

6th SEPTEMBER 1961

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NUMBER 3430

THE ORIGINAL
'DO-IT-YOURSELF'
MAGAZINE

HOBBIES *weekly*

FOR ALL
HOME CRAFTSMEN

Also in this issue:

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FOR A WRINGER

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ETC. ETC.



FREE
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for this
charming
design

ZODIAC CLOCK



Up-to-the-minute ideas

Practical designs

Pleasant and profitable things to make

World Radio History

5^D



TWO stamps were issued by Hungary on 25th April to honour the first man in space — Major Yuri Gagarin. Another set was issued on 1st May commemorating May Day. Also in May the Hungarian Post Office issued four stamps commemorating the Soviet space rocket launched towards Venus.

Bulgaria has also issued stamps depicting Russian space achievements.

* * *



A set of stamps depicting 'Old Cars' has just been released in Monaco. These are likely to become popular, so order

from your usual dealer now. The one shown here features an 1898 Peugeot. Others are 1900 De Dion-Bouton, 1901 Fiat, 1901 Mercedes, 1906 Cadillac, 1910 Buick, and 1912 Chevrolet.

* * *



C. T. Rathod has sent this interesting photograph of the 'Boys' Boot-House', in Kamala Park, Bombay, India.



Latest issues recently received from Russia are: 'First Flight of Soviet Rocket to Venus', a 6 kopeks value. The Pjatnitsky Chorus Jubilee issue shows a Russian singer and folk dancers. The other stamp marks the centenary of the Soviet scientific magazine Vokrug Sveta.

15th April also saw the release of two multi-coloured stamps marking the Day of Freedom of African Peoples, shown below the Russian issues.

 ★ **TOO MANY FRIENDS?** ★
 ★ *Is it possible to have too many pen friends?* ★
 ★ *This question arises following a letter of thanks from a reader who says: 'I have had many replies since you printed my name and address in Hobbies Weekly. I have plenty of pen friends now and I was very surprised to find how wide the circulation of your magazine is, for I have had replies from Somaliland, Brunei and Malta. I have even had the pleasure of meeting one of my pen friends who wrote to me through an introduction in Hobbies Weekly, and who has come to England to study.'* ★
 ★ *'I should like to say thank you very much and ask you not to print my name again because I have plenty of pen friends now.'* ★
 ★ *****

AN American reader who writes 'I think your magazine is tops in its field', specializes in the collecting of pin-up girls, and old baseball players. He is willing to exchange with anyone with similar interests. Write to TOM BOSTON, 4763 Milwaukee Ave., Chicago 30, Illinois, U.S.A.

For more friends write to any of the following:

- Jayantilal B. Thakrar, P.O. Box No. 105, Tororo, Uganda, B.E. Africa. Stamps and labels.
- Kamal Yusif, 158 Griffith Street, Ebute Metta, Lagos. Stamps.
- D. F. S. Price, 8 Ingleby Crescent, Ermine Estate, Lincoln. Stamps.
- Ivan Andreyevich Semirik, Poste Restante, Odessa, Russia, U.S.S.R. Postcards.
- D. Macham, 90 Trent Street, Retford, Notts. Age 8. Stamps.
- Ludmila Baniova, P.O. Box 32, Chomutov, Czechoslovakia. Match labels and stamps.
- D. F. Goodchild, 45 Gordon Road, Cowes, I.O.W. Match and Cheese labels.
- A. C. Dass, Snow View Palace, King George's School, Chail, (Simla Hills), India. Age 15. Stamps and cards.

M. ABBTON of Block 2.-15.-0., P.E.C.H.S. Karachi - 29, Pakistan, would like to exchange stamps with other readers.

MISS B. SANDENAYAKA of Sanganitta Hall, University Park, Peradeniya, Ceylon, collects stamps, labels, and cards. She is 19 years old, and would like readers to write to her.

LIFE OF NELSON

THE 'Nelson' set of cigarette cards was issued by W. D. & H. O. Wills in 1905. Its present catalogue value is 50s. Od., but it is still obtainable from dealers. Examples from the set are shown below.

Horatio, Lord Nelson was born on 29th September 1758, at Burnham Thorpe, Norfolk. His father was rector of Burnham Thorpe and Nelson spent the first twelve years of his life at the rectory. The house was pulled down about 1820, but pictures of it have been preserved, and it is depicted on Card No. 1.

The coat worn by Nelson when he was shot at Trafalgar is preserved with other Nelson relics in the Upper Hall at Greenwich Hospital. It still carries the four orders which rendered Nelson conspicuous to the marksman of the *Redoubtable*, and is torn through beneath the strap of the epaulet where the bullet entered. It appears on Card No. 4.

Nelson's hat (No. 9) was evidently designed for use in severe weather, having a waterproof crown.

The Sultan of Turkey benefited enormously by Nelson's victory over the French at the Nile, and showed his gratitude with valuable presents. These

included a beautifully ornamented canteen of Turkish manufacture (No. 11).

Nelson's Favourite Grog Jug, a handsome piece of Wedgwood ware, with a classic representation in basso-relievo around it, appears on Card 13. It was the jug in which Nelson's 'hot-grog' was made every night.

After the Battle of the Nile, in which Nelson so decisively defeated the French, he received, amongst other gifts, a beautiful gold-hilted scimitar from the Sultan of Turkey — shown on Card 17.

Nelson's Sword (No. 18) was once the property of Admiral Walpole. It passed to his grand nephew, Capt. Suckling, by whom it was given to Nelson.

The life of Nelson was passed in such incessant warfare that all his articles of every-day use had associations with battle of some kind. His snuff-box, a small rectangular casket, was made from the timbers of *L'Orient*, the French Admiral's flagship, which Nelson destroyed at the Battle of the Nile. This snuff-box, shown on Card 21, is probably the most valuable in the world.

A silver-mounted Box of Oak was presented to Nelson in 1798 with the Freedom of the Borough of Thetford in Norfolk, by the Corporation of the

town, for his brilliant services to his country at the Battle of the Nile. This relic appears on Card 32.

The Victory's Anchor (No. 34), now serving as a monument on Southsea Common, near the spot where Nelson embarked on his last fateful voyage, is a fit emblem of the tenacity and endurance which made Nelson England's greatest naval hero.

Nelson's Autograph is depicted on Card 36. It is the earliest signature of Nelson known to exist.

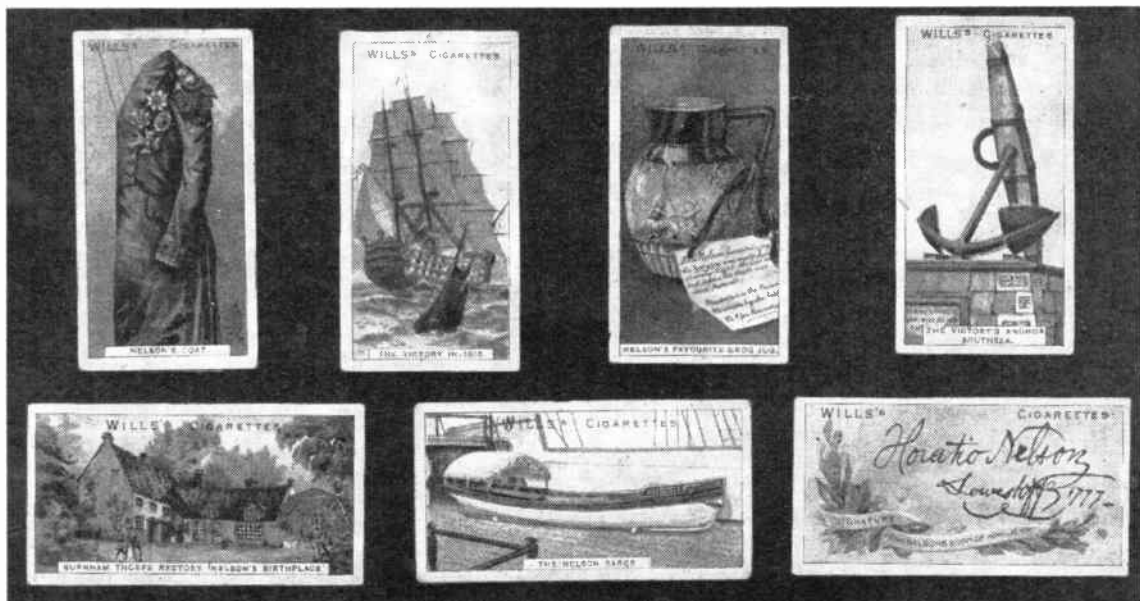
The Victory (No. 46) which earned immortal fame at Trafalgar as Nelson's flagship still exists at Portsmouth.

The Nelson Barge in which Nelson's body was borne in state from Greenwich to Westminster, on its way to St. Paul's for burial, is depicted on Card 48.

In March 1797 a Casket containing the Freedom of London was presented to Nelson for 'Gallant behaviour in defeating the Spanish Fleet'. This beautiful enamelled gold box is pictured on Card 47.

The Trafalgar Medal (No. 50) commemorating the victory of Trafalgar, was struck at the expense of Mr Bolton, Nelson's brother-in-law, and distributed by him to the officers and seamen of the fleet. The obverse shows a bust of Lord Nelson and the reverse a picture of the battle, which is encircled by a scroll bearing Nelson's immortal signal, 'England expects every man will do his duty'.

