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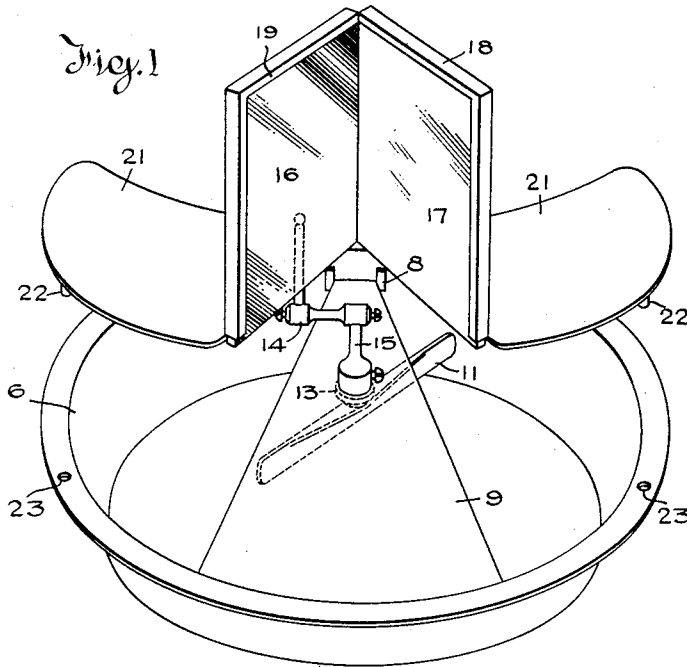
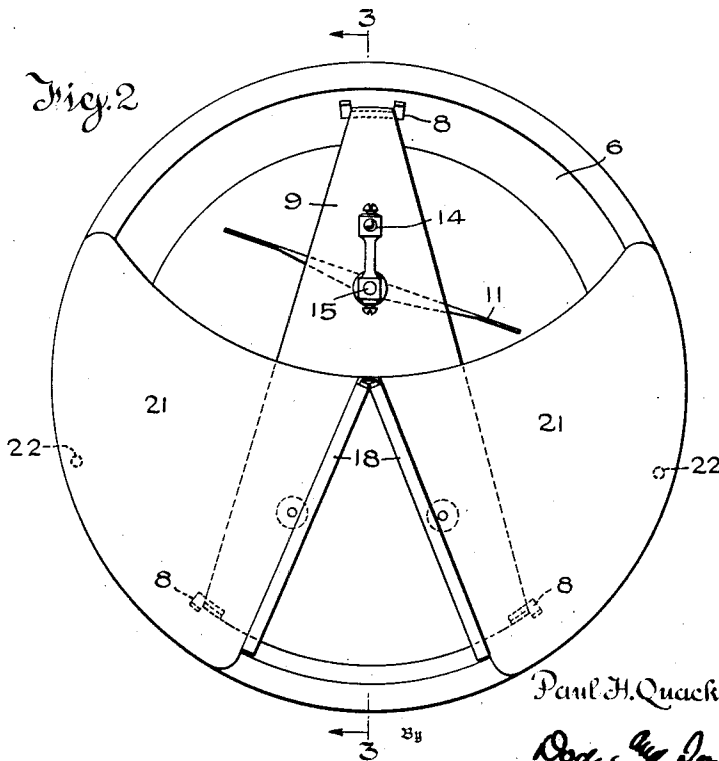
P. H. QUACKENBUSH

