Sept. 16, 1952 A. E. MILLARD 2,610,424

ACTIVATED SIGN

Filed June 14, 1949 2 SHEETS—SHEET 1

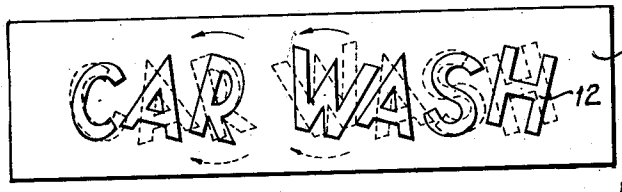


FIG. 1

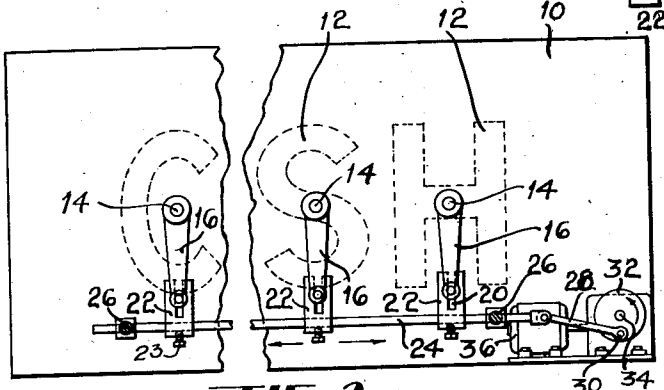


FIG. 2

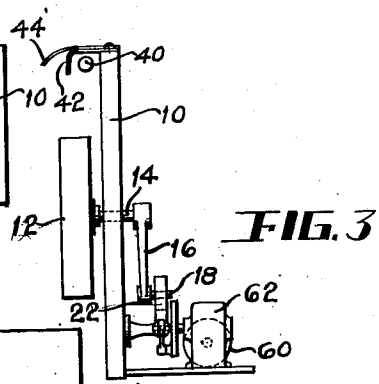


FIG. 3

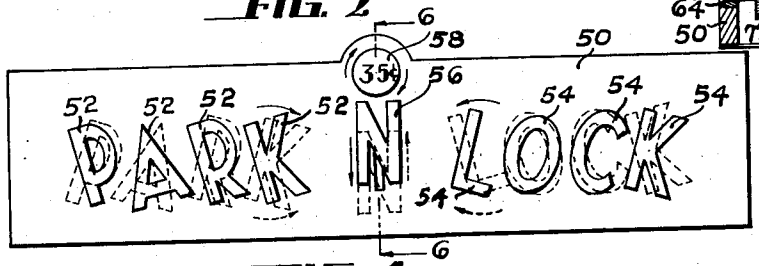


FIG. 4

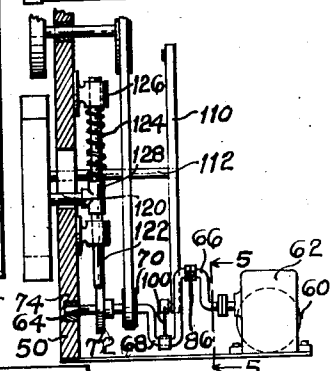


FIG. 6

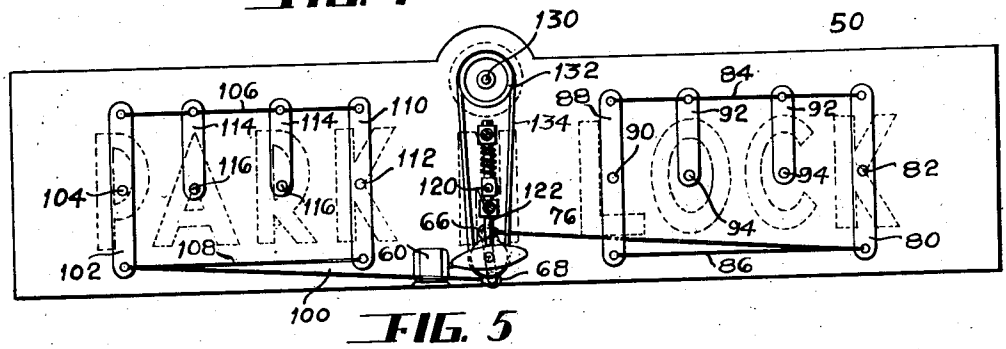


FIG. 5

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Sept. 16, 1952 A. E. MILLARD 2,610,424

