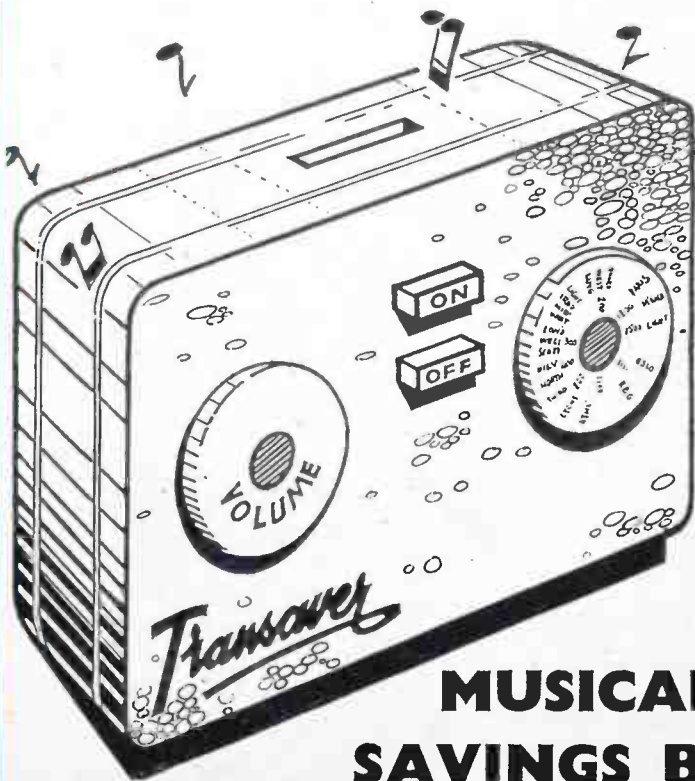


# HOBBIES *weekly*

4th SEPTEMBER 1963

VOL. 136

NUMBER 3534



★  
**FREE**  
Plan  
★

**MUSICAL  
SAVINGS BOX**



**FOR CRAFTSMEN OF ALL AGES**

**6<sup>D</sup>**



## LORNE GIBSON

**LORNE GIBSON** was born in Edinburgh, on August 20th, 1940. He started to play his father's guitar at an early age, and when he was 17 he joined a guitar folk quartet. He played in Edinburgh coffee bars and clubs and then, in late 1961 decided to move to London to try his luck.

Luck it was, for almost immediately Lorne was spotted singing in a London pub by a BBC producer, and was booked to appear on radio's 'Commonwealth of Song.' Lorne hasn't looked back since. He has formed his own trio 'The



Lorne Gibson Trio' and has appeared many times on both BBC sound and television.

'I used to sing Scottish Folk Music', says Lorne, 'which is a live thing, so that when I moved over to singing Country and Western, I think the step was a natural and easy one. I think country and western music could, and in fact should, be the big thing of the future, so long as it is handled right.'



## LAVERN BAKER

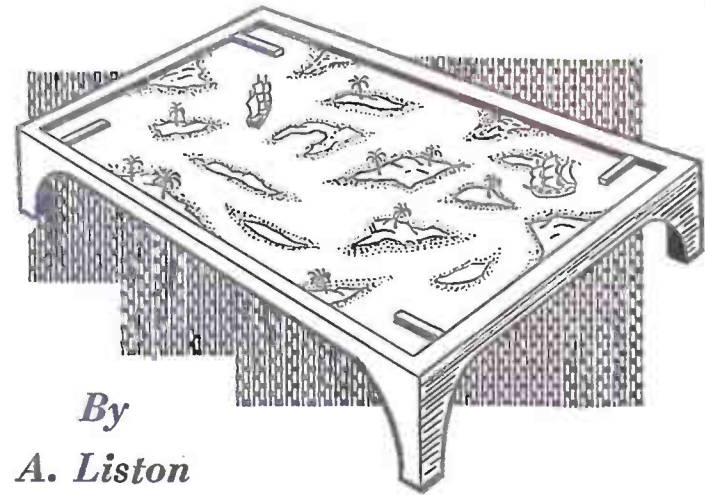
**LAVERN BAKER** has often been called 'America's Ambassador of Rhythm and Blues', such has been her success not only in the States but throughout the world. For her release 'See See Rider,' Lavern made a welcome return to the American charts. The song was first a negro blues number written over 100 years ago. The song was written about a great lover called C. C. Rider. However, in order to change the identity, the song title was changed to 'See See Rider.' The moral of the song was 'see what you've done!'



## HUSBAND AND WIFE TEAM

*Eurovision Song Contest winner, 'I loved you', sung as 'Dansevise' in the finals on BBC-TV by Grethe and Jorgen Ingmann, is now out on record. Grethe and Jorgen a husband and wife team whose musical partnership has resulted in several highly successful recordings — sing 'I loved you' (in English) on Columbia DB7013. Married for three years, Jorgen played guitar for about ten years in Svend Asmusen's Band, then launched out on his own and developed modern recording techniques which have gained him high praise in America and Europe.*

# Make this 'Steer the Ship' Game



By  
**A. Liston**

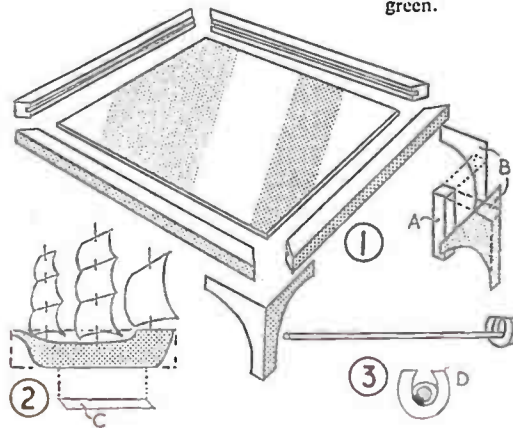
**T**HIS entertaining game is simple to make and will give hours of amusement. In it, tiny ships have to be steered by magnets across a sea of glass, negotiating channels between islands and sandbanks, the first ship into port being the winner.

The dimensions of the tray are not critical, but a 15 in. by 24 in. rectangle makes a suitable size. An old picture frame, complete with glass, forms an ideal ready-made tray, but if this is not obtainable, a piece of glass is fitted with a frame of grooved stripwood, such as is commonly used for sliding-door runners, as shown in Fig. 1. Strips of cardboard are used as packing, on the underside of the glass if necessary, to hold it firmly in the groove. After the tray is carefully pinned and glued together, it is fitted with four 3 in. legs of 3/4 in. square stripwood (A), which are strengthened by the addition of plywood or hardboard corners (B). These should be 3 in. high, plus the depth of the frame.

The frame-work of the tray is painted black, and the underside only of the glass is painted a deep sea-blue colour. In each corner of the tray, a 2 in. length of 3/4 in. square strip-wood is positioned

as shown in the main illustration with impact adhesive to form a harbour. These strips look best painted grey.

