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Free design

THE 'LULLABY'

MUSICAL NOVELTY FOR BABY

Hobbies

FOR CRAFTSMEN OF ALL AGES

6D

IF YOU WANT a hobby that will benefit your health, give mental refreshment, deepen your powers of observation, increase your knowledge of geography and nature, besides cultivating a real love of the countryside — then Bird Watching is for you!

Another advantage is that this pastime can be indulged in throughout the year. The more time that is spent on it the more fascinating it becomes.

Ornithology is a hobby open to all. If it is not possible to explore the countryside or travel, the garden can become a bird sanctuary. Also, the financial outlay can be either almost negligible or, for those who wish to buy expensive optical equipment and make trips abroad, it can be expensive. Although today there are plenty of chances to get good cheap holidays in, say, the wilder parts of the British Isles.

A field note book is an 'essential' and good illustrated text books are of primary importance to all bird watchers. These can be obtained from a local public library. Incidentally, should the books required not be on the shelves of the local library, the Librarian will always help by getting them through the inter-library loan service.

Cut out articles which appear in the press and magazines and either paste them into a scrapbook, or keep them in a file. The nature programmes on radio and T.V. should be listened to and watched by every would-be ornithologist. A pair of efficient binoculars, a camera and possibly a powerful telescope would be helpful, but not all these three items are essential. A suitable camera is a wise investment.

Membership of one of the local and national organizations which are concerned with wild life, such as, The British Trust for Ornithology; The British Ornithologists Union; The Royal Society for the Protection of Birds, and The British Junior Naturalist's Association will repay good dividends.

Birds are such an important part of our national heritage and most people are intrigued by them. Our feathered friends are so intensely alive, so vigorous and dextrous in their movements. Their dynamic colourings alone point to the wonder and awe of nature. Therefore, to find out all about the private lives of the birds is indeed an exciting adventure.

It is a comforting thought to all bird lovers to know that birds are now watched for themselves. Cameras and binoculars have taken the place of guns which used to shoot them for stuffed specimens.

Ornithology began to be studied systematically in 1544 when William Turner's 'Avium Praecipuarum' was published. This was a commentary on the natural history writings of Aristotle and Pliny. It contains full descriptions of many English birds.

In 1859 the British Ornithologists' Union was founded. In 1892 the Union founded a dining club known as the British Ornithologists' Club.

In 1932 the British Trust for Ornithology was founded.

Bird watchers must get a good view of the bird. This can be done by either making use of a pair of binoculars, or by attracting the bird towards you by tempting it with some tasty tit-bits.

If the latter method is used when you are on such an expedition, scatter the food and then get behind a screen, such as a wall or a hedge. The bird watcher must keep absolutely quiet and still. Patience will be rewarded!

If you are observing the birds from a garden or from a conservatory, place the food on a bird table or around a nestbox.

It is quite easy to attract birds into any garden.

Feed them regularly, not forgetting a supply of water for drinking. If possible dig over a small patch of soil every day. Worms and other soil animals will then be easily accessible to the feathered visitors, besides being much appreciated. Let a few weeds trespass in the garden. Birds much prefer their seeds to most garden plants. During the cold weather Tits like cheese, fats, cooked bacon rinds, peanuts and bones. Blackbirds, Thrushes and Starlings revel in bad apples! A safe diet for most birds is shredded suet, wholemeal bread, oatmeal and cheese.

Apart from the countryside and garden excellent bird watching can also be done in towns and cities.

In a most densely populated area, for example, Inner London, many discoveries can be made about the species of birds who seem to be oblivious to all the noise and turmoil which goes on in crowded thoroughfares. For the enthusiastic ornithologist it should be possible to get a wide range of good photographs of such birds. An interesting study can be made also of the regular 'town' migrants.

It is a good idea to make notes in your field notebook during or directly after each session of bird watching.

If you are unable to identify a certain bird, write down as many details about it as you can. Also, it is helpful to summarize the parts of the bird, for example, forehead, crown, nape, etc. Add to this list, size, colour(s), marks, call notes or song. Date, place, time and weather should always be included with each entry. Also, whether the bird was resting or in flight and, if possible, a description of its habitat and the distance the bird was away from you.

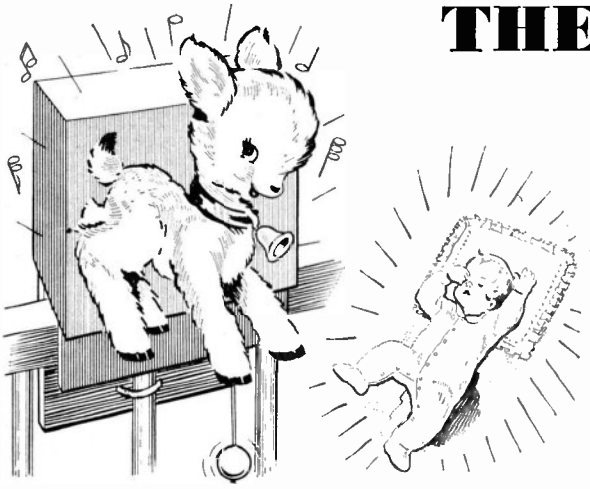
A bird watcher's field notebook can become a very precious piece of equipment, especially if a loose leaf type is used. Diagrams or sketches of birds can be made. These should be compared with a good illustrated reference book. Again, photographs and cuttings can be inserted into this book.

It was recently reported that a schoolboy living in England actually runs a bird's hospital at his council home. What a rewarding and thrilling work, apart from the knowledge being acquired. Who knows what help this work may give to the lad when the time comes for a choice of a career!

Also, there is the A.A. Patrol man who has built a magnificent bird box to keep an A.A. box company!

Ideas and opportunities are limitless in this hobby. (G.B.)

THE 'LULLABY'



Instructions to make a musical novelty which will amuse baby for many hours

HELP baby off to sleep! Provide his own 'built in' soothing bedtime music, operated by the 'young imp' himself. This musical toy is just what you need. Place it on the cot rail near baby's head and see him pull the cord to start the music. It can, of course, be equally attractive mounted on the rail of a play pen.

The toy is built around a Hobbies No. 1 musical movement, a special pulley and cord, obtainable with your movement, replacing the winder key. The cord, when pulled, winds up the movement which plays continuously until run down.

The animal on the front of the toy is a Decorette transfer, cut out as an overlay. Any of the Decorette animals will do provided they are not too large. Good subjects are teddy bear, lamb, puppy or kitten subjects. Some of these have more than one subject on a sheet and the unused ones can be transferred to other toys.

Simple construction

Construction is extremely simple and a glance at the large exploded diagram on the design sheet will show how the various parts are fixed together.

Hobbies kit for making this toy contains sufficient wood of the correct thickness, together with the special pulley and cord, wood bead and a suitable transfer. Glue can be used throughout, and brass nails could supplement the glue. Owing to the varied choice of tunes the musical movement is supplied separately.

All parts are shown full size on the design sheet, and they should be traced and transferred to the appropriate thicknesses of wood by means of carbon paper. Make sure that all parts are accounted for before commencing to cut.

Read through these instructions carefully before commencing assembly, making sure that you have a thorough understanding of the sequence of building. After cutting out, clean all parts with glasspaper, taking off any 'whiskers' or rough edges.

To commence assembly take pieces 1, 2 and 3, gluing 2 and 3 to 1 in the position shown by the dotted lines on piece 1. Remember to bore the hole in piece 3 before assembly. It should be large enough to take the cord of the movement. The position of the hole should be as shown in the exploded diagram. Now glue the sides, 4, in position. Brass nails can be added here if you are in a hurry to get the job completed. Otherwise leave for an hour or two for the glue to dry.

A KIT FOR 9/6

Hobbies Kit No. 3630 for making the 'Lullaby' Toy contains panels of wood, transfer and special 'winding' pulley for use with a Hobbies No. 1 musical movement. Kits price 9s. 6d. from branches or Hobbies Ltd, Dereham, Norfolk (post 1s. 6d. extra).

Suitable musical movement tunes are: Jingle Bells, Brahms' Lullaby, Parade of the Wooden Soldiers, Westminster Chimes, Greensleeves, Home Sweet Home, and Bells of St Mary's. Movements price 16s. 6d. (post 6d. extra).

Take the musical movement and with a pair of pliers snip off the wire arm and the accompanying spring. Alternatively it can be bent across the movement out of the way since it is not required to start and stop the mechanism. The winder key is not required either and the pulley is screwed on to the winder spindle instead.

Now screw the musical movement to the back of piece 5 as shown by the dotted lines on the design sheet. The pulley should run in the cut-away semicircle as shown. Now wind the cord round the pulley so that when the cord is pulled it winds up the movement. With the cord almost fully wound screw the piece, 5, complete with movement, to piece 6 in the position shown by the dotted lines.

Adding the motif

Next take the transfer and slide it off on to a piece of $\frac{3}{16}$ in. wood which has been given one coat of clear varnish or polish. When the transfer is dry give a coat of clear varnish all over. When this is dry cut round the outline of the animal with a fretsaw. Stick to the outline of the animal. leaving out all incidental objects such as grass and flowers. Glue the animal overlay to piece 6, placing under weights until dry.

Thread the end of the cord through the hole in piece 3 and then screw but DO NOT GLUE piece 6 in position on pieces 2, 3 and 4 to form the front of the box. Tie a knot in the cord to prevent it from being drawn in.

The final pieces to fix are pieces 7 and 8. Pieces 7 should be the exact width of the cot rail and are glued together before positioning. Glue and pin the piece 8 to the pieces 7.

Clean up all round with glasspaper and paint to match the cot. Use non-toxic paint, giving an undercoat and gloss top coat in the usual manner. Glue a piece of cloth inside between pieces 1 and 8 so that when the toy is placed on the cot rail it wedges tightly in position without damaging the cot rail. A length of cord threaded through piece 1 and tied round a rail will complete a secure fixing.

It may be necessary to add an extra piece of cord so that baby can reach without sitting up but it should be kept as high as possible, just within reach when the arm is outstretched. Add a round wooden bead as shown by the illustration. If the musical movement needs attention for any reason the front 6 can easily be removed by means of the screws.

CHEMISTRY AT HOME

EXPERIMENTS WITH BONES

IT has been shown that when a bone and a similar piece of cast iron are subjected to the same pull, the cast iron breaks first. This strength of bones is produced by their peculiar make-up. They consist of mineral matter dispersed through tough organic matter. In the body, bone contains about 25 per cent water, which makes the organic matter resilient and so contributing to its strength.

