Dec. 27, 1938. D. B. CARD 2,141,344

SIGN

Filed Feb. 23, 1937 2 Sheets-Sheet 1

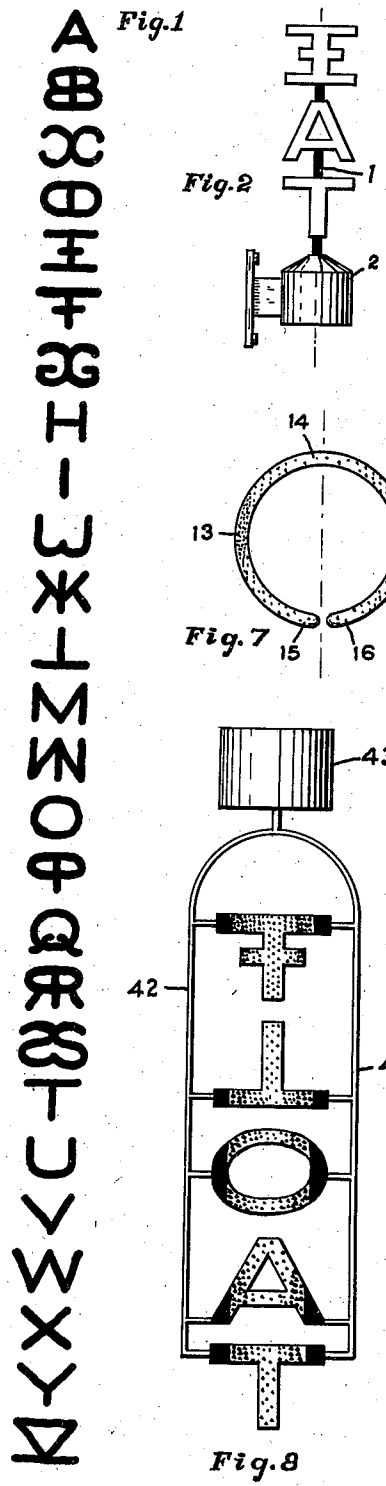


Fig.1

Fig.2

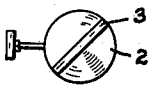


Fig.3

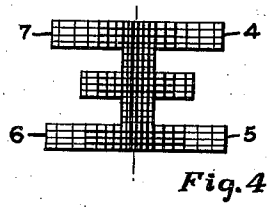


Fig.4

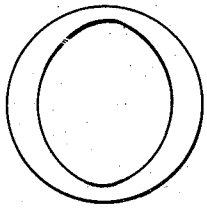


Fig.6

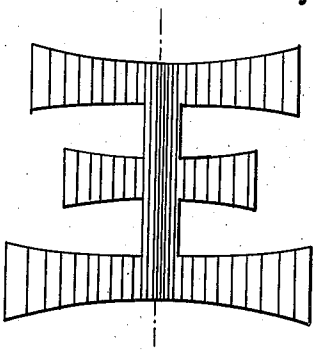


Fig.5

Fig.7

Fig.8

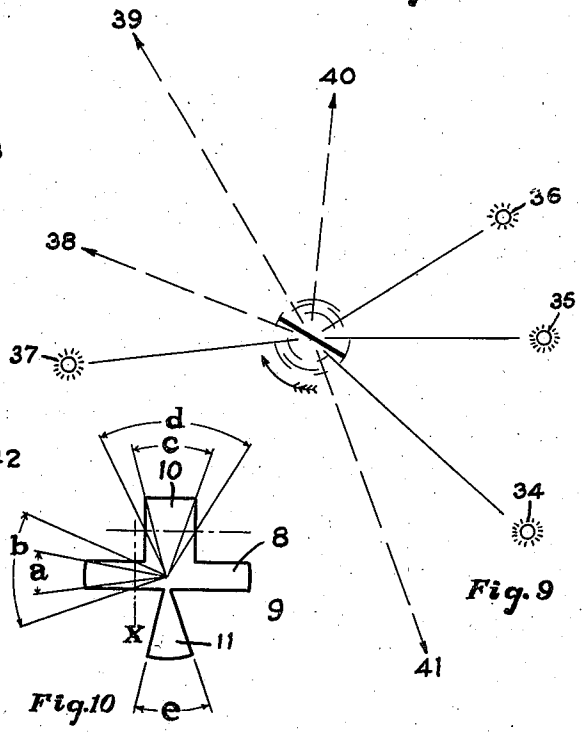


Fig.9

Fig.10

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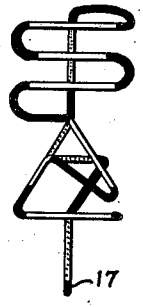


