

J. RODRIGUEZ.
STATION INDICATOR.

No. 507,168.

Patented Oct. 24, 1893.

Fig. 1.

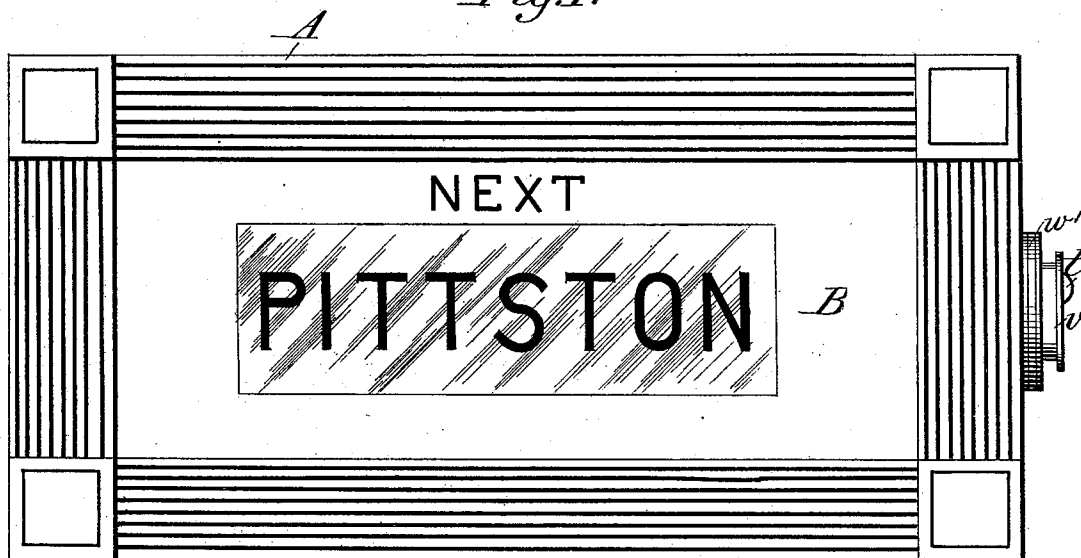
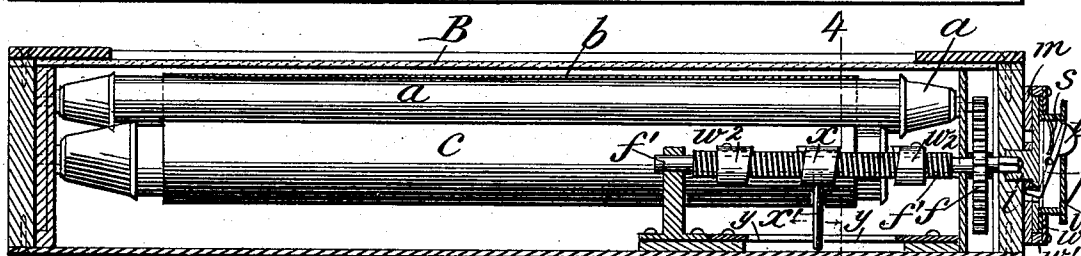
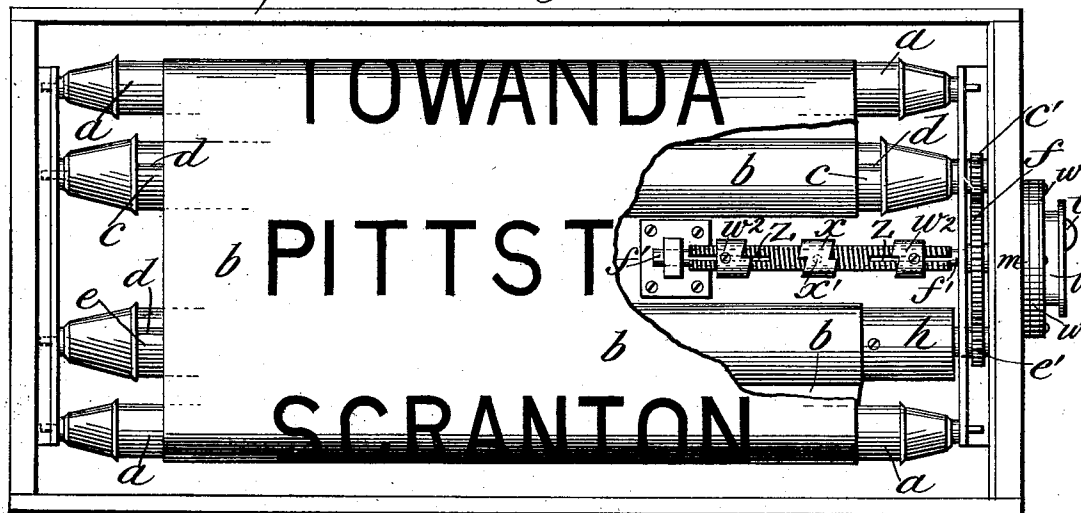


Fig. 2.