Dried bone contains about 60 per cent mineral matter and 40 per cent organic matter. Put a bone in the fire until it is red hot. Remove it and let it cool. The near white solid consists of the mineral matter, the organic matter having been destroyed. This mineral matter consists of about 85 per cent calcium phosphate, $Ca_3(PO_4)_2$, 12 per cent calcium carbonate, $CaCO_3$, a small amount of magnesium phosphate, $Mg_3(PO_4)_2$, and traces of sodium, Na, potassium, K, chlorine, Cl, flourine, F, lithium, Li, and strontium, Sr.

To remove the mineral matter from a bone, first boil it well with water to remove fat and then immerse it in dilute hydrochloric acid, HCl, for some days. The acid dissolves the mineral matter and leaves a gristly substance. Soak it in several changes of water in order to remove acid. It can be bent in all directions and even tied in a knot if the bone is slender enough. It dries to a horny mass. This organic basis of bone consists of a mixture of proteins. On boiling it with water for some time, it breaks down first into gelatine and then into glue. It is this part of bones which yields gelatine and glue when they are boiled with water.

Proteins contain nitrogen, N. This may be tested for in the bone organic matter by heating a small piece in a dry test tube and holding a damp slip of red litmus paper in the tube. The fetid smelling fumes which are evolved turn the litmus paper blue, owing to the presence of ammonia, NH_3.

When bones themselves are heated out of contact with air, further interesting facts come to light. Remove the fat from some pieces of bone by boiling for a few minutes with water, pour off the water and dry the bone. Heat it in a hard glass test tube in the apparatus rig shown in Fig. 1. The fumes collect in the second test tube as a watery liquid and a lower layer of dark oil. The fetid smelling oil contains a complex mixture of nitrogen-containing organic bases, and is known as Dippel's oil.

The case is otherwise with what is left in the hard glass test tube. It will be seen that the bone has kept its shape, but is black. As the bone was heated in absense of air, the organic matter left behind some of itself as black carbon, C, and which makes up about 10 per cent of the blackened bone.

This blackened bone is called animal charcoal and is a good decolorizing agent, being used in the sugar refining industry to decolorize the crude sugar solution before it is crystallized. Lightly

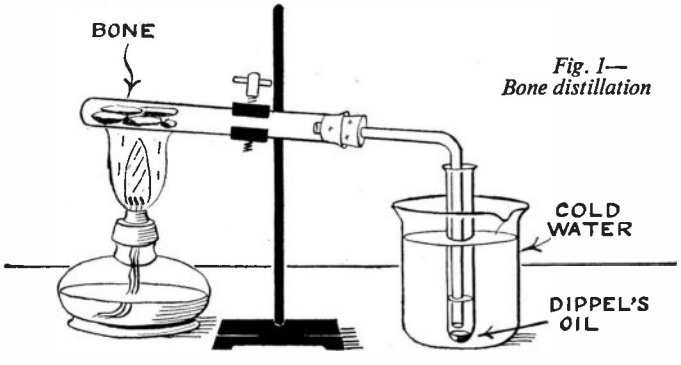


Fig. 1—Bone distillation

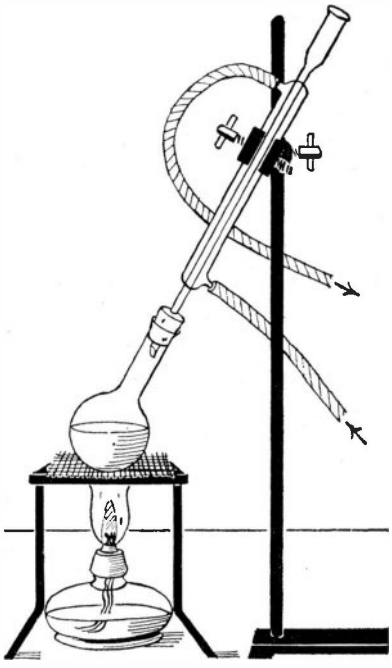


Fig. 2—Decolorizing with animal charcoal

tint about 100 ml. of water with gravy browning, divide the solution into two halves, and boil one under reflux, Fig. 2, for half an hour with 1 gram of powdered animal charcoal and one or two tiny chips of broken pot (to smooth the boiling). On filtering the solution, the filtrate will be seen to be of a much paler colour than the untreated gravy browning solution, or even colourless. It is similarly much used in chemical laboratories for removing coloured impurities from solutions.

The calcium phosphate in bone ash affords a valuable source of the phosphate needed for soil fertilisation, but owing to its insolubility in water it must be converted into a readily assimilated form. This is done by acting upon it with dilute sulphuric acid, H_2SO_4, when the fertilizer known as superphosphate of lime is produced. Superphosphate consists of a mixture of calcium sulphate and tetrahydrogen calcium phosphate, $CaH_4(PO_4)_2.H_2O$, the latter being rapidly taken up by plants owing to its ready solubility in water:

$$Ca_3(PO_4)_2 + 2H_2SO_4 = 2CaSO_4 + CaH_4(PO_4)_2.$$

To prepare superphosphate, powder finely 10 grams of bone ash. Slowly stir 3·4 ml. of concentrated sulphuric acid into 35 ml. of cold water, halting the addition if the mixture grows hot and

allowing it to cool again before adding more strong acid (caution, corrosive; any on the fingers should be flushed off with water and wet sodium bicarbonate $NaHCO_3$, applied). Pour the dilute sulphuric acid a little at a time on to the bone ash contained in an evaporating basin. The mixture effervesces, giving off carbon dioxide, CO_2, owing to the calcium carbonate in the ash:

$$CaCO_3 + H_2SO_4 = CaSO_4 + CO_2 + H_2O.$$

Let the mixture stand for two days and then drive off as much water as possible by heating the dish on a water bath so that a crumbly mass remains. In this form the superphosphate is readily scattered on the land.

Bone ash is also a source of phosphoric acid, H_3PO_4. By using a higher proportion of sulphuric acid, the calcium phosphate is wholly converted into calcium sulphate and free phosphoric acid:

$$Ca_3(PO_4)_2 + 3H_2SO_4 = 3CaSO_4 + 2H_3PO_4.$$

Slowly stir 5·1 ml. of concentrated sulphuric acid into 50 ml. of cold water. Gradually pour the dilute acid on to 10 grams of finely powdered bone ash in an evaporating basin and then let the mixture stand for two days. Again drive off as much water as possible by heating on a water bath. Now stir up the mass with 40 ml. of water, filter off the solid and run two lots of 25 ml. of water through the residue in the filter. Boil down the combined filtrates to fairly low bulk. Calcium sulphate separates out and should be filtered off. Boil down the filtrate to very low bulk. When it ceases to boil and leaves a syrupy liquid, continue heating for a further half hour, allow it to cool, boil it up with 20 ml. of water, and filter. The filtrate consists of a solution of phosphoric acid. Though it contains traces of magnesium and other elements, it is pure enough for ordinary laboratory purposes.

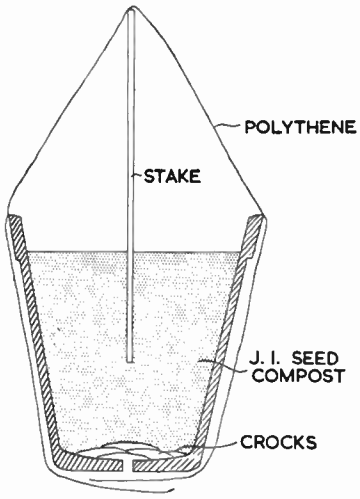
GREENHOUSE PRIMULAS

IF you have a cool greenhouse, that is one which is heated sufficiently to exclude the frost and maintain a temperature of about 45 deg. F. you can grow primulas to give a wonderful display of colour in the spring.

These attractive flowers are either perennial or biennial but can all be grown as biennials for spring displays. They are comparatively easy to grow and are well suited to indoor decoration.

Seed may be sown in July under glass, either in the greenhouse or under a cold frame. The tiny seeds should be barely covered, if at all, and are kept moist until germination occurs. To do this grow them in 3½ in. to 4 in. pots, watering by immersion and covering with polythene as shown in the diagram. The polythene should be wrapped completely round the pot so that the surface of the soil does not dry out by evaporation.

Primula obconica requires little heat and is therefore easy to grow. There are many shades of blue and red, with a pure white as well. These are most attractive plants when well grown, lasting in bloom for many months. Unfortunately a few people are affected by the leaves when they touch the skin. They cause a slight rash, giving rise to itching and irritation. Not many people are so affected and if you give them a trial you will at least know what to look for. If irritation does occur on the hands it is a simple matter to use rubber gloves when potting up.



Primula kewensis, so named because of its association with Kew gardens, has whorls of sweetly scented yellow flowers and attractive silver grey leaves.

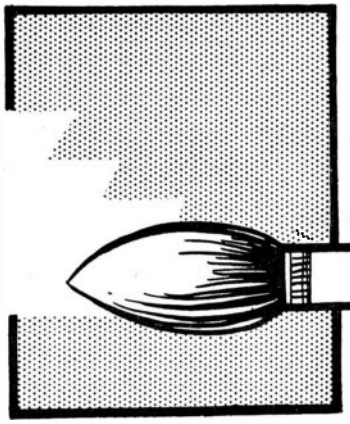
Primula malacoides or fairy primrose is both dainty and graceful with tier upon tier of delicately shaded flowers in pinks, reds and white. It may be sown a little later than the Kewensis and Obconica — say mid-August, but otherwise cultural requirements are the same. These three mentioned should prove easy to grow and will present few difficulties to the amateur. They should be carefully nursed through the winter, paying particular care to watering. The main enemy will be damping off and the pots should therefore be kept a little on the dry side.

Primula Sinensis are probably the most showy of the primulas, with bright colours of orange and red, including pastel shades. The giant hybrids give a brilliant display of colour if well grown.

Primula stellata which is a different form of sinensis is considerably taller, with smaller and more plentiful flowers. Like sinensis they require a little more heat and care than the other three.

After germination they are pricked out into boxes and from thence to 3 in. pots, using John Innes compost to which a little mortar rubble can be added. Do not water the crowns of the plants but dribble the water in over the edge of the pot. Final pots, with J.I. No. 2, can be about 5 in.

Other primulas such as polyanthus and auriculas (Bear's ears) can be grown in the greenhouse if they are taken from the garden in late October and potted up. Keep them near the light to prevent them becoming drawn. (M.h.)



