

Hobbies

WEEKLY

Large Model Toy
Railway Design
Chart **FREE!**



HOW TO
MAKE A
SHORT
WAVE
WIRELESS
SET
FOR 20/-

Chemistry
Philately
Woodwork
Gardening

February 2nd. 1935

2^D

Vol. 79 No. 2050

THE FRETWORKER'S AND
HOME CRAFTSMAN'S JOURNAL

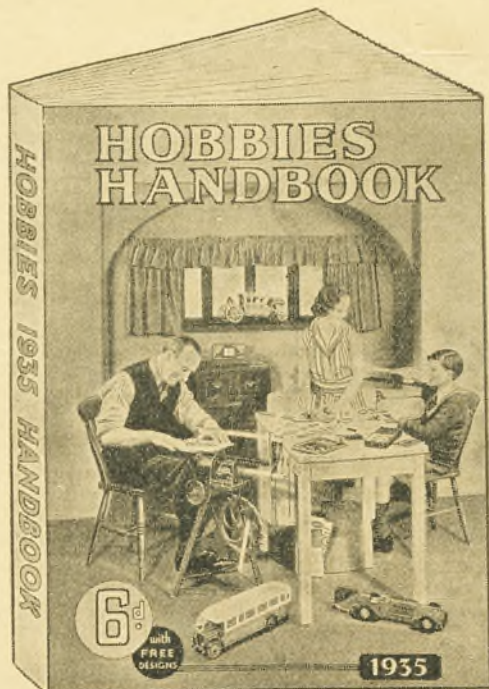
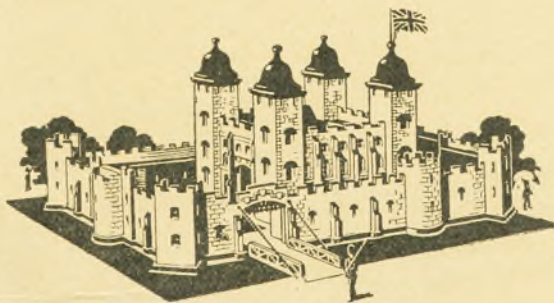


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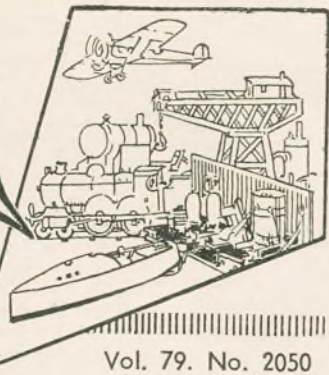
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669 THINGS TO MAKE AND DO



Hobbies

WEEKLY



February 2nd. 1935

Letters should be addressed to
The Editor, Hobbies, Weekly,
Dereham, Norfolk.

Vol. 79. No. 2050

IF you people knew the pleasures in store for you in these pages you would really jump for joy. Because the novelties, the models, the practical articles for the home craftsman which I have commissioned various experts to prepare are something better than any journal has offered you before. Those traffic lights, for instance, were so popular that two more types will be given next week. Then very shortly there will be a design for a model electrical traveling crane, which is a real working model.

WE are also very shortly having a design for a Wool Winder. That is going to be very popular, I know, because most women are always crying out for one when they do the knitting and most fellows who know the terrors of "holding the skein" will be only too anxious to make or buy one. Look out for this big novelty very soon.

AS you know, I am always ready to answer any reasonable question, providing the reader sends a stamp or a stamped addressed envelope. But, I really think it a bit *too* thick when a letter comes along with no less than 21 questions. Wouldn't you? What was wanted was really a young encyclopedia to answer them. Another reader asked "What is science?" Well, of course, science covers so much—chemistry, electricity, astronomy, nature, physical and a host of others—so the term is really much too wide to answer off-hand. Will you be good enough to keep your questions as short as

possible and give me definite details of what is wanted? Thank you!

I ASKED a little time ago if readers would write and tell me if they wanted any Chess pages. Certainly, a few did write me and say "Yes", but there was really not sufficient a number to warrant introducing that particular pastime. So there will be no Chess!

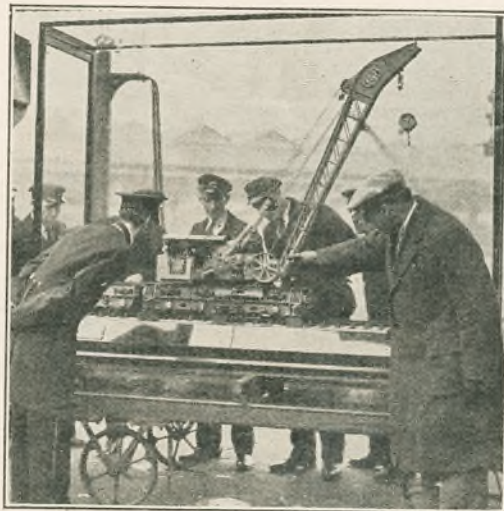
NOTES of the WEEK

Some coming Attractions—Not 21 Questions, Please!—No Chess—Camping or Hiking Wanted?—A Real Model Crane—An American Paper Wanted.

PERHAPS, you will drop me a card, too, whether you would like articles on Camping and Hiking. Whether there are many of you who actually go in for that pastime I am not quite sure. But if a lot write in and say "Yes", then you shall have

the usual expert advice in suitable articles.

WE never grow too old to be interested in railways, and any model or real thing always draws an admiring crowd. The picture this week is of an amazing model at Euston Station, London, some time ago. None of your little affairs in a matchbox, but a scale model of an L.M.S. Rugby Crane which will actually lift $1\frac{1}{2}$ cwt. It was made by Mr. Ward, of Northampton, whom you see on the right of the picture.



THOMAS Hunt of 63 Carlow Street, Middlesbrough, Yorks., wants an American paper and will give anything of the same value in exchange. Whether it is newspaper or magazine, I cannot tell, but no doubt other readers will write direct if they are interested.

The Editor.

THE FUN AND PUZZLE PAGE

HIDDEN TOWNS.

A DEAR old lady travelled about a good deal and her trunk became plastered with luggage labels bearing the names of the stations at which she had stopped. The labels, in course of time, became torn. Some were damaged on the left-hand end, and some on the right, and some at both ends. When she looked at them from one to the other, the pieces read as follows: "Old Aunt came bang over the hatstand." What places had she visited? See how many places you can find and then read the complete list given in column 3.

HERE is a simple and interesting trick. Arrange the figures 1 to 7 so they will amount to 100 when added together. Then arrange four nines in such a way that they stand for 100. The solution is given in column 3.

FULL TIME.

CURATE (slumming, to dirty little urchin): "Well, my little man, is your father in work?" Little Boy: "Yus."

Curate: "And how long has he been in work?" Little Boy: "Two months." Curate: "What is he doing?" Little Boy: "Three months."

MUSICAL GLASSES.

A GREAT deal of fun can be obtained from unusual musical instruments, and the simplest of these takes the form of glasses. These can be of different sizes, as that naturally affects the tone, or the tumblers can be all alike, when the pitch can be varied by the amount of water poured into each glass. Twelve glasses with a varying amount of water in each makes a good keyboard, and anyone with a slight ear for music can give a splendid entertainment. The sound is produced by passing the moistened tip of the finger lightly round the edge of the glass.

When a black man dies, what do his relatives do?
Go a black burying.

Why is the letter W like a scandalmonger?
Because it makes ill-will.

Why is a caterpillar like a greedy boy?
Because they both make butter fly.

What is the worst kind of fare for people to live on?
Warfare.

LOTS OF THEM.

YOUNG Bride: "To commemorate an awful quarrel we had last week, Jim and I planted a tree in the garden." Friend: "Well, now, that is a nice idea! If Fred and I had done that we should have had a wonderful avenue by now!"

What makes celluloid burn so fiercely?
Fire!

ANSWERS.

Here are the places the dear old lady had visited, as mentioned previously—Oldham, Taunton, Camelford, Bangor, Andover, Tbetford and Whatstandwell. The answer to the arrangements of figures 1 to 7 is shown here.

15	32
36	57
47	6
2	4
—	1
Total 100	—
—	Total 100

The second part of the question has the following answer: 99 9/9.

THE IMPIES BUILD A TABLE LAMP





For the Wireless Constructor

Working on the Low Wave Band

**A SHORT
WAVE SET
FOR £1**

WIRELESS listeners, however intrigued they may be by the almost inexhaustible interest of their hobby, can never fully appreciate its real fascination till they have explored the possibilities of short wave operation. As time goes on the lower band is being made greater use of and it seems almost certain that it will eventually be employed for all purposes in which the development of the science of reception will take unconventional form.

For instance, it is certain that successful and therefore practical television will be conducted on ultra-short wavelengths.

The Short Wave Bands

It is therefore advisable that the amateur should become well acquainted with principles of construction and operation which will place him in a position to take the fullest advantage of what the near future has to offer. Meanwhile, he will reap a reward in the shape of additional amusement, entertainment and interest which will more than double the delight of listening.

Why, some may enquire, should we trouble ourselves with short wave work when there is so much to be obtained on the popular wavebands? This question is often put by those who are the most willing to complain because what they do get on the popular bands does not please them!

It is the short wave receiver that makes its possessor absolutely independent. He can listen through the whole of the twenty-four hours that make a day, always receiving something of interest. He can "tap" the Empire transmissions receivable so far distant as India and Africa at phenomenal strength and put them into his loud-

speaker. Continental, German and Dutch stations will come over at full vigour while, after about 11 p.m., American broadcast is to be had for the asking.

And it must be remarked that entertainment received over vast distances is endowed with a thrill which is not experienced when the stations being tuned are more or less local.

Easy

The average amateur is frightened to embark on this phase of reception thinking it to be a preserve of the expert. As a matter of fact it is easier to pick up an American low wave transmission than it is to coax from the aerial that of many a European station. It is just a matter of building a set for the job and keeping it for one class of work.

Generally speaking good results are seldom procured from a triple wave-band tuner unless the receiver has been constructed with the greatest degree of precision and is operated with great care

....**And So Cheap!**

None should avoid short wave operation on the score of expense. This circuit is portrayed in order

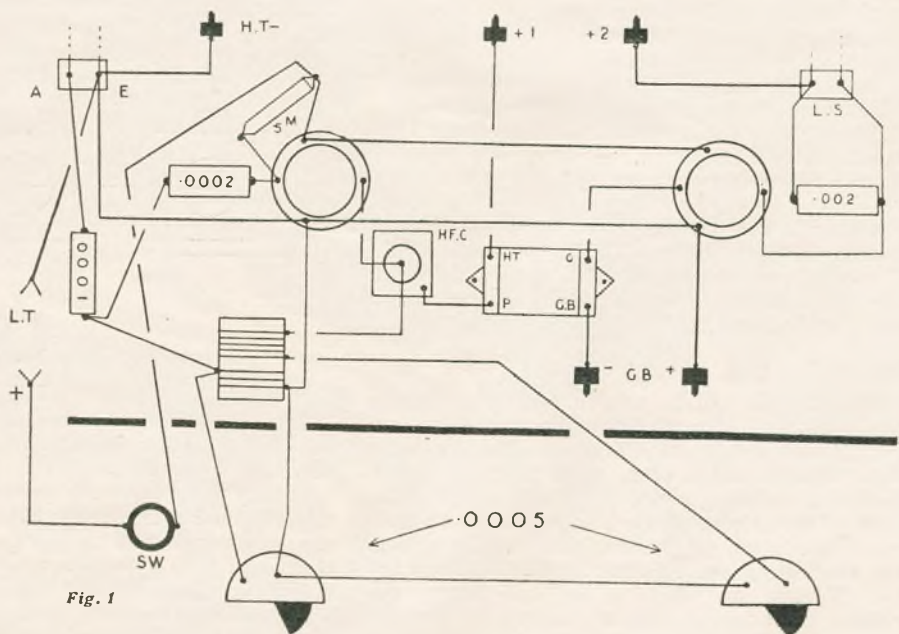


Fig. 1

A Wireless Set for £1—(continued)

to prove how, economically, pleasure can be obtained by its means. If the coil is home-made the total cost, excluding valves, will be less than a sovereign. Should commercially produced tuning gear be employed, the building price may be a trifle over that amount.

