

(No Model.)

2 Sheets—Sheet 1.

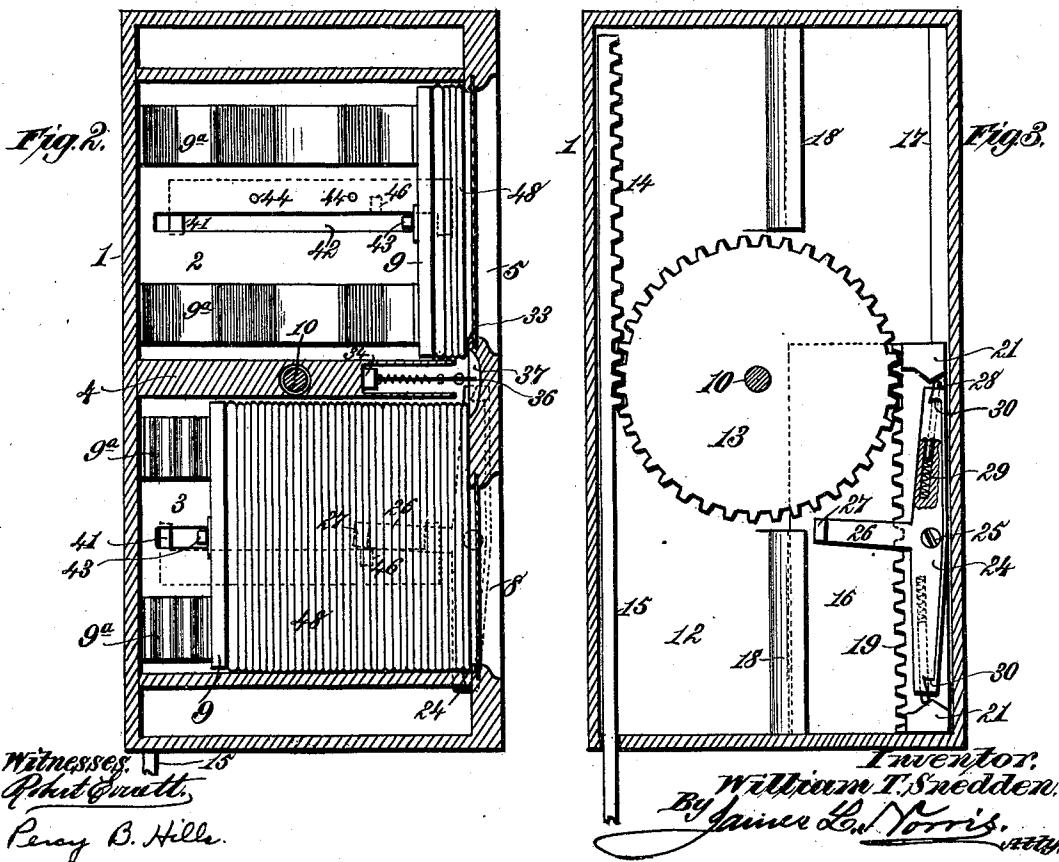
W. T. SNEDDEN.
STATION INDICATOR.

No. 416,304.

Patented Dec. 3, 1889.

Fig. 1.

4. Patented Dec. 3, 1889.



Witnesses. 15
John G. Smith,
Perry B. Hills.

