

(No Model.)

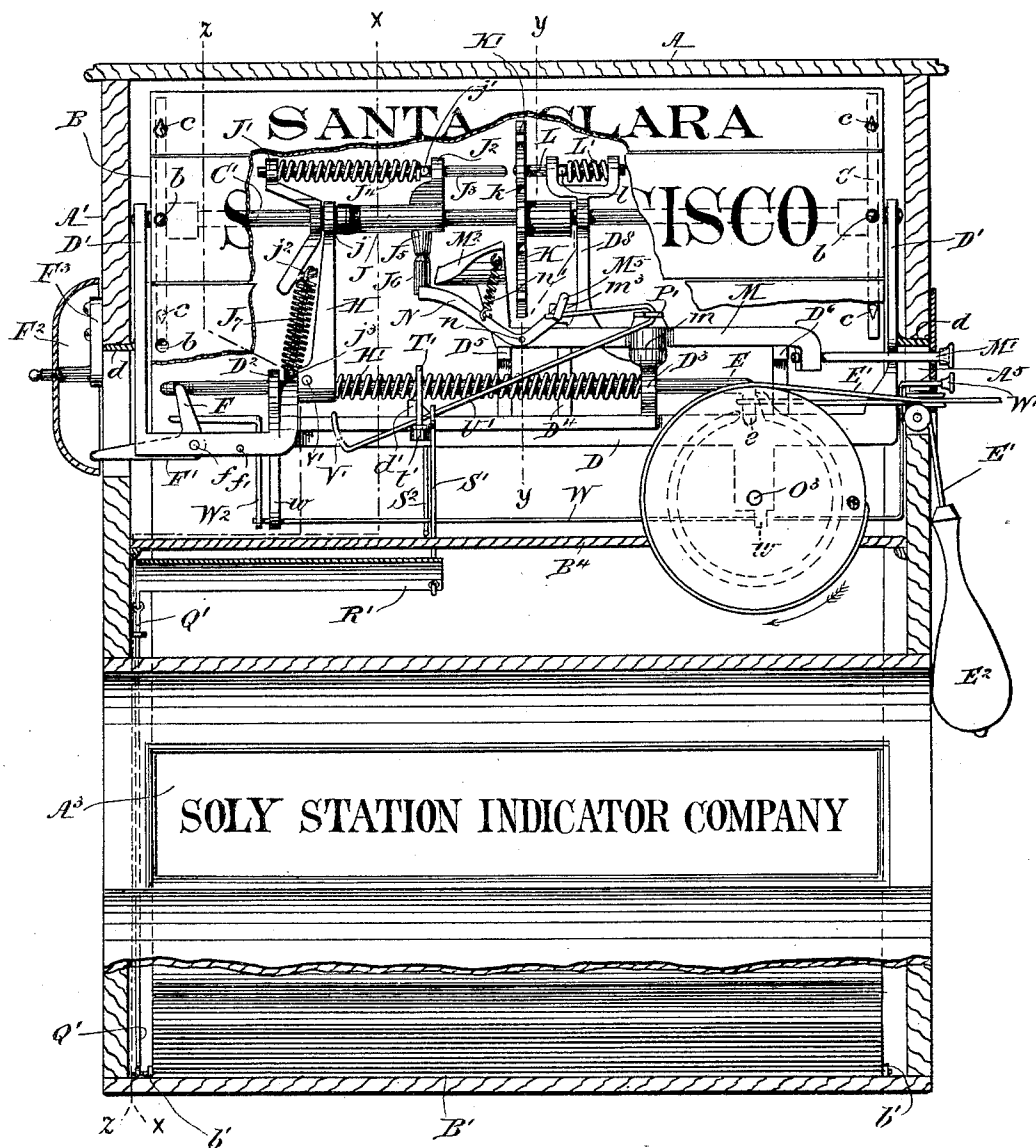
4 Sheets—Sheet 1.

I. N. & S. SOLY.
STATION INDICATOR.

No. 459,215.

Patented Sept. 8, 1891.