Most amateur constructors, however, are in possession of parts which can be used to hook up an experimental set which will permit them to test their tuning capabilities ere spending a little more to elaborate it into a bigger affair that will develop more output power.

Making the Coil

There are two ways in which the coil can be devised. The simpler plan is as follows: On a

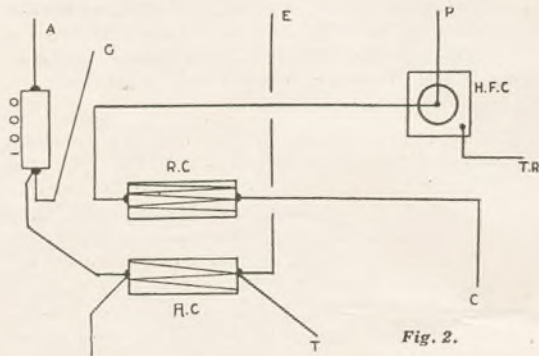


Fig. 2.

paxolene former measuring $2\frac{1}{2}$ by 6 ins. wind, firstly, five turns of No. 16 gauge tinned copper wire. Alongside this wind three turns of the same gauge.

The larger is the reaction and the smaller the tuning winding. As this gauge is so sturdy it is generally unnecessary to secure the coil ends. The connections they receive can be soldered directly to them. In the instance of an alternative plan, however, four terminals can be used.

Place these a distance apart which is equal to the width of the coils, arranging them on a strip of ebonite approximately 4 by $1\frac{1}{2}$ inches in size. (See Fig. 3).

After the wire has been wound on the former, remove the paxolene thus leaving the coils devoid of any support apart from what they will receive from the terminals to which the circuit connections will also be conducted.

Using Plug-in Coils

Plug-in coils can be used if preferred. These can be obtained in nests which give the operator an opportunity to test out many interesting combinations with windings of 2, 3, 5, 7, and 9 turns. Generally speaking a No. 3 and a No. 7 give the best all-round results when it is desired to tune round about the 30-40 metre line. Fig. 2 depicts the connecting arrangement applicable when the circuit leads are taken to the two single coil-holders that accommodate these commercially made windings.

Making a Home-Wound Choke

Unfortunately, two H.F. chokes may be required to cover the whole of the wavelength range from 10 to 100 metres. As these can be made at a cost of a few pence, the acquisition of this pair cannot be esteemed an extravagance. In order to devise one suitable for working up to 30 metres, wind 35 turns of No. 28 d.c.c. on a former $\frac{1}{2}$ -inch in diameter and 2 inches high.

The ends of this winding are taken to terminals which can be screwed into the former which is of solid ebonite—as a matter of fact nothing more than a short length of ebonite tube.

The Choke

The choke required to tune from 30 to 100 metres should consist of about 200 turns of No. 36 wound on a piece of ebonite tubing measuring $\frac{1}{2}$ -inch by 3 inches. In both instances the choke can be secured to the baseboard by means of small angle-plates. An all-wave s.w. choke which will tune throughout the short band can be devised in accordance with a plan outlined in Fig. 4.

When tuning below 30 metres the switch is put over to short circuit the 30-100 metre winding. The addition of 30 or 40 turns is not detrimental when tuning up to 100 so that there is no need to employ a system of alternative switching.

Tuning the Set

It is when the operator commences to tune his set that he may meet with the first few disappointments. But these will disappear as he familiarises himself with its functioning. He must note that whereas hefty-handed adjustment is all very well when working in the medium or long wave bands, a very delicate touch is necessitated when short wave stations are being tempted.

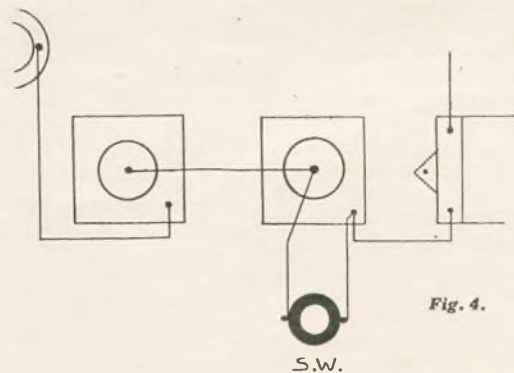


Fig. 4.

The right-hand variable keeps the set in a sensitive condition while the left-hand condenser is adjusted to pick up carriers.

It may be enquired why slow motion dials are not specified. The reply would be that a good operator should be able to tune correctly without them and it is a well-known fact that few short wave experts make use of a geared method of adjustment. However, they can be employed if desired.

A Wireless Set for £1—(continued)

Wire the set with No. 18 gauge (bare tinned). It is unnecessary to solder any connections that can be made otherwise, provided the joints are electrically efficient and contacts good.

It is essential that the detector should be given its correct potential. This can only be found by experiment. It may vary from 40 to 100. Plug up till the set is lively without oscillating when the vanes of the right hand condenser, which is the reaction control,

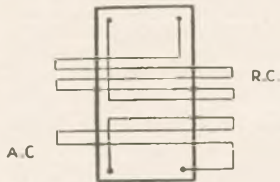


Fig. 3

are all out.

Use a reliable detector valve. It is this valve which carries the whole of the responsibility incidental to reception. The "H.L." type is recommended on account of the readiness with which it oscillates and it should be used in conjunction with a 5-megohm grid leak and a .0002 grid condenser.

Possible Troubles

A short wave set is usually trouble free provided it has been properly put together. One possible perplexity may be that stations below 60 or 70 metres fail to come in. This will be due to the fact that capacity is being induced inside the set other than by the tuning gear. Muddled wiring, connections covered with insulation, poor valve holders or leads running in parallel, generally give rise to this trouble.

It must be understood that the crux of success is represented by one's ability to tune up from a very low zero point. If this zero point is above 60 metres there can be no tuning down. Keep it down to about 10 metres at least. This can only be done by wiring with care taking particular pains to separate every connection. No two should cross except at a fair distance and at a sharp angle.

A second trouble may be too much reaction in which case the circuit will oscillate even when the vanes of the right hand condenser, No. 2, are all out. To adjust this matter remove the reaction winding on the tuner a sufficient distance from the

inductance winding to remedy this state of affairs. A trouble of this sort is one to be welcomed. It can be readily cured and shows that the circuit is in good fettle.

Calibration

Calibrate your stations. Work with a wavelength schedule before you and do not log the readings of any transmission till it is certain that they are authentic.

With only one station identified it is possible to operate methodically and eventually to extend the list till it is complete. That having been done, it will be possible to identify every transmission received and thus be able to intensify the interest of which short wave operation is so productive.

Further power can be obtained by adding a second L.F. stage. The constituents are: a 3/1 L.F. Transformer and a valve holder. Connections — plate of second valve holder to "P" of new transformer whose "H.T." receives another H.T. positive lead. Connect "G" to grid terminal of the third (new) valve holder and "G.B." to a second bias lead. The output is taken from the plate terminal of the third valve holder and H.T. positive — the same as shown in the diagram.

THE COMPONENTS

Baseboard, 12ins. by 8ins.
Panel, as small as possible, about 10ins. by 4ins.
Two 2-terminal blocks.
One .0001 and one .0002 fixed condensers.
Two anti-capacity valve holders.
Short wave H.F. choke.
A 511 L.F. transformer.
A 5-meg. grid leak.
L.T. switch.
Two .0005 mica-dielectric variable condensers.
Two black and three red wander plugs.
Red and black spade terminals.
.002 output condenser.
"A," "E" and two "L.S." terminals.
"H.L." and power valves.

The letters in the various drawings herewith are indicative of the following components:

S.W.—Switch; R.C.—Reaction Coil; A.C.—Aerial Coil; P.—Plate; T.R.—Transformer; A.—Aerial; E.—Earth; G.—Grid, T.—Tuner; C.—Condenser; H.F.C.—High Frequency Choke; H.T.—High Tension; L.T.—Low Tension; G.B.—Grid Bias; L.S.—Loud Speaker.

Prize Winners in our Gift Design Competition

THE Annual Fretwork Competition for the Gift Design sent out by Hobbies Ltd. in the autumn of last year, is now closed and all entries in the Junior Section were judged as soon as they were in. The closing date for the Open Section was extended, and an announcement about that will be made later.

In the Junior Section there was, as usual, a very large number of entries, and some exceptionally good cutting was seen in view of the age limit imposed upon workers.

Generally the standard was good, but beginners must remember that it is very frequently the small points which count in competition work.

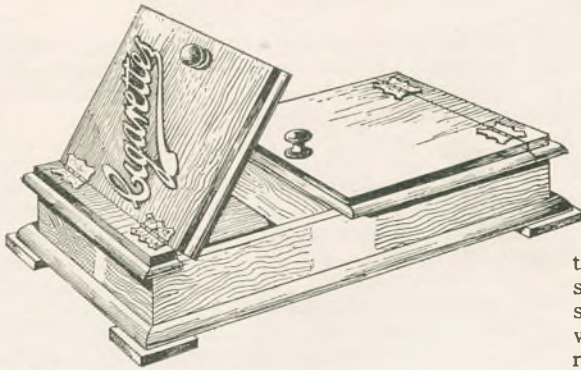
For instance, the little bracket pieces under the shelf could be fixed either way up. The design pattern, however, showed exactly which way they should be, and unfortunately several competitors did not notice this, and put them the wrong way. The overlay, too, was occasionally spoiled by having been fixed with nails so the heads

were showing on the front or if fixed from behind, the points were obvious when driven through.

The first prize was won by W.S. Hall of Mellandruchia Farm, Nr. Penzance, and the next three in their order were J. F. K. Smith of Dundee, George Dawson of Eythorne, Dover, and A. Bowler, Newton Burgoland, Leicester.

All prizes have now been awarded, and the competition entries returned where stamps or Postal Orders were enclosed to cover postage.

A CIGARETTE CASKET



THE cigarette casket shown in our sketch should be made up with the fretsaw from mahogany, the outside being finished with wax polish and brushed up with a stiff bristle brush. There are two compartments and each will hold from 20 to 25 cigarettes according to blend. The casket is very simple to make, as there are no difficult joints to encounter and it is chiefly a matter of careful and accurate marking out and cutting.

For the body or box, two sides and two ends are wanted and a single cross partition in the middle. At Fig. 1 is shown the simplest way of making it up, and the sizes can be got direct from this diagram.

Easily Made

It will be noted that in this the sides are simply butted on to the ends, small fretwork pins being driven in to make a firm job. If, however, a neater appearance is desired at each of the corners, then the four pieces can be cut to a mitre and joined up as in Fig. 2, the correct 45 degree angle being marked across with a set square as shown.

