

# THE ATMOSPHERIC OPTIC MARVEL

MIKE SMITH



## THE OPTIC MARVEL

ILLUSTRATES IN A MOST REMARKABLE MANNER, THE  
*Natural Phenomenon of Persistence of Vision.*

The Method of using the Instrument is exceedingly simple.

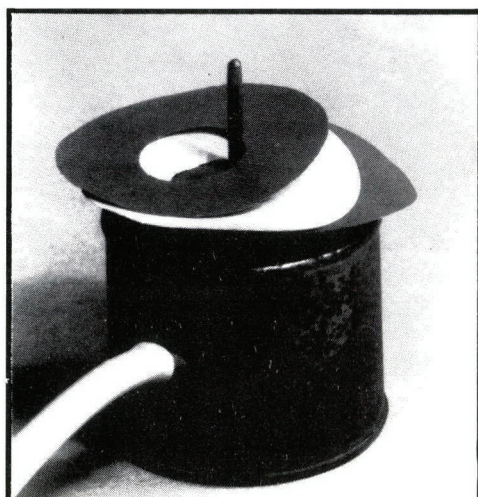
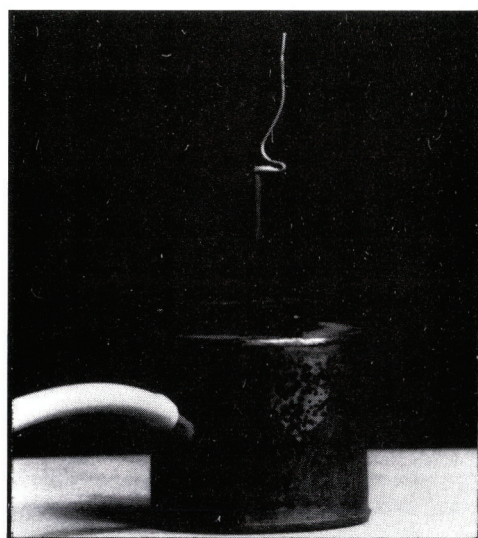
- 1st.—Take one of the SECTIONAL FORMS by the metal socket, and place it on the tube attached to the spinner.
- 2nd.—The Instrument is furnished with a flexible tube, through which air is blown, the air passing from small holes on to a series of fans, drives the circular table with great velocity.
- 3rd.—Hold the Instrument while in motion before any dark substance, and allow the light to fall upon it from one side only. On changing the subjects and following the above directions, a number of familiar forms will be evolved, the sudden production of which by such simple means, will excite the greatest surprise and amusement.

### THE CHAMELEON RINGS

Is another example of the same Phenomenon. The three Rings, Yellow, Blue and Red, being the primary colours (upon causing them to revolve with the spinner), will produce by their combination all the compound colours.

- Place on the spinner, first the yellow ring, then the blue, and the red one last. Set them in motion, and occasionally alter the position of the rings, by lightly touching them on the edges, while spinning, and the various changes produced, will be most remarkable and pleasing.

