

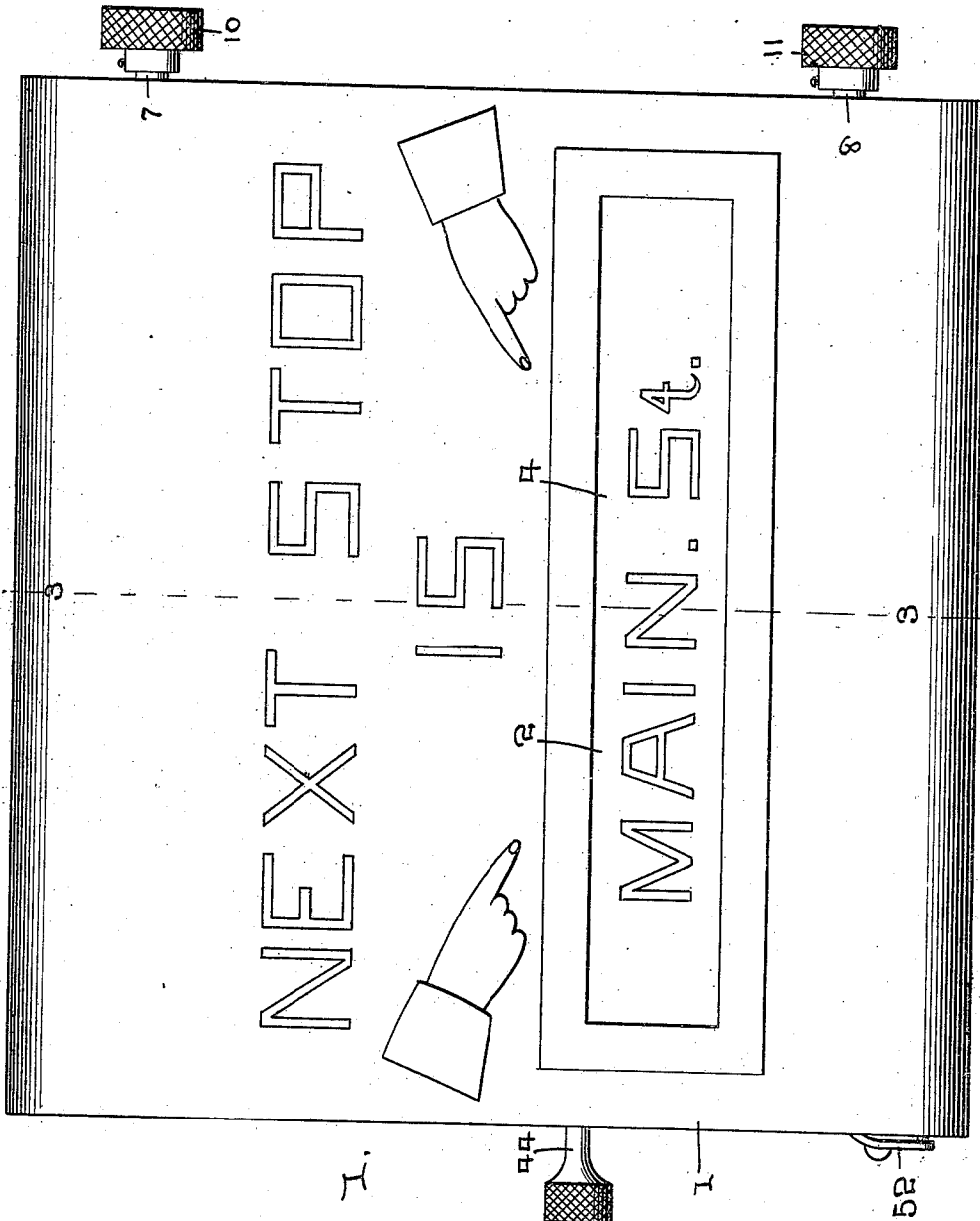
E. F. VALLILEE & R. L. POST.
INDICATOR.

990,930.

APPLICATION FILED JUNE 3, 1910.

Patented May 2, 1911.

