Sept. 25, 1956 A. OLLER, SR 2,764,057

OPTICAL TOY

Filed April 28, 1955

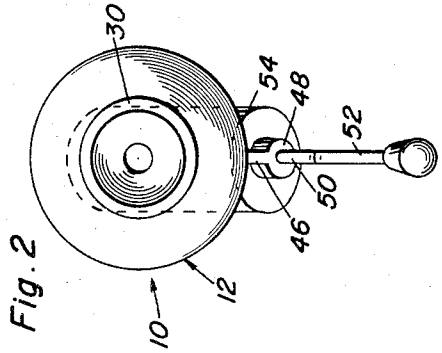


Fig. 2

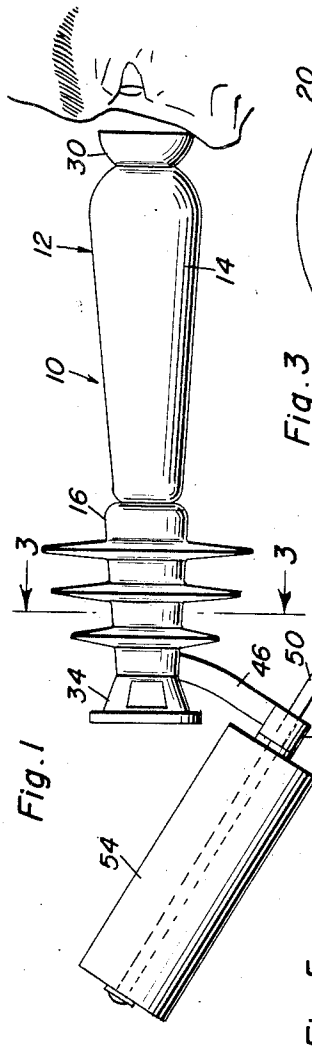


Fig. 1

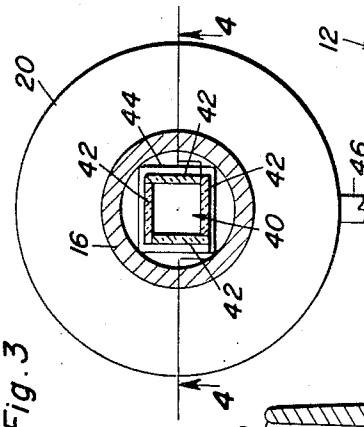


Fig. 3

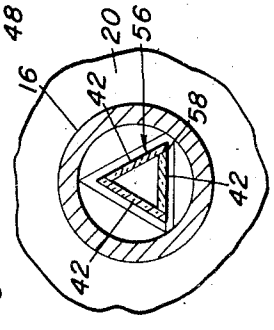


Fig. 5

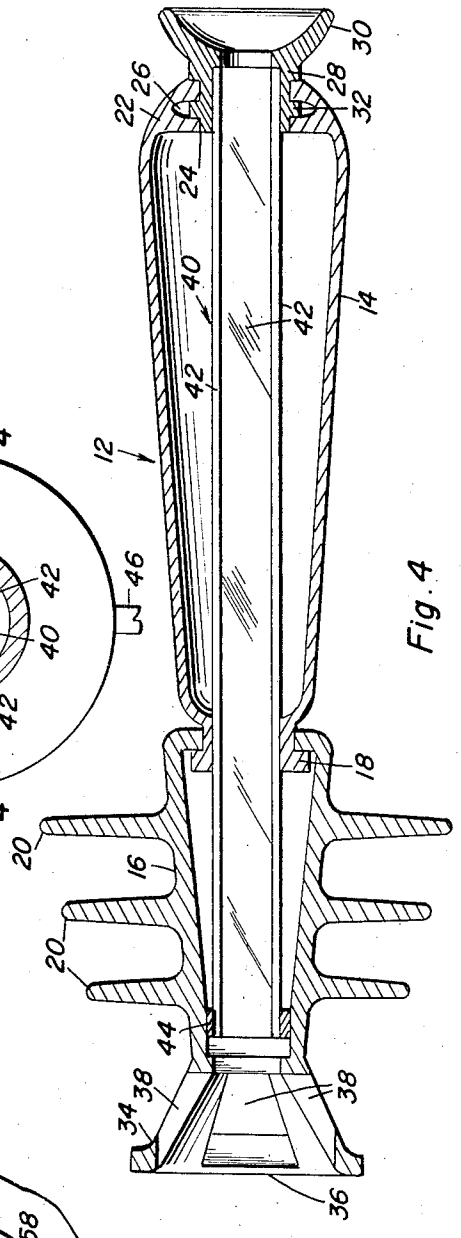


Fig. 4

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OPTICAL TOY

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Application April 28, 1955, Serial No. 504,605

1 Claim. (Cl. 88—15)

This invention relates to new and useful improvements in toys, and more specifically to an improve optical toy.

The primary object of this invention is to provide an optical toy which includes an elongated body having mounted at one end thereof an eye piece and at the opposite end thereof a light control member for controlling the light admitted to the opposite end of the body member, there being disposed within the body member a sight tube formed by a plurality of elongated strips of mirror arranged so as to be of a polygonal cross section whereby light and reflection entering into the light control member will be reflected back and forth on the mirrored surfaces of the sight so as to produce a pleasing and novel sight.

Still another object of this invention is to provide an improved optical toy which is in the form of a mirrored sight tube and which has mounted at a light receiving end thereof a drum, the drum being provided with suitable light reflecting material as a covering and being provided with a handle so that the drum may be rotated to vary the reflections passing through the sight tube.

