

H. O. BRION.
STREET INDICATOR FOR CARS.
APPLICATION FILED OCT. 19, 1910.

1,025,780.

Patented May 7, 1912.

4 SHEETS—SHEET 1.

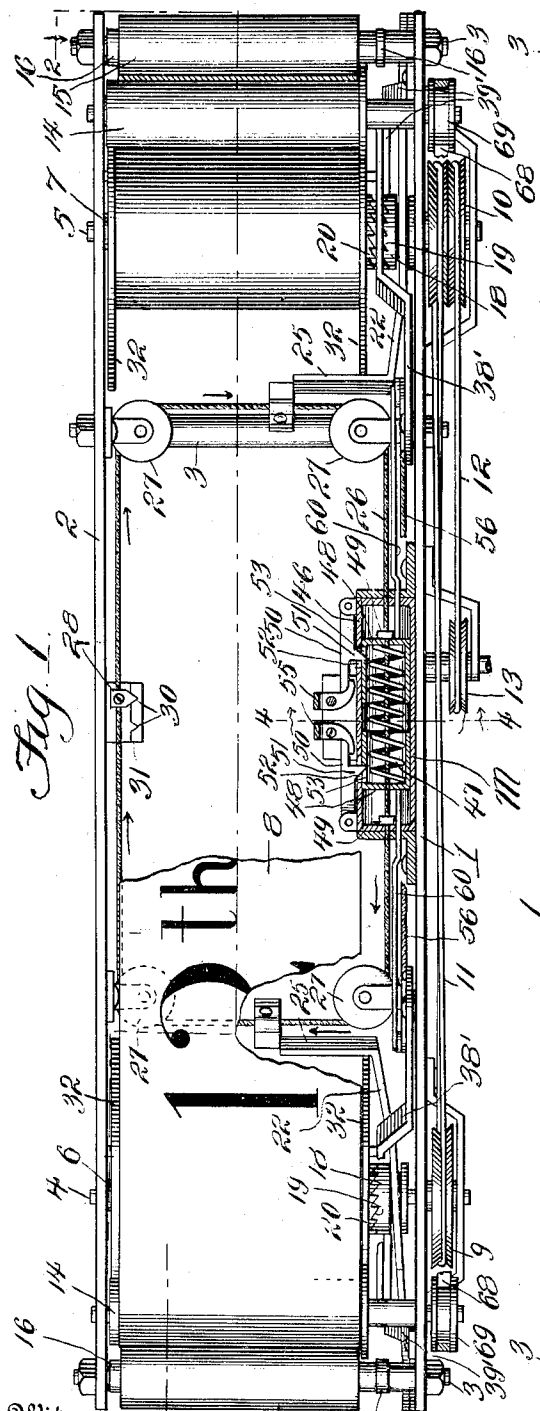


Fig. 1.