ALL ABOUT PAINT BRUSHES

TYPES MANUFACTURE * CLEANING * ETC.

by H. Mann

AS enthusiastic handymen we may have tackled all manner of jobs, but quite honestly do you think you could make a paint brush? We think not and trust that this alone will be sufficient to show how important a tool it is. We make furniture, decorate our homes and the like yet how dependent we are on this simple tool for the finishing.

Discriminating craftsmen not only buy the best tools but also know how to get the best out of them and help to keep them in prime condition. This applies to paint brushes as much as any other tool. A tradesman cannot afford inferior brushes, which waste time by shedding bristles or attract complaints from customers. He also expects value for money and hard wear. Good paints are expensive, application absorbs valuable time and if you want to produce that superb finish you must be prepared to pay a little extra for your brushes.

The best brushes, although a little more expensive, are not excessively so when one realises the work involved in their manufacture. They are made by craftsmen for craftsmen. Bristles are carefully blended and can be divided into five types, namely hog bristle, horsehair, fibre, soft hair from animals such as the squirrel and synthetic fillings such as nylon.

The bulk of the brush is made from hog bristle, which is still regarded as superior. A bristle tapers from the root to the tip and is normally split into two or three fine parts termed the 'flag'. Minute scales run down the length and these endow the property of paint retention yet releasing same when bent back and forth. There is also a natural curve caused by the way the hair has laid on the animal. This is an asset to the brushmaker when he lays up a brush for the curves bend together to a point. The brushmaker attends to these points, making certain that the roots are at the base.

China, Russia and India are the main sources of supply for bristle and like wool from Australia each locality produces a characteristic bristle. Chungking, Tiensin, Hankow and Shanghai are a few areas concerned and it is the correct blending of the stiffness, length, texture and colour which is so important. It would be true to say that this is the art of brushmaking — producing a tool which not only paints well but also lasts longer.

Up to five types of bristle may be needed to make a brush of the necessary stiffness and resiliency and these have to be blended for quality and size. The incorporation of different lengths makes a brush taper gently from ferrule to tip and can be used for painting without having to be broken in. You may have been told that a new brush should be broken in on rough work, say a wall, but this can also damage the microscopic flags and scales.

Horsehair is primarily used for distemper brushes and cannot be compared with hog bristle. The main sources for horsehair are South America, Russia and China.

Fibre is a vegetable material — a type of grass grown in tropical countries and only found in the cheapest distemper brushes.

The soft hair of animals is employed for the finely pointed brushes used for signwriting and by artists. The squirrel, sable, weasel and badger supply this material.

You will appreciate that America has not enjoyed the best of relations with China for many years and consequently their imports of China bristle were banned. A substitute became necessary and it is interesting to note that they have developed one known as Tynex. It is tapered like bristle, tipped and flagged, there are a number of gauges and lengths, but to date they are unable to introduce the scales along the length and which are so important in the natural material.

Tynex is hard wearing and suitable for rough surfaces. It can be used for water-based paints since it does not absorb much water, permitting retention of the shape. Development of artificial bristles continues but at the moment they are not regarded as versatile as the natural base.

The brushmaker weighs out a specific amount of bristle which has to be prepared and straightened for the setting. This operation is termed 'laying-up', particularly skilful if the bend of the bristle is to be used, or if the brush is to be 'capped', that is, an outer layer of one dressing arranged around the inner of another.

The setting of the knot of bristles follows, formerly by cementing with resin, shellac or glue. Today the bristles are mainly set in rubber or placed in their cases and vulcanised until the rubber hardens, after which they are pinned into the ferrule. Epoxide resin is used since this is quicker acting, but it can only be used for brushes of limited thickness.

The next stage is the trimming of the brush head by large scale barbers' clippers and buffing on a carborundum wheel to soften any hardness caused by the former.

All this has the effect of producing loose hairs — just like a haircut — so 'flirting' is the next process. Brushes are subjected to double flirting but when buying a new brush it is advisable to flirt by the hand numerous times to remove small or loose hairs. If a new brush is first used on undercoating the suction

will be sufficient to remove any remaining hairs and it will then be ready for finishing work.

The brush head has now been made and is ready for a handle made from beech, birch or sycamore. This is either tacked into the brush or cemented in with epoxide resin. Incidentally, may we remind you that a brush should be held by the handle — that is what it is for — between thumb and forefingers and never by the stock.

Good, bad and indifferent brushes are sold in the shops. The better brush will cost more because is has longer and better bristles, properly straightened and graded. It should taper to the right degree from the centre to the tip and there should not be too many shorts. There should *not* be wedges at the base of the brush. A wedge can be detected if the thumb nail is pressed on the bristles where they leave the ferrule and it is allowed to travel to the tip. Should there be any marked slackness about ½ in. from the ferrule edge you may be sure of a wedge. Admitted, in large wall brushes a large wedge becomes necessary to make a reservoir between the sections of the brush.

If you pay a good price for your brush it will serve you well but remember that it is worth some care. It is acknowledged that a brush which has been used and thoroughly cleaned performs even better than a new brush. We should clean immediately after use but we often want to store a brush overnight without cleaning in which case it is better left in a mixture of raw linseed oil and turpentine or white spirit.

Our main object in cleaning is to prevent paint accummulating at the base of the bristles where it would harden more and more each time the brush was used. The introduction of Polyclens for cleaning paint brushes has been a real boon for the amateur painter, but you must still try not to let the paint harden.

The secret of the successful and economical use of Polyclens is as follows. Pour about 1 oz. into a shallow dish or saucer, lay the brush in this, turn it over and then lifting it out work the Polyclens well into the bristles. Take care that it is worked into the stock where the paint accumulates.

This operation works the solution into the bristle and the brush may now be held under the cold water tap when the Polyclens and loose paint is worked out with the fingers. When no more paint can be removed dry the brush with an old rag repeating the dipping into Polyclens. This time the brush only needs a quick immersion into the shallow dish. Repeat the aforementioned process finally cleaning under running water and after drying the brush should be like new. Make sure the brush is dry before storing away or you may encourage mildew which rots the bristle. Moth damage will be avoided if the brush is wrapped in newspaper.

If you have neglected brushes so that paint has hardened the best remedy is to use Polystrippa. Immerse the brush up to the ferrule. Dependent on the degree of hardness of the old paint it may be necessary to examine the brush each half hour to determine whether the paint is softening. When the Polystrippa shows signs of working remove the brush and scrape off the outside paint with a knife. Open up the bristles with the knife and replace in the tin for the Polystrippa to continue its work. When finally softened a rinse in Polyclens will remove the residue.

Acknowledgements are made to Hamilton & Co. (London) Ltd. and to Polycell Products Ltd. for some of the technical information contained in this feature.

THE SKATER

A SKATER does not slide OVER the ice, but he travels in shallow grooves made in the frozen water as his skates encounter the hard substance. Pressure, exerted through the metal skate-blades, causes the ice beneath them to melt. So skates move in self-made ruts, upon films of water. How else could a skater 'grip' the ice when making sharp turns? When the skates have passed and pressure upon the ice is reduced, the water freezes again.

Prepare a large block of ice in your refrigerator. Rest the ice block across two stools. Then tie heavy bricks to each end of a fairly light wire. Put the middle of the weighted wire across the ice, like a cheese-cutter, and let the bricks hang downwards, side by side.

Beneath the pressure of the wire the ice will melt — and the wire will 'bite' into the ice. However, above the descending wire, the water will keep freezing again. In this manner the wire will, given time, be drawn right through the ice, without actually cutting the block in two.

This curious effect is named 'regelation'. If the ice were sculpted into the form of a girl you could perform a neat and 'open' version of the 'Sawing A Woman In Half' illusion.

GRAPHITE

WHEN a zip fastener is 'stiff' and awkward to pull, you can lubricate its metal parts by stroking them with a pencil lead.

The 'lead' of a pencil is really made from a form of carbon called graphite, mixed with clay. Pencils having the hardest leads contain greater proportions of clay.

Graphite (from the Greek: 'grapho' — meaning 'I write') is a black substance composed of flat hexagonal crystals that can slide easily upon each other, like new playing cards spread about casually over a table.

Try an experiment: Rub a finger over a sheet of rough drawing paper, to feel the coarse texture. Then scribble heavily upon the paper with a soft-leaded pencil. When you rub your finger over the blackness, the pencilled paper feels smooth and 'greasy'. Six-sided graphite crystals reduce friction when they slide across each other, between your fingertip and the paper.

Graphite — also called 'plumbago' or 'black lead' — is second only to diamonds as a pure form of carbon. Natural deposits of graphite are found in Ceylon and Russia, but the substance is more conveniently produced by strongly heating anthracite or pure coke, without air, in an electric furnace.

POINT OF BALANCE

WITH any object there is a point through which gravity will attract its whole mass. A more familiar way of describing the pull of gravity is to speak of an object's weight, since weight is said to be the force with which the body resists gravity. We call the point through which the weight of an object acts its centre of gravity.

The centre of gravity of an irregularly shaped piece of cardboard is hard to find by trial and error. Try balancing such a card upon the flat end of a pencil. The cardboard keeps falling off, because its centre of gravity is usually to one side of the place of contact with the pencil.

But try pushing the cardboard ever so gently over the edge of a table. When it just begins to tip over the brink, hold it steady and draw a pencil line along its underside, flush with the table edge. The centre of gravity is sure to be somewhere along this line.

Repeat by tipping the cardboard another way, and then drawing a second line. Once again, the centre of gravity will lie somewhere along the line. However, these lines will cross. That 'common position' will be the centre of gravity. Balance the card at this point and it will stay put upon the pencil.

(A.E.W.)

THE SUPREMES

THE Supremes, one of the most successful girl groups on the 'pop' entertainment scene for many a record, have enjoyed the enviable distinction of seeing their immense and wildly exciting vocal talents soar to the top of the best-sellers' charts on both sides of the Atlantic at a time when the mere males (and particularly the male groups), were just getting used to having things almost all their own way.

These three delectable young ladies from Detroit made their disc debut here (on the Stateside label), with *When the love light starts shining through his eyes*. Their easy-flowing rhythm and satin-smooth sound made a change which was interesting, to say the very least.

The three girls, Diana Ross, Mary Wilson, and Florence Ballard, were at school together, and have been close friends since their childhood days.

