

No. 709,236.

Patented Sept. 16, 1902.

C. E. MORGAN.

STREET INDICATOR FOR RAILWAY CARS.

(Application filed Jan. 14, 1902.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.

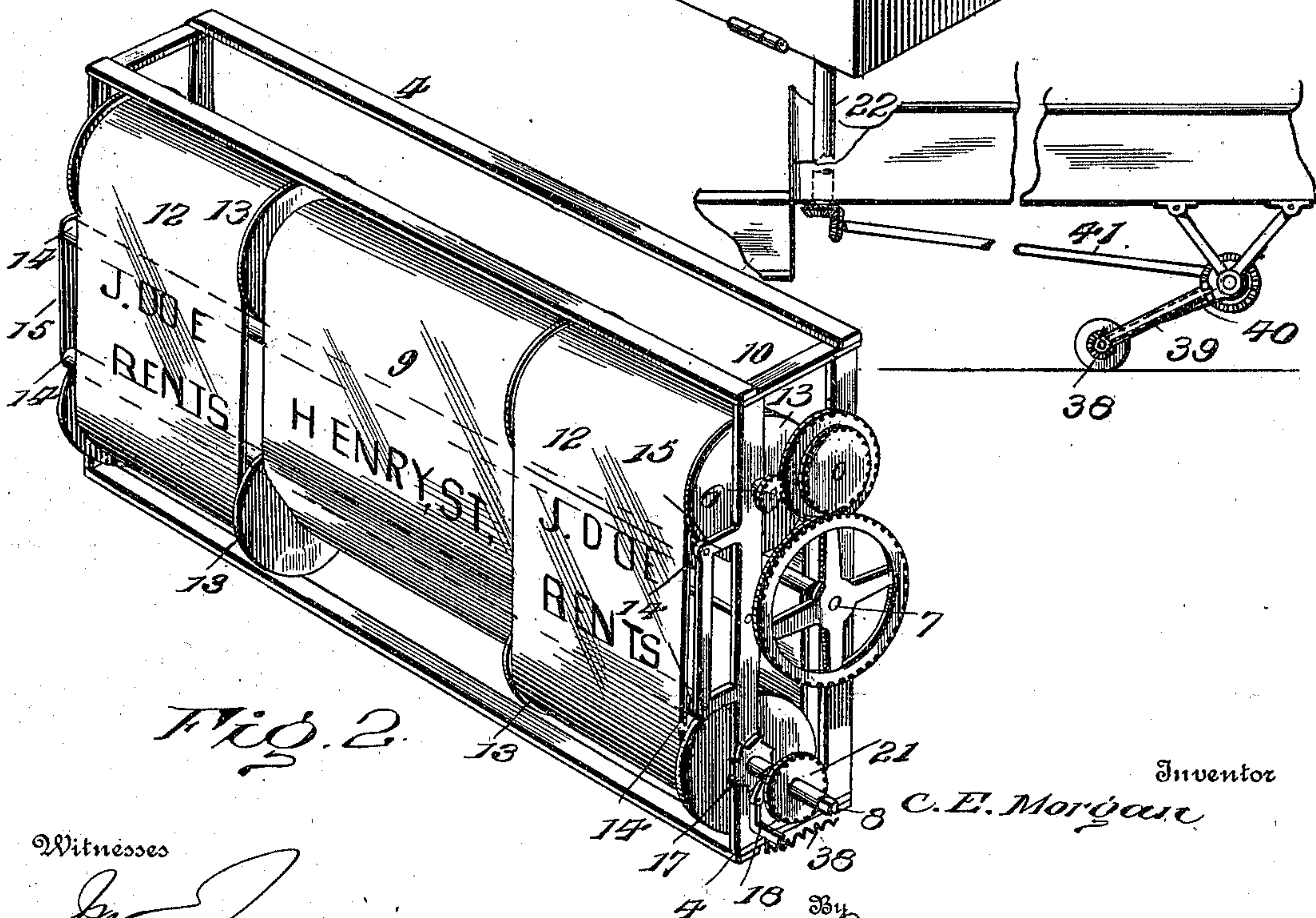
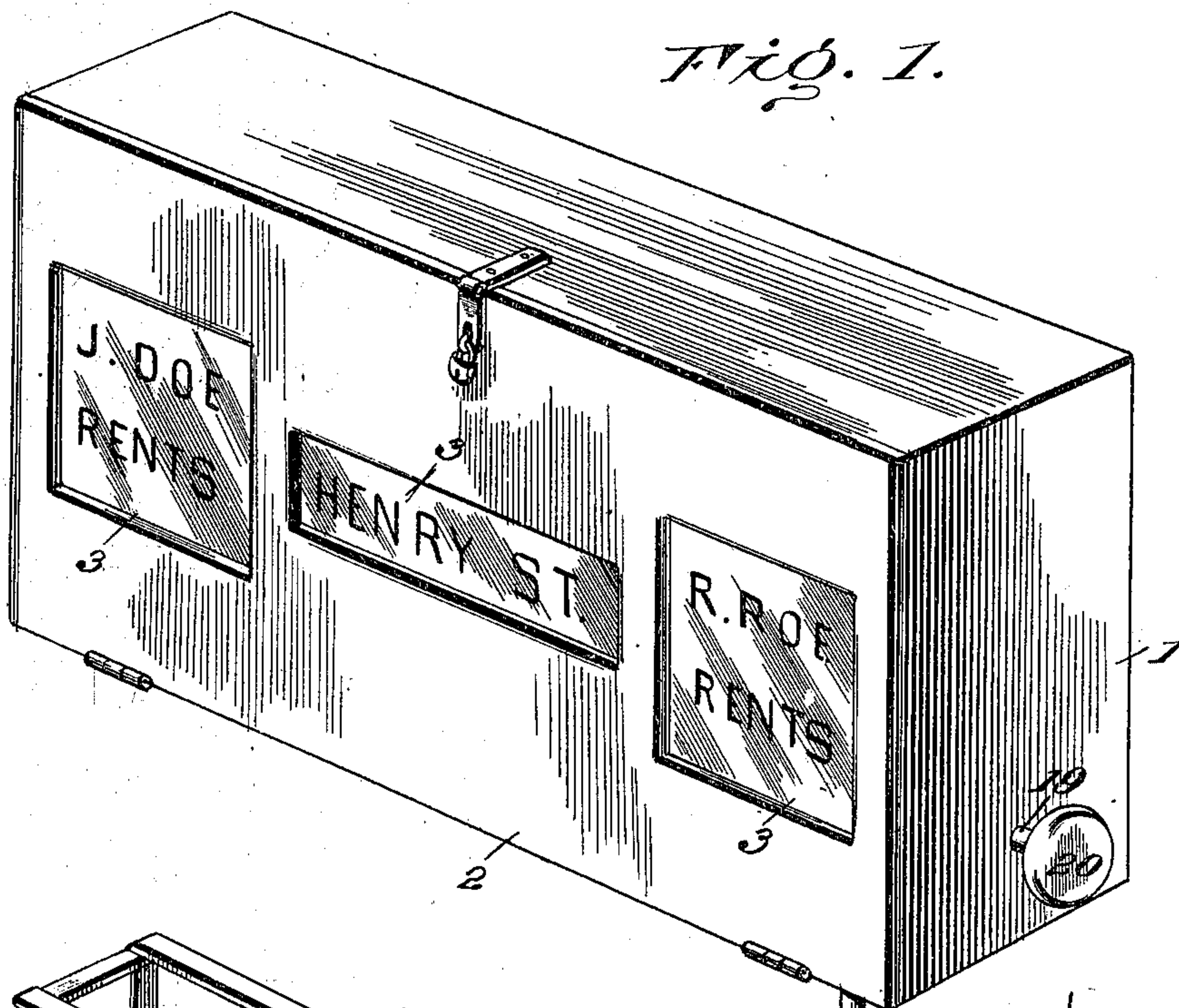