Attest:

J. H. Schott
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A Fig. 3.

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Fig. 4.

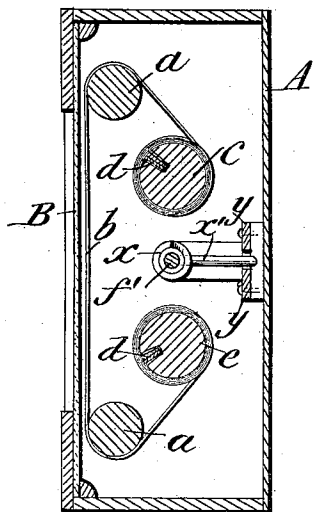


Fig. 5.

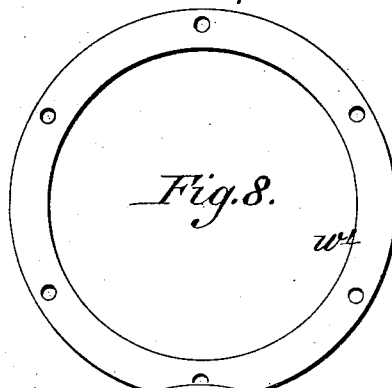
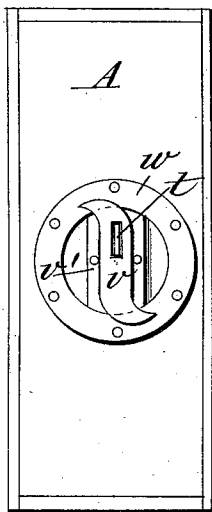


Fig. 9.

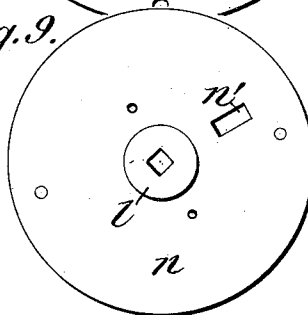


Fig. 6.

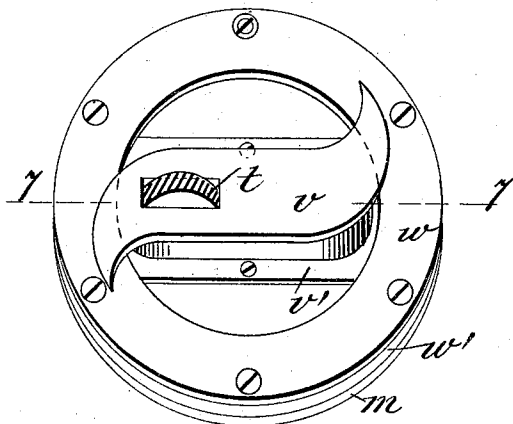


Fig. 10.

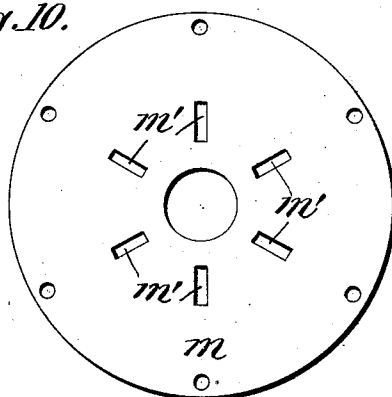


Fig. 7.

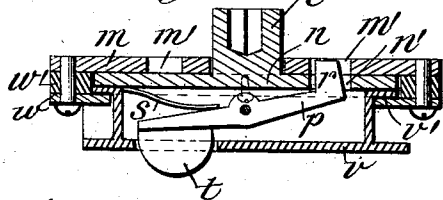


Fig. 11.