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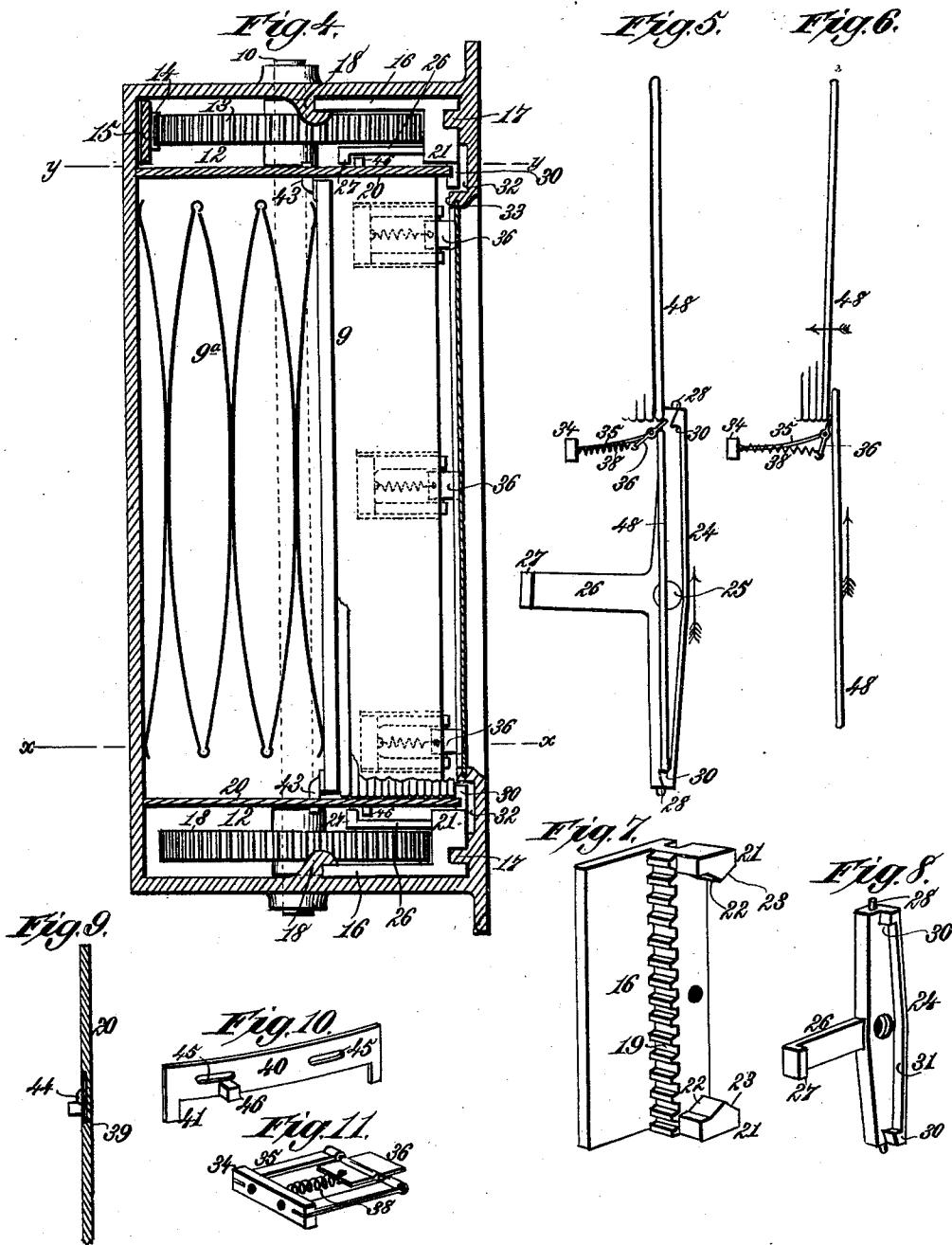
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2 Sheets—Sheet 2.

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Witnesses,
John Smith,
Perry B. Hiles.

Inventor:
William T. Snadden.
By
James Law Torris.
Attest.

UNITED STATES PATENT OFFICE.

WILLIAM T. SNEDDEN, OF WYANDOTTE, KANSAS, ASSIGNOR TO HENRY B. BERRYMAN, OF BERKELEY, CALIFORNIA.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 416,804, dated December 3, 1889.

Application filed August 30, 1888. Renewed May 23, 1889. Serial No. 311,893. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. SNEDDEN, a citizen of the United States, residing at Wyandotte, in the county of Wyandotte and State of Kansas, have invented new and useful Improvements in Station-Indicators, of which the following is a specification.

My present invention relates to station-indicators for steam and horse railways, as well as other conveyances; and the purpose thereof is to provide a simple and novel construction and combination of parts, whereby the separate cards bearing the names of the different stations or points to be indicated may be successively shifted from one compartment to another of a dual casing and then returned to the compartment from which they were taken in a reverse order of succession.

It is my purpose to render the mechanism by which this transposition is effected wholly automatic in action and to provide simple means whereby the passage of the final card in either direction shall automatically reverse the transposing devices and bring them into proper position to return the cards to the compartment from which they were originally taken.