A pattern of sandbanks and beaches is now added to the upper surface of the glass. This is done by smearing patches of glue on the glass, and sprinkling them with fine, dry sand. The patches should be of varying sizes, and the channels between them should not be less than 1/4 in. at any part. In the centre of each patch of sand, an island can be made by using a mixture of green paint and plaster filler. This is best applied with an old knife. Tiny palm trees can be added. These are simply 1 in. lengths of stranded copper wire with the top half inch unwound and bent over to form the leaves. The trees are embedded in the islands while these are still wet, and later painted green.



Each ship (Fig. 2) is made from a 1 in. length of 1/4 in. stripwood, whittled to the shape shown. A 1/4 in. by 1/2 in. rectangle of timplate (C), cut from an old tin, is glued to the base of the hull to give the magnet something to attract, and three pin masts are then added. The sails are of white paper, one piece only being used for each mast. The fore and mainmast sets of sails are creased and threaded over the masts as shown.

The controlling rods are lengths of dowelling with small magnets wedged on the end (Fig. 3), using pieces of rubber tubing if necessary to ensure a tight fit. (D). Bar magnets are held in place by lashing them to the rods with thread and coating the thread with glue.

By placing the ship on the glass and moving the rod beneath, it can be made to slide over the glass. If the ship 'runs aground' on a beach or sandbank, the sand prevents it from sliding, and control is lost. The narrowness of the channels, therefore, calls for some skill in manipulating the boats.

Two players can compete to see which ship can be navigated diagonally across the tray from harbour to harbour more quickly, or one person can play out the adventures of pirate ships and warships on the Spanish Main by himself.

If desired, more complex harbours, complete with tiny houses, can be made from scraps of wood, and the ships can, of course, belong to any period of history. If younger children are playing, it is advisable to glue a sheet of paper to the underside of the glass to prevent the paint from being scratched by the magnets.



Like a Transistor Radio

# MUSICAL SAVINGS BOX

**T**HIS novel design should appeal to all youngsters and encourage them to save up for a particular purpose. In the shape of a modern transistor radio, it is of the 'pocket size', namely, 6½ by 4½ by 1½ in. Nicely finished, it would make an ideal present for a child, or be useful as a means of raising funds for a charitable organization.

The action of the 'radio' is that when a coin is placed in the slot at the top, it remains there until released by pressing the 'on' button, then the coin falls on to the platform of the special musical movement inside the box, and the selected tune is played. Coins are contained inside the box and removal is quite simple by means of four screws. We give the basic instructions for building the model, which can be elaborated upon to a great extent by the ingenious parent, and suggestions for this will be given later.

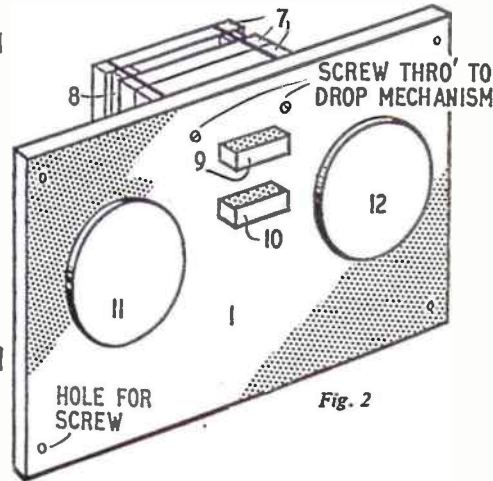
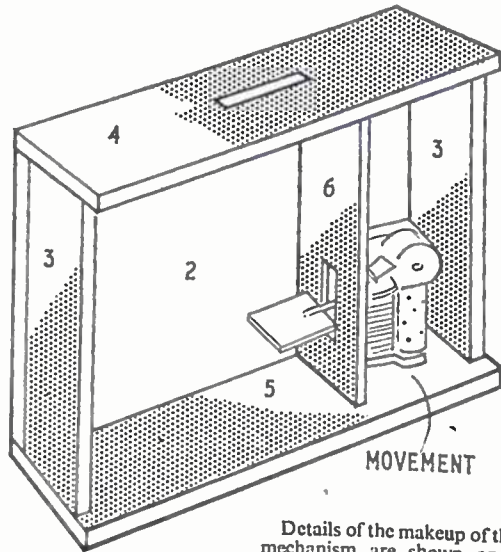
Clean up all parts with glasspaper and make a start with the box assembly as shown in Fig. 1. It will be seen that the back (2) and end pieces (3) are glued between the top (4) and bottom (5). Pins can be added for strength if thought necessary.

Now place the platform of the musical movement through the slot in piece 6, which can then be fixed between the top and bottom of the box at the same time as the musical movement is screwed to the back (2). The exact positioning of the movement and piece 6 is shown by dotted lines on piece 2 on the design sheet. The key of the movement will, of course, be first removed to insert the shaft through the hole in piece 2. Test the action of the movement by pressing on the platform, when the music should start.

\*\*\*\*\*  
★ Hobbies Kit No. 3534 for making ★  
★ the Savings Box contains panels ★  
★ of wood and materials required, ★  
★ price 5s. 9d. (post 1s. 3d.). ★  
★ A No. 2 Musical Movement with ★  
★ coin trigger action costs 15s. 11d. ★  
★ (post 6d.). There is a choice of ★  
★ four tunes — Happy Wanderer, ★  
★ Teddy Bears' Picnic, Oranges and ★  
★ Lemons, or Bells of St. Mary's. ★  
★ Kits and movements from all ★  
★ branches or by post from Hobbies ★  
★ Ltd., Dereham, Norfolk. ★  
\*\*\*\*\*

Note that the coin drop mechanism assembly is attached to piece 1 by two screws as shown in Fig. 2. Thus when necessary the rubber bands can be renewed after removal of the screws. The extension on piece 9 goes through the

Fig 1.



Details of the makeup of the coin drop mechanism are shown on the design sheet. Make a temporary test assembly of the parts to ensure that piece 9 will slide freely through the slots. Then glue two pieces 7 together, adding the spacing pieces 8 and finally the other piece 7. Insert the sliding piece 9 as shown at A, and hold it in place with two rubber bands going round the whole assembly as shown at B. These bands will also provide the spring action by returning the 'on' switch to its normal position after it has been pressed to release the coin.

slot in the front to provide the 'on' button push.

Position the front 1 in between the top and bottom, and ensure that the opening in the drop mechanism coincides with the slot in piece 4. Test the action with a coin in the slot in piece 4, and it will not drop until the 'on' button is pressed. The coin should then fall on to the platform of the musical movement and start the music.

To allow easy withdrawal of the coins, the front is fixed in position with countersunk screws at each corner into pieces 3.

A new field to explore

# Ultra Close-up Photography

**B**EING able to get really close with your camera opens up an entirely new field of photography. 'Close' doesn't mean one or two feet away from the subject, but a matter of only two or three inches. Impossible without expensive equipment? Well, just read on and you will see how simply it can be done.

