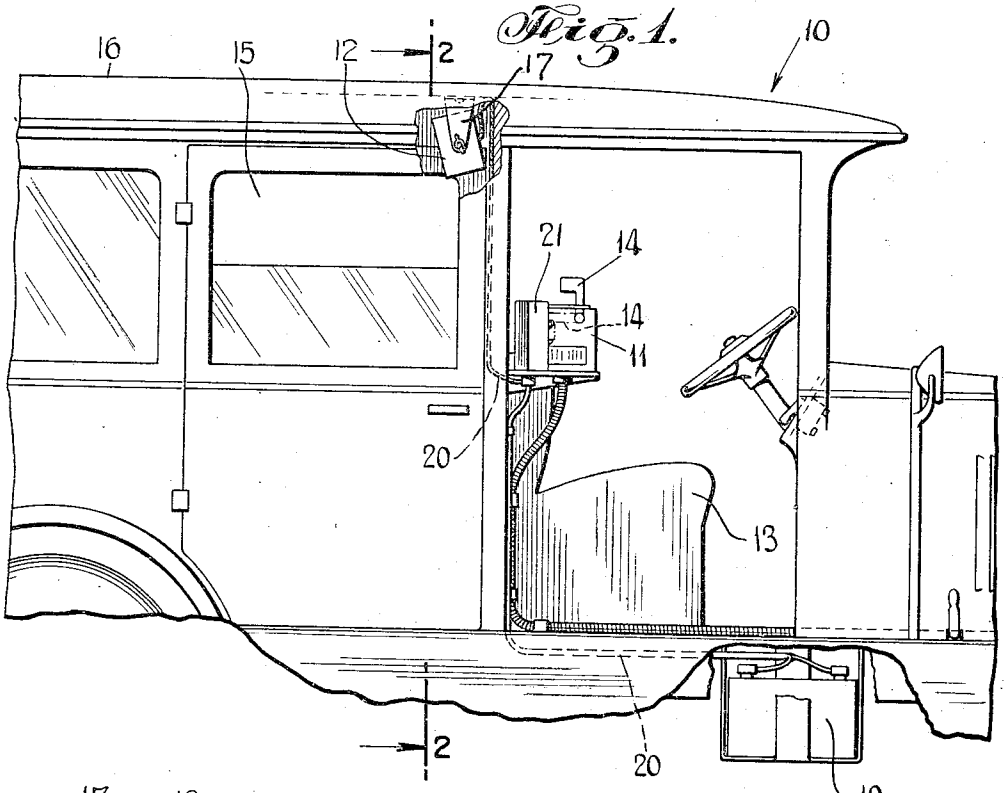
May 27, 1930. E. M. ROSENFIELD 1,760,664

ELECTRICALLY OPERATED SIGN

Filed Sept. 11, 1929 2 Sheets-Sheet 1

Fig. 1.



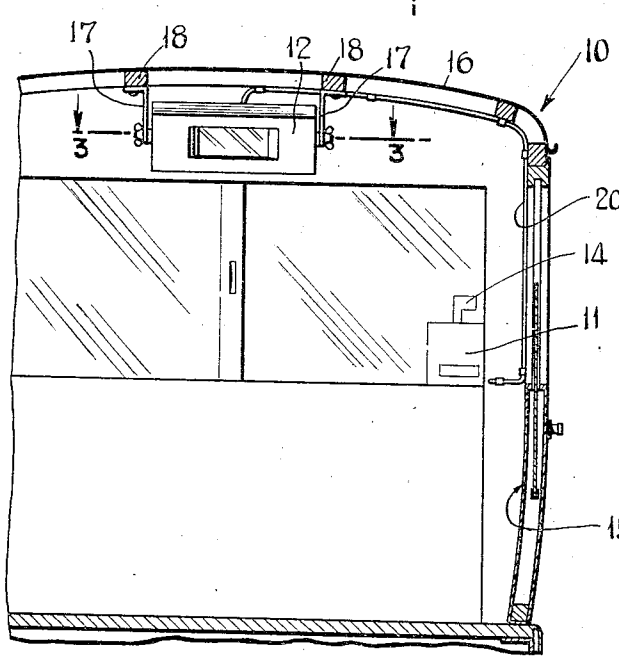


Fig. 2.