—Fig. 1—



Witnesses

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By their Attorney

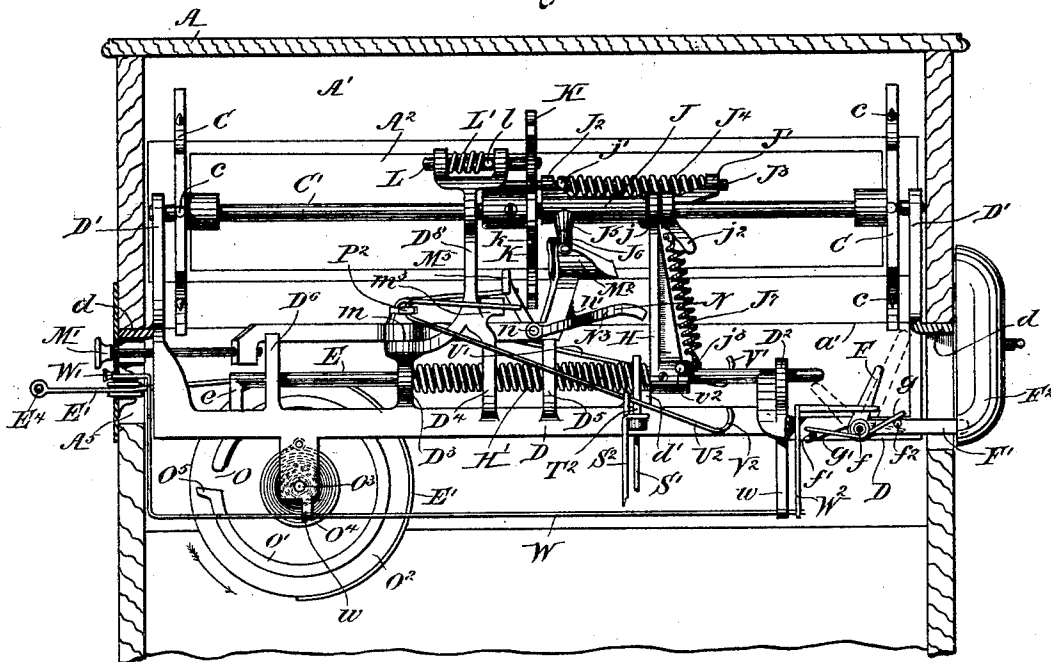
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STATION INDICATOR.

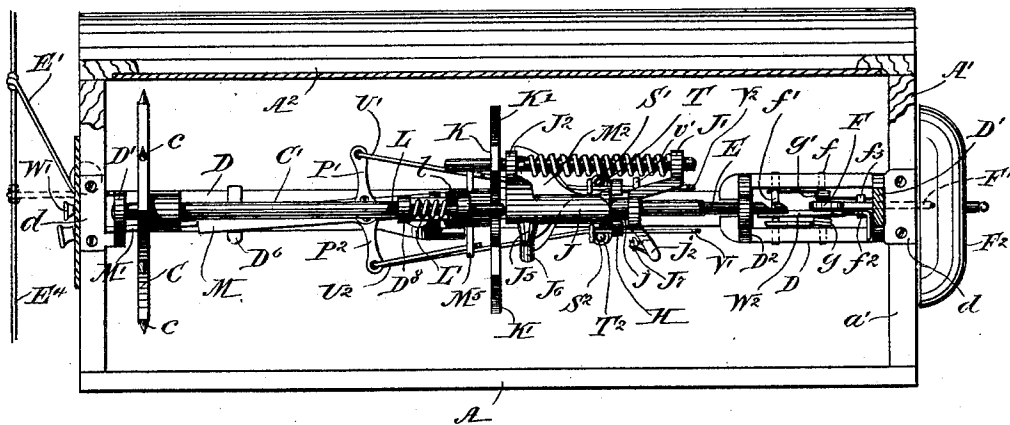
No. 459,215.

