H. MULHOLLAND.

ILLUMINATED SIGN.

APPLICATION FILED SEPT. 1, 1911.

1,037,294.

Patented Sept. 3, 1912.

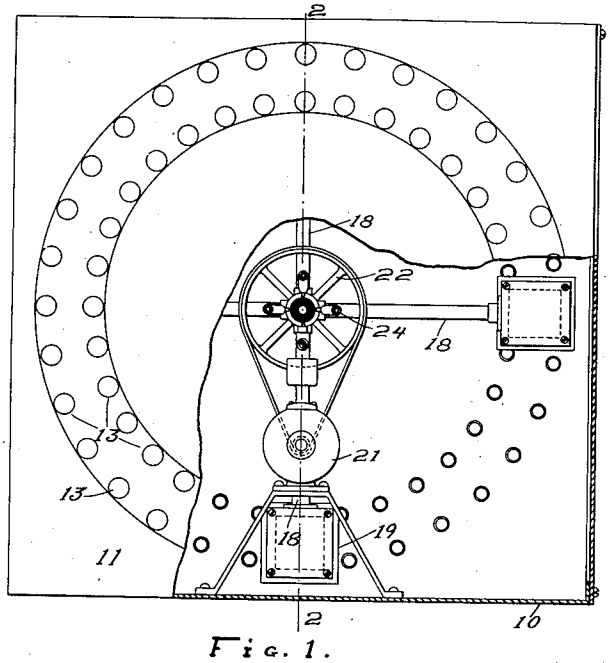

Fig. 1.

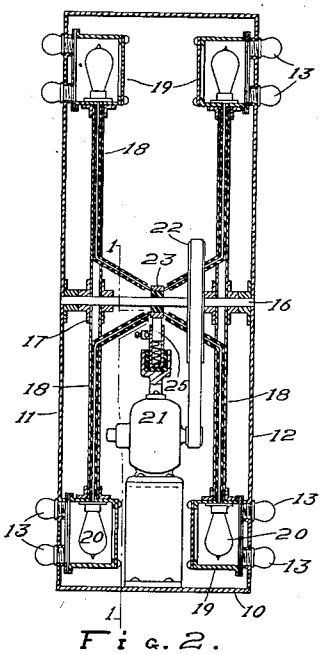

Fig. 2.

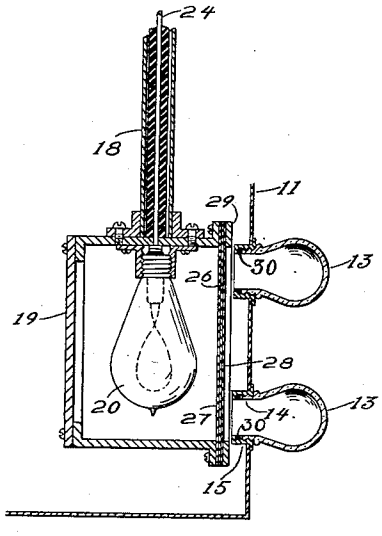

Fig. 3.

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ILLUMINATED SIGN.

1,037,294. Specification of Letters Patent. Patented Sept. 3, 1912.

Application filed September 1, 1911. Serial No. 647,201.

To all whom it may concern:

Be it known that I, HUGH MULHOLLAND, a citizen of the United States, and a resident of Cincinnati, Hamilton county, State of Ohio, have invented certain new and useful Improvements in Illuminated Signs, of which the following is a full, clear, and exact description.

My invention relates to that type of illuminated sign in which a design or the outline of one is formed by a series of separate illuminated points and the illumination is so controlled that the object appears to move. This is often embodied in the form of a circle of electric light bulbs representing a wheel and by turning on and off the individual lights around the circle, the wheel may be made to appear to rotate.

The object of my improved construction is to secure far more realistic results and at the same time render the operation more mystifying.