5 SHEETS—SHEET 1.



WITNESSES:

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M. Newcomb

BY

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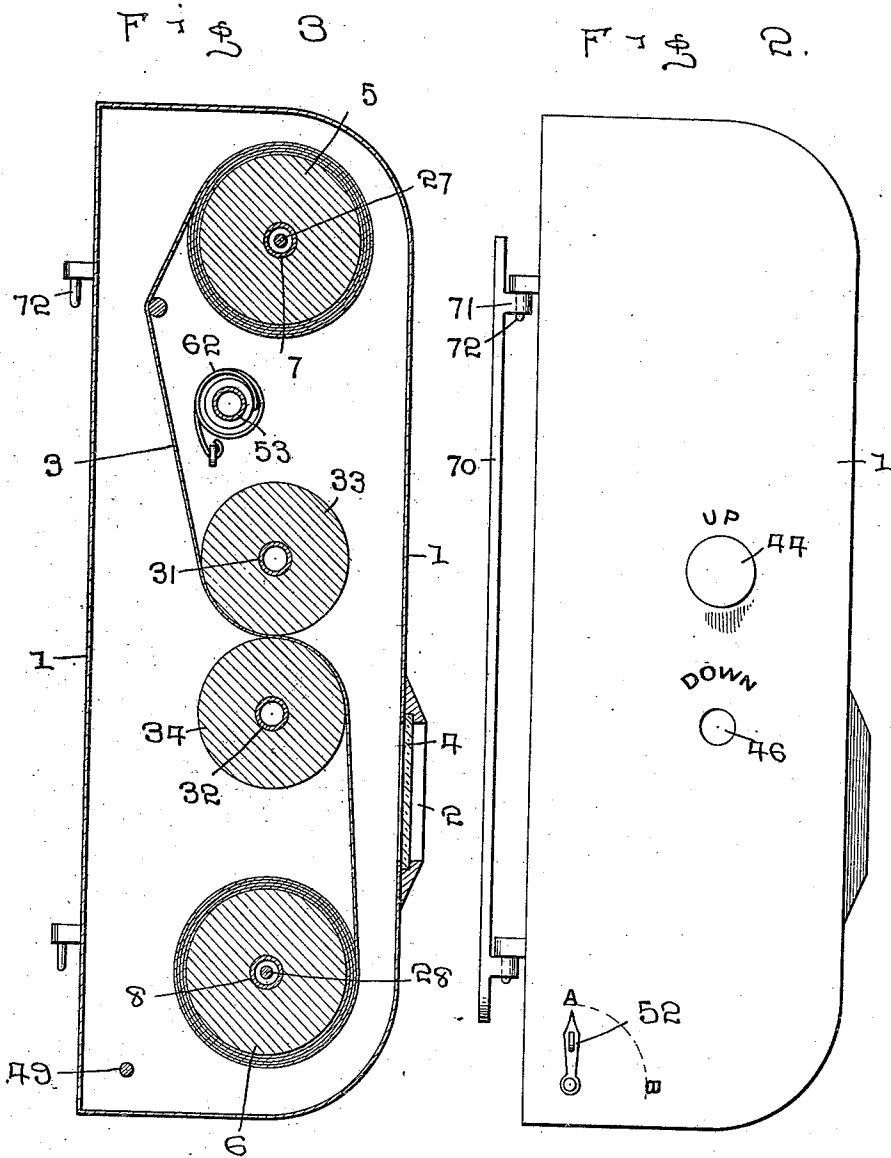
