

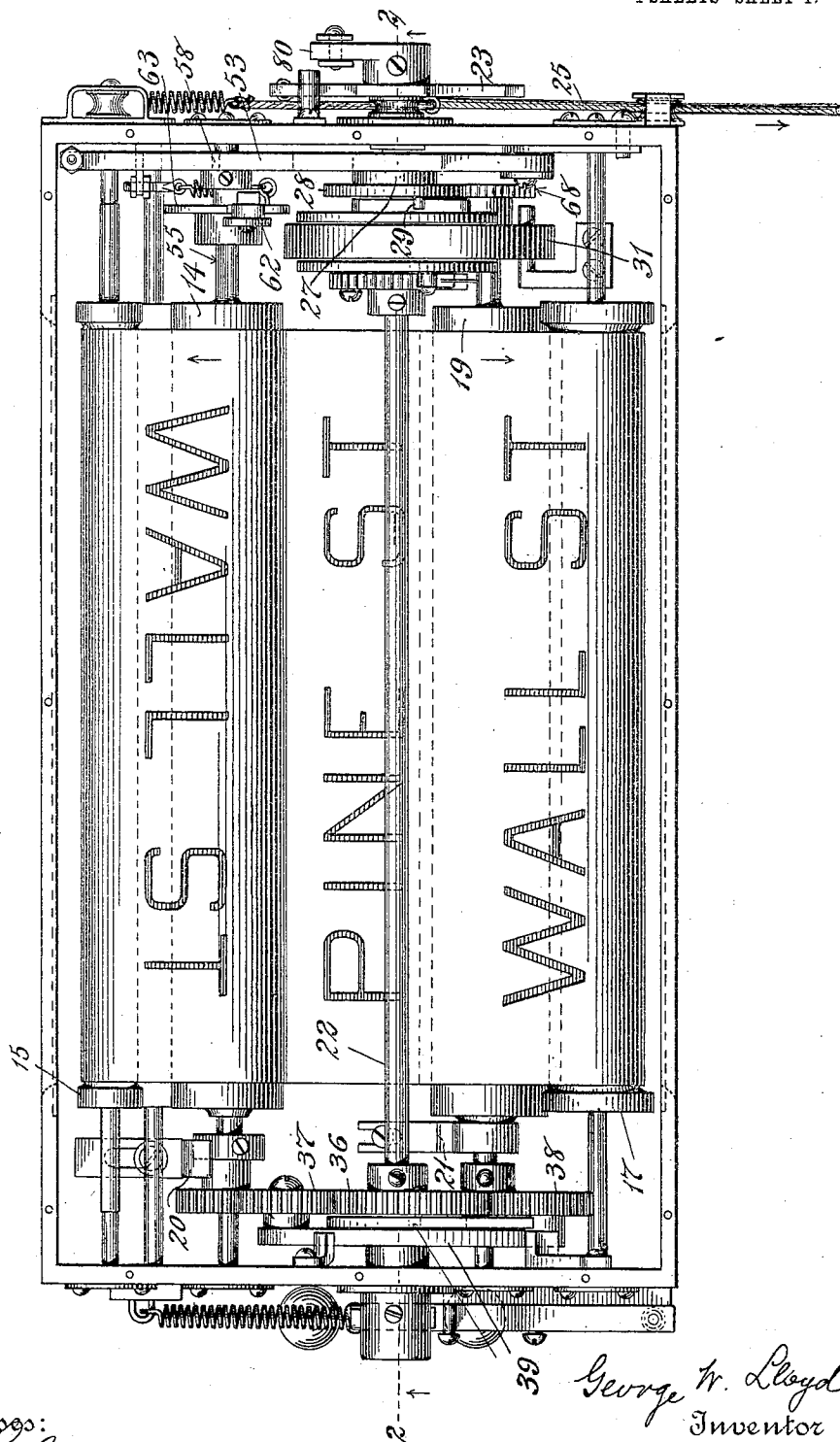
G. W. LLOYD.
STATION OR STREET INDICATOR.
APPLICATION FILED AUG. 16, 1909.

