HOBBIES weekly

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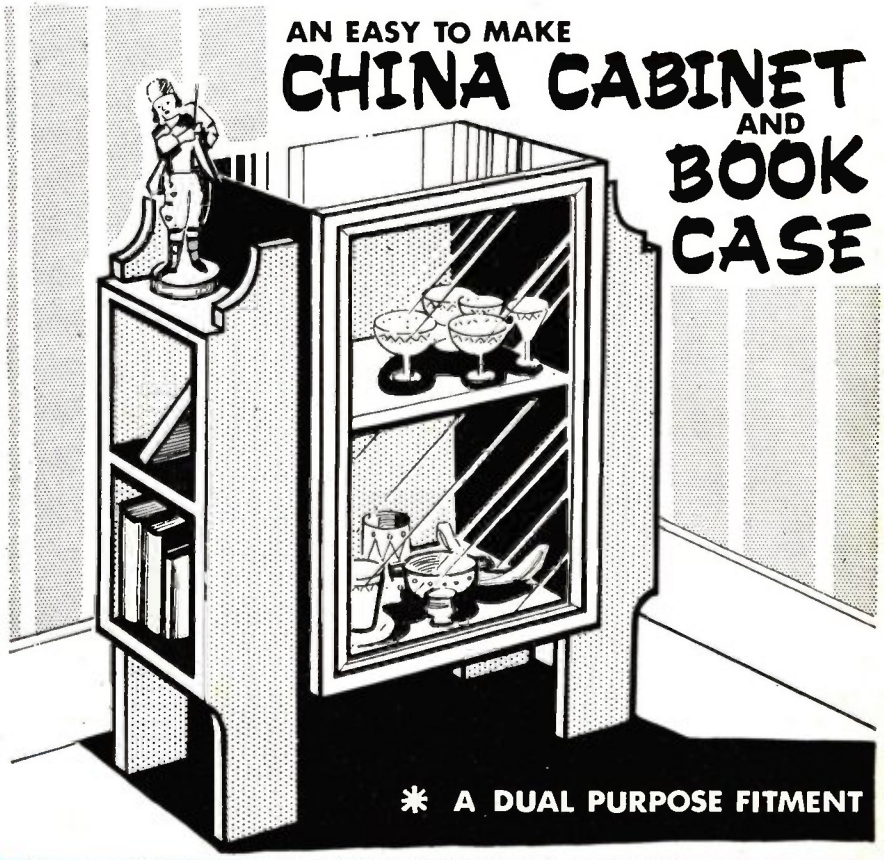
AN EASY TO MAKE

CHINA CABINET AND BOOK CASE



* A DUAL PURPOSE FITMENT

Hobbies

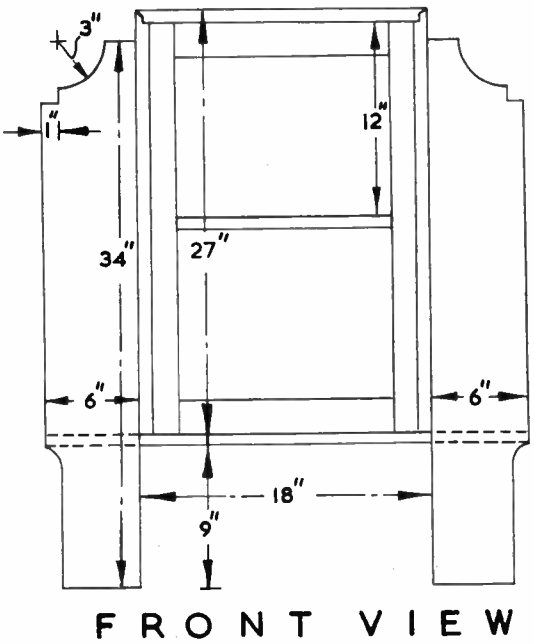
FOR CRAFTSMEN OF ALL AGES

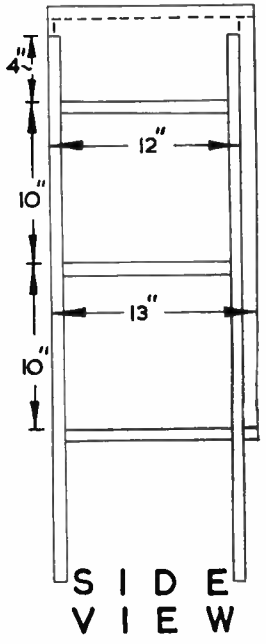
6D.

Illustrated on front cover

CHINA CABINET AND BOOKCASE

Easy to make





Dual purpose fitment

Fig. 1

In view of the expensive nature of this type of furniture, this is a good project for the handyman and has been designed with simplicity of construction in mind. It is essentially a china or curio cabinet and is flanked at both sides with bookshelves. The cabinet door is glazed as will be seen in the illustrations.

Timber such as oak or Spanish chestnut will be suitable and should be of good quality and free from disfiguring knots. Width may be made up from narrow boards by gluing and cramping. Use ¾ in. thick timber for the cabinet, bookcase and door, with ½ in. half round beading for forming the glass rebate.

The overall size of the fitment is 30 in. wide, 36 in. high and 13 in. deep and the actual size of the china cabinet 27 in. by 18 in. by 13 in. These and other useful measurements are shown in the front and side views in Fig. 1. Note that the sides of the bookshelves are extended to form the feet.

Commence by making up the cabinet as shown in Fig. 2. Note that the bottom is extended on each side to form the lower bookshelf. It is cut away ¾ in. at the back and 1¾ in. at the front, allowing the sides of the bookshelves to be set back 1 in. at the front. The joint between bottom and sides of the cabinet is a glued butt joint, being screwed from underneath, and the joint between sides and top can be a rebated mitre which can also be dowelled if required. The centre shelf may be housed in position.

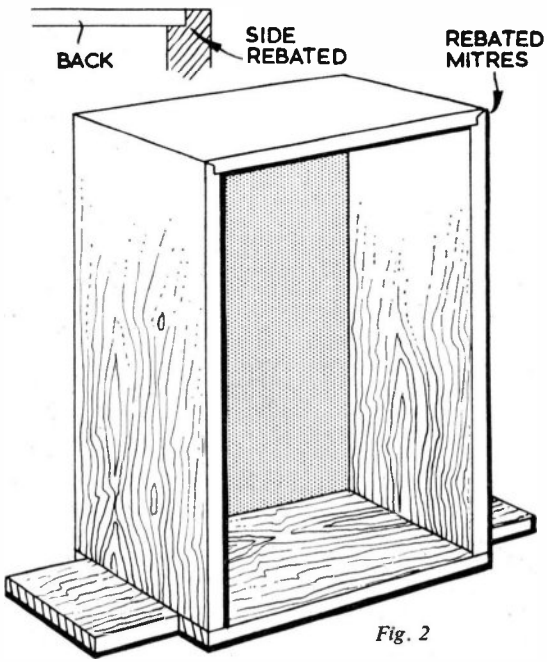


Fig. 2

The back is of ¼ in. oak faced plywood which should be rebated in position as shown in the detail. Rebates will of course be cut before assembly.