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Fig. 3

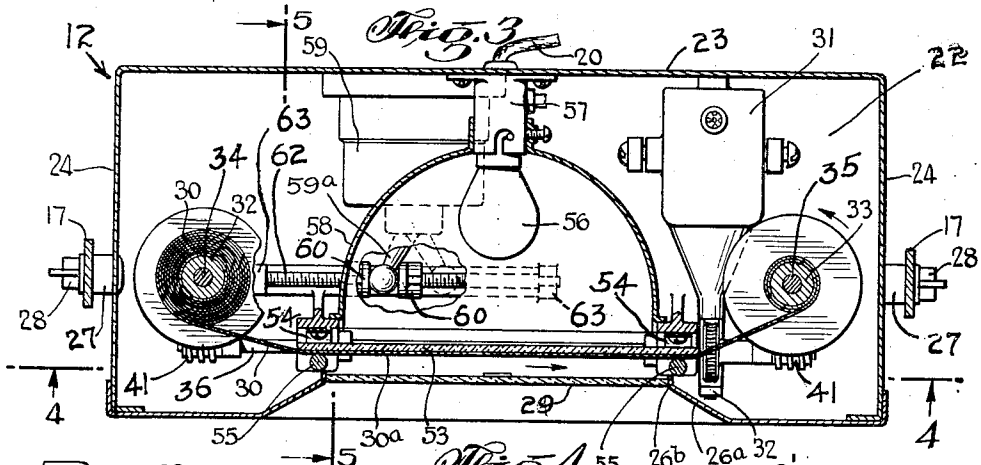


Fig. 4.

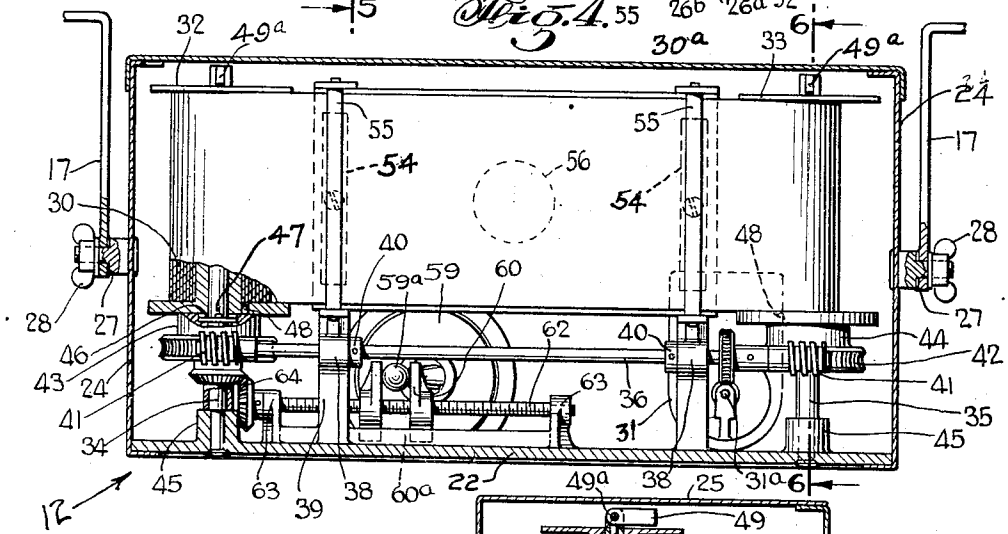


Fig. 5

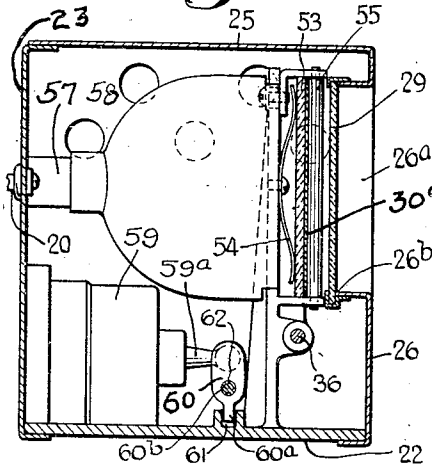
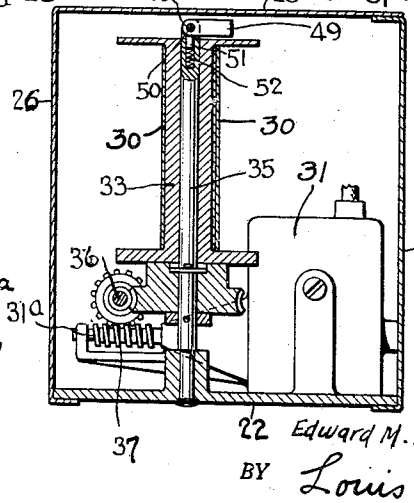


Fig. 6.