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— Fig. 2 —



— Fig. 3 —



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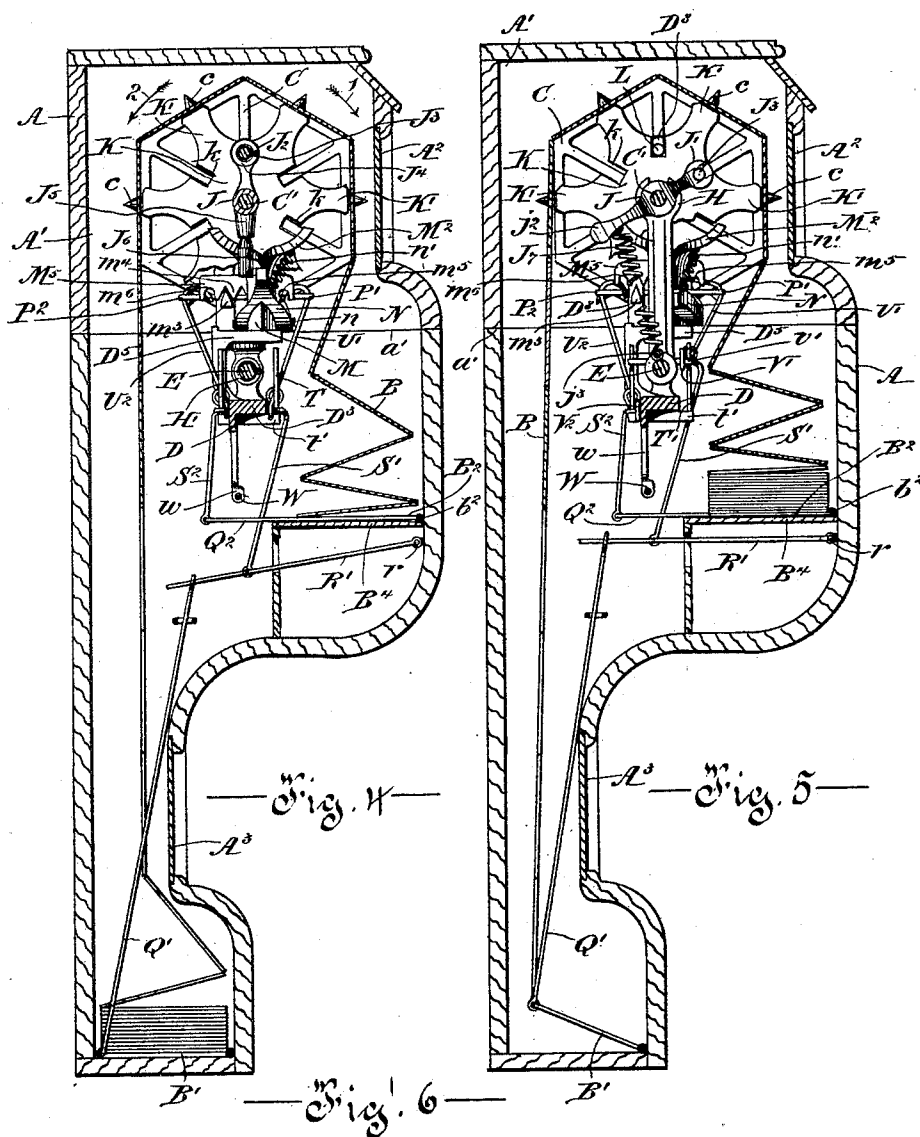
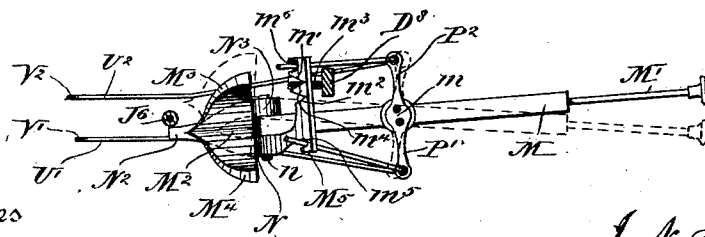
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(No Model.)

4 Sheets—Sheet 4.

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STATION INDICATOR.

No. 459,215.

Patented Sept. 8, 1891.