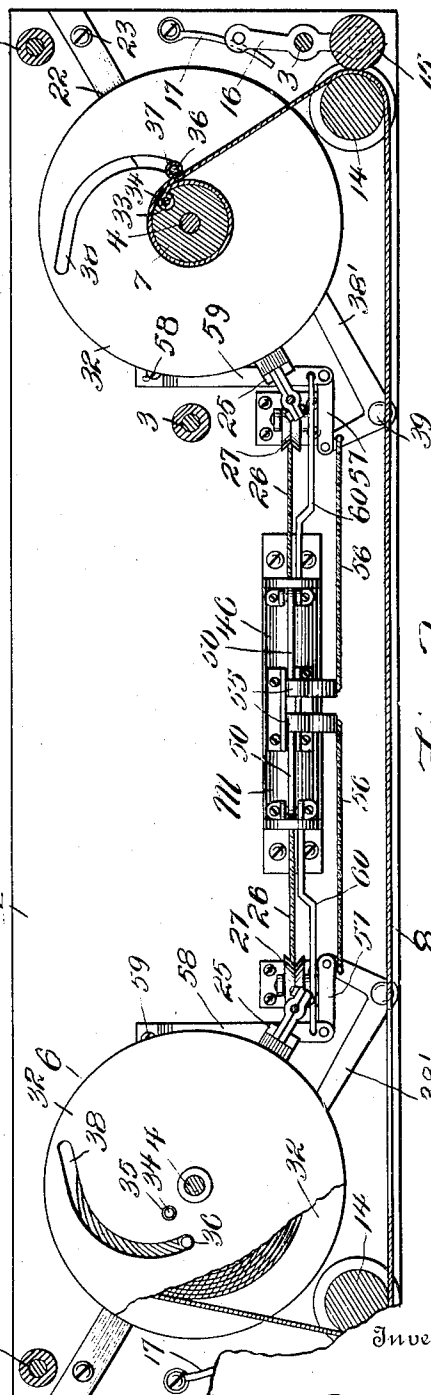


Fig. 2.

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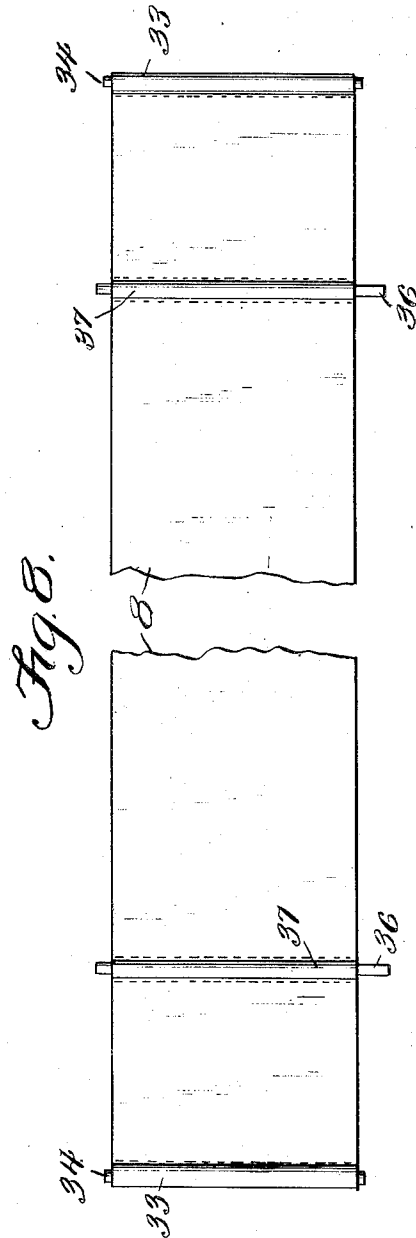
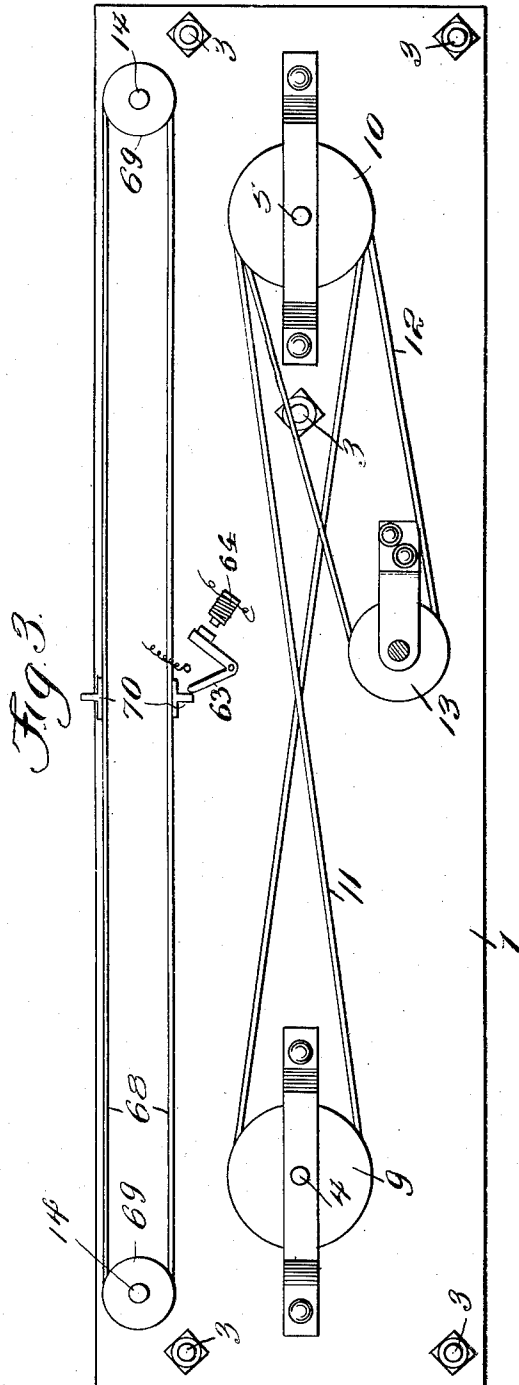
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4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 4.

