

No. 849,045.

PATENTED APR. 2, 1907.

E. W. BROWN.
ADVERTISING MACHINE.
APPLICATION FILED APR. 12, 1906.

Fig. 1.

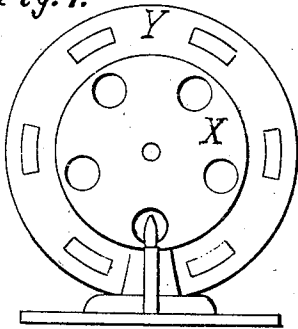


Fig. 2.

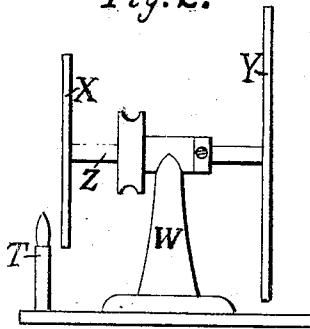


Fig. 3.

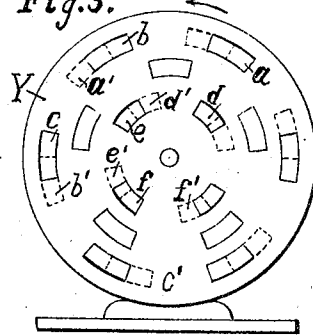


Fig. 4.

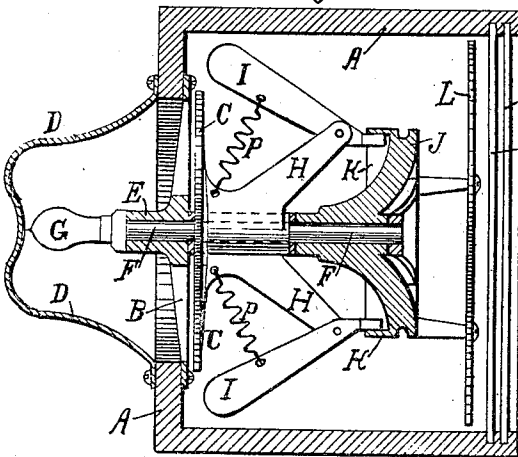


Fig. 5.

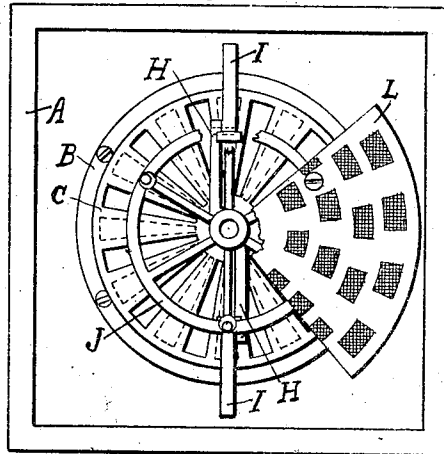


Fig. 6.

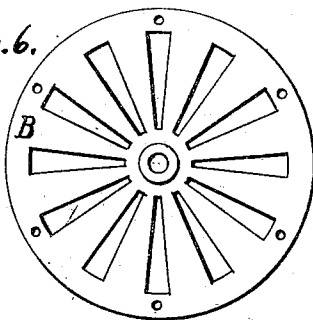
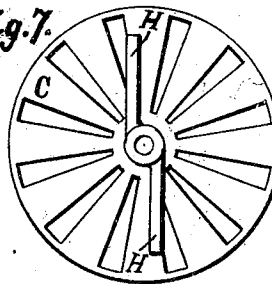


Fig. 7.



WITNESSES:

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ADVERTISING-MACHINE.

No. 849,045.

Specification of Letters Patent.

Patented April 2, 1907.

Application filed April 12, 1906. Serial No. 811,375.

To all whom it may concern:

Be it known that I, EDGAR W. BROWN, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented a certain new and useful Advertising-Machine, of which the following is a specification.

My invention consists of a machine which produces an optical illusion of a very novel character and combines advertising matter with said optical illusion, the object of my invention being to provide means especially adapted for window displays and for advertising in such a manner as will not fail to attract attention.

The means for obtaining the hereinafter-described results produced by my invention will be understood from the following detailed description, taken in connection with the accompanying drawings, in which—

Figures 1, 2, and 3 are views of apparatus used simply for the purpose of illustrating the principle of my invention. Figs. 4 and 5 are side and front view, respectively, of a good form of construction embodying the principles of my invention. Fig. 6 is an end view of member B, shown in Fig. 4. Fig. 7 is an end view of member C, shown in Fig. 4.