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Patented May 27, 1930 1,760,664

UNITED STATES PATENT OFFICE

EDWARD M. ROSENFIELD, OF NEW YORK, N. Y.

ELECTRICALLY-OPERATED SIGN

Application filed September 11, 1929. Serial No. 391,748.

This invention relates to advertising signs and more particularly is directed to a sign having an illuminated movable, translucent legend carrier strip, said sign being adapted to be installed in a motor vehicle, such as a taxicab, and operated from the vehicle power plant equipment.

Among the objects of the invention is to provide a sign of the character described, comprising few and simple interchangeable parts assembled to form a compact, neat appearing, attractive device, which shall require relatively little power to operate, which shall be capable of running a long time without attention, which shall be readily installed to cooperate with standard vehicle equipment and which shall be practical and efficient to a high degree in use.

Other objects and advantages will in part be obvious, and in part hereinafter pointed out.

The invention accordingly consists in features of construction, combination of elements, and arrangement of parts, which will be exemplified in the construction hereinafter discussed of which a scope of the application will be indicated in the following claims.

In the accompanying drawing in which several possible embodiments of the invention are shown,

Fig. 1 is a fragmentary side elevational view of a vehicle, partly broken away, showing an installation of the invention.

Fig. 2 is a cross-sectional view taken on lines 2—2, in Fig. 1.

Figs. 3, 4, 5 and 6 are sectional views, taken on lines 3—3 in Fig. 2, lines 4—4 in Fig. 3, lines 5—5 in Fig. 3 and lines 6—6 in Fig. 4, respectively, showing in detail the construction of the improved sign embodying the invention.

Referring in detail to the drawing, 10 denotes a fragmentary portion of a taxicab equipped with a taximeter 11 and provided with an advertising sign 12 constructed to embody the invention. The sign 12, as here shown, is electrically lighted and operated in the manner hereinafter described from a storage battery 19 carried on the vehicle.

The taxicab and meter may be of any well understood construction, the taximeter being mounted adjacent the chauffeur's seat 13 within convenient reach for manipulating a manual control "flag" member 14. The latter is adapted to cause the meter 11 to register when swung in "down" position, shown in dotted lines in Fig. 1, and to indicate the non-registering or "vacant" position when upstanding, as shown in full lines.

The storage battery 19 provides a reserve source of electric power for the vehicle power plant equipment for lighting and other purposes, said battery being connected with the charging outfit of the vehicle power plant not shown, in the well understood manner.

The vehicle 10 is provided with the usual compartment 15 back of the driver's seat 13 and the sign 12 is preferably mounted adjacent the top 16. As here shown, said sign is hung on a pair of spaced pivoting brackets 17 which are secured to the roof braces 18 of the vehicle.

Circuit wires 20 interconnect the electrically operated portion of the sign 12 with said storage battery 19, and suitable means, such as switch 21, is interposed in the circuit between the battery 19 and the sign 12 for controlling the power fed from the battery to said electrically operated sign parts.

Preferably the switching means 21 is of such character that it permits the sign 12 to be operated only during the time the manual control "flag" member 14 is in position to cause the taximeter 11 to register as for example as is fully disclosed in the installation shown in copending application Serial No. 391,749, filed September 11th, 1929. Thus when a passenger enters the cab compartment 15 and the "flag" member 14 is swung to its "down" position for causing the meter to register the passenger will observe the electrical sign operating, and when the passenger vacates said compartment, the chauffeur on swinging the "flag" member 14 into the upstanding position to make the taximeter non-registering, will concomitantly throw the switch 21 to cut off the power operating the sign 12.

The sign 12 includes a casing comprising an assembly of mounting plate or base 22 and a housing having back and side walls 23 and

24, respectively, upstanding from said base and a removable enclosing cover formed with top and front walls 25 and 26, respectively. The sign 12 is trunnioned on bearings 27 projecting outwardly from the casing side walls 24, said bearing engaging with the ends of brackets 17. Wing-nuts 28 for said trunnioned bearings 27 are provided to adjustably retain the sign 12 in a set swung position. The front wall 26 of the casing cover may have an inwardly depressed portion 26[a] formed with an opening 26[b] and a suitably transparent sheet 29 is provided to extend over said opening to form a window through which a legend carrier 30 is observed. The sign 12 which is electrically illuminated and is provided with a suitable electrically operated mechanism for moving said legend carrier, has said illuminating means and mechanism preferably mounted on the base 22.

