No. 636,732. Patented Nov. 7, 1899.

W. I. LARZELERE.

CHANGEABLE SIGN FOR STREET CAR PURPOSES.

(No Model.) (Application filed Dec. 24, 1898.) 2 Sheets—Sheet 1.

Fig. 1.

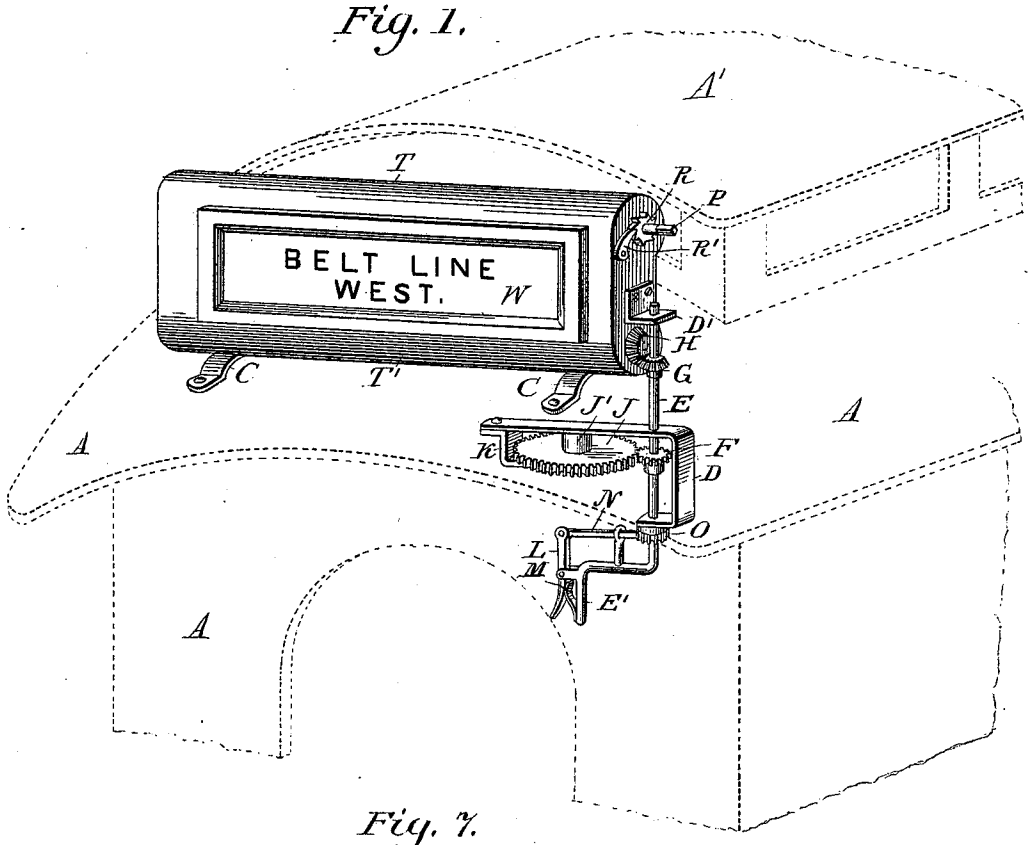


Fig. 7.

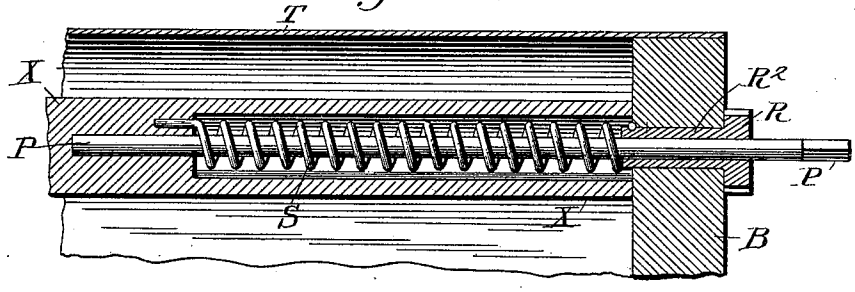
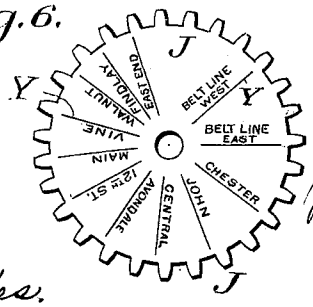


Fig. 6.