My invention also contemplates means of a simple character for securing the insertion of the shifted cards successively in front of those previously transposed without obstruction or undue friction, whereby the proper order of stations is preserved and the indicator adapted to read in both directions of movement of the car.

It is my purpose, finally, to provide an improved form of card-indicators of this type which may be furnished at a largely-decreased cost, are more durable in use, and admit of a higher degree of ornamentation with greater economy of production than the all-metal cards frequently used upon such indicators.

In the accompanying drawings, Figure 1 is a front elevation of the casing of the indicator with the cases in place. Fig. 2 is a vertical transverse section in the line $x-x$, Fig. 4. Fig. 3 is a similar section upon the line $y-y$, Fig. 4. Fig. 4 is a horizontal section of Fig. 1 in the plane $z-z$. Fig. 5 is a detail elevation showing the action of the cards upon

the pivotally-mounted lips lying in the central partition as the card begins to rise. Fig. 6 is a similar view showing the action upon the further rise of the card. Fig. 7 is a detail perspective of one of the slides, the carrier being removed. Fig. 8 is a detail perspective of one of the carriers. Fig. 9 is a horizontal section of one of the end walls in the plane of the reversing-strip. Fig. 10 is a detail perspective of one of the reversing-strips. Fig. 11 is a detail perspective of one of the pivotally-mounted lips with its spring-support.

In the said the drawings, reference-numeral 1 designates the indicator-casing, which consists of a rectangular box divided into two substantially equal and similar compartments 2 and 3 by means of a central partition 4.

In the front wall of the casing is formed a sight-opening 5, which is adapted to display the name of the station or street, together with any advertising-matter which may be attached to the card, below the designation of the station. The lower compartment is provided with a sight-opening 8, which displays only the advertising-matter, the names of the stations being concealed by that portion of the front wall which drops below the central partition 4.

Arranged within each of the separate compartments 2 and 3 are independent followers 9, each impelled toward the front of the casing by a double series of leaf-springs 9^a, arranged at top and bottom of the follower, as shown in Fig. 2.

Arranged in an opening in the longitudinal center of the partition 4 is a shaft 10, the ends of which extend into end compartments 12 of the main casing and receive spur-gears 9^b 13, with one of which is meshed a rack 14, carried by a bar 15, which is extended downward and reciprocated at proper intervals by the actuating mechanism, which may be of any suitable character, and which, as it forms no part of my present invention, is not shown nor described in this application.

Arranged within the end compartments 12 are slides 16, having substantially an L shape in edge view and guided in their vertical movement by feathers 17 on the front wall of the compartment and by guides 18 on the

end walls. On each of these slides, at its interior angle, is formed or mounted a rack 19, which meshes with the spur-gear 13, whereby the slides are upon the revolution of the shaft 10 simultaneously carried from the lower to the upper part of the compartments within which they lie, and vice versa.

Referring now to the detail view, Fig. 7, that edge of each slide which lies adjacent to the main compartment is cut away, save at the upper and lower ends thereof, which are left to project horizontally toward the end wall 20 of the main casing, against which the projecting portions 21 nearly abut. The lower face of the upper and the upper face of the lower projection are provided with two converging cam-faces 22 and 23.

Between the projecting portions 21 upon each slide is arranged a carrier 24, mounted on a central pivot 25 and having a central rearwardly-projecting arm 26, extending at right angles with the carrier and provided at its end with an inwardly-turned lug 27. In the ends of each carrier are set pins or plungers 28, which are projected outward against the converging cam-faces by means of springs 29, arranged in sockets in the carrier behind said plungers. As the carrier is rocked upon its central pivot, these plungers move upon the cam-faces 22 and 23, and as they pass the apex between the same the outward projection of the plungers tends to retain the carrier in either of the two positions to which it may be adjusted.

The outer or lateral face of each carrier 24 is so cut away as to leave an upper and lower hook 30, connected by a thin web of metal 31. By reference to Fig. 4 it will be seen that these hooks extend beyond the projections 21 and lie in a space 32 between the forward edge of the end wall 20 and the front wall of the case, which is provided with a shallow chamber to afford said space, said hooks extending past the edges of the end walls 20 for a short distance and lying in front of the extremities of the cards as they are piled between the follower 9 and the edges 33 of the chambered front wall, against which edges they rest instead of against the glass of the sight-opening.