961,243.

Patented June 14, 1910.

4 SHEETS—SHEET 1.

Fig. 1.



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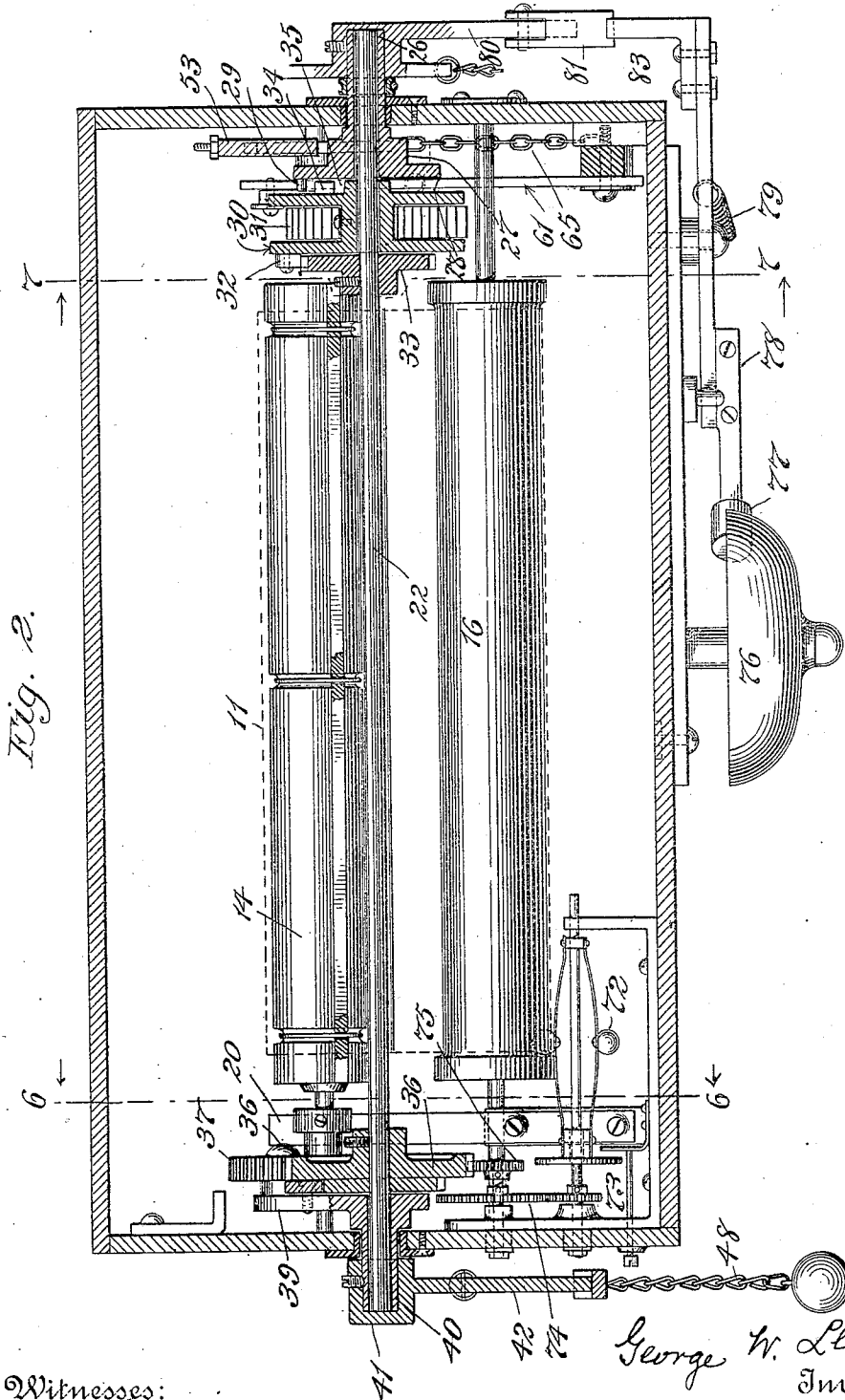
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 4.