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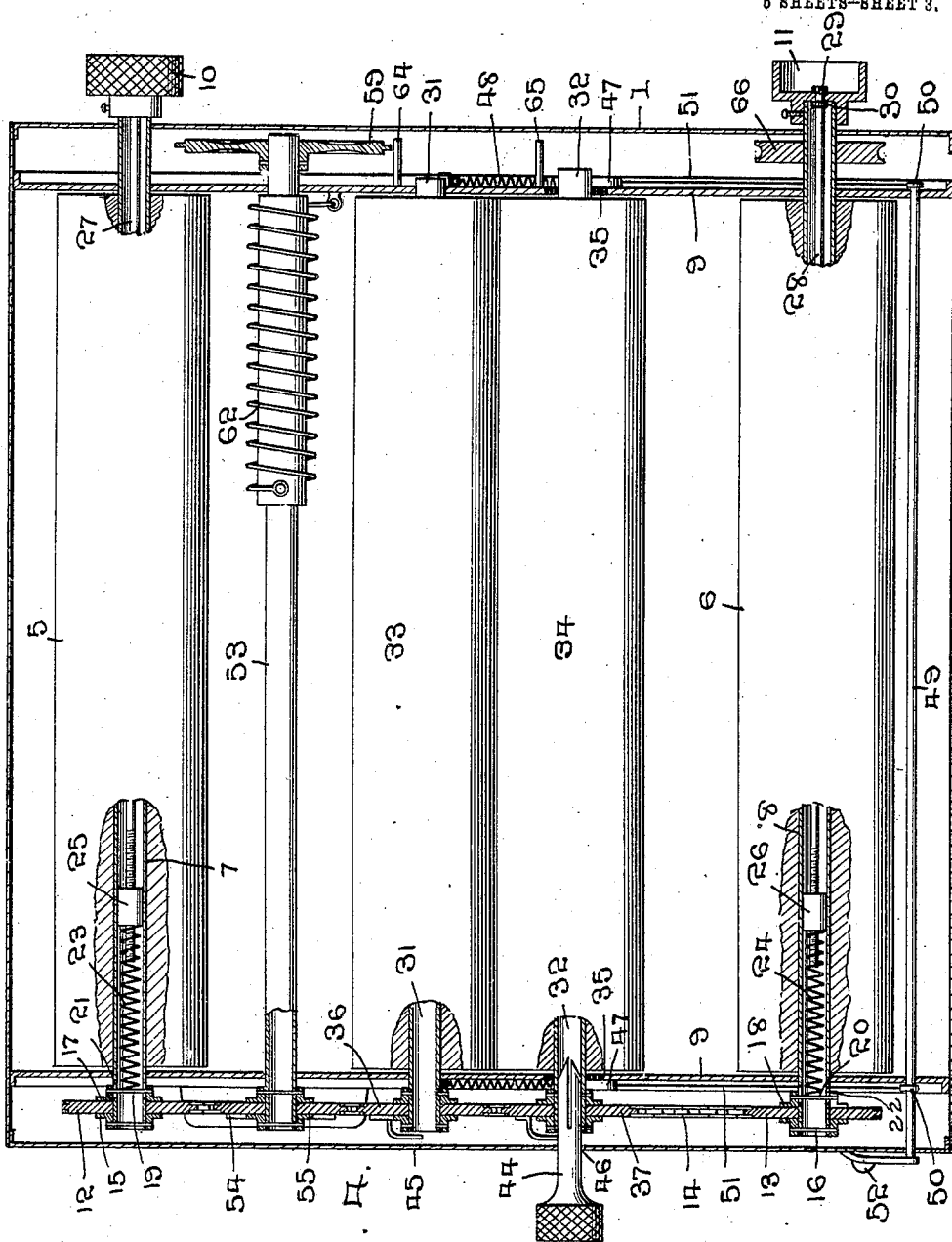
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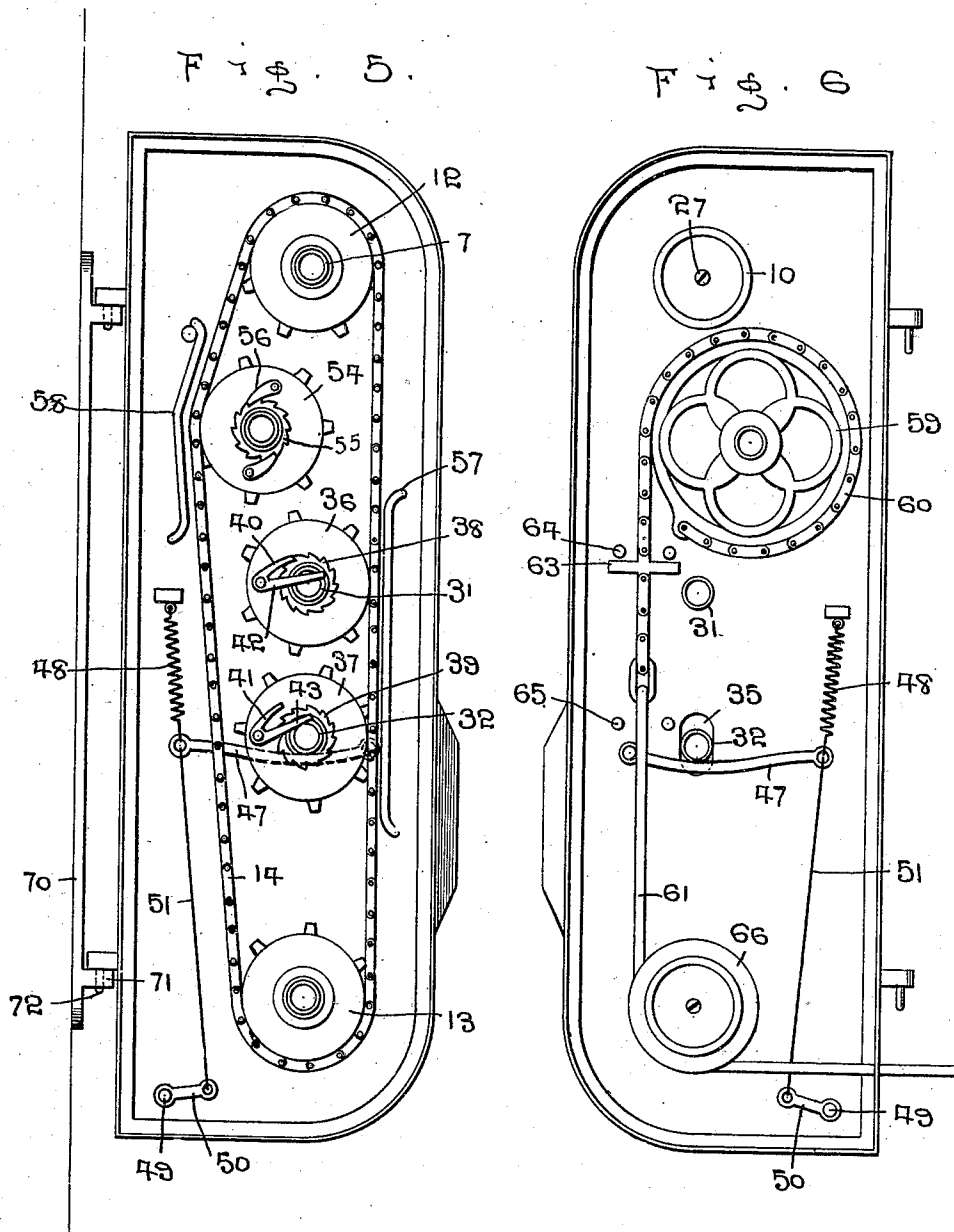
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5 SHEETS-SHEET 4.