Their career started in the now familiar pattern, singing at amateur shows and church socials, winning a talent contest during their last year at high school and catching the ear of that all-important talent-scout.

Berry Gordy, Tamla-Motown chief, signed them up, and they had an immediate hit with *I Want a Guy*. This was followed by more steady sellers — *Buttered Popcorn*, *Your Heart belongs to me*, *My Heart can't take it no more*, and the immensely successful *Breathtaking Guy*, which did more to establish the girls than all the rest put together. And then came *When the love light starts shining*, which found itself high in the American Top Thirty in no time at all.

Success has not changed the girls. Diana still makes her own clothes, and those for the group's appearances. Florence still likes to go down to the bowling alley. And Mary still likes to just sit around reading quietly, and quoting Latin. Yes, Latin!

Their second release over here proved to be the one that made their name. It was *Where did our love go* and was on Stateside SS327. It was so popular that advance orders totalled well over 40,000 — a quite astonishing total for a group that was virtually unknown! It was a real beaty disc, with a strong melody, extremely well chanted.

Where did our love go rose to No. 2 in the charts, and was followed by *Baby love*, SS350, which was released during their visit here in October, 1964. While here they performed on radio and TV and generally established themselves as the top US group by reaching No. 1 in the charts.

Their next was *Come see about me*, SS376, and this helped to sell their LP *Meet The Supremes*, SL10109.

In March this year, E.M.I. Records launched here the Tamla-Motown label, and The Supremes were featured prominently among the first releases. Their *Stop! In the name of love* was one of the first 'single' releases on the new label, and they were concerned, too, with two of the first LP issues. On their own LP, *With love from us to you* (TML 11002), they sang hits made famous by British and American male groups, and on 16 *Tamla Motown Hits* (TML 11001), they sang *Baby love* and *Where did our love go*.

MARY WELLS

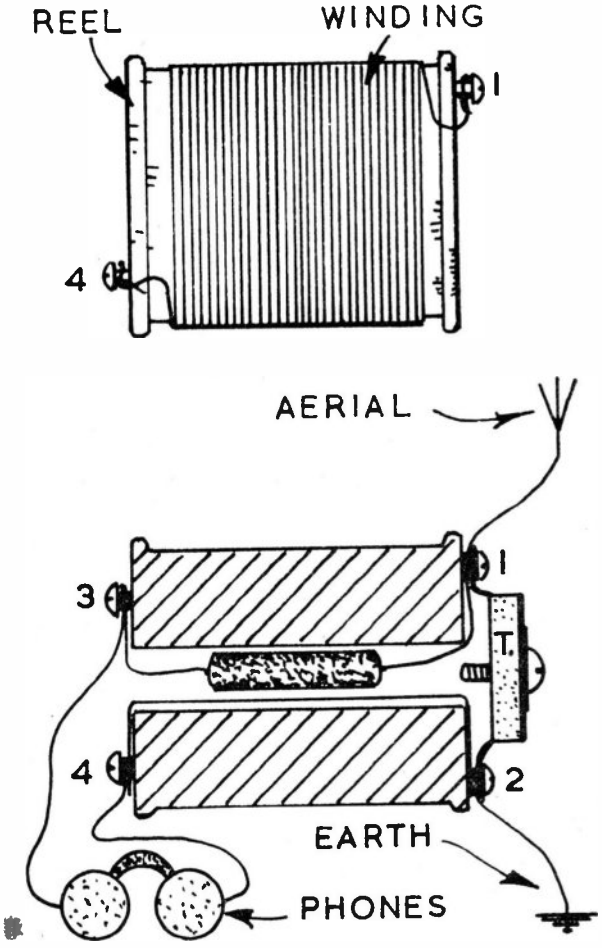
IT was in the summer of 1964 that Britain was made fully aware of the existence and talent of Mary Wells. Her name had been mentioned for some time as the Beatles' favourite singer, but that was about all until 'My Guy' was released.

This shot her to the number two position in the British charts, and number one in the States. It was followed by 'Once upon a Time', a duet with Marvin Gaye and — to coincide with her British visit in October, 1964 — 'What's Easy for Two is so Hard for One'. Mary came to Britain to co-star with the Beatles on a tour.

Twenty-years old and from Detroit, Mary Wells has been professional for three-and-a-half-years.

COTTON REEL CRYSTAL SET

THIS is a little novelty which you can make in ten minutes or so. It is a crystal diode radio receiver, which will give good headphone reception at a range of up to 50 miles or more from a local transmitter. It requires no battery or mains supply.



The following items will be needed:

A cotton reel, or one which contained thread, about 1 in. to 1¼ in. in diameter. The reel should be of the kind which actually contains only a small amount of cotton or thread, so that the winding diameter for the tuning coil is about 1 in.

A small quantity of cotton covered, silk covered, or enamelled wire, about 28 S.W.G. to 34 S.W.G. If this is to be bought, then 32 S.W.G. enamelled wire is suggested.

A small crystal diode as used for detection purposes. Almost any radio components store will have this.

A 250pF or 300pF postage-stamp type trimmer. This is adjusted with a screwdriver. Also four small woodscrews, and possibly four washers.

Coil winding

Take the reel, and make two small holes to start the screws 1 and 2, spaced so that the trimmer T can be fitted. Also make holes for the screws 3 and 4.

Scrape the insulation from the end of the wire, and make a loop round screw 1. Wind 80 turns side by side on the reel, and bare the end of the wire, and loop this round screw 4.

Take a short piece of wire, bared each end, and thread it through the reel, looping it round screws 2 and 4, to connect them. Place the diode in the reel, with one wire looped round screw 1, and the other round screw 3. The tags of the trimmer T are held by screws 1 and 2.

Other connections

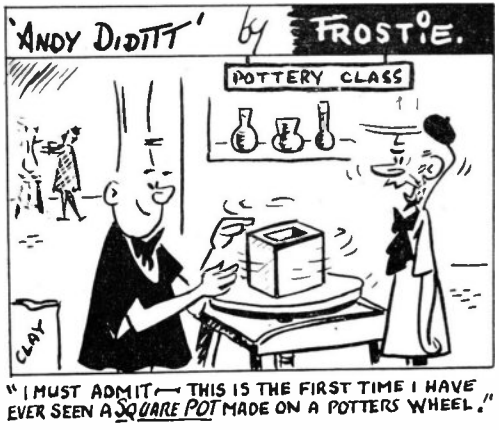
The usual type of headphones, intended for crystal receivers, should be employed. They usually have a resistance of about 500 to 4,000 ohms. Surplus low resistance phones cannot be used. Fix the phone leads under screws 3 and 4.

The earth connection should go to a descending cold water pipe, or to an earth spike, or to some other object which is in the ground. A length of thin flexible wire passes from the earth, and is fixed by screw 2.

Some kind of outdoor aerial gives best volume, though an indoor aerial is satisfactory in some localities. The aerial is taken to screw 1.

A screwdriver is used to tune in the local station, by means of the trimmer T. No other adjustment is needed, unless the aerial or earth is changed.

Should you want to try tuning to a low wavelength, this can be done by removing turns from the coil. This is useful where the local Home Service, or 3rd Programme, is around 200–250 metres. To tune to a higher wavelength, more turns would be required on the coil. (F.G.R.)



A chemical demonstration

I WANT to demonstrate, at the Sunday School where I teach, the story of the Prophets of Baal. When Elijah poured water on his sacrifice, it immediately *burst into flames. I think there is a chemical which ignites quickly on contact with water. Can you tell me what it is, please? (E.L. — Notts.)*

THE substance which takes fire on contact with water is the metal potassium. The process is hazardous in unpractised hands, and the metal is only obtainable from laboratory furnishers. The principle is that potassium releases hydrogen from the water, and is itself converted into potassium hydroxide (caustic potash — a skin corrosive). The heat given out in the reaction is such that the hydrogen ignites. Moderately safe is a piece of potassium about the size of a split pea, and about half a gallon of water *in a bowl.* If two or three teaspoons of benzene are put into the water, which is poured on the former, ignites on the surface of the water. Potassium alone will give only a small flame. Presumably you wish to pour on to a dry sacrifice. To put a bit of potassium on such, and to pour benzene and water upon it would be dangerous, for being in contact with only a surface stratum of water, the potassium would almost certainly explode and scatter molten metal mixed with potassium hydroxide upon the observers. Safer, but less certain without some acquired dexterity, is to make a heap of sodium peroxide (only obtainable from a laboratory furnisher) — about as much as would cover a florin — to pour on a few teaspoons of methylated spirit with one hand, and with the other water and benzene. The sodium peroxide ignites the meths., the water spreads an upper layer of benzene, which takes up the burning to more spectacular effect. Sodium peroxide must be kept in glass-stoppered bottles, and never allowed to come into contact with paper or other inflammable materials.

* * *

After-shave lotion

COULD you please send me a recipe for a good antiseptic after-shave lotion? (S.B. — India.)

FOR an antiseptic after-shave lotion dissolve 0·03 gram of menthol in 100 ml. of alcohol. Then dissolve in this 1·25 grams of boric acid, and 2·5 grams of glycerine. Any desired perfume may now be stirred in, and in amount to suit one's taste. Finally add water to bring the volume to 400 ml., filter, and the lotion is ready for use. If a coloured lotion is wanted, add a little cake icing colour.

? REPLIES TO READERS

Damp kitchen wall

THE interior of the exterior walls of my kitchen, those in which the window and the door to the garden are placed, need some preparation before I repaint them. The plaster under the paint seems to be crumbling and cracking, taking the paint with it. This district is very damp, and although the house is only about eight years old, I think the trouble is caused by the humid air. How can I overcome this trouble, and what paint would you recommend, please? (E.L. — Notts.)

IF you think that the trouble is due to water coming through the brickwork, you can get a transparent sealer from builders merchants, to paint on the outside of the brickwork to prevent further penetration. However, as your house is only eight years old, it should have a cavity wall, and this is unlikely to be the trouble, unless the builder left rubbish in the cavity. If the trouble is due to damp atmosphere and condensation, clean off the paint, and make good the plaster with Alabastine or something similar. Leave the wall unpainted, and allow it plenty of ventilation for a few days. This could be painted with an anti-condensation paint, such as 'Anticon' (Silexine Paints Ltd, Abbey Road, Barking), which looks like emulsion paint. If you prefer ordinary paint, the plaster could be given a coat of the same sealer as recommended for the outside wall.

