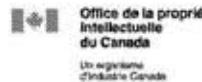


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(71) Applicant: PLIMPTON HOMER A (US)  
(72) Inventor: PLIMPTON HOMER A (US)

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(54) CHROMOSPHERE OR OPTICAL TOY  
(54) CHROMOSPHERE OU JOUET OPTIQUE

To all whom it may concern:

Be it known

that I, Homer Alured Plimpton, a citizen of the United States, residing at Chicago in the County of Cook and State of Illinois, Gentleman, have invented certain new and useful improvements in a

specification, of which the following is a full clear and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings forming a part of this Specification.

This invention relates to an improvement in an optical toy, and the same consists of a spherical body or color

ball, having however, more of the primary colors applied to the surface in divisions and arranged in different relative positions so that when the ball is made to revolve rapidly, it will have the effect of causing one or more of the colors to fade away, or, blend into another or be displaced by another, thus producing a pleasing optical illusion.

The several figures in the drawing embodying my improved features, showing balls, representing different colors arranged in different planes.

Referring to the drawing A. B. C and D represent as many different balls or spheres which will be, ordinarily, composed of wood, but any other material suitable for the purpose may be used, such as metal, glass, paper, leather or rubber.

We will suppose that the lower half  $\alpha$  of the ball A, shown in Fig. 1. to be of a bright red color, and one of the upper quarters, not shown, to be black, while the remaining quarter of the sphere, shown in the upper foreground, is covered with a number of colors laid on in different planes. The triangular plane or surface  $\alpha'$ , is a light blue,  $\alpha''$  of light yellow,  $\alpha'''$  dark blue and

the plane  $\alpha^*$  a light cream tint. Now when the ball is put in motion and caused to spin, or revolve, on its flexible axis, the cord E, the combination of the red and black surfaces with the light blue has the effect of changing this part of the sphere into a continuous field of a light reddish tint; the plane  $\alpha'$  becomes a continuous stripe or band of a dark dull yellow, the plane  $\alpha''$  presents a continuous stripe or band of dark red, and the plane  $\alpha^*$  is changed to a dark cream shade with a slight reddish cast.

It will thus be observed that one of the predominating colors, viz., the black, is made to entirely disappear, when the sphere is in motion, by being blended with the other colors, the greater predominating color viz., the red, being changed into circles of various shades in accordance with the short stripe or plane connecting the red and black surfaces. In this case the six different colors or shades represented on the surface of the ball when at rest are reduced to four when in motion, and all of a different shade from any of the primary colors.

The surface of the ball B, shown in Fig. 2, is divided up into eight

and may represent as many different colors or shades. The divisions or planes b<sup>1</sup> in this case are painted a dark green, their opposite black; b<sup>2</sup> white, back of it yellow, b<sup>3</sup> red, back of it a light blue, thus representing six colors. When this ball is put in motion, a narrow black band or stripe is shown in the center, flanked by a dark yellow band on one side, and on the other by a band of a dull red color, while the field on one side, in the direction of the axis, shows a dark cream tint, and on the opposite a pink tint or shade. The balls C and D. illustrated in Figs. 3 and 4, show a different arrangement of the colors, so disposed as to produce different variegated effects and transformations.

The balls are provided with the central apertures d d, through which the double spinning cord is passed, the operation being similar to that of the ordinary top.

It will be readily seen that many different patterns may be produced by the arrangement and combination of the colors, and the area of the surface covered by each color in relative proportion.

When the ball is put into rapid

motion several patches of different colors are combined and form a continuous band, where none exists, or but one color and that is a different color from that of the ball. The combination, in which effect is produced on the eye by the rapidity of motion not permitting the retina to take in the impression of each color separately.

The same colors on the different parts also change, fade and blend into different shades as the speed is increased or diminished; and the direction of the ball is reversed by the tension and relaxation on the operating cord.

