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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, Gentlemen, have inven-  
 ted certain new and useful improvements  
 in a

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 form-  
 ing a part of this Specification.

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

call, having two or more of the  
prime 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 differ-  
ent 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  $a$  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 remain-  
ing 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  $a^1$ , is a light blue,  
 $a^2$  of light yellow,  $a^3$  dark blue and

the plane  $a^4$  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 contin-  
uous field of a light reddish tint;  
the plane  $a^2$  becomes a continuous  
stripe or band of a dark dull yellow,  
the plane  $a^3$  presents a continuous  
stripe or band of dark red, and the  
plane  $a^4$  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 vari-  
ous 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 differ-  
ent shade from any of the primary  
colors.

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

and may represent as many different colors or shades. The divisions or planes  $b^1$  in this case are painted a dark blue, their opposites  $b^2$ ;  $b^3$  white, back of it  $b^4$  yellow;  $b^5$  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<sup>nd</sup> D, illustrated in Figs. 3<sup>rd</sup> & 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  $a$  &  $a'$ , 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 or distinct colors are combined and show a continuous band, when, none exists, & but one color and that of a different color than any one of the combinations, which is produced on the eye by the rapidity of motion not permitting the retina to take on the impression of each color separately.

The same colors on the different balls 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 changeable and blended 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

H.

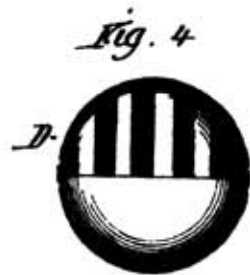
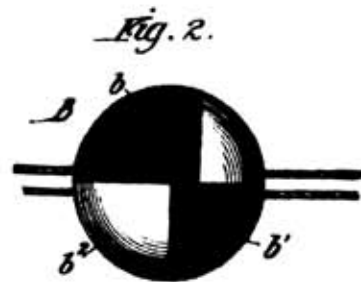
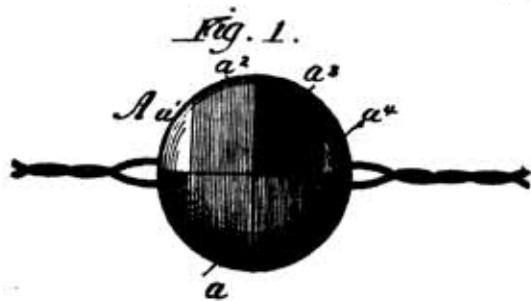
H.





*H. A. Plimpton's Improvement in  
Chromospheres 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:*

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