

UNITED STATES PATENT OFFICE

CHARLES G. BUSH, OF BOSTON, MASSACHUSETTS, ASSIGNOR
TO HIMSELF AND JOHN W. HOARD.
IMPROVEMENT IN KALEIDOSCOPIES.

Specification forming part of Letters Patent No. 143, 271, dated September 30, 1873; reissue No. 5, 649, dated November 11, 1873; application filed October 30, 1873.

To all whom it may concern:

Be it known that I, CHARLES G. BUSH, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improved Object for the Object-Box of Kaleidoscopes; ...

In the rotation of the object-box, my compound tube, like any other object therein, is caused by gravity to fall into different positions.

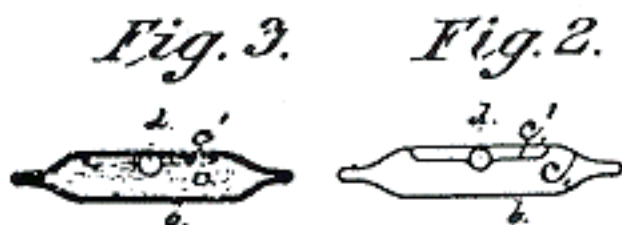
A hollow glass object with two immiscible liquids and an air-bubble, contained therein is shown in Figs. 2 and 3, in which b is the vessel hermetically sealed, c and c' the two immiscible liquids, and d the air-bubble, the whole resembling a diminutive glass spirit-level.

I would remark that a glass tube, containing a single liquid and an air-bubble, the ends of the tube being closed by cement or plugging, is an object heretofore used by me, and not claimed in this application; and in carrying out my invention, in regard to the contents of the tube, I employ either two or more liquids of different densities or character, or a liquid with a solid or solids. I thus obtain two liquids or objects of different colors within the same vessel or tube, and which, by their relative movements within such tube, product new and pleasing effects.

What I claim, therefore, as new in objects for the object-box of kaleidoscopes, is as follows:

1. In combination with a kaleidoscope-box, a glass tube or vessel for containing one or more objects, said tube or vessel being closed hermetically without the use of cement or plugging.
2. In combination with a kaleidoscope-box, an object, consisting of a glass tube or vessel containing liquid, and closed hermetically by the fusing of the glass without the aid of cement or plugging.
3. An object for kaleidoscopes, consisting of a glass tube or vessel containing two or more immiscible liquids, or one or more liquids and one or more solids.

CHARLES G. BUSH.



IMPROVEMENT IN OBJECT-BOXES FOR KALEIDOSCOPES

Specification Forming Part Of Letters Patent No. 151,006, Dated May 19, 1874; Application Filed March 20, 1874.

Be it known that I, CHAS. G. BUSH, of Boston, Massachusetts, have invented an Improvement in Object-Boxes for Kaleidoscopes, of which the following is a specification:

My invention consists in making the object-box of a kaleidoscope with an opening, and a cover for the same, for the ready introduction into or removal of the objects from the box, thus avoiding the necessity, as the boxes have been heretofore constructed, of taking the whole apparatus apart, and removing one of the glasses of the box, and then putting the parts together again.

I claim—

A kaleidoscope object-box, provided with an opening and movable cover therefor, substantially as and for the purpose set forth.

CHARLES G. BUSH.

IMPROVEMENT IN KALEIDOSCOPES

Specification forming part of Letters Patent No. 151,005, dated May 19, 1874; application filed December 20, 1873.

To all whom it may concern:

Be it known that I, CHAS. G. BUSH, of Boston, Massachusetts, have invented Improvements in Kaleidoscopes, of which the following is a specification:

My present invention consists in combining, with a rotating object-box, a means between the eye and object-box, for illuminating the objects, so that opaque objects, equally as well as transparent

ones, may be employed, and their colors fully displayed. It further consists in uniting in the same instrument the requisites for displaying properly the true colors both of opaque and translucent objects; in other words, merging, virtually, the two characters of instruments into one. It further consists in combining, with a kaleidoscope having a revolving object-box, a variegated colored card-board or reflector, to be hung behind the instrument upon a stationery support, so that a background of any desired tint or color may be brought at will behind the object-glass, and thus give such background for the figure or design presented to the eye.

I claim—

1. The combination, in a kaleidoscope for opaque objects, of an independent revolving object-box, supported in near proximity to the objective end of the prism, and a transparent tube surrounding the objective end of the prism, and also serving as the support of said revolving box.
2. The combination, with a kaleidoscope for opaque objects, as described, of an independent revolving object-box, whose ends are both of glass, either perfectly plain, or the outer one ground and the inner one clear, for use wither with the transparent or opaque objects.
3. In combination with a kaleidoscope, the parti-colored reflecting card-board, adjustable, by rotation, to afford a series of backgrounds of any desired color, substantially as shown and described.

CHARLES G. BUSH.

IMPROVEMENT IN KALEIDOSCOPE-STANDS

Specification forming part of Letters Patent No. 136,875, dated November 17, 1874; application filed May 22, 1874.

