(No Model.) 3 Sheets—Sheet 1.

S. M. FRIEDE.

STREET AND STATION INDICATOR.

No. 383,392. Patented May 22, 1888.

Fig. I.

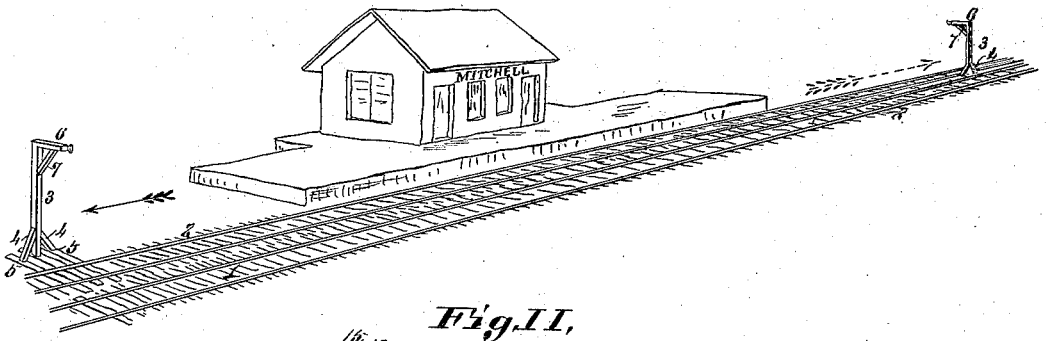


Fig. II.

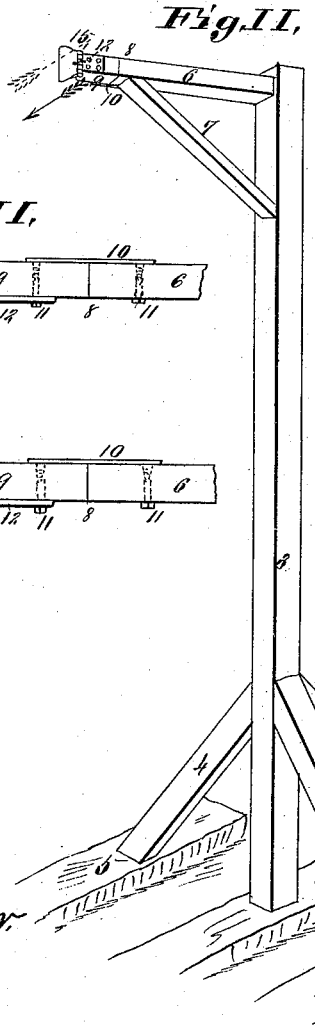


Fig. III.

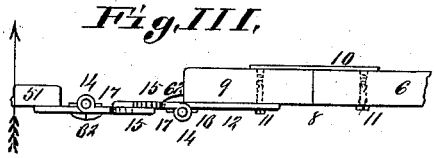


Fig. V.

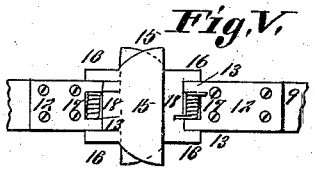
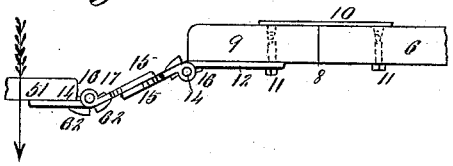


Fig. IV.



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(No Model.) 3 Sheets—Sheet 2.

S. M. FRIEDE.

STREET AND STATION INDICATOR.

No. 383,392. Patented May 22, 1888.

Fig. VI.