A further object of this invention is to provide an optical toy of the type including an elongated sight tube formed of mirrored strips, the sight tube being provided at the light receiving end thereof with a drum having a covering of reflective material, the drum being rotatable and being disposed at a sloping angle to the axis of the sight tube in order that the reflections passing into the sight tube will be varied as the drum is rotated.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of the optical toy which is the subject of this invention and shows the same in use;

Figure 2 is an end elevational view of the optical toy of Figure 1 as viewed from the right in Figure 1;

Figure 3 is an enlarged transverse vertical sectional view taken substantially upon the plane indicated by the section line 3—3 of Figure 1 and shows the specific cross section of the optical toy;

Figure 4 is an enlarged longitudinal sectional view taken substantially upon the plane indicated by the section line 4—4 of Figure 3 and shows the specific details of construction of the optical toy; and

Figure 5 is an enlarged fragmentary sectional view similar to Figure 3 and shows a modified form of sight tube.

Referring now to the drawings in detail, it will be seen that there is illustrated an optical toy which is the subject of this invention, the optical toy being referred to in general by the reference numeral **10**. The optical toy **10** includes an elongated body which is referred to in general by the reference numeral **12**. The body **12** has been configurated to have the general appearance of a space ship and includes a forward tubular portion **14**

and a rear tubular portion **16**. The forward tubular portion has a flanged rear part **18** which is telescoped in and interlocked with the rear tube of the portion **16**. The rear tube of the portion **16** is provided with suitable ornamental fins **20**.

The forward portion **14** of the body **12** is provided at its forward end with a thickened part **22** having a bore **24** therethrough. Communicating with the bore is an annular ring **26**.

Disposed in the bore **24** is a reduced portion **28** of an eye piece **30** which is preferably formed of a plastic or metal material. The reduced portion **28** includes a central collar **32** which is received in the recess **26** to lock the eye piece **30** in place.

The rear portion **16** of the body **12** is in the form of a rearwardly flared light control member **34**. The light control member **34** includes a main light opening **36** which is disposed in alignment with the body **12**. The light control member **34** is also provided with circumferentially spaced secondary light entrances **38**.

Disposed within the body **12** is an elongated sight tube which is referred to in general by the reference numeral **40**. The sight tube **40** is polygonal in cross section and is formed by a plurality of elongated mirrored strips **42**. The mirrored strips **42** have their forward ends seated in the reduced portion **28** of the eye piece. The rear end of the mirrored strips **42** are seated in the rear part of the rear body portion **16** and positioned therein by a suitable mounting ring **44**. The opening at the forward end of the light control member **34** corresponds in shape to the sight tube **40**.

Carried by the rear portion **16** of the body **12** in depending relation from the bottom thereof is an arm **46** which is provided at the lower end thereof with an enlarged portion **48**. Passing through the enlarged portion **48** and rotatably mounted therein is a shaft **50** provided with a crank **52**. Mounted on the shaft **50** for rotation therewith is a drum **54** which is provided with a suitable reflective covering which have the design thereof varied throughout.

In the use of the present invention, the eye piece **30** is aligned with one side, and the crank **52** is turned. This results in rotation of the drum **54** in alignment with the sight tube **40**. Reflections from the drum **54** will enter into the light control member **34** and will reflect back and forth off of the rear surfaces of the mirrored strips **42**. As the drum **54** is rotated, the reflections will be varied inasmuch as that portion of the drum **54** which is in alignment with the sight tube **40** will also be varied. Due to the numerous reflections back and forth between the mirrored strips **42**, it will be readily apparent that dazzling reflections will be transmitted to the eye piece **30**.

As is best illustrated in Figure 3, the mirrored strips **42** of the sight tube **40** are disposed in generally rectangular arrangement. However, the sight tubes **40** may be of any desired polygonal cross section and the members of the strips **42** will be varied accordingly. For example, in Figure 5, there is illustrated a sight tube, which is referred to in general by the reference numeral **56** which is formed of three mirrored strips **42** so as to have a generally triangular cross section. The mounting ring for supporting the sight tube will be shaped accordingly, the mounting for the sight tube **56** being referred to by the reference numeral **58**.

It is reiterated at this time that the opening in the forward end of the light control member **34** should be of the same cross section as the cross section of the sight tube **40**. By so making the opening, the use of the mirrored strips **42** is hidden. Further, if circular openings are utilized, they will result in an optical illusion in the

form of multiple dots which will form the pattern picked up by the mirrored strips 42.

The use of the mirrored strips in geometrical arrangement permits the light rays to be cast on the reflecting surface of the mirrored strips inside the sight tube thereby forming a multiple pattern and causing an optical pattern to be seen from the eye piece end of the sight tube without the use of a lens. However, a lens may be used, if desired. When no object is in front of the rear opening of the sight tube, an optical illusion is still present. The optical illusion is in the form of geometrical figures.

It is pointed out that by utilizing this invention many hours of amusement may be obtained. On the other hand, the invention can also be used in many ways to create new designs for articles such as cloth, wall paper, plastics, etc. Further, the invention could be utilized as an attachement for a camera for photography and the like.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claim.

What is claimed as new is as follows:

A hand supported optical toy comprising a tubular body member, an eye piece mounted at one end of said body member, a light control member at the opposite end of said body member, a sight tube formed in said body member and extending between said eye piece and said light control member, said sight tube being polygonal in cross section of being formed by a plurality of elongated flat mirror strips, an elongated cylindrical drum for light reflective material carried by said body member in alignment with and spaced from said light control member, means for rotating said drum connected to said drum, said drum having a longitudinal axis disposed in sloping relation to the axis of said sight tube whereby the reflective material on said drum is shifted relative to said sight tube as said drum is rotated.

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