Next cut the sides of the bookshelves to shape and with the remaining shelves, fit them in position as shown in Fig. 3. Make sure that they are dead level all round and that the fitment stands square and rigid.

The door is shown in Fig. 4, and is made up of ¾ in. wood as shown. The sides are 1½ in. wide and the top and bottom 2 in. The four pieces may be mortised and tenoned or dowelled as shown. Joints will of course be glued when assembling.

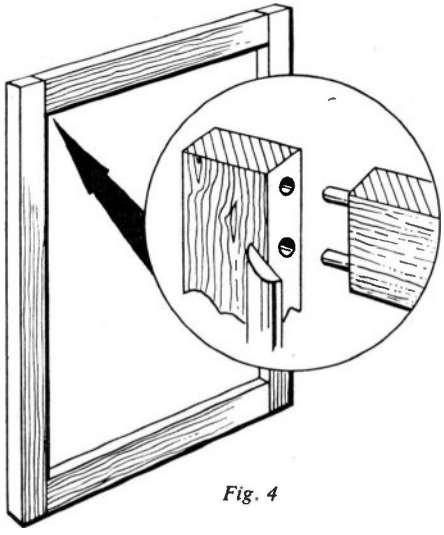


Fig. 4

To form the rebate for the glass, pin ½ in. by ¼ in. stripwood or ½ in. half round beading to the front, mitring it at the corners. The glass will be held in position by ¼ in. square stripwood pinned all round inside.

The door is hinged in place by means of 1½ in. heavy brass butt hinges which are recessed to give a good fit. A suitable knob or handle, and a small ball catch inserted in the edge will complete the construction.

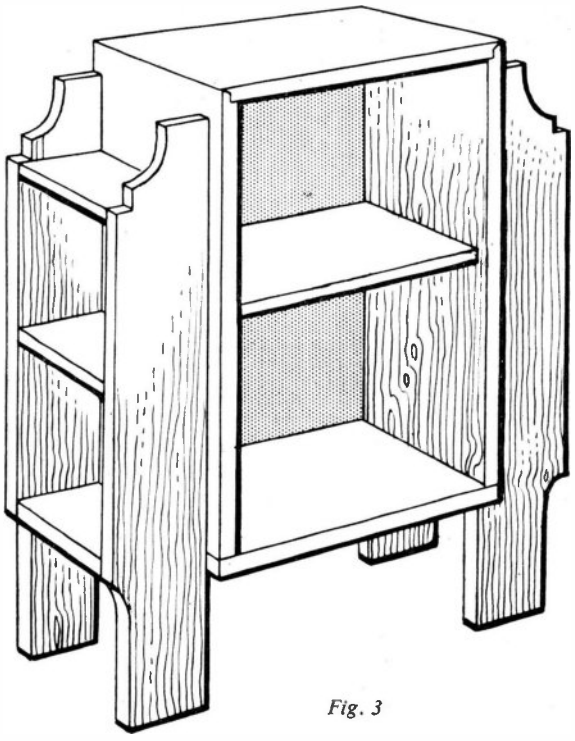
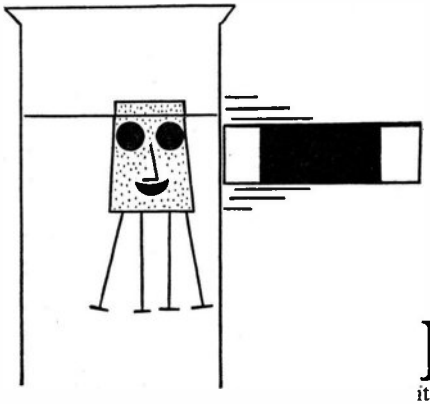


Fig. 3

Clean up thoroughly with glasspaper, dust off, and fill the grain with a wood filler. The wood may be stained and polished or varnished, but could quite well be painted to give a good effect.

Since the secret of a high gloss is careful rubbing down between coats, the painting should not be done in a hurry, but should be left to harden before rubbing down. Two flat undercoats and a high gloss finishing coat should be sufficient.

(M.h.)



MAGNETIC DIVER

By A. E. Ward

MAGNETIC forces acting through glass and water control this simple diving toy. To make it, you'll need a cork, some nails, a strong magnet and a tall slender glass jar or vase having vertical sides. A 'Slim Jim' drinking glass will do.

Form a body with legs by pressing nails into the cork's wider end — as suggested by the drawing. The weight of the nails should be enough to let the figure float in water with most of its bulk submerged. Paint everything white, before marking a bold cheerful face on the cork.

To make the toy dive in the thin vessel filled with water, hold the magnet against the glass, to attract the nails — and then stroke downwards. If the diver isn't too light, the magnet pulls it right down to the bottom of the glass. Take away the magnet to let the diver float up again. Add another nail if more weight is needed.

ELECTRIC TIME SWITCHES

TIME switch mechanisms can be added to an existing clock. Work will be easier if the clock is reasonably large, and has a case with space for the contacts, or other items required. The old type alarm, with a large case, will be suitable.

The switch mechanism can be for low voltages, or for mains. A mains type switch can also be used with a low voltage. But the switch arrangements which are described as being particularly intended for low voltages only must never be used in mains circuits.

'On' switches

The simplest type of time switch closes a circuit when required in a 12 hour period. It may be used to switch on a lamp, bell, or buzzer, or to put on a radio, TV, electric fire, or other item. The equipment has to be switched off by hand.

A method of arranging this is shown at A in Fig. 1. The micro switch is an enclosed unit, with a small button. Light pressure on this button causes internal contacts to come together with a quick spring action. These switches can be purchased in various kinds, for mains and other circuits.

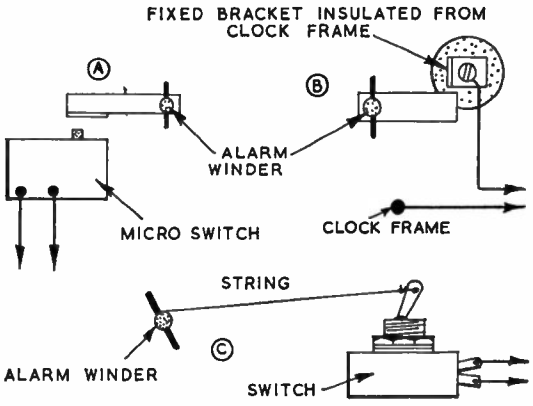


Fig. 1—Three 'on' switches

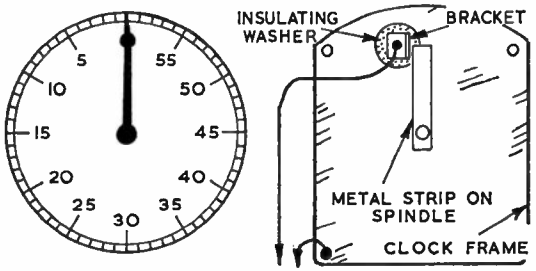


Fig. 2—Process timing clock

A metal arm is soldered to the alarm winder, and the micro switch is bolted to the clock so that rotation of the winder presses the button. The hour at which the switch is to operate is set by the alarm mechanism in the usual way. The bell can be removed, or the hammer may be bent back. The circuit can be opened, or put off, by giving the alarm winder a part turn, thus preparing it for the next time. Or a second switch can be connected in series with the micro switch, for manual control.