* * *

Chemical Flash Paper

WOULD you please let me know a chemical formula for treating tissue paper, which when ignited, will go off in a flash, as used in conjuring tricks? (W.P. — Jersey.)

SLOWLY stir four parts by measure of concentrated sulphuric acid into five parts of concentrated nitric acid, halting the addition if the vessel grows hot. Soak the sheets singly in the mixed acid for ten minutes, remove with a glass rod to a bowl of water, run a continuous slow stream of water into the bowl until the over-spilling water no longer reddens blue litmus paper. This washing must be thorough, otherwise the dried paper is liable to spontaneous combustion, hence the use of litmus paper. Naturally, care should be exercised when handling the acids, and any on the fingers should be flushed off with water and wet sodium bicarbonate dabbed on in the usual way. In pyrotechnics only small experimental quantities may be made. Otherwise a licence is required.

* * *

Stencil Sheets

I HAVE read with interest your article on the rotary duplicator. I am intending to make this machine for my angling club. On pricing stencil sheets, however, I find that they are very expensive — the price for foolscap is 1s. per sheet. Is there a formula that will enable me to make my own? (E.H. — Lancs.)

DUPLICATOR stencil sheets are coated on one side of the paper only. Consequently, a dip formula is not used. The paper is laid on a metal plate heated to 100°C., and sponged over with a hot mixture of: Tricosane 1250 parts, Ozokerite 55 parts, Oleine 32·5 parts, Palmitine 12·5 parts — all parts by weight, of course. The paper is then removed and allowed to cool, when it is ready for use. A light paper weighing about 12 grams per square metre should be used.

* * *

Dandruff lotion

COULD you please send me a recipe for a good dandruff lotion. (A.R. — Newcastle.)

FOR an anti-dandruff lotion warm together in a vessel standing in a pan of warm water 95 ml. of isopropyl alcohol and 5 gram of propylene glycol. Add 0·5 gram of cholesterol, and stir until it has dissolved. Set the lotion aside for a few days, and filter.

Quik-Tip

PLAY-PARK FOR THE GARDEN

A SIMPLE play-park is an extremely useful feature for the summer. It can keep one child happily occupied in a garden, or it can cater for a large number of children at a fête or other local event, and be a worth-while money raiser. All the pieces shown here are very easy to construct in a short time from simple materials.

1. This semi-circular hardboard shape can be an igloo, wendy house or hangar. It is made from an 8 ft. by 4 ft. hardboard sheet. Two lengths of stripwood are pinned along its short sides, on the inside, and it is bent round to form an arch shape. It is held in place with pegs stuck in the ground along each side, or with two lengths of stripwood about 5 ft. long; these are screwed in place across either end of the arch. Alternatively, for easy dismantling and storage, the strips can be fastened with bolts and wing nuts. Paint both sides of the hardboard white — emulsion paint will do for this — and add a simple design in colour.

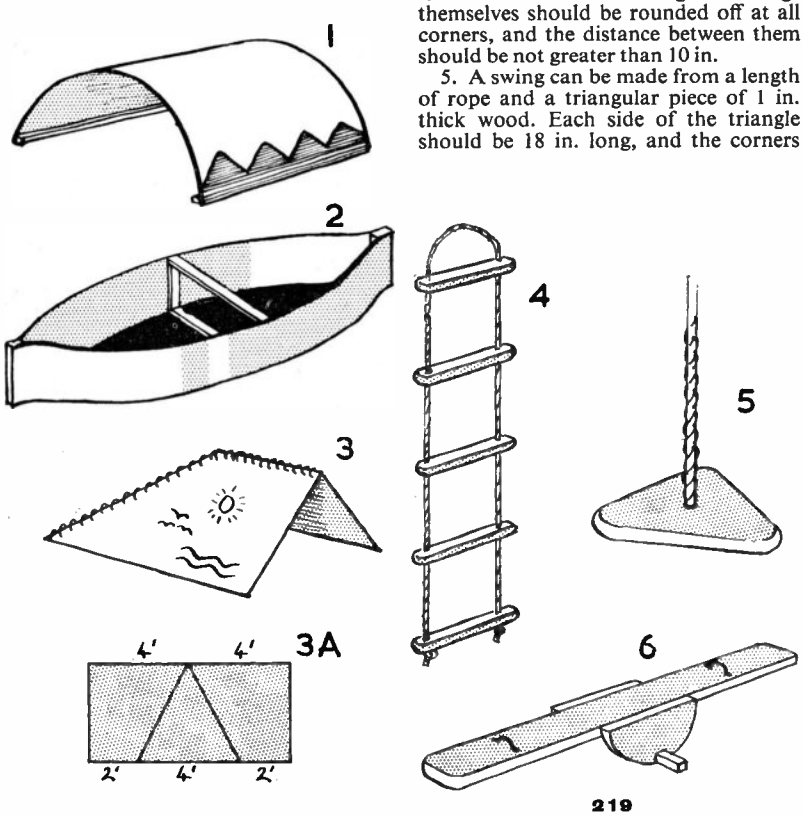
2. A boat shape is another attractive piece which lends itself well to children's play activities. Here, two pieces of hardboard are needed. The exact size does not matter greatly — 1 ft. by 8 ft. sections are suitable. The two pieces are fastened to upright wooden end-posts, and are held out in the middle by a wooden box frame which is screwed to the sides. Paint the boat in bright colours; horizontal bands of colour look best.

3. A wigwam is a perennial favourite which needs little in the way of constructional work. An 8 ft by 4 ft. hardboard sheet is cut as shown, 3A. A row of ⅛ in. diameter holes is drilled at 3 in. intervals round two sides of each hardboard section, and these are laced together with cord. The easiest finish to use here is Red Indian symbols in bright paint, with two coats of varnish applied over each section.

4. A rope ladder, to hang from a stout branch or a wooden beam, needs only a length of rope, and a number of 12 in. sections of 2 in. square wood. These are drilled to take the rope, which is knotted below each rung. The rungs themselves should be rounded off at all corners, and the distance between them should be not greater than 10 in.

5. A swing can be made from a length of rope and a triangular piece of 1 in. thick wood. Each side of the triangle should be 18 in. long, and the corners should be rounded off. The centre of the triangle is found by drawing lines from each point to the middle of the opposite side — where they intersect is the centre. A hole is drilled at this point and the rope is passed through and knotted on the underside.

6. A one-piece see-saw uses a 6 ft. beam of 7 in. by 1½ in., with two semi-circular pieces of 1 in. thick wood, 12 in. in diameter. A 15 in. long stabilizing cross-piece of 1 in. square stripwood, is screwed to the rockers, which are cut away to take wood. Two cupboard handles are added as handgrips, and the whole see-saw is painted in bright colours, or with wood sealer. (A.L.)



I WAS recently asked at a lecture to give five good reasons to justify my remark that "Stamp collecting was the most popular hobby throughout the world". The answers were easy.

Firstly, stamp collecting is a highly fascinating pursuit which helps to while away countless pleasant hours. On this score alone it is worth following.

Secondly, it encourages methodical habits. We examine our stamps carefully, we discriminate between the good and the bad specimens, we keep a watch for minor varieties, we marshal our treasures in correct order, and so on.

Thirdly, a vast amount of geography is learnt by collecting. The stamps bring all sorts of out-of-the-way countries to our notice, whilst the postmarks make us conversant with various towns.

Fourthly, we get to know of hundreds of interesting facts concerning the currency and language used in every corner of the globe. The inscriptions on the specimens teach us these matters.

Fifthly, stamp collecting assists us to gain a real knowledge of history. Ask any collector when Columbus discovered America? Who was Prince Henry the Navigator? Over what country did King Amadeus reign? What form of Government is possessed by Paraguay? His answers will be far more intelligent than those given by a non-collector.

But the foregoing are not the only matters which our stamps teach us. What is the difference between an engraving and a lithograph, between cream-laid paper and wove paper, between magenta and cerise? These and a thousand other questions the keen stamp collector can answer correctly and without hesitation.

Surely a pastime which can help us to gain so much valuable knowledge is worth the attention of every boy and girl, as well as man and woman.

The hobby of stamp collecting is called Philately. But the enthusiast is not merely a stamp collector — but one who 'loves' his stamps.

TOPICS FOR COLLECTORS

PHILATELIC TERMS

Here is a list of other philatelic terms which will help the amateur to discuss his stamps professionally:

Adhesive. A stamp which is kept in position by moistening the gummed under-surface. Most stamps are adhesives. Postcards, envelopes, and wrappers which have the stamp printed on them are not adhesives.

Block. A number of stamps not torn apart. A strip of stamps and a number of stamps forming an odd shape are, however, not considered as blocks.

Chalk-Surface. A surface given to stamps by means of a preparation of chalk, in order that obliterations may not be cleaned out.

Commemoratives. Stamps issued to remind people of bygone events.

Control Letters. Letters on the margin paper of sheets of stamps, for official purposes of control.

Entire. A postcard, wrapper, or envelope complete as it has passed or would pass through the post — i.e., with stamp intact.

Error. A stamp which contains some faulty workmanship, of whatever kind.

Forgery. An unofficial stamp, one made in order to cheat. In cases where a real stamp is given an unauthorized overprint, the stamp constitutes a forgery.

Hinges. The papers gummed on one surface used for fixing stamps to the album.

Imperforate. Stamps that are not provided with perforated margins to facilitate separation.

Local Stamps. Those which are available for use in some town or special area.

Mint. A term applied to an unused stamp in perfect condition — including the *gum* on the back.

Obliteration. Marks placed on a stamp by the authorities to denote that it has gone through the post.

Obsolete. A stamp that is no longer issued by the postal authorities.

Official Stamps. Those printed for use in Government offices — i.e., the obsolete Revenue Officials of Great Britain.

Overprint. An inscription printed on the face of a stamp to alter in some way its original use.

Perforated. A frame of small holes around a stamp made in order to facilitate separation from its neighbour.

Perforation, Compound. Exists when the holes are not of the same size and distance apart around the four sides of a stamp.

Perforation Gauge. An instrument for measuring the perforations of a stamp.

Plate Numbers. Usually spoken of in connection with the line-engraved stamps of Great Britain. They serve to indicate the plate from which any particular stamp was printed.

Provisionals. Stamps which are intended for temporary use whilst a permanent issue is being prepared.

Remainders. Genuine stamps left over after the particular issue has become obsolete. There is no objection to remainders, as there is to reprints.