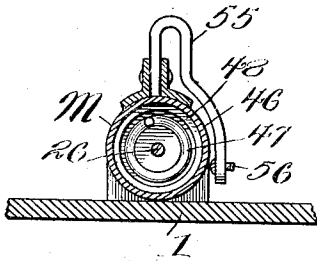


Fig. 7.

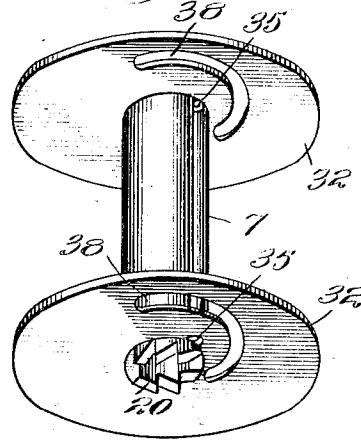
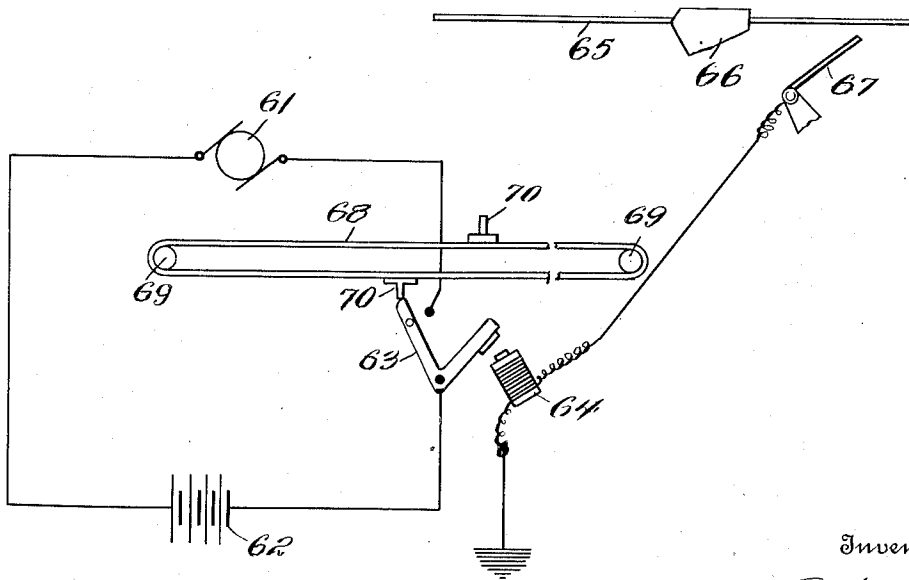


Fig. 9.



