Feb. 12, 1935. A. HARVEY 1,990,867

OPTICAL DEVICE

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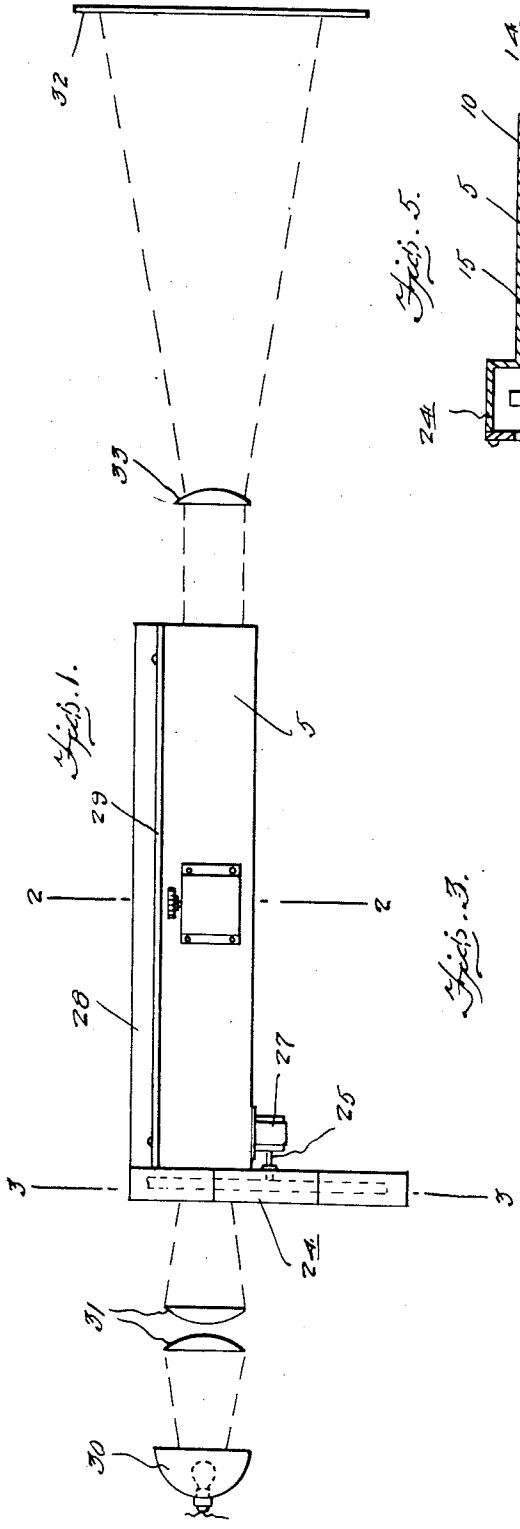


Fig. 1.

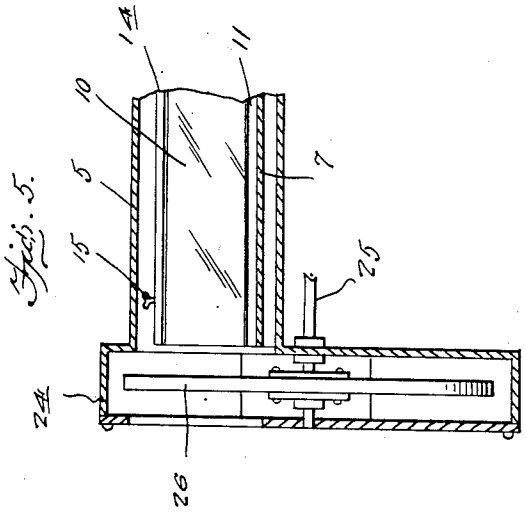


Fig. 5.

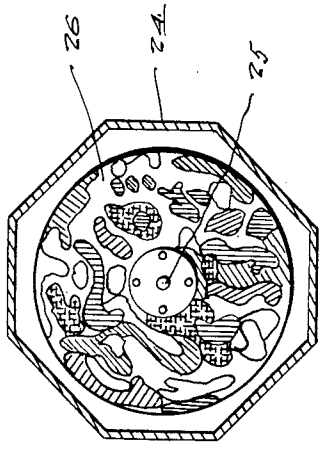


Fig. 3.

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OPTIÇAL DEVICE

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Fig. 2.