By operating the shaft 10 the spur-gears 13, meshing with the racks 19, will lift the two carriers or drop them, as the case may be, from one compartment to the other. By slightly inclining the carriers, so as to bring their lower hooks under the lower edge of the card lying in front, while the hooks at the upper ends are retracted, as seen in the detail view, Fig. 5, the lower hooks will engage with the edge of the card, and when the shaft 10 is operated will carry it up into the upper compartment. The place of the card thus withdrawn being immediately filled by the card in rear, which is pushed forward by the spring-actuated follower, the carriers as they rise will engage their hooks in like manner with the edge of this card in readiness

for a second shift. The carriers 24 retain the inclination by which their lower hooks are rendered operative through the action of the spring-impelled plungers 28, and as the slides 16 rise to the upper compartment the said hooks 30 will impinge upon the extreme ends of the card lying against the edges 33 of the wall, and by the yield of the plungers 28 the hooks will be pushed slightly toward the front, sliding upon the ends of the card until the lower edge is reached, when, by the elastic action of said plungers, the hooks will spring under the lower edge of the card and engage therewith.

Within chambers or recesses in the partition 4, I arrange plates 34, each having two parallel elastic arms 35, which extend toward the front. In the extremities of these arms is pivotally mounted a lip or rigid plate 36, the forward edge of which lies in a concave chamber 37 in the front wall of the casing. The elastic plates carrying the lip are firmly secured by their base 34 to a support in the chambered partition 4, and extending from said plate 34 are spiral springs 38, connected under tension to the rearwardly-projecting edge of the lip 36, which is normally held by the draft of these springs in a horizontal position. I may use a series of these devices, each member of the series having the construction described; and I have shown in this case three of such lips or plates mounted, as set forth, one at each end of the card-compartment and one in the center thereof. As the slides traverse the casing, carrying a card from one compartment to the other, the edge of said card impinging upon the lip or plate 36, just in front of its pivotal point, the spring-arms 35 are deflected somewhat, and the lip is then turned upon its bearings, its free edge rising in front of the cards lying in that compartment to which the cards are being transposed, as shown in Fig. 2. As the card which is in transit advances farther, the lower edges of the cards in the upper compartment are retracted or pressed to the rear, giving space for the entrance of the shifting card and the lips 36, forming an inclined surface over which the latter card easily slides. By mounting these lips upon the elastic plates 35, I am able to reduce the width of said lips from their pivotal points to their front edges, and they form a less angle with the moving card, which therefore slides over these lips with greater ease. When shifting the cards from the upper to the lower compartment, the action is precisely the same as that already described.

In order to render the mechanism wholly automatic, it is necessary to provide means whereby the shift or transit of the last card from either compartment to the other shall be followed by the reversal of the carriers 24, whereby the hooks acting on the cards are swung under the cam-face 23 over the same if the cards have been transposed to the upper compartment, while the hooks upon

the opposite ends of the carriers are brought into position to engage the edges of the cards successively to the empty compartment from which they have been taken.