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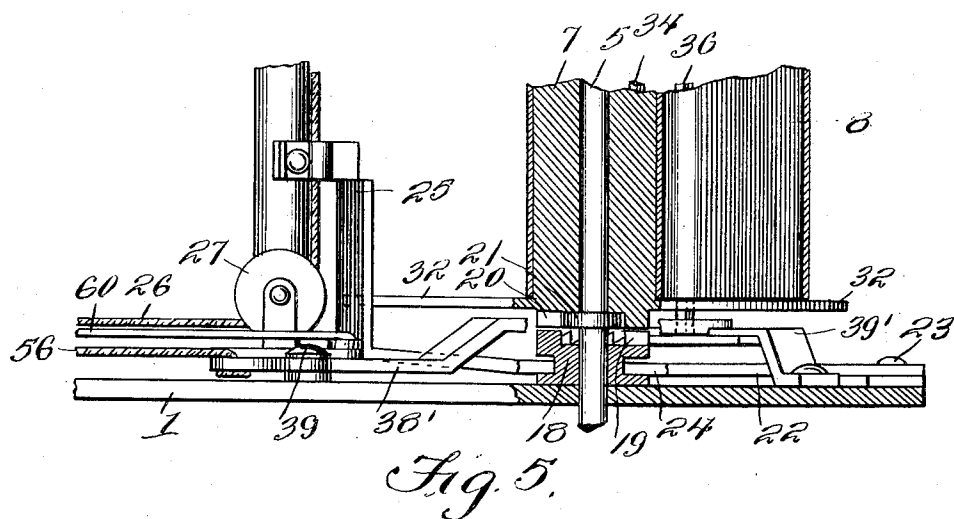
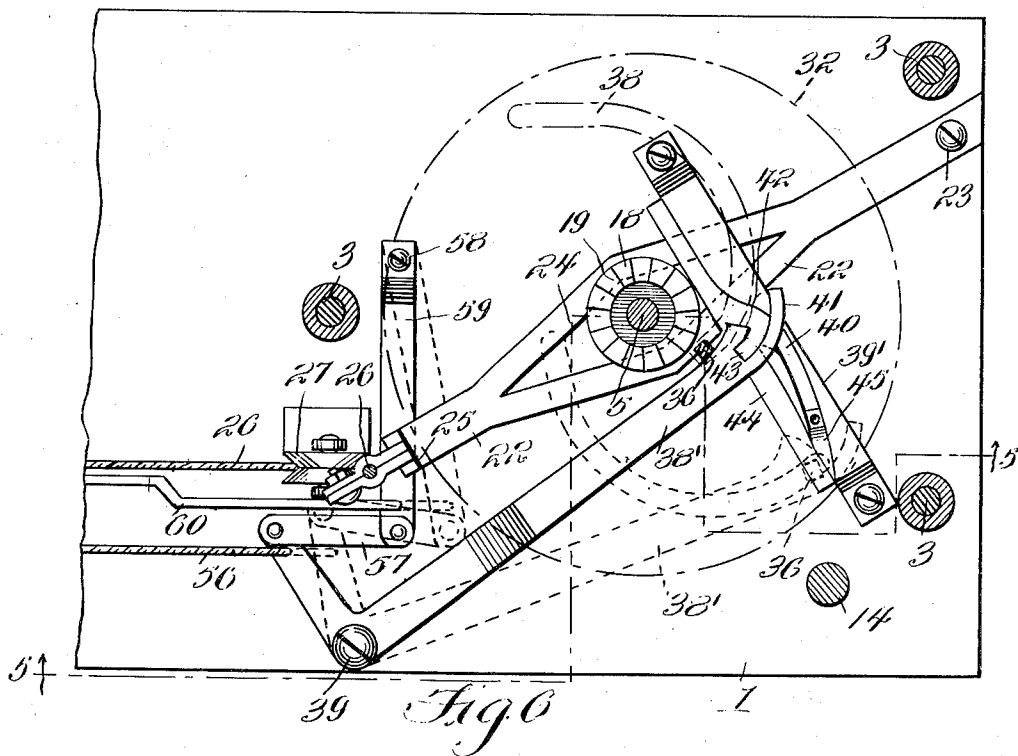
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Patented May 7, 1912.

4 SHEETS—SHEET 4.



Witnesses
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UNITED STATES PATENT OFFICE.

HARRY O. BRION, OF GATES, NEW YORK.

STREET-INDICATOR FOR CARS.

1,025,780.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed October 19, 1910. Serial No. 587,941.

To all whom it may concern:

Be it known that I, HARRY O. BRION, a citizen of the United States, residing at Gates, in the county of Monroe and State of New York, have invented new and useful Improvements in Street-Indicators for Cars, of which the following is a specification.