Many small micro switches are for a maximum current of 5 amperes, at 250 volts. This means that such a switch must not be used with any equipment taking more than this current. For larger currents, a switch with a heavier current rating is necessary.

Mains connections

When mains circuits are to be switched, be quite sure everything is safe electrically. It is best to fit a 3-core flexible cord to the clock, so that metal parts are earthed by the green lead, at a 3-pin plug. Connect the micro switch in the

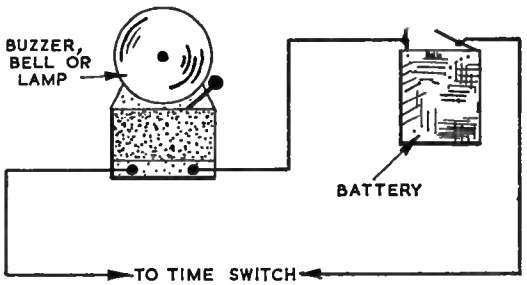


Fig. 3—Circuit for alarm or process timing

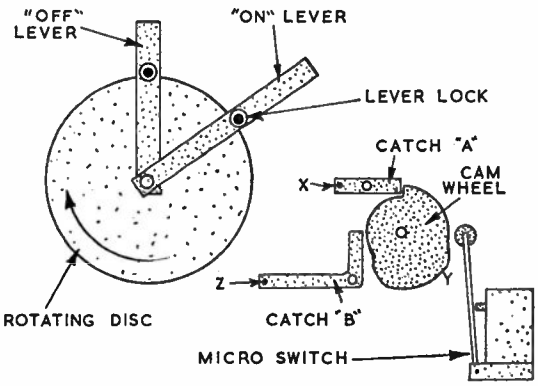


Fig. 4—On-off time switch

red lead, which comes from the L pin, or fuse, of the 3-pin plug. For most purposes, a 3 ampere fuse can be placed in the plug.

A mains type socket should be fitted to the back of the clock, or to a box or baseboard. Take the remaining switch contact to the L socket, and the black lead (neutral) to the N socket. A radio, or other equipment, can then be plugged in, as wanted.

Do not use makeshift, badly insulated connections with any mains circuit. Also remember that metal parts must be earthed, for safety.

Low voltage switch

A low voltage switch which works in the same way can be made as at B in Fig. 1. A strip of brass is soldered to the alarm winder, and presses against a bracket, when the alarm is released. This closes the circuit.

This switch can be used for any low voltage items, such as model motors, or illuminated models, transistor radio receivers, bells or buzzers run from a battery, and so on. No particular care need be taken with insulation, because the low voltage is harmless. The bracket can be fixed with a nut and bolt, with a cardboard or fibre washer each side the clock frame.

Toggle switch

Another arrangement which is easily fitted up is shown at C, Fig. 1. A toggle switch with a fairly long dolly is most suitable. The thin string or line pulls the switch over, when the winder turns. The switch should be fixed to a bracket, and the circuit is used as already described.

Process timer

Any of the switches in Fig. 1 can be set to work at any time within about 12 hours. For intervals of up to 1 hour, the clock in Fig. 2 can be made. It is suitable as a warning for cooking, developing photographs, or any other process needing under about 55 minutes.

A metal strip is soldered to the knob at the back of the clock, used to set the hands. A bracket, insulated from the clock frame as already explained, stops the metal strip, when the hand points to zero. The hand which makes one revolution in 12 hours can be removed.

The dial is marked in minutes in an anti-clockwise direction. To set the clock, merely turn the back knob so that the clock hand points to the number of minutes required for the process. The clock runs until the hand and strip reach the positions in Fig. 2, and the circuit is then closed.

Fig. 3 shows a circuit for the process timer, or for the other switching arrangements. A dry battery operated a bell, buzzer, or warning lamp. For example, if developing a film requires 10 minutes, turn the clock hand to 10 in Fig. 2, pour in the developer, and continue development until the buzzer sounds.

On-Off switch

Commercially made time switches can close a circuit at a pre-set time, and open the circuit again after any selected interval. They are used for cookers, automatic heating and lighting, etc. They can have a clockwork mechanism, or may incorporate a synchronous clock driven from the mains.

Clocks can be obtained which switch on and off a number of times, or which slightly change the time from day to day (for lighting through the seasons).

A switch which will go on and off at pre-arranged times can be made as in Fig. 4. This is naturally rather more complicated than the simple 'on' switches. But with a little care it should not prove to be too difficult.

A reasonably larger clock is needed, with a fairly strong action. The rotating disc turns at the same speed as the hand which would make one revolution in 12 hours. This disc can be about 2 in. in diameter, soldered to the bush originally carrying the hand.

Two strips or levers are pivoted on the axle, and can be moved to any required positions, and locked. Locking can be arranged by drilling a hole in each strip to take a bolt, fitted with a terminal head or nut. The disc goes between the bolt head and strip. So the strips can be moved round the disc, and locked.

During the normal running of the clock, the 'on' lever turns until it pushes down the small pin X of catch A. This releases the cam wheel, which rotates under the pull of a spring, until it is stopped by catch B.

This rotation causes the projection Y to go under the small roller on the micro switch arm, so that the switch is closed. The cam wheel remains in this position until the 'off' lever reaches pin Z, pressing this down so that catch B releases the cam wheel. The wheel is then carried farther round by its spring, so that the projection Y moves from under the switch roller, and the switch opens.

The 'off' lever is not long enough to reach pin X, while the 'on' lever is slightly higher, so that it passes over pin Z. Light springs hold the two catches against the cam wheel.

The cam wheel can be fitted to a shaft, which projects through the front of the clock, and has a small knob. The switch mechanism can then be re-set by giving this knob a half turn in a clockwise direction. Hours can be marked off around the rotating disc, so that the two levers can be set to the times required.

(F.C.R.

UNUSUAL DWELLINGS

By L. P. V. Veale

Do you ever pick up a daily paper, see a picture in it and immediately say to yourself 'That reminds me of such and such a stamp'?

