Feb. 20, 1923. 1,445,874

J. S. DIAMOND

CHANGEABLE SIGN

Filed May 6, 1921 2 sheets-sheet 1

Fig. 1.

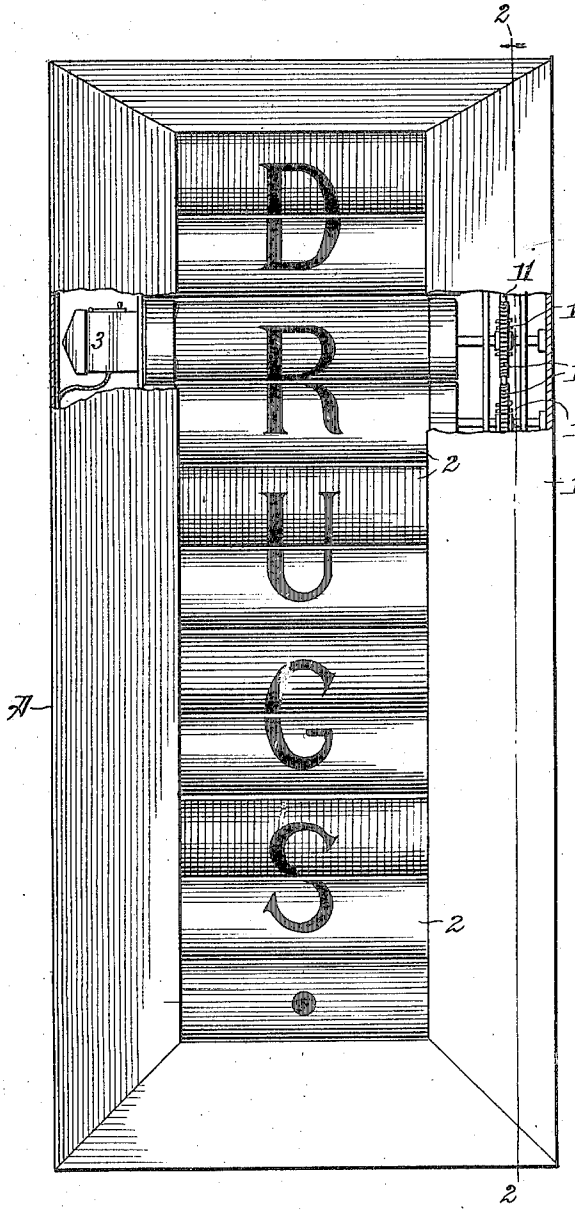

Fig. 2.

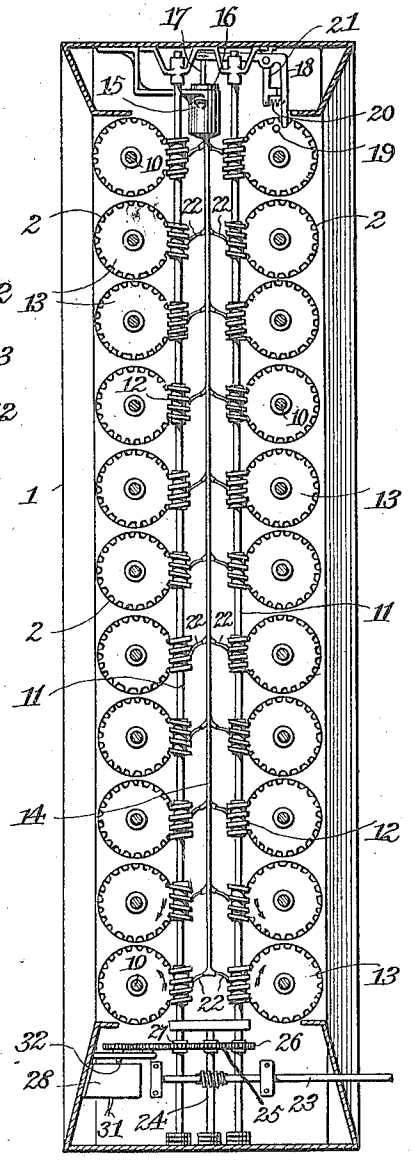

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Fig. 3.