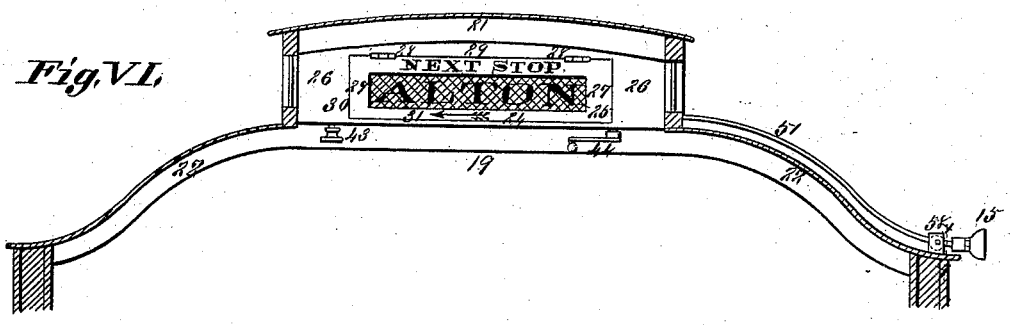


Fig. VII.

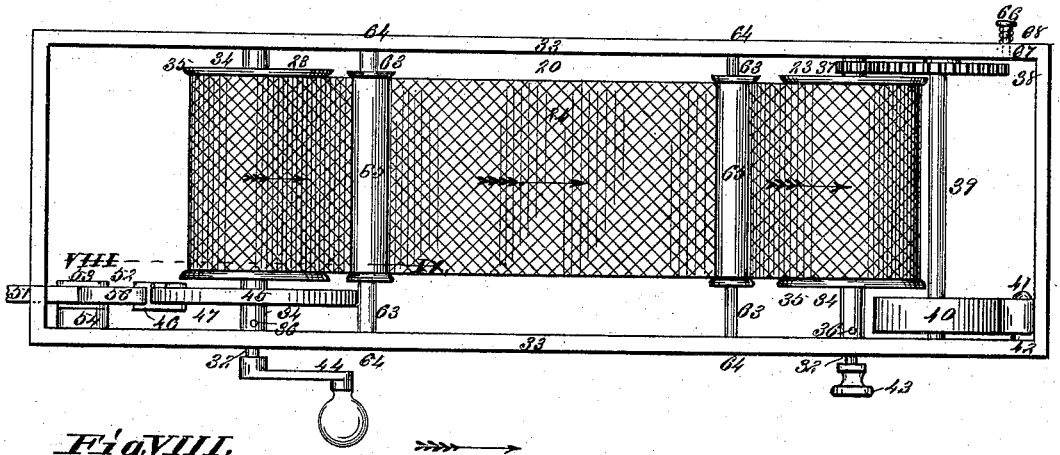


Fig. VIII.

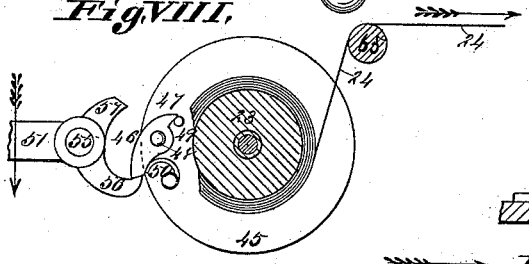


Fig. X.

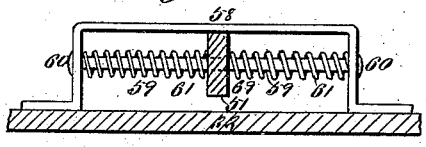


Fig. IX.

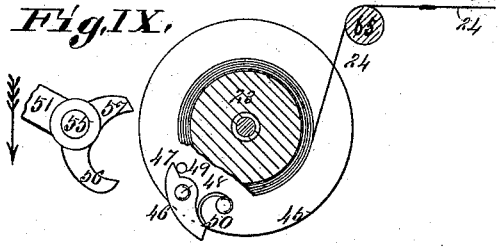
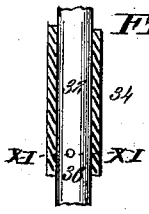


Fig. XI.

Fig. XII.



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(No Model.) 3 Sheets—Sheet 3.

S. M. FRIEDE.

STREET AND STATION INDICATOR.