Possibly some of you may have noticed a picture in the *Daily Telegraph* some time ago of the Omar Ali Saifuddin Mosque which stands out over the river villages of Kampong Ayer in Brunei, and which cost nearly three million pounds to build. Seeing such a picture must remind one of the stamps of Brunei, for in 1958 three stamps of 8c., 15c., and 35c. were issued to commemorate the opening, each showing a picture of the mosque. However, they do not show that the mosque is built on land reclaimed from the lagoon which surrounds it. The specimen selected for illustration is the 6c. of the 1924 issue, and this gives us a view of the native houses of Brunei Town, while some of the stamps of the earlier issues give us closer views of the actual houses built as they are on poles sticking up out of the river. The nearest we can imagine to a life such as this is surely a holiday on a houseboat on the Norfolk Broads.

Another type of house which is also built above land is shown on the 1½d. stamp of the 1932 issue from Papua. This shows us some of their tree houses; those of you who have seen Peter Pan know what a tree house means. It would be grand sport constructing a den up in a tree and pulling up the rope ladder after you and so ensuring safety from disturbance, and that is exactly what the people of Papua need — safety from enemies.

This should remind a collector of the 1s. 30c. stamp from Kenya issued in 1963, The Tree-top Hotel. This figured on the television a little while ago in connection with a photographic hunting expedition in one of the game reserves of Kenya. That was where the hunters passed the night, protected from the attentions of big game, yet able to see everything that went on.

The stamps of Samoa have a number of interesting illustrations of native huts, starting with the set issued in 1921 showing a native hut. Then the 4d. of the 1935 issue has a canoe and house, while the 6d. of the same set shows a picture of R. L. Stevenson's house 'Vailima', and the 1s. of the same set shows his tomb. There are two stamps of the 1952 set which attract attention. They are the 1s. and the 2s. The first shows a picture of a hut being thatched — an operation which must be of supreme importance in an area where the rain may be as much as 100 in. in the year — then the other stamp shows natives preparing copra. In the background a group of natives are sitting in front of a large open sided hut, the roof giving the shade and the open sides allowing as much air as possible.

You can see the same type of hut on the 2½d. stamp of the 1953 issue from Nyasaland. Gilbert and Ellice Islands also have a 2½d. stamp in their 1939 issue showing the same thing. Other stamps on which you can see the same type of hut are Fiji 1d. value of the 1938 set, Cook Islands the 8d. of the 1949, while the Congo Belge issue of 1931 stamps show a good picture of native kraals.

Contrast all these with the picture of John Adams and his house on the 1½d. stamp of the 1940 issue from the Pitcairn Islands. This rather brings out the point that one is very much more influenced by tradition than one thinks. His house looks very much like the usual English cottage, and so it is. Yet it is built in the same part of the world as all the native huts we have so far mentioned. Most of these houses have to be built with local materials but the designs are as far as possible like those of the mother country.

Canada has two types to show us. The 8c. of the 1946 issue has the conventional Ontario farm scene which might almost be in the English countryside except that the buildings are all wood rather than brick or stone. This stamp is quite good, so try to obtain a nice clean specimen with a light cancellation. The picture on the 10c. of 1951 is that of the trapper's tent. This stamp, unlike the last, is quite common.

Regarding values, a curious point arises in connection with the two New Zealand stamps which were issued in 1940, the 7d. and the 8d. in commemoration of the Centenary of the Proclamation of British Sovereignty. They are exactly the same design as that of a Maori Council Meeting taking place outside an exquisitely carved Maori building. The 7d. is quoted at 15s. either used or unused, whilst the 8d. is only 3s. 6d. in either condition; the same design and the same

colours, but quite a difference in price.

Houses in New Zealand are frequently set on wooden pillars, and on occasions there have been some very extraordinary collapses due to white ants. These wretched creatures eat into the heart of the wood from below soil level, so there is nothing to show that the pillar is not sound, until it suddenly gives way.

One of the new stamp issuing areas, the Australian Antarctic Territory and the British Antarctic Territory, have typical Antarctic camp scenes on their stamps. The 2s. value of the 1957 issue of the former shows the Expedition at Vestfold Hills, and from the latter there is a camp scene on the 4d. of the only issue it has made—that was in 1963.

Newfoundland in 1933 on her air set had a very wintery view on the 30c., while the 10c. gave a summer scene. Then on the 9c. of the 1910 issue there was a picture of a logging camp.

While it is truthful to say that you can see practically everything on the stamps of the United States of America, yet you have to go back a very long time if you wish to see anything unusual in human habitation. It is, in fact, back to the Trans-Mississippi Exposition set of 1898. On the 10c. you have a picture showing the 'Hardships of Emigration'. It shows a picture of a family travelling in one of the old covered wagons with one of the two horses lying on the ground, presumably dead. One or two of the South African stamps give views of covered wagons, but these are being pulled by oxen.

Switzerland in 1956 had a set of stamps in connection with the National Fete and Fund for Swiss citizens abroad. One of the stamps showed men making cheese, but the other three had typical Swiss Chalets, the 10 c. from Vaud the 20c. from Appenzell and the 30c. from The Engadine.

Lastly look at the stamp from South West Africa, the 3d. of the 1954 set. It shows one of the rock paintings which have been found in some of the caves in the Matopo Hills. Similar paintings are also shown on the 1d., 2d., and 4d. values. These caves were, in days gone by, used as residences.

SHORTHAND FOR EVERYONE

THERE may be occasions when you find it necessary to take written notes either from books or while at a meeting yet are unable to write shorthand.

Note taking can be a most laborious job, repeatedly looking from book to paper, while most speakers deliver their words far too fast for us to write them down in longhand. Yet there is no reason why you should not invent your own method of shorthand writing, practising while listening to the television, radio or perhaps during a telephone conversation.

In brief, we can all convert our normal longhand writing into a shorthand form by abbreviating word endings and omitting some of the vowels. For example, the endings -ever, -ing, and -ment can be replaced by -r, -g, and -mt, while -ion, -sion, and -tion can be replaced merely by -n. Word endings like -ance and -ence only need -ce. Common words which are being repeated several times like 'the' may be replaced by a downward stroke / or 'be' with a horizontal stroke —.

In order to assist you we give a few examples of some words which have been reduced and while we cannot possibly examine the entire dictionary these should be sufficient to reveal the basic method.

about	abt	government	govt
afternoon	aftn	great	gt
again	agn	had	hd
among	amg	important	impt
been	bn	morning	mg
brought	brot	occasion	occn
chairman	chmn	opinion	opn
committee	come	ought	ot
evening	evg	particular	partr
every	evy	said	sd
faithfully	ffy	should	shd
from	fm	their, there	thr
general	gnl	together	togr
good	gd	very	vr
without	wt	yesterday	yesty
would	wd	your	yr

From the above you will see how we can omit a number of vowels and shorten the words considerably. Capital letters should always be written where it is the common practice.

You may find that there are some words which do not readily respond to the suggested treatment, in which case your abbreviation will probably require a little more consideration, although at the start these can always be written in full.