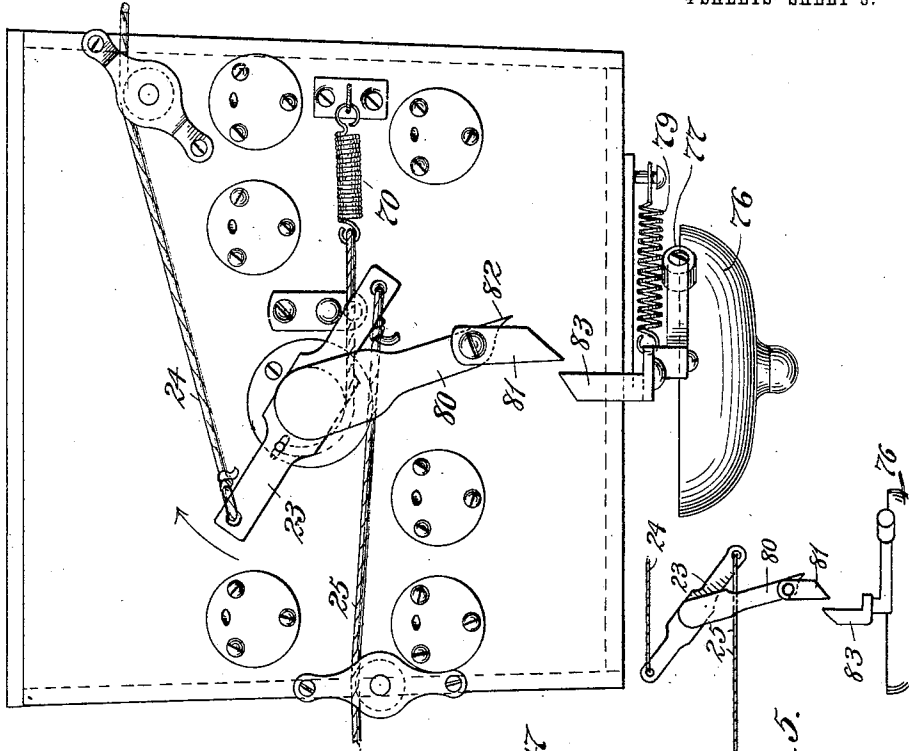


Fig. 3.

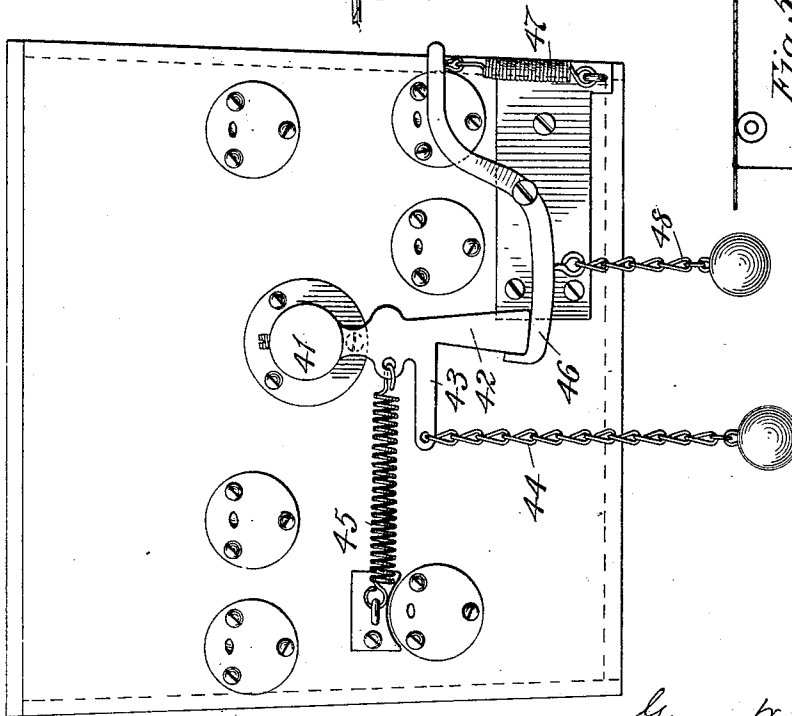
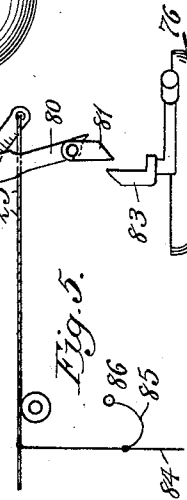