By A. E. Bensusan

The only accessories you will need are a magnifying glass and a ruler, the former to go over the camera lens and the latter to measure off the distance. The magnifying glass should be slightly larger than the camera lens, and it may be made from either glass or plastic provided it is of reasonable quality.

If this magnifying glass fits your normal-sized filter mount, you will not need to make a special adaptation. If it does not, a ¾ in. long section of cardboard postal tube can be modified to hold the glass and fit over the camera lens mount. The size of the hole in the tube may be reduced by gluing in layers of paper until a good fit is obtained at either end. Then, use small pieces of stout cardboard glued before and behind the magnifying glass to hold it in position.

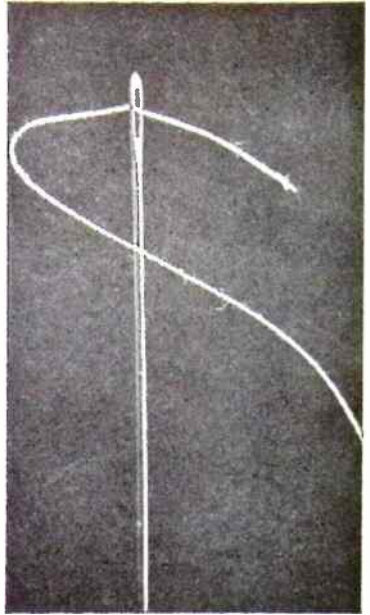
Unless you have a single lens reflex, which will automatically enable you to determine the picture area covered and the position of the camera when it is

correctly focused, you will need to find out these dimensions by experiment. Open the back of the unloaded camera and secure a piece of tracing paper tightly across the film plane with adhesive tape. Open the shutter to 'time' and the aperture to its largest setting. Set the normal focusing scale of the camera to infinity and fit the magnifying glass over the camera lens.

If you prop a sheet of graph paper upright in front of the camera, you will be able to see its image on the tracing paper. Move the camera backwards and forwards until the sharpest image is obtained and measure the distance from the paper to some definite point on the camera. Make a note of this dimension, as you will need to measure it off every time you take ultra close-up photographs. However, the experiment mentioned above does not need to be repeated at any time in the future.

Without moving either the paper or the camera, count the number of squares on the graph paper which you can see on the tracing paper screen. If your camera gives a square negative and you can see thirty graph lines which are ruled at ten to the inch, then the subject size that can be covered will be three inches square.

Close the shutter, take out the tracing paper and load with your usual brand of film. Use only the smallest aperture marked on your camera lens mount for this type of work, as that will improve the quality of the pictures as well as increase the depth of the zone of sharpness. Even with small apertures, the zone is very shallow at such short range and



An ordinary sewing needle taken with a magnifying glass.

accurate positioning of the camera is essential.

Be sure your hand is quite steady when taking ultra close-ups, or the slightest shake will spoil the results. Preferably, fix the camera rigidly to a tripod.

Continued from page 340

## SAVINGS BOX

Round off all corners on pieces 4 and 5 to the section shown, to give a pleasing appearance. The control dials (11 and 12) are merely glued in position, as is the 'off' switch (piece 10).

Finish of the Savings Box will be according to individual choice. It would look attractive in a pastel shade of paint, or could be covered with adhesive plastic material, or any other covering with a leather-cloth finish such as is included in Hobbies kit. Fastening on a plastic or leather strap would be an additional attractive feature. The lettering shown in our illustration can be painted on, and the printed dials glued in their respective positions.



Part of a hand as magnified.



# Better Colour Transparencies

**C**OLOUR films are expensive and since we all like to take a perfect set of holiday shots it is hoped that the following tips will be of some assistance.

One of my earliest disappointments resulted from incorrect loading and there is no one to blame for this but myself. But you may well imagine my disappointment to find that after 'shooting' away for three days while on a tour in Scotland I discovered that the film had not been moving. There was no possibility of covering the same ground again and thus my efforts had been wasted.

This happens to many experienced photographers and unfortunately the 35 mm. film has no backing paper like the larger films and we cannot always tell whether the film is being wound forward. So my first tip is that you must make perfectly sure when loading the camera that the slots in the film do engage with the sprockets and it does wind.

Load the film in a shady place to avoid any possibility of light spoiling the film and if you are out of doors turn your back on the strong light so that you can load in the shadow of your body. This applies to both 35 mm. and the larger sizes. When using the former remember to rewind the film back into the cassette before attempting to open the back.

Quite a lot of pictures are blurred because the camera is not held steady. A tripod is always recommended but sometimes it is not convenient to carry one so I would suggest some practice in holding the camera still while you press the trigger and here's my second tip.

Temporarily fasten a pocket mirror before the lens with the reflecting side outwards using rubber bands for this purpose. Place a torch on the mantelpiece, or in some similar position, so that a beam of light can be directed on the mirror. Then aim the camera at such an angle that you can see a sharply reflected image of the light on the wall. Press the trigger as softly as possible and at the same time watch the reflection through the viewfinder. If the reflection moves at all you are not holding the camera steady so it is up to you to practise and practise until you find a comfortable position and trigger pressure permitting a steady action.

## Focusing error

Sometimes the blurred picture is the result of an error in focusing. You have to judge the distance between the camera and subject as correctly as possible, adjusting the camera accordingly. Again, some practice in distance judging is

necessary and if this fault is regularly repeated the solution is a rangefinder. Some cameras have no focusing scales, in which case you must not approach nearer your subject than given in the instruction book.

By S. H. Longbottom

Probably a large percentage of failures are due to errors in exposure, and colour film does not possess the same latitude of compensation as monochrome. If you have a meter you should be able to calculate the correct exposures every time but if not you must work to the recommendations given by the film makers on the leaflet accompanying the film. Moreover, it is a good idea to keep records of lighting, type of shot, date and exposure given and this experience will be invaluable.

When using an 'automatic' camera the lens aperture is adjusted to different lighting conditions, being regulated by the built-in exposure meter. Even so, extra care must be taken if the rays of the sun fall directly on to the light meter. This would make adjustment as though the subject was very bright and you would probably find that the shot was under-exposed. This can be avoided by holding your camera in the shade.

Should you be aiming at an average subject against a very light background you may get the same effect, i.e., a false reading on the meter, so here you should move in closely for the reading to avoid the intensity of the background and then resume your intended position.

## Good close-ups

Close-ups prove extremely good in colour, especially with the 35 mm. camera when a larger image is obtainable and the small frame is used to advantage. You should be able to approach as near as 3 ft. with a miniature camera but the larger ones may demand the use of a supplementary lens. But remember that if you fit such a lens the result will be

blurred unless your measurements between the camera and subject are exact. A near guess at the distance is not sufficient.