Sometimes we can overcome the difficulty by writing the first part of the word with larger letters than those at the end, which may be reduced to say half size.

When the notes have to be transcribed we have to use our judgment in deciphering the abbreviation. For example 'cm' may represent come, came or comb, but the meaning of the sentence usually helps to decide the correct word. It is not suggested that you abbreviate every word when starting this system but gradually invent a method which suits your purpose. When you have had a little practice you will be surprised how quickly you can write your notes.

As a start I would suggest that you take any printed page and copy same in an abbreviated form according to the method just explained. Lay this aside, then see whether you can correctly transcribe into longhand. Later you may have further practice at taking down the news or some other item on television or radio.

Another method is to examine a printed page, deleting letters of each word you consider unnecessary, leaving an abbreviated but understandable text. The last sentence might then appear as follows:

Anr mthd s to xmn a ptd pg, dltg ltrs of ech wd u csdr uncry, lvg an abvtd bt undstbl txt.

This method uses characters which you already know and there is no need to learn the various strokes involved in normal shorthand. Although it is not so fast as the latter it is useful on many occasions whenever rapid note taking is desired. (S.H.L.)

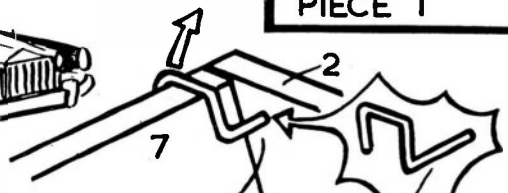
TOY CAR FERRY

SUITABLE FOR MATCHBOX TOYS

SECTION

PIECE 7 CUT ONE 1/4IN. PIVOT BETWEEN PIECE 1

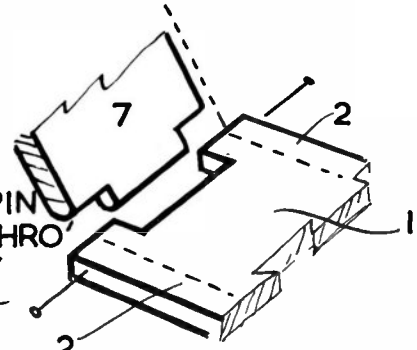
PIECE 1 CUT ONE 1/4IN.



PUSH INTO 2 & RAISE TO LOWER RAMP

BENT WIRE

7



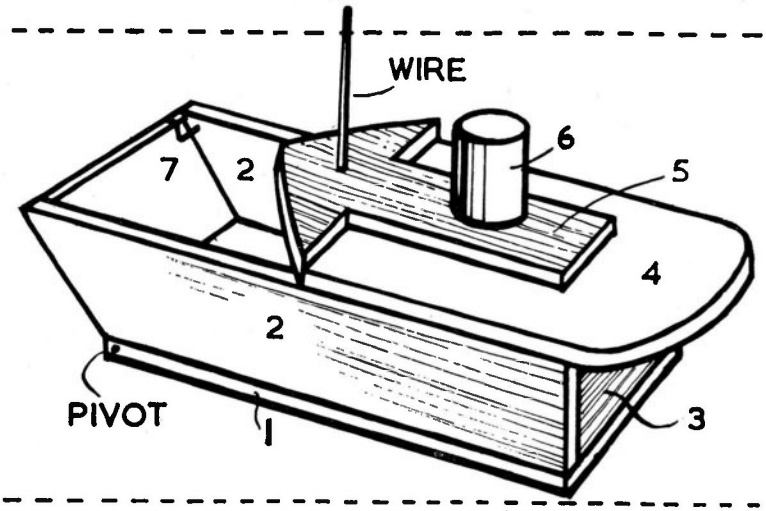
PIVOT PIN PUSH THRO 1 INTO 7

6

PIECE 5 CUT ONE 1/4 IN.

PIECE 3 CUT ONE 1/4 IN.

PA



IECE 1
UT ONE
1/4IN.

2

3

2

SIDES 2 CUT TWO 1/4IN.

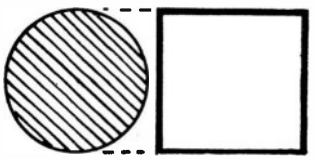
3

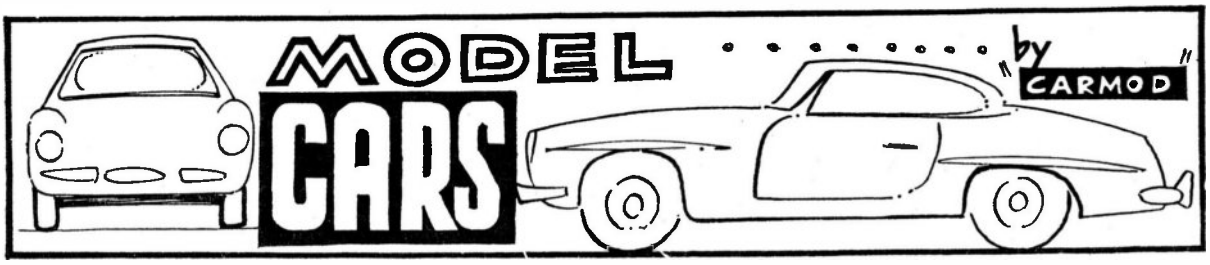
PIECE 4 CUT ONE
1/4IN. (HALF ONLY SHOWN)

5

PAINT WITH BRIGHT COLOURS

PIECE 6
CUT FROM
3/4IN. ROUND
ROD





COLLECT MODEL CARS

BY TYPE

IN the last two articles I have described how a model car collection can be built up as an historical museum-style reflection or by make of vehicle. This time I want to consider another form of collecting — to my mind, the most attractive branch of the hobby — collecting by type or classification of vehicle. There is a good choice: family saloons, racing and sports cars, military vehicles, and commercials.

Family or touring cars can make up one of the simplest forms of collection. All the die-cast model manufacturers seem to concentrate on this kind of product and a collection can be made up almost from a shop shelf. It is of course also possible to obtain models made in other countries to give a wider scope.

There is something very satisfying about a group of racing and sports car miniatures in authentic equipe colours, bearing numbers relative to actual races, and detailed to the correct positioning of additional airscoops and other appendages.

Even models of Minis, Jaguar saloons, Ford Cortinas and Anglias can be dressed in production car racing form, in many cases simply by filing away the bumper bars and by the application of a coat of paint in the correct shade. This does present problems, such as finding out the actual colours and matching these to available paints. Marc Europa are now producing a range of authentic shades of paint, like B.R.M. green, Ferrari red, Lotus yellow, etc, While Humbrol have also recently introduced a special range.

