Oct. 11, 1938. N. EN HOLM 2,132,472

MIRROR SIGN

Filed July 9, 1937 2 Sheets-Sheet 1

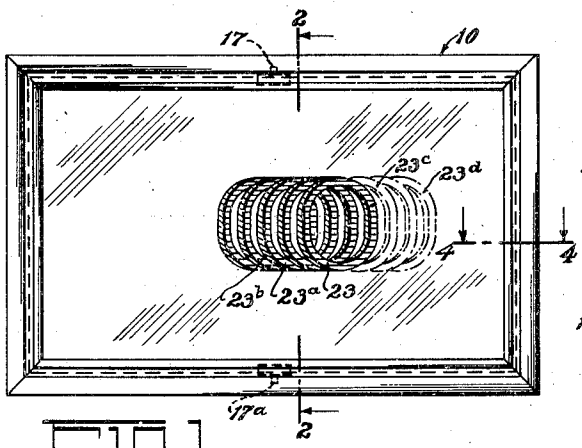


FIG. 1

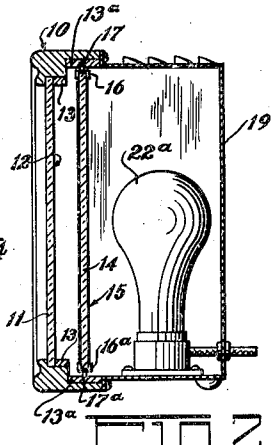


FIG. 2

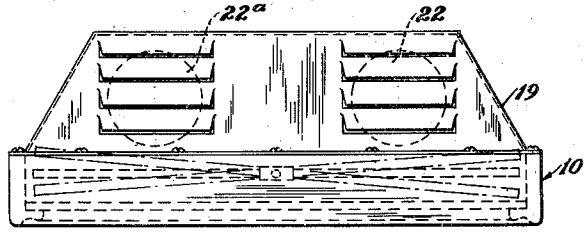


FIG. 3

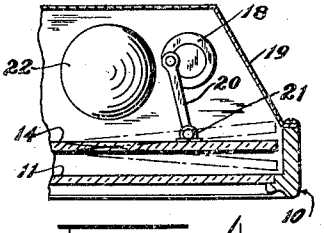


FIG. 4

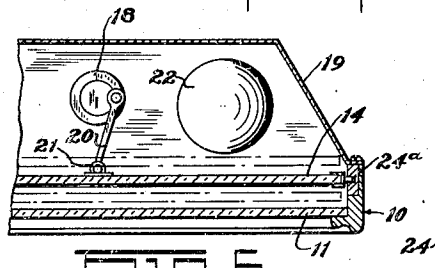


FIG. 6

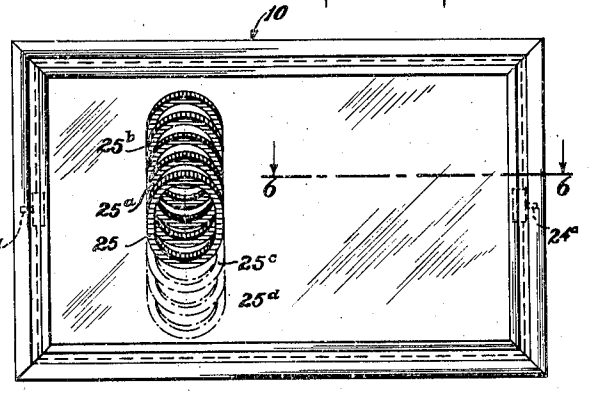


FIG. 5

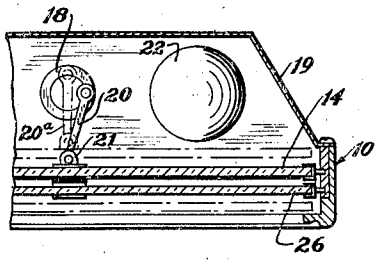


FIG. 7

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MIRROR SIGN