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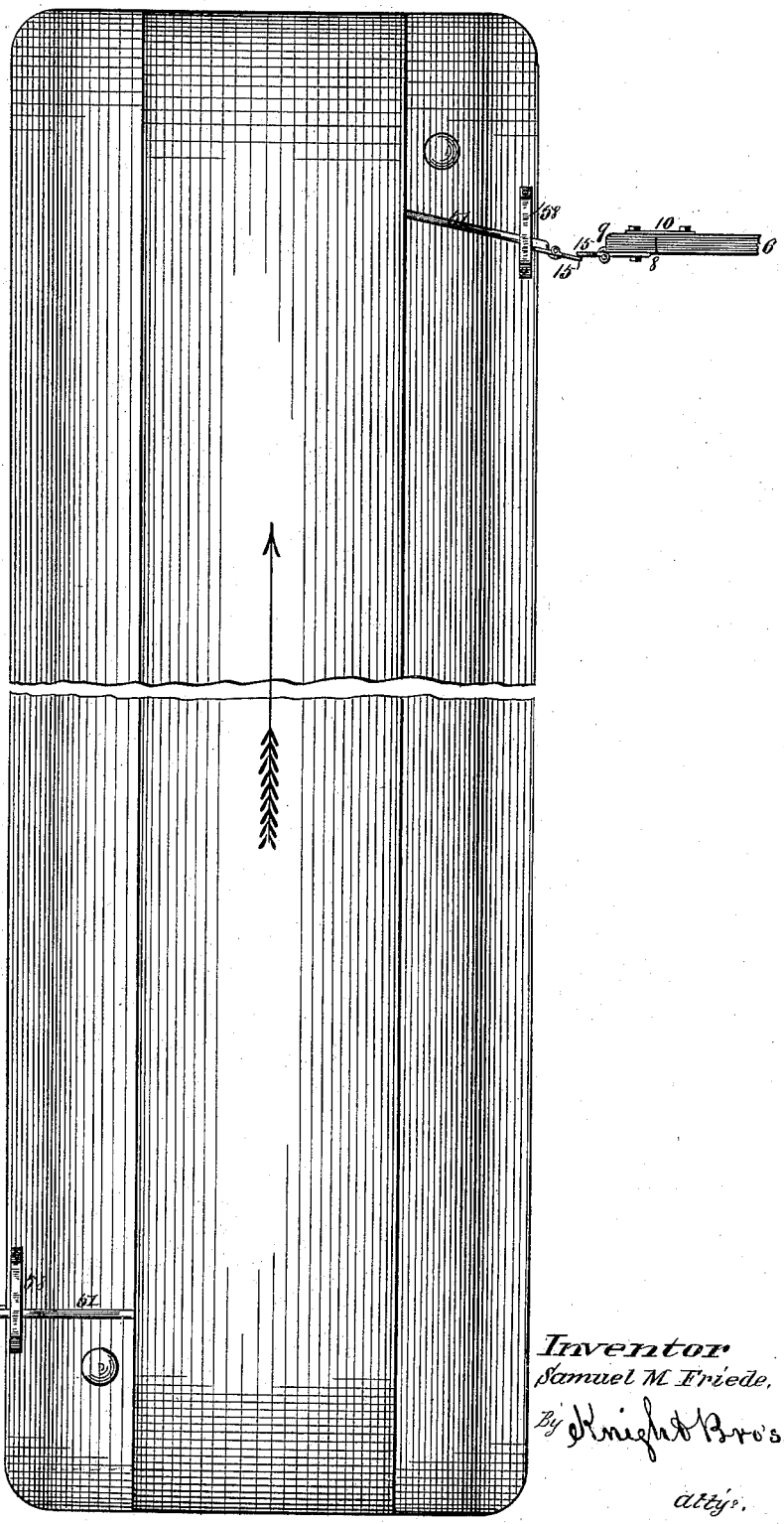
Fig. XIII.



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UNITED STATES PATENT OFFICE.

SAMUEL M. FRIEDE, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO JULIUS D. ABELES AND LEON GOLDMAN, BOTH OF SAME PLACE.

STREET AND STATION INDICATOR.

SPECIFICATION forming part of Letters Patent No. 383,392, dated May 22, 1888.