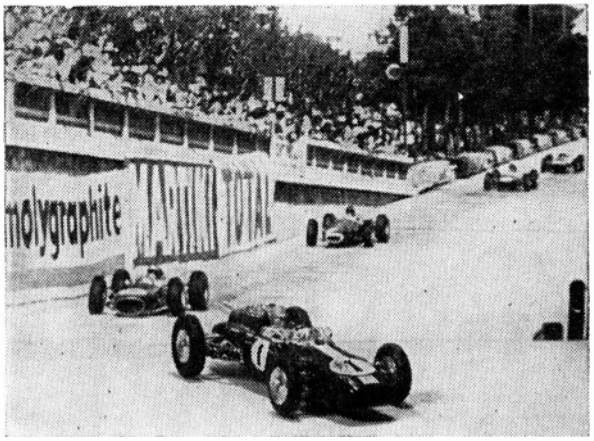
Although most of the well-known Works teams are represented in these ranges there is still a difficulty in discovering details of the private entrant's liveries. But it is, perhaps, this very difficulty that gives the branch of collecting its particular fascination. Each replica of an actual car is an achievement.

Collectors of this kind of model have a much better chance of adding interesting cars to their collections than they had a few years ago. In 1962 for instance, the only up-to-date 1/43rd scale miniatures of single-seat racing cars were the Formula 2 Cooper and Porsche, and the Formula 1 Lotus made by Solido of France. But now we have a much greater selection with Dinky and Corgi miniatures as well as the higher priced models by Mercury (Italy), Marc Europa (Britain) and, of course, Solido.

From these manufacturers we have had some excellent miniatures such as Lotus 25, Ferrari GTO and 250 LM Lola Formula 1, Ford G.T., and Porsche 904 GTS, which goes to show that the makers of models are becoming aware of the increasing interest in this branch of the hobby.

Collectors of sporting models are usually avid choppers and there are almost too many potential replicas to choose from.

Military vehicle collecting is another popular branch, although they often couple their interest with War Game activities, studying the strategy of actual battles. I do not know why most of the manufacturers who tackle military subjects usually concentrate on armoured vehicles. The 'shelled beasts' are interesting but I believe the thin-skinned cars, trucks, and special purpose equipment such as bridging lorries, radio vans, wreckers and utility vans, would have an even greater appeal to the majority of model enthusiasts.



The beautiful Lotus 25 by Corgi, undoubtedly the best miniature of a single-seat car so far

The commercial vehicle collectors have probably more choice of available models and chopping subjects than there are in any other branch but I must confess to having little knowledge of commercials and leave this to other enthusiasts. However, I do like the idea of public transport buses and coaches, modified and painted to the form and liveries of the many operators. Perhaps we can consider some of these in future.

REMOTE CONTROL PHOTOGRAPHY

PHOTOGRAPHING wild life may easily provide all the thrills of big game hunting or game fishing. It is not necessary to travel great distances or wait for a particular season. One can 'hunt' throughout the year.

Expensive equipment is not required for wild life photography. Almost any type of camera can be used although, as with any other branch of photography, the better the equipment the better the results. The ideal equipment includes a telephoto lens, but this is beyond the means of most amateurs, so the following gadget is a good substitute.

The secret of good bird or animal photography is to get as close as possible to the subject without scaring it away. This is reasonably easy if using a telephoto lens, but not very easy otherwise. The method outlined requires the camera to be placed close to the subject while the photographer stands 50 ft. or a 100 ft. away and operates the shutter by remote control.

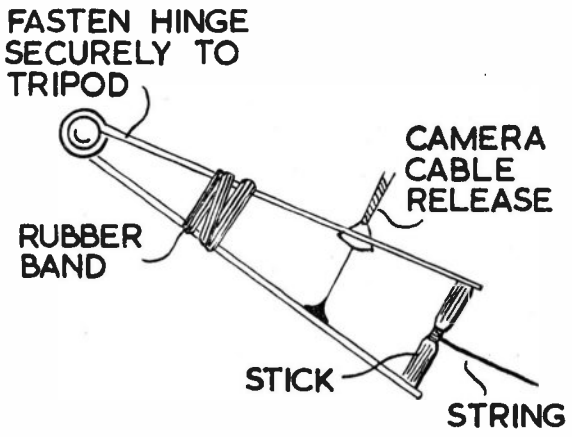
The camera is placed near to where the bird will appear, perhaps near a nest, so that it will come into the focus of the camera. It may be necessary to disguise the camera somewhat, but this is part of the fun.

Now a remote control gadget is made from a hinge, rubber bands, a short cable release, a small nail or stick, and a long piece of string. The illustration shows the method of construction.

Fasten the hinge on the tripod, so that it opens and closes easily. Place the cable release through a screw hole in the hinge, so that the closing hinge will press the release and open the shutter. Fasten two or three strong rubber bands around the hinge to hold it closed and act as a spring.

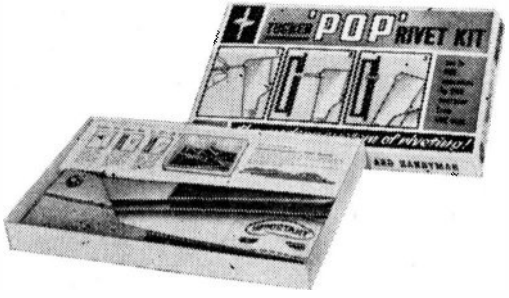
Force the hinge open and hold it open with a small nail or piece of stick. When you pull the cord and thus pull the nail or stick out, the hinge closes and automatically trips the shutter by pressing the cable release. Using this method it is possible to stand up to 100 ft. away from the subject.

The shutter should be set at least one hundredth of a second, and in most cases wait until the subject is reasonably still. Close the lens opening down as far as possible, depending upon the shutter speed. The smaller the lens opening, the greater will be the depth of focus. Always focus carefully and accurately. An out-of-focus bird is a queer looking thing.



Feeding birds in winter will provide many attractive pictures. You can lure them into camera range by throwing them corn or bread-crumbs. They may become tame, or they may only feed after you have walked away. The trick is to put 'bait' where you want them to alight, set up your camera on a tripod, hook up your remote control gadget and then walk away and hide behind a tree. When they come to feed — click, you have another picture. (E.)