Fig.11



Fig.12

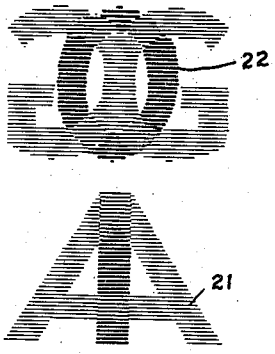


Fig.13

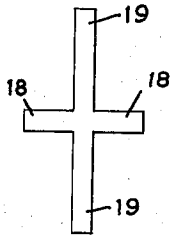


Fig.14

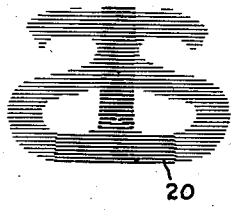
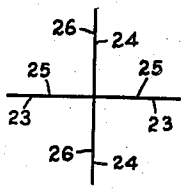


Fig.15



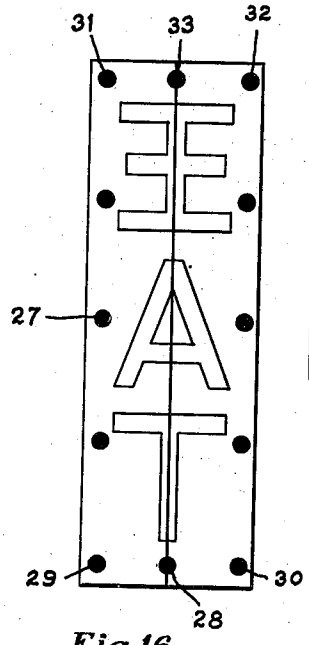


Fig.16

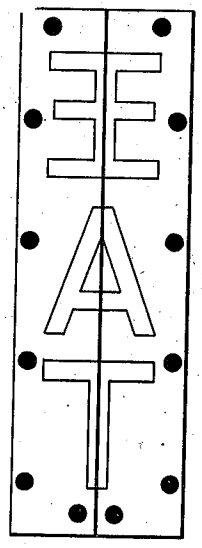


Fig.17

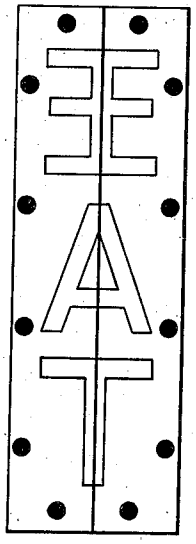


Fig.18

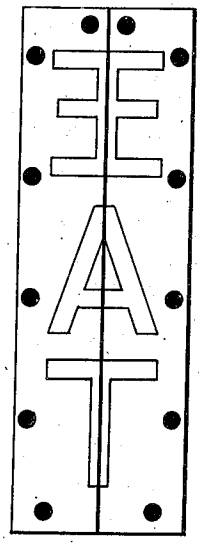


Fig.19

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UNITED STATES PATENT OFFICE

2,141,344

SIGN

Don B. Card, Portland, Oreg.

Application February 23, 1937, Serial No. 127,065

11 Claims. (Cl. 40—33)

My invention relates to signs of the type wherein revolving members are employed to produce certain illusory effects.

The principal object of my invention is to provide a new medium for the exploitation of the artist characterized by dynamic and three-dimensional aspects.

Other objects and advantages of my invention will be apparent in the following discourse wherein the significance of the reference numerals in the accompanying drawings, suggestive details of construction and operation of signs embodying my invention, and the particular advantages thereof are explained.

Figure 1 is a group of twenty-six characters intended to represent the respective letters of the alphabet in usual sequence.

Figure 2 represents a complete sign in elevation.

Figure 3 represents a view of the top of the sign shown in Figure 2.

Figure 4 represents a certain optical effect of the sign in operation.

Figure 5 is a diagram illustrative of a manner of using the optical effect shown in Figure 4.

Figure 6 is a diagram illustrative of a variant treatment of the effect shown in Figure 4.

Figure 7 is a diagram illustrative of the variation of density of brilliant-tube gas elements under operating conditions.

Figure 8 represents a view in elevation of a complete sign of variant form.

Figure 9 is a diagram illustrative of the sweep of reflected light rays emanating from a sign in operation.