This arrangement not only produces an amusing and interesting toy but may also be turned to practical account by being employed to illustrate the effect of changable and blurred color rays on the retina of the eye, and also to illustrate the infinite variety of hues and shades that it is possible to produce by the combination of colors and in this sense might be termed a philosophical Toy.

A spherical or similar body gives a much greater surface for the arrangement and combination of colors than a circular or flat disk of an equal diameter, as the whole

of the surface is revolved to view at the same time, thus producing more elegant and pleasing designs than it is possible to obtain on a flat surface. It may also employ an oval or elongated body, or make use of any body having a different geometrical contour, to produce a pleasing effect, or I may use a ball having a corrugated surface. For cheapness, simplicity and durability I prefer a wooden ball having a painted surface laid on in regular, or irregular planes, but the different colors may be changed by using pieces of colored paper, leather etc., and attaching them to the surface of the ball by means of any suitable adhesive composition.

Another effect may be obtained by providing a spherical surface with a woven or thitted covering composed of different colored yarns, or threads. Any means other than the spinning cord shown may be employed to impart the required motion to the color ball, either by hand or any suitable mechanism such as clock work.

Having thus described my invention, I claim all new and desire to secure by Letters Patent in

1. A spherical body having divisions each of which has a prime color, and the divisions arranged on the surface of the ball, substantially

as described, so that the color of one or more divisions will disappear or blend with the color of other division or divisions, when the ball is revolved, thus producing colors, shades and tints different from those of the prime colors as set forth.

2. A spherical body having a number of divisions of different sizes and forms, each division having a color distinct from the others, and arranged substantially as described, so that when the sphere is revolved a series of bands or stripes of different shades relative to each other will appear, said bands having no existence when said sphere is at rest, as set forth.

3. As a new article of manufacture, an optical toy consisting of a sphere, or ball having divisions, each of which has a prime color, and the divisions arranged on the surface of the ball, substantially as described, and central aperture passing through said ball, and a spinning cord upon which said ball is mounted, as set forth.

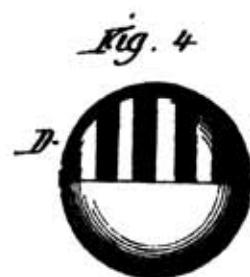
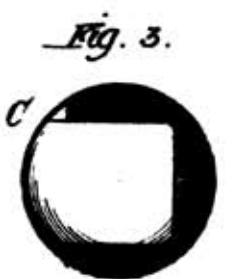
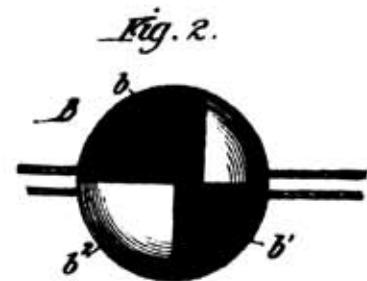
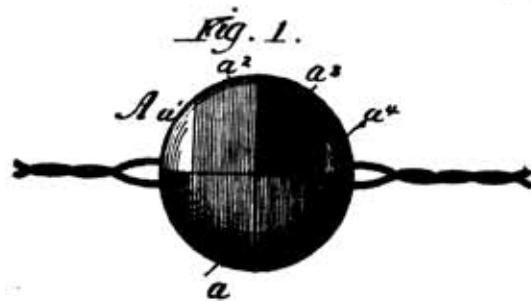
Silver City, N.M. 24 April 1886

Witness: Homer Alfred Blumpton

Homer Alfred Blumpton  
Dancing Colors  
St. Louis

H. A. Plimpton's Improvement in  
Auraspheres or Optical Toys.

24501



Chicago, Illinois April 2<sup>d</sup> 1886

Certified to be the drawing referred to in the  
Specification hereunto annexed.

Witnesses:

Frank Blanchard  
L. M. Freeman.

Inventor  
Homes Alured Plimpton  
By G. D. Compland  
Attorneys.