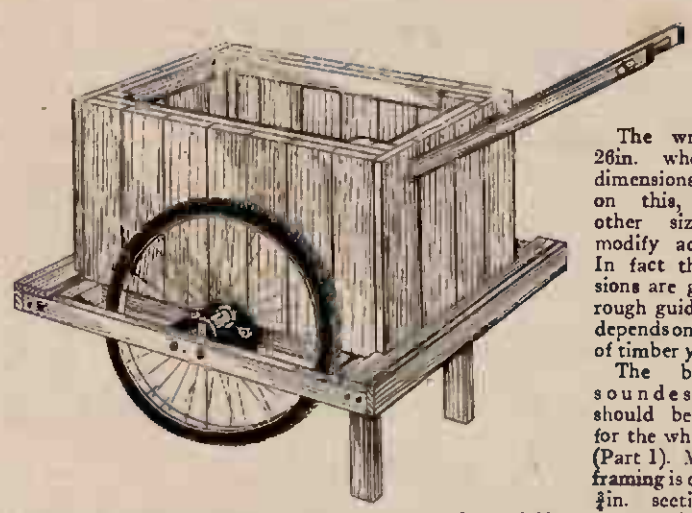


An Airman's Coach!

HERE is an excellent piece of work recently completed in the spare time of L.A.C. F. Welham, an electrician at one of our home R.A.F. Stations. His use of the fretsaw began before he joined the Services, and a model of Buckingham Palace remains at home to be finished off after demobilisation. This striking model coach body is designed on our 6-wheel lorry design chassis. It is fitted with utility seats, twin rear wheels, sliding door and two steps at entrance. The front wings are of 1/16in. wood curved on a former with steam. The actual material for the side windows is all in one piece. The spray-painted coachwork (done by an obliging friend) and the name on the back, complete a delightful model for some little fellow to use.

For the garden and general work you need this

HANDY "JEEP" TRUCK



A HAND truck such as forms the subject of our article is extremely useful about the garden and allotment, and serves many domestic purposes, too. The writer has used it for carrying garden needs and produce ; bricks, sand and cement ; paper for salvage, and many other useful purposes.

General description

To the best of the writer's knowledge, the design herewith for a truck is entirely original, incorporating some novel points of construction. The wooden mounting frames act as fenders, thus protecting the wheels when the truck is being "docked." It will also be noticed that the handles are an extension of a diagonal bracing member of the frame. This ensures great rigidity.

The writer used 26in. wheels, and dimensions are based on this, but for other size wheels modify accordingly. In fact the dimensions are given as a rough guide. Much depends on what sort of timber you can get The best and soundest pieces should be reserved for the wheel frames (Part 1). Most of the framing is of 1½ins. by ¾in. section. The only special iron parts required are four pieces such as are shown in Fig. I. A local engineering shop or blacksmith should be able to make them, but do not have them too thin.

Parts to Prepare

Prepare the part No. 1 of which four are required, 36ins. by 1½ins. by ¾in. Bore holes in all of them as shown (Figs. 1 and 3), to take the iron plates, which are bolted on. In two, bore two more ¾in. dia. holes to take the handle pieces. Use washers under the bolt heads and nuts. Prepare two blocks (Part 2), 4½ins. by 4ins. by 1½ins., and also two blocks (Part 3), 4ins. by 4ins. by 1½ins. Screw the parts together to make an assembly as shown in Fig. 1. One frame, you will notice, is made wider than the other as one wheel, having a sprocket, is wider.

Cross pieces (two required, Part 5), 26ins. by 1½ins. by ¾in. are screwed to the ends of the two wheel frames (check for squareness) and the two end pieces (Part 6) 26ins. by 2½ins. by ¾in. added. The inner rails (two required, Part 7) can now be fitted. They are 36ins. by 2½ins. by ¾in. with notches cut away to clear the cross-pieces and having holes drilled (after assembly) to take the bolts for the wheel plates.

It is now an easy matter to add the four uprights (Part 8), and complete the top framing by adding parts 9 and 10. (See Cutting List). The leg pieces (Part 11—two required) are fixed, and the handle pieces (Part 12) bolted on. These can be cut to length afterwards.

