No. 809,267. PATENTED JAN. 2, 1906.

R. F. LE BROCQ.

STATION INDICATOR.

APPLICATION FILED MAR. 30, 1905.

Fig. 1,

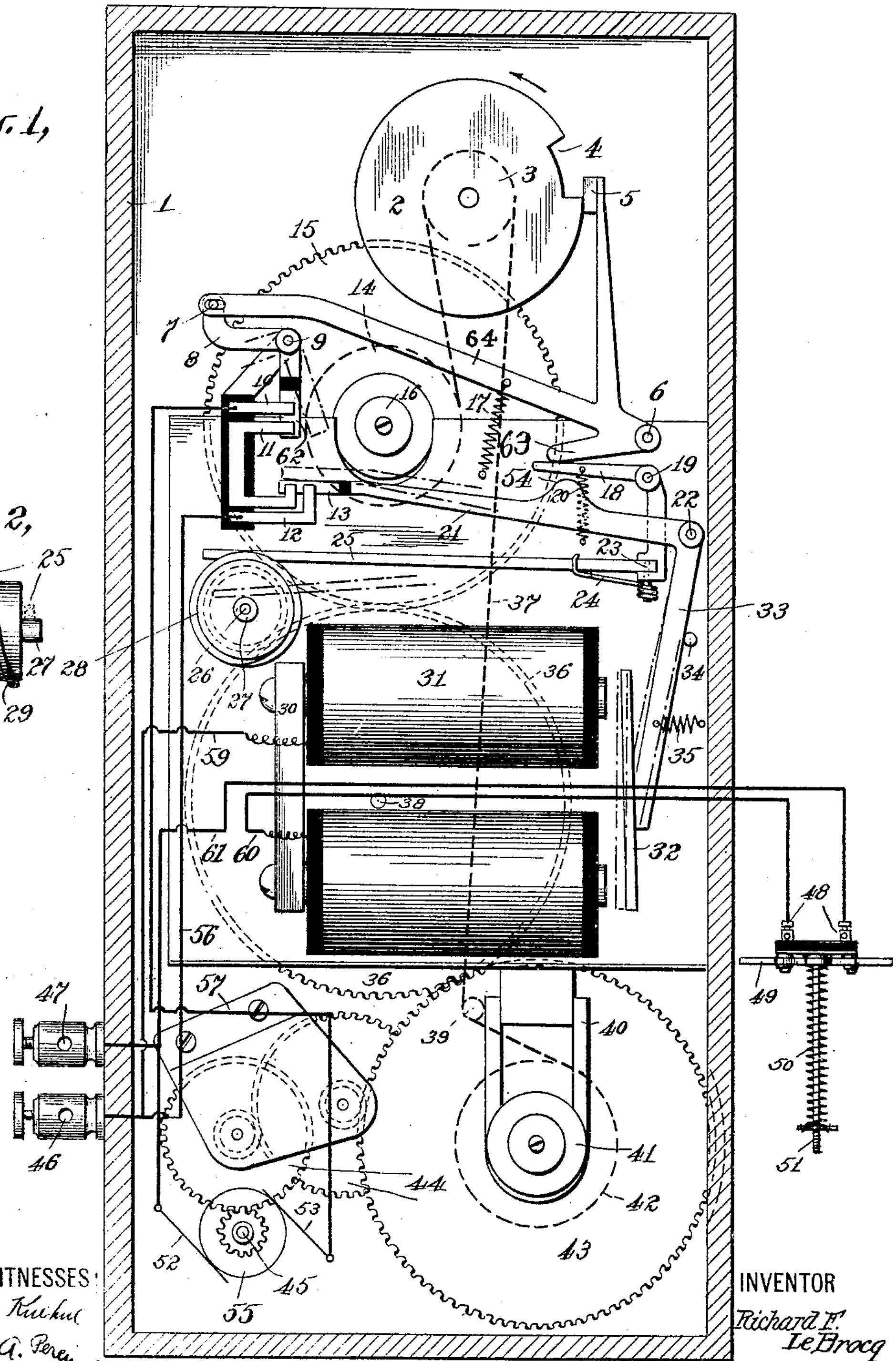
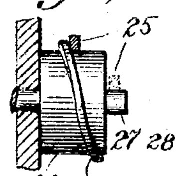


Fig. 2,



WITNESSES:

Wm. Kirkel

John A. Percival.

INVENTOR

Richard F. Le Brocq

BY Richards & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

RICHARD F. LE BROCQ, OF ETNA, NEW JERSEY, ASSIGNOR OF ONE-HALF TO JAMES P. NIEMANN, OF NEW YORK, N. Y.

STATION-INDICATOR.

No. 809,267. Specification of Letters Patent. Patented Jan. 2, 1906.

Application filed March 30, 1905. Serial No. 252,890.

To all whom it may concern:

Be it known that I, RICHARD F. LE BROCQ, a citizen of the United States, residing at Etna, Bergen county, New Jersey, have invented new and useful Improvements in Station-Indicators, of which the following is a specification.