2,298,966

KALEIDOSCOPE

Filed Sept. 9, 1941

2 Sheets-Sheet 1



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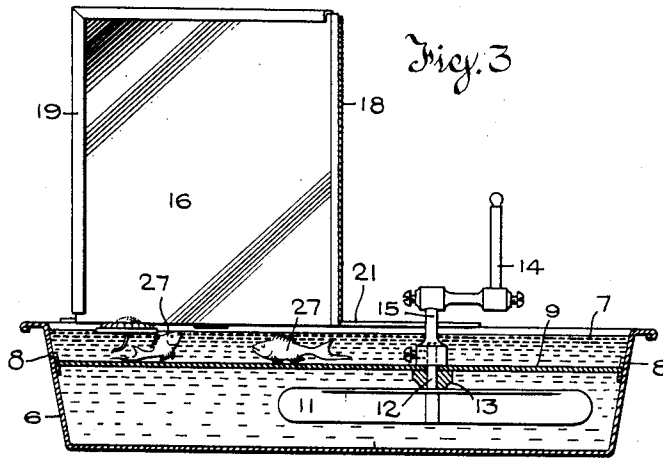
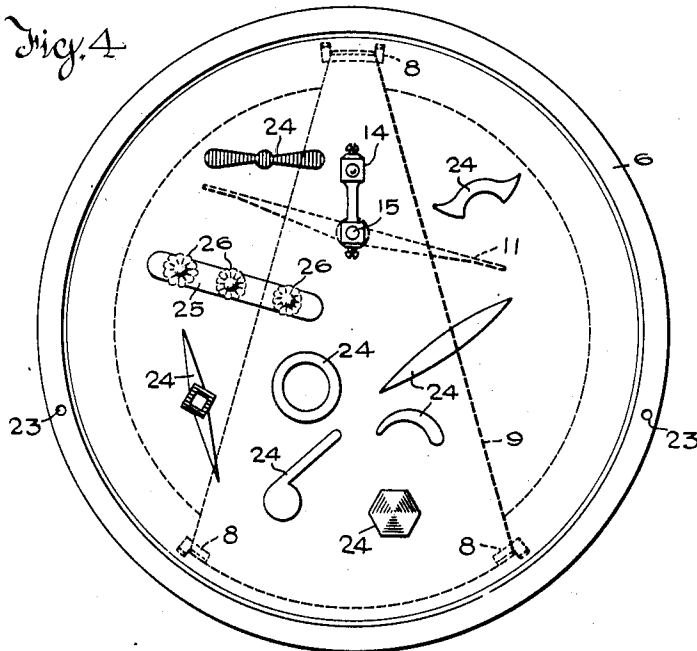
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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KALEIDOSCOPE

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2 Claims. (Cl. 88—15)

This invention relates to kaleidoscopes and particularly to a novel means for sustaining and causing motion of the objects whose multiple reflection produces the desired symmetrical and changing patterns. The arrangement of the reflecting surfaces characteristic of such devices may be varied according to principles well understood in the art.

Heretofore, so far as known, all kaleidoscopes have made use of one or the other of two arrangements for sustaining the pattern-forming objects.

The older and more usual scheme is to confine the objects in a cylindrical cell having two plane transparent walls, or an outer translucent (ground glass) wall and an inner transparent (clear glass) wall. To change the pattern the cell was rotated about an approximately horizontal axis. This scheme has the disadvantage that the objects are necessarily in contact, and a large proportion of them must be translucent. Hence, the pattern is limited to intermixed or contacting objects, a fact which places definite limits on the resulting patterns.

The other scheme uses as a support for the objects a horizontal disc rotatable on a vertical axis. The objects are placed and shifted by hand and while interesting effects are easily attained, the device lacks the fascination of random and ever changing figures.

The horizontal support favors larger patterns and the possibility of simultaneous observation by several persons, and would gain in attractiveness and interest if random and ever changing effects could be attained.

This, the present invention affords by sustaining the objects by flotation in, or on the surface of, a body of liquid. Water is the obviously available liquid, but not the only one which may be used.

As for the objects, these may be variously colored floats of wood, or flowers sustained by flotation, or small fish or turtles swimming in the water, or balls and other objects whose specific gravity approximates that of the liquid. Fish furnish their own motive power, but for the inanimate objects, means are provided to cause slow circulation of the water. In such case, a deflector may be provided to stir up the floating objects and by overcoming surface tension adhesions assure ever changing arrangements.

In some cases the liquid may be colored, or a supernatant film of oil may be used to afford iridescent surface effects. In short, the liquid sustaining-medium is the key to many new and

beautiful effects because it gives an ever changing pattern and does not require contact of the objects viewed. The device is particularly well adapted for window displays by florists and others.

One successful embodiment of the invention will now be described by reference to the accompanying drawings, in which—

Fig. 1 is a perspective view of the device with the mirror carrying platform lifted to show the platform which carries the impeller. In this view the water and the water borne objects are omitted.

Fig. 2 is a plan view of the parts shown in Fig. 1, completely assembled.

Fig. 3 is a vertical section on the line 3—3 of Fig. 2. In this view the water and some water-borne objects are shown.