There will be other articles in this series of 'Cards in Circulation'. They should be kept by the collector as a basis for a personal catalogue.



'TAILORED' LAMP SHADES

FABRIC-COVERED lampshades are far superior to those made from other materials and it is often possible to match them with existing furnishings. Dainty silks, crepes and prints may be used while any of these can be even further enhanced by a second covering of fine lace net. The silk underlying the net dominates the tone and looks most attractive in the daytime, while the effect is further enhanced when the light is switched on.

Covers of this description are not difficult to make. The sewing is confined to stitching to the frame while planning is perhaps the same as with other materials. But when choosing a material you must avoid anything which is opaque and which would stop the light entirely. For this reason you will find that light-toned crepes, silks and taffetas are advisable.

First of all we have to bind the frame, which can be obtained in a variety of

By
Anne
Bradford

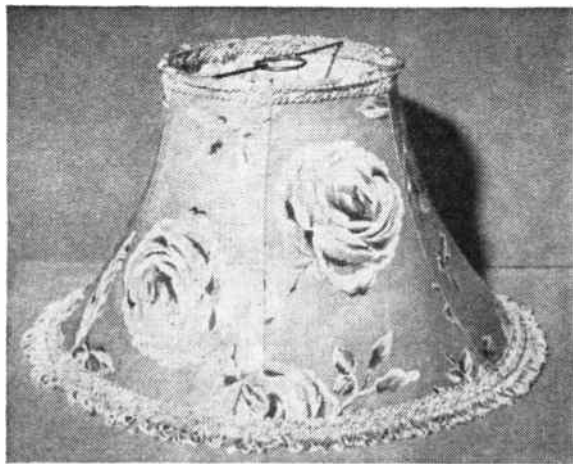


Fig. 1—A tailored lampshade with machine-stitched seams

shapes and sizes. The gimbal — the wire holding a ring for the lampholder — may be attached at the top for pendant shades, near the bottom for table lamps, or may be adjustable. This should be borne in mind when purchasing. If an old frame is being re-covered ensure that all the joints are sound, that the wires are straight and there is no rust. A little emery paper will correct the latter.

Taping the frame is one of the most important aspects of making a fabric-covered lampshade. If there are any awkward lumps they will show and if the tape is too slack the cover may sag in due course. So it is important that this initial preparation be done with care.

Bind all parts of the wire frame with the exception of the gimbal with bias binding, tape or strips of the same material being used for the cover. In the latter instance it is best to cut the material on the cross about $\frac{1}{2}$ in. wide, pressing one edge over to prevent fraying. You will find that ready-prepared $\frac{1}{2}$ in. bias binding in a matching colour is the best to work with since it is cut on the cross and will stretch a little.

Start with one of the vertical wires first and the horizontal ones last. The former require $1\frac{1}{2}$ times their length of binding while the latter require $4\frac{1}{2}$ times the diameter.

Cut a suitable length of binding for the first vertical stay, fold about $\frac{1}{2}$ in. over the top as in Fig. 2, holding this against the wire with the thumb and finger, and start wrapping. Wind the tape diagonally so

that each turn overlaps the preceding one. Make sure that each turn is tight. Fig. 3 shows the procedure. On reaching the bottom of this stay wrap the tape over and under the base wire, bringing the end through the loop as shown in Fig. 4. Pull the end taut and leave the surplus until later. All but one of the stays are similarly covered.

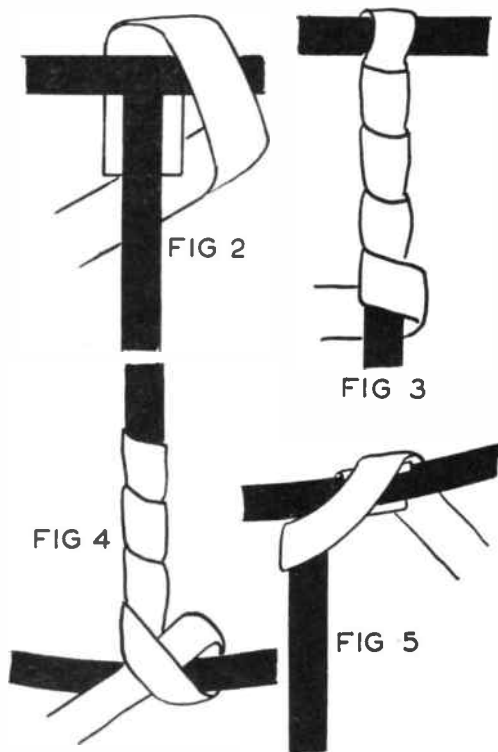
Now cut a length of binding for the top ring plus the remaining stay. Start at the top of the latter, fold the tape back around the horizontal wire and continue binding the ring as in Fig. 5. Wrap all the way round and continue down the uncovered stay to the bottom ring. Finally a piece of tape is prepared for wrapping the bottom ring. The loose ends at the base of the verticals can be wrapped in — but try to avoid any lumps. On completion of the taping hold the final end firmly in position with a pin and cut away the surplus, fastening tightly with a few stitches.

With the frame taped in this way we can sew on our fabric cover. The selected material should always be used on the cross and it will then stretch in all directions, obviating unsightly dragging or flabbiness in a panel.

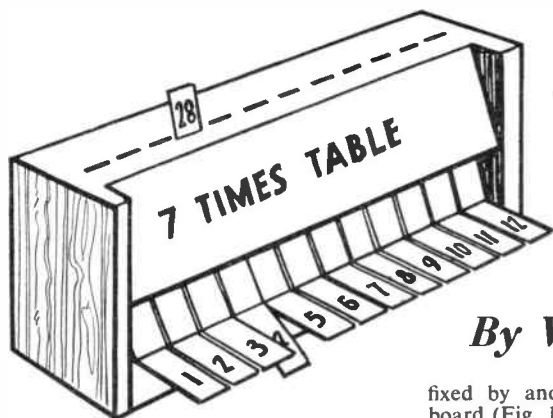
One of the speediest ways of making a cover is what we may term a tailoring process, where the sections for the panels are cut out and sewn together by machine. The resulting cover is placed over the frame and all that remains to be done is the fastening at the top and bottom rings plus the braiding.

This method is not suitable for all types of frames but very useful for the straight and concave types as shown in Fig. 1. Pin a suitably sized piece of material on to one panel of the wire frame. Mark the outline of the shape of the panel on to the material by rubbing with chalk, crayon or pencil around the wire shape.

● Continued on page 357



TEACH TABLES WITH A 'TILL'



By W. J. Smith

THIS idea for encouraging youngsters to learn multiplication tables is simple enough to make but surprisingly effective in home or school. Few people are able to resist the pressing of a button or lever. Children are no exception, and with this gadget learning becomes a pleasant game.

The 'till' can be made from wood or stout cardboard but a combination of the two gives the quickest and simplest results.

The 'till' consists of two parts — the

fixed by another 'hinge' to the base board (Fig. 1). Do this with a doubled over piece of tape. When the 'key' is tapped it will now rise and fall back again by its own weight.

Hinge all twelve keys to the base block, taking care to leave a small space between each to prevent binding.

The projecting pieces are clearly marked 1 to 12, and on the top of the long strips is written the 'answers' to any given table. For example, if the seven times table is required, the answers 7, 14 and 21 will appear on keys 1, 2 and 3, and so on up to 12.

At this point all the answers are exposed. As seen in the finished illustration, they are now covered by another card set between the end pieces of the stand, but at a reasonable distance from the long pieces and at a slight slope. This is to give the long pieces complete freedom of movement.

Now when a key is depressed the correct answer shoots up above the front

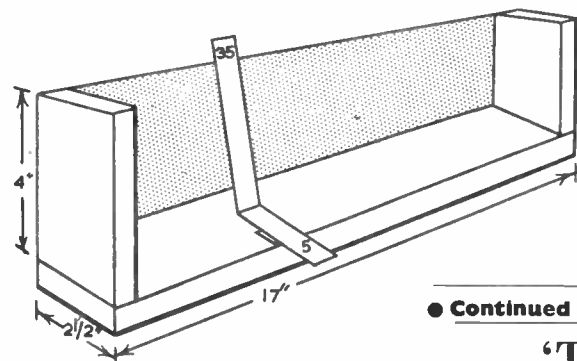


Fig. 1—Stand showing one key in position

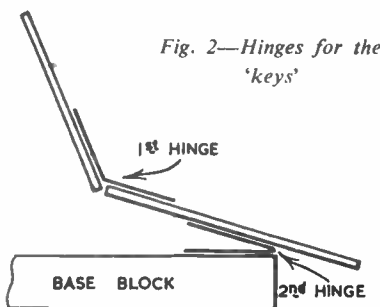


Fig. 2—Hinges for the 'keys'

board, after the manner of a shop till.

Two children using this together can play an instructive game — seeing who can get the most answers right — and the gadget is particularly recommended for youngsters who are backward in their tables and numbers.

For different multiplication tables more 'tills' can be made or alternative sets of answers provided as required.