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Filed June 14, 1949 2 SHEETS—SHEET 2

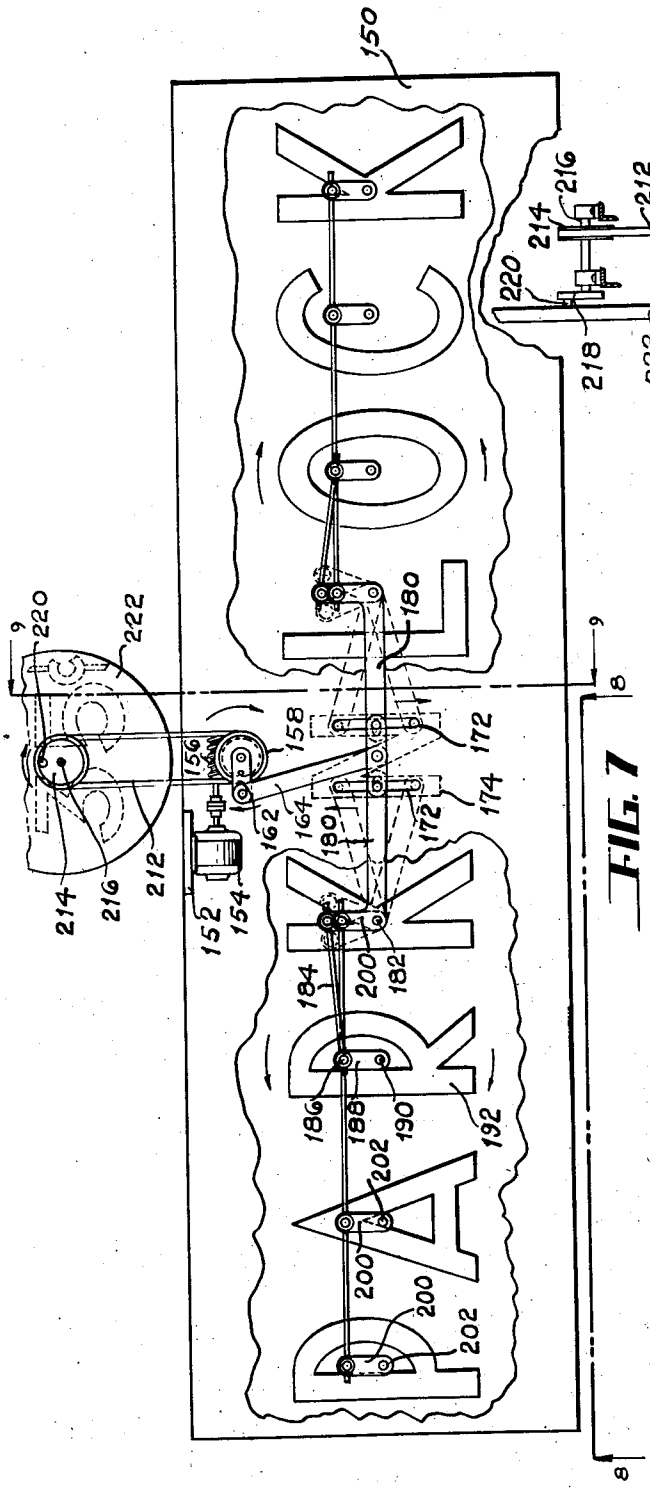


FIG. 7

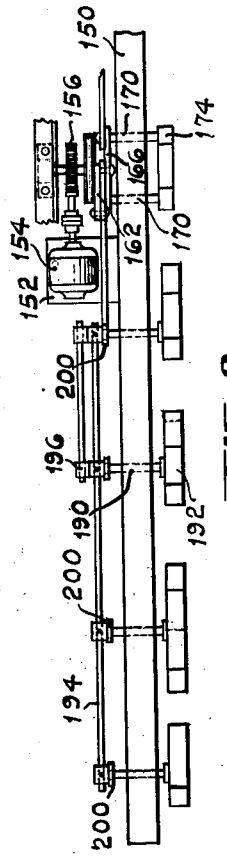


FIG. 8

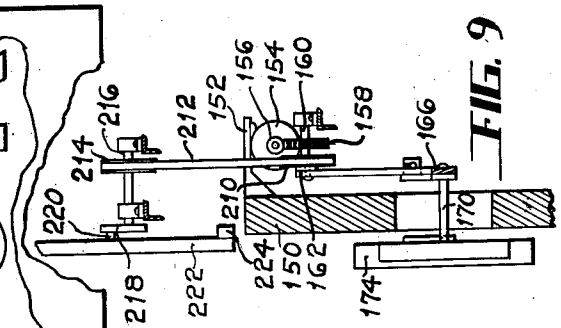


FIG. 9

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Patented Sept. 16, 1952 2,610,424

UNITED STATES PATENT OFFICE

2,610,424

ACTIVATED SIGN

Arza E. Millard, Dayton, Ohio

Application June 14, 1949, Serial No. 98,990

1 Claim. (Cl. 40—139)

1

This invention relates to a display sign and more particularly to an activated display sign.

An object of this invention is to provide a sign such that the characters used in conveying a message are mounted for movement to thereby attract attention. This has been accomplished by providing a motor used in driving the characters, the motor being mounted to the rear of the sign and so mounted that it activates suitable link mechanism driven through cranks, cams and the like or a belt mechanism used in oscillating, reciprocating or rotating the supports for the characters.

Another object of this invention is to provide a movable display sign wherein the characters forming the words used in conveying the message do not all move in the same direction and in the same manner simultaneously.

Other objects and advantages reside in the construction of parts, the combination thereof and the mode of operation, as will become more apparent from the following description.

Referring to the drawings, Figure 1 is a front elevational view of the preferred embodiment.

Figure 2 is a fragmentary, enlarged, rear elevational view of the sign disclosed in Figure 1.