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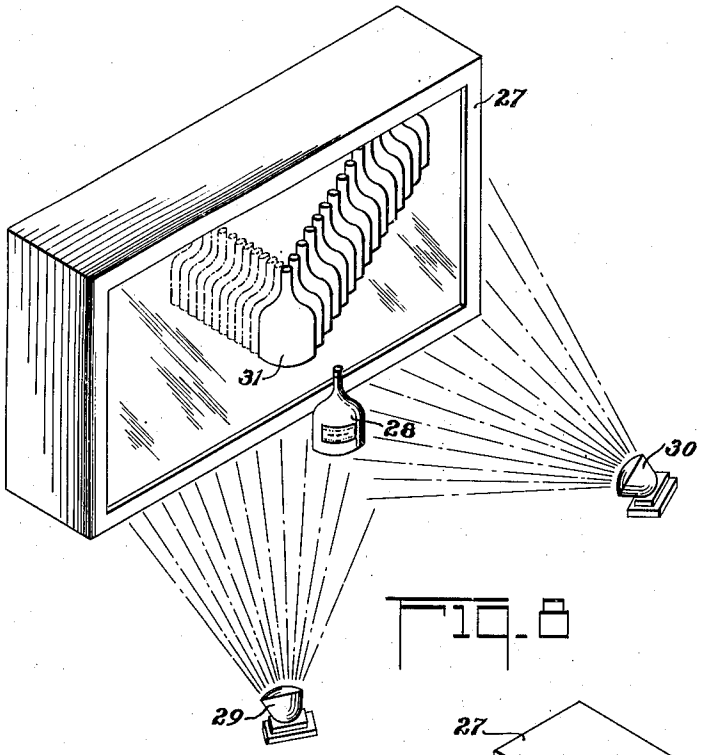


Fig. 8

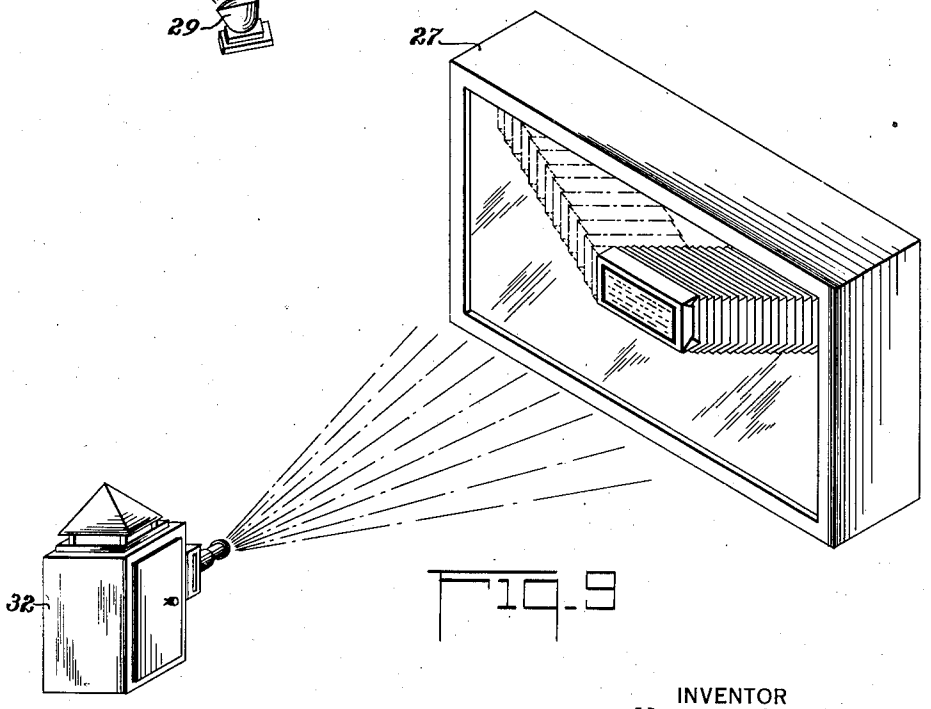


Fig. 9

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2,132,472

MIRROR SIGN

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Application July 9, 1937, Serial No. 152,698

8 Claims. (Cl. 40—132)

This invention relates to a mirror sign for advertising or the like of the type having a plurality of reflecting mirrors spaced apart from each other to produce multiple images of the indicia comprising the sign.