Fig. 4 is a plan view of the pan (water filled) with the impeller support in place, and the mirrors and their support removed so that water borne objects are visible.

A circular pan 6 serves as a base for the device and as the liquid container. The normal liquid level is indicated at 7 in Fig. 3. Lugs 8 attached to the inner side wall of the pan serve to sustain and position a removable plate 9 whose form is clearly shown in Figs. 1 and 2, and whose function is to support and conceal the rotary vane 11 which is below the plate and is one satisfactory means for causing the liquid to move slowly around and around in the pan.

The vane 11 is fixed on shaft 12 which turns in a bearing 13 fixed to the under side of plate 9. A crank 14 is attached to an upward extension 15 of shaft 12 and is one means for rotating the shaft and vane. Motor drive may obviously be used, and any known water impelling means might be substituted by the exercise of ordinary mechanical skill. The rotary vane simply typifies any means for causing the liquid to circulate or flow.

The reflecting structure comprises two plane mirrors 16 and 17 which are sustained in vertical planes at a suitable angle with one another by an angular frame member 18 having mirror retaining flanges 19 as clearly shown in the drawings. At the back of each mirror there is an arcuate extension 21 which conforms in outline to the upper periphery of the pan 6. These wings 21 rest on the upper margin of the pan 6 and are positioned thereon by pins 22 which enter apertures 23 in the stiffening flange at the upper rim of the pan. Configuration of the wings is such as to afford clearance of the motion of the

crank 14 (see Fig. 2), the crank being at the rear of the mirror assembly and consequently concealed from the observer who is at the front so that he may look into the dihedral angle between the two mirrors. No portion of the wings 21 extends beneath this dihedral angle so that the water in the pan is exposed to view above the plate 9.

This plate may be of a reflecting character or may be painted any suitable color depending on the effects desired. The objects which form the pattern may take any desired form. A number of wooden floats which may be painted various colors and which are given various configurations are indicated by the numeral 24 in Fig. 4.

Small blossoms which would float on the water might be used in lieu of the objects 24. In fact, any small objects which will float on or in the liquid used may be adopted. For example, the wooden float 25 is indicated in Fig. 4 as carrying three small flowers 26. This expedient may be adopted for blossoms which tend to sink in the liquid. A pair of small fish are indicated at 27 in Fig. 3. These might be live tropical fish, for example, or they might be small glass objects having a specific gravity only slightly less than the liquid so that they float beneath the surface. Circulation of the liquid in any suitable way, for example, by turning the crank 14 will cause continual change of the pattern viewed in the two mirrors.

In the drawings, the dihedral angle between the mirrors is indicated at 45° but it is well known in the kaleidoscopic art that other angles may be used. For example, angles 30, 36, 45, 60 and 90 degrees can be used to produce symmetrical figures or polygonal figures differing in the number of sides.

In other words, the present invention is not concerned with details of angle or with the optical aspects of the kaleidoscope. It is concerned with the mode in which the pattern forming objects are sustained in or near a plane and are

caused to move continuously so that the resulting multiple pattern changes progressively and continuously.

The invention has the advantage of permitting objects such as floats and fish to be used. They could not be used with any prior type of kaleidoscope. The invention has a further advantage that the objects are not necessarily in contact, though they may be at times. This greatly increases the diversity of pattern which may be produced. Small objects floating on water have a tendency to cohere by surface tension effect when they come into close proximity with each other, and the shaft extension 15 serves a useful purpose in this connection because it acts as a deflector serving to separate certain cohering objects as they float into engagement with the shaft.

The use of a film of oil on the water gives iridescent color effects which in conjunction with flowers or other brightly colored objects are quite striking and unique.

I claim:

1. In a kaleidoscope, the combination of a pair of approximately vertical reflecting surfaces mounted at an appropriate angle to one another; means for sustaining a bath of liquid beneath said surfaces with the surface of the bath exposed; pattern forming objects sustained by said bath in position to be viewed directly and by reflection in said mirrors; and means operable to cause the liquid in said bath to circulate.

2. The combination of a kaleidoscopic mirror system; a plurality of pattern forming objects; a liquid bath by which said objects are sustained by flotation, approximately at the surface of the bath and in the viewing field of said mirror system; means for causing circulation of said bath; and means for engaging and deflecting said objects as they move with the circulating bath whereby rearrangement of the objects is assured.

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