Fig. 5.



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4 SHEETS—SHEET 4.

Fig. 7.

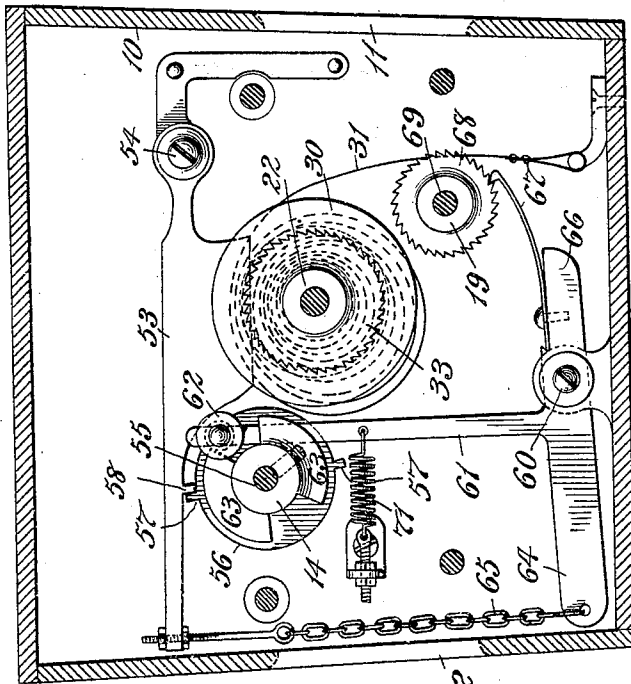


Fig. 6.

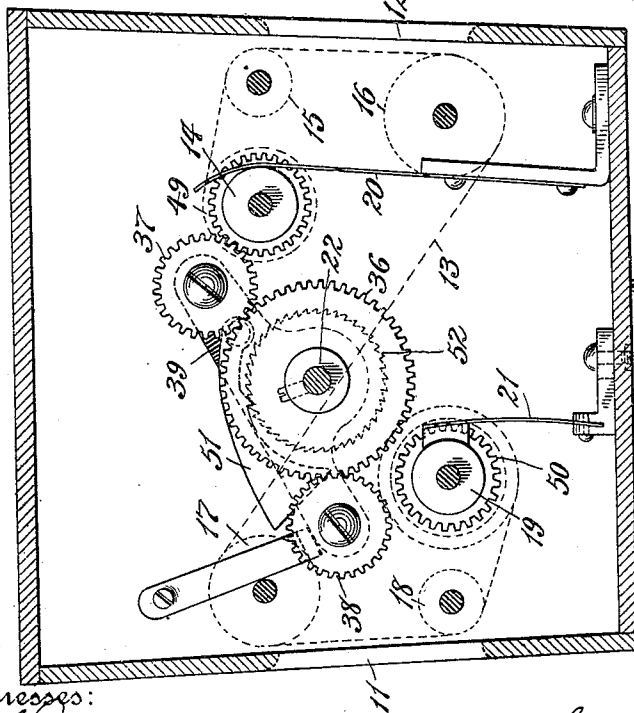


Fig. 9.

