

L. H. SIMMONS.
STATION INDICATOR.
APPLICATION FILED MAY 6, 1904.

Fig. 1.

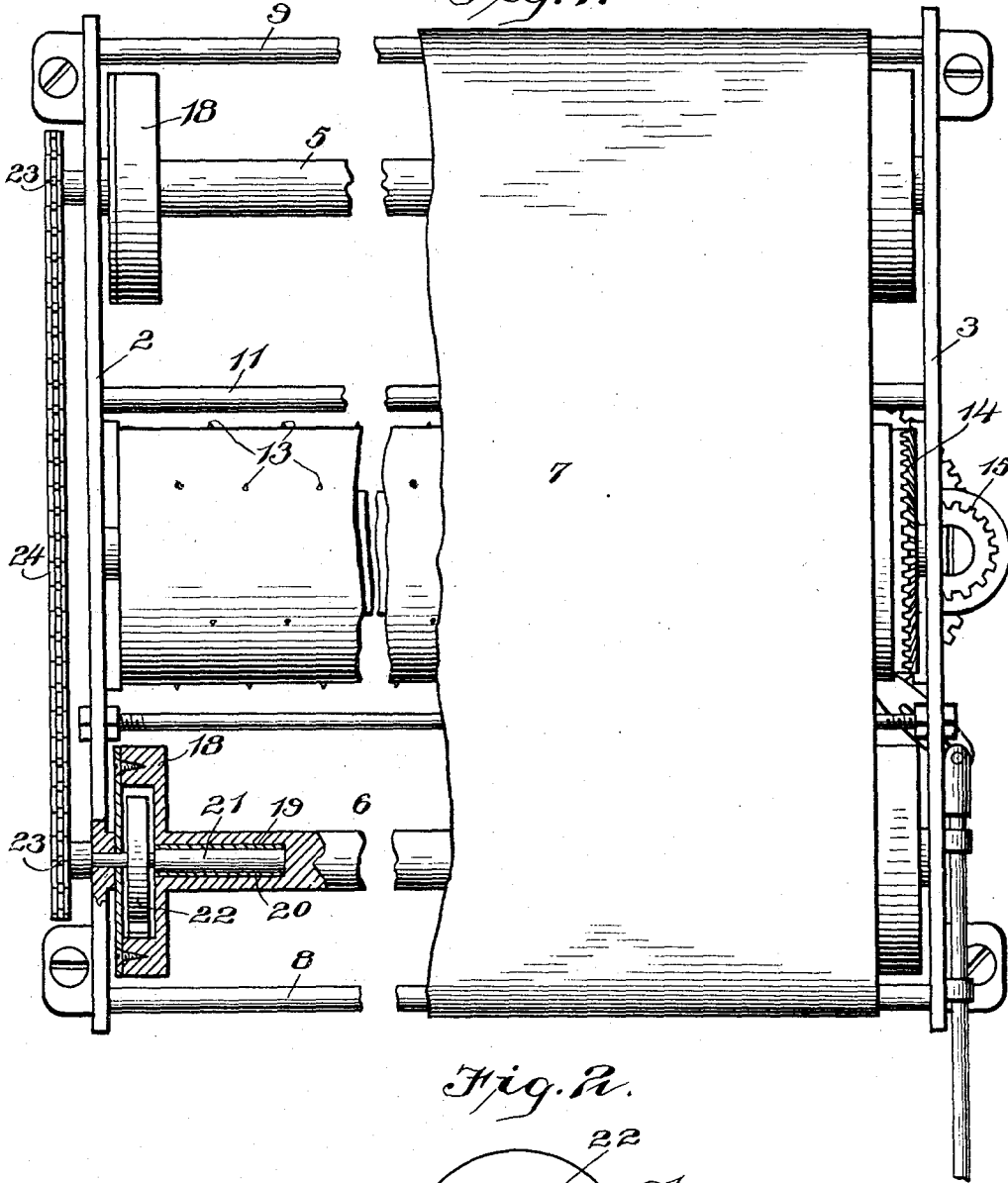
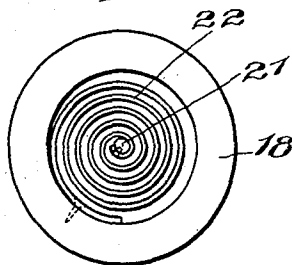


Fig. 2.