Fig. 5.

Fig. 6.



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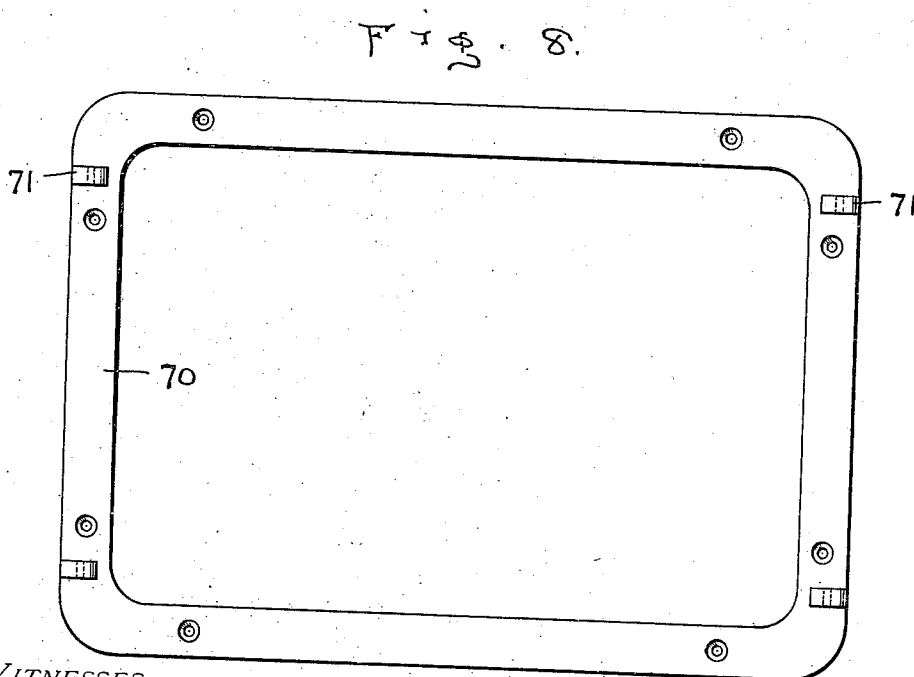
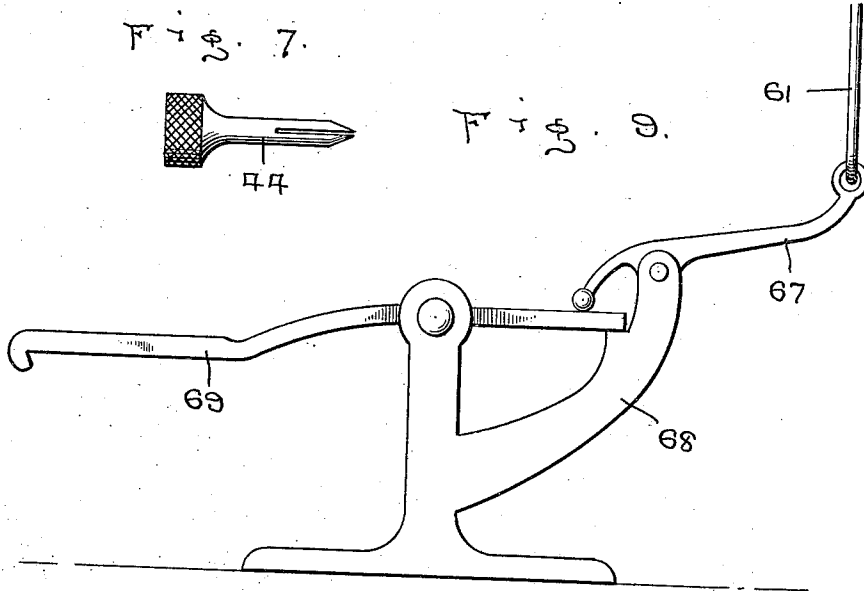
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