The Mitres

This method, it must be remembered, will entail having the two ends of the box $\frac{3}{8}$ in. longer than those shown, all the wood being $\frac{3}{16}$ in.

An attractive but simple piece of woodwork for the fretsaw. A complete parcel of materials (No. 275) is supplied by Hobbies Ltd. for 1/3 or sent post free for 1/9

thick. The mitres are best cut down with a very sharp chisel although this requires some little skill to get a really clean cut, and some of our workers would, perhaps, prefer to do these with a rasp, finishing off with a file.

Having cut and prepared the sides and ends they are glued up and laid flat on a piece of board and the angles checked for squareness by testing with a metal square as shown in the circled diagram in Fig. 1.

The Floor

The floor of the casket is merely a plain piece of $\frac{3}{16}$ in. stuff measuring 8 ins. by $3\frac{3}{8}$ ins. The surfaces and ragged edges left from the fretsaw should be cleaned off with glasspaper and the edges then shaped to a "thumb" moulding with rasp and file, finishing off with coarse and fine glasspaper.

The bottom edges of the box are next smeared with glue and laid on the floor, care being taken to keep an even margin all round. One or two countersunk screws should be run in to make it quite secure, and then the four in. square pieces of wood cut and cleaned off and glued on at the corners, allowing a $\frac{3}{16}$ in. projection beyond the floor.

The Lids

The lids are made from two layers of wood glued together, the measurements for both pieces being shown in Fig. 3. The larger piece is $\frac{3}{16}$ in. thick and has its edges shaped to a mould similar to the floor. The upper piece is $\frac{1}{8}$ in. thick and has square edges.

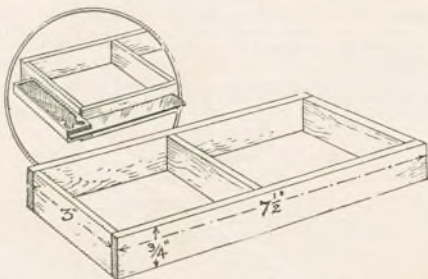


Fig. 1—Details of construction.

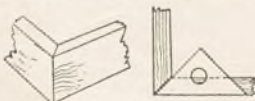


Fig. 2—Testing the corner angle.



Fig. 5—Shape of the overlay wording.

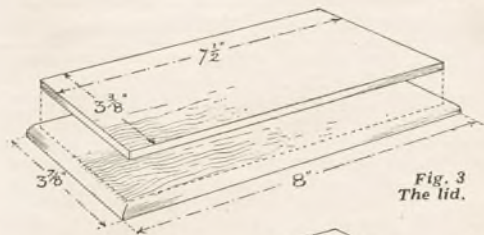


Fig. 3
The lid.

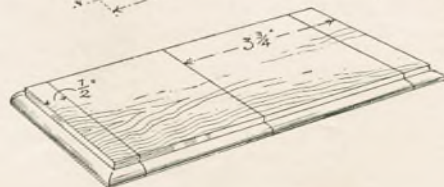


Fig. 4—The lid marked for cutting across.

Cigarette Casket—(continued)

After gluing up the two pieces put them under pressure until the glue has hardened, then mark three lines across in pencil as shown in Fig. 4. With the fretsaw now cut along these lines carefully to form the two distinct lids and the rails to which they are to be hinged.

Two pairs of hinges No. 5308 ($\frac{3}{8}$ in.) are required, and each pair is fixed $\frac{1}{4}$ in. in from the side edges of the lids as seen in the sketch of the completed casket. It will be found that quite small holes are made in the flaps of the hinges and intended for brass pins, but a much better and stronger job could be made by enlarging the holes slightly and driving in $\frac{1}{4}$ in. round-headed brass screws. The fitting and fixing of the lids to the box are simple operations.

The Wordings in Ivorine

Three fine holes should be bored $\frac{1}{8}$ in. in from each end edge of the top layer of wood and carefully countersunk. These holes should come exactly over the $\frac{3}{16}$ in. ends of the box and should therefore take the slender $\frac{1}{8}$ in. screws nicely. Lay both lid sections in place on the box,

keeping even margins along the sides and ends, and then run in the screws.

The top of the casket is made to look very attractive by the addition of a thin ivorine overlay as given in outline in Fig. 5. Make a careful tracing of this outline in ink and gum it down to the ivorine and cut it out with a very fine fretsaw. Before cutting it would be best, however, to drill holes with the finest drill possible at the points shown in the figure.

Clean the edges carefully when cut and use $\frac{1}{4}$ in. brass fret pins for the final fixing.

A Parcel of Wood

It need hardly be stated that whatever finish is adopted for the casket, this must be done before the ivorine overlay is put on. Two turned knobs (No. 49) are fixed to the lids. The box inside should be left untouched by oil or varnish.

A parcel of mahogany with the necessary hinges and knobs and a piece of ivorine for the "Cigarettes" overlay can be purchased from Hobbies $\frac{1}{3}$ (post free $\frac{1}{9}$). When writing for above ask for parcel No. 275 to facilitate despatch.

QUESTIONS AND ANSWERS

AN EASY AND JOLLY ROUND GAME

FOR the above game two id. packets of post-cards are required, one white and the other blue. Each postcard should be cut into quarters to form four small cards. Then one of the undermentioned questions must be written on each of the blue cards, and the answers on the white ones.

To play the game each pack is shuffled and placed face downwards on the table. Each of the

gentlemen in turn takes the part of interrogator; and having indicated which young lady he wishes to question, takes a card from the top of the blue pack and reads the question aloud. She similarly takes a card from the white pack and reads the answer. Once made the cards may be used many times, and no matter how much they are shuffled, the results are sure to cause much amusement.

QUESTIONS :—

Are you romantic ?
Are you going to be married soon ?
Would you like to marry me ?
Do you like spooning ?
Do you think kissing is unhygienic ?
Have you a secret passion ?
Are you a demonstrative lover ?
Could you live without me ?
Do the prospects of matrimony thrill you ?
Would you be sad without me ?
Do you flirt ?
Do you ever behave in an unladylike manner ?
Are you in love ?
Do you wear silk underclothes ?
Does your heart go pitter pat when you think of me ?
Could you ever learn to love me ?
Do you snore ?
Will you ever get married ?
Do you like to be petted ?
Are you a vamp ?
Do you kiss nicely ?
Do you like to be flattered ?

Can you keep a secret ?
Can you cook well ?
Are you absent minded ?
Do you ever wash ?
Is your nose always shiny ?
Are you to be trusted ?
Do you look forward to Leap Year ?
Do you think marriage is a failure ?
Are you very excitable ?
Do you often change your mind ?
Would you make a good housewife ?
Do you like weddings ?

ANSWERS :—

Yes, sweetheart.
That remains to be seen.
Not for all the money in the world.
In the moonlight.
No.
Mind your own business.
Whenever I get the chance.
Time alone can tell.
I will let you know when we are alone.
Undoubtedly.
Come outside and I will tell you.

I will not answer such an impudent question.
Give me a kiss and I will tell you.
I think you are very rude.
I should have thought you would have known that.
I do not know.
Frequently.
Yes, but keep it dark.
Most certainly not.
Always.
On a dark and stormy night.
In my bath.
Not in the daytime.
I think it is time we changed the subject.
I hate you.
You will know in due course.
If you wish it so.
Wait and see.
That is no business of yours.
When I am in the right mood.
Not at bed time.
Only at night time.
We will go further into that subject later.
In my dreams.

HOME CHEMISTRY

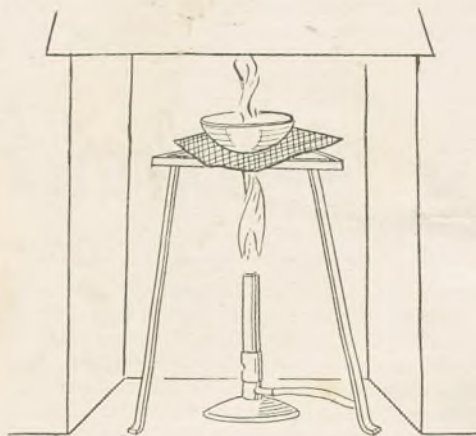


SOME "HOMELY" ACIDS

*Could you make
Vinegar?—Acids
to Remove Stains
—H o m e-m a d e
Sherbet.*

CONTINUING our study of the better-known acids and how to make them, we will deal in this article with one or two of what may be called the "homely" acids. We say "homely" because such acids as acetic, oxalic, and tartaric have certain household uses, consequently there is a special interest in knowing how to prepare them.

The first-named is, of course, well known as vinegar, although vinegar is not merely a solution of this acid, as most people think. Colouring matter and other substances are added in small quantities before it is fit for the table.



Making Oxalic Acid: made in the fireplace to allow the fumes to escape.

The French method of making vinegar is to place a cask of wine in the open air. As a result of the fermentation which takes place, the wine becomes covered with a thin coating of the vinegar plant. A little more wine is then added and the process continued until a considerable amount of vinegar can be drawn off once a week. This is replaced by a similar proportion of wine, and as long as the cask of liquid continues to "work," vinegar may be obtained.

Home-made Vinegar

You may prepare acetic acid at home by distilling sodium acetate with sulphuric acid. Place some of the crystallised acetate in a large evaporating basin supported on a stand, and heat with your Bunsen. You will observe that the salt soon melts (it contains a certain proportion of water) and eventually boils. As soon as all the moisture appears to have evaporated, decrease the amount of heat and stir the contents of the basin with a glass rod until it consists of a fine white powder. That proves that there is no more water present.

Now transfer this powder to a retort, and add less than half the amount (by weight) of sulphuric acid. Fit the stopper to the retort, and heat over your Bunsen. Put the neck of the retort into a flask, as you did in the case of the preparation of nitric acid. It is as well to wrap a piece of wet rag around the flask to assist distillation.

Now apply the heat as usual, and the acetic acid will distil over quite readily and easily. By the way, you can save time by using the sodium acetate just as it is, without bothering to expel the water by the preliminary heating process. The only difference is that the resultant acid is not quite so strong, but it will be perfectly satisfactory for the majority of the experiments you are likely to undertake.

The Stain Remover

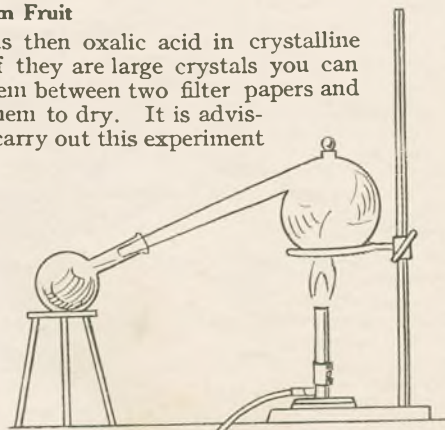
Oxalic acid is useful for removing stains. For instance, if you should spill some ink on an important paper or a book, a solution of this acid will usually remedy the trouble without injury to the paper.

The preparation of this acid is quite a simple and interesting process. One way of making it is to act on cane sugar with strong nitric acid, but a more convenient method is as follows:

Into an evaporating dish put a goodly amount of ordinary white starch, and add nitric acid and water in the proportions of 5 to 1. Apply heat from the Bunsen and watch the action. When this has ceased, continue the heat, slightly increased until you finally have about one-fifth of the original bulk.

Acid from Fruit

This is then oxalic acid in crystalline form; if they are large crystals you can press them between two filter papers and allow them to dry. It is advisable to carry out this experiment



Apparatus in the preparation of acetic acid.