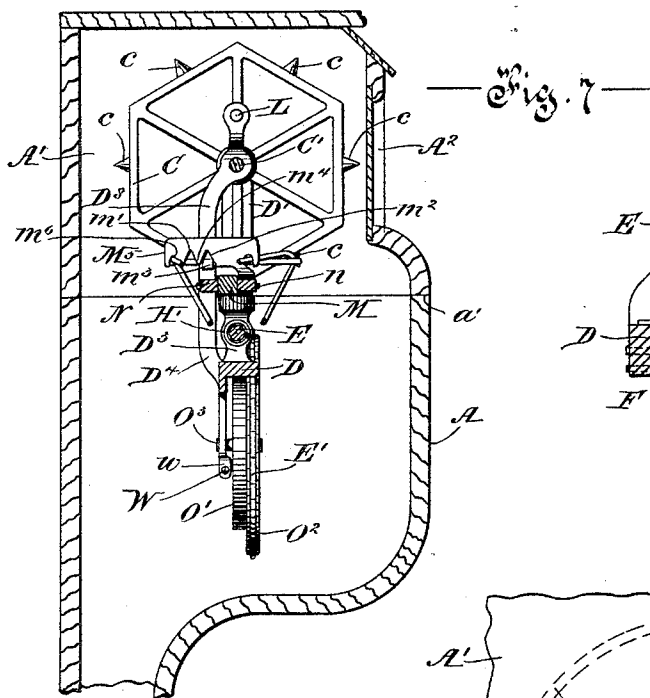


Fig. 7—

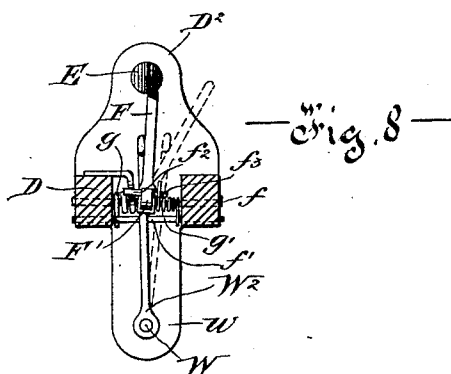


Fig. 8—

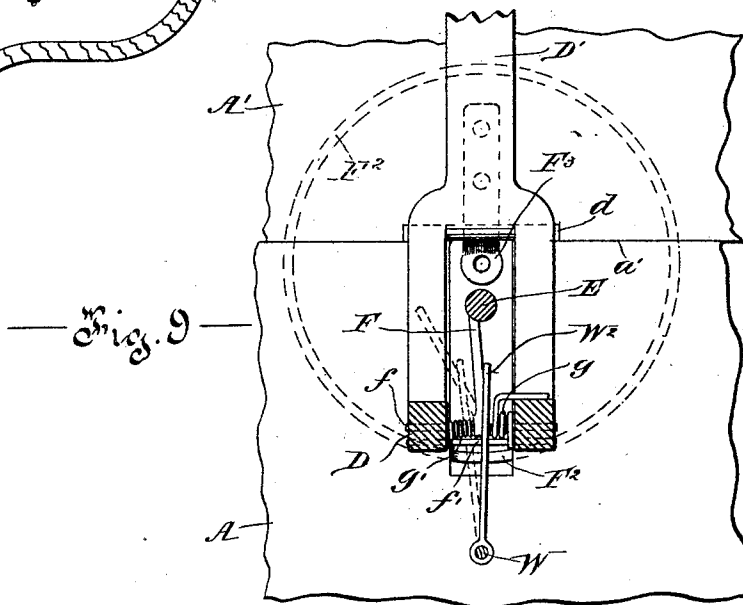


Fig. 9—

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UNITED STATES PATENT OFFICE.

IRENE N. SOLY AND SABIN SOLY, OF MONTREAL, CANADA.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 459,215, dated September 8, 1891.

Application filed November 5, 1890. Serial No. 370,366. (No model.) Patented in Canada June 23, 1890, No. 34,570.

To all whom it may concern:

Be it known that we, IRENE NAPOLEON SOLY and SABIN SOLY, both of the city of Montreal, in the District of Montreal and Province of Quebec, Canada, have invented certain new and useful Improvements in Station-Indicators, (a part of which has been patented in the Dominion of Canada on the 23d of June, 1890, under No. 34,570;) and we do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to that class of station-indicators having a shifting band bearing the station-indicating matter, its object being to secure, in addition to accurate working and the introduction of advertising-matter, an easy reversal at any point desired of the direction of travel of the band, formed in this case of a series of cards, an automatic reversal upon the movement of either of the end cards of such series, and to prevent the signaling device from sounding at certain times, as is sometimes required; and to this end it consists in the combinations of parts which will be hereinafter described, and specifically pointed out in the claims. Mechanism whereby a number of these indicators can be operated at one time is also embraced in the invention.