In carrying out my invention I employ hollow bulbs secured in perforations in a casing so as to form the desired design, and each simulating an electric light bulb. Each is open at the rear so as to be illuminated from a source of light in the casing. This source of light which is preferably an electric light is caused to move along in the rear of the hollow bulbs and illuminate them in succession. This gives a much more realistic appearance of actual movement of the design than if each bulb were an actual electric light and its current was alternately turned on and off. Furthermore the same effect can be produced with the expenditure of far less electric current and therefore at less cost. To render the sign still more effective and at the same time very mystifying I employ a plurality of the movable electric lights and between each one and the adjacent wall bearing the hollow bulbs is interposed a color screen movable with its corresponding electric light. Thus each hollow bulb will be illuminated first by light rays of one color and then another, and as, to the casual observer, each bulb appears to be a separate electric light it is not apparent how the color can be changed. Also the actual movement of the different color screens and electric lights along the line of bulbs, although concealed from view, aids very materially in giving the impression that the design formed by the hollow bulbs actually moves.

For a more detailed disclosure of the preferred embodiment of my invention reference is to be had to the accompanying drawing which forms a part of this specification, and in which similar reference characters indicate corresponding parts in the different views, and in which:

Figure 1 is a front view of a sign constructed in accordance with my invention, a portion of the front wall being broken away, to show a part on the line 1—1 of Fig. 2. Fig. 2 is a central vertical section on the line 2—2 of Fig. 1, and Fig. 3 is a detail section similar to a portion of Fig. 2 but on an enlarged scale.

In my improved sign I employ a casing 10 of any shape or size dependent upon the character of the display matter and the details of the moving parts employed. In the drawing I have illustrated this casing as being rectangular and having a wall 11 for the display matter. If the sign is to be supported against a wall or in such a position that only one face can be seen I would employ only one of the walls 11, but if the sign is to be so positioned that it can be seen from both sides then the opposite wall 12 may be made substantially identical with the wall 11. The wall 11 is formed of any suitable opaque material, for instance, sheet metal and the design constituting the display matter is formed by rows of perforations through the wall. The outer surface of the wall may be painted or otherwise ornamented to complete or improve the appearance of the design. A simple form of design may be produced by arranging the perforations in a circle and two or more concentric circles may be employed. If the sign is to be used for advertising automobile tires, wheels or other like bodies, a picture of the tire, wheel or the like could be painted on the wall 11 and two or more rows of perforations formed along circular parts of the illustration. In the drawing, I have illustrated the wall 11 as provided with two concentric rows of perforations and the outlines of an automobile tire, but have not shown any drawing or painting of the tire. Within each perforation or aperture I secure a hollow bulb 13 of such form and size as to simulate a small electric light bulb. Each bulb is hollow and

open at the rear and is rigidly secured within its corresponding perforation. For securing the bulbs I preferably form each with a threaded neck 14 adapted to be screwed into a collar 15 rigid with the wall 11. This permits any bulb to be easily removed or replaced and at the same time forms a substantially water tight joint. The collar may have an inwardly directed flange at its inner end to support a rubber gasket or washer 30 against which the end of the bulb may be screwed.

Within the casing I provide illuminating means so mounted as to permit of bodily movement past the rear ends of the bulbs so as to illuminate the latter in succession along the row or rows. If the bulbs 13 be arranged in the form of one or more circles then I mount the illuminating means to rotate about a center coincident with the center of the circle. As shown, I support two wheels upon an axle 16 at right angles to the walls 11 and 12, one of the wheels carrying illuminating means for the bulbs of the wall 11 and the other carrying illuminating means for the bulbs of the wall 12. The details of construction of the wheels except in so far as the illuminating means and color screens are concerned is unimportant. As shown each wheel has a hub 17 secured to the axle and a series of radial spokes 18 in the form of hollow tubes. Each spoke, at its outer end carries a box or compartment 19. The boxes or compartments are supported at such distances from the axle 16 as to come directly in the rear of and closely adjacent to the bulbs 13 and within each box or compartment is an illuminating device 20 preferably in the form of an electric light bulb. The boxes are closed at the sides and rear but permit the light from the bulb 20 to shine through the bulbs 13. Any suitable means may be employed for rotating the wheels as for instance a small electric motor 21 belted to a pulley 22 on the axle and any suitable means may be employed for conducting the current to the electric light bulb during the rotation of the wheel. I have not shown in any detail these parts as they involve nothing more than a wiring plan readily installed by any skilled electrician. I have shown a collar 23 on the shaft and connected to insulated wires 24 leading to and through the spokes to the electric light. A brush 25 contacts with the collar during the rotation of the latter and permits the continuous delivery of current. The return may be by separate wires or the casing may be the return circuit.