● Continued from page 356

'TAILORED' LAMPSHADES

stand and the 'keys'. From a length of wood $2\frac{1}{2}$ in. wide by $\frac{1}{2}$ in. thick cut a base 17 in. long. At the ends fix two further pieces each 4 in. long. Back with a piece of stout card as seen in Fig. 1.

The 'keys' are made from strips of stout card 10 in. long by 1 in. wide. Cut twelve of them. Divide each one into lengths of 7 in. and 3 in. Join these lengths together again with a 'hinge' of bookbinding sticky tape or similar (Fig. 2.)

Now place the 7 in. length at a slight slope against the card at the back of the stand, leaving the 3 in. piece lying flat on the wooden base and projecting over it about $1\frac{1}{2}$ in. If this projection is depressed the larger piece of course shoots upwards, so the projecting piece must be

Allow a surplus of $\frac{1}{2}$ in. on all sides of the shape and cut out the panel. If your frame is symmetrical with, say, six identical panels you will require six pieces of material cut to the same shape.

These six pieces are now joined together by machine sewing and making French seams on the inside to give a firm, neat finish. If $\frac{1}{2}$ in. of material is taken up on the right side and $\frac{1}{4}$ in. on the wrong side when sewing this makes a French seam, the last row of stitching being exactly on the marking. Sewing up the panels in this fashion produces a tent-like shape without a top, each seam fitting exactly down a wire stay when it is placed over the frame. The cover is then adjusted so that there is an equal surplus at the top and bottom, which has to be fastened.

Start at the bottom, turn the surplus material over the bottom wire on to the inside, stitch to the taped wire with needle and thread, neatly trimming away any waste on the inside. When this has been completed you may attach the cover at the top after ensuring that each panel is taut and there is no dragging. The material must be pulled very tightly at this stage. The final stage concerns the addition of braid outside and inside the top rings; inside at the bottom with a matching fringe on the outside of the bottom. This method is very speedy if you are making a large shade for a standard lamp.

In a following article we will describe other methods of making fabric covers for shapes requiring different treatment.

FUN WITH INERTIA

WHEN the train starts with a sudden jolt, you are pressed backwards against your seat if you are sitting facing the direction of the train's motion. For a moment the train is moving forward and your body is being left behind. Later, when you and the train are both cruising along at the same speed, you no longer feel the invisible backward pressure which was really due to your inertia, or the natural preference of the matter in your body to remain undisturbed. If, when the train is slowing down alongside a platform, you are unwise enough to leap out casually on to the station, you may suffer the unpleasant consequences of your body's unwillingness to be brought to a sudden halt, and be thrown painfully flat upon

laziness of matter — the tendency of matter to continue undisturbed in its present condition in time and space. Even when a force is applied to an object, there will be a period of time during which the object's present state of inertia must be overcome. This latter

strong rope firmly around its middle. Suspend the book upon a thin string tied to the rope and attached to a secure point near the ceiling. Tie a second string to the rope, underneath the book, and let this string dangle downwards. If you now pull steadily upon the dangling cord, the weight of the book will be added to your applied force, and the upper string will snap at a point near the ceiling, causing the volume to come crashing down. If you had pulled the cord sharply, the string in your hand would have broken, and the book would have continued to hang from the

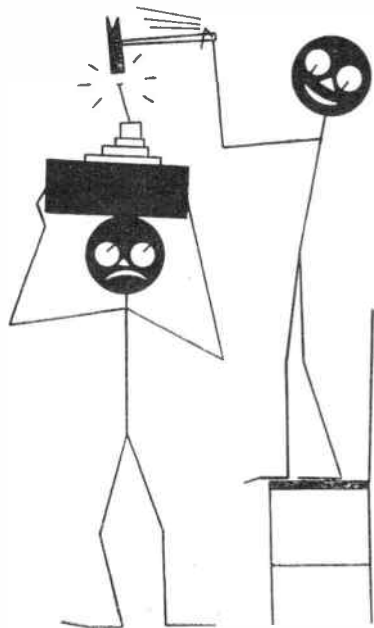
By A. E. Ward

fact is the principle of a surprising variety of dramatic experiments, and the keys to understanding many favourite tricks of clowns and jugglers.

Place a lady's silken headscarf upon a table, and rest a cup and saucer with a teaspoon, near the middle. Take the ends of the cloth nearest to your body between both hands, and give the cloth a quick and confident jerk. Stand well away from the table, so that you will be able to pull the cloth completely clear. The crockery should remain behind on the table if you do this boldly. To pause in your action is to court catastrophe, so do be quick. Practise this stunt well, using plastic utensils to start with, in case of accidents, and gradually add more items to your display as you gain experience. Set up your apparatus upon a small smooth-topped table, practise until you are able to pull the cloth away neatly every time, and you will then be master of an extremely smart and entertaining feat of jugglery.

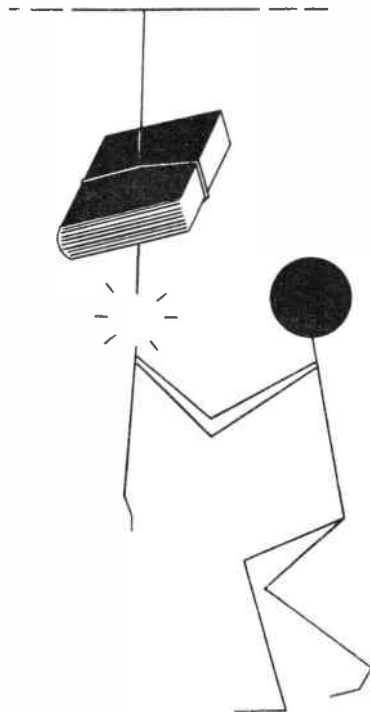
The inertia of a heavy mass at rest may be effectively illustrated when you support a weighty pile of books upon a friend's head, and then proceed to utilize the books as an anvil while you nail together two or three thick blocks of wood, using a 6 in. nail and a hammer weighing several pounds. Choose a selection of old books which together weigh about 20 lb., and ask your friend to rest them upon his head whilst he steadies the pile with his hands. There is great scope for humour and drama as you slowly mount upon a chair and commence your task of nailing the blocks together. Do not worry about hurting your helper though, as the force of the hammer blows will be safely absorbed by the massive inertia of the books. A circus strong man is well aware of this principle when he permits a committee of muscular young men armed with sledge hammers to smash a concrete slab which he supports upon his chest.

Select a heavy book and tie a length of



your face. Friction between your shoes and the platform bring your feet to rest fairly quickly, but the inertia of your body in motion will carry your upper parts forward and downwards to disaster.

The effects of inertia were summed up by Newton in his first Law of Motion which may be paraphrased thus: An object will remain in a state of rest, or continue to move onwards in a straight line and with undiminished velocity, unless that object is influenced by a force. Inertia may be called the inherent

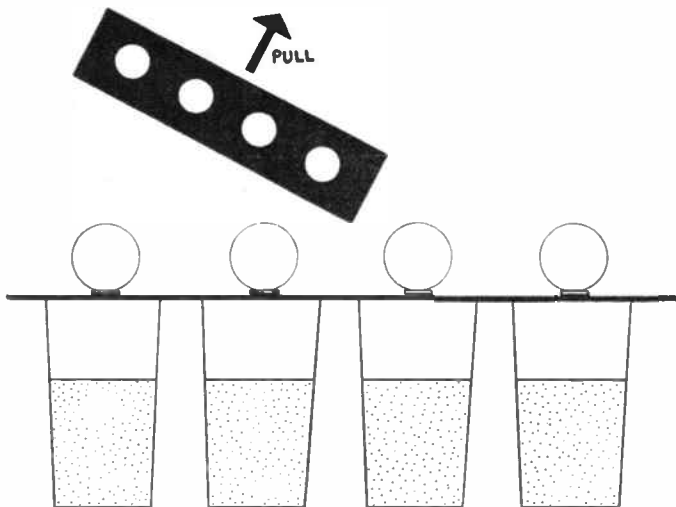


ceiling. In the second case you would have applied your force too quickly to overcome the natural inclination of the book to remain hanging in space.

Prepare two 6 in. long loops of thin string, and let them dangle from the sharp blades of two kitchen knives. Ask two of your friends if they will stand 5 ft. apart and each support one of the knives between both hands. Place a broom handle between the two loops, and let it hang, freely suspended from the string stirrups, upon the knife edges. Take a second broom handle, and

use it as a cudgel to smash the horizontal pole in the middle. Both poles may be broken into small parts, but inertia will prevent the force of your violent action from reaching the loops, which will remain intact upon the knife blades. In an old version of this experiment needles were pressed into the ends of the horizontal pole, and it was supported by the needles being rested upon the rims of delicate wine glasses placed upon tall stools with the same result.

Four glass tumblers, four ping pong balls, four miniature curtain rings, and a rectangle of stout cardboard measuring 6 in. by 18 in. will provide the apparatus for another pretty excursion into jugglery. Half fill the glasses with water, and stand them in a row, about 1 in. apart. Place the metal rings upon the drinking glasses, and steady the balls upon the rings. It will be helpful if you arrange the glasses near the edge of the table. Carefully take hold of one long edge of the cardboard, and pull it sharply away. For a moment the balls will remain still, irrespective of friction



between them, and the cardboard which will be rapidly pulled clear. Unsupported in space, the balls will respond to

gravity, and be pulled vertically downwards to splash precisely in their respective tumblers of water.