The truck is now boxed in and floored. Part 1 forms a rebate to take the flooring (a bit will have to be cut away around the lower end of the

(*Continued foot of next page*)

CUTTING LIST

Part.	Name of Part.	Size.
1—4	Wheel Frames, Sides	36" × 1½" × 1"
2—2	Wheel Frames, Ends	4½" × 4" × 1½"
3—2	Wheel Frames, Ends	4" × 4" × 1½"
4—4	Wheel Brackets	6" × 3½" × ⅛"
5—2	End Cross Pieces	26" × 1½" × 1"
6—2	End Capping Pieces	26" × 2½" × 1"
7—2	Inner Rails	36" × 2½" × 1"
8—4	Uprights	18" × 1½" × 1"
9—2	Top Rails (Long)	31½" × 1½" × 1"
10—2	Top Rails (Short)	11½" × 1½" × 1"
11—2	Leg Pieces	23" × 1½" × 1"
12—2	Handles	61" × 1½" × 1"
13—4	Filling Pieces	24" × 1½" × ¾"
14—	Flooring	Any suitable thin planking, e.g., packing-case wood.
15—	Sides	
16—1	Handle Cross Bar	¾" dia. × 16" long (iron pipe).

¼" Bolts. 8—2" long. 4—1½ long. Use screws for assembly of frame.

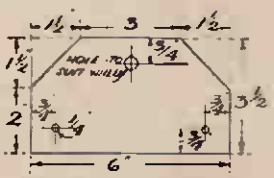


Fig. 2 —A bracket plate

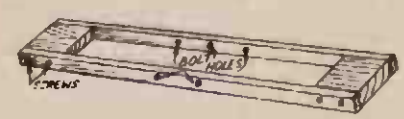


Fig. 1—The side wheel frames

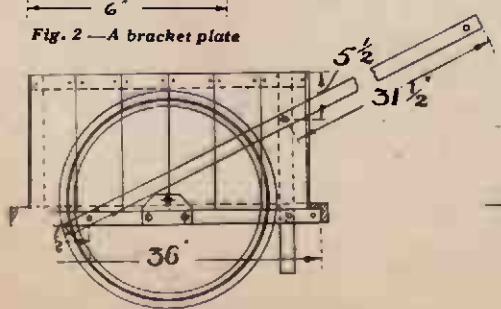


Fig. 3—Side elevation with dimensions

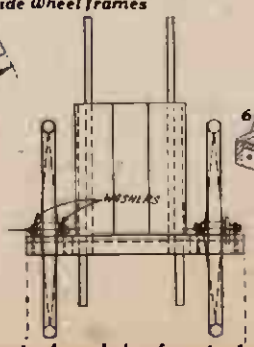


Fig. 4—An end view from back

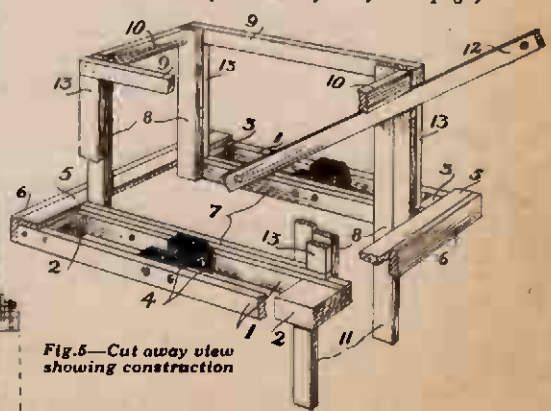


Fig. 5—Cut away view showing construction

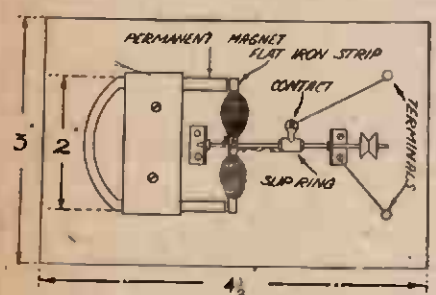
Odd bits and pieces provide cheap parts for making A MODEL DYNAMO

THE little dynamo here described is cheap and easy to make, and the young handyman should find no difficulty in its construction. It is quite efficient, but more details of this will be given later.

Before commencing construction the necessary materials should be collected. The most important part is the permanent magnet. It need not have the exact dimensions shown but it must be fairly powerful. Actually, any size magnet may be used, provided the armature is modified in size to fit it.

The baseboard is made from a piece of wood of the size shown about ½in. thick. The two bearings are made from brass: they should be stout and made a good fit for the axle. Their size is unimportant, provided they are high enough to allow the armature to rotate without fouling the baseboard.

The armature is made from a strip of flat iron of such a size that it fits across the poles of the magnet. When buying magnets they usually have a soft iron "keeper" in position across the poles. This is eminently suitable for the armature.



Plan of base and positions

If there is any doubt as to the softness of the iron, it should be placed in the fire, allowing it to become red-hot and cool slowly. The iron strip is drilled centrally to make a tight fit for the axle; the two are then soldered together.

To wind, cover the armature with a layer of insulating material (leaving the ends which will come by the magnet poles bare) and wind on the 32 s.w.g. enamelled wire. As much wire as can be accommodated is wound on, taking care to have an equal amount each side the spindle to preserve the balance.