Application filed August 18, 1887. Serial No. 247,288. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL M. FRIEDE, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Street and Station Indicators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure I is a perspective view of a station and track with my operative buffer-posts in position to actuate the indicators on the cars. Fig. II is an enlarged perspective view of my buffer-post that operates the station-indicator. Fig. III is an enlarged detail view, showing the cross buffer-arm with the spring give-and-take plate to prevent injury from too severe a concussion of the buffer-heads, showing also the buffer-heads and the trigger-catch ready to retire from the spring-pawl and let the disk turn with the corresponding reels. Fig. IV is a similar enlarged detail view of the buffer-arm when in its inoperatve position, the buffer-heads turning on their hinges and allowing the train to pass without shifting the indicator. Fig. V is an enlarged detail view showing the buffer-heads with their return springs on their pivot-pins. Fig. VI is an enlarged cross section of a case with my indicator attached, showing the pivoted trigger-lever that lets loose the disk for one revolution to change the indicator. Fig. VII is an enlarged back view of the rolls, showing the indicator-scroll, the rollers that project it in prominent view of the occupants of the car, and the hand-crank that winds up both the scroll and the coil-spring that automatically operates the scroll as it unwinds. Fig. VIII is an enlarged side view of the trigger-disk and section of the scroll-roll, with part broken away to show the action of the spring-dog, which is in engagement with the trigger-lever before it is sprung. Fig. IX is a like view showing the trigger sprung, the disk rotating, and the scroll drawing out to reindicate the next station. Fig. X is an enlarged side view of the bracket that provides pivotal bearings for the trigger-lever, showing also the spiral springs around the pivot-pin, that allow lateral movement of the trigger-lever on its bearings and return it again to its central normal position. Fig. XI is an enlarged transverse section, taken on line XI XI, Fig. XII, of one of the reel-shafts with its removable sleeve, which carries the scroll-roll, and Fig. XII is an enlarged longitudinal section, taken on line XII XII, Fig. XI, of one of the reel-shafts and sleeves, showing also the key-pin that secures the attachment of the sleeve to the shaft. Fig. XIII is a longitudinal top view of a car, showing the buffer-heads on the spring-attached extensions of the cross-arms of the buffer-posts, the one in operative position in relation to the moving car actuating the trigger-lever through its buffer-head to trip the indicator device, and the other, when in inoperative position, allowing the corresponding buffer-heads to pass each other without tripping the trigger-lever.

This invention relates to devices for indicating to passengers of railway-cars the next street or station at which the train stops; and the invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, in which similar figures of reference indicate like parts in all the views, 1 represents the sleepers on which the rails 2 rest, 3 the buffer-post, which, with its braces 4, rests on elongated bed-sleepers 5 of the track, so that the posts are invariably leveled to correspond with the level of the track, and should frost or other causes vary the level of the one it will operate alike on the other also, to make the buffer-heads on the cars and posts maintain their correlative positions.

6 is the buffer cross-arm that projects at a right angle from the post, and is supported at said angle by the brace 7. The said cross-arm is cut at 8, providing an extension, 9, that is reunited by a spring-plate, 10, at its back, which is secured to said extension and the main cross-arm by screw-bolts and nuts 11.

12 is the hinge-plate secured by screws or bolts to the extension 9, and provided with loops 13, in which the pivot-pin 14 engages for the attachment of the buffer-head 15, which also has hinge-loops 16, through which said pin engages. A return coil-spring, 17, surrounds the pivot-pin between the loops of the

hinge-plate and buffer-head, and projecting ends of the coil-spring press relatively against the hinge-plate and the shank 18 of the buffer-head to enforce the after return action of said buffer-head to its normal position.

19 represents a car to which my invention is attached. 20 is the automatically-operated reel-scroll indicator device, which is erected in duplicate at each end of the car in the summit-dome 21 of the roof 22.