Make this Roll-a-Penny Game

YOU can enjoy all the fun of the fair by building this penny rolling game. Equally suitable for use by children or adults, with any number of players, it costs only a few shillings to construct from easily obtainable materials.

The principal requirement, which is hardboard of $\frac{1}{8}$ in. thickness, can be obtained ready cut to size. It is not essential to keep to the sizes given in the sketch, as the game can be made to dimensions which suit the top of your table. However, if the board is made smaller, the height of the chute should be decreased or the coin will leave it with too much speed and probably shoot on to the floor.

Take the hardboard panel intended

for the board, and clean up the edges with fine glasspaper. Give the smooth side a coat of ordinary decorators' size, then mark out the positions of the $2\frac{1}{2}$ in.

By A. E. Bensusan

squares with a pencil. Use a ruler to obtain straight lines and regular spacing. Paint the squares in a variety of colours — small left-over quantities of paint or enamel can be used up here — and, if possible, give the surrounding part of the board a coat of a different colour. The gayer the colours, the more attractive will the game be. Use a contrasting paint to put a scoring number on each square.

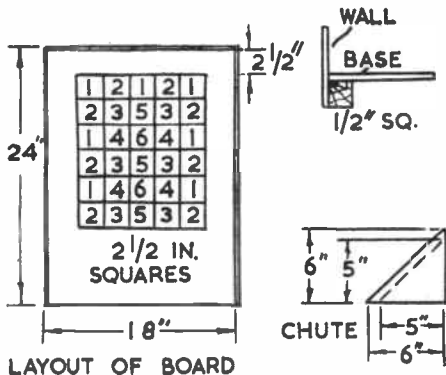
The walls, which guard the back and both sides of the board, are also cut from hardboard, with the smooth side inwards and they may be about 2 in. high. Attach the walls to the base by using strips of $\frac{1}{2}$ in. square wood located in the underside corners as shown in the diagram. The use of a strong glue and a few panel pins will make a sturdy unit. The walls may be painted to match the surrounding area of the board.

The chute is made from two large triangular shaped pieces of

hardboard, glued and pinned on either side of a smaller triangular piece of the same material. The smooth faces should be inward, and the entire chute may be painted after assembly.

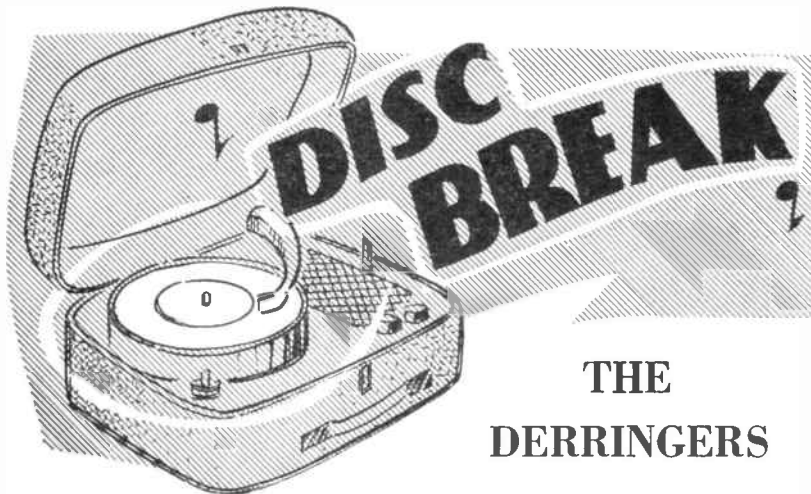
To play the game, the chute is placed near to the front end of the board, although it may be angled in any direction. Coins are allowed to run down the slope, without being pushed, and, to score, they must come to rest entirely within a square. The score is the number painted on that square. Coins which fall across a line earn no score.

A variation of the game may be made by having a wider chute to take a ball-bearing, and replacing the squares with numbered holes not quite large enough for the ball to pass right through.



Next week's issue will include details for making an occasional drop-leaf table for use indoors or outdoors.

**MAKE SURE OF
YOUR COPY**



THE DERRINGERS

WHEN a Capitol recording manager named a new singing duo, 'The Derringers,' he cracked, 'It's because they're as hot as a pistol.' Corny, but true!

Though they became known as 'The Derringers' with their first Capitol record, Len Mon and Jim Grimpe had been creating a sensation on America's West Coast ever since they started singing together at La Puente, California, High School a couple of years ago.

Their first Capitol disc — released here on 45-CL15189 — coupled a revival of 'The Drifters' hit, *True Love, True Love*, and their own composition, *Sheree*.

Len and Jim started out as musicians, singing only to add some variety to the little dance band Jim organized at

La Puente High School. Their sound turned out to be so unique it was the hit of every date the band played. When not singing, Len plays the double bass, and Jim plays 'every instrument except violin and clarinet'.

Len was born on 18th April, 1941, in Mountaineer, New Mexico, and Jim on 18th September, 1939, in Pittsburgh, Pennsylvania. Both are part-time students at Mt. San Antonio College near their homes in La Puente.

Between the two of them they've written about fifty songs. Often friends gather at one of their houses to listen to new songs, some of which they dream up while the gang is gathered around the piano.

'It's a great way to find out what songs might be hits', said Jim.

Choose from your stamps and labels to illustrate this story of the Derringers.



ADRIANO Celentano — 'King of Rock 'n' Roll' they call him in Italy — was born in Milan in 1938.

While he was at college Adriano won a commercial diploma and started work at a watchmaker's shop. At this time

ADRIANO CELENTANO

music was only a hobby — he sang to his friends and occasionally entertained at local celebrations.

Eventually he was discovered by a talent scout who was organizing a show at the famous 'Palazzo del Ghiaccio'

in Milan. The scout persuaded Adriano to give up his job on the strength of a contract with the show — and Adriano made his first break into the show-business world.

The fans adored him. He was an entertainer who sounded a little like Elvis Presley, a lot like himself, and looked like Jerry Lewis.

After this overnight sensation at the 'Palazzo' Adriano was surrounded by promoters wanting to book him for tours over all Italy. And very soon he became Italy's top all-round entertainer.

Then Adriano Celentano wanted to try his talents in this country — and his first disc release over here was on Columbia 45-DB4611 entitled *24 Mila Baci* and *Auli Ulo*.

Stamps and labels with an Italian theme would illustrate the story of Adriano Celentano.

ZODIAC CLOCK

THIS delicate and unusual piece of work takes the form of a charming clock embodying the signs of the Zodiac. It is executed in 'gold dust' Waverite backed by wood, and placed on a suitable stand.

Clean cutting and a careful finish should be ensured for this design, which is made to take a Hobbies No. 5516 clock with a reliable 30-hour movement. It is entirely suitable for any room in the house, and makes an admirable and unusual gift.

With the exception of piece 2, which is a plain piece of $\frac{1}{2}$ in. wood measuring 6 in. by 4 in., all the parts are shown full size on the design sheet.

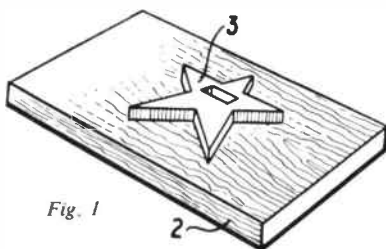


Fig. 1

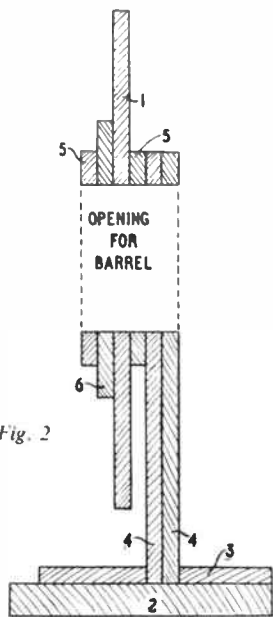
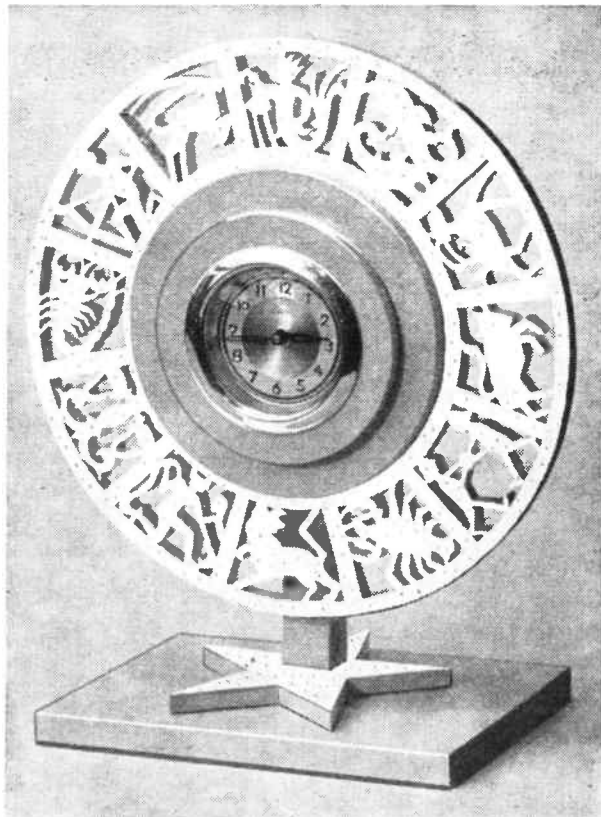


Fig. 2

SECTION

**Instructions
for
making this
charming
timepiece**



First of all, glue a 12 in. by 9 in. piece of Waverite ('gold dust on white') to a piece of $\frac{1}{4}$ in. plywood of similar size. Cascamite One-Shot glue is recommended for the adhesion of plastic to wood. Trace pieces 1 and 3, and transfer them to the Waverite panel which has just been prepared, using carbon paper. Then cut out the design very carefully with a fine-grade saw, drilling for the interior frets as required. When cutting, ensure that the saw is kept upright, and adhere to the outlines as closely as possible. Pieces 4, 5, and 6 are cut from $\frac{1}{4}$ in. fretwood, after tracing and transferring their shapes from the design sheet.

