(No Model.) 2 Sheets—Sheet 1.

S. N. ASHMORE.

STATION INDICATOR.

No. 525,755. Patented Sept. 11, 1894.

Fig. 2.

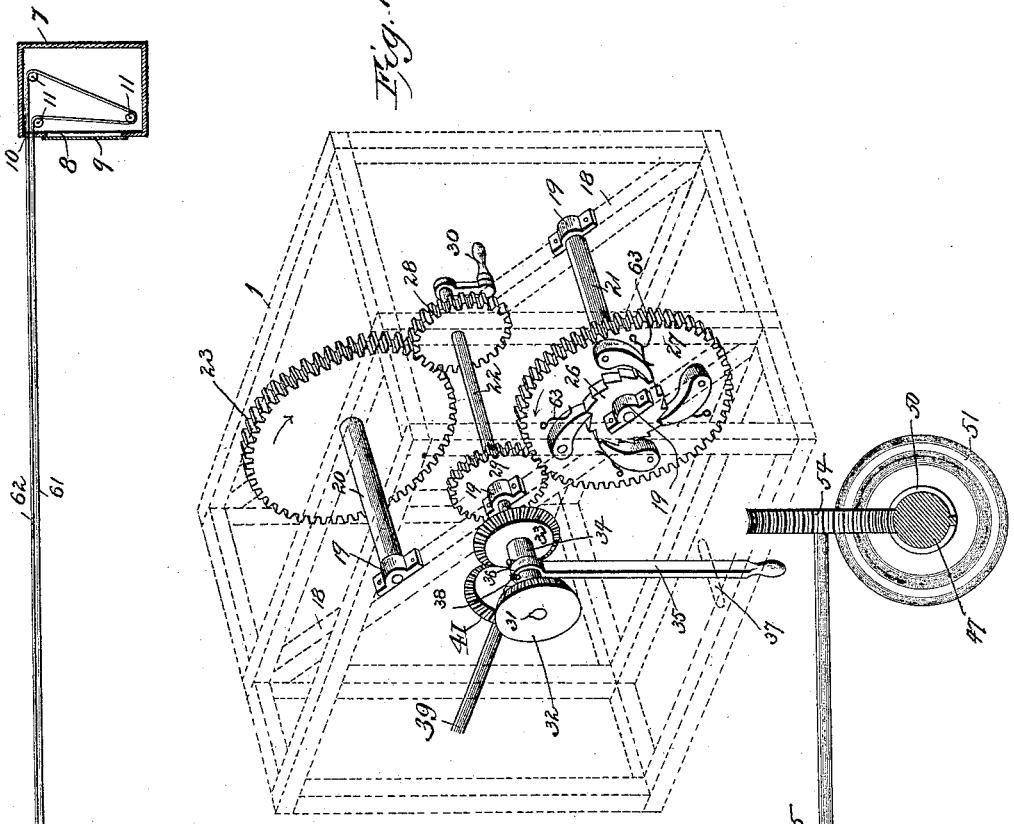
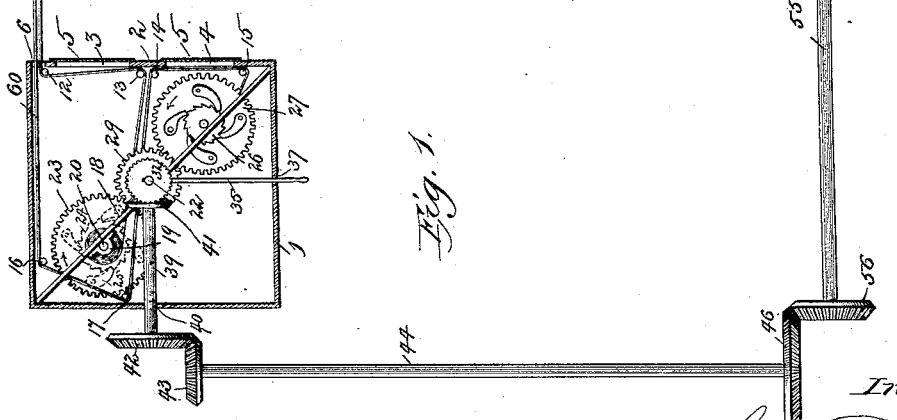


Fig. 1.



Witnesses:
John Enders Jr.
W. J. Dankey

Inventor
Stephen N. Ashmore,
by
Higdon Higdon & Longan
Att'ys.

(No Model.)