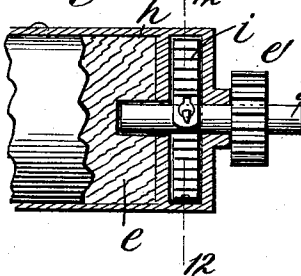
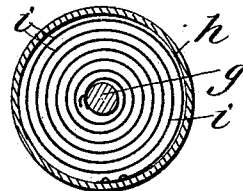


Fig. 12.



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UNITED STATES PATENT OFFICE.

JOSEPH RODRIGUEZ, OF NEW YORK, N. Y.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 507,168, dated October 24, 1893.

Application filed March 28, 1893. Serial No. 468,022. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH RODRIGUEZ, a subject of the Queen of Spain, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Station-Indicators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in station indicators, and is designed to furnish means readily operated by the train conductor or brakeman for indicating to the passengers, after leaving each one of the several stations, the name of the next succeeding station on the line.

To this end, my invention consists in mechanism organized to present successively through the glass-protected sight opening of a suitable indicator box or casing the names of the way stations in regular succession, said names being inscribed or printed upon a strip of flexible fabric which passes over two idle rollers arranged so as to cause the fabric to pass in close proximity to the rear surface of the glass protecting plate. The opposite ends of the fabric are secured respectively to two additional rollers in the rear of the idle rollers referred to, and the fabric is wound from the one to the other, one of these winding rollers being provided with a spring tension device so as to automatically maintain the fabric in a taut condition in spite of the constantly increasing difference in the diameters of the two winding rollers as the fabric is unrolled from the one on to the other. The fabric is preferably secured to the winding rollers by being held near its ends in longitudinal slots made in the said rollers, a strip of steel serving to hold the fabric in the slots, together with the additional security afforded by the subsequent wrapping of the fabric around the rollers and over the steel securing strip. As an efficient safeguard against overwinding the rollers in either direction and thus detaching the fabric from one or the other of them, I provide means for positively stopping and interrupting the roller-actuating mechanism, so as to prevent its being operated

farther when the fabric has been unwound from the one roller and wound up on the other roller to the limit of its prescribed movement in either direction. I also provide means for insuring that each actuation of the operating mechanism, corresponding to one station, shall bring the name of that station exactly opposite the sight opening of the indicator casing so as to be fully in view of the passengers. The specific means whereby these several results are attained are hereinafter described and particularly pointed out in the claims, and will be fully understood by reference to the accompanying drawings, wherein—

Figure 1 represents a front view of an indicator casing adapted to receive my improved mechanism and to display the station names through the sight opening as shown. Fig. 2 represents a similar view of the mechanism with the front plate of the casing removed and a portion of the fabric shown as broken away so as to show the parts behind. Fig. 3 represents a central longitudinal section. Fig. 4 represents a transverse section taken on a plane indicated by the line 4—4 of Fig. 3. Fig. 5 represents a face view of the device for operating the actuating mechanism of the indicator. Figs. 6, 7, 8, 9 and 10 represent detail views of the same; and Figs. 11 and 12 represent longitudinal and transverse sections of the spring-containing end cap of the winding roller.

Similar letters of reference indicate similar parts throughout the several views.

Referring to the drawings, A indicates a suitable indicator display casing which may be of any size or dimensions appropriate to the particular width and length of the fabric, and the height of the letters inscribed or printed thereon. A glass-protecting plate B serves to exclude dust from the interior mechanism and is provided with a transparent place through which the names of the stations are to successively appear. I preferably inscribe upon the glass plate B above the sight opening, the word "Next" in order that it may be clearly understood that the particular name displayed is the name of the next station on the route of travel. The casing with its contents is mounted or supported

at any part of the car, sufficiently prominent for the purpose, and at such a height as to be conveniently accessible to the operator.

Immediately in the rear of the glass plate 5 are arranged the idle rollers *a* which are adapted to rotate freely in suitable bearings. The fabric *b*, upon which the names of the stations are inscribed or printed in succession, passes over the rollers *a* and that portion of the fabric which passes the sight opening 10 is constantly held close to the glass and flat, whatever may be the amount of the fabric wound on the winding rollers proper, or whatever portion of the fabric may be on the 15 one winding roller or the other.