The two sections must be wound in the same direction. One end of the wire goes to the axle, the other is soldered to the slip ring.

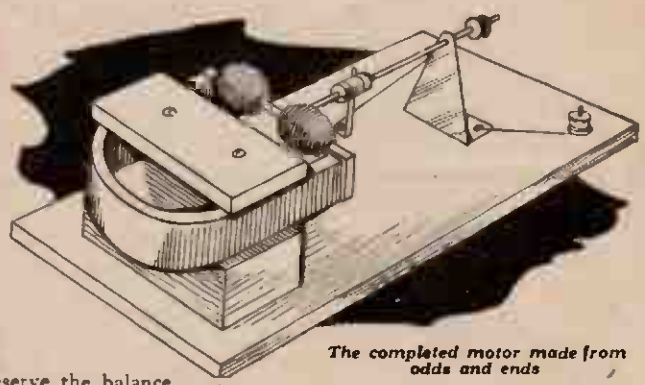
The slip ring is insulated from the spindle. A short length of brass or copper tubing, with a central piece made from ebonite, is suitable. In the original dynamo a portion of a metal cartridge case was used.

The insulated sleeve of a spade-end battery connector was used for the centre. The slip ring is fixed to the axle, and a springy contact, screwed to the baseboard, picks up the current.

Fixing the Magnet

The magnet is clamped to the baseboard by two long screws. A block of wood is placed under it to bring its poles level with the armature. The armature should be completed and placed in position first. Washers are soldered to the axle to prevent longitudinal movement.

The magnet is then fixed in position, arranging it so its poles come as closely as possible without actually touching—to the armature as it is rotated. It is a good plan to place temporarily two small pieces of thin card between the poles and the armature. Then secure the magnet, and remove the card.


The completed motor made from odds and ends

Two terminals (one connected to the bearing and the other to the slip-ring contact) are fitted to the baseboard.

Testing and Using

Connect a small electric bulb to the output terminals and spin the axle with the fingers. The bulb should light. The type of bulb used is important; one should be chosen that needs little current, and it will generally be found that 3.5-volt bulbs light easier than the 2.5 volt type for this reason.

If the bulbs as used for dial-lights in wireless sets can be obtained the dynamo will light several at quite a low speed. (These bulbs are specially made for battery receivers and use little current.)

The dynamo may be driven from a small steam engine, or by hand with suitable gearing, for lighting, etc. If the bearings and slip ring are well made it will be almost noiseless in operation.

If substantially made it will give long service. It is a good plan to varnish the armature windings, so that the turns are secured and cannot fly loose. The output is alternating, and is not therefore suitable for charging purposes.

"Jeep" Truck (*Continued from previous page*)

handles). The shoulder between Parts 1 and 2 forms a rebate to take the side planking. A filling piece is required at each post (Part 13). A piece of ¾in. gas pipe or conduit tubing makes a fine handlebar.

The wheels can be temporarily fitted as soon as the wheel frames are made, and taken off during the boxing and flooring, etc. It is taken for granted that the wheels used are old ones, so overhaul them carefully, oiling the bearings, brushing off rust (with a wire brush) and enamelling black.

As it would be awkward to have a puncture when the cart is fully loaded, carefully overhaul the tyres and tubes. A little compartment can be made to accommodate a puncture repair outfit and a pump.

Careful study of the diagrams will give all extra information required. If paint is scarce, creosote is a suitable finish.

In conclusion, the writer might add that this truck has actually been used for three years, and on one occasion was fully loaded with sand (estimated weight over 3 cwts.). It is *not* recommended, however, that such a load be habitually carried, but it shows what the truck will "take."

Naturally a little care is necessary when going over very rough ground, or over kerbs. Such a truck can be hitched (empty) behind a bike, and can, in fact be hauled along by this means. One may push a couple of hundredweight of potatoes with very little effort, by hand, but there is a very appreciable strain when the weight is put on pedals.

It is best to leave, wherever possible, the wood oversize as regards length, and cut off after nailing or screwing. This will largely obviate risks of the wood splitting.

To remove or insert wheel, the brackets should be loosened so they can be pushed outwards.

Some of the replies sent to readers in answer to their queries, which may be of interest and help to others.

Making Rope Sandals

I SHOULD be very obliged if you could pass on to me some information concerning the making of rope sandals. (S. R.—Guildford).

AN article on the subject, with illustrations, appeared in our issue of May 31st. The back number is obtainable for 3d. post free.

Frame Aerial

I BELIEVE if I had a frame aerial I would be able to cut out all "jamming," only I don't know how to make one nor how to situate it. (A. K.—Kilburn).