Amateur Chemistry—(continued)

in an empty grate, so that the unpleasant fumes may escape.

The two acids given and scores of others belong to what is called the 'carboxyl group,' and many of these 'carboxyl acids' occur in plants. Other members of the same family include (1) Tartaric acid, which occurs in the grape and is therefore familiar to those engaged in wine manufacture, where it is known as cream of tartar.

And all this brings us to another rather interesting subject. Most acids are regarded by those whose knowledge of chemistry is a little vague as being very dangerous and poisonous. Whilst it is not denied that a number of them do fall in this category, there are many other substances that are equally, if not more dangerous. And since it seems that the amateur chemist is quite likely to be accused of not knowing his business if he is unable

POISONS AND THEIR ANTIDOTES

Sulphuric Acid. Hydrochloric Acid. Nitric Acid Carbolic Acid. Iodine Phosphorus. Creosote.	In the case of the first three acids, give very thick lime water. In the case of all these poisons, administer a teaspoonful of mustard flour in a cup of hot water. Also give white of egg, well beaten up with water.	Prussic Acid and its Salts and all Cyanides	Don't let the patient go to sleep, but give continuous and heavy douches of ice-cold water over the head and spinal column. Put mustard plasters on the soles of the feet and on the stomach.
Acetic Acid.	If this gets on to the hands it is liable to produce nasty sores. To prevent this, rub the place immediately with a piece of ordinary washing soda.	Nitrous fumes	Frequent and small doses of strong acetic acid.
Oxalic Acid and its Salts.	Give large spoonfuls of a very thick paste of lime and water. After several of these, large draughts of lime water. Finish up with 4ozs. of castor oil.	Silver Nitrate	Give large doses of common salt in water, then one teaspoonful of mustard flour in warm water.
Mercury, Copper, Zinc Chromium, Antimony.	White of egg in water. Teaspoonful of mustard flour in water.	Arsenic and its Compounds.	Teaspoonful of mustard flour in warm water. Teaspoonful of dialyzed iron mixed with the same quantity of calcined magnesia twelve times in an hour. Then give plenty of oil, milk, or linseed.
		Lead compounds.	Teaspoonful of mustard flour. Strong solutions of Epsom salts or Glauber's salts in cold water.

It is interesting to know that the natives near Zambesi obtain it naturally from the fruit of a certain tree; they mix it with water to make a drink, which keeps away malaria.

You can now see a point of connection between the so-called uncivilised races and ourselves, for in this country tartaric acid is pounded up with bicarbonates in order to make sherbet; whilst if you are going to make lemonade at home, one of the first things you do is to go to the nearest chemist for a couple of pennyworth of this harmless but very useful acid (2) Citric acid, which is contained in oranges and lemons (3) malic acid, which occurs in the juice of apples and in rhubarb.

to answer questions on what to do in various cases of poisoning, the above list of poisons and their antidotes will provide him with that necessary information.

You know, of course, that antidotes are those substances which counteract the effects of poisons, and there are only a very few poisons today (mostly foreign) for which antidotes are unknown.

We know you're not all training to be doctors, but in your hobby of chemistry you must necessarily come up against all classes of poisons, and this is a case where a little knowledge (of antidotes) is *not* a dangerous thing.

HOBBIES LEAGUE CORRESPONDENCE CLUB

These Members of Hobbies League would like to get in touch with other readers and so form pen friendships which will undoubtedly prove interesting to all. In this way, one has a wide circle of friends and increased knowledge in people and places, not only in one's own country, but all over the world. Members should write direct to the addresses given, stating their full address and age, and adding any hobbies in which they are interested. Hundreds of members have already taken advantage of this Correspondence Club in this way and others who wish to do so should notify the Registrar with the necessary particulars.

NAME	ADDRESS	WANTS FRIENDS	INTERESTS, Etc.
F. C. Stevens.	62 Nauton Lane, Cheltenham.	Manchester, Birmingham.	Anything.
F. Quinn.	130a Ranalagh, Dublin.	Anywhere.	Sport, Fretwork.
A. P. Thompson.	54 Coniston Road, Muswell Hill, N.10.	India, S. Africa, S. America, 23 yrs.	Music, Sketching, Swimming, Photography.
E. Read.	New Street, Diss.	Anywhere.	Fretwork.
Anthony Khaw.	29 Macalister Road, Penang, S.S.	Australia, Africa.	Anything.
C. Dawson.	12 Washington Grove, West End, Doncaster	Anywhere.	Stamps.
G. Phillips.	Bodarfryn, Glyn Ceiriog, N. Wales.	14-15 yrs. Canada.	Cycling, Pigeon keeping.
C. T. Kee.	11H Jelutong Road, Penang, S.S.	Anywhere.	Fretwork.
R. Strang.	23 Lime Road, Camelon, By Falkirk.	Anywhere.	Anything.
L. R. Freeman.	8 Ffonyrefall Terr., Pontardulais.	French Boy Scout, 15 yrs.	Anything.
A. J. D. Winter.	"Maplewood," Burdon Lane, Cheam, Surrey.	Japan, Germany, France.	Aeronautics, Stamps.
A. Sidick.	Steamer Point, Aden.	Anywhere.	Anything.
T. Thomas.	61 Richmond Road., Abertillery, Mon.	Anywhere.	Old Coins.
I. Baba Z.A.	Redolent Home, 77 Kedah Rd., Penang, S.S.	Anywhere.	Stamp and Matchbox Collecting, Photography.



THE ART OF FRETWORK



In our last article we covered the various grades of fretsaw blade which should be used, and the methods of insertion in the frame.

It sometimes happens that the saw, for no apparent reason, will not cut straight in line with the frame, but deviates to the right or left. This is probably caused by the teeth portion of the blade having been turned to a different angle from that portion held in the clamps each end.

This little trouble is easily overcome. Mark a straight pencil line on a piece of wood and notice which side the saw runs off. Then grip the ends of the blade near the clamp with a pair of flat nosed pliers, and turn gently to get the blade straight. (See Fig. 1).

Be careful not to overdo it and remember to treat each end alike. By doing this, the blade can be made quite straight, and may be tested out again on another pencil line drawn on the wood against a rule.

In addition to the ordinary blade there is also a wide one which is made of much heavier metal, and is useful for straight coarse cutting ordinary rough work.

Further, there are metal cutting saws where the teeth are set very close together. They are used on sheet metal such as brass, silver, zinc, etc., and will cut best if provided with a little drop of oil to prevent them running hot.

It may be found, even with the ordinary blade, that the steel gets warm if used constantly. This does not affect the metal at all, but it may slightly burn or brown the wood. To prevent this, a simple remedy is to put a touch of candle grease or common soap on the blade.

The keen worker will naturally prefer to have a range of these blades handy, and a good plan is to keep them in a flat cigar box with partitions across and the number of the grade printed at the top of bottom of each. The description of how to make such a useful box was

given in *Hobbies Weekly* dated September 22nd last.

Now, all cutting must be done on a special cutting table, which allows the work to be held flat and yet provides room for the blade to do the work. The actual shape is not really material, but it is essential to have a V opening for the saw to work in. A group of popular kinds are illustrated at Fig. 2, of which the most generally used, is the oval one seen. This is in pressed steel, firm and rigid, with a polished top on which the work can be easily and quickly turned.

All tables are held to the side of the bench by means of a light but strong steel clamp which is removable when not in use.

THE FOURTH CHAPTER

Strengthening the Blade — The Cutting Table—Hints about the Drill—Other Small Tools—The Use of Glasspaper—Grades to Use—Home-made Papering Files.

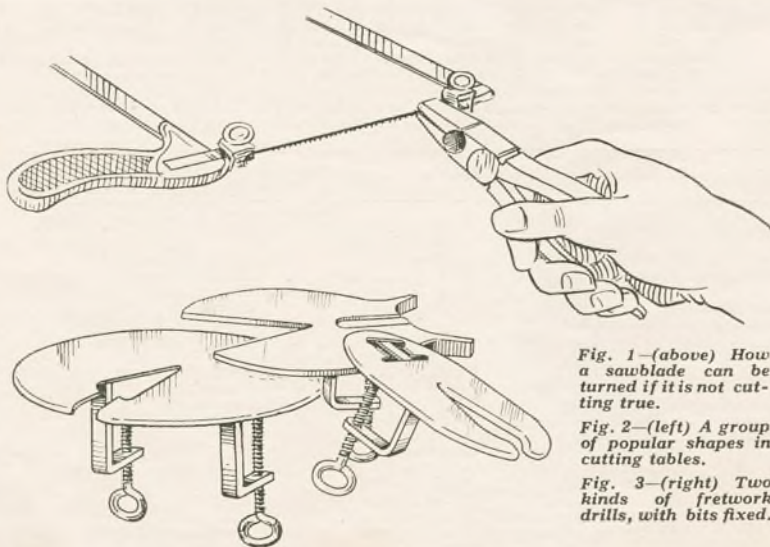
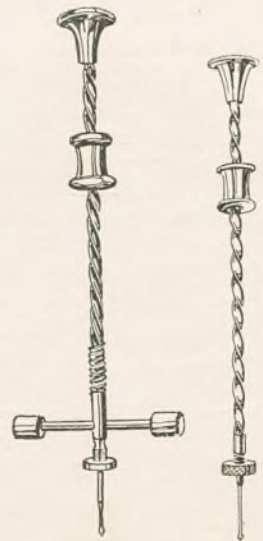


Fig. 1—(above) How a sawblade can be turned if it is not cutting true.

Fig. 2—(left) A group of popular shapes in cutting tables.

Fig. 3—(right) Two kinds of fretwork drills, with bits fixed.



The Art of Fretwork—(continued)

These tables, by the way, are sent out with a thin covering of grease to prevent them getting rusty. This must, of course, be wiped off before use, but it is a good point to remember to grease them again—vaseline will do well—if they are likely to be laid away a considerable time.

The same remark applies, of course, to the steelwork of the hand frame, or indeed any metal tool.

The next most important tool is the drill, and here again, there are two or three patterns obtainable (see Fig. 3). All, however, work on the same principle.

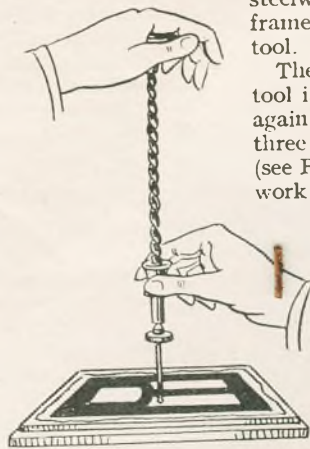


Fig. 4—How to hold and operate a drill.

The knob at the top swivels on the stem, and a loose bobbin is provided to run up and down the twisted shank. When the drill is held on to the wood (see Fig. 4) with the palm of the hand the bobbin is worked up and down.

This rotates the drill bit at the bottom in one direction and so drives it gradually in to the wood, boring a tiny hole.

A failing of the beginner is to press too hard in drilling, so the bobbin cannot turn the tool. The pressure must not be heavy, and the bobbin run up and down quickly.

In extracting the drill from the wood, too, remember to turn it backwards and forwards and to draw it straight out. If this is not done, the thin bit is apt to break.

Drill Bits

The drill bits, like the sawblades, are obtainable quite cheaply and in different sizes according to the diameter of the hole to be bored. This is useful when small work is being done, and particularly inlaid where the position of the hole should not be visible.

The drill shown with the weights is a big advance on the ordinary kind, for it provides a continuous and rapid action when the drill is turned. The weights give an added momentum to the turning and a really high speed rotation results.