Fig. 2.

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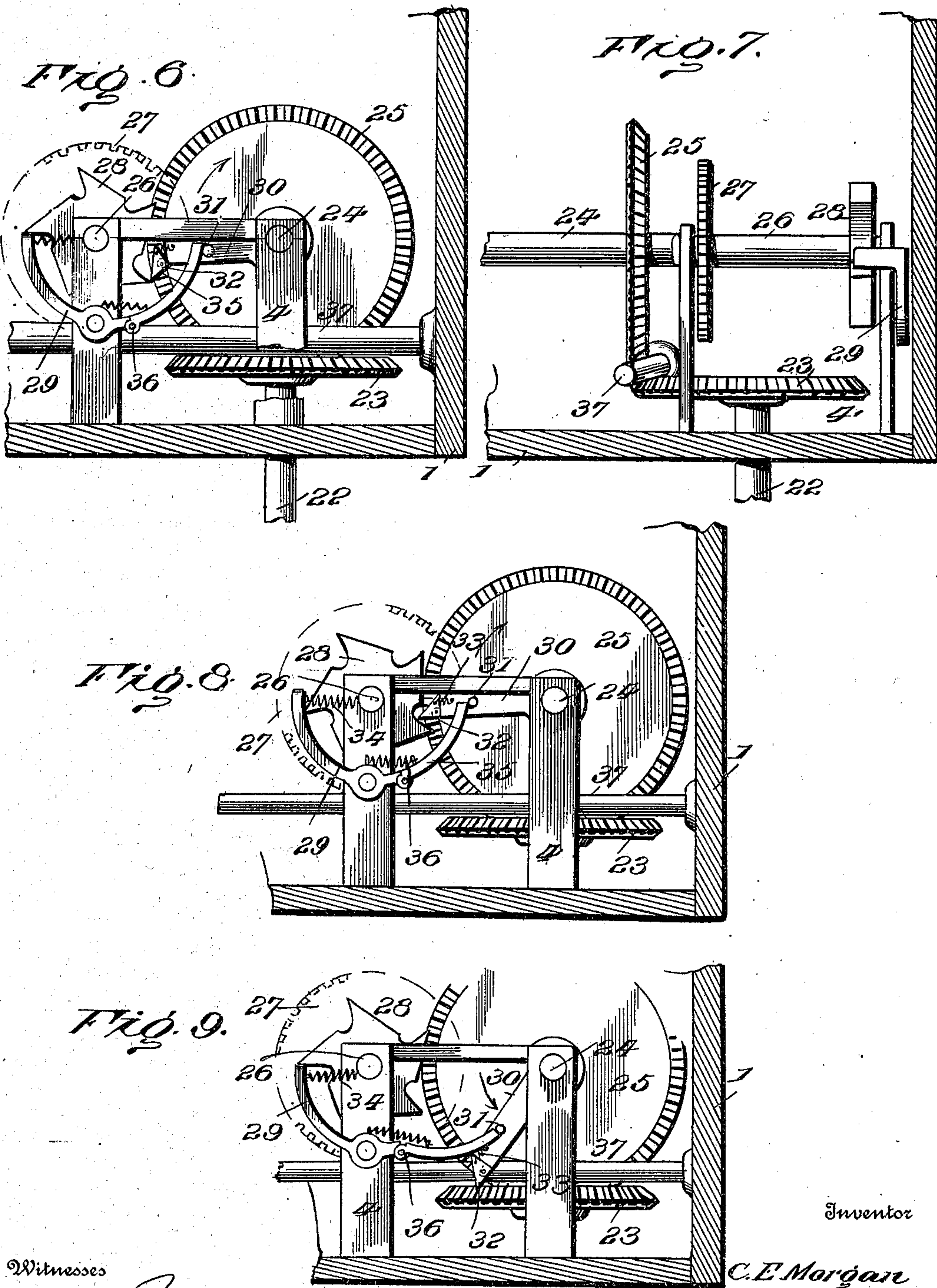
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# UNITED STATES PATENT OFFICE.

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## STREET-INDICATOR FOR RAILWAY-CARS.

SPECIFICATION forming part of Letters Patent No. 709,236, dated September 16, 1902.

Application filed January 14, 1902. Serial No. 89,684. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES E. MORGAN, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented certain new and useful Improvements in Street-Indicators for Railway-Cars; 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.

This invention aims to improve and enhance the value of indicators for public conveyances and to increase their efficiency, whereby they are rendered more desirable and a valuable acquisition to the traveling public.

The invention has for its object a novel construction for admitting the removal of the name-strip and its supporting-frame from the case for any purpose, a spring for rewinding the name-strip upon the return trip of the car or conveyance, actuating and detent mechanisms coöperating with the name-strip and rewinding-spring, and a peculiar arrangement of the parts whereby the name-strip can be adjusted at any time to properly indicate the points *en route*.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of an indicator embodying the invention. Fig. 2 is a perspective view of the frame supporting the name and advertising strips, the rewinding-spring, and the train of gearing between the shaft of said spring and one of the spools detached from the case. Fig. 3 is an end view with the inner end of the case removed. Fig. 4 is a detail front elevation showing the case in section. Fig. 5 is a horizontal section taken