NO aerial (frame or otherwise) is of any use in separating one station that is "jammed" by another. Possibly by "jammed" you really mean, ordinary sideband interference or overlapping. A "frame" aerial has very definite directional properties, and will receive strongly any station in the plane of the frame, and hardly receive at all from any stations at rightangles to the frame. Hence, if you know the compass bearings of a wanted station, you point the frame in that direction. All you need for a frame aerial is a simple wooden frame, square in form, about 18ins. square and 1in. to 1½ins. wide. Around this you make about 20 turns of any moderately fine insulated wire (say about No. 24 to No. 16 gauge). You connect one end of the wire (bared) to the aerial terminal on your set, and the other end you can leave free, or connect it to the earth terminal of your set assuming it is a normal battery or, A.C. set.

Gramophone and Radio

IS it possible to connect an ordinary table machine gramophone to a relay wireless, so the sound only comes through the wireless and not the gramophone? (B. N.—Horbury).

IT is not possible to connect an ordinary gramophone to any radio set, and you certainly must not connect a gramophone or anything else to a relay wireless service. Any tampering with a relay service will get you into trouble with the suppliers. To convert an ordinary (accoustic) gramophone to electrical reproduction requires an electrical pick-up in place of the soundbox and tone arm, an electrical amplifier (or radio set of suitable design) and a loudspeaker.

Rubber Vulcanizing

WOULD you tell me how one can vulcanize rubber? I have an old inner tube which I wish to use as patches. When I tried it simply just peeled off. (J. C.—Nottingham).

OLD rubber cannot be vulcanized—that process only applies to the treatment of raw rubber or plastic rubber. Old inner tubes can be used successfully for patching if you first rasp the surfaces to clean and roughen them; then apply a coat of good rubber cement. Leave to dry, then apply the patch.

Back Numbers

IS it possible to obtain back numbers of Hobbies Weekly which contain certain articles I require. (C. F. W. Doncaster).

OWING to shortage of supplies of paper coupled with the big demand, there are seldom any spare copies left. If you write and tell us the particular issue you require, we can easily give you a definite answer.

Motor Boat Conversion

I AM thinking of having a small motor boat after the war. What sort of boat is best for about four persons? What sort of engine would be best for a boat of such kind? (H. R.—Clifton).

FOR river use, a well built skiff or rowing boat, for estuary or sea work (offshore only), a heavy 16ft. to 20ft. launch hull of the ship's lifeboat type. For light craft, an outboard motor, which can be mounted amidships if desired, but usually of the stern and forming part of the rudder.

GRINDING A CHISEL

WE had a letter recently from a reader who raised a point which may be of interest to others, although we imagine the answer to the question he asked was known to most workers in wood. It related to grinding a chisel, and evidently the reader concerned had had quite a heated argument with a friend because he told us that on the result of our answer depended a gift of £5 to the Red Cross fund.

Turning the Grindstone

In either case the Society must have benefited although it seems a rather expensive way of settling an argument. Anyhow, the question was whether, in grinding a chisel the grindstone goes away from you or towards you. The answer, of course, is that the stone runs in an anti-clockwise direction—that is, towards you as you hold the tool on its surface.

There are, of course, two ways of grinding plane irons or chisels, and that is by holding them and guiding them with your hand, or by using a framework usually attached to the larger grindstones, which holds the tool for you.

The great point, of course, is to hold the edge of the tool rigidly on the stone straight across its surface, and at the correct angle. The back of the iron or chisel is usually ground to an angle of 25 degrees, but the bevel of the cutting edge which results when you hone them or finish them off on an oilstone, is about 35 degrees.

Holding the Tool

If you hold the tool too low, the water from the trough of the grindstone is apt to run over you, and you will not be able to hold it so rigidly. Move the flat tool sideways over the face of the stone to get it done evenly.

The best stones, of course, are the larger ones with a surface of 3ins. fitted to a treadle so that you can turn it by foot, leaving both hands free. Otherwise it would mean having an assistant to turn the handle. There is normally a wooden trough at the bottom of the stone containing sufficient water to make the abrasive satisfactory in use.

Oilstone Finish

When the iron has been ground you then have to put upon it a suitable cutting edge. This is done by rubbing it on an oilstone to bring up the actual setting required. Not only is it necessary to rub the iron to a sharp cutting angle on one surface, but you should finally draw the tool along the stone flat to take off a little wire edge which may have been produced.

Anyhow, there are a few interesting facts about a grindstone, and at the same time a definite answer to our friend who was in doubt.

PICTORIALS AND COMMEMORATIVES OF NEW ZEALAND

ALTHOUGH New Zealand is the youngest of the British dominions its stamps illustrate the history, the scenery, the wild life of the country and the occupations of its people more fully and more vividly than those of any of the other great self-governing communities in the Commonwealth.