Witnesses

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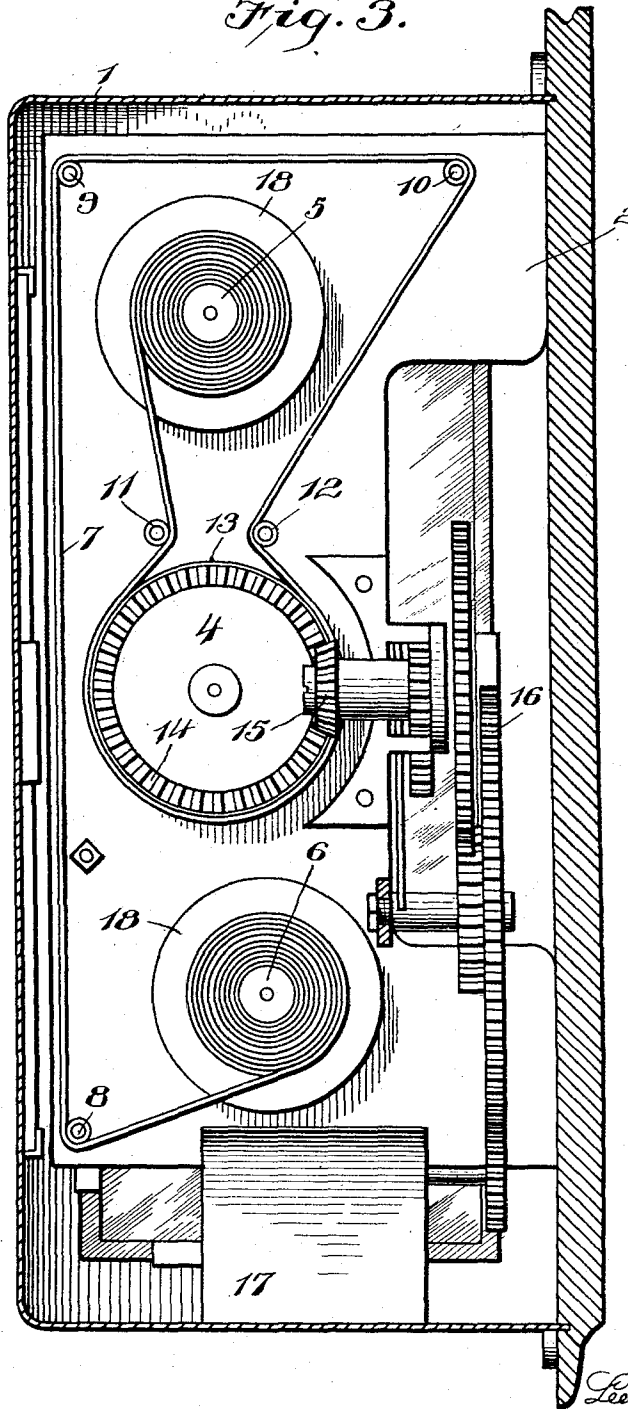
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2 SHEETS—SHEET 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

LEE HOWARD SIMMONS, OF WILMINGTON, NORTH CAROLINA.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 782,994, dated February 21, 1905.

Application filed May 6, 1904. Serial No. 206,640.

To all whom it may concern:

Be it known that I, LEE HOWARD SIMMONS, a citizen of the United States, residing at Wilmington, in the county of New Hanover and State of North Carolina, have invented certain new and useful Improvements in Station-Indicators; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to station-indicators, but more particularly to the construction of the winding-rollers of the name-sheet, and has for its object to provide a device of this class which effectually provides for a uniform and easy movement and winding of the name-sheet without straining the same.

It is a fact well known that when a name-sheet secured at both ends to rollers is wound or unwound from one of said rollers onto or off of the other the roll of the sheet wound on one of the rollers increases in circumference, while the roll of the name-sheet on the other roller diminishes. It is evident, therefore, that if these rollers are revolved uniformly the roll of the name-sheet having the greater circumference will take up more of the name-sheet on one revolution than can be unwound from the other roller in one revolution. The consequence of this is an undue strain upon the name-sheet and upon the rollers, and if the name-sheet is of any length a point will be reached when the rollers cannot further revolve. It is for the purpose of obviating this difficulty and for providing a simple construction of winding-rollers that my invention particularly consists.

My invention, however, further consists in certain combinations of parts, which will be first fully described and afterward specifically pointed out in the appended claims.

Referring to the accompanying drawings, Figure 1 is a front elevation showing a name-sheet, partly broken away, and the two winding-rollers and the driving-roller arranged and constructed in accordance with my invention.

Fig. 2 is an end view of one of the winding-rollers, an outer or covering end plate being removed; and Fig. 3 is a side elevation of the rollers, the winding-rollers being shown with the end flanges removed. A casing is also shown in section.

Like numerals of reference indicate the same parts throughout the several figures, in which—

1 indicates the station-indicator casing, within which the rollers, name-sheet, and operating mechanism are contained.

2 and 3 indicate the sides of the indicator, within which the driving-roller 4 and the winding-rollers 5 and 6 are journaled.

7 indicates the name-sheet, having the ends thereof secured to the winding-rollers 5 and 6, said sheet passing over suitable small rollers 8 and 9 and 10, arranged as shown in Fig. 3.

