Aug. 9, 1938. A. W. SCHEELE 2,126,415

KALEIDOSCOPE

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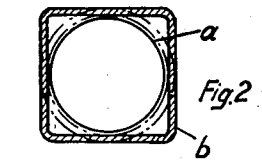


Fig.2

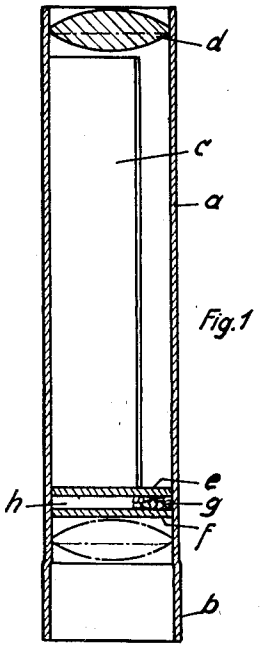


Fig.1

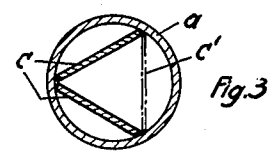


Fig.3

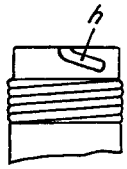


Fig.4

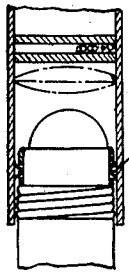


Fig.5

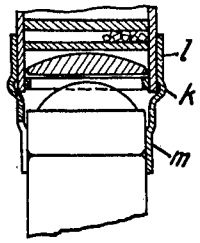


Fig.6

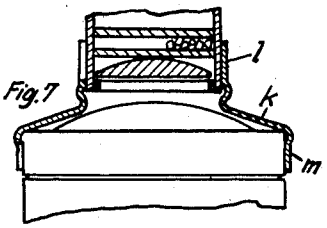
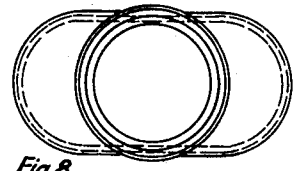


Fig.7


Fig.8

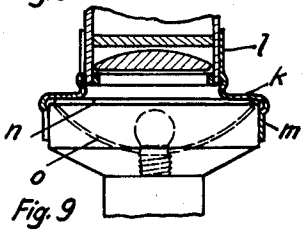


Fig.9

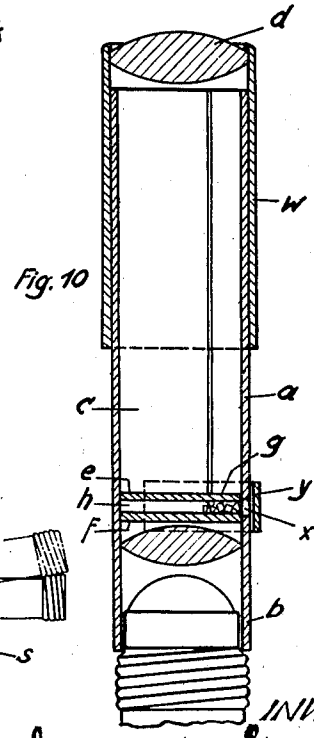


Fig. 10

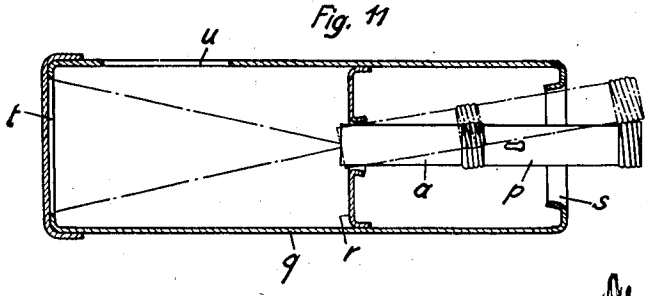


Fig. 11

INVENTOR,

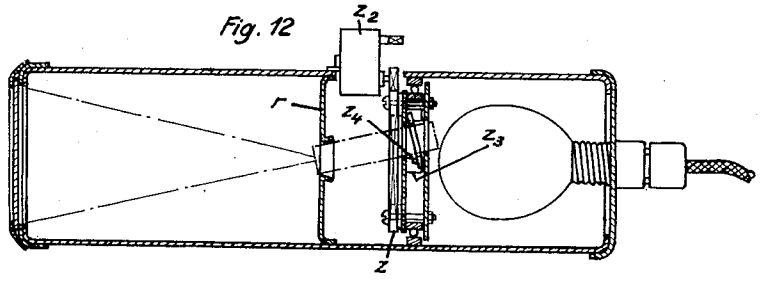
Alexander W. Scheele

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Fig. 12



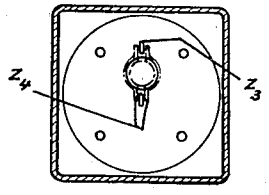


Fig. 13

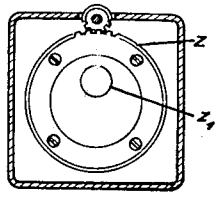


Fig. 14

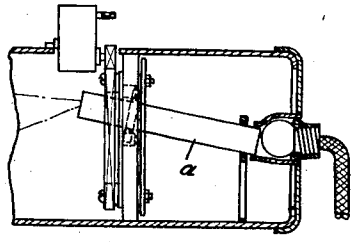
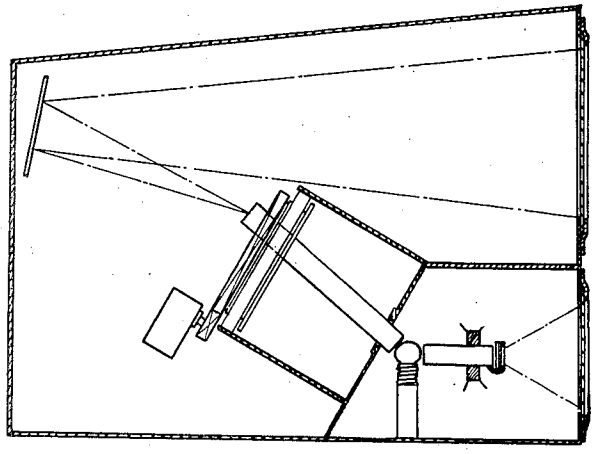