Said mechanism is seen to comprise an electric motor 31 which drives a pair of spaced spools 32 and 33. The latter are revolvably mounted on stationary upstanding shafts 34 and 35, respectively, through a suitable speed reducing transmission. As here shown, said transmission comprises a countershaft 36 positioned to extend adjacent the front casing wall 26, transversely of the axis of the motor shaft 31[a], and is driven from the latter through a suitable worm wheel drive 37. The counter shaft 36 is journalled in spaced bearings 38 carried by the spaced upstanding stanchions 39. Thrust collars 40 fixed to turn with the shaft 36 and abutting the spaced bearings 38 prevent end play in the shaft 36.

Mounted to turn with the ends of the shaft 36, in overhanging positions, there are worms 41 which engage with wheels 42 of turnheads 43 and 44. The latter are mounted for rotation on the shafts 34 and 35, respectively, and are held in position for rotation between bosses 45 upstanding from the base 22 and washers 46 on shafts 34 and 35, said washers being retained by suitable pins 47.

The spaced spools 32 and 33 have pin and slot connections 48 with the turn-heads 43 and 44, respectively, and a suitable locking means is provided for retaining said spools against accidental disengagement from said heads. As here shown, said locking means may be positioned for convenient manipulation at the upper ends of the shafts 34 and 35 and may comprise levers 49 having cam ends 49[a] which are pivoted at 50 for cooperating with plungers 51, axially mounted in the end portions of the shafts 34 and 35. Each plunger is provided with a spring 52 for pressing the plunger against a lever cam end 49[a]. As shown in Figs. 4 and 6, the levers 49 are swung down and are held to lock the spools 32 and 33 against disengagement from heads 43 and 44. It is apparent that on swinging the levers 49 in alignment with the shafts 34 and 35, said levers will be retained in an upstanding position, not shown, and the spools may then be readily disengaged from the head and dismounted from shafts 34 and 35.

It is to be noted that the top wall 25 of the removable casing cover when in place prevents the lever 49 from being swung in its aligning position and consequently eliminates the possibility of the spools being accidentally disconnected from the heads 43 and 44.

Also, the removable portion of the casing cover cannot be applied in closing position without first swinging the levers 49 into their effective locking position.

The legend carrier 30 which has imprinted thereon a series of legends or advertisement posters each substantially the size of the window 29, is preferably made of a suitable translucent sheet material, film, or strip adapted to wind on and unwind from the spools 32 and 33, an intermediate portion 30[a] of said carrier corresponding in size to each legend being passed in front of a flat, translucent backing screen member 53. The member 53 is supported between the stanchions 39 and registers with the window 29. Said screen member 53 is pressed against the back of the film portion 30[a] by flat springs 54 carried by the stanchions 39, and idle rollers 55 are revolvably mounted on said stanchions to abut the front side of the film portion 30[a] as the latter moves over the screen backing member 53. This form of support for the film portion 30[a] which passes by the window 29 assures said film portion of being smooth, even and free from wrinkles. By inserting said film with the painted or printed legend applied to the front surface of the film where it comes only in contact with the rollers 55, the possibility of scratching or otherwise injuring the film is practically eliminated.

A suitable electric lamp 56 is mounted in a socket 57 back of the screen member 53 and a suitable reflector 58 may be provided for directing light from the lamp to pass through the screen member 53 and film portion 30[a]. Where the electric lamp 56 has a clear glass bulb the screen member 53 may be frosted or may be otherwise formed to defuse the light evenly in passing to the film portion 30[a].

It is contemplated that the winding and unwinding of the legend carrier or film 30 between the spools 32 and 33 take place in continuous cycles so that when the last legend at one extreme end of the film reaches the screen member 53, the winding operation will automatically be reversed and when the last legend on the other extreme end of said film reaches said screen member 53, the winding operation will again automatically be reversed. To this end there is provided a suitable reversing switch 59 which may be electrically connected in either the armature or in the field circuit of the motor 31. This switch may be of any standard construction and is connected in either of said circuits for

interchanging the polarity to reverse the direction of rotation of the motor in the well understood manner. As here shown, said switch 59 is of the toggle type and has a pivoted control handle 59^a which is actuated by a pair of spaced fingers 60 bearing on opposite sides thereof. Said fingers have their lower ends 60^a extended to move along a straight guiding groove 61 and are each provided with an intermediate threaded portion 60^b which engages with a feed screw 62. The latter extends in spaced parallel alignment with respect to the groove 61 and has its ends journalled in bearings 63 which upstand from the plate 22 at opposite ends of said groove 61. The shaft 62 is driven from one of the turnheads 43 through a suitable means such as bevel gears 64.