On occasion I have been obliged to take pictures while it was extremely windy and when a strap or the flap of the ever-ready case has fouled the lens slightly. This cuts off a section of the picture as will a straying finger so make sure that nothing comes in front of the lens at the moment of taking the shot.

There are times when a flashgun may be used out of doors as a fill-in when the light is poor, shady or dull. There should be no difficulty with such shots but remember to use blue flashbulbs in conjunction with daylight colour film.

The following indicate some common mistakes and their causes:

**BLUE TINGE** — Usually due to underexposure on daylight type film. The same effect happens with pictures of a distant subject taken at high altitude without a haze reducing filter.

**WARM ORANGE TINGE** — This may be either the result of daylight exposures made in very early morning or late evening. Can be used effectively for special sunrise or sunset pictures but should be avoided for normal shots. The same effect may perhaps be due to light flashing on the lens, perhaps reflected from water, a window or bright object and the remedy is an efficient lenshood.

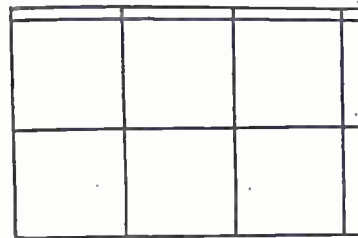
**GREENISH PICTURES** — This is usually due to over exposure, e.g. the speed being accidentally moved to a B setting instead of, say, 1/100 second. If you feel that such was not the case the same effect may arise if the film has been subjected to a higher temperature. This may happen if the camera has been left in a parked car during a period of hot, bright sunshine, or kept in the glove compartment. Alternatively, the film may have been stored in humid conditions or the film outdated. It is best to despatch your film for processing immediately it has been exposed and note the expiry date on the carton.

**BLANKS OR STREAKS WITH TINTED EDGES** — This may be partial fogging due to light penetrating the camera or film cassette. You must load in subdued light and do not leave exposed cassettes or films lying about in the light for lengthy periods.

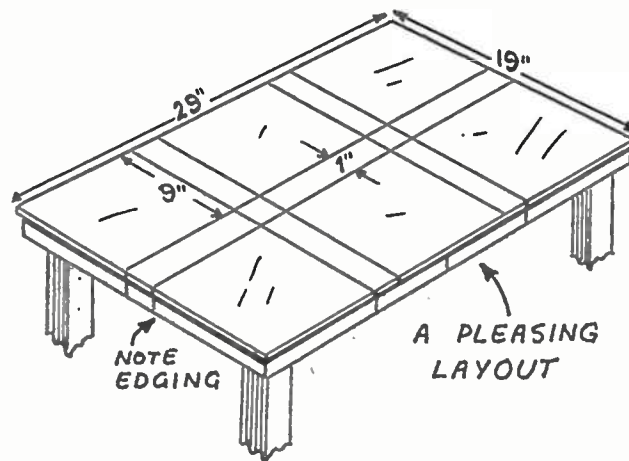
● Continued on page 343



**B**ARBARA Law, the famous singer of television, thought of a good idea. She had had her kitchen floor covered with lino tiles. A few tiles were left over — and some adhesive. She also had a small table, a favourite piece she had possessed for some years. And, it was getting a little shabby on the top surface.



WRONG LAYOUT



NOTE EDGING

A PLEASING LAYOUT

What better, she thought, than to re-cover it with some of the lino tiles, giving it a new lease of life and with a contemporary look.

'It was such a simple job, Mr. Capper' she said 'yet I've made a flop of it...'

Poor Barbara! She was not on her own in making a mistake on a simple job. It happens to all of us. And it all boils down to the fact that the easiest of jobs needs some pre-thought. I'll tell you where Barbara went wrong, especially as her idea of re-covering a worn table top is such a good one.

## BARBARA COVERS A TABLE TOP

The top size of her small table was 30 in. by 20 in., including a surround, nailed to the table edge, of 1/2 in. half-round moulding. This moulding was ragged so Barbara removed it. It came easily away by levering with a screw-driver and it left the table with nice square edges. These she cleaned up and filled the nail holes with filler.

So far, so good. The removal of the moulding had reduced the table top size to 29 in. by 19 in. And the tiles she was to use for the recovering were the usual 9 in. square type. Now Barbara, like most of us when we are anxious to get on with the exciting part of the job, did not stop and think. She applied the adhesive and laid the tiles as shown in my 'wrong layout' in the drawing. And of course, too late, she realized just how amateurish and dull the new table top looked.



diamond shaped formations. Sometimes they will fit just right in certain areas. A sharp knife guided by a metal rule is the best method of cutting but marking them with pencil and cutting with scissors can be quite tidy, if cut carefully.

If you follow Barbara's idea and remove any moulding from the edge of the table, an alternative to painting the exposed edges is to fit a surround of strips of the tiles, as shown in my drawing. Let the adhesive get really tacky before setting the strips or they will tend to slide.

Incidentally, we put Barbara's table right by re-laying some more tiles over the previous pattern.

● Continued from page 342

## TRANSPARENCIES

**CURVED STREAKS AND CIRCULAR SPOTS** — Flare on the lens from the sun or a reflection will always cause this effect and the answer is a lenshood. It is possible to shield the camera with your hand, but an accessory is better.

**LINES AND SCRATCHES** — When loading your camera make sure that it is perfectly clean, for a minute piece of grit or sand, can cause a scratch throughout the length of the film. If this is repeated the only way is to seek the aid of a reliable dealer who will endeavour to trace the defect.



They make interesting pets

## EVER THOUGHT OF RATS?

THE very thought that rats are sometimes kept as pets may astonish those of you who think that they are something which we should avoid or destroy wherever possible.

Certainly the ugly rat is widely regarded as our Public Enemy No. 1, causing as it does millions of pounds worth of damage in this country every year. The harm is mainly done by contaminating food-stuffs and so spreading food poisoning, but its fleas also cause the terrible disease of plague. The Black Death and other plagues of Britain and Europe in the fourteenth century were probably started in this way.

Causing disease is not all, either, for rats eat almost anything, even soap and bone buttons, and are honestly quite useless alive or dead, except as cheap fur or manure for grapevines. An enormous rat may even kill large birds — such as chickens — and rabbits, and it will steal hens' eggs.

There are two species of rat, the first being the Black Rat. This species is split into three distinct types: 'rattus frugivorus' (Tree Rat), 'rattus alexandrinus' (Alexandrine Rat) and the third type, caused by interbreeding of the two, 'rattus rattus' (the true Black Rat).

Black Rats originated wild in India and came to Britain via Asia Minor and North Africa. They usually keep to ports, but a terrific number also inhabit the clubs, cinemas, theatres and centrally heated blocks of offices and flats in London's West End. They like living in roofs, but are also found on ships — hence their other 'popular' name, the Ship Rat. Being about eight inches long, they have sharper muzzles, longer tails, and more prominent ears than Brown Rats. Their fur is horribly coarse and the tail covered with scaly rings. Black Rats are shier and less aggressive than Brown Rats but are better swimmers and climbers.