Figure 3 is an enlarged, end elevational view of the sign disclosed in Figure 1.

Figure 4 is a front elevational view of a modification.

Figure 5 is a rear elevational view of the modification disclosed in Figure 4. Figure 5 has been taken substantially on the section line 5—5 of Figure 6.

Figure 6 is a vertical, cross sectional view, taken substantially on the line 6—6 of Figure 4.

Figure 7 is a rear plan view of another modification.

Figure 8 is a fragmentary view taken substantially on the line 8—8 of Figure 7, with parts shown in section.

Figure 9 is a fragmentary cross sectional view taken substantially on the line 9—9 of Figure 7.

In the drawings, the reference character 10 designates a billboard panel or a sign board mounted in any suitable manner upon suitable posts or supports, not shown. On the face there is mounted a plurality of letters 12 which are mounted upon stubshafts 14 projecting through the panel 10. The stubshafts 14 are journalled in suitable bearings mounted in the panel or board 10. Crank arms 16, one for each of the stubshafts 14, are keyed to the stubshafts. Each of the crank arms 16 has fixedly attached thereto a crank pin 18 seated in the slot 20 in an adjustably mounted bracket 22 fixedly secured by a set screw 23, as clearly seen in Figure 2, to a rod or bar 24 mounted for reciprocatory movement in suitable bearings 26. One end of the bar 24 is pivotally attached to a link 28 journalled upon a crank pin 30 fixedly attached to a wheel 32 keyed to a shaft 34. The shaft 34 is rotated through a suitable gear reducing mechanism by an electric motor 36 mounted upon a suitable bracket attached to the rear of the billboard 10.