**Boxes of Extra Subjects for the Optic Marvel are supplied at a nominal Cost.**



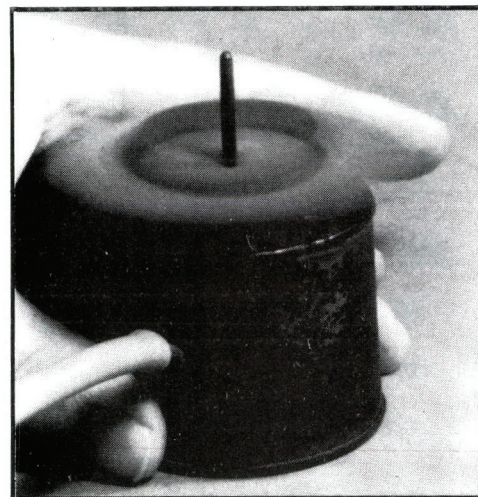
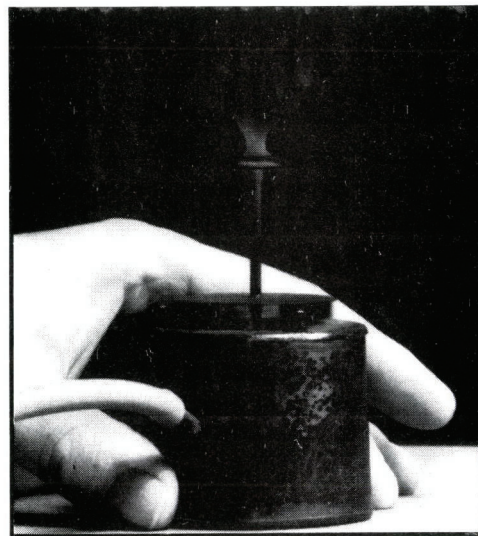
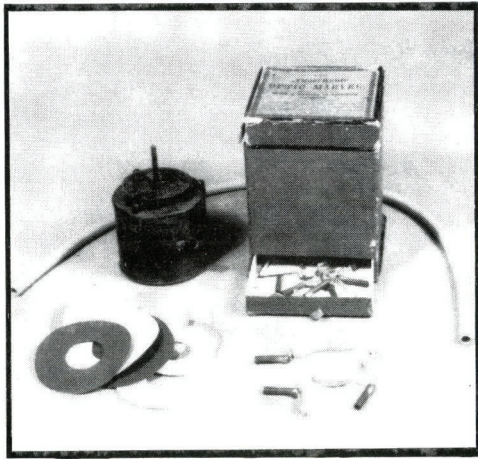
It is a pleasure to be able to share with you this rare and wonderful optical toy which recently has been added to my collection. It comprises a small drum into which air is blown through a rubber tube. The air is forced through three small holes on the top of the drum which drive a series of fans on the underside of the platform thus making the platform revolve. A pin is incorporated in the centre of the platform onto which is slotted one of the bent pieces of wire. There are ten such pieces, each being coloured to add to the effect produced when revolved at speed. The chameleon rings add a delightful second dimension to this marvellous piece of Victorian ingenuity.

Unlike the more familiar toys which demonstrate the phenomenon of persistence of vision, this little device is not, as far as I am aware, documented or illustrated in any contemporary

or more recent publication although reference is made in Hopwood's *Living Pictures* (1899) to 'The Optic Wonder' which could well be the same toy. I quote '... and here may be mentioned a very popular toy of thirty-odd years ago, brought out by the Stereoscopic Company under the name of "The Optic Wonder". In this a piece of wire bent to the outline of one side of a vase or the like symmetrical figure was made to revolve rapidly round its vertical axis and thereby gave the impression of a complete vessel.'

The toy illustrated here is complete in its original box with the maker's instruction sheet, but there is no name or mark to establish its origin. There is reference to other toys in both Hopwood and Cassell's *Popular Educator* which produce similar effects using pieces of bent wire but they are all derivatives of the colour top and do not use 'wind power' as the source of energy.





A method for constructing a device similar to that described and illustrated opposite by Mike Smith has subsequently been found by Lester Smith in *The Boy's Own Paper* for 24 January 1891.



## OUR OPEN COLUMN.

THE MAGIC POTTER'S WHEEL, AND HOW TO MAKE IT.  
BY A. F. S.

MANY readers of the B. O. P. are no doubt handy enough in the use of tools, but it often happens that an object upon which to exercise their ingenuity does not suggest itself to their minds at the time that they feel most inclined to apply their powers to the creation of an object that will give both satisfaction and amusement. I intend therefore to give a short account of an ingenious little contrivance which is very effective, and at the same time easy to make. The cost is almost nothing, the materials required being an empty round cocoa or mustard tin about 2½ inches in diameter, a piece of ¼ inch brass tube about an inch long, and a foot of ¼ inch rubber tubing. As regards tools, all that you will need will be an ordinary tinman's soldering iron, a small bradawl, and a strong pair of scissors. It will be well also to procure from a chemist a small quantity of spirit of salts (with a small piece of zinc dissolved in it), a pennyworth will be ample for all your requirements.

Now that we are supplied with all our materials we may set to work. Take the cocoa tin and remove the lid, which you may lay aside, as we shall want it presently. With the scissors cut off as much of the upper part of the tin as will make it equal in height to its diameter. Make a hole in the side about the middle with the bradawl, and enlarge it to about ¼ of an inch; this can easily be done with the point of the scissors. Now take the lid, and from the inside bore a small hole in its centre just large enough to admit of an ordinary paris-point nail being passed through it as far as the head; take your hot soldering-iron, and having first moistened both the head of the nail and the tin around it with spirit of salts, secure it in its place with a drop of solder, taking care that it stands perfectly upright. When you have done this you can put on the lid again and solder it in its place. It may be well to remark here that the tin should be perfectly air-tight, so be