In order to assure alignment of the shaft bearings to eliminate as far as possible joints and fastenings, the bosses 45, stanchions 39 and bearings 63 are preferably formed integral with the plate 22, and the shafts 34 and 35 are firmly riveted into said bosses.

The operation of the improved sign will now be apparent. After assembling the sign parts, as described above and shown in Figs. 3 to 6, inclusive, and installing said sign in the vehicle connected to the battery 19, on throwing the "flag" member 14 to cause the taximeter to register, the switch 21 is actuated to supply current to the electrically operated parts of the sign through the conductor wires 20. This lights the lamp 56, for evenly illuminating the film portion 30^a as viewed through the window 29. Simultaneously the motor is caused to rotate which in turn drives the spools 32 and 33 through the interconnecting transmission. The motor turns in one direction with the switch handle 59^a, shown in full lines, to unwind the film from the spool 32 onto the spool 33 in the direction indicated by the arrows in Fig. 3. When the film is nearly unwound from the spool 32, that is when it has reached the last legend at one extreme end, the fingers 60 which are moved along the slot 61 will have reached an extreme position in said slot and will cause the handle 59^a to be thrown to reverse the polarity of the motor windings and effectuate the reversal of the rotor. On reversing of the motor, the film 30 will be caused to wind on the spool 32 and unwind from the spool 33. This later movement will continue until the last legend on the extreme end of the film reaches the window 29 then the switch handle 59^a will be moved to its other extreme position for causing the motor to again reverse itself. These self-reversing cycles of operation are thus repeated automatically. The movement of the film 30 is run past the front of the window 29 slowly enough to enable the observer to easily read the individual legends of a series before each legend passes from view.

The sign is highly attractive and permits a relatively large number of different legends to be housed in a compact space and conveniently shown in the comparatively short time. Because of the simplicity of the sign it can be satisfactorily operated from the limited power supply, provided by the standard vehicle battery equipment and can be maintained with very little attention. The cost of manufacturing sign and installing same will obviously be relatively low yet it will form a rugged construction which will not readily get out of order.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is adapted to meet the conditions of practical use.

As various other possible embodiments might be made of the above invention and as various changes might be made in the embodiments set forth, it is to be understood that all matters herein set forth as shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. In a sign of the character described, a base, a pair of spaced stationary shafts upstanding on said base, a turnhead revolvably mounted on each shaft, a motor including a transmission for turning said heads simultaneously, means for controlling the direction of rotation of the motor permanently coupled to and driven by one of said heads, and a spool mounted to turn with each of said heads.

2. In a sign of the character described, a base a pair of spaced stanchions upstanding on said base, a turnhead mounted for rotation adjacent each stanchion, a spool carrier on each turnhead, a roller revolvably supported in each stanchion, a translucent screen yieldingly secured to extend between said stanchions to bear against said rollers, a translucent legend carrier retained between the screen and said rollers, said carrier having the opposite ends thereof wound on said spools, a light source positioned to illuminate said screen, and means for winding and unwinding the carrier from said spools to cause the carrier to pass over the screen from end to end in opposite directions in continuous cycles.

3. In a sign of the character described, a base, a pair of stationary shafts upstanding on the base, a pair of spaced stanchions upstanding from the base adjacent said shafts, a turn-head revolvably mounted on each shaft, a motor mounted on the base, a single countershaft supported on said stanchions and driven by said motor for turning said heads, a switch mounted on the base and connected with the motor for reversing the rotation thereof, and means for actuating the

switch permanently coupled to and driven by one of said heads.