This invention relates to station-indicators for use on railway-cars, and relates especially to means for the electrical operation and control of such indicators.

In the accompanying drawings, in which the same reference-numeral refers to similar parts in both figures, Figure 1 is a sectional elevation of an embodiment of this invention, and Fig. 2 is a side view of a detail of the same.

In the embodiment of the invention illustrated in the drawings, 1 is a casing of suitable construction to inclose the apparatus, and this casing carries the winding-drum 14, revolubly mounted and secured to the clutch member 16, if desired. Loose on the shaft of this drum is the gear 15, with which the clutch may mesh, and this gear is engaged by the idler 36. A similar winding-drum 42 is also mounted in the casing and provided with the fast clutch member 41. The gear 43, which meshes with the idler 36, may be driven by a suitable electric motor (indicated as 55) on the shaft 45 and connected with the drum-gear 43 by the train of gears 44 indicated. Indicating means in the form of a suitable strip 37 may be attached at its ends to the two winding-drums. A suitable stop, which may be in the form of the stop-disk 2, provided with a suitable recess 4, is operated in unison with the indicating means, and this can be effected by running the strip 37 over the stop-roll 3 integral with the stop-disk. This strip also passes over the guide 39 and being drawn taut operates the stop-disk in an obvious manner. The stop-disk coöperates with a suitable detent 5, adapted to engage the recess 4 and effect the accurate alinement of the indicating means.

The stop-lever 64 is indicated as pivoted about the pin 6, and one arm carries the detent 5, as indicated Another arm is provided at its outer end with a suitable slot, which loosely engages the pin 7 in the switch-lever 8. This lever is pivoted about the pin 9 and carries at its free end the switch 62, preferably insulated from the rest of the lever in any desired way and adapted when in the position indicated in full lines to make electrical contact between the stop-contacts 10 and 11. The spring 17, secured to the stop-lever, normally tends, however, to rotate it and cause it to move the stop-switch 62 into the disengaged position indicated in dotted lines. The holding-lever 18 is pivoted about the pin 19 in the casing and is normally held downward by the light spring 20. This lever carries at its lower end the holding-latch pivoted about the pin 23 and normally pressed inward by the spring 24. This latch is adapted to coöperate with suitable releasing means, such as the worm 28, which is mounted on a suitable pin 26 and is driven from the idler 36 through the gearing, (indicated in dotted lines.) This worm carries the thread 29, which when the worm is rotated causes the latch 25 to move outward about its pin 23 until it is free from the cylindrical body of the worm, at which time the spring 20 forces the holding-lever bodily downward, so that the latch assumes the dotted position indicated.

The setting-lever 33 is pivoted about the point 22 and is normally held in contact with the pin 34 by the light spring 35. This lever carries at its lower end the armature 32, coöperating with the electromagnet 30, secured to the casing and energized by the coils 31. The upper end of this lever carries the lug 54, which is adapted to engage the holding-lever and move this lever and also the stop-lever, the arm 63 of which is engaged by the holding-lever, upward into the position indicated in full lines when the electromagnet is energized. The upper arm 21 of the setting-lever also carries at its outer end, and preferably insulated from the lever, the setting-switch 13, which when in the position indicated makes electrical connection between the setting-contacts 11 and 12.

A suitable track-switch may be used in connection with this indicator, the terminals 48 being indicated as coöperating with the contact-bar 49, which is adapted to be rotated by engagement with a fixed pin or support along the line of the railway, although this bar is normally held out of contact by the torsional springs 50, mounted on the stem 51. This track-switch operates as described in the patent to Langschmidt and Le Brocq, No. 588,701, granted August 24, 1897, and

one of the terminals 48 may be connected by the wire 60 with one terminal of the coils of the setting-magnet, while the other terminal 48 is connected, through the line 61, with the binding-bost 47. The connection 59 connects the binding-post 46 with the free end of the electromagnet-coil. As indicated in the drawings, the binding-post 47 may be electrically connected with the brush 52 of the motor, and the other brush 53 may be connected, through the line 57, with the stop-contact 10, the stop-contact 11 being continuous with the corresponding setting-contact and the other setting-contact 12 being connected, as indicated, through the line 56, with the binding-post 46.