Figure 10 is a diagram illustrative of the causes of the optical effects depicted in the other views.

Figure 11 represents the legend element of a sign made from neon-tube elements.

Figure 12 represents the optical effect of the sign shown in Figure 11 in operation.

Figure 13 represents the optical effect of a sign constructed to display superimposed words or characters.

Figure 14 is a diagram illustrative of a certain form of the top view of a sign producing the effect shown in Figure 13.

Figure 15 is a diagram illustrative of the form of the top view of a sign shown in several aspects in the Figures 16, 17, 18, and 19.

The characters chosen for this use as illustrated in Figure 1 were designed with two ends in view, namely, such analogy to the Roman letters as would render them easily legible, and symmetry of form about a median vertical axis. The characters are plane figures or at least flat fashioned forms having lateral aspects of lines and similar obverse and reverse aspects as suggested in Figure 1.

These characters, when rotated, present identical forms to all points of the entire azimuth insofar as the human eye may detect, thus rendering them legible from any point of the horizon from which a clear view may be had.

Figure 2 shows a sign displaying the word "EAT", the separate characters of which are mounted on the median vertical axes, or the axes of symmetry thereof, upon a shaft **1** the lower end of which is attached to a motor **2** to provide for rotation of the sign. The topmost surface of the upper letter is shown at **3** in Figure 3.

When this sign is in operation, that is in rapid rotation, the characters present the appearance suggested in Figure 4. The more nearly central portions of the letter appear to be of more solid color and substance than do the extremities as **4**, **5**, **6**, and **7**, due to the variant lengths of time the several portions are exhibited to view. This is illustrated in Figure 10. A portion remote from the center of rotation as **8** and of the thickness indicated would present an extremity as **9** at the full radial dimension thereof only during its passage through the relatively small arc of the magnitude "*a*" while a portion located on the line "*x*" would be presented at approximately the same position during its passage through a relatively greater arc of the magnitude *b*.

Since angular magnitudes in this instance are measures of time, the more nearly central portions will remain in view for a longer time than those more remotely positioned and the latter will present a more or less diaphanous aspect if the characters are made of uniform color. The degree of transparency of the extremities as related to the central portions may be effected in several ways.

If the characters be made thicker as at **10** this shading will be less abrupt as indicated by the relative angular magnitudes "*c*" and "*d*". Also, the shading may be compensated by constructing letters with radial surfaces as at **11** when the angular magnitudes "*e*" will be identical for all portions.

The artist may take advantage of these effects to accentuate or modify color and shade effects to produce striking artistic balances of shade and form in three dimensions. For example, the diaphanous portions may be increased in size as suggested in Figure 5, or the same may be colored

in deeper or brighter hue as suggested in Figure 8.

In Figure 6 is shown a manner of modifying the form of the letter "O" made in a single shade of color. In Figure 7 the effects of rapid rotation upon neon tubing are shown. Here the gas is compressed toward the extremities 12 and 13 and rarefied at 14, 15, and 16, due to the centrifugal forces involved. The effects of the varying densities of the gas and the consequent modification of electrical conductivity may be availed of to produce novel effects.

My invention is not alone applicable to fashioned letter-forms but has corresponding application to painted signs in which a single surface may be used or a plurality thereof in angularly spaced relationship as illustrated by the Figures 15 to 19, in which identical markings identically positioned with reference to axis of rotation may be used, or in which identical or complementary markings may be used to achieve certain mechanical or illusory advantages.

In Figure 11 a continuous neon tube extends upwardly from the terminus 17 along the course indicated with dots through the tube, and downwardly through the course indicated by the plain tube to form a sign having the appearance, from a slightly elevated viewpoint, shown in Figure 12. The rapid rotation of the sign conceals the irregularities of character formation. Advantage may be taken thereof to render available certain facilities of construction which may be inherent.

A plurality of tubes of different color disposed in several angularly separated planes may be used to complement or supplement these effects to provide the medium of shading or color schemes for the exploitation of the artist.

Such a use is illustrated in Figure 13 where two words worked in different color have been disposed in two intersecting perpendicular surfaces as shown in Figure 14 which represents the top of a sign bearing the words "OIL" and "GAS" as shown in Figure 13; the word "oil" being disposed in the member 18 and the word "gas" being disposed in the member 19. At certain portions as 20 in Figure 13 the two colors will blend while in other portions the colors retain the same tint as at 21 and 22.