2 Sheets—Sheet 2.

S. N. ASHMORE.

STATION INDICATOR.

No. 525,755. Patented Sept. 11, 1894.

Fig. 3.

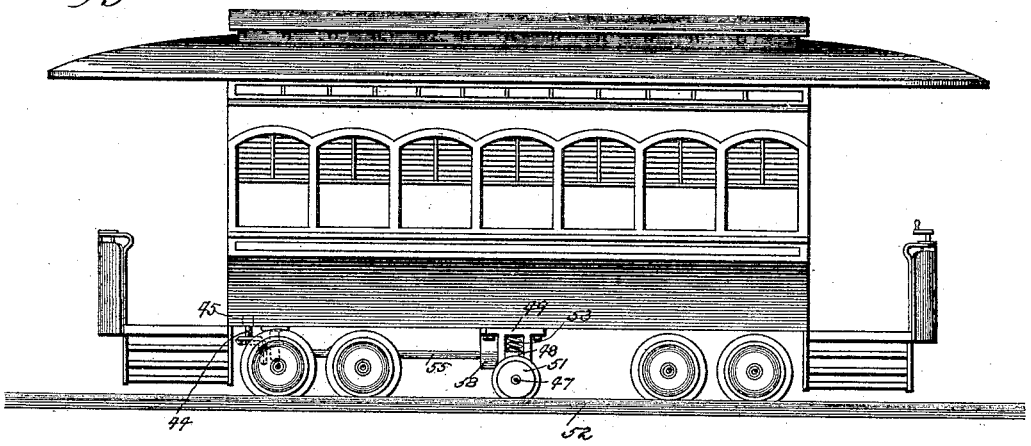


Fig. 4.

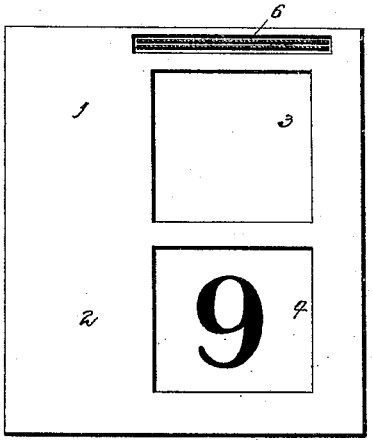


Fig. 5.

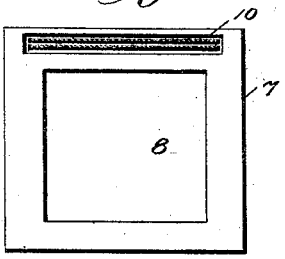
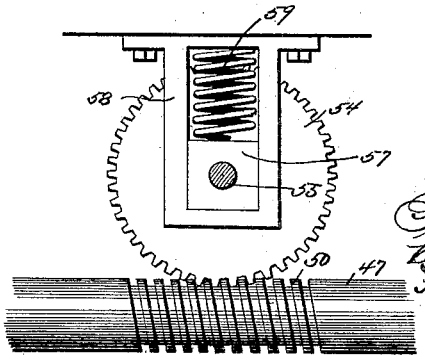


Fig. 6.



Witnesses:
John Enders Jr.
W. J. Sankey.

Inventor
Stephen N. Ashmore
by Higdon Higdon Kongan
Attys.

UNITED STATES PATENT OFFICE.

STEPHEN N. ASHMORE, OF ST. LOUIS, MISSOURI.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 525,755, dated September 11, 1894.

Application filed July 10, 1893. Serial No. 479,990. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN N. ASHMORE, of St. Louis, State of Missouri, have invented certain new and useful Improvements in Station-Indicators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improved station indicator, and consists in the novel construction, combination and arrangement of parts as will be more fully hereinafter described and designated in the claims.

My invention has for its object to provide what may be termed a duplex automatic street or station indicator, constructed to automatically exhibit the names of streets or stations in both ends of the car to which it is attached, or at two separate and distinct points upon the car.

In the drawings: Figure 1 is a side elevation of my invention, removed from the car. Fig. 2 is a perspective view of a box in dotted lines, and the mechanism for moving the apron. Fig. 3 is a side elevation of a street car having my invention applied thereto. Fig. 4 is a front elevation of a casing made use of. Fig. 5 is a similar view of another casing made use of. Fig. 6 is a detail view of a portion of the gear which is attached to the under side of the car.