One of the winding rollers *c* is journaled in bearings and is provided with a longitudinal slot within which the doubled edge of the fabric is forced and is held in place therein by 20 a steel strip *d* inserted in the slot after the fabric edge has been inserted and between the folds of said edge, as shown, so as to wedge the fabric in place. I prefer this manner of connecting the fabric to the roller, rather than 25 by tacking it thereto, because the fabric may be readily removed when desired for any purpose. The opposite end of the fabric is in like manner removably connected to the winding roller *e* by a similar longitudinal slot and 30 steel wedge piece *d*, as will be readily understood. It is also to be noted that sufficient selvage or margin is to be left at the ends of the fabric beyond the final names as they appear through the sight opening to permit the 35 fabric to preserve at least one turn around the rollers when unwound to the limit prescribed; thereby always leaving at least one wrapping of fabric around the roller to insure against the steel wedge working out of place 40 and releasing the fabric.

The winding roller *c* is provided with a gear *c'* affixed so as to turn with it, and this gear meshes with a driving gear *f*, which in turn meshes with a gear *e'*. The gear *e'* is not connected directly to the winding roller *e*, but is 45 fixed upon a short arbor *g* suitably journaled, and which passes freely through a cap-piece *h* rigidly affixed upon the proximate end of the roller *e*. A volute spring *i* is connected 50 at one end to the interior wall of the cap-piece *h* and at the other end to the arbor *g*. The connection between the arbor *g* and roller *e* is therefore a spring connection. It will be evident that the driving gear *f* 55 when revolved rotates the gears *c'* *e'* in such direction that the fabric is wound from the one winding drum upon the other. The gears *e'* *c'* being of equal size are rotated in equal periods of time by the driving gear 60 and if both gears *e'* *c'* were rigidly affixed to their shafts, the result would be that the mechanism would soon come to a complete stop, for the reason that as the diameter of the one winding roller increased over the correspondingly diminishing diameter of the 65 other the former roller would constantly de-

mand a greater quantity of fabric than the latter could furnish in equal revolutions of the two; but, by interposing the spring connection between the gear *e'* and the winding 70 roller *e* I provide a means for compensating for the differences in diameter referred to. Thus as the roller *c* increases in diameter by reason of the fabric it draws from the roller *e* it causes the roller *e* to revolve more than 75 one of its revolutions, thereby exerting a tension upon the spring *i*, which tension tends constantly to keep the fabric taut, while at the same time enabling the roller *e* to continuously supply the amount required by the 80 roller *c* and without blocking the operation of the gearing, or putting undue strain upon the fabric itself.

The gear *f* is fixed upon a shaft having a squared end over which fits a socket *l* formed 85 in a tubular extension of a revoluble drive plate *n*. This drive plate has a single aperture *n'* within which fits the forward end *r* of a pivoted lever *p*, said end *r* being of sufficient length to also enter any one of a series 90 of radial openings *m'* of a fixed plate *m* when the aperture *n'* registers therewith. A spring *s* tends to constantly depress the end *r* of the lever, and the opposite end of the lever projects as a thumb-piece *t* through the upper 95 surface of a turn button *v*, constituting an operating knob or handle for actuating the mechanism. The turn button *v* is provided with a base flange *v'*, whereby it is screwed to the plate *n* as shown in Fig. 6. An annu- 100 lus or ring *w*, extends over the flange *v'* to hold the plate *n* and turn button *v* in place while permitting them to be rotated and an intermediate spacing ring *w'* is also provided, the rings *w* and *w'* being connected by screws 105 to the plate *m*. The radial openings *m'* in the plate *m* correspond in distribution to the station names on the fabric, the relationship between the two being such that as the drive plate *n* is revolved a distance corresponding 110 to the distance between two adjacent openings *m'* the fabric will be moved sufficiently to display the next station name through the sight opening of the indicator. Moreover, inasmuch as the pivoted lever en- 115 gages each time with one of the openings *m'*, the station names are brought with the greatest precision exactly opposite said sight opening, without any special attention on the part of the operator. 120

The shaft *f'* upon which the gear *f* is fixed is externally screw threaded as shown and is provided with longitudinal recesses *z* whereby stop-pieces *w²* may be rigidly but adjustably fixed upon the shaft. Between the stop- 125 pieces a nut *x* intermeshes with the screw thread of the shaft, so as to travel backward or forward thereon according as the shaft rotates in the one direction or the other. The nut has a stem projection *x'* running freely 130 between guides *y*, and is provided at its opposite ends with cam surfaces terminating in