NEW RIVETTER FOR THE HANDYMAN

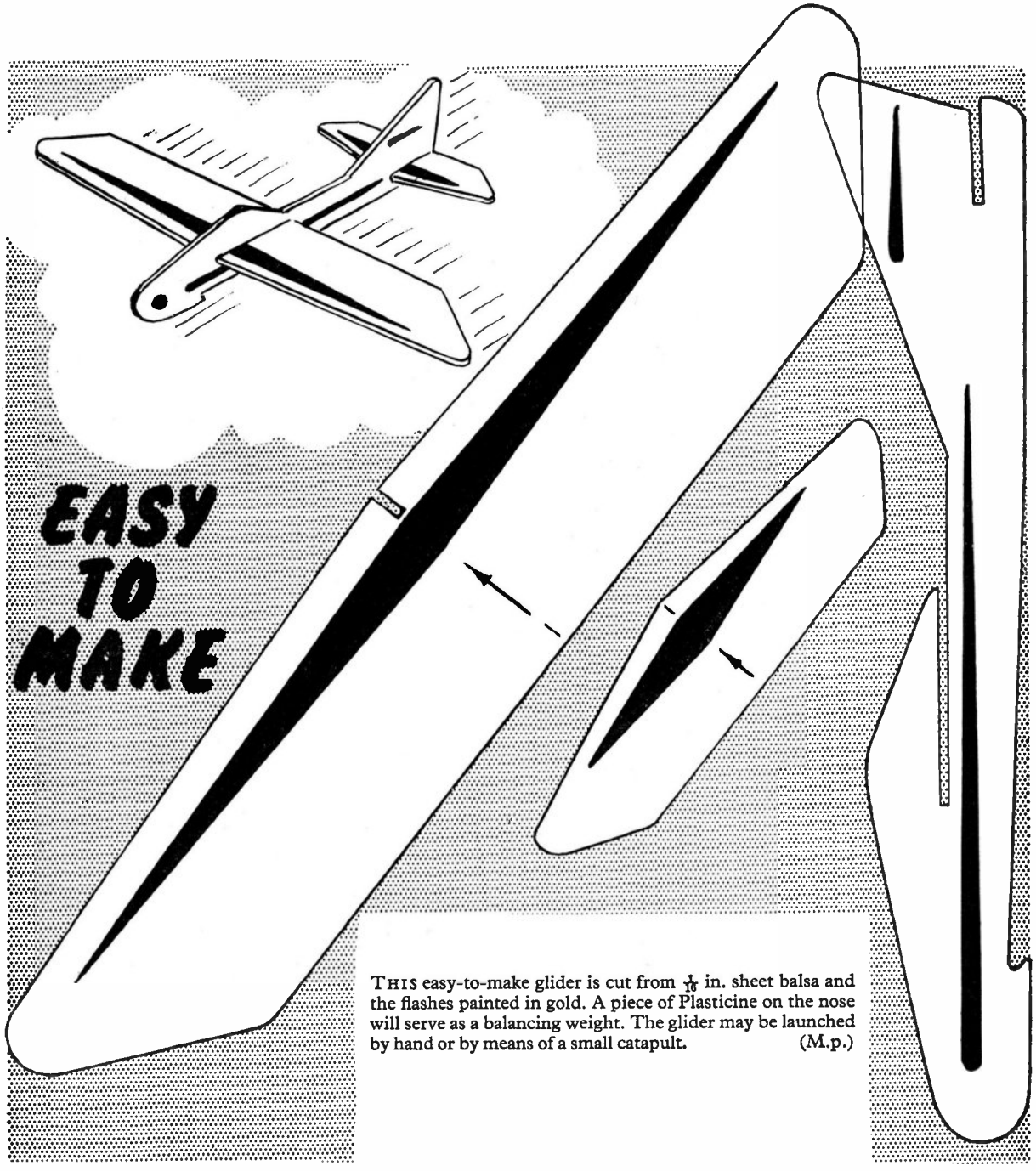


A TOOL used successfully in industry in the manufacture of anything ranging from toys to jet aircraft is now made available for home use by the handyman. It is the Tucker 'Pop' Rivet Kit, which will enable more secure fastenings to be made in many materials and is particularly useful in awkward places such as when fixing anything to a tubular construction (e.g. canvas to metal deckchair frames, where ordinary rivets or nuts and bolts cannot be used).

The 'Pop' Rivet consists of a hollow rivet assembled to a headed pin. Operation of the plier-like tool causes its jaws to draw the pin into the rivet, thus forming a head on the 'blind' side of the work. In many instances this tool can be employed more successfully than by the use of adhesives, self tapping screws, or by soldering.

The kit, comprising 'Pop' rivet pliers, 'Pop' rivets, washers and drill is available from tool dealers and ironmongers, price 37s. 6d. Additional washers and rivets in different sizes are also available.

THE 'GOLDEN FLASH' GLIDER



THIS easy-to-make glider is cut from $\frac{1}{16}$ in. sheet balsa and the flashes painted in gold. A piece of Plasticine on the nose will serve as a balancing weight. The glider may be launched by hand or by means of a small catapult. (M.p.)

Be a 'Shadow' Magician

IN Victorian times, shadow shows were a popular form of home entertainment and folders of cut-out scenery and figures were sold in the toy shops.

There were sets of shadow puppets, mechanical shadow toys, complete shadow stages, and sets of silhouette figures mounted on thin cardboard. Boys and girls learnt how to create shadow rabbits, ducks, geese and other figures.

The art was known to the Ancient Egyptians and could become the surprise item at a party or social with an impromptu parade of shadow animals. When the basic figures of hand manipulation have been mastered, then is the time to make a home shadow theatre, using a bed sheet or some other white material stretched taut.

Practise on a wall

But it is best to start one's 'shadow education' by becoming expert at creating animal and human shapes. These can be practised on a wall, or on any other solid, flat surface. In a sense, it is like playing the piano. To get the best results, fingers must be trained to be supple. At first, some of the finger positions may seem a little difficult. It will be found helpful to use one hand to put the fingers of the other in the right place. Some professions use a fine rubber band to hold two or more fingers together.

Start with our friend the rabbit. When the screen stage is reached, a shadow name can be given to him by using a cardboard cut-out. But to make him recognizable, stand with your left side towards the light. Then extend the left hand in the light, palm upwards, back of hand bent over slightly. Next make a circle of first finger and thumb by touching the tips together. Raise the two towards the ceiling. Bend the third finger towards you.

Your embryo rabbit now has a head, eyes, and ear. The right hand is employed to profile the front paws and hind legs. First, extending right hand with palm towards the floor, point the thumb, then first and second fingers directly away from yourself. Spread them as widely apart as possible.

The third and little fingers should be drawn back against the palm. Rest the back of the left hand lightly against the back of the right hand. Slide the right hand a little forward and upward and — hey presto, a rabbit sitting on its haunches!

Animation

The fun really starts when you bring the rabbit to 'life'. For instance, by wiggling the first and second fingers of the right hand up and down, the rabbit will appear to kick its front paws. Also, by moving the second and third fingers of the left hand, the rabbit will wiggle its ears.

Just as Punch and Judy entrances children and grown-ups alike, so will these fascinating little shadow shows amuse friends or acquaintances. A nursery rhyme about Mr. Fox can best be illustrated by bringing that wily animal out of thin air, so to speak.

This figure only requires the use of one hand, with the left side of the body towards the light. Extend the right hand, palm uppermost, hold the fingers out straight, little finger at the bottom. Bend the first finger back until it touches the second finger just above the knuckle.

Second and third fingers should be extended and held together, no light showing between. The thumb is raised to form the animal's ear. The lower jaw is formed by lowering the little finger, taking care that the second and third fingers are not prised apart.

Once again, the still figure will come alive. Mr Fox will open and shut his mouth as you move your little finger up and down. Working the thumb will wiggle its ear. Whilst moving the whole hand will make the animal leap at something.