The story is concentrated in the two pictorial series of 1898 and 1935 and a number of commemorative sets. Of these, the first was the Christchurch Exhibition set of 1906 and the last the fine set issued in 1940 to celebrate the Centenary of the annexation of the two islands.

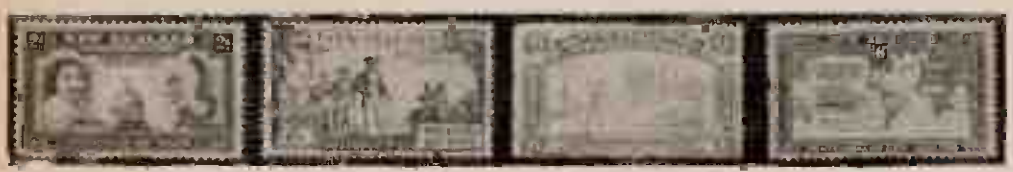


Fig. 1—Navigator Tasman Fig. 2—Cook at Poverty Bay Fig. 3—Early New Zealand Fig. 4—Frozen Mutton Route

The first European contact with Australasia was made by the Dutch in the Seventeenth Century. Of these early Pacific navigators the most famous was Abel Tasman, whose portrait appears on the 2d. stamp of the Centenary issue (see Fig. 1).

Tasmania Discovered

In 1642, starting from Batavia in Java, he went first to Mauritius, then sailing well to the south of Australia, he discovered Tasmania, which he named Van Dieman's Land. Continuing eastwards he sighted the western coast of New Zealand, then turning north he discovered the Tonga and Fiji isles, returning to Batavia round the northern coast of New Guinea.

Thus his voyage proved that Australia must be a great island. On the other hand, however, he thought New Zealand might be a part of a great Southern Continent that had long been supposed to extend northwards from the Antarctic.

Cook's Survey

No further important discovery was made in the Pacific for over a hundred years. In 1768 the British Admiralty chose Captain Cook to convey a scientific party in the "Endeavour" to Tahiti to observe the transit of Venus, due to take place the following year. Having done that he was to search for the great southern continent, the *Terra Australis Incognita*, as geographers called it.

If he did not find it he was to go on to New Zealand and explore its coastline. Cook did all this and more. Finding that there was no "Unknown Southern Continent" to the south of Tahiti he circumnavigated the North and South islands of New Zealand.

He then explored the eastern side of Australia which he called New South Wales and chartered the Great Barrier Reef. Then passing through the dangerous Torres Strait between Australia and New Guinea he completed the voyage by sailing round the world.

Cook has given his name to a mountain in New Zealand, which appears on the familiar ½d. green of the 1898 pictorial, the 5/- value in the same set, and the 1935 2½d. (see Fig. 7). His rediscovery of the two islands is also commemorated on no less than three stamps in other issues: the 3d. value in the Christchurch Exhibition set, the 2/- value in the 1935 pictorials, and the 1d. value of the 1940 Centenary issue (see Fig. 2).

The loss of the American colonies produced a general lack of interest in the Empire and a desire on the part of the government not to undertake any fresh responsibilities. New South Wales was found useful from 1788 as a dumping ground for convicts, but little attention was paid to the neighbouring islands of New Zealand.

A small group of Englishmen, however, led by Edward Gibbon Wakefield, were convinced that New Zealand with its healthy climate was admirably suited for British settlement. They were alarmed at the way the Islands were already being occupied by adventurers, deserters from whalers and escaped convicts from New South Wales or Van Dieman's Land.

Consequently they did their best to press the government to annex the islands in order to direct their colonisation on proper lines. In the end, Wakefield forced the government's hand by fitting out a ship to carry settlers from London. She set off four days late.

Then Wakefield, hearing a rumour that the government intended to stop her, hired a post chaise and drove all through the night to Plymouth, where he knew the ship would put in, to hurry her on her voyage.

Forestalling the French

A few months later, early in 1840, the government annexed New Zealand as Wakefield expected—and, as it happened, only just in time. For a French warship arrived the following summer to seize the islands for France, but finding that H.M.S. Britomart was anchored at Akaroa she realised the British were already in possession and sailed away.