1 indicates a casing or box, preferably rectangular in contour, and which is to be fixed in position within the car at a point at or adjacent one end thereof, and preferably just above the top of the end door thereof. This casing has a front face 2 which is provided with two sight apertures 3 and 4 respectively, which are formed therein one above the other and in vertical alignment, and each aperture is preferably provided with a glass face 5. An apron-slot 6 is also formed in the front face of the casing 1 and extends horizontally just above the upper sight aperture 3 thereof. The sight apertures of this casing preferably face toward the opposite end of the car, so as to be readily observable by the passengers in the car.

7 indicates another casing, which is preferably rectangular in contour, but of smaller dimensions than the casing 1, and is located preferably in the car a distance from the larger casing, say in the opposite end of the car therefrom and just above the door of the opposite end of the car, so that its upper side will be in horizontal alignment with the upper side of said larger casing 1. The smaller casing is provided with a single sight aperture 8 having a glass face 9, and a single horizontal apron slot 10 is formed in the face of this casing just above said sight aperture thereof, and in horizontal alignment with the apron slot of the larger casing at the opposite end of the car. Mounted to revolve within the smaller casing 7 are three horizontal rolls 11, two of which are located closely adjacent the front face of said casing so as to extend across the same, one directly beneath the other. One of these rolls is located with its periphery about in horizontal alignment with the lower edge of the apron slot 10, and another is located a distance in the rear of this one and with its periphery in a plane a little above the periphery of the roll just mentioned. A series of similar rolls 12, 13, 14, 15, 16 and 17 are mounted to revolve in the larger casing 1. The roll 12 is located so that its periphery is a little above the plane of the lower edge of said sight aperture 6. The roll 16 is located adjacent the rear side of the casing with its periphery located in a plane a little above the periphery of the roll 12. The roll 13 is located just beneath the roll 12 and just beneath the lower edge of the sight opening 3 while the roll 14 is located just beneath and in vertical alignment with the roll 13 and just above the upper edge of the sight aperture 4, and the roll 15 is located just below the roll 14 in vertical alignment therewith and a distance below the lower edge of said sight aperture 4, while the roll 17 is located adjacent the rear side of the box in a plane slightly above that in which the rolls 13 and 14 are located, and a distance in the rear of the roll 16.

18 indicates two parallel frame-bars, which extend diagonally from the front lower corners of the casing 1 to the upper rear corners of same, and mounted upon these bars in suitable bearings or boxes 19 are two apron rolls 20 and 21 and a shaft 22. Mounted to turn loosely upon the apron-roll 20, which is located in the upper portion of the casing 1, is a gear wheel 23, and fixed upon said roll

to revolve therewith is a ratchet wheel 24 upon the outside of said wheel, and pivotally mounted upon this side of this wheel and arranged radially thereon, are a series of pawls 25 which engage the teeth of said ratchet wheel at different points in its periphery, so relatively arranged with respect to said teeth that while one of said pawls engages one tooth, one or more of said pawls simply rest upon the outer surface of other teeth without offering such resistance to the same as will prevent said wheel from turning, or moving, a slight distance. This construction is indicated by dotted lines in Fig. 1, and a similar construction is more fully shown in Fig. 2.

Fixed upon the roll 21 adjacent its end which is opposite the end of the roll 20 upon which the ratchet wheel 24 is fixed, is a similar ratchet wheel 26, the teeth of which project in a direction opposite that in which the teeth of said wheel 24 project, and mounted loosely to revolve upon said roll 21 with its outer face in contact with said ratchet wheel 26 is another gear-wheel 27 which is identical in construction to the gear-wheel 23.

Pivotally mounted upon the outer face of the gear wheel 27 and arranged radially thereon so as to engage the teeth of the ratchet-wheel 26, is a series of pawls identical with those which engage the teeth of the wheel 24, so that said wheel will be free to revolve upon said roll 21 in the direction indicated by the arrow.

Fixed upon the shaft 22 are two pinions 28 and 29 the teeth of one of which mesh with the teeth of the gear wheel 23 and the teeth of the other one of which mesh with the teeth of the gear wheel 27. Both ends of this shaft project a distance beyond and outside of its bearings, and fixed upon one of said projecting ends is a hand crank 30, which is preferably accessible from the exterior of said casing, and feathered upon the opposite end of said shaft by means of an ordinary feather 31 are two bevel gears 32 and 33. These gears have their faces opposite, and are connected by means of a sleeve 34, which is also mounted upon said projecting portion of said shaft. The gears 32 and 33 are moved simultaneously lengthwise of said shaft by means of a hand lever or handle 35, which has an eye or fork 36 at its upper end encircling said sleeve, and which projects downward through a transverse slot 37 in the bottom of said casing so that its lower end is accessible from the exterior of the casing. Small pins 38 are located one upon either side of the eye 36 of this lever so as to be engaged thereby to slide the sleeve and gears. These pins are fixed to project from the outer surface of said sleeve.