4. In a sign of the character described, a casing including a base member, a motor supported on said member, a reducing speed transmission mounted to extend along one side of said member driven by said motor, a pair of turnheads driven from opposite ends of said transmission, spaced stanchions upstanding from said member for supporting said transmission, a roller journalled in each stanchion, a translucent screen yieldably mounted on said stanchions to bear against said rollers, winding spools mounted to turn with said heads, a translucent legend carrier wound on said spools, an intermediate portion of said carrier extending between the screen and said rolls, a lamp mounted in a casing for illuminating said screen and carrier portion, and means for winding and unwinding the carrier from said spools to cause the carrier to pass over the screen from end to end in opposite directions in continuous cycles.

5. In a sign of the character described, a base, a pair of stationary shafts upstanding on the base, a pair of spaced stanchions upstanding from the base adjacent said shafts, a turn-head revolvably mounted on each shaft, a motor mounted on the base, a single countershaft supported on said stanchions and driven by said motor for turning said heads, a switch mounted on the base and connected with the motor for reversing the rotation thereof, means for actuating the switch permanently coupled to and driven by one of said heads, a roller revolvably supported on each stanchion, a translucent screen yieldingly secured to extend between said stanchions, a translucent legend carrier extending over said screen and retained thereto by said rollers, said carrier having the opposite ends thereof wound on spools carried by said heads, and a light source positioned to illuminate said screen.

6. In a sign having a movable legend carrier of the character described comprising a casing having a base portion, a pair of spaced turn-heads mounted on said base portion, means for rotating said heads to alternately turn in opposite directions, a spool demountably carried on each turn-head, a legend carrier secured to extend between said spools and adapted to be wound and unwound from the spools on rotation of said heads, and means for locking the spools against accidental disengagement from said turn-heads, said casing having a removable cover portion provided with a window wherethrough the legend on the carrier is exposed, said cover portion being positioned in close proximity to said spool locking means to prevent accidental unlocking of said means.

7. In a sign of the character described, a base, a pair of stationary shafts mounted in spaced relation on said base, a pair of spaced stanchions mounted on said base intermediate the said shafts, a countershaft journaled on said stanchions, a turn-head revolvably mounted on each shaft, a motor for turning the countershaft, speed reduction gearing for driving said heads from said countershaft, a translucent screen carried by said stanchions, a roller revolvably supported on each stanchion, resilient means pressing said screen against said rollers, a translucent legend carrier retained between the screens and said rollers, said carrier having opposite ends thereof wound on said spools, a light source positioned to illuminate said screen, means for winding the carrier from said spools to move the carrier over the screen from end to end, and means for reversing the movement of the carrier, said reversing means being actuated from one of said heads.

8. A sign of the character described comprising a casing having a base, a front wall casing portion upstanding from said base, a counter-shaft mounted on said base and positioned to extend adjacent the said front wall portion, a motor mounted on the base, said motor having a drive shaft positioned to extend transversely of the counter-shaft, a worm wheel gearing for driving the countershaft from the motor, a pair of spaced stanchions upstanding from the base for supporting said counter-shaft, a pair of spaced stationary shafts upstanding from the base adjacent the stanchions, a turn-head carried by each of said stationary shafts, and a worm wheel gearing for driving each of said turnheads from said counter-shafts.

9. A sign of the character described comprising a casing having a base, a front wall casing portion upstanding from said base, a counter-shaft mounted on said base and positioned to extend adjacent the said front wall portion, an electric motor mounted in the base, a pair of spaced stanchions upstanding from the base for supporting said countershaft, said electric motor having a drive shaft positioned to extend transversely of the counter-shaft, a worm wheel gearing for driving the counter-shaft from the motor drive shaft, a pair of spaced stationary shafts upstanding from the base adjacent the stanchions, a turnhead carried by each of said stationary shafts, a worm wheel gearing for driving each of said turn-heads from said counter-shafts, a switch for reversing the rotation of the motor, and means driven from one of said heads for actuating said switch.

10. A sign of the character described comprising a casing having a base, a front wall portion formed with a window opening upstanding from said base, a counter-shaft mounted on said base and positioned to extend adjacent the said front wall portion, a motor mounted on the base, said motor having a drive shaft positioned to extend transversely of the counter-shaft, a worm wheel

gearing for driving the counter-shaft from the motor, a pair of spaced stanchions upstanding from the base for supporting said counter-shaft, a pair of spaced stationary shafts upstanding from the base adjacent the stanchions, a turn-head carried by each of said stationary shafts, a worm wheel gearing for driving each of said turn-heads from said counter-shafts, and a translucent screen carried by said stanchions over said counter-shaft, said screen registering with said window opening.

In testimony whereof I affix my signature.

EDWARD M. ROSENFIELD.