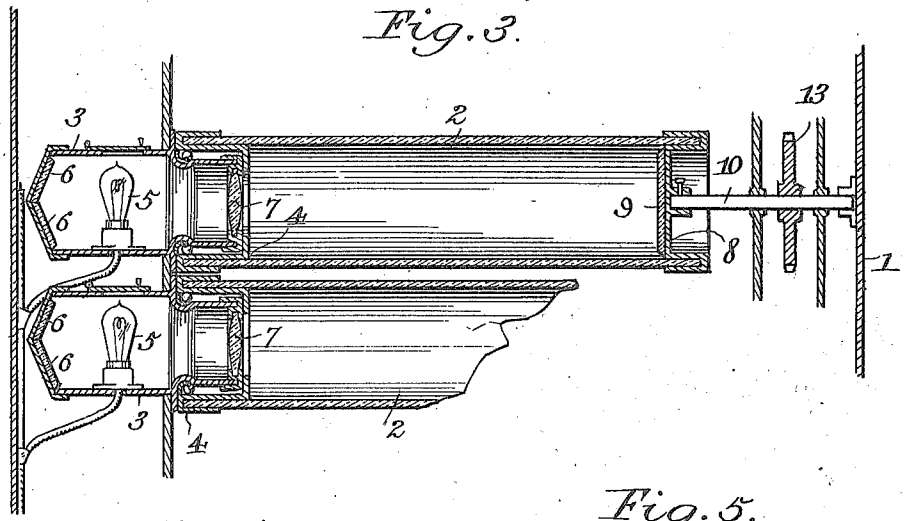


Fig. 4.

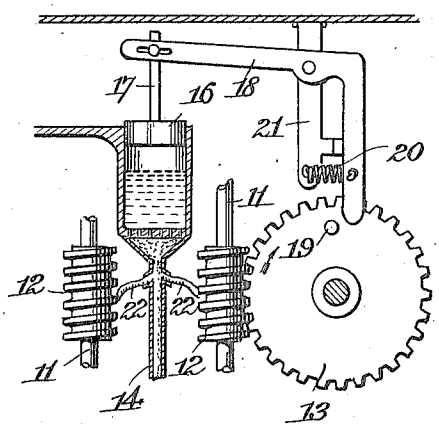


Fig. 5.

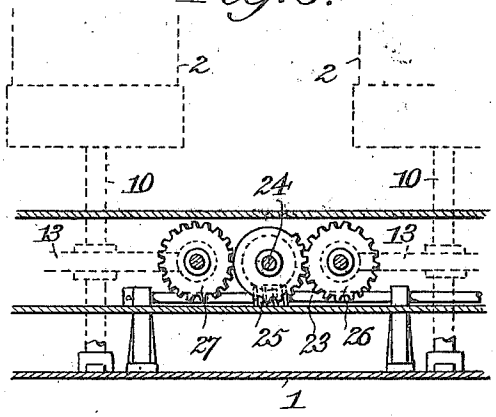


Fig. 6.

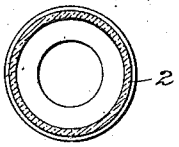
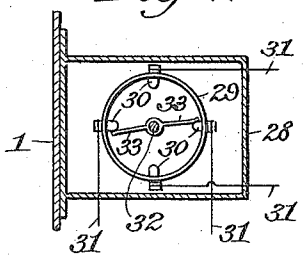


Fig. 7.



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UNITED STATES PATENT OFFICE.

JACOB S. DIAMOND, OF BROOKLYN, NEW YORK.

CHANGEABLE SIGN.

Application filed May 6, 1921. Serial No. 467,460.

To all whom it may concern:

Be it known that I, JACOB S. DIAMOND, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Changeable Signs, of which the following is a specification.

This invention relates to changeable sign exhibitors, of the illuminating type having rotating letter carrying elements and has for the primary object thereof the provision of a sign having a novel form of letter carrying element that will admit of the letters thereon being distinctly outlined and easily read, when the sign is illuminated.

Another object of the invention is the provision of a sign wherein the component parts thereof are conveniently and compactly arranged so as to occupy a minimum amount of space and to permit of the expeditious assemblage of the same.

Other objects will appear and be better understood from that embodiment of my invention of which the following is a specification, reference being had to the accompanying drawings forming part thereof, in which,

Figure 1, is a vertical elevation of the sign.

Figure 2, is a vertical sectional elevation on the line 2—2 Fig. 1.

Figure 3, is a detail sectional view of one of the letter carrying rollers.

Figure 4, is a sectional detail of the lubricating means of the worm gears on the operating shafts.

Figure 5, is a sectional plan view of the operating gears for the shafts.

Figure 6, is a transverse section taken through one of the rollers.

Figure 7, is a sectional detail view of the make and brake switch for the light circuit.

In the drawing, the sign is designated as an entirety by the letter A and comprises a frame 1 formed of any suitable material and spaced rows of rollers 2 mounted for rotary movement within the frame. These rollers 2 are hollow and of cylindrical configuration and formed of glass and each has one end provided with a casing 3 which has one end extended into the roller and the other end projecting a distance beyond the roller. The casings are mounted within the sides of the frame and the rollers rotate thereon, suitable bearings 4 being inserted between the casing and the rollers to permit of the free rotation of the latter. Lights 5 are positioned within the casings and serve to illuminate the rollers and in order to make the illumination thereof more pronounced reflectors 6 are provided and positioned at the outer end of the casings so as to reflect the light rays in the direction of the rollers. It is also proposed to install magnifying lenses 7 at points near the light so as to magnify the light rays and in this manner effect illumination of the rollers to the highest degree. The other ends of the rollers 2 are provided with inserts 8 which are fixed to rotate with the rollers and each is provided with a reflector 9 for directing the light rays in the direction of the center of the roller. Each roller is provided with a shaft 10 having one end thereof connected to the insert 8 and the opposite end journaled in the adjacent side of the frame 1. A pair of vertical and parallel shafts 11 are positioned between the rows of rollers 2 and have their opposite ends journaled in the ends of the frame 1. Alternate rollers in each row are adapted to rotate in a clockwise direction and the other of the rollers in a counter-clockwise direction as indicated by the arrows in Figure 2. This is effected by means of right and left hand worms 12 carried by the shafts 11 and which engage gears 13 on the rollers 2.

