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DISPLAY SIGN

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Fig. 1.

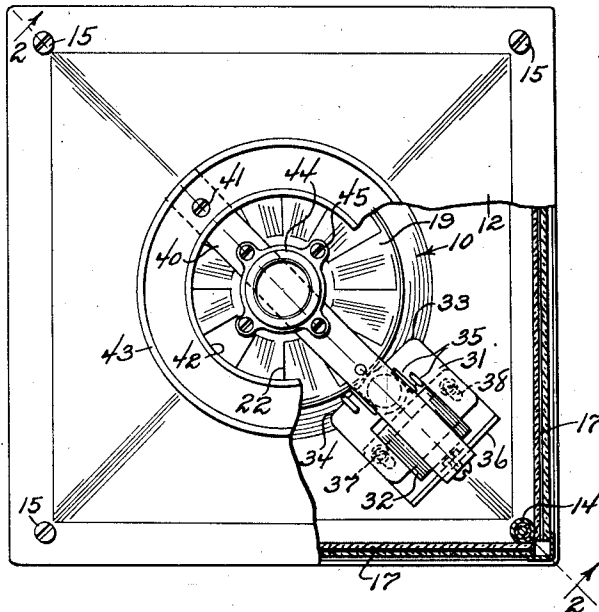
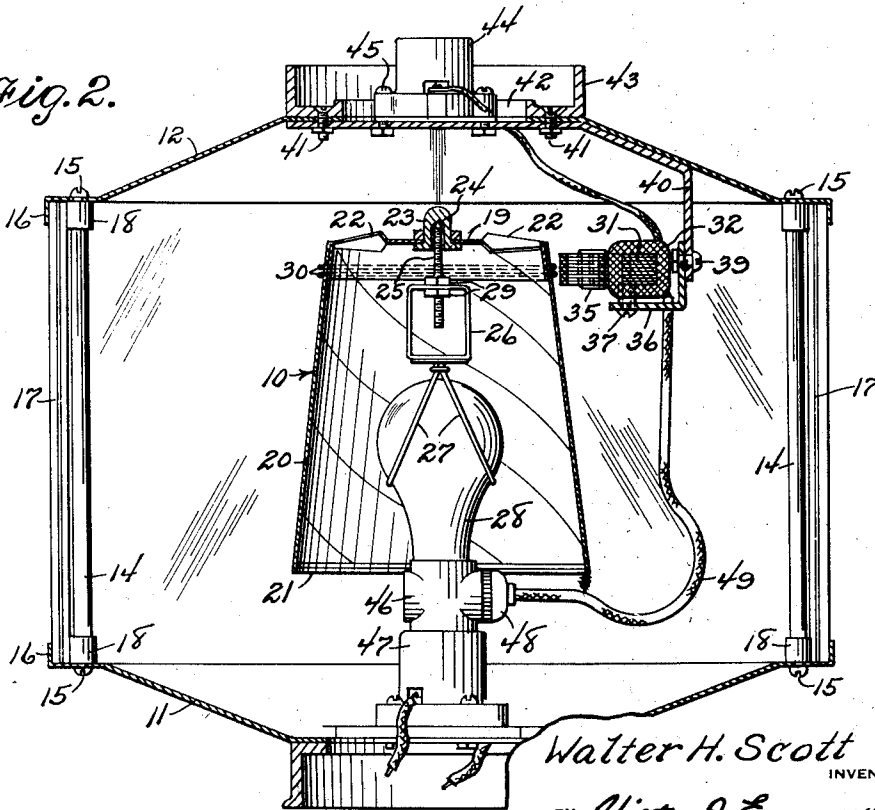


Fig. 2.



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DISPLAY SIGN

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Continuation of application Serial No. 679,103,
July 5, 1933. This application March 17, 1936,
Serial No. 69,418

8 Claims. (Cl. 40—52)

This is a continuation of application No. 679,103, filed July 5, 1933.

The object of the invention is to provide a display sign in which the display medium is of rotary form and electrically actuated without being in direct contact with the actuating means; to provide a sign particularly adaptable for use in connection with oil or fuel dispensing pumps, so that the display element may serve as a means of attracting attention to the same; to provide a construction which provides for the quick and easy change of the rate of movement of the display element; and generally to provide, in a sign construction of the kind indicated, a display element and attendant actuating means which are of simple form, susceptible of cheap manufacture and of a character which may be reasonably expected to continue in operation without likelihood of damage, unless intentionally stopped.