To commence assembly, glue piece 3 with the plastic side uppermost to the base as shown in Fig. 1. Study the section in Fig. 2 to see the relative positions of the various pieces which will next be glued together. Since the pieces must be clamped together or placed under weights when gluing, it is convenient to join them together in pairs, for example, pieces 4 and 4, 1 and 5, 5 and 6. Afterwards glue the whole together, and glue the uprights (4) into the star (3).

Now clean up the model thoroughly

with glasspaper, and fill the grain, particularly on the base and the edges of the wood. Give one flat white undercoat to all wood surfaces, and finish with a pale blue top coat. Do not worry about getting paint on the Waverite surface, as this can easily be wiped off with a turps rag before it has dried out.

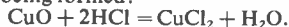
The clock is fixed in the barrel by removing the back and inserting from the front. Then replace the back, and tighten up with the nuts.

GET A HOBBIES KIT

Hobbies Kit No. 3430 for making this distinctive Zodiac Clock contains all the necessary wood, Waverite, etc., and includes a reliable 30-hour clock movement. Kits from branches or direct from Hobbies Ltd, Dereham, Norfolk, price 29/9 (post 1/9 extra).

CHEMISTRY AT HOME

COPPER forms two normal chlorides; namely, cuprous chloride, Cu_2Cl_2 , and cupric chloride, $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$. Cupric chloride is readily prepared by warming 8 grams of cupric oxide, CuO , with 70 c.c. of dilute (10 per cent) hydrochloric acid, HCl , water, H_2O also being formed:



Filter the solution when no more cupric oxide appears to be dissolving.

EXPERIMENTS WITH CHLORIDES Part 2

Note that the solution is blue. Now boil it down to low bulk and then continue the evaporation on a water bath until it solidifies. Remove most of the greenish-

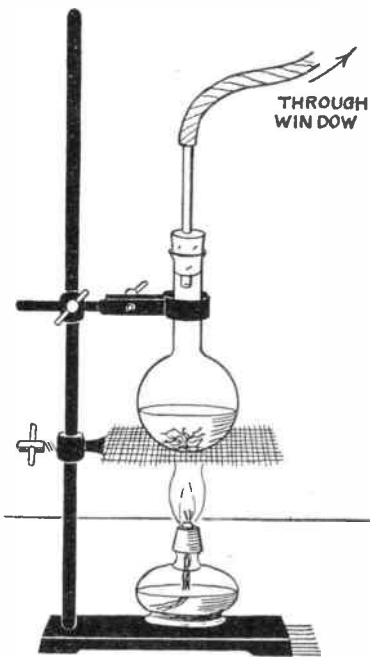


Fig. 1—Apparatus for preparing cuprous chloride

blue solid to a well-stoppered bottle and heat that remaining in the evaporating basin over wire gauze. It loses its water of crystallization and becomes the yellow anhydrous compound, CuCl_2 . Add a few drops of water. This strong solution is green. Now add more water. The solution turns blue. This is typical of cupric chloride solution — green when strong, blue when dilute.

Cuprous chloride may now be prepared by dissolving 2-3 grams of cupric chloride in 15 c.c. of strong hydrochloric acid (caution: corrosive to the skin; any on the fingers should be flushed off with water and wet sodium bicarbonate applied) in a flask and adding about three grams of copper wire, Cu . The mixture must now be warmed until it is nearly colourless, but as irritating fumes are evolved, fit an exhaust tube to the flask and lead it through a window (Fig. 1). The nearly decolorized liquid consists of a hydrochloric acid solution of cuprous chloride formed thus:



Now pour the solution into 150 c.c. of water taking care that none of the excess copper wire passes over. A white precipitate of cuprous chloride forms. Filter it off quickly, preferably with the aid of a filter pump, wash it once with water containing a few drops of hydrochloric acid, then with methylated spirit. Let it dry. Cuprous chloride is not very stable unless kept under rigid conditions, but if you leave it exposed to the air you will note it becomes green. This is due to its conversion to cupric oxychloride, $\text{CuCl}_2 \cdot 3\text{CuO} \cdot 4\text{H}_2\text{O}$:

$$2\text{Cu}_2\text{Cl}_2 + \text{O}_2 + 5\text{H}_2\text{O} = \text{CuCl}_2 \cdot 3\text{CuO} \cdot 4\text{H}_2\text{O} + 2\text{HCl}.$$

Ink blotter

This oxychloride occurs naturally as a beautiful green crystalline mineral, atacamite, in the Atacama Desert of South America. Not only is it used as a source of metallic copper, but it was also used when finely ground as a substitute for blotting paper, being sprinkled over the wet ink.

Bismuth chloride, BiCl_3 , is a white very deliquescent solid and so in the home laboratory is best prepared as a solution. First dilute 9 c.c. of strong hydrochloric acid with 4-5 c.c. of water. To this add gradually 5-16 grams of bismuth oxycarbonate, $[(\text{BiO})_2\text{CO}_3]_2 \cdot \text{H}_2\text{O}$. Carbon dioxide, CO_2 , is evolved:



When carbon dioxide evolution slackens warm the liquid with frequent stirring until solution is complete. The bismuth chloride solution so formed may be stored for use.

It will be noted if you dip a slip of blue litmus paper in the solution that it is acid. In fact, it contains free hydrochloric acid. This is essential, since bismuth chloride decomposes in pure water. Let us see why.

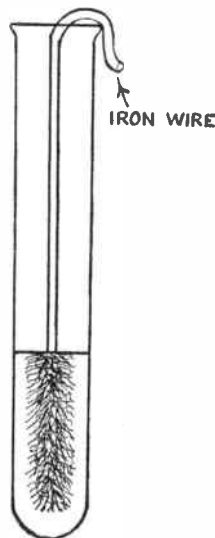


Fig. 2—
'Growing'
metallic
bismuth

Pour half of the solution into 100 c.c. of water. A white precipitate forms. This is bismuth oxychloride, BiOCl :



The large proportion of water renders the acid so dilute as to be incapable of holding the bismuth chloride in solution. Take a little of the precipitate and add hydrochloric acid. It at once redissolves. Filter off the bismuth oxychloride and wash it on the filter until one wash water is no longer acid, that is, it does not redden blue litmus paper. The compound may then be allowed to dry for your stock.

'Sausage' growth

An interesting experiment is to observe the action of iron, Fe , on the bismuth chloride solution. Stand a length of clean iron wire in some of the solution in a test tube. The immersed metal soon acquires a fat, black sausage-like growth (Fig. 2). This is metallic bismuth formed by displacement:



On a larger scale this may be used in the laboratory for the easy preparation

● Continued on page 364

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A STURDY STAND FOR A WRINGER

and are well within the capabilities of the handyman.

The general measurements and construction are shown in Fig. 1. An overall height of about 36 in. will be sufficient, but can be altered to a comfortable working position to suit individual requirements. Measurements will of course be checked against the actual wringer being used.

Commence by constructing the main frame, pieces A and B. Piece B is 3 in. by 1½ in. and pieces A 2 in. by 1½ in. The joint is made up as indicated in Fig. 2. Mark out the joints accurately and allow for the saw kerf when cutting. The joint will be glued and also secured by dowels and screws as shown.

The cross braces (C and D) of 1½ in. by 1 in. wood are halved together and screwed to the bases of pieces A as seen in Fig. 3. The position is also clearly shown in the end view of Fig. 1.

filler. Give two undercoats and one top coat, rubbing down after the second undercoat. The result will be a fine high gloss finish. (M.h.)

● Continued from page 362

Chlorides—Part 2

of metallic bismuth. To purify it, remove it from the iron, wash it well with water and dry it in a warm place. The metal is obtained in powder form.