39 indicates a short horizontal shaft which is provided with suitable bearings such as 40 and mounted to revolve with one of its ends projecting within said casing and the other end projecting upon the exterior thereof. The inner end of this shaft 39 is provided with a bevel gear 41, the teeth of which are adapted to be engaged by either the teeth of the gear 32 or gear 33 of the shaft 22 for a purpose hereinafter mentioned. Fixed upon the outer end of the shaft 39 is a bevel gear 42 meshing with the teeth of the bevel gear 43 fixed upon the upper end of a long vertical shaft 44. The shaft 44 is provided with suitable bearings such as 45 upon the car and extends downward so that its lower end projects beneath the bottom of the car, and is thereat provided with a bevel gear 46.

47 indicates a worm-shaft, which has a suitable and secure bearing in a vertically sliding block 48, which in turn is mounted to slide vertically in a bracket 49 depending from the under portion of the car. This worm shaft is provided with a worm 50, and has fixed upon it what I will term a small traction-wheel 51, the tread of which is of the same construction as that of a common car-wheel, and this wheel engages the tread of the rail 52, and acts in the manner hereinafter stated. A coiled spring 53 is mounted upon the upper side of the slot 48, so that its upper end will engage some portion of the bracket 49 or of the car, to exert a continuous downward pressure upon said block. A special traction wheel is thus yieldingly mounted.

54 indicates a worm-wheel, which is mounted upon the inner end of a long horizontal shaft 55, and the teeth of which properly engage the worm 50 at all times. This shaft is provided with suitable bearings, so that it extends horizontally beneath the cars, and its outer end is provided with a bevel-gear 56, the teeth of which engage the teeth of the bevel-gear 46 upon the lower end of the vertical shaft 44. The inner end of the shaft 55 is mounted to yield up and down, it being mounted in a block 57, which slides up and down in a bracket 58, fixed to the under side of the car adjacent the bracket 49, and a spiral spring 59 has its lower end bearing upon said block and its upper end engaging some fixed portion of the bracket or car, so as to always exert a downward pressure upon said block.

60 indicates an apron of flexible material, having upon each of its sides in inverse order and fixed at stated distances apart thereon, the names or marks indicating in consecutive order the names or numbers of the streets or stations over or past which the car travels. One end of this apron is glued or otherwise fixed to the apron-roll 20 within a casing, and said apron is adapted to be wound thereupon in a direction the same as that indicated by the arrow marked upon the gear-wheel 23, and the opposite end of which is glued or otherwise fixed upon the apron-roll 21 within the same casing, and said apron is adapted to be wound upon said roll in such a direction as will unwind the apron from the roll 20, when said roll 21 is turned in a direction opposite that indicated by the arrow

marked upon the gear-wheel 27, the arrangement being such that when the roll 20 is revolved in one direction, said apron will be wound thereon and unwound from the other roll 21.

The operation is as follows: From the apron roll 20 the apron passes direct to the horizontal roll 13, and thence upward over the roll 12, and thence out through the apron-slot 6 in the casing 1 and thence in a horizontal line with its face parallel with the floor of the car and across the intervening space of the interior of the car to the slot 10 of the smaller casing 7, into said casing and over the roll next adjacent said slot, thence again downward in a vertical line substantially parallel to the glass face 9 of said casing, thence under the roll 11 in the lower portion of said casing, and thence upward in a diagonal line and over the roll 11 in the rear of the said casing, and thence outward through said slot again and thence in a horizontal line directly above and parallel with its under fold just described, to the slot 6 of the first mentioned casing, thence through said slot and over the roll 16, thence downward to and under the roll 17, and thence to and over the roll 14, and thence downward in a vertical line across the lower sight aperture 4 of said casing to and under the roll 15, and thence to and under the apron roll 21. The special traction wheel 51 is preferably located as before specified, in a position about centrally of the length of the car. As the car moves in one direction, the traction wheel 51 is revolved in a corresponding direction, as is also the worm 50, the worm-wheel 54, the shaft 55, vertical shaft 44, the shaft 39, and bevel gear 41 within the casing 1. If the hand lever 35 is moved in the slot 37 outward, the gear wheels 32 and 33 are slid a corresponding distance upon the shaft 22, and the said bevel gear 33 is thrown into contact with the revolving bevel gear 41, and said shaft 22, the pinions 28 and 29, the gear-wheels 23 and 27, and one of the apron-rolls, are revolved in a corresponding direction, thereby causing the said apron to be wound upon one of said apron rolls and unwound from the other, thereby drawing said apron over the supporting-rolls in each casing, and causing the marks denoting the consecutive streets or stations to be exhibited in the rear of the sight apertures of the casings, the lower fold 61 of said apron in the space between said casings to travel in one direction, and the upper fold thereof 62 to travel in an opposite direction. The marked faces of said apron simultaneously move across opposite faces of the two separated casings, thus affording passengers in the car a view of the names of the streets or stations, whether they be facing toward one end or toward the opposite end of the car, there being thus provided practically two indicators, or a duplex indicator.