Brown or Common Rats, 'rattus norvegicus', came to us, not from Norway, but from Central Asia north of the Himalayas, via Russia, by ship. These are the greatest of all living pests, causing untold damage, both in town and country.

### Royal Rat Catcher

They burst on Europe at the beginning of the eighteenth century, and bitter enemies of the Hanoverian kings started the novel but false rumour that they came to England with King George I, in 1714. Bigger than Black Rats, but not so clean

in habit, a Brown Rat will, when cornered, fight or jump anything up to twenty-four inches to try to escape.

The destruction of these pests is naturally very important, and in fact 100 years ago there was a highly exalted 'Rat Catcher to His Majesty', who wore a scarlet coat with yellow rats embroidered on its edging; the creatures were depicted as eating the regal wheat-sheaves, and the man's salary was £100 per year. Nowadays, a county 'rodent operative' could expect to get about £400 per year, and such posts still seem to have a certain glamour, because the list of applicants for a vacancy with one County Council included military generals, majors, doctors and even an admiral.

### By A. Leggett

The position eventually went to an Army captain, complete with martial bearing and honours! In contrast, an irate bishop's remedy many years ago when rats ate his books was to expel them from the district simply with a curse.

Rat catchers normally use poison for their gruesome work and need great patience because rats, being very shy creatures, must be given several days to get used to the bait before poison is added to it — otherwise they would ignore the poison completely.

So shy are rats that if an object is placed in the path of their normal run, they will avoid it for days. Their habits are strong, too, for if a familiar object is moved from their haunt they will continue to run around, not across, the spot on which it stood.

### Intelligent creatures

There is, however, no doubt at all that rats are extremely sensible and adaptable creatures, and it is perhaps inevitable therefore that they should have been kept as pets for hundreds of years. Many people think that very few pets can even compete with the much maligned rat for intelligence and they consider that a small colony of the animals provides the owner with a tremendous amount of interest and knowledge of animal behaviour.

For anyone wishing to buy some rats, it may be difficult to find a pet shop which regularly stocks them, but most large pet stores should be able to obtain some for you costing about 15s. 6d. each. Pet rats are bred from the Brown Rat

species but the many colour varieties available include the popular albinos (white) or the black and white rats. Also in demand are hooded rats on which the colour of the head and forepart of the body are different from the remainder of the body, and it is even possible to get hold of yellow rats, although these are rather rare.

Contrary to normal belief, rats will not smell if their cages are kept clean and providing not too many males (bucks) are kept — it is the bucks which do sometimes tend to smell — for rats keep themselves exceptionally clean by constant washing and grooming.

They live for between two and three years normally and although it is naturally difficult for them to overcome their instinctive fear of man (after all, we've hunted them for centuries), young ones quickly succeed and allow themselves to be handled without any danger of biting whatsoever. They will then become increasingly tame although it is wise to be careful with adult bucks as they can become a little moody.

### Antics of Agatha

Tame rats are very friendly and inquisitive and will perform many antics and tricks. For example, one writer, Maxwell Knight, enthusiastically states that he once had a tame rat of real character, which was known at the time as a white agouti rat, for whilst most of its body was white, its head and shoulders were brindle brown, like the colour of the South American agouti. Unlike albinos rats — which usually have pink eyes — its eyes were black, rather like boot buttons.

Mr Knight christened his pet 'Agatha' and she would come to him when called, climb the cord of the window blind or clamber up his sleeve, across this back and down his other sleeve. She searched in his pockets for titbits, and if he went for a walk or a bicycle ride Agatha would sit quietly in his pocket, often poking her head out and showing great interest in the surroundings. Agatha was very fond of bread and milk and eventually learned to mix her own, by seizing a piece of bread from a dish, running to a saucer of milk, dipping the bread in and then eating it!

Jack Aistrop and his wife, Josephine Hunter, who many of you will have seen conducting television programmes dealing with animals, once had two female rats which gave birth to litters at about the same time. They then took turns to suckle them, putting them all in

one nest for feeding by one mother whilst the other rested or exercised. They also shared the washing of the babies quite impartially and the father would even occasionally help out and might then let the babies nibble at his ears and tail. Josephine Hunter's daughter had a special pet rat which would sit on her lap watching television or explore the whole house, including the dog basket. Housing and diet

If you intend to keep pet rats, use a good metal cage with a wire-mesh false bottom and sawdust tray for droppings, because rats may gnaw at a wooden cage, making it unsightly and possibly even allowing escape. The sliding floors are important as the dampness might otherwise affect the rats.

Cages should have small dark shelters for sleeping, and exercising devices such as wheels or ladders. A warm temperature of 65 to 70° Fahrenheit is necessary all the year round, and draughts, which are perhaps the biggest single factor causing pet deaths, should be completely excluded. Silver sand or peat moss is excellent for the floor of the cage, and soft hay, cotton waste or newspaper is fine for bedding.

Once settled in their 'home', rats would love a diet of fresh vegetable (even grass), bread crust or toast, bits of dog

biscuit and any corn. Try to feed them once a day in the evening, although they can also have a few table scraps, providing these are fresh. Some bread crusts in the cage will prevent any 'between meal' hunger. Fresh water is essential and if a doe is expecting a litter allow as much milk as she wants.

A word of warning, though! Do not overfeed the animals because at least one expert thinks that more captive animals are killed by overfeeding than by underfeeding and that a great many more suffer or even die from unsuitable feeding.

You can, if you wish, breed rats very easily, but first of all get some advice on breeding matters by visiting your local library where there should be several books giving detailed information on the subject. Do please remember, however, that you should never give in to the temptation to 'peep' at the baby rats as soon as they are born, as the mother may think that you will harm them and may 'protect' them by eating them. Allow seven days, at least, before you take a look at the litter.

Three 'Don'ts' should help to keep your pet rats contented and less likely to prove difficult.

First of all, don't 'tail' rats. In other words, do not pick them up by the tail

as many people pick up mice, because the skin on a rat's tail can easily come off, hurting the creature and causing harmful skin diseases. Instead, teach your rat to come on to your hand for a titbit of food — it will soon get used to the idea and will then come without any hesitation whatsoever. If you must pick up your pet, grasp it firmly but gently around the forepart of the body, fingers encircling the neck.

Secondly, don't make any jerking movements or sudden noise near your rat as this will startle it and might cause it to bite. Approach your pet slowly and steadily and let it sniff your fingers before attempting to touch it, for it can smell whether or not you are friendly towards it.

Finally, don't let your pet come into contact in any way either with wild rodents or anything which has been contaminated by them, for you must always remember that though a pet rat can become extremely lovable, its wild cousins are quite the opposite and continue to cause terrific damage and terrible disease.