Other tools which are necessary, are the hammer, a rule and a small plane. The first mentioned is

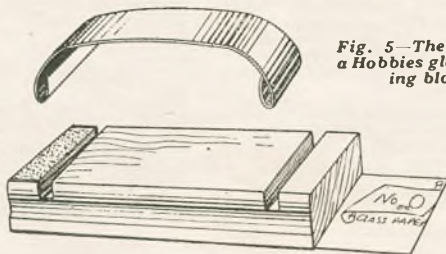


Fig. 5—The parts of a Hobbies glasspapering block.

much smaller than the ordinary household kind because it is used on tiny nails or to help in the construction of putting small parts together. The fretworker's plane, too, is quite a small tool because it is mainly used in trimming edges or tiny parts which want shaving down slightly for a joint. The one most suitable (Hobbies No. 1) is only $3\frac{1}{2}$ ins. long and has a blade $\frac{1}{4}$ in. wide. Yet it is a helpful tool of many uses as the worker will find.

A word must be said too, about a block for glasspapering. One is supplied by Hobbies Ltd. in two sizes and is illustrated in the Hobbies Handbook. It forms a very necessary part of any worker's kit.

Grades of Paper

Glasspaper, as everyone knows, is used for cleaning the work after the pattern has been cut out, and in generally smoothing down the wood. It is supplied in various grades from OO which is very coarse to F2 which is very fine. Between the two are four or five grades which are useful on special occasions. The very coarse stuff is only used on rough work, for it scratches the surface badly if used on smooth wood. The medium (No. 1) is the most generally useful, but should not be used for finishing off. The fine grade is required, for that, as it does not scratch the wood, but leaves a perfectly smooth and semi glossy surface.

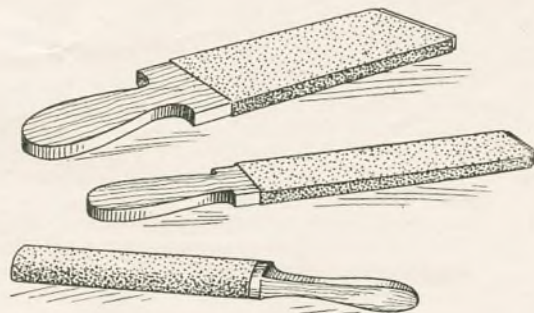


Fig. 6—Some homemade files of glasspaper.

Now, naturally, as the wood is rubbed away with glasspaper, one has to be careful not to do too much with it.

If used in the hand the pressure applied is not even, no matter how one may try. For that reason it should be used on a block of wood or cork if applied to a flat surface.

Better still, it should be used on the special Hobbies' holder. In this, a strip is wrapped along the bottom of a wooden block and is held in place by a handle formed of spring steel. This not only forms the handle, but grips the paper tightly during use. The parts are shown in Fig. 5 where the handle has been lifted away.

The worker can also make a useful little tool for himself with a strip of paper and a piece of wood. Some are illustrated at Fig. 6 and consist of a wood stick about roins. long, of which one end is shaped to a handle.

Look out for another chapter of this practical series.

A WOODEN TOY

THIS week's design chart is for an unusual piece of work, and one which has not been previously produced. It is for the making of the first part of a complete train set, and consists of an engine, open truck and box wagon, all built in wood and easily constructed with the aid of the fretsaw.

It is a real working toy for any youngster, and the whole thing can be completed much more cheaply than the cost of the usual metal sets.

The photograph, herewith, shows how realistic the completed model can be, and we are sure any reader will be delighted with the result of an hour or two with his fretsaw. On the design chart this week (No. 2050) are shown the patterns for making the engine and two trucks. The same proportion consisting of timber wagon, cattle truck and brake van will be provided on a later sheet.

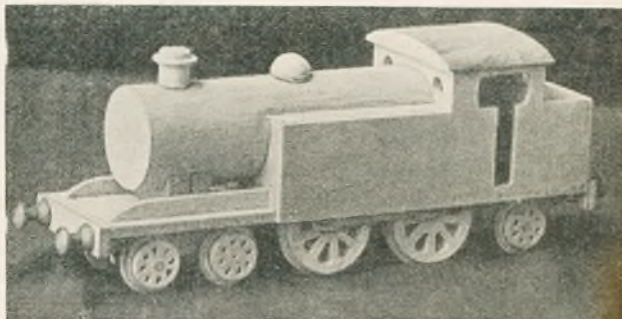
Materials Ready to Use

The work is quite straightforward, and as the parts are cut from plywood, the cost of the material is very low, indeed, all the necessary timber and accessories are supplied for 3/- by Hobbies Ltd. This not only includes the planed wood cut to the sizes required, but also the buffers ready turned, rod for the axles, and the boiler ready shaped to fit in place. A close-up picture is given herewith of each of the models concerned, and from this and the details on the sheet, the construction is quite straightforward. To make it more so, each piece of wood in the parcel supplied has a number upon it to correspond with that on the actual pattern of the chart.

First Work

As can be seen, the engine is one of the Southern Railway's tank locomotives, which finds a very varied use on local work from Victoria Station. It is of the 442 type with which no doubt many of our readers are conversant.

Before beginning work, make a study of the design sheet, and see you know exactly what the parts are, and where they go. Then read this article through to follow the construction, and finally get out the various parts and go ahead with the work.

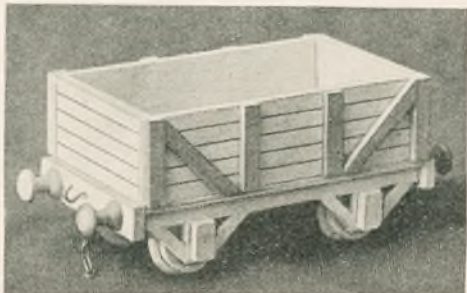


A picture of the completed locomotive before painting.

At Fig. 1 is given a side and end elevation which is exceedingly helpful in making up the parts. The undercarriage can be built first, omitting the wheels. There is the engine bed, to which are glued beneath the wheel bearings (parts 1 and 2). These bearings only carry the back two wheels and the four main driving wheels. The flat end of the bearings, therefore, comes immediately behind the buffer plate at the back end of the engine. The buffer plate itself (No. 15) should not, however, be glued on until the sides and end of the tank have been fitted.

The Cab

These two sides (No. 19) are then glued on with the back end of the tender (No. 10) between them. The rear of the cab (No. 9) is set forward $\frac{3}{4}$ in. from this, and glued between the sides. in



The open truck ready to paint.

MATERIALS REQUIRED

WOOD—A parcel of Satin Walnut and Plywood is supplied for making the above, including buffers, stripwood, round rod and a turned boiler. Price 3/-. Post free 3/9.

FITTINGS—Six Brass Hooks, Brass Screws and Brass Chain 6d. (postage 1½d.).

A complete set of wood and fittings is supplied for 4/- post free.



TRAIN SET

upwards from the floor is glued a flat piece (No. 12) which can be clearly seen in the detail at Fig. 2. The front of the cab is then glued between the sides $1\frac{1}{2}$ ins. further forward, and this gives the position of the boiler.

The boiler itself rests on two supports, and the back end, of course, is glued to the front of the cab. The mid support (part No. 7) is glued flush with the ends of the sides of the engine, and the front support (consisting of two $\frac{5}{8}$ in. pieces glued together, part No. 5) is glued to the bed another $1\frac{1}{2}$ in. in front of that. The boiler itself consists of a cylindrical piece of wood $5\frac{1}{2}$ ins. long and $1\frac{1}{2}$ ins. in diameter. It is cut with flat ends, one being glued to the front of the cab with the boiler portion itself glued to the supports just fixed.

Boiler Attachments

It will be advisable perhaps, before fitting the boiler, to put on the funnel and the steam dome. The composition of the funnel is shown in the detail at Fig. 3. The underside of both parts must be shaped slightly concave so they can bed down comfortably and be glued to the boiler top. The front of the funnel is set back $5\frac{1}{2}$ ins. from the front of the boiler, and the front edge of the steam dome $1\frac{1}{2}$ ins. behind the funnel.

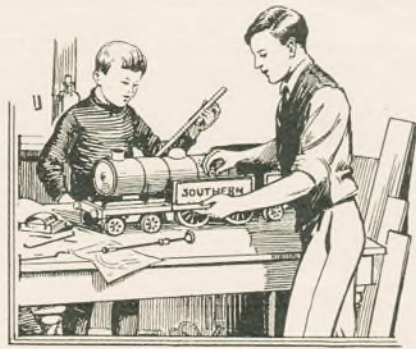
The stays on each side of the boiler (part No. 6) are glued to the supports, and to the front of the upright (part No. 7). The top of the tank is also made solid by putting in two narrow $\frac{3}{16}$ in. strips (part No. 13). The roof of the cab is made from a piece of $\frac{3}{8}$ in. material, shaped to the section shown, and glued with an equal overhang back and front.

The Bogey Wheels

The undercarriage so far, has been made without wheels, and the detail at Fig. 4, shows how these are fitted. The bogey is a separate piece shown in Fig. 5. The wheels are made up of a solid piece of material with a thin flange added, the latter being chamfered down to

take the running track. The driving wheels are coupled with a rod, and the whole of these wheels can then

This week's gift design chart



simply be dropped into the slots provided, and are prevented from coming out again by small strip pieces being glued on behind.

The bogey itself is made up complete, and is then screwed centrally, the screw being driven in $1\frac{1}{2}$ ins. back from the front end. Between the bed of the bogey and the bed of the engine itself, a swivel disc (No. 23) is fixed.

It can be glued to the underside of the bed of the engine, and then the bogey fixed with the long roundheaded screw so it may swivel on this circular disc. If, of course, the engine is only for show purposes, the bogey can be glued and fixed to the disc.

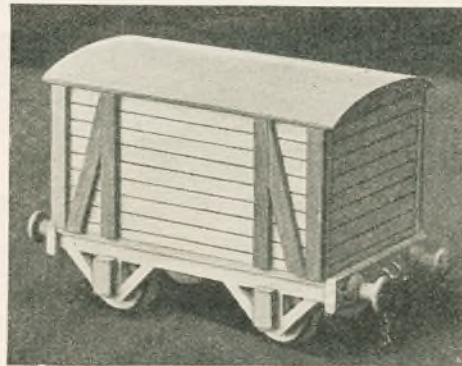
By the way, it should be noted now that all these wheels must run on a level plane in order to allow good running if lines are made for the toy.

The engine is completed by the addition of buffer ends and two miniature buffers on each. The buffers supplied are slightly too long, and they must be cut off as shown by the detail on the design chart.

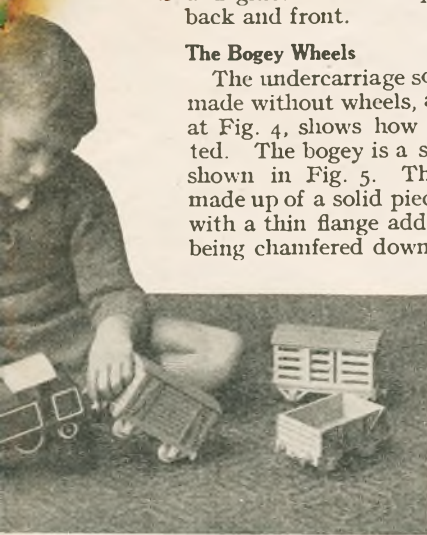
The Goods Wagons

Now we come to the truck and wagon, but the construction of these needs little explanation. An end and side view is given at Figs. 6 and 7 respectively, and this shows how the parts are put together. The sides themselves, of course, are

(Continued on page 446)



A photograph of the box wagon.