To all whom it may concern:

Be it known that I, CHAS. G. BUSH, of Boston, State of Massachusetts, have invented an Improvement in Stands for Parlor-Kaleidoscopes, &c., of which the following is a specification:

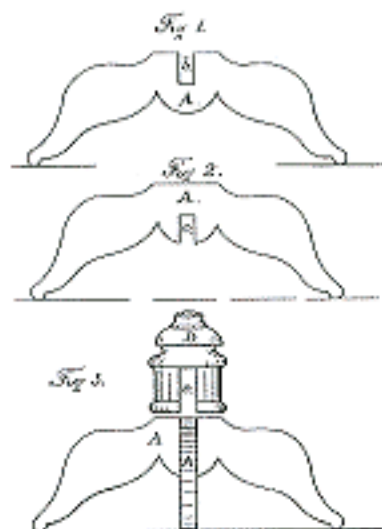
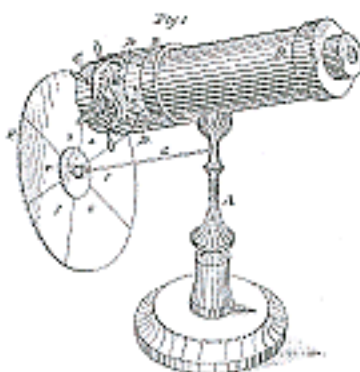
My improvement relates to the mode of constructing the stand and its legs, used for supporting a parlor-kaleidoscope and for similar purposes, the object being to facilitate the packing them in a small compact compass for transportation or storing away, and yet to readily put the same together firmly for use without the use of glue, nails, rivets, or any fastening device.

Heretofore kaleidoscope-stands for parlor use have been made with the standard or post secured or screwed into a solid block or base, which needed to be of considerable diameter, and was of thick expensive wood.

I claim—

The stand constructed with the cross-cuts in the post, and with the central cross-cuts in the cross-pieces which compose the legs or base, the whole being fitted and adapted to be united and held together by pressure and frictional contact only, and to be instantly taken apart, in the manner and for the purpose shown and described.

CHARLES G. BUSH.



UNITED STATES PATENT OFFICE.

CHARLES G. BUSH, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF
AND J. W. HOARD, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN OBJECTS FOR KALEIDOSCOPES.

Specification forming part of Letters Patent No. 143,271, dated September 20, 1873; application filed
November 20, 1872.

To all whom it may concern:

Be it known that I, CHARLES G. BUSH, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful or Improved Kaleidoscope; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a vertical and longitudinal section of a kaleidoscope as invented by me. Fig. 2 is a side view, and Fig. 3 a longitudinal section, of one of its compound objects, or hermetically-sealed glass tube containing two or more immiscible liquids or other matters of similar character.

Heretofore, in the manufacture of kaleidoscopes, some of the objects used in the rotary object chamber or box in front of the reflectors have been solid bodies of various colors or forms, and such may be used with my invention.

In carrying out my said invention I combine with the kaleidoscope *A*, as usually made, with or without its solid objects in the object box or chamber *a*, by placing in such chamber one or more glass vessels or tubes, *B*, hermetically sealed, and containing two liquids of different densities, which will not intermix or combine, the purpose being to produce one or more new and useful effects—*viz.*, the movement or movements through the action of gravity of the air, liquid, or solid in the main liquid independently of the movements of the hermetically-sealed vessel or tube; also, to

obtain better or more brilliant colors than can usually be obtained by coloring solids, the vessels holding chemically-colored solutions. The compound object is to fall, or be caused by gravity to fall, into different positions while the object-box may be in rotation.

A hollow glass object with its two immiscible liquids is shown in Figs. 2 and 3, in which *b* is the vessel hermetically sealed, and *c* and *d* the two immiscible liquids, the whole being like an ordinary minute glass spirit-level.

Although I have shown a glass object provided with a single liquid and a bubble of air, I would remark that such is an object ordinarily used, and in carrying out my invention I substitute for the air-bubble another liquid of different density or character, which will not intermix or combine with the first. I thus can obtain two liquids of different colors, which, by their movements in the instrument relative to one another, produce new and pleasing effects.

I therefore claim—

As a new manufacture for the kaleidoscope object-box, an object consisting of a hollow glass hermetically-sealed vessel and two liquids of different densities and colors placed in such vessel, such liquids being such as will not readily intermix or combine while in use in some respects.

C. G. BUSH.

Witnesses:

R. H. EDDY,
J. R. SKOW.

C. G. BUSH.

Objects for Kaleidoscopes.

No. 143,271.

Patented September 30, 1873.

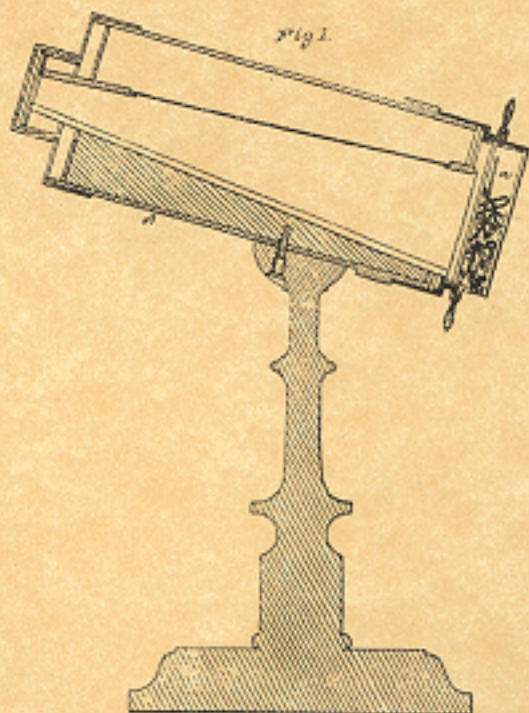


Fig. 2.

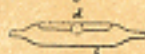


Fig. 3.



Witnesses.

S. W. Piper

L. M. Miller

Charles G. Bush.

by his attorney

R. Henry