In operation as uitable source of constant-current electricity may be supplied to the binding-posts 46 and 47, and under these circumstances when the indicator is mounted in a railway-car—such, for instance, as a trolley-car or other electrically-propelled railway-car—the track-switch is actuated in passing a station so as to close the circuit and energize the setting-magnet. This draws the setting-lever into dotted position, opening the setting-contacts, and also throws up the holding-lever 18 and the stop-lever 64. The holding-latch 25 is by this means raised so that it snaps over the worm. Thereafter when the track-switch is no longer closed and when the setting-lever is drawn into the full-line position by the spring 35, because the electromagnet is no longer energized, the latch holds the stop and holding levers up in the raised position, (indicated in full lines.) In this position the stop-switch 62 is closed, making electrical connection between the stop-contacts 10 and 11. The setting-switch 13 is also closed, making electrical connection between the setting-contacts 11 and 12, and in this manner the motor-circuit is closed and the motor rotates, operating the connected gearing and moving the indicating-strip. This movement also rotates the stop-roll and stop-disk 2. After the worm 28 has made one revolution the worm-thread wedges the latch 25 off the cylindrical body of the worm. This latch falls into the dotted position indicated, and the holding-lever can then be drawn down by the spring 20. Thereafter as the stop-disk continues to rotate the recess 4 finally comes into alinement with the detent 5. The detent is pressed into it under the action of the spring 17, which rotates the whole stop-lever and opens the connected stop-switch 62. This breaks the motor-circuit, and the movement of the indicating-strip ceases, the stop-roll being positively held in alinement by the detent. It is thus readily seen that as long as the track-switch is closed no operation of the motor or feeding forward of the indicating-strip takes place. Immediately, however, on the release of the track-switch the motor begins to operate and feeds forward the indicating-strip to an extent just sufficient to bring the next station indication into alinement with the observation-opening in the casing.

The mode of operation of the switch 13 is devised as it is in order to avoid the possibility that the car might stop upon the switch and, remaining there, the indicator might run continuously and the indicating-strip be unwound so as to show several stations not, in fact, passed, and thus indicating erroneously thereafter until readjusted.

What I claim as new, and what I desire to secure by Letters Patent, is set forth in the appended claims—

1. In indicators, a casing, winding-drums in said casing carrying an indicating-strip, a stop-roll operated by said strip, a stop-disk provided with a recess mounted on said stop-roll, a spring-pressed stop-lever mounted in said casing and carrying a detent coöperating with said recess, a stop-switch actuated by said stop-lever, a holding-lever adapted to engage said stop-lever and carrying a spring-actuated latch, a worm coöperating with said latch and operating in unison with said winding-drums, a setting-lever adapted to coöperate with said holding-lever, a setting-switch actuated by said setting-lever, an electromagnet to actuate said setting-lever, an electric motor operating said winding-drums and contacts in series with said motor controlled by said stop-switch and said setting-switch and a track-switch connected in series with the electromagnet actuating said setting-lever.

2. In indicators, an indicating-strip, winding-drums connected to said strip, a stop-disk operated in unison with said strip, a stop-lever carrying a detent coöperating with said stop-disk and a stop-switch actuated by said stop-lever, a holding-lever to engage and operate said stop-lever, a latch on said holding-lever, a releasing device operating in unison with said indicating-strip and coöperating with said holding-latch, a setting-lever to engage said holding-lever, a setting-switch actuated by said setting-lever, an electromagnet coöperating with and actuating said setting-lever to be connected in series with a contact device, a motor to operate said indicating-strip, and electrical contacts governed by said stop-switch and said setting-switch controlling the operation of said motor.

3. In indicators, an indicating-strip, a stop-disk operated in unison with said strip and provided with a recess a motor to operate said strip, a stop-lever carrying a detent to coöperate with said recess, a stop-switch actuated by said stop-lever, a holding-lever to engage said stop-lever, releasing means coöperating with said holding-lever and operating in unison with said strip, a setting-lever to actuate said holding-lever and said stop-lever, a setting-switch actuated by said set-

ting-lever, means to actuate said setting-lever and contacts governed by said setting-switch and stop-switch to control said motor.

4. In indicators, indicating means, a stop-disk operated in unison with said indicating means, a stop-lever coöperating with said stop-disk, a stop-switch actuated by said stop-lever, a setting-lever to operate with said stop-lever, a setting-switch actuated by said setting-lever, means to actuate said setting-lever, means to hold said stop-lever in position after its actuation by said setting-lever until said indicating means has moved, a motor to actuate said indicating means and contacts controlling said motor and coöperating with said setting-switch and said stop-switch.

5. In indicators, indicating means, a stop operated in unison with said indicating means, a stop-lever carrying a detent coöperating with said stop, a stop-switch actuated by said stop-lever, a setting-lever to actuate said stop-lever, a setting-switch actuated by said setting-lever, means to hold said stop-lever in position after its actuation by said setting-lever until said indicating means has moved, an electric motor and electrical contacts connected in series with said motor and coöperating with said stop-switch and said setting-switch.

6. In indicators, indicating means, a stop operated in unison with said indicating means, stopping means carrying a detent to coöperate with said stop, a stop-switch actuated by said stopping means, setting means to actuate said stopping means, a setting-switch actuated by said setting means, devices to hold said stopping means in position after actuation by said setting means until said indicating means has moved, a motor to operate said indicating means and electrical contacts in series coöperating with said stop-switch and said setting-switch to control said motor.

7. In indicators, indicating means, a stop actuated in unison with said indicating means, a stop-lever carrying a detent coöperating with said stop, an electric switch actuated by said stop-lever, setting means to actuate said stop-lever, a setting-switch actuated by said setting means, a motor to operate said indicating means, and electrical contacts in series and coöperating with said stop-switch and said setting-switch to control said motor.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RICHARD F. LE BROCQ.

Witnesses:

FRANCIS C. KOEHLER,

FREDERICK A. DRAKE.