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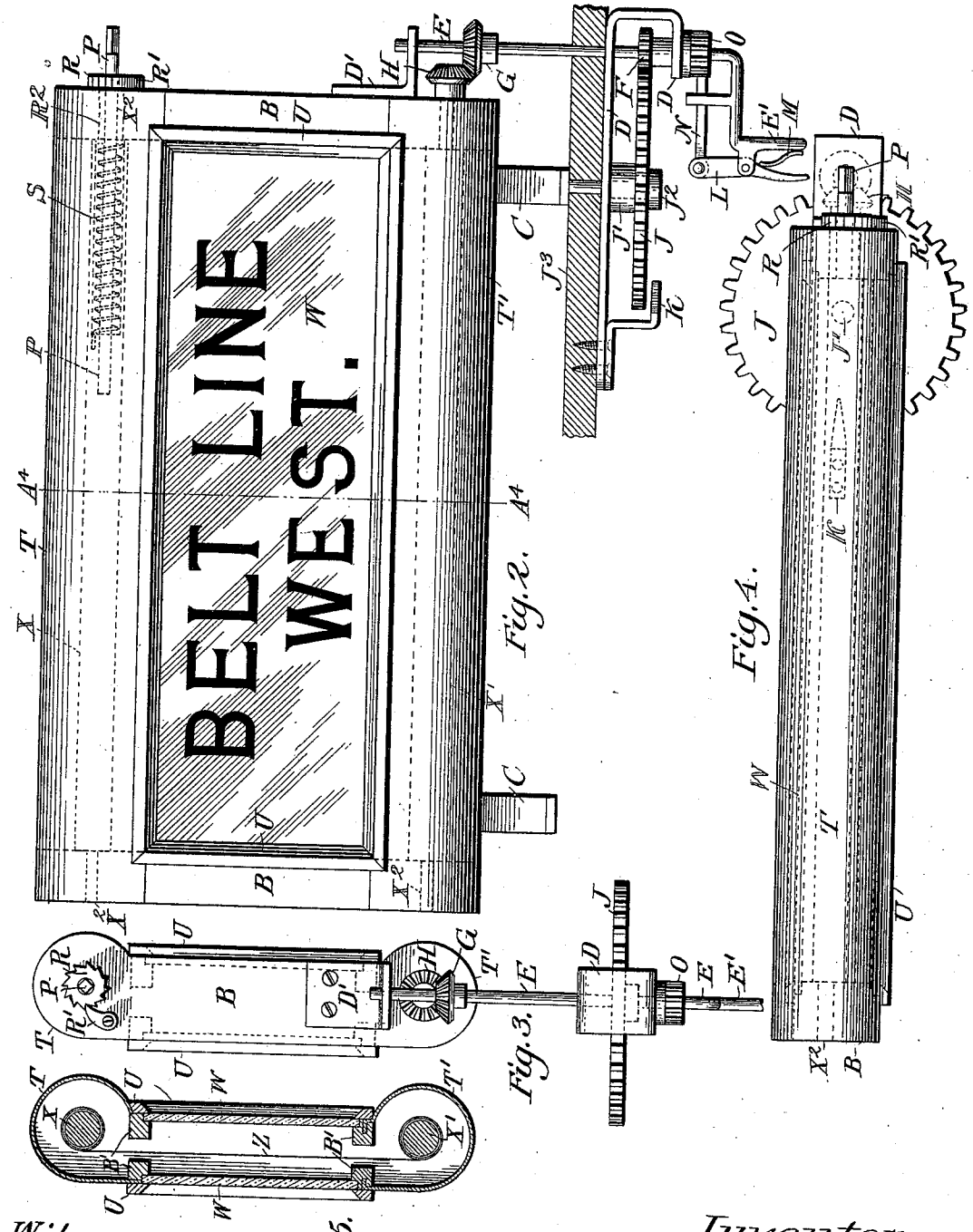


Fig. 2.

Fig. 3.

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE.

WASHINGTON IRVING LARZELERE, OF CINCINNATI, OHIO.

CHANGEABLE SIGN FOR STREET-CAR PURPOSES.

SPECIFICATION forming part of Letters Patent No. 636,732, dated November 7, 1899.

Application filed December 24, 1898. Serial No. 700,264. (No model.)

To all whom it may concern:

Be it known that I, WASHINGTON IRVING LARZELERE, a citizen of the United States, residing in the city of Cincinnati, county of Hamilton, State of Ohio, have invented a new and useful Improvement in Changeable Signs for Street-Car Purposes, of which the following is a specification.