An object of the invention is to provide a sign of the character described in which the multiple images appear to move and thereby produce new and novel effects not heretofore obtainable.

Another object is to provide a sign of improved construction in which multiple images are produced by a simple mechanism enclosed within the casing of the sign.

A further object is to provide a sign in which the multiple moving images are brilliantly illuminated by means enclosed within the sign casing.

Other objects and advantages will appear from the following specification, it being understood that modifications, variations and adaptations may be made without departing from the invention hereinafter claimed.

In the accompanying drawings:

Figure 1 is a front view of a sign embodying the invention having one mirror pivoted on a vertical axis;

Figure 2 is a sectional view on the line 2—2, Figure 1;

Figure 3 is a top view of the sign, Figure 1;

Figure 4 is a sectional view on the line 4—4, Figure 1;

Figure 5 is a front view of a sign similar to that shown in Figure 1, but having a modified form of construction in which one mirror is pivoted on a horizontal axis;

Figure 6 is a sectional view on the line 6—6, Figure 5;

Figure 7 is a sectional view of a sign similar to that shown in the preceding figures, but with both mirrors pivoted on horizontal axes;

Figure 8 is a diagrammatic view of a sign containing two mirrors, one or both of which may be movable and instead of the indicia being on the mirrors the indicia consists of a reflection of the object itself placed in front of the mirror, the object being illuminated from the front; and

Figure 9 is a diagrammatic view of a sign of the character described in which the indicia on the sign is produced by projecting an image from a suitable projector.

The main feature of this invention consists of pivoting or suspending one or both of the mirrors in the sign so that they are relatively movable and moving one or both mirrors to produce the effect hereinafter described.

The mirrors may be mounted to move about vertical axes, or about horizontal axes, or one may be mounted to move in one plane and the other in an opposite plane. Obviously, any combination of motions can be used, once the principle herein disclosed is understood, and therefore no attempt is here made to disclose the many combinations that can be effected as these are obvious to those skilled in the art.

However, one type of sign is illustrated with a mirror pivoted to swing in a horizontal plane, another to swing in a vertical plane, and a third having both mirrors movable. From these examples other combinations using one or two mirrors and all possible combinations of horizontal and vertical pivoting will be obvious.

In Figure 1 the numeral 10 denotes a front casing of any suitable material and construction which supports a transparent mirror 11 which may consist of a sheet of glass or other transparent material provided with a thin coating 12 of silver on its rear face, which coating is just sufficient to form a reflecting surface by reflected light and sufficiently thin to enable one to see through the glass. This mirror is held in the casing by the battens 13.

Immediately in the rear of mirror 11, but spaced a small distance therefrom, is the rear mirror 14 having on its rear face a thick silvered coating 15 which is not transparent to transmitted light.

The indicia or advertising matter to be displayed by the sign to form movable multiple images may consist of any desired lettering, picture or design and is formed by removing the coating 15, leaving the plain glass 14 where the indicia is to appear. The spaces so made are then coated (either on the front or rear of glass 14) if desired, with suitable transparent colors. This provides a translucent design on the rear mirror 14.