The Toy Train—(continued)

complete pieces of wood, and not built up in strips as indicated. These strips are markings which are cut on with the penknife, and inked in before the overlays are added.

The Wheels

The fixing of the wheels in this case, is the same as in the bogey on the engine. The axle is cut the right length and pushed through one side of the

undercarriage. The wheels are then threaded on with the chamfered flange inwards to each other, and then the end of the axle carried into the hole on the opposite undercarriage part. The end of the axles must not be quite flush with the sides of the undercarriage, in order they may not "bind" when the little grease boxes are fitted.

The two ends of the truck go between the two
(Continued on page 452)

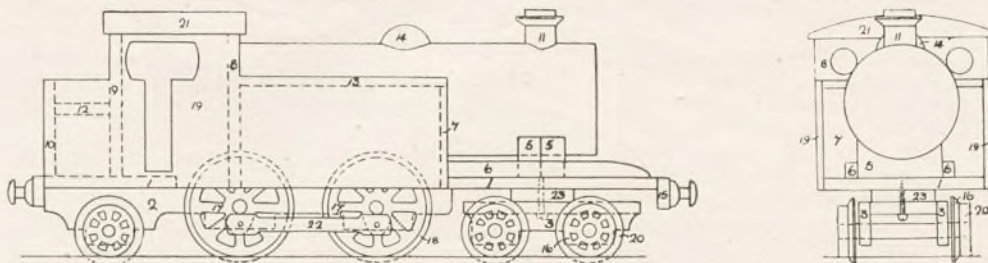


Fig. 1—A side and front elevation of the locomotive.

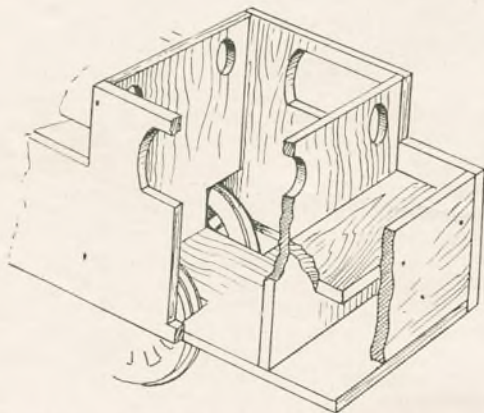


Fig. 2—The tender end, with the cab roof removed.

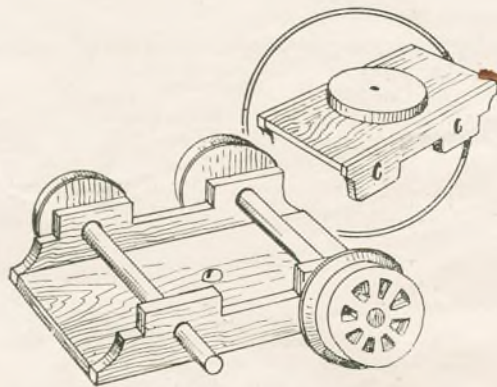


Fig. 4—An under view of the bogey and wheels, with detail (above) of fixing.



Fig. 3—How the funnel and steam chest are made and fitted.

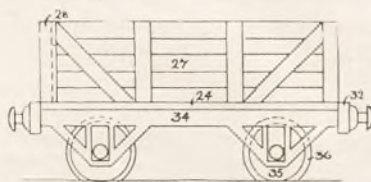


Fig. 6—An end and side elevation of the truck.

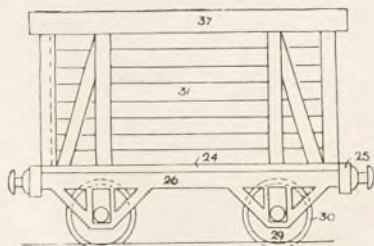
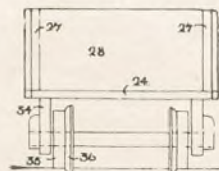


Fig. 7—The parts of the wagon numbered.

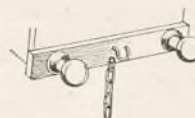
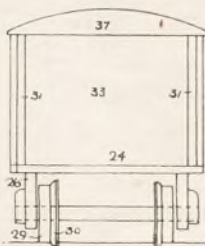


Fig. 8—The buffers and connecting parts.

Look out for the next design chart



Tools and how to use them



SPEAKING generally, tools can be classified into two different sections; one mechanical and the other dependent entirely on the skill of the user. Planes can be said to be of a mechanical nature, especially the Jack, Trying, Smooth, and Plough, the Hollows and Rounds.

What can be said of this class of cutting tool cannot be said of chisels. They are like the ordinary penknife, requiring great care in handling and skilful manipulation. Under this class of freedom, tools can also be classified Spokeshaves, gouges, scrapers, files, etc.

Of course, on the other hand, use what tool you like on any material, there must exist between the

those who have dabbled in woodwork, these details are all essential in the purchasing of tools for remember, you have to live with them.

The chisel is a perfect hand tool made for various purposes, viz., mortising with the use of a mallet, handparing, cutting oblique or vertical. In a way it acts as a kind of elaborated penknife, and like the latter should be used to take off parings. Hence the name paring chisel. Some woodworkers use a chisel just like a Jack Tar when cutting twist tobacco with his penknife, and if you want your first lesson on how to use a paring chisel watch him or even your mother at home paring the potatoes. The thinness of the skin is what you cuts want to be when you are paring.

It seems to be a source of satisfaction with the beginner in Woodwork if he can fetch off cuttings as thick as possible. It is a fatal mistake and very common. Remember, a clean cut with



THE CARE AND USE OF CHISELS



user and material a relationship as to the best means of cutting. You must have a full knowledge of how to work with or against the grain.

The evolution of tools forms an interesting study. Profiles, shapes of handles, and blades, have not come about in an haphazard manner, but the perfect tool has taken years to shape and the many little details in them.

Have you never noticed the small V cut rims in the handles of chisels. These are not for fancy, but so the hand can grip more secure. The handle of a hammer shaft is wider at one end than the other because it assists the user to prevent it slipping when using. To the beginner and even to

At the top is the chisel held upright for a vertical cut, below it is paring an oblique cut across the work.

Care and Use of Tools—(continued)

a chisel should not need to be followed with either files or sandpaper to get a clean flat surface.

In handling, it always appears very strange to the writer how a worker cuts himself with a chisel, for as a general rule he is cutting away from him. If he handles the chisel properly, he cannot cut himself, for he has one hand on the handle of the chisel and the other on the blade.

Cutting Vertical

For cutting upright, the first essential is to provide one's self with a cutting board to cut on. It is not safe to cut on the bench top, for however careful one might be, somehow a nail might get into the top of the bench, and you know what happens if the cutting edge comes in contact. A good plan is to have a thick piece of cardboard to cut on; it helps to preserve the cutting edge.

Grip the chisel firm with the right hand, using the thumb of the left to guide the tool. Another point for paring chisels, bevelled edged chisels are the best for they are lighter and seem to work easier. Let the cut go through. Do not stop halfway. Be deliberate in your action of cutting.

Horizontal or Oblique Cutting

For this form of cutting, again grip the chisel well with the right hand, placing the index finger on the handle outstretched and work as a case in a parallel movement, that is the parings to each

other. If you have the wood in a vice, do not squeeze too tight, because it injures your work and makes an unsightly mark on it.

The old woodworkers were much to be admired in the way they treasured and kept their tools.

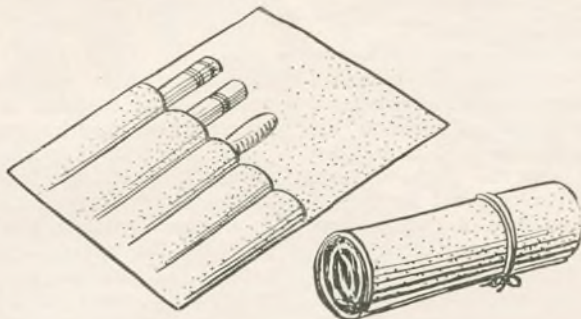
The tool chest in their day was very common and they had a place for everything. When the various sized chisels were not in use, these were carefully wrapped up in cloth pockets to keep the edges and preserve the tools generally. It is a true saying, you can tell a craftsman by how he keeps his tools.

Occasionally rub the handles of the chisels with raw linseed oil.

This does not mean merely smear with the oil, but rub the oil well into the wood to help it in the handling. Another point, especially when working in the hard woods, is to smear the blade with Vaseline to help the cutting.

Yet another point—if by some chance the tang of the chisel becomes loose and the blade is apt to leave the handle, this can be made right again by inserting in the hole of the chisel a pinewood wedge and then driving the handle home into the tang, which has previously been placed in the vice.

Do not do as the writer observed. The worker cut off a slip of oak, placed it in the hole of the chisel and then drove it home. The result—a cracked chisel handle!



A useful carrier for chisels, made in felt or baize.

HOBBIES OF WELL-KNOWN PEOPLE

Interesting and Intimate details of Dixie Dean—Footballer

IN these days of super-soccer, footballing is a whole time job, so Dixie Dean, the hero-worshipped captain of Everton, like his colleagues, finds little time for leisure. William Ralph Dean, for that is his full name, won fame on the football field quite early. He was only nineteen when he registered a record of 60 League goals in the 1927-28 season, and thereafter his local admirers on the bob bank, affectionately dubbed him "Sixty" Dean. His last three, be it known, were scored against the Arsenal.

He starts his day at 8 o'clock and at ten he signs the book at the Everton ground, where he trains with the rest of the team until mid-day. Lunch is followed by a strenuous couple of hours in the

gym. until four. This, more or less, concludes Dixie's ordinary business day and he now feels free for a game of snooker, which by-the-way he plays very well, or a hand of bridge. He is very proud of his golf too and in the summer, wherever he is, he likes nothing better than watching cricket. Although distinctly athletic, of course, boxing is not on his programme, but he likes to watch it. His fan mail is enormous, but requests for his autograph never go unheeded.

Dixie hates cats and loves dogs, but most of all he loves his baby, William Joseph, who may one day be able to 'nod' goals into the net with the same lightning rapidity as Daddy does now!

G.G.



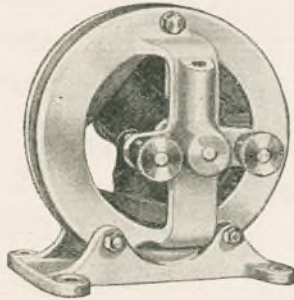
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"We have been testing out the S.T. against many others and find your motor far superior both in power and current."*

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HENLEY - ON - THAMES

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CASTERS. No. 6203. Smooth running casters. Just the right size for a cot. Price 9d. set of four, post 4d.

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If you do fretwork you need a reliable drill—one which is well made and will last a lifetime. Don't buy cheap inferior tools which soon break and are useless. Get a Hobbies and be satisfied. There is none to equal them and the price is low, too!

The Best you can buy!

These all-metal drills have strong jaw grip and easy running ratchet. The ball weights give added momentum to the speed.



Hobbies Own Make.