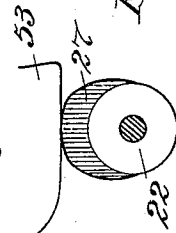
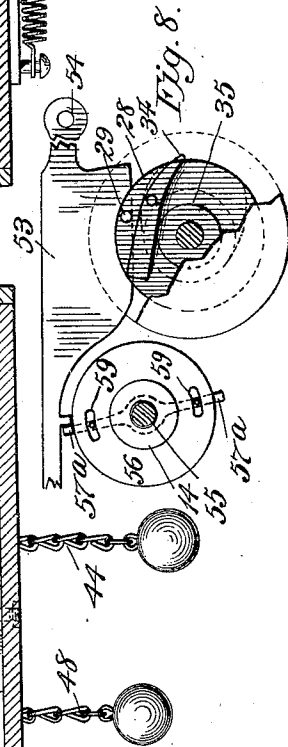


Fig. 8.



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UNITED STATES PATENT OFFICE.

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STATION OR STREET INDICATOR.

961,243.

Specification of Letters Patent. Patented June 14, 1910.

Application filed August 16, 1909. Serial No. 513,110.

To all whom it may concern:

Be it known that I, GEORGE W. LLOYD, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, State of New York, (whose post-office address is 14 Tomkins Place, Brooklyn, New York,) have invented a certain new and useful Improvement in Station or Street Indicators, of which the following is a specification.

My present invention has relation to an improvement in those devices which are placed in railway cars and are operated at proper times to furnish a legible indication of the station or street which has been reached at the time of operation.

The particular advantages of my improvement will appear hereinafter in connection with description of the various parts, and the elements of novelty in my invention are stated in the claims appended hereto.

A preferred embodiment of my invention is shown in the accompanying drawings, wherein—

Figure 1 is a plan view with the top cover removed, Fig. 2 is a vertical section on the line 2—2 in Fig. 1, Figs. 3 and 4 are elevations of opposite sides, Fig. 5 is a detail of the extra ringing means, Fig. 6 is a vertical section on the line 6—6 of Fig. 2, Fig. 7 is a like section on the line 7—7 of Fig. 2, and Figs. 8 and 9 are details.

The main casing 10 is provided with openings 11 and 12, and the names of the streets or stations are printed upon both sides of the band 13, so that, as, the band moves they may be read through both openings. The arrangement of the names upon opposite sides of the band is such that the same name will be seen from each side at any given time.

The preferred position of the band is indicated by the dotted lines in Fig. 6, where it is seen to extend from one storing roller 14, over the idle rollers 15, 16, 17 and 18, to the other storing roller 19. To insure smooth movement and lessen the chance for the band 13 to become loose on either roller, I prefer to use spring brakes, 20 and 21 bearing upon the two storing rollers.

One of the objects of this invention is to provide moving means for the band whereby a predetermined tension is always employed and whereby accurate movement for the proper distance is always insured in both directions, while a taut smooth band is

maintained. For these purposes the following mechanism is adapted:

The main operating shaft 22 extends through the center of the box, and it is preferably operated by the following means: Outside of the casing 10, at one end is an operating lever 23, preferably operated from two different directions by the cords or chains 24, 25. The lever 23 is fast upon a thimble 26, which carries a cam 27 and a disk 28 bearing a pin 29. (See Figs. 2, 8 and 9.) This thimble is mounted loosely upon the main shaft 22. Facing the disk 28 is a drum 30, also loose upon the shaft, which carries a spring 31. The drum carries a pawl 32 which engages a ratchet wheel 33 made fast upon the main shaft 22. On the opposite side of the drum is carried a pivoted bar 34, limited in its possible movement by the hub 35, also on the drum. (See Figs. 2 and 8.) From what is thus far described, it is clear that, when the lever 23 is turned with its thimble a proper distance with the arrow in Fig. 4, the spring 31 is partly wound up, while the pawl 32 rides idly over the ratchet wheel 33. When the operating lever is released, however, the spring reverses the movement of the drum, which then acts through the pawl 32 to turn the wheel 33, and, through it, the shaft 22.