on a line intermediate of the upper and lower rolls. Fig. 6 is a detail end view of the actuating mechanism. Fig. 7 is a front view of the same. Fig. 8 is a view similar to Fig. 6, showing the yieldable end of the trip released from a tooth and the ratchet-wheel held by the pawl. Fig. 9 is a view of the parts shown in Fig. 8 moved to a position so as to release the trip from the ratchet-wheel.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The working parts of the indicator are suitably housed or incased for protection, and the case (indicated at 1) may be of any design or finish according to the caprice of the manufacturer. The indicator when installed will be prominently located, so as to be observable from every part of the car, vehicle, or conveyance. Access is had to the interior of the case by means of a door 2, which is locked to prevent unauthorized parties from tampering with the actuating mechanism. An observation-opening 3 is formed in the front of the case to admit of viewing the name or matter to be displayed.

A frame 4 is removably fitted within the case 2 and supports the strips or webs provided with the names and matter to be displayed. This frame is shiftable within the case to admit of throwing the gearing out of mesh when it is required to adjust the name strips or webs, springs 5 being provided to hold the frame in a normal position and the gearing in meshing relation. These springs exert a pressure against one end of the frame 4 and are located between proximal ends of the case and frame. The frame may be of any construction best adapted for the purpose and, as shown, is of skeleton construction, being composed of a plurality of bars arranged in the manner substantially as shown and rigidly connected at their overlapping ends.

Shafts 6, 7, and 8 are journaled in end bars of the frame 4 and have a parallel arrangement. The shafts 6 and 8 are provided with a middle and end spools for reception of the



several strips or webs. The name-strip 9 is connected at its ends to, respectively, the upper and lower spools 10 and 11 and is of a length so as to unwind from one and at the same time wind upon the other spool. This strip or web 9 bears the names of the streets, stations, or points along the line of travel either of the railway-car or other public conveyance having a prescribed route. The operating parts and names of the streets are so disposed that the names will appear in successive order opposite the observation-opening 3 as the streets, stations, or points to be designated are approached. The strips or webs 12 are of an endless construction and are supported by means of the end spools 13 of the upper and lower shafts. These strips 12 bear advertising or other matter to be displayed and are designated as "advertising-strips" to distinguish them from the name-strip 9. The end portions of the observation-opening 3 are enlarged to admit of proper display of the advertising matter. It is to be understood in this connection that independent observation-openings may be provided for the several strips and that one or more advertising-strips may be employed as desired. Rollers 14 are located above and below the opening 3, with their outer elements close to the inner side of the glass protecting the said opening and hold the name-strip 9 close to said glass or opening, so as to insure a proper display of the names as they come in position for observation. These guide-rollers 14 are journaled to frames 15, extended forward from the ends of the frame 4. The shaft 7 is connected with the shaft 6 by a train of gearing substantially as shown, and a coil-spring 16 connects the said shaft 7 with a part of the frame 4 and is wound up as the name-strip 9 is unwound from the spool 10 and wound upon the spool 11. This takes place when the car or vehicle is traveling from the beginning to the terminus of the route, the spring 16 unwinding and serving to rewind the name-strip upon the spool 10 during the return of the conveyance, as will appear more fully hereinafter. To prevent any recoil of the spring 16 when the frame 4 is removed from the case, a detent mechanism is provided and consists of a ratchet-wheel 17, secured to the shaft 8, and a pawl 18, arranged for coöperation with the teeth of said ratchet-wheel. The shaft 8 is extended and its outer end is made angular to enter an opening of corresponding shape in the stem 19 of a hand-wheel 20, journaled in an opening in an end of the case 1 and by means of which the name-strip is adjusted or set to correspond with the streets or points to be designated. A gear-wheel 21 is secured to the extended end of the shaft 8 and is in mesh with the actuating mechanism when the parts are properly assembled. The actuating mechanism is fixed with reference to the case and is located at one end thereof and comprises a shaft 22, a bevel-gear 23, secured to the up-