Instead of the glass faces 5 and 9, the sight apertures of the casings may be provided with opaque slides or covers, which I will denominate by these same numerals, and which may be removed and replaced, in order to prevent sight by passengers of the marked face of the apron when it is moving across said apertures with the marks in inverse order, as it does in some cases, according to the direction in which it moves.

When it is desired to reverse the movement of the apron, it may be accomplished by throwing the handle 35 in a direction in the slot 37 opposite that above described, thereby disengaging the teeth of the bevel gear 33 from the teeth of the bevel gear 41, and bringing the teeth of the bevel gear 32 into engagement with said bevel gear 41.

When it is desired to turn the shaft 22 by hand, in order to properly adjust the marks upon the apron to correspond with the names or numbers of the streets or stations which the car is approaching, this may be accomplished by so adjusting the gear-wheels 32 and 33 upon the shaft 22 that neither of them engages the bevel gear 41, and then said shaft may be turned in either direction by means of the crank 30. Small springs 63 are fixed upon the outer faces of the gear-wheels 23 and 27, one adjacent each pawl thereof, and normally hold said pawls in engagement with the teeth of the ratchet wheels 24 and 26.

When the gear wheels 23 and 27 are moved in the direction indicated by the arrows, the pawls of one of said wheels engage the teeth of their ratchet-wheel, and when said wheels are moved in an opposite direction, the pawls of the other one of said wheels engage the teeth of their ratchet-wheel, and carry said ratchet-wheels with said gear wheels and cause the apron rolls to be revolved or moved in a corresponding direction.

What I claim is—

1. An improved street or station indicator, constructed with two separate casings each having a horizontal apron-slot closely adjacent the roof of the car, and sight openings located beneath said apron-slots, in combination with a single movable apron marked upon its opposite faces and folded upon itself with its adjacent folds engaging the apron-slot of each casing and arranged to exhibit the names of streets or stations at two separate locations in the car, substantially as herein specified.

2. The improved street or station indicator, constructed with two separate casings each having a single horizontal apron-slot and containing rolls for supporting an apron, and separated a distance apart, an apron marked with the names of streets or stations and arranged to engage said rolls in each casing simultaneously, and means fixed in one of said casings for moving said apron in either direction, substantially as herein specified.

3. The improved street or station indicator, constructed with two separate casings having opposite apron slots and sight apertures therein, an indicating apron folded and arranged to simultaneously move in opposite directions

in each of said apron-slots and pass the sight apertures in each casing, means for moving and reversing the movement of said apron, and a driving-gear constructed to move said apron automatically as the car moves upon the track, substantially as herein specified.

4. In combination with the movable indicating-device of a street or station indicator, a worm-shaft 47, a vertical sliding block 48 in which said worm-shaft is mounted, a bracket 49 depending from the under portion of the car and in which said sliding-block is mounted, a worm on said worm-shaft, a small traction-wheel 51 separate from the common car-wheels and fixed upon said worm-shaft to engage the head of one rail of the track, a coil-spring 53 mounted upon the upper side of said block in said bracket so that its upper end will engage some fixed part of said bracket, or of the car, whereby said spring will exert a continuous downward pressure upon said block, a horizontal shaft 55 mounted beneath the car and having one end connected to the movable indicating mechanism, a worm-wheel 54 mounted upon the opposite end of said horizontal shaft so that its teeth engage said worm, and a yielding bearing for the end of said horizontal shaft upon which said worm-wheel is mounted, substantially as herein specified.

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

STEPHEN N. ASHMORE.

Witnesses:

EDWARD E. LONGAN,

JNO. C. HIGDON.