The preparation of stannous chloride, $\text{SnCl}_2 \cdot 2\text{H}_2\text{O}$, is tedious in the home laboratory, and in any case is one of the commonest salts in one's stock. A spectacular experiment can be done with its solution. Cut a piece of sheet zinc, Zn, into the shape of a bare-branched tree. Dissolve 4 grams of stannous chloride in 80 c.c. of water, filter from the white precipitate of stannous oxychloride, $\text{Sn}(\text{OH})\text{Cl}$, formed thus:

$\text{SnCl}_2 + \text{H}_2\text{O} = \text{Sn}(\text{OH})\text{Cl} + \text{HCl}$,
and stand the tree in one's filtrate. The bare tree at once begins to sprout a grey mossy growth, soon interspersed with silvery leaves, due to the displacement of the tin, Sn, by the zinc:

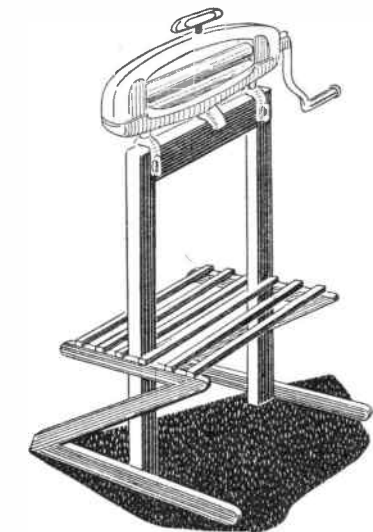
$\text{SnCl}_2 + \text{Zn} = \text{Sn} + \text{ZnCl}_2$ (zinc chloride).

The 'foliage' consists, of course, of metallic tin.

Scarlet Dye

Stannous chloride has been largely used as a mordant in the dyeing of scarlet military uniforms. Wet out about 1 gram of clean white woven wool in boiling water. Wring out the wool and put in a beaker with enough hot water easily to cover it. Add 0.06 gram of stannous chloride and the same weight of potassium hydrogen tartrate (cream of tartar), $\text{KHC}_4\text{H}_4\text{O}_6$. Boil for 45 minutes with constant stirring. Remove and rinse the wool, which is now mordanted and capable of fixing cochineal, which is the basis of the scarlet dye.

Put into a beaker a volume of cold water similar to that used for the mordanting, colour it well with cochineal and enter the wool. Heat up to boiling, stirring constantly. Continue boiling and stirring until the wool is well coloured. Remove it and rinse it well. The wool is dyed a fine fast scarlet.



MADE from good quality deal and painted with high gloss enamel, this stand will be a useful and attractive addition to the kitchen. The joints are not particularly difficult

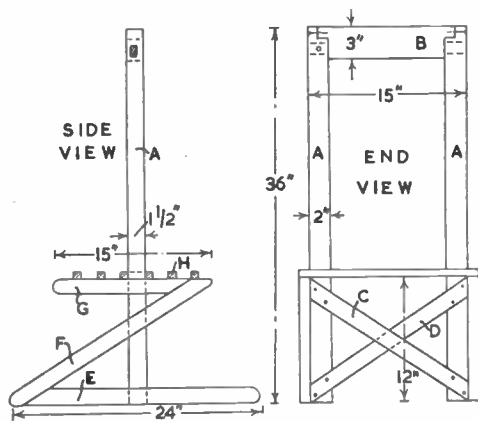


Fig. 1

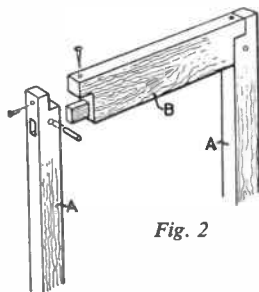


Fig. 2

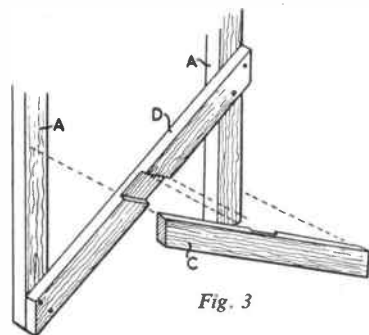


Fig. 3

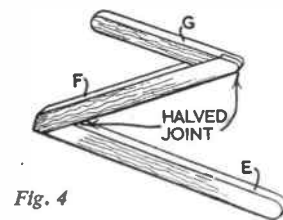


Fig. 4

Next halve pieces E, F and G together as in Fig. 4. The joints may be glued as well as screwed. These pieces are now fixed to the uprights as seen in the side view in Fig. 1.

The cross laths H are of ¾ in. square stripwood. They are spaced equidistantly along pieces G and secured by nailing or screwing.

Clean up well with coarse and fine glasspaper and fill the grain with wood-

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Replies to Readers

...rectly... is a brush polisher... fully... was made by fixing... to charge a 12V. battery, as... should over a stou... (V. and 15V... more.)

Distorted Signal

I MADE the capacity coupled Transistor 2, then added the amplifier. Using a 3 ohm speaker the volume is good for Light and Home stations. To get distant stations I connected to outdoor aerial, but speaker distorts with the increased signal strength. Will you please tell me the reason and cure? (S.T. — Leyton).

DISTORTION as volume is increased is probably due to a transistor overloading. This may arise because the transistor is not intended to handle the large signal, or because the battery voltage is too low, or operating conditions unsuitable. For high volume,

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 output type transistors are required. Surplus transistors, or small audio type transistors may easily overload if high volume is attempted. As you seem to have good speaker volume, it seems likely that you have reached the limit which the transistors fitted can handle. If this volume is sufficient, a small variable or pre-set condenser can be added in series with the aerial, at the receiver. This will allow volume to be kept within limits when listening to local stations, with the outdoor aerial.

'Coal' Flower

YEARS ago one was able to buy some white powder which, when put on small lumps of coal in a bowl or saucer and watered, produced a fascinating sort of fungus which could be coloured by using coloured inks instead of water. Can you please tell me what the powder consisted of? (K.B. — Enfield).

THIS coal flower powder is common salt, but needs using in combination with ammonia. Its action is uncertain, and depends on dryness of the atmosphere and temperature conditions. Three tablespoons of ammonia (clear) and of 15 per cent strength, or more, two of salt and three of water are mixed and poured over the coal. Place in a warm room. Add daily a tablespoon of water and a teaspoon of salt.

Record Player Speeds

I AM interested in building a gram amplifier to use with an existing record player. The record player in question is a single speed 78 R.P.M. model. Is it possible to slow a motor down by using resistances in parallel in the motor power lines, experimenting to find the right strength, thus enabling me to play L.P. or E.P. records? (G.R. — Huddersfield).

IT is possible to slow down an electric motor by including a resistor in series with it. But, unfortunately, this is not very suitable when an exact speed is required, as would be so for record playing. When a resistor is used, the motor speed will increase, as the turning power required falls. As the pick-up comes nearer the centre of the record, friction is slightly reduced, and this can cause a slight increase in turntable speed. Changes in speed will vary the apparent pitch of musical items. For these reasons, multi-speed players usually have the motor running at full speed, and rubber rimmed friction wheels, or similar drives are brought in to give a little extra reduction ratio when other than 78 R.P.M. is required.

Finger printing

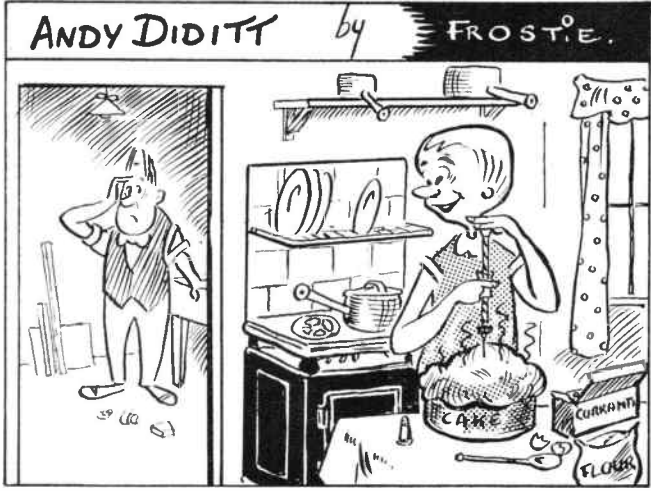
I AM having difficulty in getting finger-print powder and ink. Could you tell me the nearest place where I could get some? (K.R. — Ruislip).

SEVERAL fine powders may be used for the purpose required. Lycopodium or aluminium powder are widely used in criminology. Either may be obtained from a laboratory furnisher or from a pharmacist who deals with British Drug Houses Ltd. An ordinary black stamp pad answers well for finger printing ink use. A professional formula is glycerine 112 c.c., ferric chloride 10 grams, colloidal carbon black 1 gram, acetone 90 c.c. Shake all together until incorporated.

Making plaster copies

WOULD you please tell me a safe way of making plaster-of-paris copies of antique Dresden porcelain? What method should I use to ensure that the original figure will not be damaged? (A.S. — Ealing).

THE figures might be copied by making flexible moulds from them. To avoid damage they would have to be coated with a wax or other parting agent. They should be stood in a box or other container which can be dismantled, then synthetic rubber poured around them. When this has set, the box should be dismantled, and the rubber mould pulled away from the figure. We suggest you get advice from these firms who make suitable materials — Dohm Ltd, 167 Victoria Street, London, S.W.1. and Vinatex Ltd, Devonshire Road Carshalton, Surrey.