It will be seen that the first portion of the movement of the lever 23 is merely employed in bringing the pin 29 into operative engagement with the pivoted bar 34. This lost motion, which takes place without producing any winding up of the spring 31, permits ringing of the alarm bell without movement of the band 13, in a manner hereinafter described.

Upon the opposite end of the shaft 22 is mounted the gear wheel 36, fast on the shaft, and with this gear there mesh constantly the two planet gears 37, 38, carried by cross arm 39, which is carried by a thimble 40 mounted loosely upon the shaft 22 and extending outside of the casing. (See Fig. 2.) Upon the outer end of the thimble 40 is fixed a hollow hub 41 having an arm 42 preferably shaped as shown in Fig. 3. The arm 42 has a side extension 43 to which is preferably fastened a chain 44. A strong spring 45 is arranged so as to tend always to draw the arm 42 toward the left in Fig. 3. When the parts are in the position illustrated the lower end of arm 42 is confined

by the retaining lever 45, which is normally held up by the spring 47 and may be pulled down to release the arm by means of the chain 48.

5 It is clear that by means of the devices just described, which may be termed the band reversing means, the gear wheel 36 can be brought into operative relation with either of the pinions 49 or 50 at will, which
10 are fixed respectively to the shafts of the two storing rollers 14 and 19.

I prefer to pivot the weighted pawl 51 upon the tilting arm 39, and to provide a ratchet wheel 52, fixed to one face of the
15 gear wheel, 36, whereby normal band-moving rotation of said wheel 36 is permitted, while, at the same time, during reverse movement of the drum 30, in winding up the spring 31, corresponding movement of the
20 wheel 36, which might otherwise be caused by friction between the drum and shaft 22, is prevented.

In order that the band may always move under full tension of the spring, and its uniform action may be secured, I prefer to use the controlling means shown fully in Figs. 2 and 7, or its equivalent. This comprises a stop lever 53, pivoted to the casing, as at 54, and resting upon the cam 27 shown in
30 dotted lines in Fig. 7. (See also Fig. 9.) The object of this stop lever is to control the action of the two storing rollers in a manner to be described. On the end of the shaft 55 on which is fixed the roller 14, is carried a
35 disk 56 having a projection 57 adapted to rest normally against one side or the other of the projection 58 on the lever 53, according to the direction in which the band is intended to travel at any particular time.
40 Since a single movement of the band between the names of stations corresponds to a half turn of the roller 14, I supply two projections 57, diametrically placed on the disk 56.

45 In Fig. 8 is shown a preferred arrangement of the projections 57^a, wherein they are pivoted on the shaft 55, and are adapted to move slightly one way or the other, being limited by the slot 59 in the disk 56. When
50 thus constructed, the full half circle is described by the roller 14 when reversed at the end of the travel of the band, since the play afforded to the tilting projection 57^a compensates for the diminution of rotation
55 otherwise due to the thickness of the two stops 57 and 58. Pivoted at 60 there is a three armed lever one of whose arms, 61, is provided with a roller 62, bearing upon a cam 63 fast on the shaft 55. A second arm
60 64 is connected (as by the chain 65) to the lever 53, and the third arm 66 is furnished with a pawl 67 normally engaging a ratchet pinion 68, fast on the shaft 69, which carries the second storing roller 19.

65 Assuming the parts to be in the position

shown in the drawings, if either cord 24 or 25 is pulled to the limit of movement, the rotation of the lever 23, acting through the thimble 26, and the disk 28, causes the pin 29 to strike the pivoted bar 34, which tilts
70 down against the hub 35 and then causes the drum 30 to be turned until the spring 31 is wound to full tension. The action of the bar 34 insures a gradual transmission of motion from the pin 29, avoiding all shock.