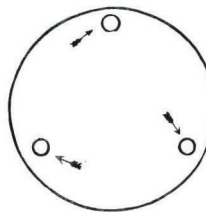


FIG. 1.

careful to examine all the seams, and see if there is no flaw anywhere in the soldering. Now get three ordinary percussion gun-caps, No. 11 or 12 will be best, and carefully remove the powder from them. This is best done by removing the foil covering, soaking them in water until the mixture is quite soft, and afterwards scraping it out with a pin. Be careful to remove every bit before

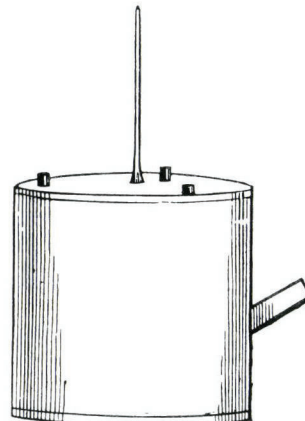


FIG. 2.

upper part of the lid, and over each hole place one of the caps, fixing them down with solder. Then in the

side, and near the top of each cap, as shown by the head of the arrows in Fig. 1, drill a small hole the size of an ordinary pin. Over the hole previously made in the side of the box, solder a piece of brass tube about 1 inch long, and the body of your machine is finished, the tin now having the appearance of Fig. 2.

The next thing to do is to cut out a circular disc of tin, of such a size as to easily fit into the space enclosed by the three caps, without quite touching any of them, and making a hole in its centre just large enough to admit of the upright nail being passed easily through it. With a pair of compasses divide this plate into eight equal parts, as shown by the lines in Fig. 3.

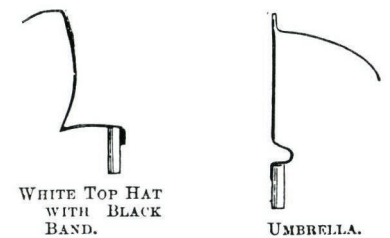


FIG. 3.

Now take your scissors and cut out eight pieces of tin ¼ of an inch wide and about ½ an inch long, bend them in a curve, and solder them on to the disc in the position shown in the figure.

After you have done this take a thin piece of tube either made of tin or, what is much better, a small piece of brass tubing, such as is used in the manufacture of model steam engines, ⅜ inch shorter than the length of the nail and just loosely fitting it, and solder it over the upper side of the hole made in the centre of the disc, close the top with a drop of solder, and our machine is complete. If you now place the disc upon the nail and blow into the rubber pipe affixed to the short brass tube in the side, the wheel should revolve rapidly and smoothly. It will be an improvement if you affix a small piece of lead, or stout glass tubing, to the rubber to act as a mouthpiece.

Now that we are in possession of our wheel we require some objects to use with it. These are very easily made, and may comprise an immense variety of subjects, from a top-hat to an egg-cup, in fact any spherical or circular object may be represented with the greatest truth. All that is necessary is to cut some small strips of tin about ⅛ of an inch wide, cover with tissue paper gummed on, and then bend them into the shape of one side of the outline of the object you intend to portray. Fix the ends of these strips with solder to a short piece of tin tube, exactly fitting the top of the wheel, paint them suitably with ordinary water-colour paints, slip them on to your machine, and blow into the mouthpiece. The accompanying diagrams will give an idea of a few of the objects most easily made, but as we mentioned before, their number may be multiplied almost *ad infinitum*. In conclusion, I would strongly recommend those of my readers who have a taste for mechanics to try their hand at this little machine, as, with a very small expenditure of time and patience, they should succeed in turning out an article which is sure to give satisfaction and amusement. The whole may be neatly finished, and made fit to place anywhere, by giving it a coat of lacquer made simply with shellac dissolved in spirits of wine, with the addition of any dry paint that may suit the taste of the maker.



WHITE TOP HAT  
WITH BLACK  
BAND.

UMBRELLA.



DISH-COVER  
(Bright tin).



VASE IN SAUCER

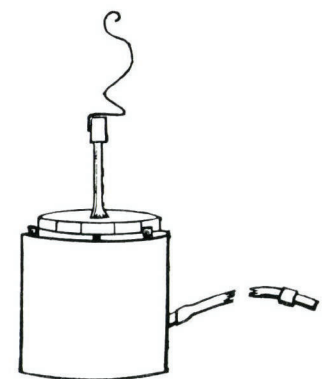


FIG. 4.