For full comprehension of the invention reference must be had to the annexed drawings, in which like symbols indicate corresponding parts, and wherein—

Figure 1 is a front view of the indicator, the casing being removed in parts to disclose the operating mechanism; Fig. 2, a rear elevation of such mechanism; Fig. 3, a plan view of same; Figs. 4 and 5, vertical sections of the indicator, respectively on lines xx and zz , Fig. 1; Fig. 6, a detail plan of switch mechanism adapted to secure the reverse movement of the indicator-cards; Fig. 7, a detail vertical section on line yy , Fig. 1; and Figs. 8 and 9, enlarged sectional details showing the bell-sounding mechanism from two points of view, the first looking from the casing inward and the second toward the casing.

The casing A of the indicator is in shallow box form, of a uniform width in front elevation and having its lower half diminished in cross-section, the upper half containing the

operating mechanism and having its top section A' removable (and, if desired, the back also) and the lower half forming a receptacle for the series of cards when folded in a pile at that end, A² A³ being glazed openings respectively in the top section and lower half, through which the indicating and advertising matter can be seen.

The names of the several stations are upon one side and the advertisements on the other side of separate slats or strips B, of card, tin, or other suitable material, and these are flexibly united in a band in any suitable way and each carried in turn on the teeth c of hexagonal sprocket-wheels C C, mounted rigidly on both ends of a main shaft C', such teeth c fitting slots b in the cards. This main shaft C' is located near the top of the upper half of the indicator and is mounted in suitable bearings or standards D' D', extending up from the ends of the base-plate D of a metal frame secured in place by lugs $d d$ projecting from the outer sides of the standards D' D' and screwed to the upper edge a' of the casing on which the removable top section A' rests. The main shaft C' is rotated so as to bring each of the slats B in turn opposite the openings A² A³ by mechanism now to be described.

A horizontal sliding bar E has bearings in standards D² D³, cast on the base-plate D, and to its right-hand end is secured the pull-cord E', with handle E² attached, the left-hand end being hooked to engage a trig-arm F, formed in one with the hammer F', for sounding the bell F², which is hung outside the casing on an arm F³, screwed to same, this bell mechanism being clearly shown in Figs. 2, 3, 8, and 9.

The trig F and the hammer F' together form a lever which is pivoted at f in the slotted end of the base-plate D, and on such pivot or spindle f at either side of the lever are coiled a heavy and light spring, lettered, respectively, $g g'$, each having one end bearing against a pin f' , extending across the slot of the base-plate, and the opposite end of the former being bent so as to pass first over a lug f^2 on one side of the hammer F and then to bear upon the top side of the base-plate D, while the like end of the latter g' bears beneath a similar lug f^3 on the opposite side

of the hammer F, the object of this arrangement being to normally relieve the hammer from the pressure of the heavy spring g and allow the light one g' to raise it from contact with the bell, the operation of sounding which will be described further on.

Mounted rigidly on the horizontal sliding bar E is a vertical arm H, having its upper end forked to engage an annular slot j in a sleeve or carriage J, adapted to slide on the main shaft C', and also on the bar E, between such arm H and the standard D³, a coiled spring H' is arranged to restore such bar to its normal position after it has been pulled outward to operate the indicator, as will be fully described.

In a central position on the main shaft C' is arranged a disk K, having radial arms K' and radial slots k between such arms, the function of these latter being to afford a central bearing for the slats and prevent sagging while the slots are used in the operation of turning the main shaft.