My invention relates to improvements in signs placed on the roof of a car on the outside and used to show plainly the route the car is going both day and night and is primarily an improvement on Patent No. 586,775 for a "Lantern and illuminated sign for street-cars," dated July 20, 1897, granted to me, and the principal part of which patent is used in connection with this invention.

The object of this invention is to so construct a sign placed on the car-roof that the reading matter or lettering may be readily changed by the motorman or conductor without leaving the car and to so place an indicator that is automatically operated by the same mechanism that operates the sign that the motorman or conductor can easily see what particular reading the sign on the roof shows. I attain these objects by the mechanisms illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the whole sign and operating mechanism affixed to a street-car roof. Fig. 2 is a front elevation of my sign, showing the operating mechanism, indicator-disk, and the mechanism used for operating the indicator-disk simultaneously with the sign above it. Fig. 3 is an end view, and Fig. 4 a plan view, of my sign; Fig. 5, a section on line A^4 A^4 of Fig. 2, showing the peculiar construction of the frame, the positions of the winding-rollers, the means used to protect the sign from wet or bad weather by means of the sheet-metal hoods over the winding-rollers, and the two plates of glass, one on each side of the sign. Fig. 6 is the bottom or sight side of the indicator-disk, showing the peculiar irregular spacing made for the lettering of the same to correspond with the sign above and to compensate for the increasing and decreasing diameter of the winding-rollers in the sign. Fig. 7 is a section of the end of top winding-roller, showing the spring to automatically wind up the sign and the means used to give more or less tension to said spring from the outside of sign-frame.

Similar letters refer to similar parts throughout the several views.

The letters A A', Fig. 1, show the front or rear end of a street-car in dotted lines, on which is fixed by suitable means my improved changeable sign and on the under side of which are the operating mechanisms and indicator-disk J. In connection with this sign I use my improved lantern in the same position and for the same purpose as described by me in my previous patent mentioned herewith and a description of which will not be needed in this specification.

The sign Z is made of cloth or other suitable pliable material, on which is printed the lettering required. This is mounted on rollers X and X', placed at the top and bottom of a peculiarly-constructed frame, the top roller being fitted at one end with the well-known spring-retarding and reverse-winding device so long used on window-curtains, but to which is fixed my arrangement to give the spring more or less tension, as may be required, from the outside of the frame instead of being obliged to lift the roller out of its bearings to do so, as is usual when it is used for window-curtains. I accomplish this by making a long hub R^2 on the ratchet-wheel R. This hub extends through the side of the frame and to the inside end of which the spring S is fastened. The other end of the spring S is fastened to the roller X. Through the long hub of the ratchet-wheel is made a hole, through which extends the shaft P of the roller X, the shaft P being rigidly secured in the hole relatively to the hub and ratchet. The inner end of the shaft is rotatably seated in the roller, so that it can be turned relatively thereto to give more or less tension to the spring. The outer end of this shaft is made square for the purpose of putting thereon a key or wrench to wind the same, when by lifting the pawl R', pivoted to the frame, more or less tension can be put on the spring S, and by letting the pawl drop into the notch of the ratchet-wheel this tension can be retained and also the added tension caused by the unwinding of the sign-curtain, and this

added tension is used not only to keep the curtain taut, but to make the reverse wind of the sign-curtain.

X′ is the bottom winding-roller for the sign-curtain Z, the shaft on one end of this roller X′ extending far enough through frame B to receive miter gear-wheel H, working into miter gear-wheel G on operating-rod E. This operating-rod E is held at one end by a suitable lug or bracket D′, fastened to frame B, and extends through the roof of the car. The operating-rod E is held in place below by means of another bracket D, fastened to the under side of the car-roof and preferably formed in shape to also retain operating-pinion F of indicator-disk J. This pinion F is fixed to operating-rod E and by means of its teeth or cogs transmits the required rotative motion to disk J to bring to the indicator-finger K the name shown in the sign above, the disk J being so lined as to compensate for the increased or decreased diameter of the winding-roller X′ as the sign-curtain Z rolls on it and the consequent increase or decrease of movement by this means.