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BY MESNE ASSIGNMENTS, OF ONE-THIRD TO SAID ROBERT L. POST.

INDICATOR.

990,930.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed June 3, 1910. Serial No. 564,807.

To all whom it may concern:

Be it known that we, EDWARD F. VALLILEE and ROBERT LEWIS POST, citizens of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Indicators; and we 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.

Our invention relates to new and useful improvements in indicators and more particularly to that class adapted to be used in street cars for indicating the name of the street which the car is approaching and our object is to provide a device having a canvas strip which is adapted to be wound in either direction, while the parts for operating the canvas travel in the same direction.

A further object is to provide means for stretching the canvas by the use of the driving mechanism.

A further object is to provide means whereby the stretching strain of the canvas will be equal at all times.

A further object is to provide means whereby the canvas will be released from said strain except when the device is being operated.

A further object is to provide a new form of means for separating the rollers when the drums are to be operated manually.

A further object is to frictionally engage the driving mechanism with the drums, whereby the canvas may be drawn taut manually.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the specification and claims.

In the accompanying drawings which are made a part of this application, Figure 1 is a front elevation of the indicator as applied to use. Fig. 2 is an end elevation thereof. Fig. 3 is a sectional view as seen on line 3—3 Fig. 1. Fig. 4 is a elevation partly in section with the front of the casing removed. Fig. 5 is an elevation of one end of the operating parts of the indicator showing the casing in section. Fig. 6 is a similar view of the opposite end of the indicator. Fig. 7 is an elevation of a reversing key. Fig. 8 is an elevation of a frame, to which

the casing is removably attached, and, Fig. 9 is an elevation of a foot lever employed for operating the indicator.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates the casing, which may be constructed in the usual or any preferred manner, in the forward face of which is a slot 2, through which the characters upon a canvas 3 may be observed, a glass 4 or other transparent material being placed over the slot to prevent dust or the like from entering the casing.

The ends of the canvas 3 are attached respectively to an upper and lower drum 5 and 6, said drums being mounted upon hollow spindles 7 and 8, the ends of the spindles finding bearings in partition walls 9 adjacent the ends of the casing, one end of each spindle projecting through one end wall of the casing and having secured thereto turn buttons 10 and 11 respectively, by means of which the drums may be manually operated. Mounted upon the opposite ends of the spindles 7 and 8 from that occupied by the turn buttons are sprockets 12 and 13, around which extends a sprocket chain 14 and by means of which both of the sprockets will be driven in the same direction and in unison with each other. The sprockets 12 and 13 are rotatably mounted on their respective spindles and are caused to rotate the spindles by friction, disks 15 and 16 being fixed to the ends of the spindles 7 and 8 respectively, against which one face of the sprockets 12 and 13 bears, similar disks 17 and 18 being placed on the opposite side of the sprockets and caused to rotate with their respective spindles by extending pins 19 and 20 transversely through the spindles and the hubs of the disks 17 and 18. The disks 17 and 18 are longitudinally movable of their respective spindles which is rendered possible by placing slots 21 and 22 in the spindles and through these slots extend the pins 19 and 20.