The reels 23 and scrolls 24, that carry the street and station names 25, are preferably secured within an inclosed chamber, 26, which is duplicated at each end of the car. Said chamber is provided with a drop-sash, 27, that is secured by hinges 28 to the cap 29 at the tops of the openings 30 into said chamber that the sash closes. The sash-frame surrounds a glass plate, 31, that allows a free view to the passengers of the names of the next street or station on the indicator-scroll.

The reel-shafts 32 run within bearings in the frame 33, and the reels are provided with sleeves 34, that are rigidly secured to the disks 35 of said reels (and fit around said shafts, to which they are secured) by key-pins 36. The shafts of the reels have their bearings in the frame at a suitable distance apart to most advantageously exhibit the name of the street or station. One of the reel-shafts has rigidly secured to it a pinion-wheel, 37, that engages in a gear-wheel, 38, on a shaft, 39, that has bearings in the frame 33 back of the said reel-shaft. The shaft 39 has one end of the coil-spring 40 secured to it and wound around it, as hereinafter described. The other end of the spring is firmly secured around the screw-bolt or lug 41, that is secured to one of the side bars of the frame at 42.

The indicator-scroll is preferably made of fine linen or other strong and preferably glazed material, and has clearly delineated on it in relative succession and by any suitable means the names of the streets or stations at which the cars stop. The ends of the scroll are each secured by any suitable means to the sleeves 34, that surround and are keyed to the reel-shafts. A hand-knob, 43, is rigidly secured to the one of the reel-shafts that is next to the main coil-spring 40, and a crank-handle, 44, is also rigidly secured to the other reel-shaft.

A disk, 45, is keyed or otherwise rigidly secured to the sleeve 34 on the crank-handle reel-shaft. A dog-pawl, 46, having bifurcated arms 47, that embrace the disk, is secured thereto by the pivot-pin 48 on which it turns, but is limited in its outward movement by the stop-pin 49 at its reverse end on the side of the disk. The dog-pawl is projected to its operative position by the spring 50, except when pressed back on its inoperative curved side, when it bends the spring and retires under the influence of the pressure.

51 represents the trigger-lever, which works in the annular recess 52 of the double disk-cap 53, that is secured to the stud 54 and side piece of the frame 33 by the screw-threaded pivot-pin 55, on which the lever works. Said trigger-lever has a catch-hook, 56, integral with the main arm of the lever, which engages with the dog-pawl 46 and keeps the scroll from unwinding until the trigger-lever is tripped, and a short balance-hook, 57, reaches out in an opposite direction and stops the dog-pawl in its rotation, should the trigger-lever, from any accidental cause, not return the hook 56 in time to stay a second rotation of the disk and dog-pawl. The outer end of the trigger-lever works within an elongated bracket, 58, that is secured near the eaves of the roof of and to the car. The lever has lateral movement along a pin or rod, 59, that passes through a slot, 69, therein, and the rod is riveted or screw-nutted at each end at 60 to the bracket. Spiral springs 61 around the bolt at each side of the trigger-lever allow it to move freely under the pressure of the buffer-heads a sufficient distance to trip the trigger; when released from the pawl-dog the springs quickly return it to its central normal position. On the outer end of the trigger-lever is a similar hinge-plate, 12, to that described on the extension of the buffer cross-arm and similarly secured to the trigger-lever as that is to the said extension 9, with similar buffer-head hinge-loops on both hinge-plate and shank of buffer-head, also hinge pivot-pins and return-action coil-springs, which are duplicates of the said parts on the said cross-arm of the buffer-post and are also indicated by duplicate numbers. The two buffer-heads act in correspondence with each other, both when inoperative and when operative. They move freely on their hinges on coming in contact with each other, so as to pass without tripping the trigger when the car or train is backing or moving in a reverse direction to that the indicator is required to work, and their springs afterward bring them back to their normal position, ready for service when the car is again moving in its usual direction in relation to the buffer-posts, with which the buffer of the trigger-lever is then intended to engage, at which time (when operative) the buffer-heads are as far back on their hinges as they can turn and the shoulders of the lugs 62 at the back of the hinge-joint brace against each other and re-enforce the hinges to withstand the back-pressure caused by contact of the buffer-heads, which, in consequence, trip the trigger-lever, allowing the scroll-reel to make one revolution and so change the street or station record visible on the scroll to that of the next stop.