A pipe 14 is positioned between the shafts 11 and extends throughout the length of the frame, and has one end communicating with the interior of a lubricant reservoir 15. A plunger 16 is mounted within the reservoir and has the rod 17 thereof connected to one arm of a bell crank 18 the other arm of the bell crank terminally lying at one side of the adjacent end most gear 13 a pin 19 projecting outwardly from the said gear 13 and adapted during rotation of the gear to engage the adjacent arm of the bell crank and move the same upward or outwardly and cause an inner movement of the plunger in the reservoir to effect a flow of oil from the latter into the pipe 14. After the pin 19 passes the adjacent arm of the bell crank 18 the latter will be returned to normal position by a spring 20 which has one end secured to a bar 21 carried by the frame and the other end secured to the bell crank. The pipe 14 is provided with a plurality of openings which receive wicks 22. These wicks 22 extend in the direction of and engage the

worms 12 and are adapted to convey the lubricant from the pipe 14 to the worm gears.

A drive shaft 23 extends into the lower end of the frame 1 and is journaled therein and is geared to a vertical shaft 24 to effect rotation of the latter when the drive shaft is rotated. The upper end of the shaft 24 is provided with a segmental gear 25 adapted to alternately mesh with gears 26—27 carried by the adjacent ends of the shafts 11 so as to effect alternate rotation of the shafts 11. As shown in Figure 1 of the drawings, the rollers are provided with letter characters which may be painted or otherwise suitably formed on the rollers, each roller, in the instance as shown, carrying a portion of a letter character, so that when all of the portions of the letter characters are in alignment a word will be completed, for instance, and as shown in Figure 1 the word "Drugs." It will, of course, be understood that if desired, a complete letter character can be placed on a single roller, instead of different portions thereof on a plurality of rollers, this condition being controlled by the number of letters necessary to spell the required word and also the size of the letter character desired to be employed. It will be further understood that each roller will have associated therewith a plurality of letters or portions of letters so that upon each partial revolution of the rollers in each row different characters will be brought into alignment to spell different words.

A housing 28 is located at the lower end of the frame 1 and an annular element 29 is positioned within the housing and is provided with a plurality of diametrically opposed contacts 30 connected to a source of electric supply 31 the said contacts being also connected with the lamps 5 by suitable conductors. A shaft 32 has one end extending into the housing and is provided with a pair of oppositely extending contact fingers 33 adapted during rotation of the shaft 32 to alternately engage opposed pairs of contacts 30 so that the lamps of the respective rows of rollers 2 will be intermittingly lighted.

While the sign shown in the drawings is of the vertical type with the rollers disposed horizontally, nevertheless, it will be understood that this is for illustrative purposes only and that if desired the frame can be disposed horizontally and the rollers vertically

I claim:

1. A sign including a frame, opposed rows of letter carrying rollers journaled within the frame, a pair of operating shafts located between the rows of rollers, means carried by the shafts and operatively connecting the latter with the rollers and adapted to effect rotation of alternate rollers in each row in directions opposite to the direction of rotation of the other of the rollers, in the respective rows, when the shafts are operated.

2. A sign, including a frame, opposed rows of letter carrying rollers journaled within the frame, a pair of operating shafts located between the rows of rollers, means carried by the shafts and operatively connecting the latter with the rollers and adapted to effect rotation of alternate rollers in each row in directions opposite to the direction of rotation of the other of the rollers, in respective rows, when the shafts are operated, and means for effecting lubrication of the first mentioned means and operable by one of the rollers.

3. A sign including a frame, rollers journaled within the frame and formed of hollow transparent material, a shaft operatively connected to the rollers, a drive shaft, means connecting the drive shaft to the first mentioned shaft to effect an intermittent rotation of the latter when the drive shaft is operated, incandescent lamps arranged within the rollers and means within the frame for intermittingly operating the lamps and operatively connected with the drive shaft.

4. A sign including a frame, rollers journaled within the frame, a shaft operatively connected with the rollers, a second shaft within the frame, a gear carried by the first shaft, a drive shaft extending into the frame and operatively connected to the second shaft and a segmental gear carried by the second shaft and adapted to intermittently mesh with the gear on the first mentioned shaft to effect an intermittent rotation of the latter when the second shaft is operated.

JACOB S. DIAMOND.

Witnesses:
FELIX B. FUCHS,
JAMES J. DONEGAN.