Fig. 5—Maori Warrior *Fig. 6—Carved House* *Fig. 7—Mount Cook*

The annexation of New Zealand is commemorated on the 6d. value of the Christchurch set (see Fig. 3,) while the arrival of the first batch of colonists at Petone Beach in January, 1840, appears on the 3d. value. H.M.S. Britomart is on the 5d. of the Centenary set. It is a little surprising, however, that there is no portrait of Wakefield on any New Zealand stamp

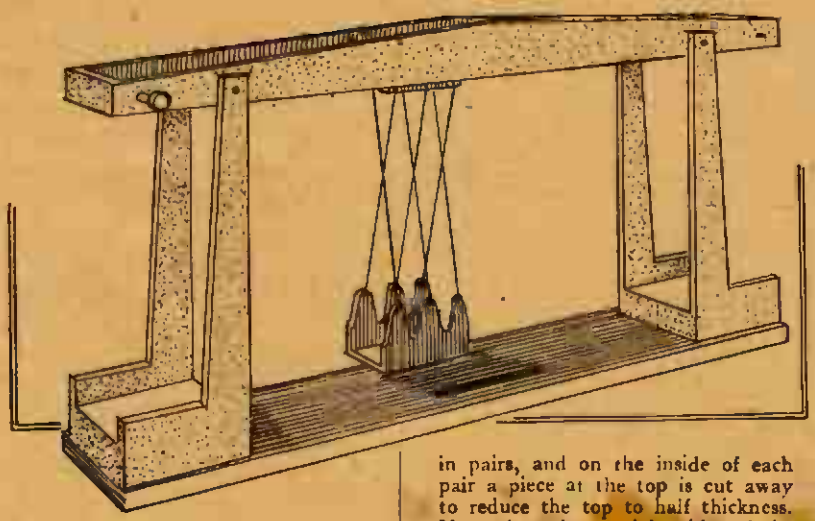
(*To be continued*)

NAVAL PHOTO FRAME DESIGN

The Pattern Sheet (No. 2550) for this frame is free with this issue. The necessary wood for making it costs 3/9 with 7d. extra for postage from Hobbies Limited, Dereham, Norfolk, or Branches.

A novel type of bridge to make is this

MODEL TRANSPORTER



THE transporter type of bridge can be seen in many parts of the country, and is invaluable in conveying traffic across a stretch of water without interfering with the progress of shipping.

A working model of such a transporter is the subject of this article. Except where otherwise stated, the model is to be built with ¼in. thick wood; a few pieces of thin matchboarding would serve the purpose nicely.

Baseboard Foundation

Cut the baseboard A, Fig. 1, to dimensions given. The piers, B, which support the bridge, are drawn on the baseboard in the positions they will occupy, in dotted lines. These are cut from 1in. thick wood.

A piece ¼in. by 1½ins. is cut away each side in which the pillars are fixed. The pillars, C, are cut to size given next, and tapered one side to the top. They are not tapered the whole way, 1in. of the bottom being left straight. They are now placed in pairs, and on the inside of each pair a piece at the top is cut away to reduce the top to half thickness. Note that the straight sides of the pillars, not the sloping ones, face the "water."

Fixing the Piers

Fix the piers in position on the baseboard with nails from underneath, and glue in the pillars, nailing them also. See that they are fixed standing truly vertical and parallel to each other.

Cut four pieces of wood, ¼in. by 2½ins. and glue one to each side of the piers, butting them up against the pillars. These will be the balusters, and can be seen in the general view.

The bridge strips, D, Fig. 2 (half length only being shown for reasons of space), are cut to full length, the half not shown being identical to that given. In the left end bore a ¼in. hole through both. These holes should be 1in. from the end (measured from the centre of the hole) and in the centre of the width. The opposite ends have small holes only, just large enough to admit a 1in. wire nail, but in the same relative position.

Cut pieces E, and nail these to the bridge strips, one at each end, as seen at F and G. Cut two ¼in. square strips of wood, 1ft. 11ins. long each, and glue and nail these, one to each bridge strip, on the inside where shown by dotted lines, in D.

Cut a piece of ¾in. dowel rod, 6ins. long. To this is glued a wooden knob for turning purposes. It is then pushed through the holes and kept there with a small nail driven in each side of the bridge, as seen in F. This should turn easily.

Mounting the Bridge

Cut a second piece of the ¼in. rod, this time 2½ins. long. Centre each end, place the rod between the bridge pieces, and drive in a 1in. nail each side, as in G.

Now mount the bridge. It should drop in the cut outs on the pillars and rest there securely with an equal amount extending beyond each end. Fix with a screw and a little glue to each pillar.

Fig. 3 shows the "traveller," which, moving to and fro carries the car across from one pier to the other. It is cut to size from the wood, and has two pieces of similar wood glued to it underneath, just 2ins. apart, outside measurement. Bore three holes in these underneath extensions to hold the suspension wires of the car.

The traveller should be able to slide easily on the long ¼in. strip between the bridge pieces, as seen in the cross section, Fig. 3. At each end of the traveller, in the centre, drive partly in a roundheaded screw to which the cords can be tied. Now to make the winding apparatus which works the model.