Two vertical shafts, 63, that have bearings at 64 in the frame 33, carry anti-friction roller-reels 65, that convey round the part of the indicator-scroll that next exhibits the name close to the glass in the sash 27, through which it is shown.

Preparatory to running the scroll at first around the reel next the mainspring by the hand-knob 43, (which operation is alone required when the indicator is first set up in the car,) the pinion-wheel 37 is unshipped from

the shaft of said reel to allow said reel to turn freely without keeping up its geared connections with the adjacent mainspring. At such time the stop-pin 66 is projected through a perforation, 67, in the frame 33 until it engages between the cogs of the gear-wheel 38 and locks it from turning, the said cogs also by their clutch-hold of the pin preventing its withdrawal. When the pinion-wheel is reinstated, a movement of the crank-handle of the reels will loosen the hold on the pin, and the spiral spring 68 around said pin withdraws the same from obstruction.

The operation of the invention is as follows: The reel-shaft 32 next the mainspring 40 is turned by the hand-knob 43 until as much of the indicator-scroll is wound thereon as its mutual connection with the corresponding reel will allow. The pin-key 36, that secures the sleeve 34 to the first-mentioned reel-shaft, is then removed to allow the partial withdrawal of the shaft in its sleeve sufficiently to ship the pinion-wheel 37 on the other end of the shaft, so that as the shaft is turned to its bearing in the frame the pinion-wheel engages in the gear-wheel 38 on the shaft that carries the mainspring 40. The key-pin 36 is then returned to its seat. The crank-arm 44 of the other scroll-reel shaft is then turned until the scroll is wound onto the reel secured to it in as far as its mutual attachment to the corresponding reel will allow, which leaves open to view the name of the street or station from which the car or train starts. It will be seen that as the scroll is wound by the hand-crank onto the reel it turns, the withdrawal of the scroll from the other reel turns it and the pinion-wheel on its shaft, thereby turning the gear-wheel 38, with which it engages, which through its shaft winds the mainspring that it also carries. At the same time the dog-pawl 46 on the disk 45, that is carried on the same shaft that the crank turns, is engaged by a claw on the inner end of the pivoted trigger-lever 51, which claw is tripped clear of the pawl when the buffer-head on the end of said lever comes in contact with the buffer-head on the cross-arm of the post 3, allowing the disk 45 that carries said pawl and its accompanying reel to make one rotation under the influence of the mainspring and withdraw that much of the scroll from the crank-shaft reel and exhibit the name of the next street or station at which the car will stop. The scroll is of sufficient length to carry the names of all the streets or stations on the line. On the return trip the indicator at the reverse end of the car, which then becomes the forward end, comes into operation, and the buffer-heads of its trigger-lever (which on the last trip freely turned on their hinges to pass in their inoperative position the buffer-heads of the posts) now come into operative position, and, being reverse duplicates in position of the indicator at the other end of the car, it indicates consecutively the names of the streets or stations next ahead.

It will be understood that, as shown in Fig. XIII, the buffer-posts and the pivoted trigger-lever with their corresponding buffer-heads that are on the right-hand side of the car as it faces are always operative, while those on the left-hand side are always inoperative, and the then loose hinges of the buffer-heads allow their free and inoperative passage; but when the car returns on the same or a parallel track, what was before the left-hand inoperative side becomes the right-hand operative side and operates the scroll-reels on the other end of the car, which, for the time being, becomes the front end of said car.

With the exception of rewinding the scrolls, and in consequence the main coil-spring, by the hand-crank 44 at each end of the line, the invention is entirely automatic in its action, and, unless a car has inadvertently been turned end for end at any time when placing on the track, will continue to so work *ad infinitum* as long as the material of which it is constructed will last.