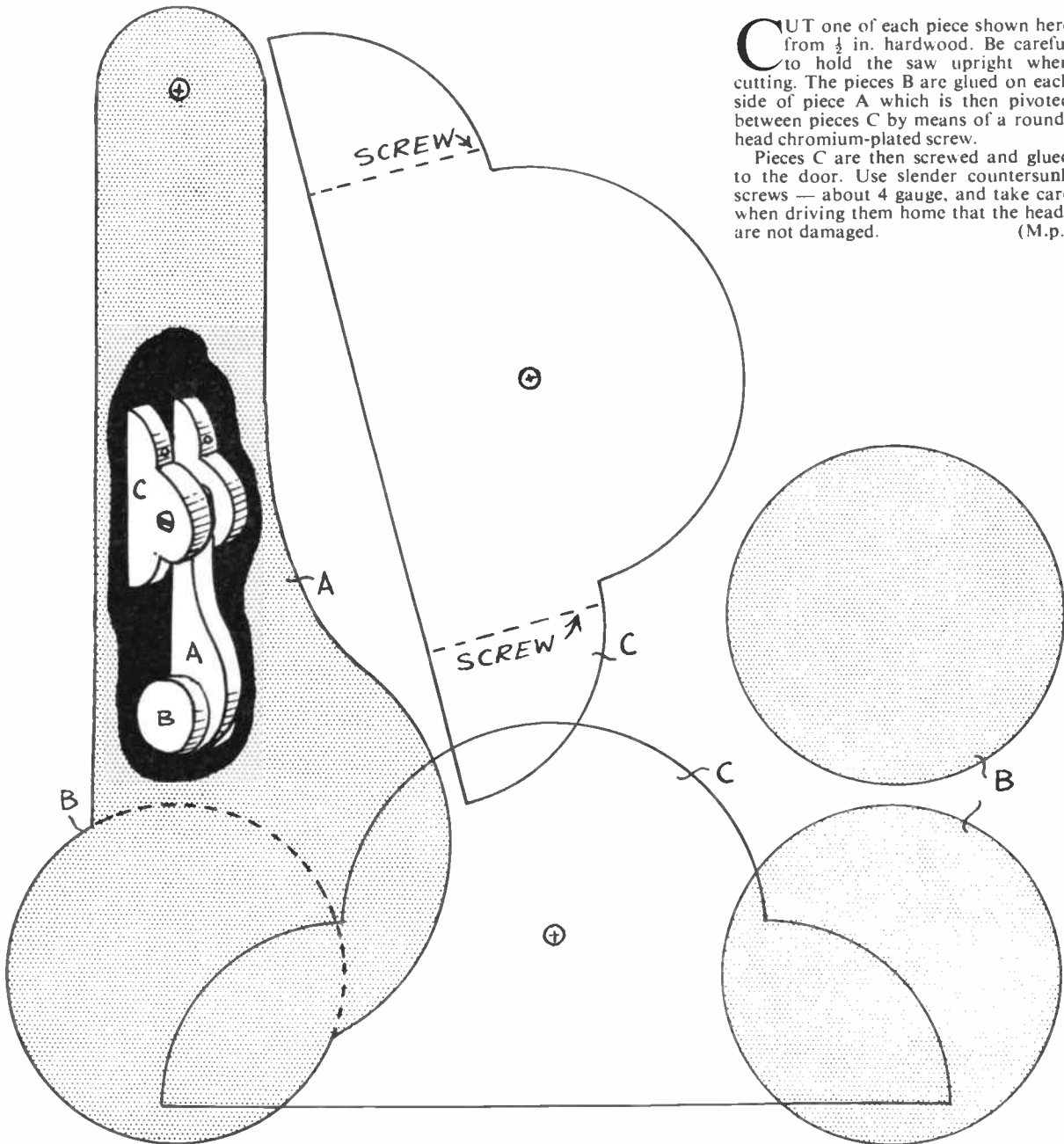


'I'VE GOT YOUR DRILL IN HERE, ANDY — I'D FORGOTTEN TO PUT THE CURRANTS IN MY CAKE.'

DISTINCTIVE DOOR KNOCKER

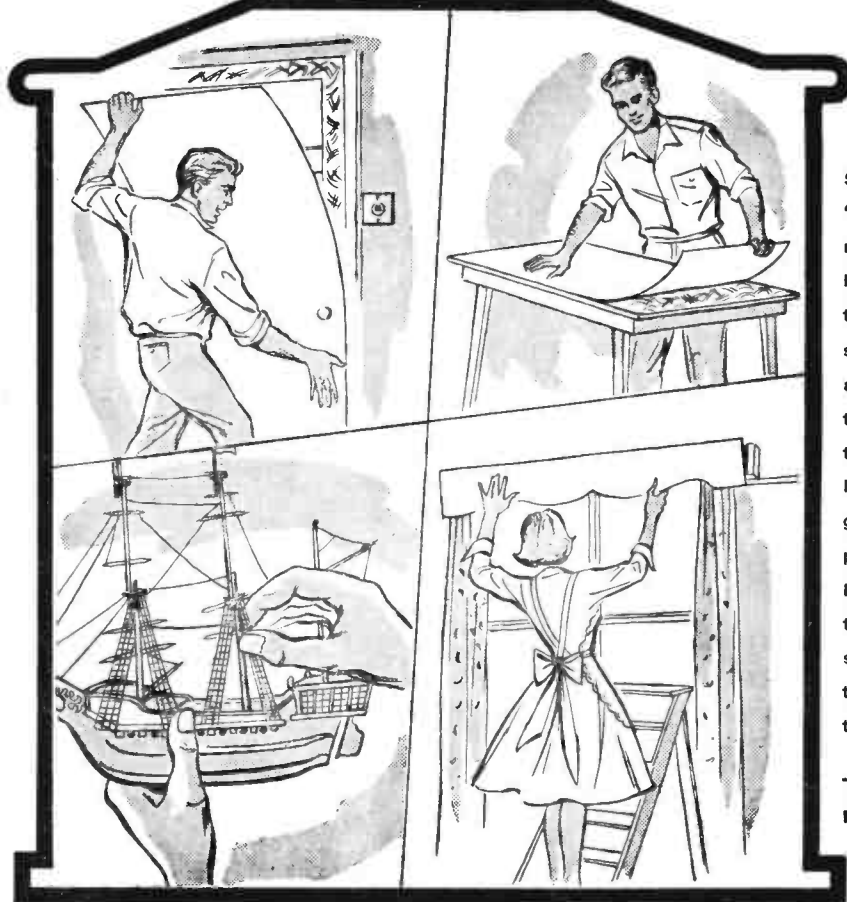
CUT one of each piece shown here from $\frac{1}{4}$ in. hardwood. Be careful to hold the saw upright when cutting. The pieces B are glued on each side of piece A which is then pivoted between pieces C by means of a round-head chromium-plated screw.

Pieces C are then screwed and glued to the door. Use slender countersunk screws — about 4 gauge, and take care when driving them home that the heads are not damaged. (M.p.)



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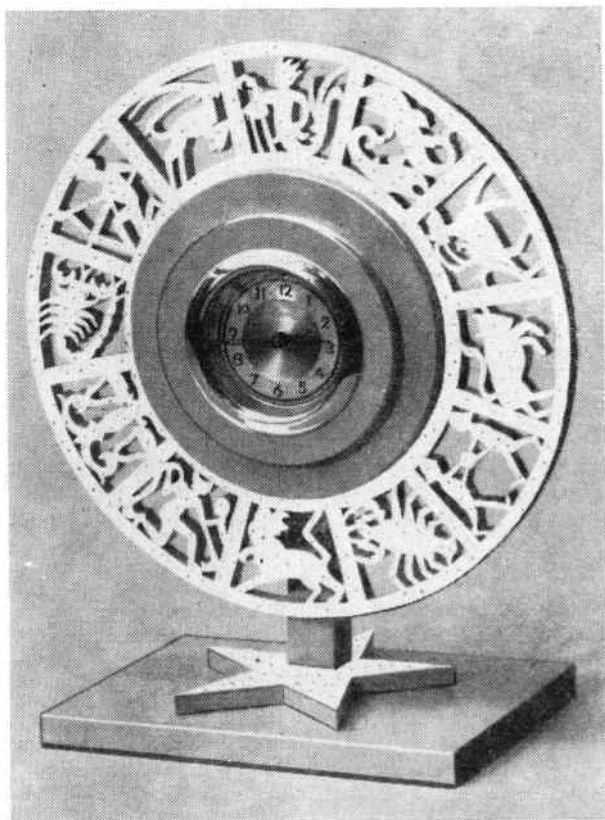


DESIGN

No. 3430

SIZE — 7 $\frac{3}{4}$ ins. WIDE
9 $\frac{1}{2}$ ins. HIGH.

THE ZODIAC CLOCK



A KIT OF MATERIALS FOR MAKING THIS DESIGN IS SUPPLIED BY HOBBIES LIMITED, DEREHAM, NORFOLK. PRICE ON APPLICATION.

PIECE 3.
CUT ONE
1/4 in. PLY. AND
WARERITE.