The Winding Apparatus

In the centre of the rod at end F, bore a fine hole right through and a second hole about ¼in. away from it. Push a length of thin cord through the centre hole and knot the end to prevent it drawing out.

Push the traveller to the far end of the bridge (end G) and tie the cord to it. Now turn the rod until the traveller is drawn as far forward as it can be, until it practically touches the rod, in fact.

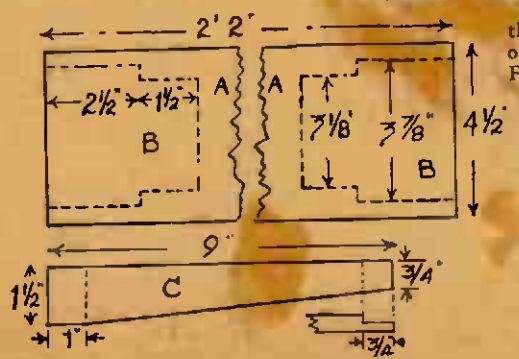


Fig. 1—Parts required in baseboard and pillars

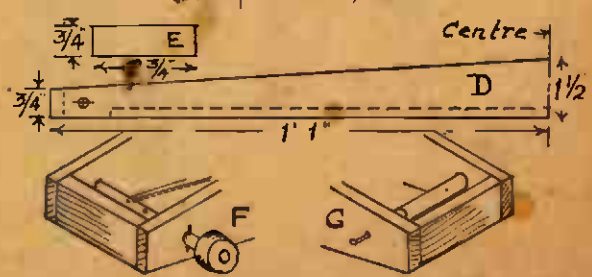


Fig. 2—The top bridge strips and details of winding mechanism at each end

Take another cord and thread it through the second hole, knotting it as before. Pass this cord under the traveller, then over the rod at end G, and back to the traveller again, tying it to the second screw.

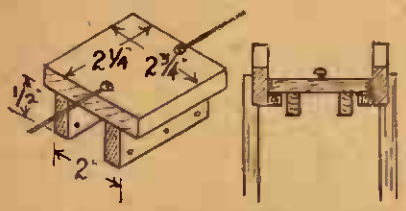


Fig. 3—The "traveller" portion details

Now, if the knob is turned in the opposite direction to previously, the traveller will be drawn back to the far end again. This to and fro movement can be continued indefinitely simply by turning the knob in one direction or the other as required.

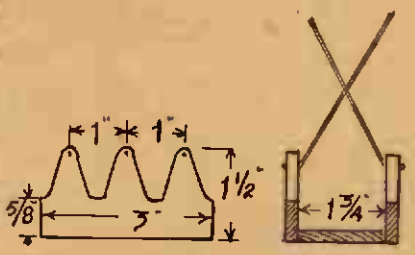


Fig. 4—The travelling car

We can now make the car shown in Fig. 4. It is better made of thinner wood, say 3/16in. or ¼in. fretwood, if a small piece is available. Where shown, bore holes each side for suspending from the traveller.

The model can now be painted as a matter of choice, or as the colour of paint available. As a suggestion, paint the baseboard blue/green, to represent water, the roadways white or stone colour, and the pillars, etc., grey or brown. The car might be painted a livelier colour as a pleasing contrast.

To suspend the car, place it on a pier, resting it on a piece of thin cardboard. Pull the traveller directly over it, and with an obliging friend pressing the car down to keep it from shifting, suspend it with cords or thin wires from the traveller. The cords cross each other as shown, those on the left side of the car being tied to the right of the traveller and vice versa. Remove the cardboard and test the model for action.

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The arrows indicate the direction of grain of wood.

Hobbies DESIGN

No. 2550
30. 8. 44

SUPPLEMENT TO HOBBIES No. 2550

THE NAVAL PHOTO FRAME

SIZE : 14¼ins. by 9¼ins.

The arrows indicate the direction of grain of wood.

FACILITATE GETTING SHIP OVERLAY ON PANEL H2.