With this object in view, the invention consists in a construction and combination of parts of which a preferred embodiment is illustrated in the accompanying drawing but to which embodiment the invention is not to be restricted. Continued use in practice may dictate certain changes or alterations and the right is claimed to make any which fall within the scope of the annexed claims.

In the drawing:

Figure 1 is a top plan view of a construction in which the invention is incorporated, this figure being partly broken away.

Figure 2 is a sectional view on the plane indicated by the line 2—2 of Figure 1.

In the illustrated embodiment of the invention, the rotary display element 10 is in the form of an axially tapering drum and is disposed centrally within a case composed of a base 11 and cap 12 secured together but in spaced relation by spacer posts 14, screws 15 being threaded into the ends of the posts with their heads bearing on the outer faces of the cap and base respectively. Both the cap and base are flanged as indicated at 16 to provide means for retaining the transparent panels 17 in place, these panels being inserted between the flanges and the posts, the latter of which are provided with cushioning sleeves 18 against which the panels bear. The display indicia is preferably indited on the panels 17.

The display element or drum 10 is designed for rotation within the housing defined by the members 11, 12 and 17 and comprises a top plate 19 and a translucent screen 20 which constitutes the cylindrical surface of the drum and

which is preferably made of distinctively colored strips arranged in spiral form. The screen 20 is bound, as indicated at 21, at the lower edge and the top plate 19 is slit radially with the material comprehended between the slits deflected from the normal plane of the plate to provide blades 22.

The plate 19 at the center is provided with a small casting or forging 23 of the general form of a bonnet nut bored from the under face to provide a socket in which is received the tapered or conical end 24 of a stem 25, the latter being adjustably supported in a wire yoke frame 26 of which the wire strand forming it is extended into loops 27 which may embrace the globular portion of an electric light bulb. The loops 27 preferably having a spring tendency towards each other, so that when they are engaged with a lamp globe the yoke frame is maintained in an upright position together with the stem 25. Nuts 29 constitute the means for axial adjustment of the stem and its locking in any adjusted position, the stem being exteriorly threaded.

The drum 10 constituting the display element is bound near the upper edge and exteriorly thereof with a continuous wire strand 30, preferably in several convolutions and this constitutes the winding of one of the elements of an electric motor of which the drum 10 is the rotor. The wire strand forming the winding is of a material of high magnetic retentivity; it is of the character of piano wire, a comparatively hard steel in which magnetic polarity will not decay rapidly. The stator of such motor consists of a laminated core 31 on which is an exciting coil 32, the core terminating in poles 33 and 34, both of which have shading coils 35 in the form of non-magnetic metallic strips embracing them from the center to one side thereof, the shading coils on the two poles being oppositely disposed. The stator is mounted on a right-angularly formed bracket plate 36 to which it is secured by means of screws 37 and with respect to which it is adjustable by reason of the slots 38 through which the screws extend. The bracket plate 36 is secured by means of a bolt 39, with the pendent extremity of a hanger strip 40, the latter being secured to the cap 12 by means of bolts 41 and spanning a central opening 42 in the cap, there being disposed on top of the cap and held in place by the bolts 41, a globe holder 43 designed to enclose an electric lamp mounted in the socket 44 which is secured to the hanger strip 40 by means of bolts 45. The globe holder 43 is formed with an open-

ing in the center corresponding in diameter with the opening 42.

The lamp 28 is mounted in a plug socket 46 seated in the socket 47 which is secured to the base at the center, the base being designed for mounting on the top of a post or pump. The plug socket 46 is formed with a current tap, so that a prong plug 48 may be readily inserted therein to provide a means of supply for the stator and for the socket 44, as by means of a twin conductor 49 terminally connected to the prongs of the plug and to the terminals of the stator windings and the terminals of the socket 44.