an abrupt wall, these cam surfaces corresponding to similar ones on the ends of the stop-pieces w^2 , so that when the nut reaches the limit of its play in either direction its appropriate cam surface will interlock with the corresponding cam surface of the stop-piece, the straight or abrupt faces coming opposite each other. The stop pieces are arranged at such locations upon the shaft that the nut will come into interlocking contact with one of them as soon as the fabric displays the final station name through the sight opening. The mechanism is thereby prevented from being turned farther in that direction and therefore the fabric is prevented from being subjected to a strain that would separate it from the winding roller. It will be evident that the height and width of the letters may be varied according to circumstances. In the illustration given, one complete revolution of the plate n causes six station names to appear one after another opposite the sight opening. If the numbers are made higher, so that for the same single revolution of the plate n only three station names appear opposite the sight opening, the radial openings m' will be reduced to three also; and so on, the number of radial openings in the plate m corresponding always to the number of station names appearing opposite the sight opening with every complete revolution of the plate n .

In operating the indicator the conductor or brakeman presses upon the projecting button or end t of the pivoted lever until the opposite end r of the lever is lifted from engagement with the particular opening m' in which it is engaged at the time. The button v is then turned until the pivoted lever end engages with the next one of the openings m' , and at the end of this movement the next station number appears through the sight opening. In this manner, after leaving each station, the name of the next succeeding station is made to appear upon the indicator, and at the end of the route the mechanism becomes locked against further operation in the same direction by means of the nut and corresponding stop piece on the threaded shaft. On the return trip, it can be operated in the opposite direction.

It will be evident that the invention may be applied not only as a station indicator, but also to display any other signs or indications that may be inscribed or printed upon a similar fabric.

Having thus described my invention, what I claim is—

1. An apparatus for indicating the names of railway stations and the like, provided with a traveling band upon which the names are to be inscribed, two winding rollers to which the opposite ends of the traveling band are connected, gearing for actuating the winding rollers, and an automatic stop for blocking the gearing when the band has reached the limit of its travel from one of the winding

rollers to the other; substantially as described.

2. An apparatus for indicating the names of railway stations and the like, provided with a traveling band upon which the names are to be inscribed, two winding rollers to which the opposite ends of the traveling band are connected, gearing for driving the two winding rollers simultaneously, a screw-shaft connected with the gearing and having a stop, and a traveling nut upon the screw-shaft co-operating with the stop; substantially as described.

3. An apparatus for indicating the names of railway stations and the like, provided with a traveling band upon which the names are to be inscribed, two winding rollers to which opposite ends of the traveling band are connected, gearing for driving the two winding rollers simultaneously, a screw-shaft connected with the gearing and having two stops, and a traveling nut upon the screw-shaft intermediate of the two stops and co-operating therewith; substantially as described.

4. An apparatus for indicating the names of railway stations and the like, provided with a traveling band upon which the names are to be inscribed, two winding rollers to which the opposite ends of the traveling band are connected, gearing for driving the two winding rollers simultaneously, a screw-shaft connected with the gearing and having two stops adjustable upon said shaft, and a traveling nut upon the screw-shaft intermediate of the two adjustable stops and co-operating therewith; substantially as described.

5. An apparatus for indicating the names of railway stations and the like, provided with a traveling band upon which the names are to be inscribed, two winding rollers to which the opposite ends of the band are connected, cog-gears upon the ends of the rollers, and intermediate cog-gear meshing with the roller gears, a screw-shaft connected with the intermediate gear and having two stops secured thereon, and a traveling nut upon the screw-shaft intermediate of the stops and having a tail-piece, and a longitudinal guide-way in which said tail-piece moves; substantially as described.

6. In an apparatus for indicating the names of railway stations and the like, the combination with the gearing of an operating device therefor, said device consisting of a turn-plate having a pawl pivoted thereon, said turn plate being provided with a notch or slot into which the end of the pawl enters, and a fixed plate beneath the turn plate, said fixed plate having a series of notches or slots registering with the turn-plate notch or slot as the turn plate is revolved; substantially as described.

7. In an apparatus for indicating the names of railway stations and the like, the combination with the gearing, of an operating device therefor, said device consisting of a turn-plate having a pawl pivoted thereon, said turn-plate being provided with a notch or slot into which one end of the pawl enters

and having a slotted turn-button through
which the opposite end of the pawl projects,
and a fixed plate beneath the turn-plate, said
fixed plate having a series of notches or slots
5 registering with the turn-plate notch or slot,
as the turn-plate is revolved; substantially as
described.

In testimony whereof I affix my signature in
presence of two witnesses.

JOSEPH RODRIGUEZ.

Witnesses:

NATHAN L. HAHN,
JAMES E. HILLS.