Fig. 15

Fig. 16



INVENTOR,
Alexander W. Scheele

Patented Aug. 9, 1938 2,126,415

UNITED STATES PATENT OFFICE

2,126,415

KALEIDOSCOPE

Alexander W. Scheele, Berlin-Lichterfelde-West, Germany

Application July 26, 1935, Serial No. 33,341
In Germany August 1, 1934

1 Claim. (Cl. 88—24)

The invention relates to kaleidoscopes with which constantly changing pictures can be produced and which are known as toys for children, as projecting kaleidoscopes or as parts thereof.

According to the invention the known kaleidoscope is detachably connected to a pocket lamp. Means are also provided to lock this connection.

A second improvement consists therein that instead of the known arrangement of three mirrors in the interior of the kaleidoscope only two mirrors abutting with one longitudinal edge are provided and that to the outlet end of the kaleidoscope a biconvex lens is fitted, both improvements serving the purpose to increase the clearness and distinctness of the projected designs.

Further features and advantages of the invention will be disclosed in the following specification.

Upon the accompanying drawings are illustrated:

In Figs. 1–3 one mode of construction of the kaleidoscope according to the invention, is shown, while

In Figs 4 to 9 are shown different forms of connection between the kaleidoscope and the lamp,

In Fig. 10 a kaleidoscope according to the invention having a slidable picture projecting lens and

In Fig. 11 a kaleidoscope constructed according to the invention being rigidly connected to a projecting plane.

Fig. 12 shows a longitudinal section view of a modification according to which the kaleidoscope is rotatable mounted at one end of an intermediate wall of a casing,

Figs. 13 and 14 are cross sections of Fig. 12 showing the actuation of the kaleidoscope,

Fig. 15 is a partial longitudinal section of a modification where the stationary end is that adjacent the lamp, while

Fig. 16 shows a modification having reflection in front of the kaleidoscope within the casing in order to shorten the length thereof.

In Figs. 1–3 *a* denotes the cylindrical casing of the kaleidoscope which at its rear end *b* is changed from a circular shape into a square. With this square it is mounted on to the lamp which is shaped accordingly in order to effect the connection between the kaleidoscope and the lamp. The cross section of the lamp and of the connecting end of the kaleidoscope can however also be of a round, oval, rectangular or triangular shape or of any shape which guarantees a secure connection between the kaleidoscope and lamp for instance also by means of a bayonet joint. In addition thereto the end of the lamp is fitted with slots *h* arranged diametrically opposite to each other, while the end of the kaleidoscope has projecting lugs *i* on the inside of the casing also arranged diametrically opposite to each other. In order to connect the kaleidoscope and the lamp with each other the end of the kaleidoscope is then introduced with the projecting lugs into the slots, and by turning the kaleidoscope the projecting lugs are then caused to bear against the lower end of the slots.

In contradistinction to the known types of the kaleidoscope instead of the usual three longitudinal mirrors only two of them are provided in the interior of the casing *a* abutting with one longitudinal edge and supported by the inner wall of the casing. These longitudinal mirrors *c* are preferably of very thin metal and silver plated. By omitting the third longitudinal mirror which is preferably replaced by a blackened metal or cardboard wall *c'* an undesirable straying of light from the particles which form the design is avoided, such particles consisting for instance of coloured pieces of glass, small pieces of tinfoil, needles of a fir-tree, grains of rice or corn, tea, grits, particles of flowers and leaves, sand, crumbs or the like, so that the designs produced by turning the kaleidoscope have a small diameter and thereby gain in clearness and distinctness. In addition to this the arrangement of only two mirrors has the advantage that the centre point of the design does not constantly change as this is the case with the usual kaleidoscopes having three mirrors.

The casing *a* is closed at its outlet end by a biconvex lens *d*, while at its opposite end near to the connection *b* a transparent glass disk *e* and opaque glass disk *f* are arranged in a small distance from each other and at a distance which permits an easy displacement of the object particles *g* contained in the chamber *h*. The insertion of the lens has the advantage that the clearness and distinctness of the projected design is increased. This effect can be still further improved when in addition to a biconvex lens the other end is fitted with a condensing lens or with a set of lenses within the casing of the kaleidoscope.

I claim as my invention:

A pocket type projecting kaleidoscope combination comprising a pocket lamp or flashlight, a kaleidoscopic tube element, means for connecting and disconnecting the kaleidoscopic tube element from the pocket lamp and for holding the same

in operative relationship, an object holder in said kaleidoscopic element and including translucent and transparent plates or discs for holding the objects between the lamp and the kaleidoscope, two rectangular shaped mirrors abutting along one longitudinal edge at an acute angle and with the edges also abutting against the interior of the kaleidoscope tube or housing and in optical alignment with the object and pocket lamp, an objective lens positioned at the end of the kaleidoscopic element opposite to and in alignment with the object holder and mirrors and the pocket lamp, light condensing means, in the pocket lamp for directing the light beams through the object holder, mirrors and to the objective lens whereby an image of the objects in said object holder is projected by the objective upon a screen or the like for viewing by an observer.

ALEXANDER W. SCHEELE.