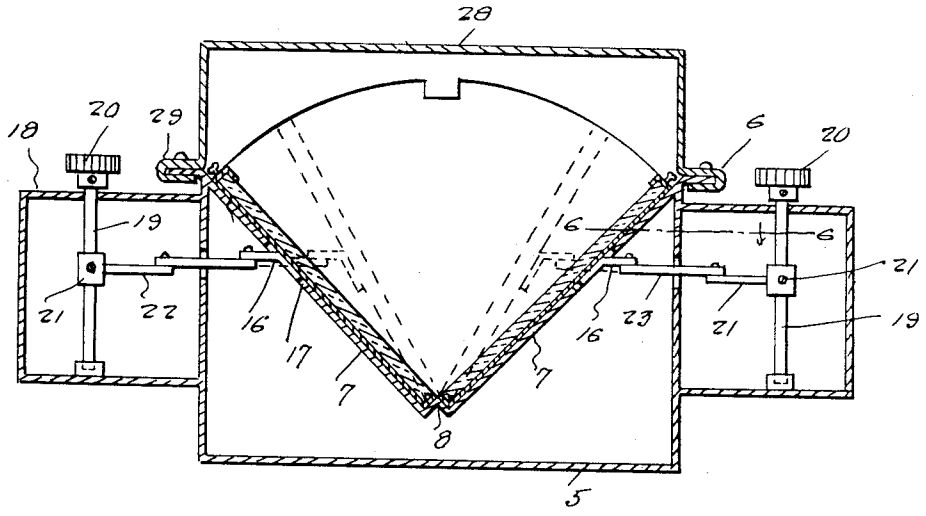


Fig. 6.

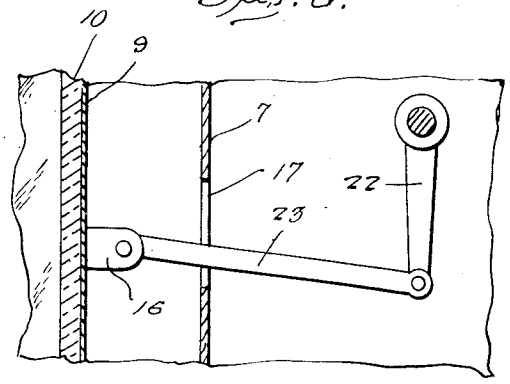


Fig. 4.

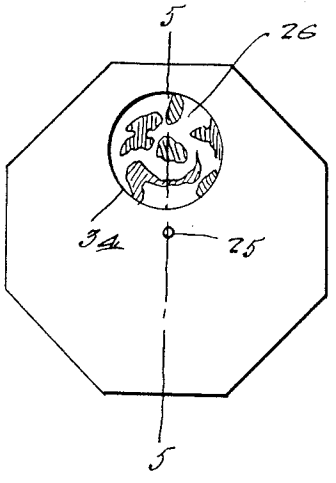


Fig. 7.

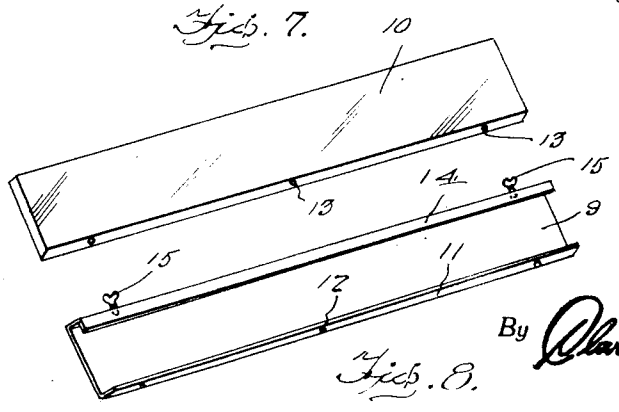


Fig. 8.

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UNITED STATES PATENT OFFICE

1,990,867

OPTICAL DEVICE

Albert Harvey, Santa Barbara, Calif.

Application January 14, 1933, Serial No. 651,817
Renewed July 31, 1934

2 Claims. (Cl. 88—24)

This invention appertains to new and useful improvements in optical devices and more particularly to a machine for projecting kaleidoscopic designs.

An important object of the invention is to provide a machine for projecting kaleidoscopic designs whereby the designs can be varied to assume various outlines and mass ornamental effects.

Another important object of the invention is to provide a machine for projecting kaleidoscopic designs wherein the machine is constructed in such a simple manner as to make the same available at low cost, especially for home use.

Other important objects and advantages of the invention will become apparent to the reader of the following specification.

In the drawings:—

Figure 1 represents a side elevational view of the machine.

Fig. 2 represents a cross sectional view taken substantially on the line 2—2 of Fig. 1.