2

From the foregoing, it can readily be seen that the electric motor reciprocates the rod or bar 24 to thereby reciprocate brackets 22, so as to oscillate the crank arms 16, thereby oscillating the shafts 14 to cause the letters 12 to move from the full line position shown in Figure 1 into the dot-dash position and then return to the initial position. These letters may be mounted for oscillation near the center of gravity, as shown, or the letters may be oscillated from the base or from the top, depending entirely upon the desired requirements.

Suitable indirect lighting is preferably provided for the signs. It may consist of fluorescent tubes 40 extending along the margins of the sign and shielded by a capping member 42 secured to the margins of the billboard 10. Furthermore, an awning-like member 44 may extend along the top of the sign, so as to at least partially shade the sign from the bright sunlight.

In the modification disclosed in Figures 4, 5 and 6, a billboard 50 has been shown which is provided with a series of letters 52, which, in this particular disclosure, spell the word "PARK," and a second series of letters 54 spelling out the word "LOCK." The letters P-A-R-K and L-O-C-K are mounted for oscillation, so that when the letters P-A-R-K move in a clockwise direction, the letters L-O-C-K rotate in a counter-clockwise direction. The letter "N," designated by the reference character 56, is mounted for vertical, reciprocatory movement and the price sign 58 is mounted for rotation. The mechanism for causing these various movements will now be described.

A motor 60 has its output shaft connected to a gear box 62 driving a crankshaft 64. This crankshaft 64 is provided with two diametrically disposed offset crank portions 66 and 68 and supports a pulley 70 and a cam 72. The outer end of the shaft 64 is journalled in a bearing 74 mounted in any suitable manner on the rear side of the billboard 50.

The offset crank portion 66 actuates a link 76 pivotally attached to the lower end of a link

80 attached to a stubshaft 82 supporting a letter on the opposite side of the billboard. A pair of cables 84 and 86 attached to opposite ends of the link 80 are used in actuating a link 88 mounted upon a shaft 90 supporting another letter on the opposite side of the billboard. A pair of links 92 are attached to the cable 84 in any suitable manner. The cables 84 and 86 are tensioned sufficiently to properly actuate the links. The links 92 are connected to the shafts 94 also projecting through the billboard and supporting letters on the opposite side thereof. It can readily be seen that the letters supported on the shafts 82, 90 and 94 oscillate in unison, in that as the crankshaft 64 rotates, the links 80, 88 and 92 oscillate in unison.

The offset crank portion 68 actuates a link 100 pivotally attached to the lower end of a link 102 keyed to a stubshaft 104 projecting through the billboard and supporting a letter. The opposite end of the link 102 has attached thereto cables 106 and 108 connecting the ends of the link 102 to the ends of the link 110 fixedly attached to a stubshaft 112 projecting through the billboard and supporting a suitable letter. Links 114 are attached to the cable 106 and are fixedly attached to stubshaft 116, also projecting through the billboard and supporting a letter. Thus, the links 102, 110 and 114 oscillate in unison, in that these are driven by the link 100 actuated by the crankshaft.

The links 80, 88 and 92, located to the right of the crankshaft 64, oscillate in a clockwise direction when the links 102, 110 and 114 oscillate in a counterclockwise direction and vice versa. In other words, when the letters spelling the word "PARK," as seen in Figure 4, rotate in a clockwise direction, the letters spelling the word "LOCK" rotate in a counter-clockwise direction and vice versa.

The letter "N," identified by reference character 56, is mounted upon a stubshaft 120 fixedly attached to the cam follower 122 by a T member 128. The cam follower 122 is driven upwardly by the cam 72 and actuated downwardly by the compression spring 124 mounted between the bearing 126 and the T member 128 used in connecting the stubshaft 120 to the cam follower 122. As the cam 72 is rotated by the crankshaft 64, it can readily be seen that the letter "N" moves upwardly and downwardly between the letters forming the word "PARK" and the letters forming the word "LOCK."

The price sign 58 is mounted upon a stubshaft 130 having fixedly attached thereto a V-belt pulley 132, so as to be driven by the V-belt 134 passing over the pulley 70 fixedly secured to the crankshaft 64. This causes the price sign to rotate. It has been found that twenty-five revolutions per minute produce very effective and pleasing results.