This invention relates to an indicating apparatus designed more particularly for use on cars so as to indicate in advance the street or station that the car is approaching so that the passengers will be made aware of this fact without the name having to be announced by the conductor. While the invention is especially useful in this connection, it is not necessarily limited to this class of service but may be used for advertising and other purposes.

The invention has for one of its objects to improve and simplify the construction and operation of indicators of this character so as to be comparatively simple and inexpensive to manufacture, reliable and efficient in use, and automatic in its operation for disclosing the names of the successive streets or stations.

Another object of the invention is the provision of novel winding means for the name-bearing element, in connection with mechanism for automatically reversing the direction of movement of the said element so that as the car is making an outgoing trip, the names of the streets or stations will be disclosed in successive order and also on the return trip the names will be disclosed in the reverse order.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention, Figure 1 is a partial view in longitudinal section of the apparatus. Fig. 2 is a longitudinal horizontal section on line 2—2, Fig. 1. Fig. 3 is a bottom plan view. Fig. 4 is a transverse section on line 4—4, Fig. 1. Fig. 5 is an enlarged sectional view of the clutch-shifting or reversing device for the winding rolls or spools. Fig. 6 is an enlarged sectional view of one end of the device showing the clutch for one of the spools, and the

combined controller and re-setter for the clutch throw-out mechanism. Fig. 7 is a perspective view of one of the spools. Fig. 8 is a plan view of the name-bearing element with an intermediate portion broken away. Fig. 9 is a diagrammatic view of the circuits for the driving motor.

Similar reference characters are employed to designate corresponding parts throughout the views.

Referring to the drawings, 1 and 2 designate the top and bottom plates of the frame that are connected together by posts 3 arranged at suitable points, the frame being inclosed in a casing of any suitable construction, if desired. At opposite ends of the frames are vertical spindles 4 and 5 on which are arranged spools 6 and 7, one spool being operatively connected with its spindle or shaft to turn therewith, while the other freely turns on its spindle or shaft to permit the name-bearing element 8 to unwind from the latter and wind on the former spool. The lower end of the shaft 4 has a grooved pulley 9, while the lower end of the shaft or spindle 5 has a double grooved pulley 10, and a cross belt 11 passes around the pulleys 9 and 10, so that both spindles or shafts will be simultaneously rotated but in opposite directions. Passing around the pulley 10 is another belt 12 which passes around a motor driven pulley 13. Adjacent each end of the casing is a vertical guide roll 14 around which the name-bearing element or ribbon 8 passes and the element or ribbon is pressed into frictional engagement with the guide rolls 14 by idler rolls 15 mounted on swinging frames 16 at the ends of the main frame and provided with springs 17 for pressing the idler rolls against the element passing over the guide rolls 14. On each shaft or spindle is feathered a clutch element in the form of a sleeve 18 that has teeth 19 that are adapted to engage with teeth 20 on the adjacent spool 6. One clutch element 18 is adapted to be held raised in engagement with the spool thereover, while the other clutch element is lowered out of engagement with its respective spool so that only one spool is positively driven for winding the name-bearing ribbon thereon, while the other spool is free to turn on its spindle or shaft. Each spindle or shaft has a shoulder or collar 21 to support the spools out of engagement from the clutch elements when

either of the latter is lowered or thrown to open position.