Fig. 3 represents a cross sectional view taken substantially on line 3—3 of Fig. 1.

Fig. 4 represents a rear elevational view of the machine.

Fig. 5 represents a fragmentary detailed sectional view taken substantially on line 5—5 of Fig. 4.

Fig. 6 represents a sectional view taken substantially on the line 6—6 of Fig. 2.

Fig. 7 represents a perspective view of one of the reflectors and its holder in demounted relation to each other.

Referring to the drawings wherein like numerals designate like parts, it can be seen that the machine includes an elongated trough-like structure 5 having an outwardly disposed flange at each longitudinally extending edge portion thereof which is denoted by numeral 6.

Extending downwardly in converging relation to each other and within the trough-like structure 5 are the plates 7—7, which merge at their upper ends with the flange 6 which are suitably joined at their lower edges to provide a shoulder 8 against which the reflector backs 9 are engageable at their lower edges. These reflectors consist of the silvered panes 10, one for each of the backs 9 and as is apparent in Fig. 7, the lower longitudinally extending flange 11 on the lower edge of each back 9 is provided with a suitable number of upstanding teats 12 for engagement into the recesses 13 in the adjacent edge of the corresponding reflector 10.

An outwardly and backwardly disposed flange 14 is provided at the upper edge portion of the plate 9 and has set screws 15 feedable therethrough to engage the upper edge portion of the pane 10 as in the manner substantially shown in Fig. 2.

Each of the backs 9 has an ear 16 secured to the back side thereof to project through a corresponding opening 17 in the adjacent plate 7.

On opposite sides of the trough-like structure 5 is a box-like structure 18 which supports a vertically disposed shaft 19 carrying a knob 20 at its upper outer end and a collar 21 at its intermediate portion from which extends the lever 22. The outer end of this lever 22 is connected to the corresponding ear 16 by a pivotal link 23.

Obviously, by rotating the knob 20, the reflectors 10 can be adjusted to the desired angular relation with respect to each other for constricting or widening and determining the outline of the kaleidoscopic design projected.

At the rear end of the trough-like structure 5 a polygonal-shaped shell 24 is provided, and this shell supports a horizontal shaft 25 projecting into the shell and supporting at its inner end the design disk 26 which is of transparent material. Secured to the bottom side of the trough-like structure 5 adjacent the shell 24 is the electric motor 27 preferably of the block type adapted for driving the shaft 25. Any suitable circuit controls can be provided for the motor 27.

Numeral 28 represents a lid for the trough 5 which is provided with outwardly and backwardly extending flanges 29 for engaging and forming a guide for the aforementioned flanges 6 on the trough-like structure 5.

In referring to Fig. 1, it can be seen that numeral 30 represents a light source while interposed between this light source and the rotary disk 26 are the reducing lenses 31. Numeral 32 represents the screen onto which the design is to be projected, while numeral 33 presents an objective lens at the forward end of the trough-like structure. Obviously the forward end of the structure 5 has an opening therein while the shell 24 has an opening 34 in the upper portion thereof alined with the opening in the forward end of the structure 5.

The operation of the motor 27 will maintain the disk 26 continuously rotating and by adjustments of the reflectors 10, various outlines filled in with constantly changing designs can be projected onto the screen 32.

While the foregoing specification sets forth the invention in specific terms, it is to be understood that numerous changes in the shape, size and ma-

terials may be resorted to without departing from the spirit and scope of the invention as claimed hereinafter.

Having thus described my invention, what I claim as new is:—

1. An optical device of the character described comprising an elongated trough-like structure having an opening at each end thereof, a V-shaped wall in the trough, a pair of swingable mirrors in the trough supported by the said V-shaped wall, a design carrying disk rotatably mounted at one end of the trough, a closure for the top of the trough, said V-shaped wall being provided with openings therein, and means projecting through said wall openings and connected to said mirrors whereby the mirrors can be adjusted.

2. An optical device of the character described comprising an elongated trough-like structure having an opening at each end thereof, a V-shaped wall in the trough, a pair of swingable mirrors in the trough supported by the said V-shaped wall, a design carrying disk rotatably mounted at one end of the trough, a closure for the top of the trough, said V-shaped wall being provided with openings therein, and means projecting through said wall openings and connected to said mirrors whereby the mirrors can be adjusted, the said trough at its upper longitudinal edge portion being provided with laterally disposed flanges, said closure being provided with a groove at its longitudinal edge portion for receiving the said flanges of the trough to retain the closure to the trough.

ALBERT HARVEY.