75 With the spring 31 fully wound, the cam has raised the lever 53 until the projection 58 clears the stop projection 57, and, when the lever 23 is released and the spring 70 returns it to the position shown, the spring 31
80 is free to unwind and, acting through the main shaft 22 and pinions 36, 37 and 49, turns the shaft 55 and storing roller 14. The lifting of the lever 53 (see Fig. 9) not only frees the projection 57, but, acting
85 through the chain 65 and arm 64, disengages the pawl 67 from the pinion 68 and lifts the roller 62 out of the depression which it normally occupies in the cam 63. As the cam
90 27 turns backward when the spring 70 restores the lever 23 to normal, the lever 53 drops back upon the periphery of the disk 56, but not until after the particular stop projection 57 previously in contact has been
95 moved past the position of engagement with the projection 58. The restoration of the lever 53, slackens the chain 65, but the three-armed lever is held in the position last above described by the roller 62 which rides upon
100 the periphery of the cam 63. When the full desired movement of the band is very nearly completed, the roller 62 drops into a recess in the cam 63, thus allowing the spring 71 to restore the three-armed lever to the position
105 shown in Fig. 7, and arresting further movement of the roller 19. Very soon afterward, the stop 57 comes in contact with 58, and the roller 14 is arrested. The object of this arrangement is to cause the motive roller 14 to
110 tighten and stretch the band slightly, by arresting motion of the roller 19 before stopping 14. When the roller 19 becomes the motive roller, on reversal of the band, the continual tension of the motive spring 31 will stretch the band 13, after the stops 57
115 and 58 come together.

In Fig. 2, I have shown a centrifugal governor 72, connected to the main driving gear 36 by the pinions 73, 74 and 75. This insures a comparatively gradual movement of
120 the band. It is not essential to my invention. I prefer to provide a bell 76, under the casing 10, which is struck by the hammer 77, each time the device is operated; thus calling the passengers' attention to the
125 announcement visible through the openings 11 and 12. The hammer 77 is mounted upon a pivoted arm 78, drawn toward the bell by a spring 79. The lever 23 carries an arm 80, to which is loosely pivoted a catch 81
130

which is prevented from backward rotation by an appropriate stop 82 on the arm 80, and acts, through the upward extension 83 to ring the bell whenever the lever 23 is tilted.

In order to make it possible to ring the bell 76 without moving the band 13, I prefer to supply the modified construction shown in Fig. 5. Here an extra pulling cord or chain 84 is attached to the cord 25, and a stop cord or chain 85 is fixed at one end to the cord 84 and at the other end to the casing 10, as at 86.

It will be seen that the cord or chain 85 limits the movement by downward pull on the cord 84, while at the same time permitting a relatively long horizontal pull on the cord 25, when desired. Thus, when the cord 84 is pulled downward only a short movement is permitted, which is sufficient to ring the bell, but does not cause the pin 29 to more than touch the bar 34, thus avoiding any winding action on the spring 31. Hence the cord 84 can be used freely to ring the bell without any disturbance of the band 13 or its actuating mechanism; while, at the same time, the cord 25 is available for moving the band 13 from one position to another. This arrangement is found convenient in calling attention to the name of the street or station just reached, and, in this connection two bells may be rung to indicate the station reached and a single bell on starting again, to call attention to the name of the next street or station.

Many changes may be made in the device shown without departing from my invention, and I do not limit myself to the details herein shown and described except as defined in the appended claims; and it is to be understood that the use of numerals in my claims is to aid comprehension and not intended as a limitation.