PANELS OF WOOD REQUIRED FOR THIS DESIGN

ONE J4, ONE H2

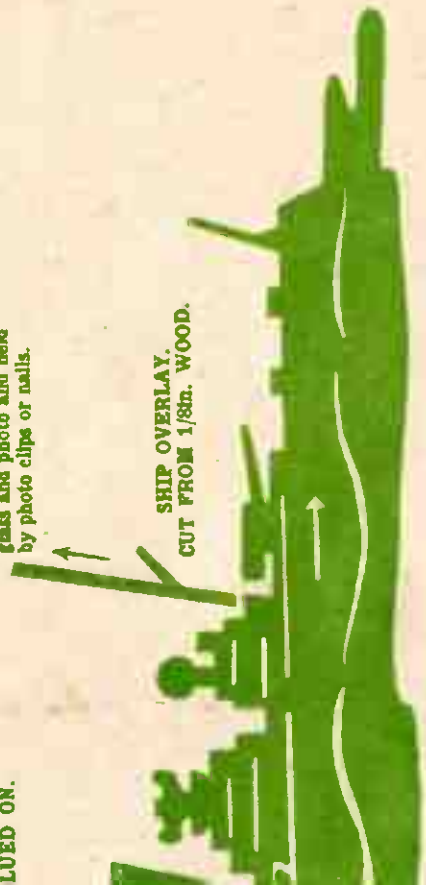
The price is shown in Hobbies Weekly Aug. 20th, 1944, but is subject to revision, See the current edition of Hobbies Handbook, or write for price to Hobbies Limited, Dereham, Norfolk.

THE SHIP OVERLAY TO THE DOTTED LINES.

FRAME.
CUT TO OUTLINE 1/4in. THICK.
CUT THE CIRCULAR OPENING 3¼ins. DIA. FOR THE GLASS TO THE DOTTED LINE X.

The 1/4in. thick wood cut from the circular opening will be replaced behind glass and photo and held by photo clips or nails.

SHIP OVERLAY.
CUT FROM 1/8in. WOOD.



CUT
OM SHIP
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ROPE Y

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X

OVERLAY.
CUT FROM
1/8in. WOOD.

GLUE ON THE SHIP OVERLAY TO THE DO

FRAME.
CUT TO OUTLINE 1/4in.
CUT THE CIRCULAR OPENING 3
GLASS TO THE DOTTED

H M S

CUT FROM
1/8in. WOOD.

MASTS WILL BE CUT
SEPARATELY FROM SHIP
OVERLAY AND GLUED ON.

OVERLAY.
CUT FROM
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SHIP OVERLAY.
CUT FROM 1/8in. WOOD.

PHOTO FRAME

THE parts shown on the reverse side are cut from ¼in. and ⅛in. fretwood for the making of a suitable Naval Frame to hold a picture in the centre of the lifebelt illustrated. Wood is obtainable as shown in Hobbies Weekly, but the glass is not supplied.

In the pattern as printed you need a piece 3½ins. in diameter, but if you cannot get this locally you can probably substitute a piece of transparent celluloid or talc. Or again, you can even make the aperture in the main back as a rectangle to take a piece of glass not smaller than 3¼ins. long each side. Anything between 3½ins. and 4ins. square will do.

Whatever the size or shape, you have to cut this in the backboard. It is held in place from the front by the thin overlay of the oak leaves and lifebelt. As the patterns of the overlay and the back are printed as one, you will have to arrange for the marking out of the latter, onto the wood in order to indicate the correct position of the picture opening.

The outline of the back can be put through on to the wood by means of carbon paper underneath or half of it can be traced off on suitable transparent paper to be redrawn on the board.

The main back is, as you see, nearly 10ins. wide and the grain of it must run from end to end. When you have traced off the shape also trace off the circle of the inside edge of the lifebelt. Take the pattern sheet away and then mark out the aperture which you will be cutting to hold the glass and its photograph, keeping it central over the circle marked. It must, of course, be larger than that circle.

The back itself is a plain board cut to the outline shown and in marking the shape of it it is also as well to indicate by a few pin holes the position of the ship overlay.

The main overlay is cut from ⅛in. wood, care being taken to get two sides symmetrical with each other and the circles of the lifebelt true. Clean up the backboard thoroughly before gluing on the overlay, and then glue on the top of this part the letters "H.M.S." These letters are very thin and delicate so if you have a piece of plywood it will be much better.

The outline of the light cruiser forming the lower overlay is also cut from ⅛in. wood, but as you might have some difficulty with the thin masts, these can be added like match-stalk pieces afterwards.

It is advisable, too, to cut out the long interior frets first, finishing up with the outline of the ship and then the water portions below it. Great care in cutting these extensive projections must be used not only in the cutting, but also in the cleaning afterwards. Be sure to keep your glasspaper perfectly flat on a suitable block so it does not catch any of the delicate pieces and pull them up.

Apply the glue evenly to the back of the overlay, and then add it in position on the main back, weighting the whole lot down with a flat board until the glue is set.

If you wish, you can make the work more attractive by suitable painting. The battleship can be grey and the water bluey-grey with white spots of spray flicked here and there. The lifebelt can be white with the lettering in gold.

The glass or transparent material is held in place by the main overlay. Behind it is put the picture and then a suitable piece of card to fill up the thickness of the wood. A piece of brown paper is pasted over the whole lot to keep it in place finally. A little hole can be bored each end near the top for hanging purposes with a piece of fancy ribbon strung through.