If you follow these few suggestions, you will soon have no doubt at all that an enormous amount of enjoyment and instruction can be gained from keeping rats as pets.

## The Balloon you cannot burst

BALLOONS are delicate objects. Just touch them with a pin point and they burst with a splendid bang. But how would you like to push hatpins into a balloon with no effect whatsoever?

The balloon will not burst! Urge everybody to concentrate harder as you stick another hatpin into the patch.

After your second success, complain that your friends are not thinking hard enough.

Act as if you are losing confidence

when you plunge a third hatpin into the balloon, to one side of the patch.

This time the balloon will explode magnificently and the debris will be thrown to the floor. Pick up the hatpins and use the opportunity to find the tell-tale patch and hide it in your pocket.

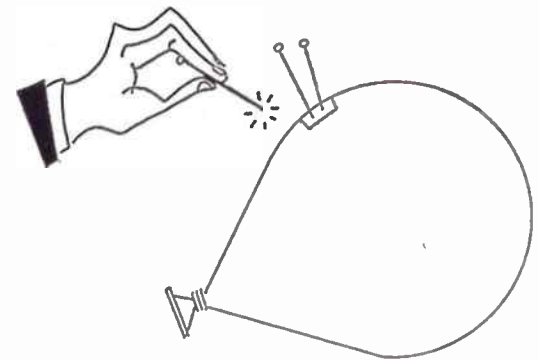
### By A. E. Ward

Ladies will pretend to hate this trick while they wait for the big bangs which don't come — at least, not at first . . .

Blow up a large balloon and stick a square inch of Sellotape upon it. If the balloon has a marbled pattern, the patch will be virtually invisible.

Stand a short distance from your audience with the balloon in your hands and announce that you will demonstrate the impossible.

Ask your friends to help you by concentrating upon 'success'. Take up a hatpin and force it into the patch on the balloon.

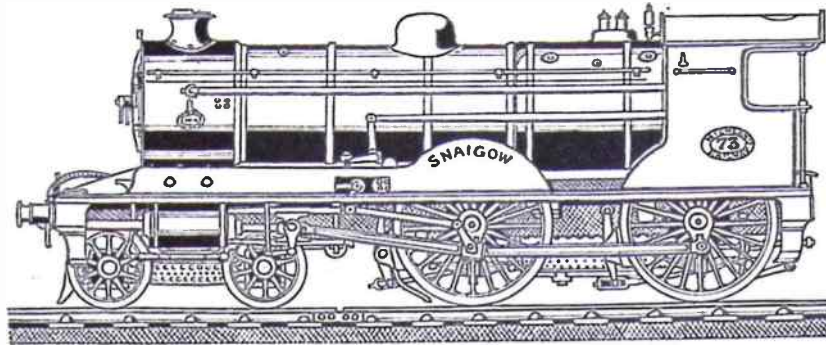








# THE HIGHLAND HEAVIES



The Highland Railway 4-4-0 Passenger locomotive No. 73 'SNAIGOW' designed by C. Cumming built by Hawthorn-Leslie 1916

IN 1915 Mr C. Cumming became Chief Mechanical Engineer of the Highland Railway, and a year later he reintroduced the outside-cylinder 4-4-0 type engine for heavy passenger work.

Only two engines of the class however were built, these being No. 73 *Snaigow* and No. 74 *Durn*. They were manufactured by R. & W. Hawthorn-Leslie & Co. Ltd of Newcastle on Tyne, and carried maker's Nos. 3172 and 3173 respectively. They were a robust and powerful passenger engine embodying Walschaerts valve gear and the Robinson superheater. They were also provided with Belpaire boilers, Ross patent 'Pop'

safety valves and the Wakefield mechanical lubricator.

They carried very generous dimensions, having outside cylinders 20 in. diameter and 26 in. stroke, and were at the time of thoroughly modern design. The leading details included wheels diameter, bogie 3 ft. 3 in., and coupled 6 ft. 3 in. The coupled wheelbase was 8 ft. 9 in. and total engine wheelbase 22 ft. 11½ in. The evaporative heating surface was: tubes, 1,016 sq. ft., firebox, 124 sq. ft. = 1140 sq. ft. The superheater surface being 180 sq. ft. The grate area was 22.5 sq. ft. and working pressure 160 lb. p.s.i. Weight in working order was 34.24 tons on the coupled wheels

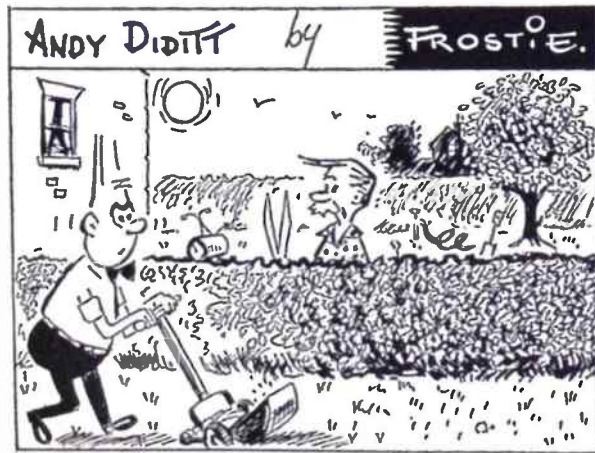
and total 54.97 tons. An enlarged tender was provided running on six wheels having a tank capacity of 3,500 gals., coal space of 7 tons, and weighing loaded 43.15 tons. By extending the footplate Mr Cumming provided a roomy and commodious cab for the enginemmen which was also a feature of his later 4-6-0 *Clan* class engines (goods and passenger types) of 1918-21, these also being built by Hawthorn-Leslie & Co.

When the Highland Railway became merged into the London, Midland & Scottish Railway in 1923, *Snaigow* was renumbered 14522 and *Durn* became No. 14523. They were withdrawn and broken up in 1936 and 1935 respectively after giving some twenty years service.

It is worthy of note that at the time of their introduction these two engines were the only British 4-4-0's to incorporate the outside Walschaerts valve gear. (A.J.R.)