What I claim is—

1. A station indicator comprising in combination a band, rollers for moving the same, a driving shaft, shiftable means for transmitting motion from said shaft to said band in one direction or another at will, a swinging lever for controlling the position of said shiftable means, a spring tending to draw said lever in one direction, a second lever, means carried thereby for engaging said first lever to hold it in one position against said spring, a second spring tending to hold said second lever in engaging position, and means for withdrawing said second lever from engaging position, substantially as described.

2. A station indicator comprising in combination a band, rollers for moving the same, driving mechanism for said rollers, a tilting lever operatively connected to said driving mechanism, a bell, means connected with said lever for ringing said bell on a partial

movement of said lever, a cord for operating the lever, an additional cord attached thereto and a stop cord attached to said additional cord, substantially as described.

3. A station indicator comprising in combination a casing, a band, storing rollers therefor, a separate pinion for driving each of said rollers, a main driving shaft carrying a main driving gear, a thimble mounted loosely on one end of said shaft and extended outward through said casing, a reversing device carried by said thimble comprising two pinions adapted to mesh with said driving gear and with one or another of said first named pinions, a lever outside of the casing fixed on said thimble, and means for securing said lever in different positions, substantially as described.

4. A station indicator comprising in combination a band, rollers therefor, an operating spring, a drum connected thereto having a hub, a pivoted bar carried by said drum, a disk having a pin adapted to press upon said bar to turn the drum, means for turning said disk, and means connected to said drum whereby the unwinding of said spring actuates said rollers, substantially as described.

5. A station indicator comprising in combination, a band, rollers therefor, a main driving shaft, a drum mounted thereon, a spring wound thereon, a thimble mounted on said shaft, means for rotating said thimble, a disk and pin on said thimble, means on said drum adapted to engage with said pin for winding said spring, and means operated by movement of said drum when said spring unwinds for rotating said shaft, substantially as described.

6. A station indicator comprising in combination, a band, two motive rollers therefor, operating means for said rollers and a stretching device for said band operatively connected with said means comprising two separate devices for securing said motive rollers from movement, said devices being arranged to be brought successively and automatically into operation, substantially as described.

7. A station indicator comprising in combination a band, rollers therefor, operating means for said rollers, a driving shaft, a cam on said shaft, and stretching means for said band operatively related to said cam, substantially as described.

8. A station indicator comprising in combination a band, rollers therefor, operating means for said rollers, means for confining one of said rollers, and a cam connected with said operating means for controlling said confining means, substantially as described.

9. A station indicator comprising in combination a band, rollers therefor, operating means for said rollers, confining means for each of the storing rollers at the two ends of the band, and means connected with said

operating means adapted to successively release said two confining means, substantially as described.

10. In a device of the class described, and
5 in combination, a band, a storing roller, driving means for the roller, a disk connected with said roller, a tilting projection pivotally attached to said disk, limiting means for said projection, a lever having a
10 projection, and a cam for moving said lever, substantially as described.

11. In a device of the class described, and
in combination, a band, a storing roller, driving means for the roller, a ratchet wheel
15 attached to said roller, a pawl therefor, a pivoted lever carrying said pawl, and a cam moving with said driving means for operating said pawl to bring it into and out of engagement with said ratchet wheel, substantially
20 as described.

12. In a device of the class described, and
in combination, a band, a storing roller, driving means for the roller, a ratchet wheel
attached to said roller, a pawl therefor, a

two armed pivoted lever carrying said pawl 25
on one arm, and a cam (as 63) upon which the second arm of said lever bears, said cam being operatively connected with said driving means, substantially as described.

13. In a device of the class described, and 30
in combination, a band, a storing roller at each end thereof, driving means for said rollers, a ratchet wheel on one of said rollers, a pawl therefor, a two-armed lever bearing said pawl, a cam connected with the other 35
storing roller against which one arm of said lever rests, a disk connected with said second storing roller and bearing a stop projection, a lever having a projection adapted to engage with said stop projection, a connection 40
between said lever and the first named lever, and a cam connected with said driving means for operating both of said levers, substantially as described.

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