Referring to the modification disclosed in Figures 7, 8 and 9, the panel 150 is provided with a bracket 152 supporting an electric motor 154 driving a worm 156 engaging a worm gear 158 keyed to a shaft 160. The shaft 160 is provided with a crank arm 162 pivotally attached to a pitman or connecting rod 164 pivotally attached to a cross arm 166 guided for vertical, reciprocatory movement by a pair of pins or stubshafts 170 mounted for vertical reciprocatory movement in the slots 172 in the panel 150. Members 170 support the letter "N," identified by the reference numeral 174, as shown in the drawings. Each member 170 passes through a slot in the bell-

crank member 180 pivoted at 182, the short end of the bell-crank member being connected to a connecting rod 184 pivotally attached to a pin 186 in a link 188 mounted upon a pivot member 190. The pivot member 190 projects through the panel 150 and supports the letter "R," identified by the reference character 192. A rod 194 attached to a connecting unit 196 pivotally connected to pivot member 190 is connected to a plurality of links 200, one for each of the other letters in the same word located on one side of the letter "N." The links 200 are each connected to a stubshaft 202, passing through the panel 150 and supporting a letter on the opposite side of the panel. It can readily be seen that as the motor 154 rotates, the letter "N" will reciprocate upwardly and downwardly in a vertical path, due to the fact that the bell-crank is oscillated about the pivot 182 by the connecting rod 164. The letters on one side of the letter "N" will move in a clockwise direction when the letters on the opposite side of the letter "N" move in a counter-clockwise direction and vice versa.

The shaft 160 has keyed thereto a V-belt pulley 210 driving a V-belt 212 passing over a V-belt pulley 214 keyed to a shaft 216 actuating a crank arm 218 provided with a crank pin 220 having mounted thereon a price sign 222. The lower portion of the price sign 222 is provided with a weight 224 holding the price sign in an upright position at all times, but causing the price sign to travel through a circular path swept out or generated by the crank pin 220.

Thus, it can be seen that three movements are transferred to the characters on the board simultaneously, that is, the letter "N" travels in a vertical, reciprocatory path, the letters forming the words "PARK" and "LOCK" oscillate or rock about their pivots, the letters of one of these words rocking in a clockwise direction while the letters of the other word rock in a counter-clockwise direction, and vice versa. The characters forming the price sign always remain erect, while traveling through a circular path.

Instead of using only letters, characters may be used to attract attention. The letters spelling out the words, the price sign, et cetera, have merely been used for the purpose of illustration, in that the sign is adaptable for use with other words, slogans or symbols.

Although the preferred embodiment of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, the combination thereof and mode of operation, which generally stated consist in a device capable of carrying out the objects set forth, as disclosed and defined in the appended claim.

Having thus described my invention, I claim:

An actuating mechanism for use in a movable sign assembly including a panel member having a plurality of shafts projecting therethrough and letters fixedly attached to the shafts, the letters being located on the front side of the panel member, said actuating mechanism including a plurality of crank arms one for each of the shafts, one end of each of said crank arms being fixedly attached to its shaft and located on the rear side of the panel member, the opposite end of each of said crank arms being provided with a pin fixedly mounted therein and extending parallel to the shafts, an actuating rod, bearings mounted upon the rear side of the panel member in which bearings said rod is mounted for reciprocatory move-

ment along a straight line, said rod having a plurality of brackets one for each of the crank arms, each of said brackets being provided with a slot extending normal to the direction of movement of the rod, each of said brackets including a set screw for adjustably attaching the brackets to said rod, the pins fixedly attached to the crank arms being seated in the slots in the brackets, an electric motor, a wheel mounted upon the armature shaft of the motor, a crank pin fixedly attached to the wheel, a crank arm having one end attached to the crank pin and the other end pivotally attached to the rod so as to impart a reciprocatory movement to the rod, the rod in turn actuating the brackets oscillating the first mentioned crank arms which crank arms have

an effective constant length so as to thereby oscillate the letters from the reciprocatory movement of the rod.

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