Other animals such as ducks, geese, and a flying pigeon will quickly emerge from the shadows. As in other crafts, practice is the secret of success. Once the art is mastered by creating superb figures like a Red Indian (fingers extended widely to make the headdress), the next step is your own little theatre.

Screen and lighting

The screen is best when stretched taut in a wooden frame. Failing that, two heavy wooden rods may be used, the sheet being tacked to them top and bottom. In this way it can be rolled and unrolled.

A single light should be used, all others being turned off. It should be bright, as near to the floor as possible, and five to ten feet behind the screen Establish the proper distance by moving the props backwards and forwards.

Also, a metal hood placed over the light bulb will help to confine its light to your screen dimensions. Coloured lighting effects may be obtained by placing painted glass slides in front of the light.

The whole shadow world is now at your disposal. Where humans do a play or pantomime, they must always be in profile. You can also accumulate a collection of cut-out props to present your little shows.

Get a writer friend to script your shows. And remember that record-player when you require background music! (E.)

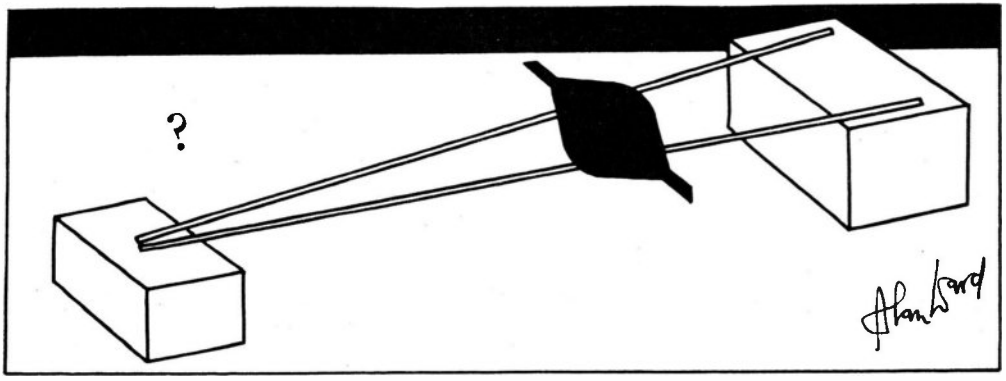
PAPERING A WALL WITHOUT PASTE

YOU can electrify paper by rubbing. On a cold and frosty day—when the air is dry — take a dry sheet of newspaper and a dry straight stick into a warm room. Select a warm dry wall and hold up the outspread paper against it. Then, whilst keeping the paper pressed to the wall with one hand, use the long edge of the stick to rub the paper briskly back and forth and up and down.

When you stop rubbing and take away your hands, the newspaper remains stuck to the wall — by a charge of static electricity. If the conditions of dryness are perfect, the paper will remain on the wall a long time before its electricity 'leaks' away and it slithers down to the floor.

Equip your friends with similar sticks and papers and have a contest to see who can make his newspaper stay on the wall longest. (A.E.W.)

Baffling Anti-Gravity Machine



MAGICIANS beat gravity by pretending to float cards, globes and gorgeous girls in mid air. And you can apparently defy gravity by making a roller that seems to travel uphill, without a motor to drive it. The illusion is so convincing that a crazy engineer planned a life-size version to give passengers a power-free ride up a mountain. Your model shows the flaws in his scheme.

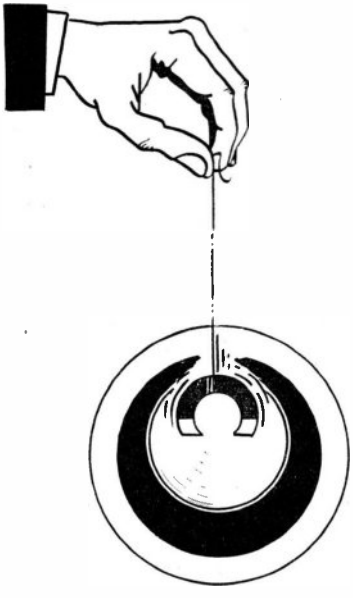
Form 2 piles of books with an inch difference between their heights, and put these improvised 'towers', less than a yard apart, on a flat table. Then rest 2 thin wooden dowel rods each a yard long between the towers, to form an upward-sloping 'railway' with the sticks touching at the bottom, and spreading 8 in. apart, like a letter V, at the top.

Make a vehicle for the railway by fixing together 2 identical 5 in. long plastic funnels by their mouths, using Sellotape — now, when you rest this double-conical roller between the sticks near the lower tower, it runs all the way uphill to the top tower — against the pull of gravity! So it seems.

Careless comparison of the roller's motion with the gentle uphill slope produces a baffling optical illusion. To find the explanation, release the roller again, but watch closely what actually happens. Note how the roller's tapering cones and the spreading track let the roller FALL slightly as it runs from tower to tower. SO REALLY THE ROLLER RUNS DOWNHILL!

In fact, without gravity, your railway wouldn't work.

MAGNETIC EFFECT ON ALUMINIUM



TRY and attract an aluminium cake cup with a powerful horse-shoe magnet, and you fail. Maybe this is not surprising, because textbooks list aluminium among the non-magnetic metals.

Float the same cake cup in a bowl of water. Dangle the magnet from a piece of cotton. Then start the magnet spinning, and suspend it just above the middle of the floating aluminium.

The cup begins rotating in the same direction as the magnet. And when the cotton untwists, and makes the magnet spin in the opposite direction, the cup spins the other way too.

'Eddy currents' of electricity are induced into the aluminium by the magnet's invisible whirling lines of force. The electricity in the aluminium produced its own 'electro-magnetism.' Thus, aluminium can behave magnetically and be attracted by the magnet.

In a type of motorcar speedometer a rotating flexible cable spins a magnet inside an aluminium cup, to which the speed indicator pointer is fixed. The cup is prevented from turning freely by a little spring. Electro-magnetism is induced into the aluminium, in direct proportion to the vehicle's speed, so the pointer moves round the dial in opposition to the spring's tension.

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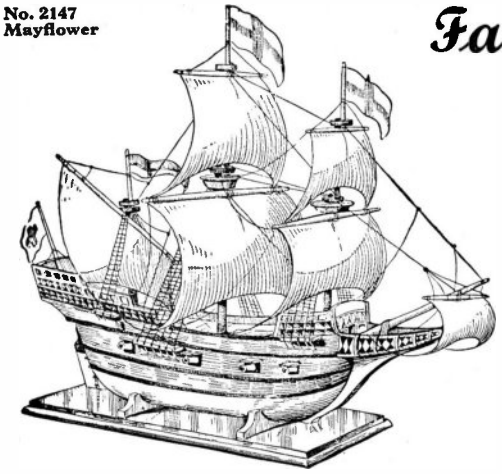

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