Reprints. Stamps printed from dies after they have become obsolete. Many countries sell their obsolete dies, with the result that more or less inaccurate reprints are made from them. Reprints, for philatelic purposes, should be classed with forgeries.

Rouletted. The presence of a frame of small slits around a stamp in order to facilitate separation from its neighbour.

Speculative Stamps. Those issued by a Government for philatelic, rather than postal, purposes.

Strip of Stamps. A row of stamps joined together (compare Block).

Surcharge. An overprint placed on a stamp to alter its value.

Variety. A term to describe a stamp that differs from another in some slight way.

Watermark. A thinning of the paper on which a stamp is printed, so as to create a distinctive design. (R.L.C.)

These Hungarian pictorials commemorate The Olympic Games of 1964

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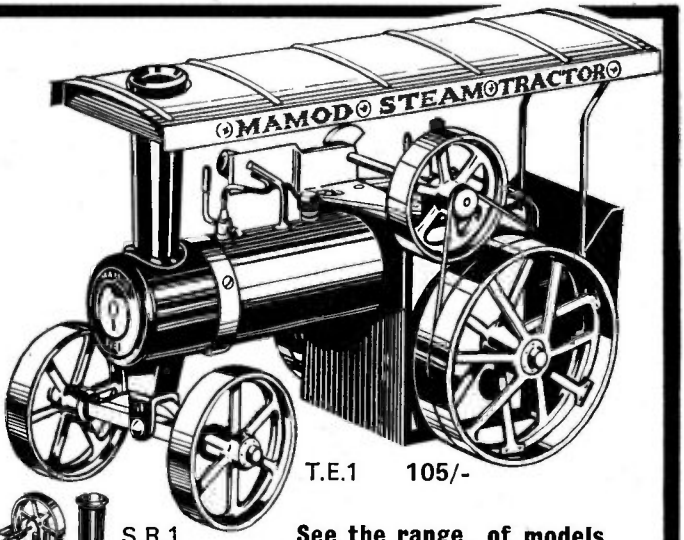

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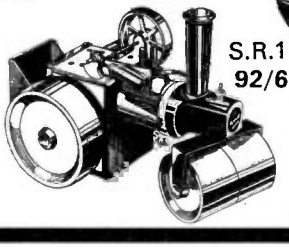

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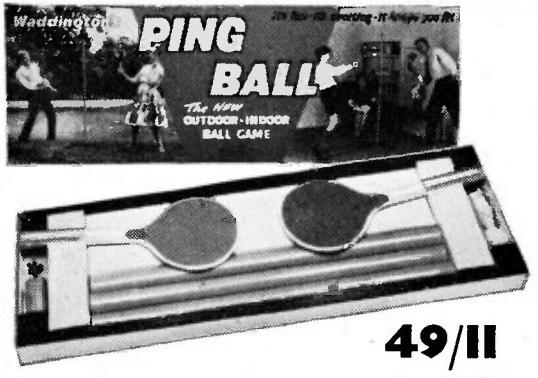

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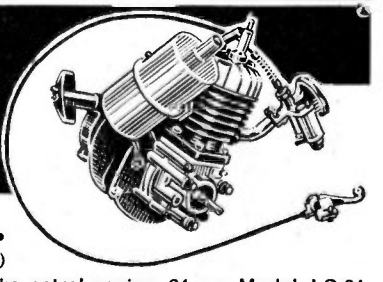

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'Down the hatch' with

A HOME-MADE STEIN

HAVE you ever wished that all those bottles you have to throw away could be put to good use? Here is a way to convert them into steins, the popular German drinking mugs.

The method is simple, the requirements are readily obtainable, and with the resultant stein in hand, you will be the envy of the customers at your favourite 'local'.

All you need is some ½ in. copper stripping, ⅛ in. diameter rivets or small nuts and bolts of the type used in construction kits, some wood from which the handle is fashioned, and of course, a bottle. A hammer, pliers, and tin-snips will be required in the line of tools.

Breaking the bottle

Begin by deciding what size of stein you want to make. This is governed largely by the type of bottle used. Measure out the amount of water the stein is to hold, i.e. two gills of water for a two gill stein (half a pint). Pour it in the bottle.

Now soak a piece of ordinary household string in petrol and tie it tightly around the bottle, about ¼ in. above the level of the water. Use as small a knot as possible and cut off the loose ends close to the knot. Place the knot over the seam of the bottle. Take care that no excess petrol runs down the bottle. A good way of ensuring this is to draw the string through thumb and forefinger after soaking it. Bring the level of the water up level with the string. This is done to provide a lip to the stein.

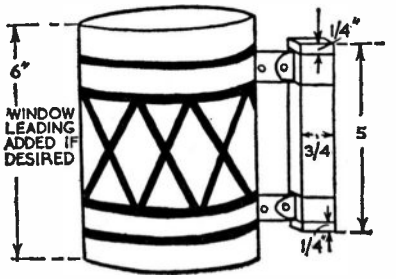
The next step has to be done quickly and carefully. Using a match, apply the flame to the string in as many places as possible, until the whole string is burning evenly. This is important. The whole string must be burning in the shortest possible time. If it doesn't the bottle will break unevenly.

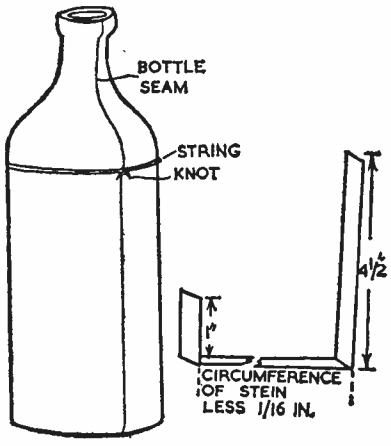
As the string burns, heat is absorbed by the glass above the water, and by the water itself. Thus, the bottle below the water level is much cooler than the glass above it. With these extremes in temperature, the bottle should break evenly at the water level.

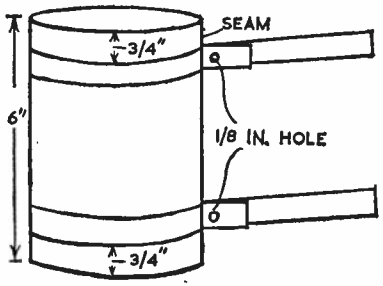
Smooth off the sharp edges of the lip by rubbing with a carborundum stone. Make sure you do this job thoroughly — for obvious reasons.

Adding the handle

The body of the stein is now ready for the handle. This should be proportionate to the height of the stein. In the diagram the stein is 6 in. high, and the handle 5 in. long. This allows for a clearance of ½ in. top and bottom. The other measurements are constant — ½ in. wide by ¾ in. deep. A ½ in. groove is cut ¼ in. from each end and approximately 1/16 in. deep to accommodate the copper stripping.







The handle may be painted or stained at this stage, or left plain with a coat of clear lacquer.

Measure the circumference of your stein and add 4½ in. to allow for the length required to go around the handle. Cut two pieces from the ½ in. copper stripping to the required length. This measurement will leave some extra which can be trimmed off later.

Take the two lengths of stripping and in each make a right-angle bend 1 in. from one end. Measure off the length of the circumference from the right-angle bends. About 1/16 in. short of this make another right-angle bend on the same side as the other one.

Using the stein body as a former, bend the stripping around it, ¾ in. from the top. The right-angle bends should almost meet. Drill a ⅛ in. hole through the upright arms ¼ in. from the bends. Rivet the bands firmly together. The 1 1/16 in. gap between the arms will allow the stripping to wrap firmly around the stein. Do the same with the lower strap, ¾ in. from the bottom.

To make sure that the arms of the straps are in line, it is advisable to use the bottle seam as a junction point for the arms.

With the straps now firmly in place, the fitting of the handle can be undertaken. 1 in. from the stein body, make right-angle bends in the longer straps. These should be exactly even with the ends of the shorter straps.

Hold the handle in place so that the straps fit into the grooves cut in the handle and bend the straps tightly around the handle. Drill a ⅛ in. hole through the three thicknesses of strap, ¼ in. from the handle. Before riveting, trim off the extra stripping, using a circular cut.

Further decoration

Your stein is now complete. Further embellishments may be added if desired. Window leading can be used for this, giving your stein extra weight, durability, and attractiveness.

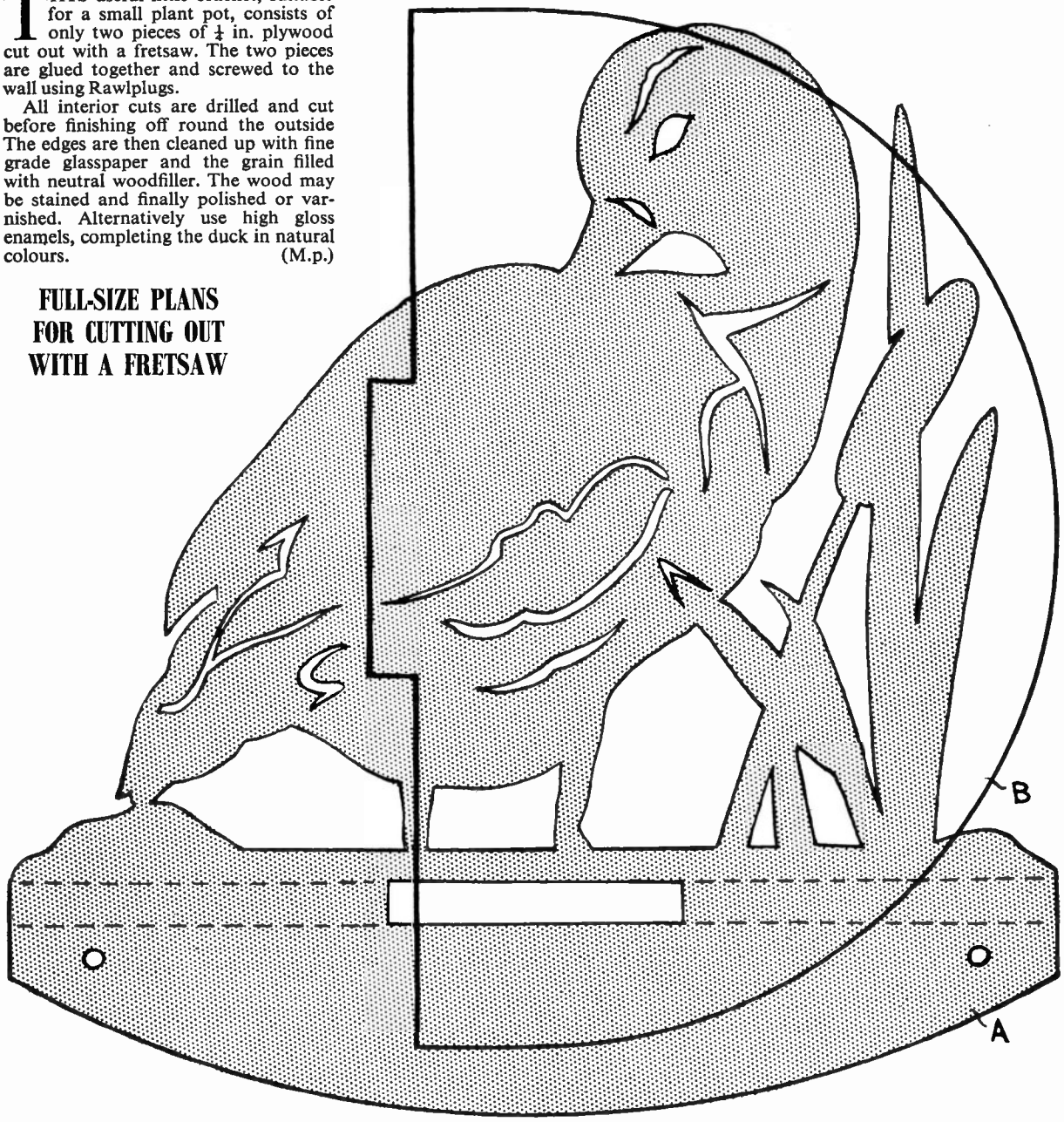
We end with a word of warning — this stein should never be immersed in hot water. (E)