RAPID ACTION DRILL
and 4 bits
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THE BOY'S DRILL
with 2 bits
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Size 1½ x ½ in., with rebate to take ¾ in. wood. In Hazel Pine.
Price 2½ d. ft.; 2/- doz. ft.
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for the Amateur

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Give your woodwork a polished surface

A complete Polish Outfit for the amateur, price 2/3 (postage 6d.), contains polish, woodfiller, boxes of stain, sandpaper, rubber and full instructions. A sample bottle with instructions and rubber for 10d. (postage 4d.).

Obtainable from Hobbies Branches and all leading ironmongers. By post from HOBBIES, Ltd., DEREHAM NORFOLK.



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A leaflet on Polishing for Amateurs is free on application to Dept. H.1. Hobbies, Ltd. Dereham, Norfolk.



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Buy your Designs this way . . . it's cheaper!

The best design value anywhere! Each design clearly printed with full cutting instructions. The subjects include: Photo Frames, Pipe Racks, Mirrors, Mottoes, etc. Why not buy the four books? Imagine, 68 designs for 3/-. The illustration shows Book "A."

Four Books A, B, C, D

Books A and B have 20 designs each, whilst C and D books contain 14 designs of larger subjects. Order from any ironmonger, Hobbies Branch or by post from Hobbies Ltd., Dereham, Norfolk. Be sure to state which book is required.



TO the true gardener Spring comes in February. During the dark, seemingly stagnant months of Winter growth has been silently going on under the soil and when a sunny day in February tempts us forth many surprises await us. Snowdrops and Aconites are peeping out silver and golden blossoms; Hyacinths are thrusting strong green shoots upwards; patches of Crocuses are appearing and Alpines are ready to break into bloom.

It is a time of awakening in the Herbaceous border and the sight of plump green shoots everywhere fills the hearts of flower lovers with hope.



Jessamine, showing how it should be pruned after flowering.

If the season be dry, soil which has been well dug will be beginning to crumble and some preparation for the sowing of seed may be begun. Hoe and rake beds and borders to a fine tilth but on no account attempt to sow seed until the weather is genial; for seeds need not only suitable soil for their successful germination, they also re-

quire moisture and warmth.

Watering the surface of the soil makes it cake and consequently the seeds cannot penetrate this hard crust, so it is best to delay sowing till March or April and to wait for warm moist days for the purpose. These rules apply to flower and vegetable seeds.

Those who have been enjoying lovely sprays of the yellow Jessamine, (*Jasminum nudiflorum*) should cut back all shoots that have flowers so that there may be a fine display of bloom next year. It is well to acquire a knowledge of how to prune the Spring-flowering shrubs, for if this is not understood, blossoms tend to be scarce or non-existent.

Early Flowers

It is a knowledge only gradually acquired but it is well worth while for much of the beauty of gardens in Spring depends on those lovely flowering shrubs. The Witch Hazels and Winter Sweet are, like the Jessamine, early but not so well known. The twisted yellow flowers of Witch Hazel, to some, are not very attractive but they have the merit of

being early. After the bloom is over thin out branches. Winter

Sweet (*Chimonanthus fragrans*) has more appearance and a few sprays of it can scent a whole room.

After flowering, cut back side stems to about five or six buds from the main stem. The better known Flowering Currant should have old branches cut down to the ground; no other pruning is necessary. The best Flowering Currant to grow is *Sanguineum*. It has fine large trusses of bright rosy blossom with just a hint of green leaves; an improvement on the old fashioned kinds some of which are rather faded and uninteresting. *Buddleia* (*Variabilis*), that beautiful flowering shrub with long slender blossoms much like a summer lilac, should have the side shoots cut back almost to the main stem. Leave only the merest stubs of about two or three inches long to ensure good flowering later.

Annuals

Ceanothus, the blue flowering shrub and *Hydrangea paniculata* should have shoots shortened at this time or in March. This only applies to summer flowering *Ceanothus*, *Cloire de Versailles*. There is another Spring-flowering one which should be pruned in May.

Half hardy annuals should be sown in boxes and raised on hot beds, in frames or in a heated greenhouse. This will give a good supply of bedding plants for the Summer. Stocks and Asters, *Antirrhinums*, *Lobelia*, *Ageratum* for edgings, *Alyssum*, *Phlox Drummondii*, *Kochia*, *Nicotiana*, *Tagetes*, *Zinnias* and Annual *Chrysanthemums* are only some of the fine things that can be sown.

Seedpans are better than wooden boxes as they keep the soil moist longer than the boxes and do not dry out so quickly, a fatal thing in the raising of seeds. Use a very fine compost; a mixture of two parts loam and one part leaf mould with a good proportion of sand is best. Put a layer of crocks (broken pots or small stones) in the bottom of each pan and fill them with the sieved compost.

Sow seed evenly and thinly. After sowing dip

THIS MONTH'S WORK



A well sprouted potato.

Gardening—(continued)

each pan right up to the rim, but not over it, till the water has soaked up from the bottom and just moistens the surface soil. This is the correct way to water seedpans. Never water overhead. This immersion is usually enough to keep soil moist till the appearance of the seedlings. Cover pans with glass and brown paper till germination has taken place. Wipe moisture from glass every day, to prevent damping off.

In the Vegetable Garden

FEBRUARY is a good time to begin growing vegetables in the modern way, on a cropping ground. If you have, up till now, merely grown vegetables in a collective way with hardly any attempt at scientific cultivation this is a good time to turn over a new leaf.

A cropping ground is planned according to the principles of crop rotation. It is based on the management of the soil, the application of manures, organic and chemical, so that the plants shall have abundant supplies of the food they need and when this method is understood the gardener has mastered a very important branch of horticulture.

Feeding the Land

Plants have certain chemical constituents and some of these they draw from the soil, some from the air. They are nitrates, potash, phosphates and lime. Nitrates give green foliage and growth; phosphates feed the flower and seeds; potash supplies starch and lime sweetens.

Continuous cropping of the ground exhausts the soil of these and they have to be returned to the soil in manures, or they may thus be supplied to deficient soils. Horse manure is the best container of all these foods, though mixed animal manures such as cow, horse and pig are preferred by some gardeners. Horse manure should be dug in at the rate of four barrow loads to every twenty square feet. Chemical manures are supplied according to the needs of different crops, usually when there is a scarcity of farmyard manure.

The Cropping Plan

The vegetable ground should preferably be on a level stretch with a sunny exposure. Avoid hollows and have at least one path wide enough to wheel a barrow along with sufficient room for

frames and tool shed, as well as for manure and turf stack and for hotbeds.

In planning the crop rotation, plan for three years ahead. Reserve sufficient ground to grow the permanent crops, such as rhubarb, asparagus, artichokes and herbs. Divide the remaining part of the ground into three. In these the annual crops should be grown.

The principle of crop rotation is simply that the same crop shall not be grown in the same ground two years running. Green crops such as cabbage, cauliflower, brussels sprouts are followed by roots such as carrots, turnips, potatoes, leeks or parsnips. Peas and Beans often follow green crops and are usually grown on the same plot.

In Heavy Soil

No manure should be applied where carrots (and beetroot are to be grown. These vegetables do best in soil which has been manured in the year preceding their sowing. They often follow cabbages or other greens.

Where there is heavy soil, pierce holes in the soil where carrots are to be sown and fill with sand. These will then be ready to receive a pinch of seed when the weather is genial enough for sowing.

Plan the crop rotation on paper and adhere to it as strictly as possible. In this way you may hope for good results.

Potatoes

Early potatoes are appreciated. Seed potatoes should be saved when the crop is lifted and stored in trays, the broad end up in a cool dry place. The best ones are about two or three ounces in weight. About the beginning of the year they should be brought into the light of a cool greenhouse or lighted shed and allowed to sprout. Only the tops should be allowed to develop. Two sprouts to the tuber are enough and any others should be rubbed off.

About the middle of February these sprouted tubers may be planted in boxes and started in frames or on a hotbed. Give sufficient light to ensure healthy green haulms and add some loam to the top of boxes as they grow for nourishment. Do not plant out of doors till March and then only in mild weather.

The Toy Train—(continued from page 446)

sides, and the overlays are afterwards glued on. The wheel bearings are glued $\frac{1}{4}$ in. inwards from the edge, and the buffer plates glued over the ends of the wagon floor to hide the edge. The buffers are fixed as before, and set in $\frac{1}{4}$ in. inwards from each end.

The completed buffer plate and coupling is shown at Fig. 8. The latter consists of a small brass watch hook screwed in half way between the two buffers and a very short length of metal chain nailed beneath. This metal chain and the hooks are supplied in the fittings as set out elsewhere.

The whole of the work should be completed by finishing it with paint. The colours of the Southern Railway are green and yellow, the whole of the body of the engine and cab being painted

green and lined out with yellow markings.

The buffer and name on the side are yellow, as well as the lines round the boiler, the cab, the windows, etc. A good plan is to get hold of a coloured postcard which gives you the necessary colouring to be done.

The front end of the boiler is black, and this is carried round the sides to $1\frac{1}{2}$ ins. backwards. The door of the boiler, of course, can be painted on the front with the hinges and handle. The top of the cab can be a light colour, and the wheel flanges and rims should be painted white or aluminium to add relief. The rolling stock is painted black, and just relieved with green edgings in keeping with the actual stock to be used.



Flying notes & news

The "Gull" and the "Mew Gull"

THE last model of the famous Percival "Gull" has many improved features embodied in its design.

This low wing cantilever monoplane has a commodious cabin for pilot and two passengers, and a larger luggage locker than the earlier type, as well as a fool-proof wing locking device. It is also fitted with wheel brakes, which are now an essential of the modern aeroplane.

Gull," an extremely fast single seater cabin monoplane of unusual design.

The designers had four alternative purposes in view: (1) high speed touring; (2) high speed training; (3) urgent press service; (4) Mail feeder service.

With regard to the latter, this little 'plane is capable of carrying some 3,000 letters with a range of 500 miles.

The "Mew Gull" is fitted with a "Gipsy" six cylinder engine, but has also been fitted with a Napier "Javelin."

Mails versus Passengers

CONTROVERSY still rages over the relative importance of mails and passengers in the air transport world. In America air travel is very much faster than on British lines, and this is due to the "mails first" school of thought which obtains over there. When air mails first started in the U.S.A. mail planes were flown at high speeds over long distances, day and night in machines equipped to carry mails only. It was not until the system was well under way that passengers were thought of and as the mail service could not be slowed down passengers gained in speed, if they lost in comfort.

With us the reverse is the case. We started with passenger services, the mail-carrying side being an afterthought. So that passengers should be able to sleep on land at the various stopping places, and should not be fatigued by long periods in the air, our average speeds are very much slower. This makes for the comfort of travellers, but produces air mail speeds less useful than they might



A picture of the Percival "Gull" in flight.

Photos by the Percival Aircraft Company.

The petrol and oil tanks are mounted in the wing, and sufficient fuel is carried for a three-hour flight of some 500 miles. With a slight sacrifice in "pay-load" the range can be increased to four hours, or 640 miles.

Three alternative engines can be fitted; "Gipsy Six," "Gipsy Major" or Napier "Javelin."

The following are the chief performance figures and characteristics.

- Top Speed: 166 m.p.h.
- Cruising Speed: 155 m.p.h.
- Landing Speed: 50 m.p.h.
- Rate of Climb (sea level): 890 ft. per minute.
- Service Ceiling: 17,000 ft.
- Maximum Weight: 2,300 lbs.
- Weight empty: 1,460 lbs.
- Length: 25 ft.
- Wing Span: 36 ft.
- Span with wings folded 12ft. 10ins.
- Height: 7ft. 4½ins.