In the operation of the device the wheels are caused to rotate so that the bulbs 20 constituting the illuminating means will move along the rear ends of the bulbs 13 and illuminate them in succession. The illuminating means is concealed from view but the actual movement of this illuminating means, and the illuminating of the adjacent bulbs in succession gives the observer the impression that the circle of bulbs is actually rotating. To make this impression more realistic and at the same time to give the design an appearance difficult to explain by one not familiar with the principle of operation, I employ a series of color screens in connection with electric lights 20. As shown each box or compartment 19 has a color screen extending across the face thereof toward the adjacent wall bearing the bulbs 13 so that the light from the illuminating means 20 must pass through the screen to reach the bulbs 13. The color screen may be of any suitable material as for instance colored glass, and may be secured in any suitable manner. To obtain the rich color effect desired, and at the same time to reduce the liability of breakage I preferably form each color screen of a sheet of gelatin 26, held and supported between two sheets of transparent mica 27 and 28. The three sheets may be held in place by a removable frame or collar 29. In the form shown I employ four boxes or compartments for each wheel and may thus employ four color screens of different colors. If one color screen be green another red a third yellow and the fourth purple, each bulb 13 will be illuminated by light rays of the four different colors in succession, so that to the casual observer each bulb 13 which appears to be an electric light bulb will emit light rays of several colors. This is impossible with simple electric lights and therefore the effect produced upon the casual observer is mystifying and the sign commands attention. The use of the screens of different colors also aids very materially in giving the impression that the design actually moves. The attention will naturally center on the bulbs appearing to be of one particular color, for instance green, and as the green screen moves the eye will naturally follow the bulbs illuminated by the green rays and therefore the eye will travel around and around the design and the observer will readily believe that the entire design is rotating.

Various changes may be made in the details of construction and the arrangement of parts within the scope of my invention as defined in the appended claims, as the same effect could be produced by other mechanisms than the specific one illustrated.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. An illuminated sign having a wall provided with a circular row of apertures arranged to form display matter, bulbs projecting outwardly from said apertures, and simulating electric light bulbs, a series of illuminating means in the rear of said wall

and mounted to rotate about an axis substantially coincident with the center of said row and past said apertures and a color screen between said wall and said illuminating means, and movable with the latter.

2. An illuminated sign having a casing including a wall having a series of perforations arranged in a curved row and a box adjacent to the rear side of said wall and movable along said row, said box containing an electric light and having opaque side walls.

3. A casing having an apertured front wall the apertures being arranged to form display matter, a wheel within said casing and having a series of boxes or compartments each having opaque side and back walls, a colored screen extending across the side of each box or compartment toward said front wall, an electric light within each box or compartment and means for rotating said wheel.

4. A casing having an apertured front wall, the apertures being arranged to form display matter, and including rows, a series of electric lights movable along said rows in succession and a separate colored screen between each light and said wall and movable with its respective light.

5. A casing having a front wall provided with a row of apertures forming a circle, hollow bulbs secured at said apertures and simulating electric light bulbs, a wheel rotatably mounted within said casing and having a series of boxes or compartments in the rear of said circle of apertures, each box or compartment facing toward said wall and a separate electric light in each box or compartment for illuminating said bulbs in succession along the circle as said wheel rotates, whereby the circle of bulbs is caused to appear to rotate.

6. A casing having oppositely disposed walls each provided with a circular row of apertures, hollow bulbs secured within said apertures and projecting outwardly from opposite sides of said casing, two separate wheels within said casing both rotatable about an axis substantially coincident with the centers of said circular rows, an electric motor within said casing for rotating said wheels, each of said wheels having a series of compartments opening toward its corresponding wall and disposed adjacent to the perforations of said wall, and a separate electric light within each compartment.

7. An illuminated sign having a wall provided with two concentric circular rows of apertures, a wheel in the rear of said wall mounted to rotate about an axis substantially coincident with the center of said rows, and a series of illuminating means carried by said wheel and movable along said rows parallel with said wall during the rotation of said wheel.

8. An illuminated sign having a wall provided with a circular row of apertures, bulbs projecting outwardly from said apertures and simulating electric bulbs, and a series of illuminating means in the rear of said wall and mounted to rotate about an axis substantially coincident with the center of said row and past said apertures.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HUGH MULHOLLAND.

Witnesses:
JOHN H. WILSON,
TILLY E. WILSON.