THE 'DUCK' WALL BRACKET

THIS useful little bracket, suitable for a small plant pot, consists of only two pieces of ¼ in. plywood cut out with a fretsaw. The two pieces are glued together and screwed to the wall using Rawlplugs.

All interior cuts are drilled and cut before finishing off round the outside The edges are then cleaned up with fine grade glasspaper and the grain filled with neutral woodfiller. The wood may be stained and finally polished or varnished. Alternatively use high gloss enamels, completing the duck in natural colours. (M.p.)

FULL-SIZE PLANS FOR CUTTING OUT WITH A FRETSAW



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READER'S REPLY HW JULY 1965

CRICKET BATS — BALLS — STUMPS

BATS — Manufactured from the best selected close bark willow, treble sprung and fitted with rubber grips.

Captain quality
Size 6 — 14/11 (*post* 3/-)
Size 4 — 12/6 (*post* 2/9)
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Super quality
Size 6 — 23/11 (*post* 3/-)

Balls — Match practice quality. Two-piece leather. Full size 6/6 (*post* 8d.)

Compo. Ideal for a knock-about. Price 2/11 (*post* 8d.)

Stumps — Sets of four stumps and bail. Strong, nicely finished.
130/406 24 in. × $\frac{7}{8}$ in. 5/11 (*post* 2/9)
130/417 26 in. × $1\frac{1}{8}$ in. 9/11 (*post* 3/-)

ARCHERY SETS

De luxe quality, with strong tempered stee bows.

BLACK EAGLE — 42 in. bow, with 25 lb. pull. Six 21 in. feathered flight, brass tipped arrows, finger tab, arm guard, instruction booklet and two target faces.

29/11 (*carriage* 4/-)

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24/11 (*carriage* 4/-)

BLACK PRINCE — 30 in. bow, six 16-in. rubber tipped arrows, etc.

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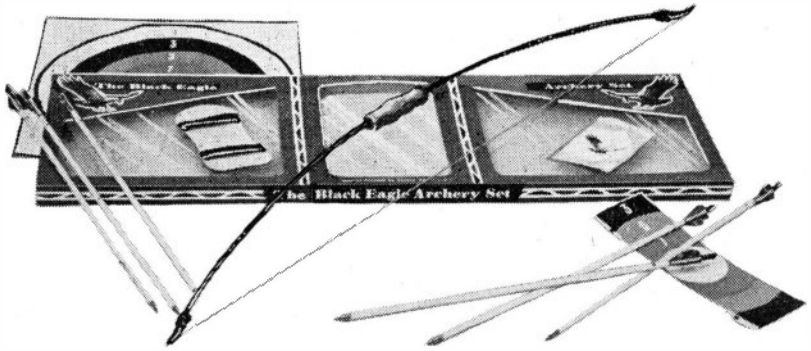

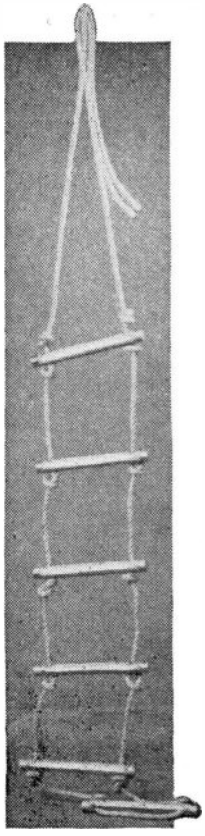

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Ideal for active youngsters outdoors. Strongly made, length 10 ft.

35/- (*post* 3/6)

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Address .....

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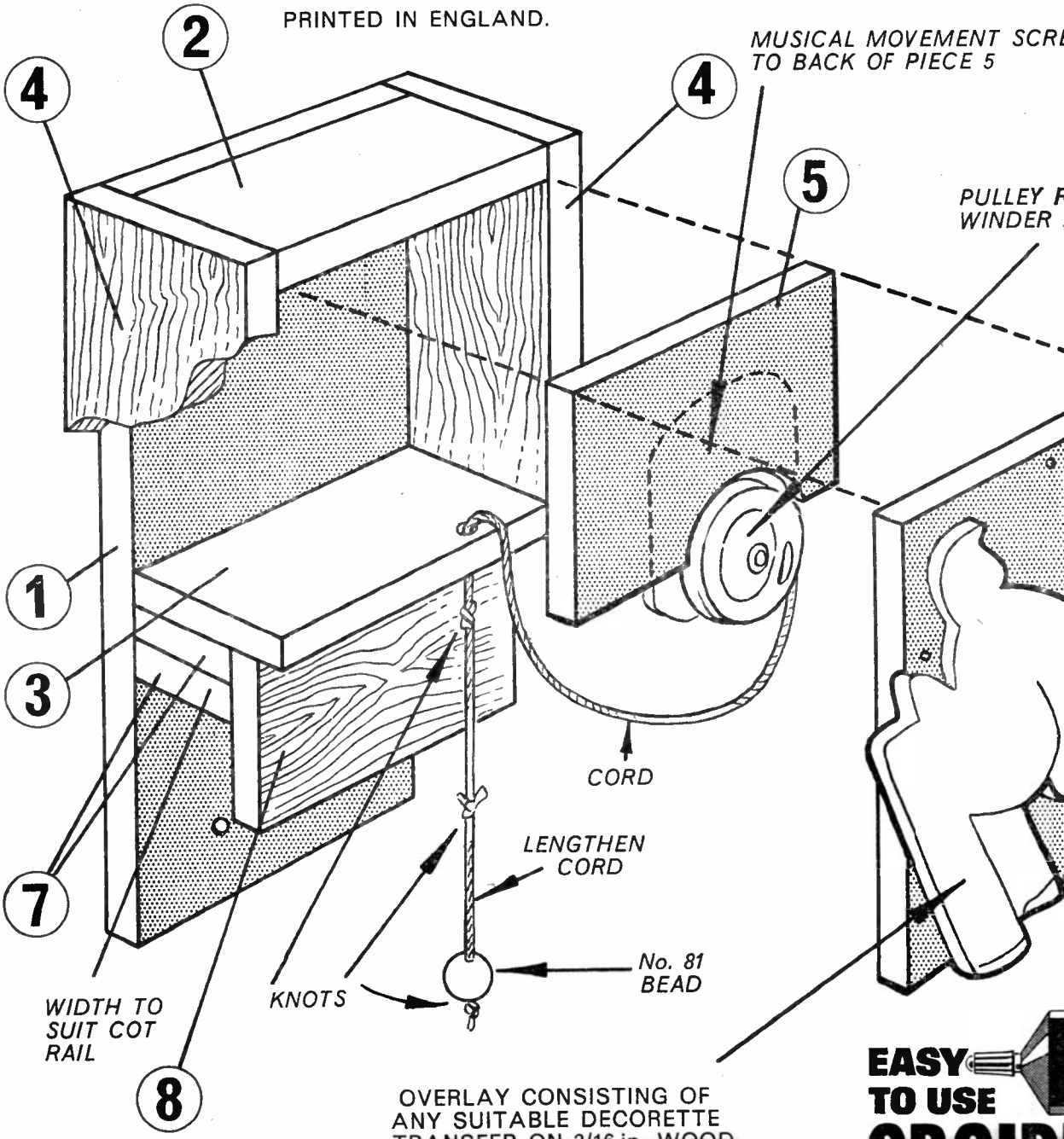
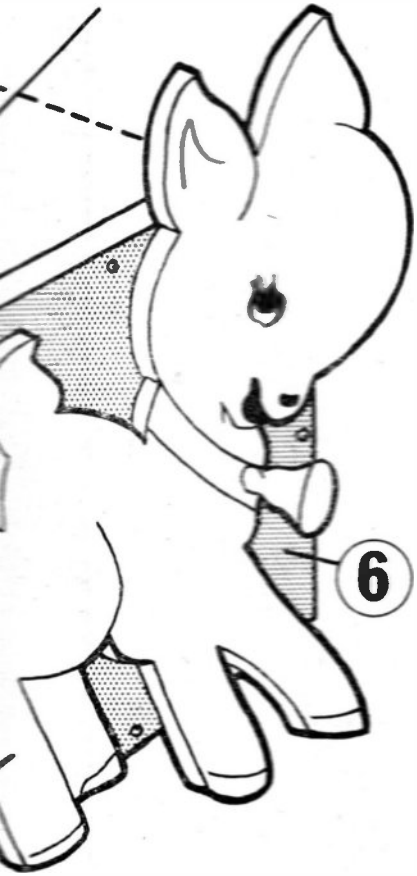


THE ARROWS INDICATE DIRECTION
OF GRAIN OF WOOD.