The mirror 14 has secured thereto in any suitable manner such as by brass clamps 16—16a, the pivots 17, 17a supported in the rear battens 13a so that the mirror is free to turn about a vertical axis. To move this mirror, any suitable means such as the small electric motor 18 may be employed, and this may be mounted within the rear casing 19 and connected to the mirror 14 in any suitable manner as by the crank 20, one end of said crank being connected to the lower edge of the mirror in any suitable manner, as shown at 21. It will be understood that the motor 18 may have any well known form of internal or external gearing so that the crank 20 will oper-

ate at the proper speed to produce the desired result.

The translucent design on mirror 14 is adapted to be illuminated by means of a suitable light source such as the electric lamps 22, 22a which are mounted in the closed casing formed by 10 and 19.

With the mirrors arranged as above set forth and with the design formed as described, light rays from the lamps 22, 22a are directed through the translucent design on the rear mirror, and reflected images will be produced of said design and an image will be produced of the design at a distance in front of the rear face of the front mirror 11 which will be equal to the distance between the said rear face of mirror 11 and the rear face of the rear mirror 14. That image will in turn produce an image appearing as far behind the rear face of mirror 14 as the first image is before the rear face of the mirror 14.

The second image will give rise to a further image by reflection from the mirrored rear surface of the front mirror 11 and these images will be repeated and formed a multiple number of times directly behind one another and at a distance apart.

When the light rays from the lamps are projected through the rear mirror in this manner, part of said rays are transmitted through clear glass around the colored areas and therefore a greater illumination of the reflected images of the advertising design is produced and there will be obtained a brilliantly lighted effect. The increase of illumination makes it possible to effect the production of a greater number of reflected images and therefore the illusion of the repetition of the advertisement is enhanced.

Such effects are old in the art where both mirrors have been stationary, the sign producing no illusion of motion, the lettering or other advertising being stationary. However, with the present invention, the motor 18 being in operation, the entire multiple image is apparently in motion and any given point thereof; for example, the O indicated at 23; will apparently move to the left to a line of positions 23a, 23b, etc., and then to the right 23c, 23d, etc., and this back and forth motion will continue while the lamps 22, 22a and the motor 18 are in operation, giving rise to effects heretofore unobtainable and of such large variety and complexity that no attempt is made to describe them here.

Figures 5 and 6 illustrate a modification of the sign as just described in that the rear mirror 14 is here pivoted to move about a horizontal axis formed by the pivots 24, 24a. In this construction the sign in operation will display any given point of the multiple image, for example, the O shown at 25, Figure 5 as progressing vertically upward to the points 25a, 25b, etc., and then downward to the points 25c, 25d, etc.

Figure 7 shows a further modification of the construction wherein both mirrors may be pivoted. They can both swing horizontally, vertically, or in any combination. Here, for the sake of illustration, the front mirror 26 and rear mirror 14 are pivoted the same as the rear mirror 14 of Figure 5. The motor 18 is connected via cranks 20 and 20a to move both mirrors as shown. By this arrangement further beautiful effects are obtained, the apparent movement of the advertising being a compound motion depending upon the relation of the individual motions of the two moving mirrors.

While the term "translucent" has been applied to the indicia or design on one of the mirrors, it will be understood that any suitable indicia or design may be employed, either translucent or opaque, and that such design may be applied wholly or partially on any of the surfaces of either of the mirrors or may be projected on the device from an outside source or reflected thereon.

The light source is shown as behind the rear mirror. It will be understood this light source may be located anywheres relative to the indicia in order to illuminate the same, for example, in front of the sign, or above or below the same. The location and method of illuminating the indicia can therefore be varied within wide limits.

To indicate that the indicia may be reflected on to the sign or projected thereon, and to illustrate that the light source may be located in any suitable position, reference is made to Figures 8 and 9, and referring to Figure 8, the numeral 27 denotes a sign in which one or both mirrors may be movable as heretofore described, and in which neither mirror need contain any indicia or there may be some indicia on any one of the surfaces of either mirror but a part of the indicia is reflected on to the sign. An object, such as the bottle 28 (Figure 8) is illuminated by beams of light from the lamps 29, 30. This projects an image of this bottle, indicated at 31, on to the front translucent mirror 11; an image is thereby formed on this mirror. This image is likewise formed on the rear mirror 14 and multiple reflected images are produced, as shown in Figure 8, the two mirrors cooperating to produce these images in the same manner as described in connection with the preceding figures.