The disks 17 and 18 are forced against their respective sprockets by means of springs 23 and 24, respectively, which springs are positioned within the hollow spindles 7 and 8, one end of the springs engaging the pins 19 and 20, while the opposite ends thereof engage blocks 25 and 26 in said spindles. The blocks are adjusted

longitudinally of their respective spindles in order to increase or decrease the pressure of the springs against the pins by extending rods 27 and 28 through said spindles and
 5 through the turn buttons at one end of the spindles, while the opposite ends of said rods are threaded and extend through threaded openings in the blocks. The exposed ends of the rods are provided with
 10 notches 29 into which a screw-driver or other suitable means may be entered to rotate the rods, said rods being held against longitudinal movement by placing collars 30 on opposite sides of that portion of the turn buttons through which the rods extend.
 15

By this construction, it will be readily seen that should one or the other of the drums lag in its operation, whereby the canvas would become loose, said drum can be
 20 readily rotated manually to take up the slack in the canvas while the sprockets remain stationary.

Positioned between the drums 5 and 6 and mounted upon tubular shafts 31 and 32 are
 25 rollers 33 and 34, one above the other, the ends of the shafts finding bearings in the partition walls 9, the shaft 32 projecting through vertically extending slots 35 in said partition walls, whereby the roller 34 may
 30 be moved upwardly and into engagement with the roller 33. One end of each of the shafts 31 and 32 projects a distance through one of the partition walls and said ends have rotatably mounted thereon sprocket wheels
 35 36 and 37, respectively, which sprocket wheels mesh with the sprocket chain 14. The rollers 33 and 34 are employed for positively moving the canvas from one drum to the other, said canvas being passed between
 40 said rollers and the ends thereof engaged with their respective drums from opposite sides of the drums and, as both of the rollers would be rotated in the same direction were both of the sprocket wheels
 45 arranged to rotate their respective rollers simultaneously, we have provided means for operating but one of the sprocket wheels for the rollers at a time. To this end ratchets 38 and 39 are fixed respectively to the shafts
 50 31 and 32, with which ratchets coöperate pawls 40 and 41, which pawls are pivotally mounted upon the sprocket wheels 36 and 37. Each of the pawls is provided with an arm 42 and 43, which arms are adapted to swing
 55 downwardly and be positioned over the openings in the shafts 31 and 32 when the pawls are in engagement with their respective ratchets and when the pawls are engaged with the ratchets, the rollers will be rotated,
 60 while the sprocket wheels will run idle when the pawls are out of engagement with the ratchets.

In order to raise either of the pawls out of engagement with its respective ratchet,
 65 we provide a key 44, one end of which is

split and the ends of the split portions tapered so that said split end can be readily introduced through either of the openings 45 or 46 in the end wall of the casing 1 and into the open ends of the shafts 31 and 32,
 70 the normal size of the key being such as to fit snugly in the ends of the shafts and to bind against the interior of the shaft to prevent displacement of the key, by slightly separating the split portions of the key. It
 75 will also be seen that by tapering the split end of the key, the arms of the pawls will readily ride up the tapered portion and rest upon the key and when the arm is positioned upon the key, the pawl connected to said
 80 arm will be elevated out of engagement with its ratchet.

In Fig. 2 of the drawing, we have shown the key as applied to the upper roller, while in Fig. 4, the key is applied to the lower
 85 roller and in Fig. 5, the pawl 41 is positioned as when the key is engaged with the lower roller shaft.

When the key is engaged with the shaft of the upper roller, the pawl 40 will be out
 90 of engagement with the ratchet 38 and the pawl 41 in engagement with the ratchet 39, whereby the roller 34 will be positively rotated and the canvas wound upon the roller 6, while when the key is in engagement with
 95 the shaft 32, the roller 33 will be positively driven and the canvas moved in the opposite direction and wound upon the drum 5.

The object of frictionally engaging the spindles of the drums with the sprockets
 100 mounted on said spindles, in addition to permitting the canvas to be drawn taut manually, when desired, is to permit said drums to rotate in opposition to the movement of said sprockets in order to wind the
 105 canvas on the drums. This is made necessary in view of the fact that the sprockets 12 and 13 are both driven in the same direction and it will be readily seen that when winding the canvas from one drum to the
 110 other, one of said drums is necessarily rotated in opposition to the rotation of its sprocket, that is to say, when the canvas is being wound upon the drum 6, the opposite end of the canvas is being unwound from
 115 the drum 5, thus turning the drum 5 in opposition to the direction in which the sprocket 12 is traveling.