IENT SCREWED
CE 5

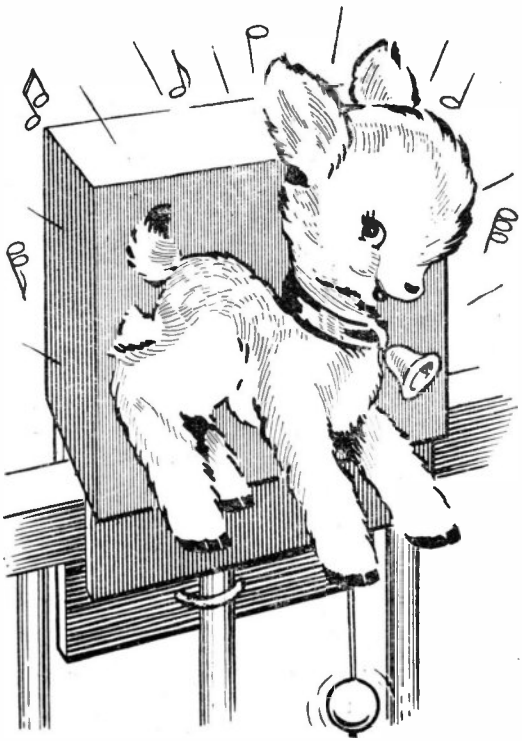
PULLEY REPLACES
WINDER KEY



Hobbies DESIGN

No. 3630

THE 'LULLABY' NOVELTY MUSICAL TOY



SIZE: APPROX. 4 in. WIDE.

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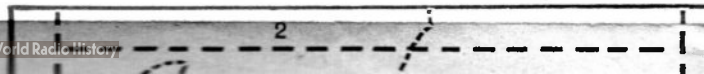
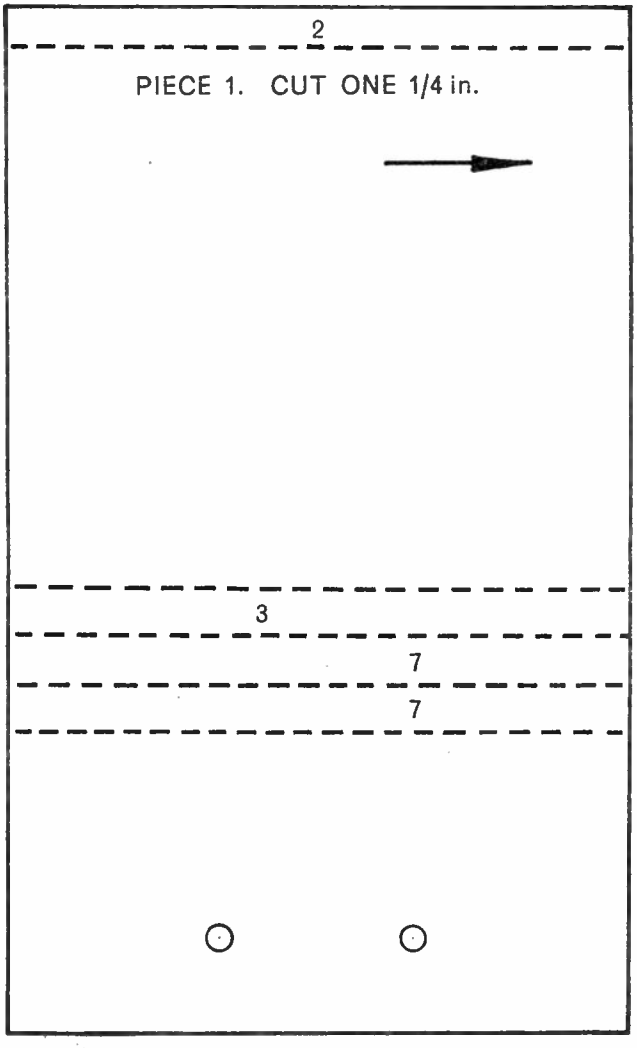
PIECE 6. CUT ONE 1/4 in.



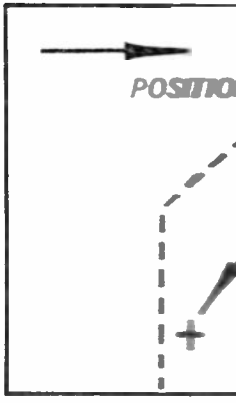
8

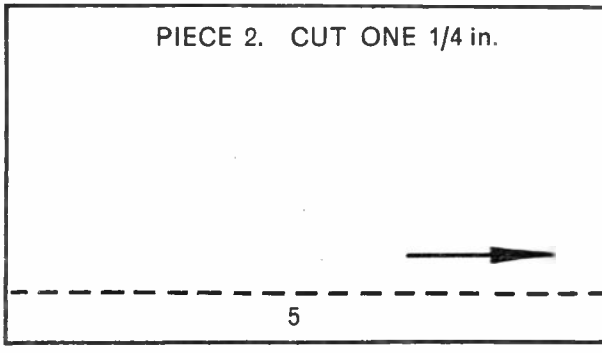
OVERLAY CONSISTING OF
ANY SUITABLE DECORETTE
TRANSFER ON 3/16 in. WOOD.

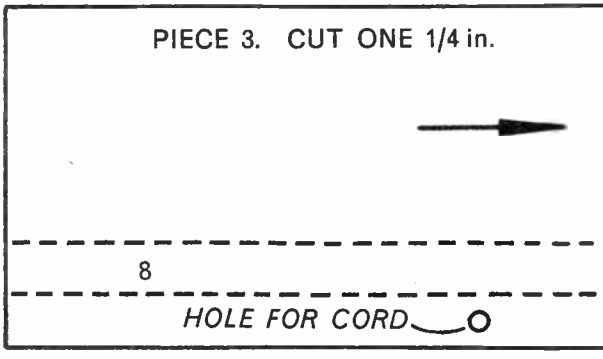
THE ARROWS INDICATE DIRECTION
OF GRAIN OF WOOD



PIECE 5.
CUT ONE 1/4 in.
GLUE TO PIECE 7.







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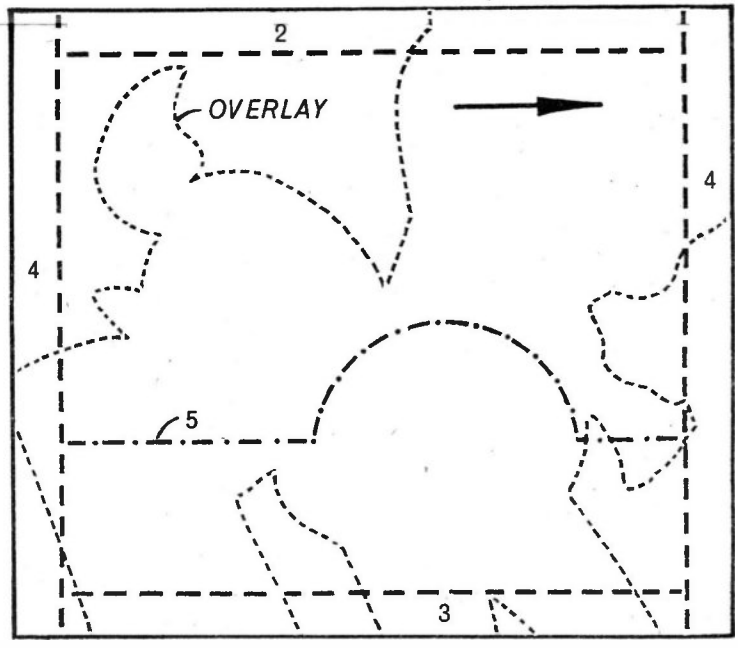
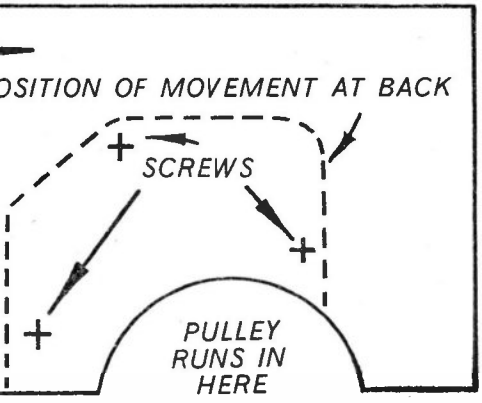
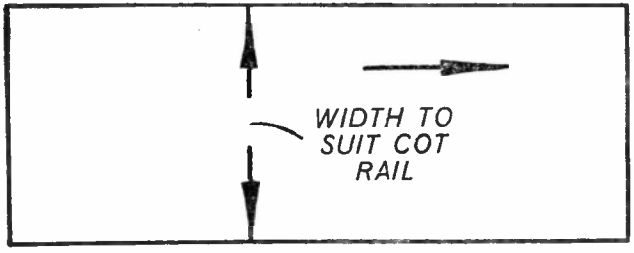
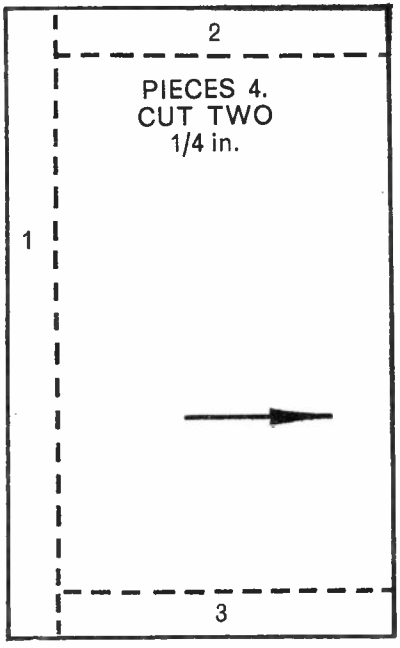
PIECE 6. CUT ONE 1/4 in.

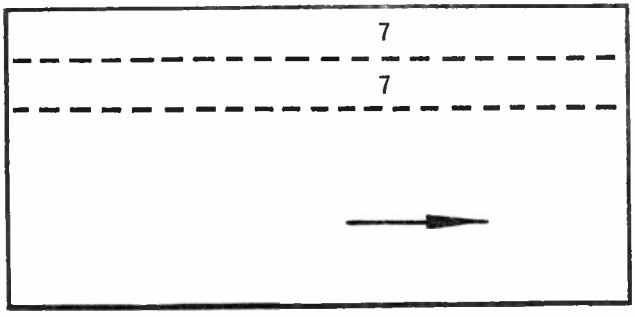




PIECES 7. CUT TWO 1/4 in.







PIECE 8. CUT ONE 1/4 in.