In Figure 9, the operation of the sign is similar to that described in connection with Figure 8, the sign 27 receiving indicia projected thereon from any suitable source such as the stereopticon 32, the primary image being on a film or lantern slide of the ordinary type. In this embodiment of the invention, the projected image falls on the front mirror 11 and is reflected by the rear mirror 14 in the manner just described.

It will be observed in connection with the arrangement shown in Figures 8 and 9, that it is not necessary to have a light source within the casing of the sign 27 and that said casing, together with the two mirrors and the mechanism for moving one or both of said mirrors, as heretofore described, comprises a complete sign unit adapted to reflect in multiple images any object either directly reflected thereby as shown in Figure 8 or the image of which is projected thereon as shown in Figure 9.

What is claimed is:

1. In a sign of the class described, a casing, a sheet of transparent material having a translucent reflecting coating on one of its faces and forming a front mirror in said casing, a rear mirror in said casing having a translucent design, said mirrors having opposed reflecting surfaces, and means for continuously moving one of said mirrors.

2. In a sign of the class described, a casing, a sheet of transparent material having a translucent reflecting coating on one of its faces forming a front mirror and supported in said casing, a rear mirror pivotally supported in said casing, said mirrors having opposed reflecting surfaces, and means in said casing connected to said last mirror to continuously oscillate the same to cause the opposed surfaces of said mirrors to assume varying relative angular positions whereby mul-

tiple reflections are produced by the cooperative effect of said mirrors.

3. The combination as claimed in claim 2 including means in said casing for illuminating said mirrors.

4. In a sign of the class described, a front casing, a translucent mirror supported thereby, a second mirror supported in said casing, said mirrors having opposed reflecting surfaces, a rear casing connected to said front casing, means for continuously moving at least one of said mirrors relative to the other enclosed by said casings to cause the opposed surfaces of said mirrors to assume varying relative angular positions whereby moving multiple reflections are produced by the cooperative effect of said mirrors, and a light source enclosed thereby.

5. In a sign of the class described having a casing, a translucent mirror supported therein, a mirror member having part of its surface forming an opaque reflecting surface and other parts of its surface formed to produce translucent indicia supported in said casing, said mirrors having opposed reflecting surfaces, and means for oscillating said member including an electric motor supported by said casing whereby multiple reflections are produced by the cooperative effect of both said mirrors.

6. In a sign of the class described having a casing, a translucent mirror supported therein, a mirror member having part of its surface forming an opaque reflecting surface and other parts of its surface formed to produce translucent indicia supported in said casing, said mirrors having opposed reflecting surfaces, clamps secured to the edges of said member, pivot members secured to said clamps, said last members being supported by said casing to permit said mirror member to oscillate, and means including an electric motor having a crank arm connected to said mirror to oscillate the same whereby multiple reflections are produced by the cooperative effect of both of said mirrors.

7. In a sign of the class described, a sheet of transparent material forming a mirror, a second mirror adjacent thereto, said mirrors having opposed reflecting surfaces, means for continually moving one of said mirrors relative to the other to cause the opposed surfaces of said mirrors to assume varying relative angular positions whereby multiple reflections are produced by the cooperative effect of said mirrors, and indicia adapted to be multiply reflected thereby.

8. In an apparatus of the class described, a plurality of mirrors, having opposed reflecting surfaces, means for causing a primary image to fall on one of said mirrors, and means for causing a continuous relative motion between said mirrors to cause the opposed surfaces of said mirrors to assume varying relative angular positions whereby multiple reflections are produced by the cooperative effect of said mirrors.

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