per end of the shaft 22, a shaft 24, parallel with the shafts 6, 7, and 8, a bevel-gear 25, secured to the shaft 24 and in mesh with the bevel-gear 23, a shaft 26, parallel with and spaced from the shaft 24, a gear-wheel 27, secured to the shaft 26 and in mesh with the gear-wheel 21, and a ratchet and trip mechanism between the shafts 24 and 26, consisting of a ratchet-wheel 28, pawl 29, and an arm 30. The ratchet-wheel 28 is secured to the shaft 26 so as to rotate therewith, and the arm 30 is secured to the shaft 24 for rotation therewith. The arm 30 has a pin or lateral extension 31 and a pivoted end 32, which co-operates with the teeth of the ratchet-wheel 28 in a manner presently to be explained. The pivoted end 32 of the arm 30 has a limited movement and is held in the path of the teeth of the ratchet-wheel 28 by means of a spring 33 of the contractile type. The pawl 29 is held in the path of the teeth of the ratchet-wheel 28 by means of a retractile spring 34 and is provided with a pivoted tail-piece 35, normally in the path of the pin or lateral extension 31. A spring 36, connected with the pivoted tailpiece 35, holds it within the path of the parts 31. The shaft 22 is connected with an axle or other rotating part of the car or conveyance by any selected means and is continuously rotated when the car or conveyance is in motion. This movement is transmitted to the shaft 24 by means of the bevel gear-wheels 23 and 25 and is transformed into an intermittent motion with reference to the shaft 26 by means of the trip 30, pawl 29, and ratchet-wheel 28. When the car or conveyance is on the out trip, the shaft 24 is rotated to the left, and at each revolution the ratchet-wheel 28 is moved one tooth by contact of the pivoted end 32 of the arm 30 therewith. The movement imparted to the shaft 26 results in winding the name-strip 9 upon the spool 11 and unwinding it from the spool 10, and effects a winding up of the spring 16 by means of the train of gearing between the shafts 6 and 7. The travel of the trip-arm 30 from right to left brings the pin or lateral projection 31 in contact with the pivoted tailpiece 35 of the pawl 29, and this tailpiece turns upon its hinged connection with the pawl 29 without affecting the latter and automatically clears itself of the said part 31 during the continued movement of the arm 30, when said pivoted tailpiece is returned to a normal position by the action of the spring 36. On the return trip of the car or conveyance the shaft 24 is rotated in a reverse direction, as will be readily understood, and when the pivoted end 32 of the trip-arm 30 comes in contact with a tooth of the ratchet-wheel 28 it will yield and pass thereby, and an instant later the pin or lateral extension 31 comes in contact with the tail piece of the pawl 29 and disengages the latter from the tooth of the ratchet-wheel with which it is in engagement, thereby permitting the spring 16 to come into play and turn the shaft 6 so as to rewind



the name-strip thereon and unwind it from the spool 11. After the pawl 29 has been disengaged from a tooth of the ratchet-wheel the latter will be prevented from flying backward by the retarding action of the arm 30, the pivoted end 32 of which will sustain the strain resulting from the action of the spring 16 tending to unwind the name-strip from the spool 11. As the arm 30 continues to move to the right the ratchet-wheel 28 will correspondingly move until arrested by the action of the pawl 29 coming in contact with the next tooth to that from which it was previously disengaged. This operation is repeated at each revolution of the trip-arm 30 from left to right, the parts 29 and 32 alternately acting to prevent the ratchet-wheel 28 moving but one tooth at a time.

When the frame 4 and the parts carried thereby are in proper position within the case, the pawl 18 is disengaged from the teeth of the ratchet-wheel 17, this being effected by means of a trip 37, attached to the case and coming in contact with an extension of the said pawl. When removing the frame 4 from the case, the pawl 18 is withdrawn from contact with the trip 37 and is thrown into engagement with a tooth of the ratchet-wheel 17 by means of a spring 38, whereby any recoil of the rewinding spring 16 is guarded against.

When it becomes necessary to adjust or reset the name-strip to properly indicate the streets or stations, the hand-wheel or button 20 is pressed upon and moves the frame within the case and disengages the gear-wheel 21 from the gear-wheel 27, thereby permitting the shaft 8 to be turned either forward or backward, as may be required, to effect the proper adjustment and setting of the indicating mechanism. The extension of the pawl 18 is such as to prevent disengagement thereof from the trip 37, so as not to interfere with the movement of the shaft 8 either forward or backward. The button or hand-wheel 20 must be firmly grasped to prevent recoil of the spring 16. After the indicator has been adjusted pressure is removed from the button to admit of the frame being returned to a normal position by the action of the spring 5. When it is required to remove the frame 4 from the case for any desired purpose, it is necessary to withdraw the button or part 20, so as to disengage it from the shaft 8, after which the frame can be readily lifted from case.

While movement is imparted to the shaft 22 by any rotating part, it is preferred to derive motion from a traction-wheel 38, which is arranged to travel upon a rail of the track or other suitable portion of the road-bed or surface over which the conveyance travels. This traction-wheel 38 may be rubber-faced to prevent slipping and is carried by a pivoted arm 39, acted upon by a spring 40 for pressing the traction-wheel in close contact with the surface from which motion is derived. A shaft 41 is connected by suitable

gearing with a shaft carried by the arm 39 and deriving movement from the traction-wheel 38, and its opposite end is geared to the shaft 22.

