UNITED STATES PATENT OFFICE.

HARRY RAFF, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO NORVIN J. STEINAU, OF LOUISVILLE, KENTUCKY.

ADVERTISING DISPLAY SIGN AND THE LIKE.

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To all whom it may concern:

Be it known that I, HARRY RAFF, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Advertising Display Signs and the like, of which the following is a specification.

The present invention has to do with certain improvements in advertising display signs. The invention has reference particularly to a display sign so constructed that it will display the images of objects in moving condition, so as to improve the realism and the attractiveness of the display. In this connection, one of the features of the invention is to provide an advertising display sign so constructed that the movement of the image will be brought about with the simultaneous movement of one portion of the sign, occasioned by the heat generated by the illuminating element. In this connection, another object is to provide a very simple construction of sign and one which can be cheaply manufactured.

Another object of the invention is to provide a construction such that the images may be produced in color, and in more than one color if desired, so as to still further improve the realism and the effectiveness of the display.

Other objects and uses of the invention will appear from a detailed description of the same, which consists in the features of construction and combinations of parts hereinafter described and claimed.

In the drawing:

Figure 1 shows a perspective view of a simple form of advertising display sign embodying the features of the present invention, the screens being broken away so as to more clearly reveal the interior construction;

Fig. 2 shows a perspective view of a flue and the hot air fan supported thereby;

Fig. 3 shows a perspective view of the slotted sleeve;

Fig. 4 shows a face view on reduced scale showing a simple form of image screen; and

Fig. 5 shows a fragmentary cross section through the screens illustrated in the construction of Fig. 1.

In the arrangement shown in Fig. 1, I have illustrated a box like structure 6 open at its front side which may, however, be closed by suitable screens, said box like structure being provided also with a slanting roof 7.

On the interior of the box like structure, and preferably supported by the floor is an illuminating element such as an electric lamp or the like 8. A flue 9 is seated on the floor around this lamp, said flue having in its lower portion one or more notches 10 through which relatively cool air is admitted. The air within the flue is heated by the lighting element and rises through the flue, so that an upwardly flowing current is thus secured.

Supported by the upper end of this flue is a fixture having a series of arms 11 which support a central upstanding pin 12. A fan 13 is pivoted on the upper end of this pin and will rotate under the influence of the rising current of air.

Supported by the blades of the fan 13 is a sleeve 14 which hangs down around the flue 9, but is sufficiently large to clear the flue, so that the sleeve can rotate without interference, and under the turning effort produced by the fan. The sleeve 14 is conveniently supported from the blades of the fan by means of the hooks 15.

The flue 9 is made of opaque material but is provided with one or more openings through which beams of light are passed. These are the openings 16, 17 and 18 of Fig. 2. The light coming through these openings is in the form of steady beams directed toward the observer. The sleeve 14 is made of opaque material and provided with a series of openings located around the periphery and in position to receive the light from each of the beams passing through the flue openings 16, 17 and 18. These peculiarly shaped openings of the sleeve 14 are designated 19, 20 and 21 respectively. Assuming
that the sleeve 14 rotates in the direction of the arrow at the bottom of Fig. 3, it will be seen that the light of the beams from the openings 16, and 17 and 18 will be caused to vibrate up and down in a peculiar manner depending upon the shape of the openings 16, 17, and 18, the shape of the openings 19, 20, and 21, and the direction and speed of the rotation of the sleeve 14. This vibration of the light beams is due to the manner in which the openings 16, 17, and 18 register with the openings 19, 20, and 21 during relative rotation of the sleeve 14 as compared to the flue 9.

An image screen 22 of ground glass or the like is placed across the front open side of the box-like structure 6. This image screen is conveniently set into the vertical side grooves 23 and 24 of the box-like structure. The peculiarly moving beams of light will be intersected on this image screen, where they will be visible to the observer and will oscillate or vibrate therein in a peculiar manner.

Between the image screen 22 and the rotating sleeve 14 is placed an object screen 25. This object screen may be set into suitable grooved retainers 26 in the sides of the box-like structure. This object screen 25 is provided with a series of openings 27, 28 and 29 in position to receive the light rays from the various openings of the sleeve 14, so that representations of objects placed in the openings 27, 28 and 29 will be illuminated in the peculiar manner dictated by the form and movement of the openings 19, 20 and 21. For example, if a transparent picture of an automobile is placed in the opening 27 of the object screen, it will be illuminated by the dancing rays of light from the openings 19, and by proper form of these openings said rays of light may be caused to dance in the manner of flames of fire, and by having the automobile picture formed on a red screen, these rays will dance in such a manner as to give the appearance of an automobile on fire. In a similar manner other stationary pictures may be made to appear animated, as for example, a boat may be made to appear as floating upon a sea of moving waves, or an aeroplane may be made to appear as if traveling through the clouds of the sky.

While I have herein shown and described only a single embodiment of the features of my present invention, still I do not limit myself thereto except as I may do so in the claims.

I claim:

1. An animated display sign comprising in combination a suitable housing having a translucent image screen on which a light image may be displayed, an illuminating element within said housing, an opaque tubular flue surrounding said illuminating element and having passages at its lower end for the entrance of cool air, the air within said flue being heated by the illuminating element and rising therethrough, there being a light opening in the flue for the passage of a beam of light, an air fan pivotally supported above the top of the flue in position to be driven by the upwardly flowing current of air, an opaque sleeve surrounding the flue and supported from the fan and rotatable with the fan to thereby rotate relatively with respect to the flue, there being a series of peculiarly shaped openings circularly placed around the sleeve and in alignment with said beam of light, whereby rotation of the sleeve relatively to the flue causes continual change of the point of intersection of the sleeve openings with the beam of light, and an object screen located between the sleeve and the image screen and having thereon an object to be illuminated by the light coming through the openings of the flue and the openings of the opaque sleeve during relative rotation, whereby the image of said object is projected on the image screen in a moving manner depending upon the relative shapes and movements of the openings of the flue and sleeve, substantially as described.

2. An animated display sign comprising in combination a suitable housing having a translucent image screen on which a light image may be displayed, an illuminating element within said housing, an opaque tubular flue surrounding said illuminating element, there being a light opening in the flue for the passage of a beam of light, an opaque sleeve surrounding the flue and rotatable with respect thereto, there being a series of peculiarly shaped openings circularly placed around the sleeve and in alignment with said beam of light, whereby rotation of the sleeve relatively to the flue causes continual change of the point of intersection of the sleeve openings with the beam of light, and an object screen located between the sleeve and the image screen and having thereon an object to be illuminated by the light coming through the openings of the flue and the openings of the opaque sleeve during relative rotation, whereby the image of said object is projected on the image screen in a moving manner depending upon the relative shapes and movements of the openings of the flue and sleeve, substantially as described.

3. An animated display sign comprising in combination a suitable housing, an illuminating element within said housing, an opaque tubular flue surrounding said illuminating element, there being a light opening in the flue for the passage of a beam of light, an opaque sleeve surrounding the flue
and rotatable with respect thereto, there being a series of peculiarly shaped openings circularly placed around the sleeve and in alignment with said beam of light, whereby rotation of the sleeve relatively to the flue causes continual change of point of intersection of the sleeve openings with the beam of light, and an object located in position to be illuminated by the light coming through the openings of the flue and the openings of the opaque sleeve during relative rotation, whereby said object is illuminated in a changing manner depending upon the relative shapes and movements of the openings of the flue and sleeve, substantially as described.

HARRY RAFF.