The curtain-holding frame B is so constructed as to be weather-tight and is preferably made as shown. The ends are made with semicircular top and bottom parts, and to them are fitted the four top and bottom cross-rails B′, and through the opening between these rails freely passes the sign-curtain Z. Into recesses made in the frame B are the sheets of glass W, held in place by strips U, thereby giving an unobstructed view to the sign in the day or by night when the lantern is used to throw light on the rear of the sign. The sheets of glass also keep out rain, dust, or snow and prevent vibration or tearing of the sign by winds. On the top and bottom of the frame B and extending longitudinally across the frame B are covers T and T′, preferably made of sheet tin or iron and so fastened to the frame B as to keep out all rain, moisture, or dust that might injure the sign-curtain or its rollers.

I mount the curtain-holding frame B at the front or rear end of the car-roof, disconnected from the interior of the car, so as to bring the lettering to the most advantageous position for observation by the probable passenger and that it may be seen at a great distance, but constructed and arranged to be capable of illumination from the rays projected from the interior of the car, as described, so as to make the lettering plainly visible at night. For this purpose the curtain is made of translucent flexible material and provided with lettering which will be visible during the day as well as during the night when the rays of light are projected through the curtain and the glass at either side thereof.

The lower end of operating-rod E is formed into suitable shape to form crank-handle E′, and connected to it by suitable projection is spring-handle L, to the upper end of which is fastened by a pin the stop-rod N, the end of which works into the notches formed in the ratchet-plate O. This plate O is securely fastened from rotation to the bracket D. The object attained by this mechanism is that by grasping the crank-handle E′ and the spring-handle L together the stop-rod N is moved out of connection with notched ratchet-plate O, and by turning the crank the sign-curtain will be wound onto roller X′, or, to turn the reverse way, the sign-curtain will by means of the spring S be wound onto roller X, when by releasing crank-handle E′, and consequently spring-handle L, the stop-rod N will be forced by the action of the spring M to catch into a notch in ratchet-plate O, thereby stopping the rotation of the operating-rod E and securely holding sign-curtain and indicator-disk in the required position to show the sign wanted in the frame B.

The lettering of the sign appears above the roof of the car out of the view of the motorman or other manipulator of the signs, the sign facing in the same direction that the motorman faces when operating the car. I therefore make convenient connection, as already described, between the rollers for winding up the sign-curtain, and an indicator and operating device located in a protected position in the motorman's compartment within convenient view and easy reach of the motorman for changing the various signs on the sign-curtain with relation to the "sight," so that the motor man may without changing his position roll or unroll the sign-curtain to either a greater or less extent, so as to bring any desired name or figure to view at the sight of the signs, the exposed point being indicated to the motorman on the indicator-disk without change of his position.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination of a flexible sign-curtain, rolling on rollers placed top and bottom of same, located out of manual reach of the operator, one of the rollers operated by suitable mechanism from crank-handle within manual reach of the operator, the other roller operated by spring mechanism, and a rotatable irregularly-spaced indicator adjacent to the position of the operator operated by suitable gearing from the crank-handle shaft, substantially as described.

2. The combination of a flexible sign-curtain, rolling on rollers placed top and bottom of same, located out of manual reach of the operator, one of the rollers operated by suitable mechanism from the crank-handle within manual reach of the operator, the other roller operated by spring mechanism, and a rotatable irregularly-spaced indicator adjacent to the position of the operator operated by suitable gearing from the crank-handle shaft, and a releasable stop for positively arresting the rotation of the indicator at any point in its revolution desired, operated from the crank-handle position, substantially as described.

3. The combination of a case stationarily secured to the outside of a car, a flexible sign-curtain, a roller mounted in the top and a roller mounted in the bottom of the case and having the ends of the sign-curtain secured thereto respectively, with the curtain rolled about and spanned between the rollers, a sheet of glass or similar device on each side of the spanned portion of the curtain, spring mechanism acting to roll the curtain about one of the rollers, a shaft extending to the operator's compartment and operating to rotate the other roller against the tension of the spring under positive control of the operator for any change in the sign forward or backward as desired, a rotatable indicator in the operator's compartment simultaneously operated with the latter roller, names on the sign-curtain and corresponding names for the indicator, the names being relatively spaced for the increasing or diminishing diameter of the rollers, with a stop for the shaft under positive control of the operator from his compartment to arrest the rotation of the roller at regular or irregular intervals, substantially as described.