The roller 34 is caused to bind against the canvas and the roller 33 by pivotally mounting
 120 levers 47 on the partition walls 9 and at one side of the shaft 32, said levers passing below the projecting ends of said shaft. The free ends of the levers have attached thereto one end of springs 48, the opposite
 125 ends of the springs being attached to the partition walls, the tension of said springs being sufficient to lift the roller 34 and force the same against the roller 33 and the canvas passing between the rollers.
 130

When the canvas is being manually drawn taut, the pressure of the roller 34 is released from the roller 33 and the canvas by extending transversely through the lower portion of the casing 1 a shaft 49, to which are attached cranks 50, said cranks being connected to the spring-engaged ends of the levers 47 by links 51 and by extending one end of the shaft 49 through the end wall of the casing and attaching thereto, a lever 52, the shaft 49 may be readily rocked and the levers 47 lowered, thereby permitting the roller 34 to descend in the slots 35 and move away from the roller 33, thus releasing the canvas.

The drums and rollers are operated to move the canvas longitudinally by extending a shaft 53 longitudinally of the casing and preferably between the drum 5 and roller 33, one end of the shaft 53 having a sprocket wheel 54 mounted thereon which engages the sprocket chain 14 and at the rear of the casing, said sprocket wheel being placed rearwardly of the sprockets for the drums and rollers, whereby the sprocket chain, when passing in the rear of the sprocket wheels 36 and 37, will be held out of engagement with said two sprockets. The sprocket wheel 54 is loosely mounted upon the shaft 53 and is caused to rotate with the shaft by providing a ratchet 55 which is fixed to the shaft 53 and coöperating with the teeth of said ratchet 55 are pawls 56 carried by the sprocket wheel, said pawls being so arranged that when the shaft is rotated in one direction, the pawls will engage the teeth of the ratchet and cause the sprocket wheel to rotate, but will ride over said teeth when the shaft is rotated in the opposite direction, thereby permitting the sprocket wheel 54 to remain stationary. The sprocket chain 14 is prevented from casually leaving the sprockets, with which it engages, by placing suitable guides 57 and 58 on the partition wall 9 adjacent said chain.

The opposite end of the shaft 53 from that occupied by the sprocket wheel 54, has fixed thereto, a wheel 59, around which extends a chain 60, one end of the chain being attached to the wheel 59, while the opposite end thereof is secured to a cable 61 and by giving a pull to the cable, the wheel 59 and shaft 53 will be rotated a predetermined distance in one direction. When the pull is made upon the cable 61, the sprocket chain 14 and parts connected thereto will be operated to move the canvas lengthwise, thereby positioning the next succeeding name on the canvas before the opening in the housing, while the shaft 53 is rotated in the opposite direction by means of a coil spring 62, one end of the spring being attached to the shaft 53, while the opposite end is attached to one of the partition walls 9 at the end of the housing, the spring 62 being so arranged as to

wind upon the shaft and increase the tension thereof when the shaft is operated by means of the pull on the cable. As soon as the cable is released, the tension of the spring will rotate the shaft 53 in the opposite direction and rewind the chain 61 upon the wheel 59, but during this operation, the chain 14 and sprockets attached thereto, will remain stationary.

The movement of the chain 60 is limited by placing a cross bar 63 upon the chain, which cross bar is adapted to extend into the path of stops 64 and 65 on the partition wall 9, one set of the stops being above the cross bar and the other set a distance below the cross bar.

The cable 61 passes around a sheave 66 rotatably mounted on the spindle 8 and passes thence to a lever 67 mounted upon a bracket 68. The lever 67 is placed in convenient reach of the motorman or attendant of the car and is operated through the medium of a treadle 69 and by applying the pressure of the foot upon one end of the treadle, the lever 67 will be rocked to give a pull upon the cable, when the canvas will be operated and moved lengthwise to position the name of the next succeeding street in front of the opening in the casing.

The register is mounted within the car in any suitable manner, but preferably to a frame 70 which may be permanently attached within the car and is provided with lugs 71 having openings therein to receive studs 72 on the casing 1 and as said studs are slipped through the openings, the register can be removed at any time and a new one placed in engagement with the frame, thus making said registers interchangeable.