11 and 12 indicate two tension-rollers located above the driving-roller for the purpose of giving the name-sheet a greater bearing, or rather for the purpose of increasing the contact of said name-sheet on the surface of the driving-roller 4. It will be seen by referring to Fig. 1 that the driving-roller 4 is constructed, preferably, hollow, and the circumference of said roller is provided with a series of rows of tangs or projections 13.

14 indicates a bevel-wheel secured to the shaft of the driving-roller, and 15 indicates a bevel-pinion meshing therewith, while 16 indicates a chain of gearing for reversing the name-sheet and for transmitting power from the motor 17 to the driving-roller 4.

Referring to Fig. 1, it will be seen that the lower winding-roller 6 is shown partly in section and that the ends of said winding-rollers are provided with a flange 18, said flange being hollowed out, as shown, said flanges on said winding-rollers being for the purpose of guiding the name-sheet and insuring the same against any lateral movement while being wound on said rollers. The rollers 5 and 6 are provided with a small bore 19, extending a short distance within the roller, within which bore is fitted a metal tube 20.

21 indicates the shaft, which is shown having an enlarged portion entering the tube 20 in the roller. Connected to said shaft 21 is a coil-

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spring 22, said spring being connected at its outer end to the flange 18, as shown in Fig. 2. Secured on the outer end of said shaft in each of the rollers 5 and 6 are sprocket-wheels 23, over which the sprocket-chain 24 passes.

Having thus described the several parts of my invention, its operation is as follows: The name-sheet 7 winding off the roller 5 and onto the roller 6, said name-sheet being driven by the driving-roller 4, the roll on the winding-roller 6 greatly increases in circumference, while the roll on the winding-roller 5 greatly diminishes. It is necessary that the name-sheet be wound on the winding-roller 6 as it is being unwound from the driving-roller 5. In other words, the two winding-rollers must revolve simultaneously. Consequently they must be connected, as by the sprocket-chain 23. However, as the name-sheet is unwound from the driving-roller 5 and wound on the driving-roller 6 the winding of the name-sheet from the roller 5 sufficient to cause one revolution of said roller is not sufficient to cause one revolution of the roller 6, owing to the greater circumference of the roll on said roller 6. It is obvious, therefore, that were these rollers 5 and 6 so connected that they were ever to revolve uniformly a great strain would be turned upon the name-sheet, and there would be a point where the rollers would cease to revolve, or if forced to revolve the name-sheet must necessarily be torn in two. By my invention, however, as shown in the drawings and previously described, the shafts 21, carrying the sprockets over which the sprocket-chain 24 passes, are not permanently or directly attached to the rollers 5 and 6, but are attached, as described, to the coil-spring 22. It is obvious, therefore, that said shafts 21 can be revolved without revolving the rollers 5 and 6, or they can be revolved a full revolution and impart only a half-revolution to the winding-rollers 5 and 6. When, therefore, the name-sheet is being unwound from the roller 5 and onto the roller 6, one revolution of the roller 5 will revolve the shaft 21 of roller 6, but said roller 6 will only be revolved that part of a revolution which will be necessary to take up the name-sheet unwound from roller 5 and to give to said sheet a proper tension and hold the same flat within the indicator-casing. When the motion of the name-sheet is reversed and the name-sheet is being unwound from roller 6 and onto roller 5, one revolution of roller 6 will require probably two or three revolutions of roller 5 in order to take up the name-

sheet unwound off of roller 6 and to compensate for the disparity in the circumferences of the rolls on said rollers. It is therefore obvious that the name-sheet can be run first in one direction and then in the other and that it can be wound and unwound on and off the winding-rollers without in any way unduly straining the name-sheet, but at the same time giving sufficient tension to said sheet to hold the same flat within the indicator-casing.

Having thus described the several parts of my invention, I do not wish to be understood as limiting myself to the exact construction herein set forth, as various slight changes may be made therein which would fall within the limit and scope of my invention, and I consider myself clearly entitled to all such changes and modifications.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a station-indicator, the combination of a driving-roller and means for actuating the same, a name-sheet on said driving-roller, tangs on said driving-roller to engage said name-sheet, tension-rollers associated with said driving-roller, winding-rollers having flanges on their ends, one flange on each of said rollers being hollow, and each roller being provided with a bore therein, a metal tube in said bore, a shaft in said tube, and a sprocket on the end of said shaft, a coil-spring housed within each of said hollow flanges on said winding-rollers, one end of said spring being connected to said hollow flange, the other end of said spring being connected to said shaft, and means connecting the shafts of the winding-rollers, substantially as described.

2. In a station-indicator, the combination of a driving-roller, winding-rollers associated therewith, a name-sheet on said rollers, a hollow flange on the ends of said winding-rollers, a shaft entering the end of each of said winding-rollers, a coil-spring housed within said hollow flange and connected at one end to said shaft and at its other end to said hollow flange, said flange also acting to guide said name-sheet, substantially as described and for the purposes set forth.

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

LEE HOWARD SIMMONS.

Witnesses:

H. B. RESCHAN,
R. W. WALLACE.