In the sign illustrated in Figures 15 to 19, two pieces of sheet metal are joined to form four surfaces indicated in Figure 15 at 23, 24, 25, and 26, which will appear to any beholder in the order of the reference numerals designating the same. Each of these surfaces is separately shown in the Figures 16 to 19 respectively.

The optical effect produced in this sign is characterized by motion of some of the characters. The large dots as 27 appear to be emerging from the position of the dot 28 in Figure 16 and traveling in pairs in opposite directions outwardly to the respective positions 29 and 30 and thence upwardly along both sides of the sign to the respective positions 31 and 32, and finally to move inwardly to the position 33 from whence they disappear. This is accomplished by phasing the positions of the dots as is well understood.

In any sign of the kind employing plane reflecting surfaces, another valuable characteristic is inherent. In Figure 9 the courses of light rays proceeding from extraneous sources as 34, 35, 36, and 37, are traced to the respective destinations thereof at 38, 39, 40, and 41 where they will strike the eye of an observer with but slightly reduced brilliance. Since the sign rotates, these reflected rays will sweep the horizon and thus afford an enhanced degree of illumination and hence visibility; the effects, of course, being utilized with discretion and trained judgment.

The sign illustrated in Figure 8 employs the effects tending to render the outermost extremities invisible to conceal the structure 42 upon which the letters are mounted and thus present the appearance that the letters are unsupported or floating in the air when whirled by the motor 43.

Having described my invention, what I claim is:

1. A sign comprising, symmetrical substantially flat characters selected from the general forms composed of the asymmetric letters of the Roman alphabet associated with the respective reverse forms thereof in symmetrical arrangement and the symmetric letters of the Roman alphabet.

2. A sign comprising, symmetrical substantially flat characters selected from the general forms composed of the asymmetric letters of the Roman alphabet associated with the respective reverse forms thereof in symmetrical arrangement and the symmetric letters of the Roman alphabet wherein the axes of symmetry of said characters are coincident with the axis of rotation in a revolving sign.

3. A sign comprising, symmetrical substantially flat characters composed of the obverse and reverse forms of Roman lettering conjoined in symmetrical arrangement, and power means to support and rotate said characters about the axes of symmetry thereof, wherein the said characters are finished in hues of varying color values graded from the axes of symmetry outwardly.

4. A sign comprising, symmetrical substantially flat characters composed of the obverse and reverse forms of Roman lettering conjoined in symmetrical arrangement, and power means to support and rotate said characters about the axes of symmetry thereof, wherein the said characters are finished in hues of varying color values graded from the axes of symmetry outwardly and the dimensions of the said characters are proportional to distances thereof from the axes of rotation.

5. A sign comprising, symmetrical substantially flat characters composed of the obverse and reverse forms of Roman lettering conjoined in symmetrical arrangement, and power means to support and rotate said characters about the axes of symmetry thereof, wherein the said characters are so formed as to provide dimensions of the several portions thereof proportional to distances thereof from the axes of rotation.

6. A sign comprising, a motor, a shaft rotatably connected to said motor, and symmetrical characters composed of the obverse and reverse forms of Roman lettering conjoined in symmetrical arrangement attached to said shaft and aligned therewith upon the axes of symmetry of said symmetrical characters.

7. A sign comprising, motor means, an open frame rotatably connected to said motor means disposed remotely from the axis of rotation thereof, and symmetrical characters supported within said frame and aligned with the axes of symmetry thereof coincident with the axis about which said frame rotates.

8. A sign comprising, symmetrical substantially flat characters made of luminous tube elements in forms composed of the obverse and reverse forms of Roman lettering conjoined in symmetrical arrangement.

9. A sign comprising, a plurality of groups of fragmentary characters disposed in a plurality of planes mounted to rotate upon a single axis, said characters being complementary and to-

gether presenting when whirling the forms of symmetrical characters composed of the obverse and reverse forms of Roman letters conjoined in symmetrical arrangement.

10. A sign comprising, a plurality of groups of characters composed of the symmetric Roman letters in combination with characters formed of the asymmetric Roman letters arranged in symmetrical pairs consisting of the obverse and reverse forms thereof disposed in a plurality of planes mounted to rotate upon a single axis to display a plurality of superimposed words or characters.

11. A sign comprising, a plurality of devices or markings disposed in a plurality of planes mounted to rotate upon a single axis, wherein the said devices or markings are disposed in phased relationship upon the several planes to present when whirling the appearance of movement of the said devices or markings.

DON B. CARD.