The mechanism for shifting or opening the clutches includes a lever 22 disposed under each spool. The lever has one end 23 anchored on the bottom plate of the main frame and from this point it extends diametrically to the spool and has a central yoke portion 24 to receive the clutch element 18, the latter having a peripheral groove in which the lever engages so that the clutch element can freely rotate and yet be raised and lowered on its shaft. The free ends of the levers 24 are formed with upwardly-extending members 25 that are located inwardly from the spools and are respectively connected with opposite ends of an endless element or lever-shifting device 26, the said element being disposed in the form of a rectangle and passing over guide pulleys 27 arranged at the four corners of the rectangle and supported by the top and bottom plates of the main frame. By imparting movement to the endless element 26 in one direction, as indicated by the arrows, it is obvious that the left hand lever 22 will be raised to close the clutch between the left hand spool and its shaft, while the right hand lever will be lowered to open the clutch between the right hand spool and its spindle or shaft. Means for limiting the movement of the endless clutch shifting element 26 is provided in the form of a finger 28 secured to the upper or top stretch of the element so as to engage in either one of two depressions 30 in a lug 31 fastened to the top plate of the frame. The element 26 can be shifted by hand, if desired, so as to reverse the clutches. It is preferable, however, to reverse the clutches automatically by means of devices controlled by the name-bearing element or ribbon, so that when either end of the latter is fully unwound from its respective spool, the reversing mechanism will be set into operation. Each spool has top and bottom flanges 32 spaced apart a sufficient distance to permit the name-bearing element or ribbon 8 to wind between them, and each end of the ribbon is formed with an open seam or loop 33 through which fastening wires 34 are passed, the ends of the wires being engaged in openings 35 in the flanges 32. At a short distance inwardly from each end, the ribbon is provided with transverse wires or rods 36 fastened to the ribbon in any suitable manner, as for instance by being held in hems 37, and the ends of these wires pass through spiral slots 38 in the flanges 32 of the spools. The lower ends of the wires project below the lower flanges so as to act for tripping the controllers for the actuator of the shifting element 26. When the ribbon is unwound so that the end is reached, the rod 36 at such end will be drawn outwardly toward the periphery of the spool, and in

doing this it actuates the controller at that end of the apparatus. These controllers are in the form of levers 38' fulcrumed at 39 on top of the bottom plate 1 and the free end of the lever passes over a guide 39' disposed under the adjacent spool and over the clutch-operating lever 22. This guide 39' has a track or groove 40 across which a finger 41 on the free end of the lever 38 normally extends and when the wire or rod 36 on the end of the ribbon is moved outwardly toward the periphery of the spool, the lower end of such rod strikes a curved lug or abutment 42 on the lever 38' and rides over such lug into and through the groove or track 40, striking the finger 41 and moving the lever 38' outwardly away from the shaft of the spool, and after the lower end of the rod 36 passes out of the groove 40, it enters the recess 43 in the lever so that as the ribbon is again wound on the spool, the said rod 36 will pass along the surface 44 on the guide 39 and return to its normal position, the said rod 36 being prevented, by a leaf spring 45, from reëntering the groove or track 40. This outward movement of the controlling lever 38' sets into operation a motor M for the element 26. This motor is located centrally of the main frame and is fastened to the bottom plate thereof. The motor comprises a horizontal tubular casing 46 in which is contained a helical compression spring 47 which has thimbles 48 on its ends slidable in the tube 46. The element 26 passes through the thimbles 48 and spring 47, and on this element are stops 49 that are adapted to be engaged by the closed ends of the thimbles to impart longitudinal movement to the element 26. Mounted on the tubular casing 46 are catches 50 that have projections 51 entering openings 52 in the casing 46 so as to engage in recesses 53 in the thimbles, and when these catches are engaged with the thimbles, the spring is under compression so that when the appropriate catch is raised, the thimble will be free to move laterally and engage the stop 49 to impart movement to the element 26, such movement effecting the opening of one clutch and the closing of the other, as previously described. Each catch is released by a lever 55 fulcrumed on the motor casing and these levers are respectively connected by cords or rods 56 with the controlling levers 38' so as either controlling lever is moved outwardly in the manner previously described, the catch 50 operatively connected therewith, will be released so as to set the motor M into operation for reversing the clutches to cause re-winding of the name-bearing element on that spool from which it has previously unwound. The re-setting of the motor M is effected by the inward movement of the controlling levers 38', said levers being each connected by a link 57 with a swinging

member 59 fulcrumed at 58 on the bottom plate 1, and attached to these members 59 are rods 60 that extend inwardly toward the motor mechanism and enter the casing thereof so as to engage the thimbles, causing the latter to be moved inwardly until their notches are opposite the projections 51 of the catches 50. Since only one lever 38' moves at a time, it will re-set that thimble 48 of the motor that has caused the element 26 to be moved for reversing the clutches.