The latest product of the Percival Aircraft Company is the "Mew

A striking picture of the liner landing.



Four Miles a Minute !

THE latest version of the Hawker "High-Speed Fury," an interceptor-fighter which made its first public appearance at the R.A.F. Display at Hendon, is the fastest military aeroplane in the world.

Fully equipped, it has a top-speed of over 250 m.p.h.

The span of the machine is only 30 feet. It is fitted with a Rolls-Royce "Goshawk II" engine of 600 h.p., and has evaporative cooling.

be, if relays of machines carried on day and night right through.

The eventual solution will possibly be a division of traffic, passengers travelling at much the same pace as they do now, and the mails being carried by fast machines of comparatively small capacity with a crew of not more than two.

At present, the mail demand is scarcely large enough to warrant new designs and separate organization. Experiments will be tried in the near future over certain routes of our Empire airways, somewhat on these lines.

MISCELLANEOUS ADVERTISEMENTS

The small "to sell" or "wanted" announcements appearing below are accepted from readers who want to sell anything except fretwork goods, or from usual advertisers of bargains of interest. The advertisements are inserted at the rate of 2d. per word. Name and address are counted, but initials or groups, such as E.P.S. or £1/11/6 are accepted as one word. Postal Orders and Stamps must accompany the order. We cannot guarantee any date for these to appear, but they will be inserted in the earliest issue.

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GRAMOPHONES, Radiograms, Motors, Components, Repairs, 64-page list 2d. All 1935 Brands Radio, 70-page list 4d.—Regenthob, 120 Old Street, London.

WHEELS—Wood wheels for toys. Plain and rubber-tired. Prices from 3d. for 4.—Hobbies Ltd., Dereham and Branches.

SALESMAN WANTED. Spare time only, 20/- weekly easily earned.—B. Richford, 9 Snow Hill, London.

DRUM HEADS, 5/- or 7/- post, hoop lapped free.—"Potters," 36 West Street, London, W.C.2.

READY-TO-FIT DOORS simplify cabinet making. 8ins. by 9ins., 3/3 pair. Also larger sizes.—Hobbies Ltd., Dereham and Branches.

MODERN Magic, 1,000 2/6 books to clear, 6d. each; slight printer's errors.—Regal Supply Co., 157 Langstone Road, Portsmouth.

SASH CRAMP HEADS, 3/- pair, post 9d. Square-cut—thread, immensely strong. Wood bars extra.—Hobbies Ltd., Dereham and Branches.

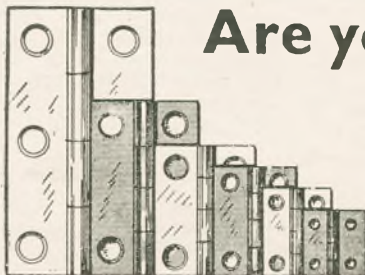
YELLOW BOOK FREE—68-page Budget of useful Philatelic information, 100 Illustrations, 1,000 Bargains, Stamps, Albums, Accessories from 1d. up.—Edward Sandell, 10 Evelyn Grove, Southall, Middlesex.

5 SAAR Pictorials, 5d. Lists free.—Young, 99 Colyers Lane, Erith, Kent.

MODEL YACHT FITTINGS—If you are building your own boat get our list of special fittings. We can save you money.—Hobbies Ltd., Dereham and Branches.

MOVIES at Home. How to make your own Cinema Projector. Particulars free.—Moviescope (H), 116 Brecknock Road, London.

Are you all right for HINGES ?

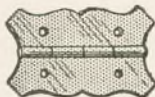


LIGHT BRASS HINGES

1/2in. 1d. 1/2in. 1d. 1/2in. 1d. 1in. 1d. 1 1/2in. 1 1/2d. per pair.

STOUT BRASS HINGES

1/2in. 2 1/2d. 1in. 3d. 1 1/2in. 4d. 1 1/2in. 4 1/2d. 2in. 5d. 2 1/2in. 6d. per pair.



FANCY HINGE
No. 5379 1 1/2in. wide
Price 2d. per pair.

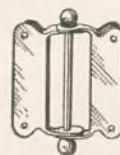
Screws are NOT included with Hinges. Brass screws 2 1/2d. per dozen, Iron, 1 1/2d. per dozen.

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Add 1 1/2d. extra when ordering by post.



STRUT HINGE
No. 5364 1 1/2in. wide.
Price 1 1/2d. each.



SCREEN HINGE
No. 5217. For 1/2in. wood. Price 2 1/2d. each
Fix with fine brass nails.



STRUT HINGE
No. 5369. 1 1/2in. wide.
Price 1 1/2d. each



FANCY HINGE
No. 5308. In two sizes
1/2in. 1d. pair. 1in. 1 1/2d. pair
Fix with fine brass nails.



LONG CABINET HINGE

6in. by 1/2in. Brass, 3d. each; Nickel-plated 3 1/2d. each; Bronzed 3 1/2d. each | 12ins. by 1/2in. Brass 5d. each; Nickel-plated, 6d. each; Bronzed 6d. each.

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MORE NEW ISSUES

THIS time in the review of the most interesting of the new issues of the month we have three which commemorate great men. It is impossible to compare their greatness and the obvious thing to do is to take the stamps in alphabetical order of the issuing country. Such being the case, the Australian "Captain John Macarthur" Centenary comes first.

There are three stamps in this issue—a 2d., 3d., and 9d. and in



each case the design is the same—that of a fine merino sheep standing in typical pasture country. Under the design we read "Captain John Macarthur, 1834—Centenary—1934." Why should Australia have chosen such a design to commemorate—a man in one of the services?

Actually Capt. Macarthur was one of the officers of the soldiers who were sent out to Australia with the first convicts. It was not always that the civil and the military parties managed to get on together, and Macarthur did not at first get on with the 'powers that were' in Australia. However, it is not the military side of his life about which we know the most, and in this connection that side is not very important.

A book called "The Making of Australia" by Dunbabin speaks of Macarthur as follows:—"It was the turbulent and masterful John Macarthur, the 'kingmaker' of the colony, who made the foundations of the pastoral industry. He began in 1794 by buying sixty Bengal



ewes and lambs, etc." Of course in such a book the whole history of sheep rearing is discussed; sufficient for us is the fact that Macarthur was the man who started really careful breeding. By judicious purchase he improved his stock, notably by procuring five ewes and three rams from a celebrated flock of merino sheep which was for sale in South Africa.

THE next stamp on the list which commemorates a great man comes from Cuba, and the man is Dr. Carlos J. Finlay. We are indebted to Messrs. Whitfield King and Co. for the notes on this stamp.

Dr. Finlay was responsible for the discovery of the particular type of mosquito which transmits Yellow Fever, and further, he proposed a scheme to fight this terrible disease.

The scheme was somewhat as follows:—The incubation period for yellow fever is eight days, which means that the fever will not have developed properly in a person until eight days after the infection. Finlay proposed to feed mosquitoes on the blood of patients before they had had the fever six days, and after a short while the sting of these mosquitoes would be less likely to carry the fever. The scheme proved successful and in 1908 France conferred on him the title of "Officer of the Legion of Honour."

THE third commemorative issue comes from Sudan, and is for General or "Chinese" Gordon, a paragraph on whose life appeared in the columns of Hobbies Weekly dated February 24th last year.



The General

Gordon Memorial Issue commemorates the 50th anniversary of his death on January 26th 1885 (it will be recalled that the relief arrived at Khartoum two days later). A portrait of General Gordon wearing an Egyptian tarboosh on his head appears on the lower values, namely the 5, 10, 13, and 15 millimes. On the 2, 5, and 10 piastres is a view of the Gordon Memorial College, while on the 20 and 50 piastres is a view of a memorial service to Gordon held in front of the ruins of Government House after the battle of Omdurman.

The next illustration is of a rather curious stamp. It is one which is issued especially for the use of the British Forces in Egypt, on their Christmas mail. One such stamp is issued each year and this year's (or rather last) is of the same design as that of the previous year. The only difference is the colour, the present one being dark blue.

THE Health Stamp from New Zealand for Christmas was



issued for charity in December, 1934, and as the wording indicates, cost 2d., postage 1d., and Health 1d.

The design of a Crusader mounted on horseback, holding his pennant and shield blends exceptionally well with the wording below 'Crusade for Health 1934.' No doubt the Health Camps of New Zealand (Summer and camping weather there) benefit considerably by the sale of these pretty and well printed adhesives.

The collector should make a mental note of all these new stamps and endeavour to add them to his collection as soon as he can.

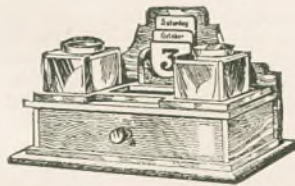
Some simple designs anyone can make



SMALL CLOCK

No. 1924. Wood and special moulding costs only 10d., post 4d. A reliable 30-hour clock, 5/-, or a cheaper quality 3/6, post 3d.

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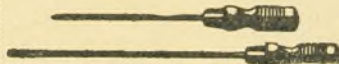
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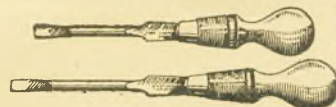


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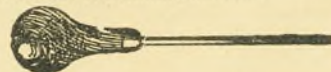
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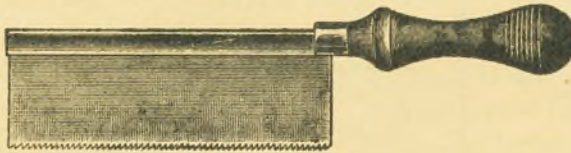
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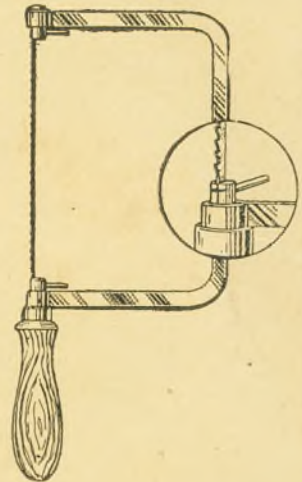
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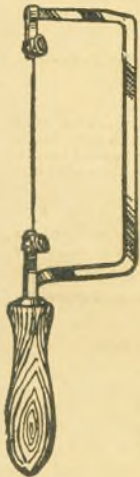
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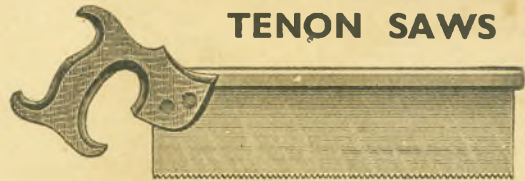
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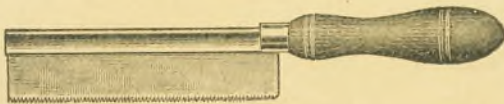
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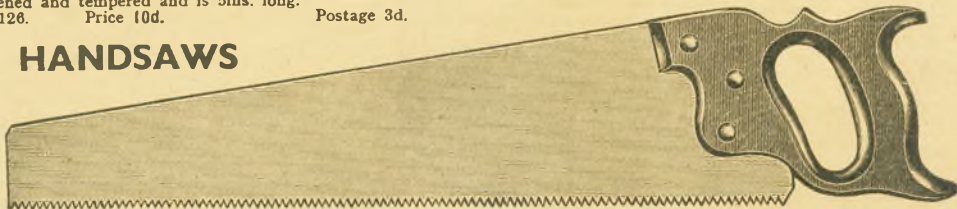
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