In operating the device, the canvas is wound upon one of the drums so as to bring the name of the first street approached by the car before the slot 2 in the front part of the casing. The key 44 is then entered through one of the openings 45 or 46 and for convenience of illustration, we will say that the key is entered through the opening 44 and into the end of the shaft 31, thus raising the pawl 40 out of engagement with its ratchet. As soon as the first street is passed, the motorman or attendant of the car applies pressure with the foot to the treadle 69 which will result in moving the chain 60 lengthwise and rotating the shaft 53, the movement of the chain 64 being limited by the stop 65. This operation will rotate the sprocket wheel 54 and drive the chain 14, thereby winding the canvas upon the drum 6 and unwinding the same from the drum 5. This operation brings the next succeeding name on the canvas before the slot in the casing and as soon as pressure is released from the treadle, the spring 62 will return the shaft 53 to its initial position and rewind the chain 60 upon the wheel 59, the

movement of said chain in this direction being limited by the stop 64. When the end of the line has been reached, the key is removed from engagement with the shaft of the upper roller and engaged with the shaft of the lower roller, thereby permitting the pawl 40 to descend into engagement with its ratchet and elevate the pawl 41 out of engagement with its ratchet, thus reversing the travel of the canvas.

The parts of this device are principally constructed of metal, thereby rendering the same practically indestructible from use, while by making the parts hollow so far as possible, the weight of the register will be materially lessened. It will further be seen that the canvas can be wound in either direction, while the parts employed for operating the canvas travel at all times in the same direction.

What we claim is:—

1. In an indicator, the combination with a pair of drums, a canvas having its ends connected to said drums, disks frictionally engaged with said drums, a driving mechanism for said disks adapted to drive said disks in one direction at all times and means to cause said canvas to wind upon either one of the drums and unwind from the opposite drum when desired.

2. An indicator, comprising the combination with a pair of drums, sprockets mounted upon said drums, means to frictionally engage said sprockets to cause the same to rotate the drums, a chain connecting said sprockets, a canvas connected to said drums and adapted to be wound thereon, a driving shaft, means to rotate said shaft, a sprocket mounted on said shaft and engaging said chain, means to cause said last mentioned sprocket to rotate with the shaft when said shaft is rotated in one direction and means to cause said canvas to move in either direction when the driving mechanism for the drums is rotated continuously in one direction.

3. In an indicator, the combination with a pair of drums and driving mechanisms therefor, of a shaft, a sprocket rotatably mounted on said shaft and connected to the driving mechanisms for the drums, means to cause said sprocket to rotate when the shaft is rotated in one direction and to remain idle when the shaft is rotated in the opposite direction, a wheel connected to the opposite end of the shaft, a chain connected to said wheel, pressure operated means adapted to move said chain lengthwise and rotate the wheel and shaft connected thereto in one direction and means to rotate the shaft in the opposite direction when the pressure operating means is released.

4. In an indicator, the combination with a pair of drums, a canvas adapted to be wound upon said drums, sprockets carried by the drums, a sprocket chain extending around said sprockets, driving means for said drums and connected to said sprocket chain, of a pair of rollers, between which said canvas extends, hollow shafts for said rollers, sprockets rotatably mounted upon said shafts, ratchets carried by the shafts, pawls carried by the last mentioned sprockets adapted to engage said ratchets and cause the sprockets to rotate with the shafts and means adapted to be entered in the ends of either of said shafts to raise the pawl out of engagement with its sprocket, whereby one of said rollers will run idle, while the opposite roller is positively driven.

5. In an indicator, the combination with a pair of drums, a canvas having its ends secured to said drums, frictional driving mechanism for said drums tending at all times to wind the canvas upon both of said drums at once, whereby said canvas is kept taut, and additional means operated by said driving means for drawing the canvas from either of said drums and feeding it to the other of said drums.

6. In an indicator, the combination with an upper and a lower drum, an upper and a lower roller, a canvas passing between said rollers and having its ends secured to said drums, a driving mechanism adapted to drive said drums frictionally and said rollers positively, all in one and the same direction, means for disconnecting either of the rollers from said driving mechanism, and means whereby when either roller is disconnected, the canvas will be drawn from the corresponding drum and wound upon the other drum.

7. In an indicator, the combination with two drums, a canvas having its ends secured to said drums, a driving mechanism tending to wind the canvas upon both of said drums at one and the same time, and means operated by said mechanism for drawing the canvas from either of said drums and feeding it to the other of said drums, said means consisting of a pair of friction rollers between which the canvas passes, either of said rollers being adapted to be positively driven by the drum driving mechanism, while the other of said rollers runs idle.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EDWARD F. VALLILEE. [L. S.]

ROBERT L. POST. [L. S.]

Witnesses:

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JACOB MILLER.