The power for operating the device is derived from an electric or other suitable motor (not shown) that is operatively connected with the driving pulley 13. As shown in the diagram, Fig. 9, the driving motor 61 may be connected with any suitable source of current 62, and in the circuit is a switch 63 that may be closed by an electro-magnet 64 which is energized every time a station is passed, so that the name of the next station will be exposed, and for this purpose, the trolley wire 65 may be provided with members 66 that can be engaged by a collecting device 67 on the car, said collecting device being connected with the electro-magnet 64. After the name-bearing element has been moved far enough to expose a complete name, further movement must be prevented, and for this purpose a device is employed to open the switch 63. This device consists of an endless belt 68 which passes over pulley 69 on the lower ends of the rolls 14, and on this belt are fingers 70 that move into engagement with the switch 63 and open the same after the ribbon or name-bearing element 8 is moved far enough to expose a complete name. It will thus be seen that the machine will operate automatically, and that when the end of the route is reached, the clutches will be reversed automatically to cause the name-bearing element to move step by step in the opposite direction synchronously with the approach of the successive stations.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, I desire to have it understood that the apparatus shown is merely illustrative, and that such changes may be made when desired as are within the scope of the claims appended hereto.

Having thus described the invention, what I claim as new, is:—

1. In an apparatus of the class described, the combination of oppositely-turning spools, a name-bearing element connected with the spools, driving means for the spools, clutches

between the driving means and the spools, levers for throwing the clutches open or closed, a mechanism including motor means adapted to be set for movement in one direction and re-set for movement in the opposite direction, said motor means being connected with the levers for moving them in opposite directions to close one clutch while opening the other, means controlled by the name bearing element to set the mechanism into operation, and means controlled by the name bearing element for resetting the mechanism after the name-bearing element has begun its reverse movement by the changing of the clutches.

2. An apparatus of the class described comprising spools, a name-bearing element connected with the spools to wind on one and unwind from the other, driving means for the spools, clutches between the said means and spools, devices for opening one and closing the other clutch simultaneously, an endless element connected with the devices to produce simultaneous movement, a motor for actuating the endless element, and means controlled by either end of the name-bearing element to set the motor into operation to reverse the clutches and cause reverse winding of the name-bearing element.

3. An apparatus of the class described comprising spools, a name-bearing element connected with the spools to wind on one and unwind from the other, driving means for the spools, clutches between the said means and spools, devices for opening one and closing the other clutch simultaneously, an endless element connected with the devices to produce simultaneous movement, a motor including a spring adapted to be set under tension for actuating the endless element, means controlled by either end of the name-bearing element to set the motor into operation to reverse the clutches and cause reverse winding of the name-bearing element, and means for automatically re-setting the motor after the clutches have been changed.

4. In an apparatus of the class described, the combination of a plurality of spools, a name-bearing element adapted to wind on one and unwind from the other, driving means for the spools, clutches for connecting the spools with the driving means, a mechanism including a spring motor adapted to be set to act alternately in opposite directions for closing one clutch while opening the other, controllers for the said mechanism, and means carried by the ends of the ribbons for actuating the said controllers.

5. In an apparatus of the class described, the combination of a plurality of spools, a name-bearing element adapted to wind on one and unwind from the other, driving means for the spools, clutches for connecting the spools with the driving means, a

mechanism including means adapted to be set to act alternately in opposite directions for closing one clutch while opening the other, controllers for the said mechanism, means carried by the ends of the ribbons for actuating the said controllers, and means connected with the controllers for re-setting the mechanism after the clutches have been shifted.

6. In an apparatus of the class described, the combination of winding spools, a name-bearing element adapted to wind on one while unwinding from the other, members attached to the element and projecting from one end of each spool to move toward the periphery thereof at the end of the unwinding movement, driving means for the spools, clutches for operatively connecting the driving means with the spools, a mechanism including means adapted to be set to act alternately in opposite directions for opening one clutch while closing the other, and controllers operated by the members on the element for setting the mechanism into operation.