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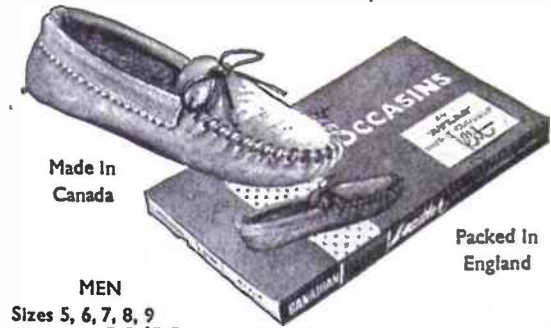
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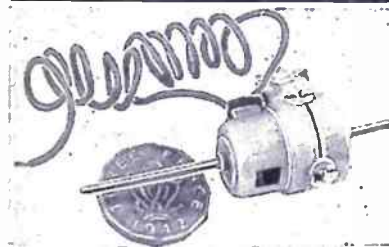
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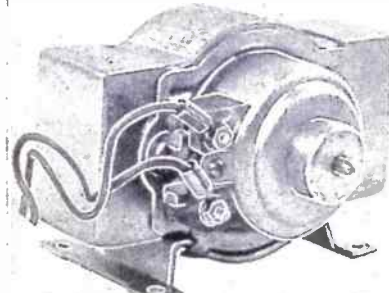


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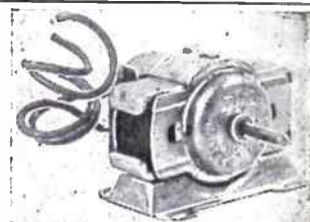


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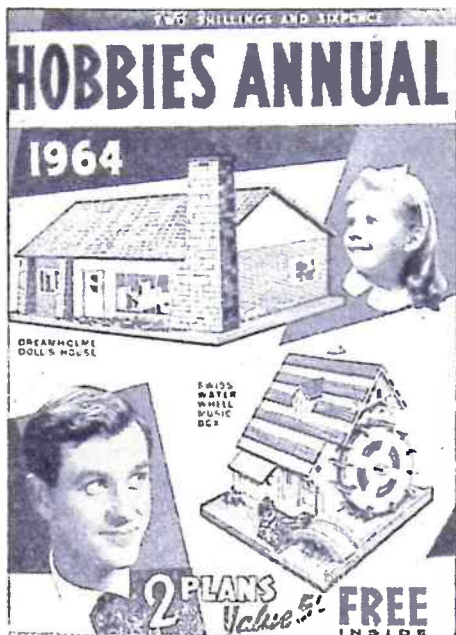
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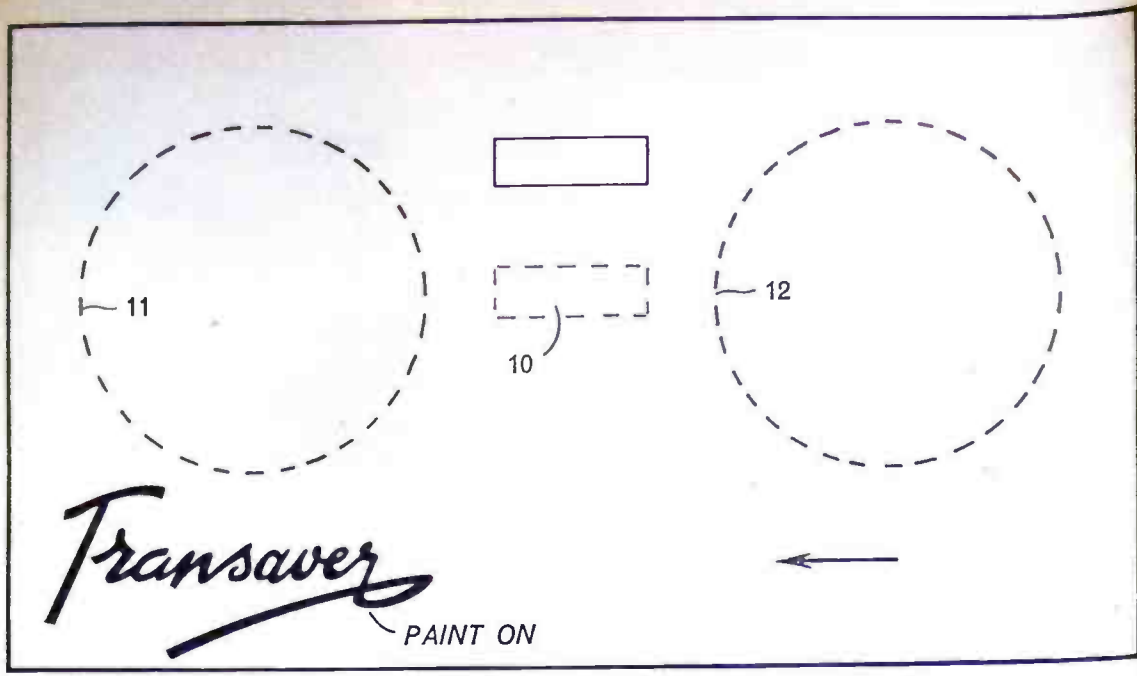
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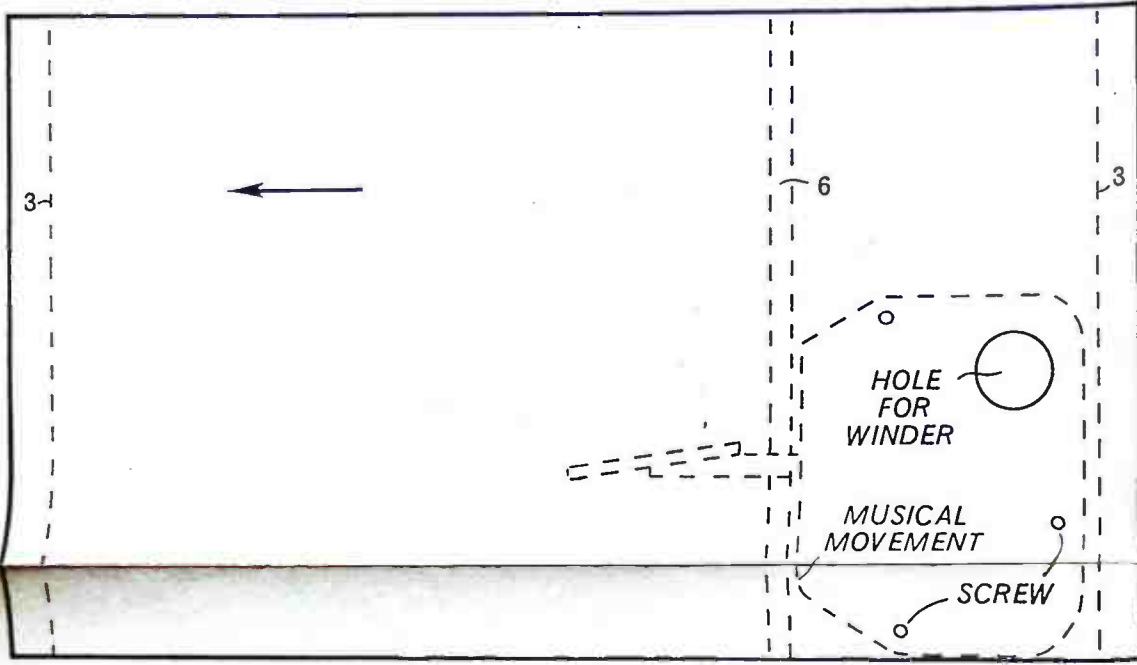
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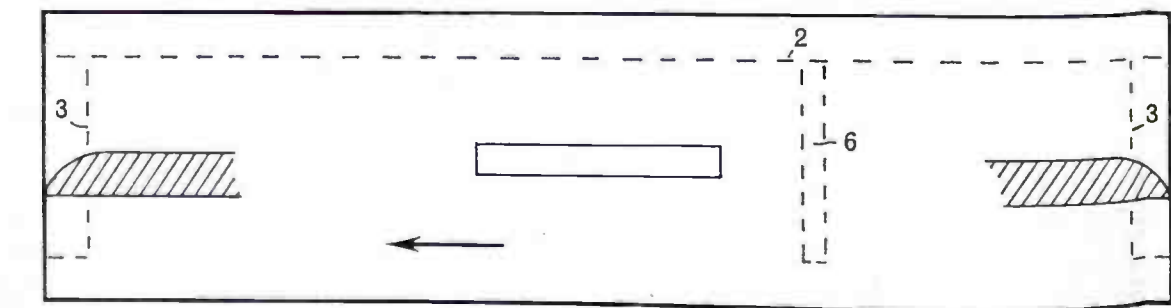
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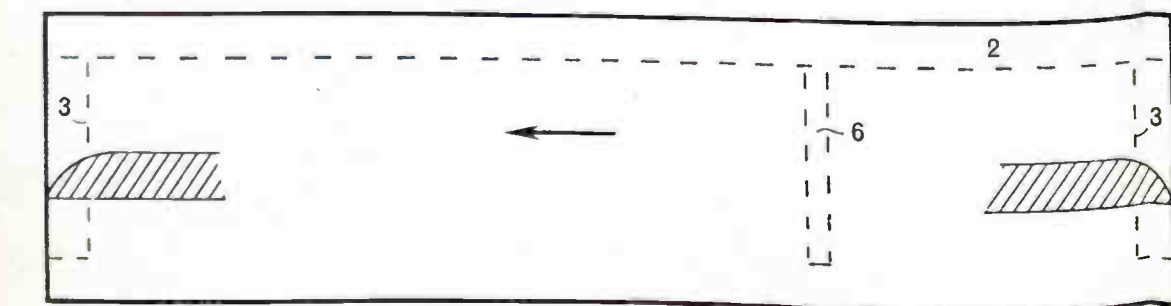
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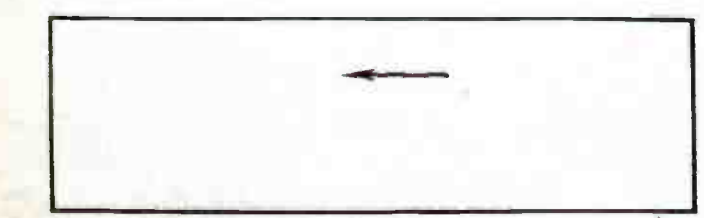
PIECE 2. CUT ONE ¼ in.