In Figs. 1, 2, and 3, in which similar letters refer to similar parts, Z is a shaft which revolves in a bearing in the upper end of standard W. On one end of shaft Z is mounted a transparent plate Y, while on the other end is mounted a non-transparent plate X. Near the circumference of plate X are five circular openings, these openings being of equal size and equally spaced. On the transparent plate Y are shown three series of figures, each series being concentric with the shaft Z, and the figures of any one series being of equal size and equally spaced. T is a candle, placed so that the light passing therefrom to plate Y is interrupted by the perforated plate X. This interrupted light will appear to be continuous if the interruptions are sufficiently rapid. The figures on plate Y may be painted thereon, or their degree of transparency may be greater or less than that of said plate Y. It must be understood that plate Y simply acts as a carrier for the series of figures thereon and that other methods equally suitable for carrying said figures may be used.

In the three series of figures shown on plate Y it will be noticed that there are four

figures in the inner series, five figures in the middle series, and six figures in the outer series.

When the plate Y is revolved at a suitable speed in the path of light which is rapidly interrupted, the following-described optical illusion will appear on said plate Y. The middle series, containing five figures, will appear to be stationary. The outer series, containing six figures, will appear to revolve in the direction the plate is revolving at one-sixth of the speed of said plate, while the inner series, containing four figures, will appear to revolve slowly in the opposite direction from that in which the said plate Y is revolving. I account for this effect as follows: There are five light interruptions to each revolution, or one-fifth revolution from the time of one flash of light to the following flash of light. During this period of one interruption of light each series of figures on plate Y has moved one-fifth revolution, and the figures are only seen the instant the light strikes them. Therefore in the middle series, containing five figures, each figure replaces at the second flash of light the position occupied by the figure which precedes it, thus making this series appear as stationary. During this period of one-light interruption, or one-fifth revolution, each figure in the outer series of six figures will move one-thirtieth revolution beyond the figure which precedes it, making this series appear to move forward one-thirtieth revolution, while in the inner series of four figures each figure advances not quite to the position occupied by the figure which precedes it, making the preceding figure appear to move backward and making this inner series of figures appear to revolve in the opposite direction from that in which the plate Y is revolving. In Fig. 3 the positions of the figures of the different series at the time of a certain flash of light are indicated in solid lines, the position of the figures of the outer and inner series at the time of the following flash of light being indicated by the dotted lines. In the outer series of figures it will be noted that during the light interruption between the two flashes that *a* has moved to *a'*, *b* to *b'*, *c* to *c'*, and so on with the other figures of this series. Instead of having this appearance, however, it will appear that *b* has advanced only to *a'*, *c* to *b'*, and the other figures of this series appearing to advance in a like manner, and, as

has been hereinbefore stated, it will appear that the figures of this series have advanced only one-thirtieth revolution, although they have really advanced one-fifth revolution.

5 As the light interruptions and the change of positions of the figures are so rapid that the eye cannot detect them, it will appear that this outer series of figures is advancing steadily at only one-sixth of the speed of plate Y.

10 In the inner series of figures it will be noted that during the light interruption that although *d* has moved forward to *d'*, *e* to *e'*, *f* to *f'*, the appearance will be that *f* has moved back to *e'* and that *e* has moved back to *d'*, and in a like manner this entire series of figures appears to move slowly in the reverse direction from that in which the plate Y is moving. Taking into consideration the combined effect produced by the apparent

20 movement of these three series of figures, we have a very startling and novel optical illusion; but an effect more startling and of greater novelty will be produced if a varying ratio exists between the speed of the revolving plate Y and the speed of light interruption instead of an unvarying ratio as is maintained when plate Y and the light-interrupter are mounted rigidly on the same shaft.

30 We will now suppose that plate Y is revolving at a uniform rate of speed and that the light interruptions increase gradually from five interruptions to more than six interruptions for each revolution of plate Y, and then that the light interruptions gradually decrease until there are less than four interruptions to each revolution of plate Y. As the light interruptions start to increase then the middle series, containing five figures, heretofore apparently stationary, starts to move apparently in the reverse direction from the movement of plate Y. As the interruptions increase the middle series appears to increase in speed in the reverse direction.

45 When the light interruptions have increased to a point where there are six interruptions for each revolution of plate Y, then the outer series, containing six figures, will apparently become stationary and then reverse in direction when the interruptions increase further. If then the light interruptions decrease until there are less than four interruptions for each revolution of plate Y, the following effect will have taken place.

55 Each series of figures, starting with the outer series and followed by the middle and inner series, will in turn apparently decrease in speed, become stationary, reverse in direction, and then increase in speed.