7. In an apparatus of the class described, the combination of winding spools, a name-bearing element adapted to wind on one while unwinding from the other, members attached to the element and projecting from one end of each spool to move toward the periphery thereof at the end of the unwinding movement, driving means for the spools, clutches for operatively connecting the driving means with the spools, a mechanism including means adapted to be set to act alternately in opposite directions for opening one clutch while closing the other, controllers operated by the members on the element for setting the mechanism into operation, and means connected with the controllers for re-setting the said mechanism.

8. In an apparatus of the class described, the combination of winding spools, a name-bearing element connected with the spools, driving means for the spools, clutches for connecting the driving means with the spools, members for actuating the clutches, a mechanism for operating the said members, and a controller arranged in such relation to the name-bearing element as to be thrown into operation automatically by the name-bearing element when fully unwound to set the mechanism into operation for reversing the clutches and also for re-setting the mechanism as the re-winding begins, said mechanism including an endless element connected with both members to move them oppositely, a spring device for moving the endless element in either direction, catches for holding the spring device set for operation, and connections between the controllers and catches.

9. In an apparatus of the class described, the combination of winding spools, a name-

bearing element connected with the spools, driving means for the spools, clutches for connecting the driving means with the spools, members for actuating the clutches, a mechanism for operating the said members, a controller arranged in such relation to the name bearing element as to be thrown into operation automatically by the name-bearing element when fully unwound to set the mechanism into operation for reversing the clutches and also for re-setting the mechanism as the re-winding begins, said mechanism including an endless element connected with the above members to move them oppositely, a spring device for moving the endless element in either direction, catches for holding the spring device set for operation, connections between the controllers and catches, and means for limiting the movement of the endless element in both directions.

10. In an apparatus of the class described, the combination of a name-bearing element, alternately-operating winding devices therefor, a mechanism controlled by the element for setting one device into operation while throwing the other device out of operation, said mechanism including an endless element operatively connected with the devices, and a motor for moving the endless element alternately in opposite directions.

11. In an apparatus of the class described, the combination of a name-bearing element, alternately-operating winding devices therefor, mechanism controlled by the element for setting one device into operation while throwing the other device out of operation, said mechanism including an endless element operatively connected with the devices, a motor including a spring adapted to be alternately reversely tensioned for moving the endless element alternately in opposite directions, and means for placing the spring of the motor under tension.

12. In an apparatus of the class described, the combination of a name-bearing element, alternately operating winding devices therefor, mechanism controlled by the element for setting one device into operation while throwing the other device out of operation, said mechanism including an endless element operatively connected with the devices, a motor for moving the endless element alternately in opposite directions, said motor comprising a spring, means for operatively connecting alternate ends of the spring with the endless element, devices for holding the spring under compression, and means for independently releasing the spring holding devices to cause the spring to move the endless element in one direction.

13. In an apparatus of the class described, the combination of a name-bearing element, alternately-operating winding devices therefor, a mechanism controlled by the element

for setting one device into operation while throwing the other device out of operation, said mechanism including an endless element operatively connected with the devices, a motor for moving the endless element alternately in opposite directions, and stop means for limiting the movement of the endless element in either direction.

14. In an apparatus of the class described, the combination of a name-bearing element, alternately-operating winding devices therefor, a mechanism controlled by the element for setting one device into operation while throwing the other device out of operation, said mechanism including an endless element operatively connected with the devices, a motor for moving the endless element alternately in opposite directions, stop means for limiting the movement of the endless element in either direction, and guide pulleys over which the endless element passes.

15. In an apparatus of the class described,

the combination of a winding device including a spool, a name-bearing element adapted to wind thereon, a driving shaft on which the spool is mounted, a clutch for connecting the spool with the shaft, a lever for opening and closing the clutch, an endless element connected with the lever for moving the same, a motor mechanism for actuating the endless element, said mechanism including a device for producing movement alternately in opposite directions and adapted to be set after each movement, and a combined releasing and re-setting device for the said mechanism arranged in cooperative relation with the name-bearing element to be controlled thereby.

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

HARRY O. BRION.

Witnesses:

RICHARD W. BRION,
ALBERT HEGNAUER.