The operating parts and names of the streets are so disposed and repeated that the new street-names will appear in successive order and repeated opposite the observation-opening 3 as the streets, stations, or points to be designated are approached. On long trips two of these sets of spools and two ribbons are used—one for the up trip and one for the down trip.

Having thus described the invention, what is claimed as new is—

1. In an indicator for street-cars and other public conveyances, a frame provided with the indicating mechanism and mounted to receive a limited sliding movement, actuating mechanism for imparting movement to the indicating mechanism, and means for sliding the said frame to disengage the actuating mechanism from the indicating mechanism for a proper setting or adjusting of the latter, substantially as set forth.

2. In an indicator for street-cars and other public conveyances, an indicating mechanism mounted to receive a limited sliding movement, means for exerting a spring-pressure upon the indicating mechanism to hold it in a predetermined position, actuating mechanism normally in mesh with the indicating mechanism, and a button or like contrivance to be operated by hand for sliding the indicating mechanism to throw it out of gear with the actuating mechanism and serving as a means for adjusting or setting the said indicating mechanism, substantially as set forth.

3. In an indicator for street-cars and other public conveyances, indicating mechanism, a rewinding-spring in coöperative relation therewith, a detent mechanism for preventing recoil of the said spring, a trip normally holding the detent mechanism out of action, an actuating mechanism, and means operated by hand for shifting the indicating mechanism and admitting of proper adjustment thereof, the shifting of the indicating mechanism throwing it out of meshing relation with the actuating mechanism without permitting disengagement of the aforementioned detent mechanism from the trip coöperating therewith, substantially as set forth.

4. In a street-indicator for the purposes specified, a case, a frame removably fitted within the case and provided with the indicating mechanism, a spring applied to said frame for actuating the indicating mechanism, a ratchet and pawl for preventing recoil of said spring when the frame is removed from the case, and a trip fixed within the case and adapted to disconnect the pawl from the ratchet and admit of free operation of the aforementioned spring when the frame is properly positioned within the case, substantially as set forth.

5. In an indicator for street-railway cars



and public conveyances, the combination of indicating mechanism, a spring in coöperative relation thereto to be wound upon travel of the car in one direction, and actuating mechanism for effecting movement of the indicating mechanism and a winding up of the said spring and including a ratchet-and-pawl and trip devices, said pawl and trip embodying movable parts for alternate coöperation with the ratchet-wheel to admit of a backward movement of the ratchet-wheel when the car is making a return trip, substantially as set forth.

6. In an indicator of the character described, and in combination with the indicating mechanism, and a coil-spring in coöperative relation therewith for returning the parts to an initial position, actuating mechanism including a ratchet-wheel, pawl and trip, whereby the indicating mechanism is intermittently operated, the pawl and trip having yieldable parts for alternate coöperation with the teeth of the ratchet-wheel to permit of its backward movement one tooth at a time, substantially as and for the purpose set forth.

7. In an indicator for street-cars, public conveyances and in combination with the indicating mechanism, a spring in coöperative relation therewith to be wound when the car is traveling in one direction and adapted to unwind and to operate the indicating mechanism when the car is on the return trip, ac-

tuating mechanism for positively operating the indicating mechanism and adapted to control the unwinding of the aforementioned spring, said actuating mechanism including a ratchet-wheel, a pawl having a yieldable part, and a trip having a yieldable part for coöperation with the teeth of the ratchet-wheel and provided with an extension for engagement with the yieldable part of the pawl, substantially as set forth.

8. In combination with indicating mechanism and a spring in coöperative relation therewith, actuating mechanism comprising a ratchet-wheel, a pawl having a spring-actuated pivoted tailpiece, a trip having a spring-actuated pivoted end piece for coöperation with the teeth of the ratchet-wheel, and a projection extended from the said trip into the path of the pivoted tailpiece of the aforementioned pawl, the parts being combined to effect positive actuation of the indicating mechanism and a winding of the spring upon the out trip of the car and adapted to control the unwinding of the spring for intermittent operation of the indicating mechanism when the car is making a return trip, substantially as specified.

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

CHARLES E. MORGAN. [L. S.]

Witnesses:

A. T. LEWIS,  
NELLE HICKEY.