World Radio History

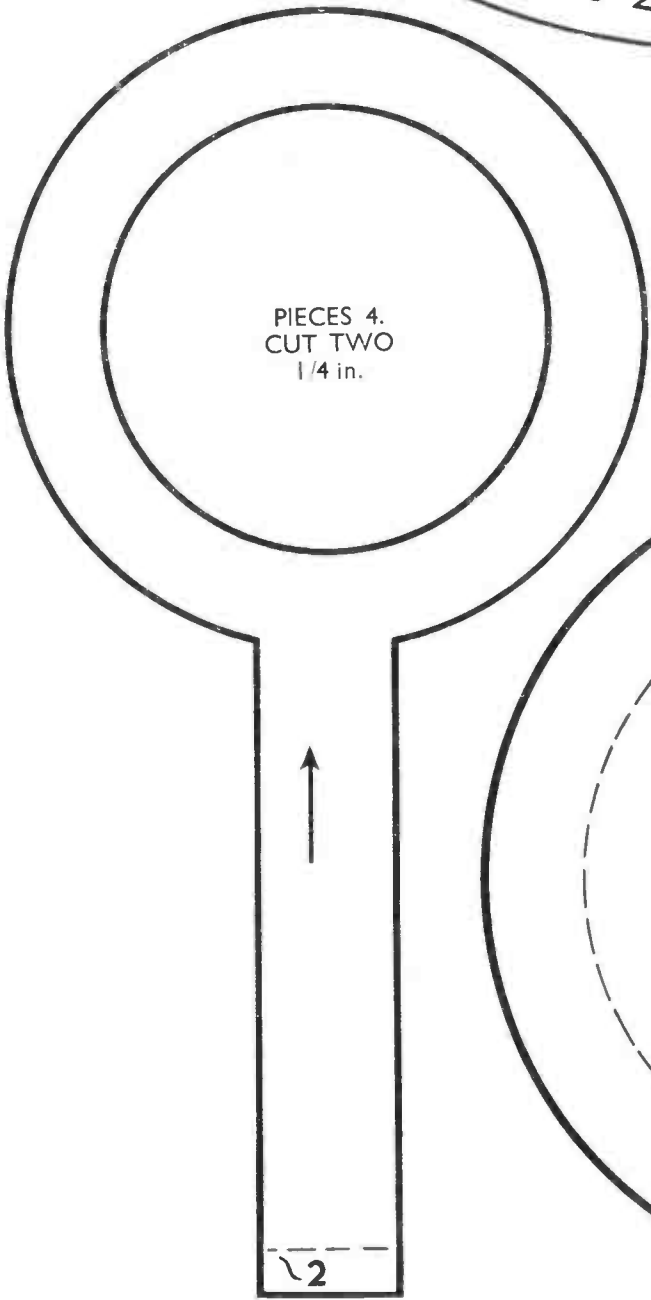
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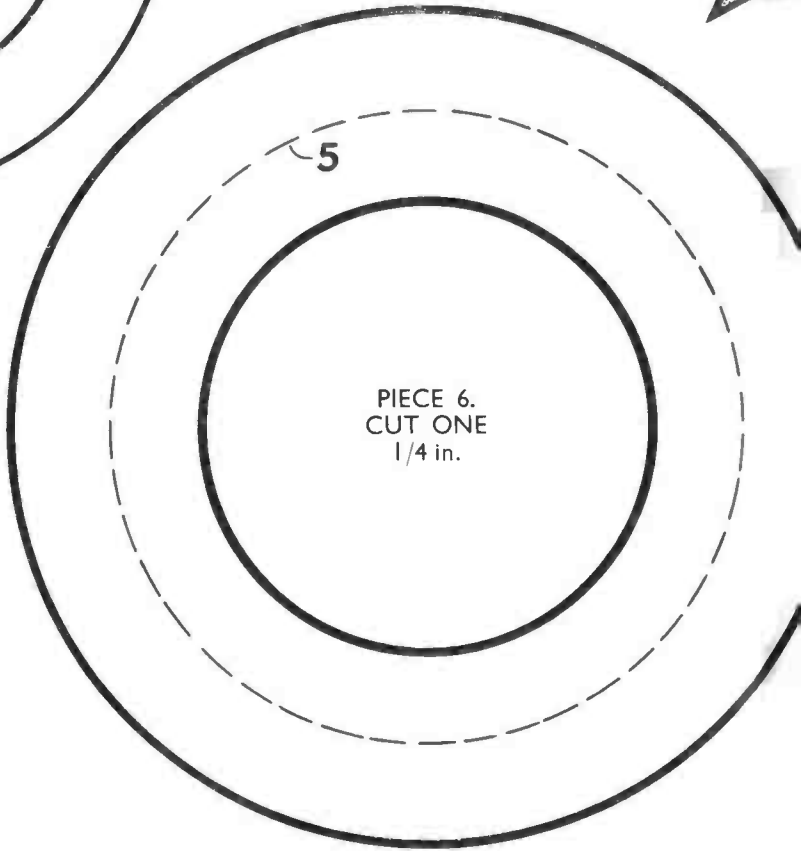
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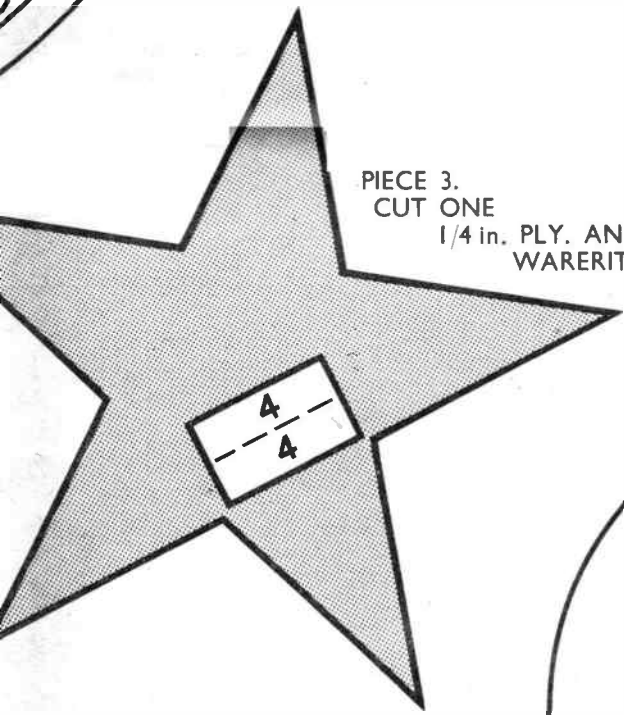


PIECES 4.
CUT TWO
1/4 in.

Note — CUT TO THE
OUTSIDE OF THICK
LINES.



PIECE 6.
CUT ONE
1/4 in.



PIECE 3.
CUT ONE
1/4 in. PLY. AND
WARERITE.

Use **CASCAMITE**
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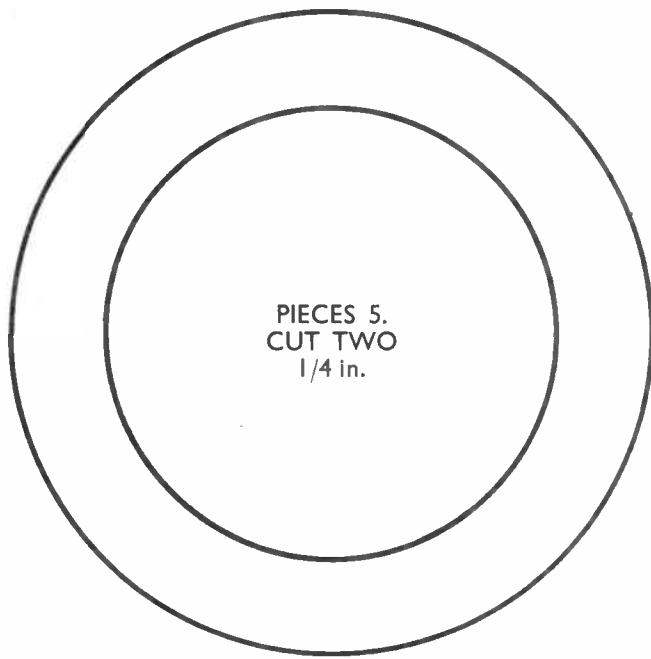
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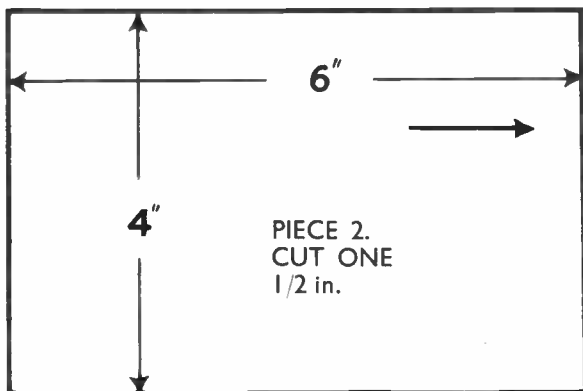
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CUT TWO
1/4 in.

THE ARROWS
INDICATE DIRECTION OF
GRAIN OF WOOD.



PIECE 2.
CUT ONE
1/2 in.

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