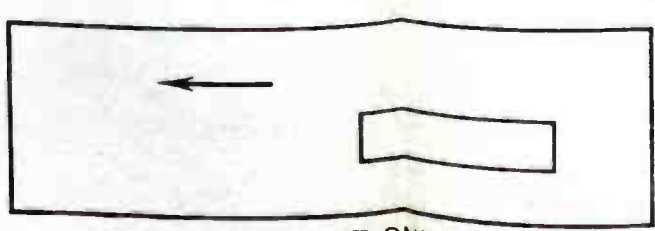
PIECE 4. CUT ONE ¼ in.



PIECE 5. CUT ONE ¼ in.



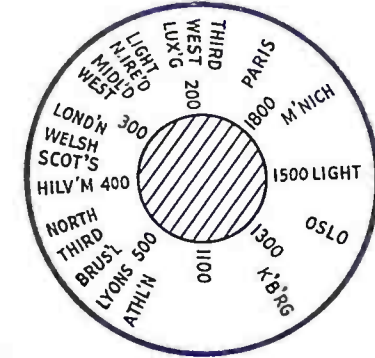
PIECES 3. CUT TWO ¼ in.



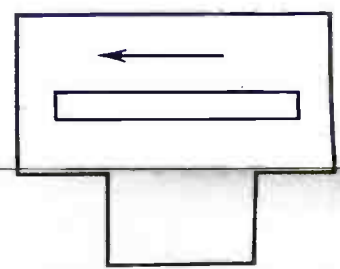
PIECE 6. CUT ONE ¼ in.



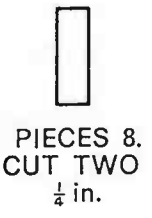
PIECE 11. CUT ONE ⅛ in.



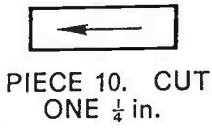
PIECE 12. CUT ONE ⅛ in.



PIECE 9. CUT ONE ¼ in.

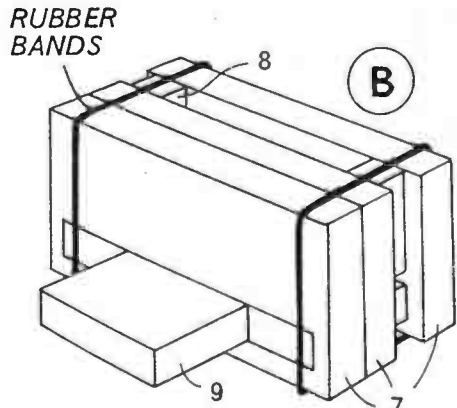


PIECES 8. CUT TWO ¼ in.



PIECE 10. CUT ONE ¼ in.

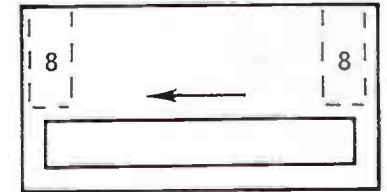
THE ARROWS INDICATE THE DIRECTION OF GRAIN OF WOOD.



**B**

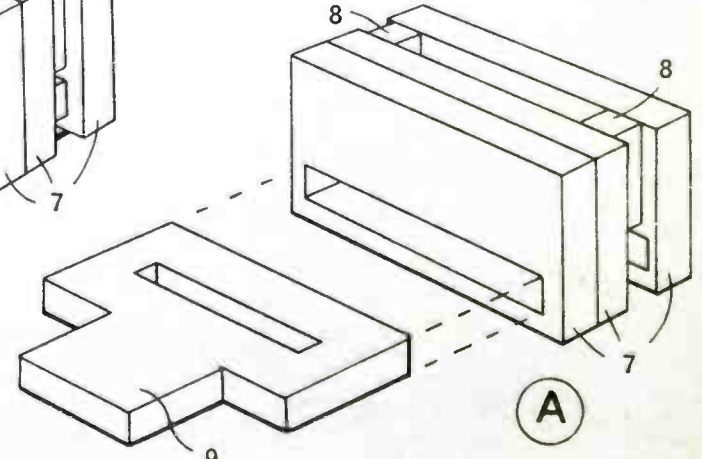
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**A**