4. The combination of a stationary case, stationarily attached to the outside of the roof of a car and disconnected from the interior of the car, a sign-curtain roller rotatably mounted in the top and a sign-curtain roller rotatably mounted in the bottom of the case, a flexible sign-curtain attached at its ends to the rollers respectively, a sheet of glass or similar device mounted in each side of the case and on each side of the sign-curtain and constructed and arranged for permitting the passage of rays of light therethrough and through the curtain, spring-operating mechanism connecting with one of the rollers, and manually-operative mechanism connecting with the other and operating against the continuing tension of the spring and constructed and arranged for passing the flexible sign-curtain between the sheets of glass under the positive control of the operator for any change in the sign forward or backward as desired, and communicating with the operator's compartment under the car-roof, and a positive stop mechanism in the operator's compartment under the direct control of the operator for positively arresting the passage of the sign-curtain at regular or irregular intervals against the tension of the spring, substantially as described.

5. The combination of a stationary case, stationarily attached to the outside of the roof of a street-car near its end and disconnected from the interior of the car, a sign-curtain roller rotatably mounted in the top and a sign-curtain roller rotatably mounted in the bottom of the case, a flexible sign-curtain rolling on and attached at its ends to the rollers respectively and spanned between them, signs on the curtain, a sheet of glass or similar device mounted in each side of the case and on each side of the spanned portion of the sign-curtain to bring the flexible sign-curtain and the sheet of glass on either side thereof in juxtaposition, and constructed and arranged for exposing the sign on the curtain through the forward sheet of glass during the daytime and permitting the rays of light from the interior of the car to penetrate the sign-curtain and both the sheets of glass at night to expose the sign on the curtain, substantially as described.

6. The combination of a stationary case, stationarily attached to a car, a spring-operated roller and a manually-operated roller journaled in the case, with the shaft E connecting with the manually-operated roller, a flexible sign-curtain rolling on and attached at its ends to the rollers and spanned between the same, an opening in the case for bringing the signs on the curtain to view, a bearing for the operating-shaft on the case and on the car respectively, the rotatable indicator-disk J operated by the shaft, names or figures on the sign-curtain and corresponding names or figures on the indicator-disk irregularly spaced to compensate for the increasing or decreasing diameter of the manually-operated roll as the curtain is wound or unwound, and an index-finger for the indicator-disk to indicate on the disk the name which appears to view in the case, substantially as described.

7. The combination of a stationary case, stationarily attached to a car, a spring-operated roller and a manually-operated roller journaled in the case, with the shaft E connecting with the manually-operated roller, a flexible sign-curtain attached at its ends to the rollers and arranged to roll thereon and spanned between the same, an opening in the case for bringing the signs on the curtain to view, bearings for the operating-shaft on the case and on the car respectively, the rotatable indicator-disk J operated from the shaft, names or figures on the sign-curtain, and corresponding names or figures on the indicator-disk irregularly spaced to compensate for the increasing or decreasing diameter of the manually-operated roller as the curtain is wound or unwound, an index-finger for the indicator-disk to indicate on the disk the name which appears to view in the case, the crank-handle E′, the stationary ratchet-plate O, and the stop-rod N connecting therewith and operated from the spring-handle L, constructed and arranged substantially as and for the purpose specified.

8. The combination of a flexible sign-curtain, with a frame having its two ends formed of single pieces of material, and its top and bottom rails formed of two separate pieces of material, through the opening of which the sign-curtain passes, a plate-glass on each side of said sign-curtain, a spring-operated roller at the top and a power-operated roller at the bottom to which the curtain is secured, sheet tin or iron covers for each of the rollers, in the form of hoods to shed the rain, and closely joined with the frame at all its edges to ex-

clude the rain for use on outside roof of the car in all weathers, both day and night, and suitable operating mechanism extending from the power-operated roller, and stop mechanism therefor, as herein set forth and described.

9. The combination of a frame, revolving curtain-rollers one roller operated by crank mechanism, and one set in motion by a spring-power, the ratchet R for the spring-operated roller having a long hub R^2 rotatably mounted in the side of the frame, the spring S, attached at one end to the hub and at its other to the roller, and the shaft P seated rotatably in the roller and relatively stationary to the ratchet and extending from the hub into the roller, and a key-seat for turning the shaft and ratchet on the outside of the frame, with a pawl pivoted to the frame for engaging the ratchet, constructed and arranged for putting more or less tension on the spring in the roller, without having to take the roller out of its bearings to do so, as herein described.

WASHINGTON IRVING LARZELERE.

Witnesses:
R. C. CAMPBELL,
H. SEYFFER.