As heretofore described, when a car has been misplaced end for end, all that is required to effect a perfect reorganization of the parts is to extract the key-pins 36 and unship the reels, scrolls, and their accompanying sleeve-tubes, pinion-wheels, disks 45, and dog-pawls, which are readily removed together, and transfer them vice versa to the reverse ends, when the consecutive rotation of the indicated names on the scroll and all its connected devices will be found in working order, the same as when operated at the reverse end of the car.

The trigger-lever and its attached buffer-head is always in right position, whichever way the car is either placed or misplaced, and so requires no transference.

I claim as my invention—

1. In a street and station indicator for railway-cars, the combination, with the indicator proper and its trigger-lever, of a suitably-mounted arm projecting toward the side of the track from the car, an extension having spring-connection at one side therewith, a buffer-head having pivotal connection with the end of said extension on its opposite side, and a spring surrounding the pivot-connection, its ends bearing respectively on the buffer-head and extension, substantially as set forth.

2. In a street and station indicator for railway-cars, the combination of the frame, shafts journaled therein, reels provided with sleeves adapted to be secured on said shafts, an indicating-scroll wound on said reels, a projection from the side of the track on which the car travels, a catch for holding the scroll in inactivity, a projection from the car adapted to engage the aforesaid projection to release the catch, and suitable means for winding the scroll on the reels, substantially as set forth.

3. In a street and station indicator for railway-cars, the combination of the frame, shafts 32 journaled therein, reels 23, provided with sleeves adapted to be secured on said shafts, an indicating-scroll wound on said reels, an exhibiting-glass in front of said reels, and roll-

ers mounted in said frame in proximity to said glass, over which the scroll passes, a projection from the side of the track on which the car travels, a catch for holding the scroll in inactivity, a projection from the car adapted to engage the aforesaid projection to release the catch, and suitable means for winding the scroll on the reels, substantially as set forth.

4. In a street and station indicator for railway-cars, the combination of the frame, shafts 32 journaled therein, reels 23, mounted on said shafts, a spring for actuating said reels, a stop to limit the movement of said reels, a projection from the side of the track on which the car travels, and a projection from the car adapted to engage the aforesaid projection and said stop, substantially as set forth.

5. In a street and station indicator for railway-cars, the combination of the frame, shafts 32 39 journaled therein, reels 23, mounted on shafts 32, scroll wound upon said reels, geared connection between shaft 39 and one of shafts 32, a coiled spring fixed to the frame and to shaft 39, a stop to limit the movement of said reels, a projection from the side of the track on which the car travels, and a projection from the car adapted to engage the aforesaid projection and said stop, substantially as set forth.

6. In a street and station indicator for railway-cars, the combination of the frame, shafts 32 39 journaled therein, reels 23, provided with sleeves 34 fitting on shafts 32, a scroll wound upon said reels, gear-wheel 37 on one of said sleeves 34, cog wheel 38 on shaft 39 meshing therewith, coiled spring 40 fixed to shaft 39 and the frame, a stop to limit the movement of the indicator, a projection from the side of the track on which the car travels, and a projection from the car adapted to engage the aforesaid projection and said stop, substantially as set forth.

7. In a street and station indicator, the combination of the reels and shafts upon which they are mounted, scroll wound on said reels, disk mounted on one of said shafts having a spring-actuated dog-pawl thereon, and a pin to limit its movement, a pivoted trigger-lever adapted to engage said dog-pawl, a mainspring for winding the scroll upon the reels when the dog-pawl is disengaged, and a projection from the side of the track on which the car provided with the indicator travels, adapted to engage the trigger-lever, substantially as and for the purpose set forth.

8. In a street and station indicator, the combination of the reels and shafts upon which they are mounted, scroll wound on said reels, a pivoted lever projecting from the car provided with the indicator, devices on one of said reel shafts adapted to be automatically operated by the engagement of said lever with a projection from the side of the track upon which the car travels, and a mainspring for winding said scroll upon the reels, substantially as set forth.

SAMUEL M. FRIEDE.

In presence of—
BENJN. A. KNIGHT,
EDW. S. KNIGHT.