60 We will suppose that a plate similar to plate Y, but having quite a number of series of figures thereon, is revolved at a varying rate of speed in the path of an interrupted light. Then from the foregoing description

it is obvious that each series on this plate 65 can contain such a number of figures, so that the apparent speed or the apparent speed and direction of movement will be different from that of every other series on the plate and, furthermore, that each series can be 70 constantly changing in speed and in direction of movement.

The machine shown in Figs. 4 and 5 has means for giving a relative variation between the rate of light interruption and the speed 75 of the revolving plate which carries the series of figures. This machine also has means for giving improved light interruption and light distribution. In the two views of this machine, in which Fig. 4 is a side view and 80 Fig. 5 a front view, A is an inclosing box or casing which carries and supports the inclosed parts. Improved light interruption is effected by means of a light-interrupter consisting of a stationary part B, having slots or 85 openings radiating from a common center, and a revolving part C, having similar radial openings. In the rear end of the casing A is a circular opening. The stationary part B is secured by screws to the inner edge of 90 the casing surrounding said circular opening. A light-reflector D is secured in a similar manner to the outer edge of casing surrounding said circular opening. Projecting from the center of B is the hub E. Secured on the 95 end of hub E is the lamp G, which is the source of light for the machine. Secured in hub E by set-screws or other suitable means is the shaft F. Part C, which revolves about shaft F, has a projecting bearing from which 100 extend the arms H, said arms and projecting bearing being integral with C. Pivoted in the outer extremities of the arms H are the centrifugal arms I. J is a pulley which revolves about the shaft F, being driven by a 105 belt from a motor or by other suitable means. The springs P cause the centrifugal arms I to engage with the inner surface of the flange K, which projects from the circumference of the pulley J. L is a transparent plate, of 110 glass or of other suitable material, and is carried by arms which project from pulley J. L carries the series of figures, these figures being shown in Fig. 5. M is a transparent plate on which any desired advertising mat- 115 ter is placed. N is a light-intercepting screen, of frosted glass or other suitable material. In Fig. 5 the plates M and N are not shown, and only a portion of plate L is shown in order to expose to view the parts in the 120 rear of these plates. The parts between the plate L and the light-interrupter are made thin in order to interfere with the passage of light to an extent as small as possible. The light-reflector D is shaped so as to distribute 125 the light evenly over the plate L. An end view of part B, the stationary member of the light-interrupter, is shown by Fig. 6. Fig. 7

is an end view of the revolving part C of the light-interrupter. The arms H are also shown in this view.

The operation of my machine is as follows:

5 the pulley J is driven by a belt which is connected with a suitable source of power. When this pulley is stationary or just starting, the springs P cause the centrifugal arms I to cling firmly to the inner surface of flange K. Part C is thus made to revolve, and the light is thereby interrupted. When a predetermined speed has been attained, the centrifugal force breaks the connection between the pulley J and the centrifugal arms I, thus causing the speed of the moving member of the light-interrupter to decrease, and consequently decreasing the rate of light interruption. When this decrease in speed has continued to a certain extent, the springs P again cause the arms I to engage with pulley J, and in this manner a continual relative variation of speed is produced between the rate of light interruption and the speed of plate L, which is mounted on pulley J. It would be equally satisfactory to have a uniform rate of light interruption and a variation in the speed of plate L.

My machine may be used without the frosted plate N and the advertising-plate M; but when these plates are used they inclose the casing from the front, thereby obscuring from view all moving parts. When these plates are not used, the optical illusion is seen directly on plate L. When these plates M and N are used, however, then shadows from the series of figures on plate L and shadows from the advertising matter on plate M are cast on the frosted plate N, making on said plate N an exact reproduction of the advertising matter as well as an exact reproduction of the optical illusion. Advertising matter should be placed on plate

M in such a position so that it will not conflict with the optical illusion in a manner to detract from the effect.

My invention consists, broadly, in causing one or more series of figures to move in or move across the path of an interrupted light, and I do not desire to limit myself to the particular construction or arrangement of parts herein shown, since changes therein which do not depart from the spirit of my invention and which are within the scope of the appended claims will be obvious.

What I claim is—

1. In a machine of the class described, a light-interrupter consisting of two members, one a revolving member and the other a stationary member, each member having an equal number of similar openings.

2. In a machine of the class described, a light-interrupter consisting of a stationary member and a revolving member, each member having radial openings.

3. In combination in a machine of the class described, means for producing an interrupted light and figures moving in the path of said interrupted light, different portions of said figures being spaced so as to cause said different portions to appear to move at different speeds.

4. In combination in a machine of the class described, means for producing an interrupted light, one or more series of figures adapted to move in the path of said interrupted light and automatic means for causing the relative speed between the rate of light interruption and the speed of the moving figures to vary.

EDGAR W. BROWN.

Witnesses:

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D. M. MARTIN.