When the switch is closed to energize the socket 47, the lamp 28 is lighted and the stator is likewise energized, as well as any lamp carried in the socket 44. An alternating current field is set up by the stator and inductively affects the winding 30 on the drum 10, setting up a current therein. In the stator, however, continuously changing directions of current in the winding 32 affect opposite sides of the poles 33 and 34 differently, the magnetic flux on those sides of the poles carrying the shading coils building up later than on the opposite sides and decaying in like manner. The eddy currents circulating in the winding 30 set up a magnetic field of their own which is acted upon by the continuously changing magnetic field of the poles 33 and 34, so that rotation of the drum is thereby effected. The blades 22 formed in the top plate 19 of the drum will also be acted upon by a current of air passing from the bottom upwardly through the drum, by reason of the heating effect of the lamp 28 and this upwardly moving current together with the driving effect of the stator field on the drum, will keep the latter constantly in motion, so long as the circuit is closed on the lamp 28.

Changes in the rate of rotation may be effected by adjusting the stator toward or away from the drum, by loosening the screws 37 and resetting the stator on the bracket plate at a point which provides for the proper rate of drum rotation.

The use of a material of high magnetic retentivity as above stated for the rotor winding makes for high efficiency in an appliance of this kind in that for a given speed and torque, the stator absorption of power is a minimum—that is, a high torque at a minimum of power consumption in the stator is secured.

Changes in the speed of rotation may also be effected by varying the position of the field coil and core with reference to a horizontal plane, this variation being effected by adjustment of bracket 36 on the screw 38 as a pivot, after loosening the screw. This adjustment also provides for change in direction of rotation of the drum by adjusting the field coil and core to angular positions on opposite sides of the screw 38, the one position resulting in rotation in one direction and the other position causing rotation in the opposite direction.

The invention having been described, what is claimed as new and useful is:

1. A device of the kind indicated comprising a rotary member, a metallic ring embracing said member, and an alternating current field winding and core provided with shaded poles disposed adjacent said ring and being bodily adjustable on an axis disposed radially of said ring.

2. A device of the kind indicated comprising a

rotary member, a metallic ring embracing said member, and alternating current field winding and core provided with shaded poles disposed adjacent said ring, a support for said field winding and core, and means for bodily adjusting said field winding and core on said support on an axis disposed radially of said ring.

3. A device of the kind indicated comprising a rotary drum having a centrally disposed pivot bearing, a metallic ring embracing said drum, an alternating current field winding and core provided with shaded poles disposed adjacent said ring, a fixed bracket plate on which the field winding and core are carried, and screws passing through slots in the bracket plate and engaging the core to adjust the core radially towards and away from the ring, the bracket plate comprising fixed and adjustable members of which the latter carries the core and is adjustable around an axis disposed radially of the ring.

4. A device of the kind indicated comprising a rotary drum having a centrally disposed pivot bearing, a metallic ring embracing the drum, an alternating current field winding and core provided with shaded poles disposed adjacent said ring, a bracket plate by which said winding and core are carried, and a fixed support for said bracket plate, the latter having a single screw securing it to the support and constituting means to permit bodily adjustment of the winding and core with a fixed point on the support as a pivot, the screw retaining the winding and core in any of its adjusted positions.

5. A device of the kind indicated comprising a rotary member, a metallic ring embracing the same, and an alternating current field winding and core provided with shaded poles disposed adjacent said ring and bodily adjustable to invert its position with reference to the ring to effect rotation of the drum in either direction.

6. A device of the kind indicated comprising a rotary member, a metallic ring embracing the same, and an alternating current field winding and core provided with shaded poles disposed adjacent said ring and bodily adjustable to invert its position with reference to the ring to effect rotation of the drum in either direction, said winding and core being adjustable to assume intermediate positions between its extreme positions to vary the speed of the rotary member.

7. A device of the kind indicated comprising a rotary member, a ring of magnetic material of high magnetic retentivity disposed in surrounding relation to and carried by the rotary member, and an alternating current field winding and core disposed adjacent said ring at its periphery, the core having poles provided with means to create a magnetic lag at one side thereof.

8. A device of the kind indicated comprising a rotary member, a strand of wire wound in a plurality of convolutions around said member with the convolutions in approximate lateral contact but with the extremities of the wire unconnected, the wire being of magnetic material of a high degree of magnetic retentivity, and an alternating current field winding and core disposed adjacent the periphery of the rotary member at the location of the convolutions of the strand, the core having poles provided with means to create a magnetic lag at one side thereof.

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