5 In the outer faces of the end walls 20 of the casing are formed horizontal channels 39, in which lie strips 40, having at each end depending lugs 41, which cross narrow slots 42, cut through the walls 20. In these slots lie 10 the extremities of fingers 43, rigidly mounted on the followers 9 and moving therewith, the ends lying in the slots 42 moving between the lugs 41 on the strips 40 and coming in contact therewith just before the follower 15 reaches its forward and rearward limit of movement. In order that the strips 40 may have sufficient frictional contact in the channels in which they lie to prevent their accidental displacement, said strips are slightly 20 curved or bent, and when laid in the channels 39 the bend is drawn straight by screws 44, which are screwed into the end walls 20 and lie in slots 45 in the strips. Upon the outer face of each strip is formed or mounted 25 a lug or pin 46, projecting from said strip in such position that it may be brought by the longitudinal adjustment of the latter into the path of the inwardly-turned lug 27 upon the arm 26 of the carrier as the latter rises and 30 falls. The operation of these parts is such that as the upper or lower compartment is filled with cards the follower 9, as the last card but one is shifted, brings the ends of the fingers 43 in contact with the depending 35 lugs 41 on the strips 40, drawing said strips slightly toward the rear and bringing the lugs or pins 46 in the path of the ends 27 of the arms 26 as the latter rise and fall. The movement of the carriers 24 thereby tilts the 40 arms 26, throwing the upper or lower ends of the carriers toward the front and bringing the hooks upon their outer ends into position to engage the edges of the cards as they lie in the filled compartment and transfer them 45 back to the empty compartment. In each compartment a precisely similar arrangement of parts is made, the lugs 46 being so located upon the strips 40 that they are brought over under the inwardly-turned ends 27 of the 50 arms 26 upon the carriers as the last card is carried to its place. In order to provide for a sufficient movement of the strips 40 to insure the desired result, the first and last card of the series of cards may be made of an increased thickness. It will be noted that as 55 each follower 9 moves forward after the removal of the last card from in front of it the ends of the fingers 43 engage the lugs 41 upon the forward ends of the strips 40, drawing 60 the latter forward and removing the lugs 46 from the path of the inwardly-turned ends 27 of the arms 26 on the carriers until such time as the compartment has received all but the last card, whereupon the rearward movement 65 of the follower retracts the follower 40 with the result already described.

I make no claim in this case to any form of

card-holder, though I intend to form the cards of pasteboard or other material and mount them in metallic holders.

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What I claim is—

1. In a station-indicator having a dual card-compartment, a pair of vertically-moving slides actuated by spur-gears meshing with racks on said slides, carriers having hooks at 75 their ends and centrally pivoted on said slides, and spring-impelled followers in said casings, whereby said carriers may be swung upon their central pivots to bring the upper or lower hooks into action, substantially as described. 80

2. In a station-indicator having a dual card-compartment, the combination, with a pair of vertically-moving slides having racks meshing with actuating spur-gears, of carriers centrally pivoted upon said slides and provided 85 at their ends with hooks to engage the edges of the cards, spring-ejected plungers or pins in the ends of said carriers bearing upon converging cam-faces on the slides, movable strips arranged in the end walls of the casing, 90 having lugs which are brought by the movement of said strips into the path of central arms on the pivoted carriers, and spring-impelled followers in the card-compartments 95 having fingers which engage with and shift said strips in both directions, substantially as described.

3. In a station-indicator, the combination, 100 with a dual card-compartment, of slides having carriers by which the cards are transposed from one compartment to the other, spring-arms mounted in recesses or chambers in the central partition of the casing, and lips pivotally mounted upon the extremities of said arms and having their rearward edges connected to rigid supports by springs under tension, the free edges of said lips lying and turning in chambers or recesses in the front wall between the upper and lower compartment, substantially as described. 105

4. In a station-indicator, the combination, 110 with a casing having two card-compartments, of spur-gears carried by a central shaft, slides having racks meshing with said gears, carriers centrally pivoted upon said slides and having spring-plungers bearing upon converging cam-faces on the slides, strips arranged in channels in the end walls of the casing, provided with lugs crossing slots in the end walls and having outwardly-projecting lugs, and spring-impelled followers having fingers moving in the slots in the end walls, whereby the outwardly-projecting lugs are brought into the path of the inwardly-turned ends of arms centrally mounted on the 120 carriers, substantially as described. 125

5. In a station-indicator, the combination, 130 with a casing having an upper and lower card-compartment, of slides moving from one to the other, spur-gears meshing with racks on said slides, carriers centrally pivoted thereon and having hooks for the cards at both ends, and spring-impelled plungers bearing upon converging cam-faces on the slides, strips hav-

ing between their ends outwardly-projecting lugs and provided at their ends with downwardly-projecting lugs which cross slots in the end walls of the casing, spring-impelled 5 followers having fingers moving in said slots and shifting the strips to bring their outwardly-projecting lugs alternately into the path of the inwardly-turned ends of arms centrally mounted on the carriers, and lips projecting 10 from the chambered partition dividing the casing and pivotally mounted on elastic arms

rigidly supported in said partition, and having spiral springs connected with the rearward edges of said lips under tension, substantially as described.

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

WM. T. SNEDDEN.

Witnesses:

JAMES L. NORRIS,
JAMES A. RUTHERFORD.