The sleeve or carriage J is located to the left of this central disk K, and carries in upwardly-projecting arms J' J² a horizontal spindle J³, encircled by a coiled spring J⁴ between a lug j' on its side and the arm J', and to the right of the disk a similar spindle L is carried in a forked standard D⁸, extended from the standard D³ and a support D⁴, which latter, together with two others D⁵ D⁶, is taken up from one side of the base-plate D out of the way of the sliding bar E, but extended horizontally inward above such bar for a purpose to be presently mentioned, the spindle L being also encircled by a coiled spring L' between a lug l on it and one end of the fork. The functions of the spindles J³ and L are respectively in turn to rotate the disk K and hold it stationary, this latter being its normal condition, and in this connection it will readily be seen that it is only necessary to insert the spindle L into either of the slots k , which is done by the spring L', to hold the disk normally still, while to rotate the same the spindle J³ is assisted by switch mechanism shown in Fig. 6 and now to be described. This switch mechanism, which acts on an arm J⁵, extending down from the carriage J and carrying a roller J⁶ on its end, consists of a horizontal lever M, pivoted at m on top of the standard D³ and having an even bearing on all the supports D⁵, D³, and D⁶, its right-hand end being provided with a handle M', which extends out through an opening A⁵ in the side of the casing, through which the pull-cord E' also passes, and its inner end being bent upward and terminating in a guide-plate M², which presents two guiding-surfaces M³ M⁴, forming courses of travel at right angles to each other for the roller J⁶, which is moved along either, according to the location of such guide-plate and locking mechanism carried by it. This locking mechanism consists of a lever N, pivoted at n to the lever M, near the inner end of the main part of same, and

having one arm N' curved upward, so that its end N² will be located immediately beneath and protrude beyond the point of divergence of the guiding-surfaces M³ M⁴ of the guide-plate M² and having its other arm also curved upward and carrying a vertical plate M⁵, which extends transversely above the lever M and has two notches m' m^2 in its bottom edge, either of which is adapted to engage with a knife-edge or beveled projection m^3 , cast in one with the standard D⁸, and so lock the guide-plate to the left or right of the roller J⁶, (looking at it in Fig. 4,) and so determining the direction of rotation of the disk K, as will be more fully explained. The arm N' of the lever N has a branch arm N³ for stability, and is connected by a spiral spring n' with the neck of the guide-plate M², and this spring serves to keep the plate M⁵ in contact with the knife-edge m^3 .

With the exception of mentioning that a coiled spring J⁷, having its ends secured, respectively, to a downwardly-projecting hook j^2 on the carriage J and a lug j^3 at the base of the arm H, is used to hold the said carriage normally in a vertical position, all the parts necessary to the ordinary operation of the indicator, with a reversal by hand at any point desired of the direction of movement of the band of cards or slats, have been described; and it will be better to explain the operation of these parts before touching upon the additional mechanism used for securing an automatic reversal and for preventing the signaling device from sounding at times.

We may point out that the end cards B' B² of the band, as shown in Figs. 4 and 5, are pivoted at b' b^2 , respectively, at the bottom of the indicator and at the rear of a shelf B⁴ in the upper half thereof, and that the sprocket-wheels C C can be turned in either of the directions indicated by the arrows 1 2, and, furthermore, as the names of the stations are on the outer or convex side of the band and the advertisements on the inner both must be seen, the former in passing the opening A² and the latter as disclosed through the opening A³.

Looking at Fig. 4, the guide-plate M² is in position to command a rotation of the disk K in the direction of arrow 1 when the pull (the length of which is determined by a stop d' on the base-plate D) through handle E² and cord E' upon the sliding bar E occurs, and this taking place such bar is moved from the position shown in Fig. 1 till the arm H, and with it the carriage J, is in the position shown in Fig. 2, the end of the spindle J³ at the start coming in contact with the end of spindle L, forcing it out of the slot k in the disk K and being in turn inserted in such slot, so that upon the roller J⁶ coming in contact with the guiding-surface M³ of the guide-plate M², which it does after such insertion, the carriage J is tilted or rotated on the shaft C' a distance determined by the spaces between the slots k , and so soon as the slot following the one in

which the spindle J^3 is engaged comes opposite the end of spindle L this latter is inserted therein by its spring and thus arrests further movement. The bell F^2 is also sounded in this operation by the hooked end of the bar E drawing the trig-arm F and hammer F' into the dotted position shown in Fig. 2, so that upon being released the heavy spring g will throw the hammer down to strike the bell and be checked from following it the whole way by coming in contact with the base-plate D , as before mentioned, and the light spring g' will instantly raise it (the hammer) from contact with the bell, so as to secure a brilliant tone.

The return of the parts just described to their normal position (shown in Figs. 1 and 4) is secured by the springs H' and J^7 , and it will readily be seen that should a reversal of the direction of travel of the band of cards be desired—i. e., to follow the arrow 2—it is only necessary to shift the switch-lever M so that the guide-plate M^2 will present its guiding-surface M^4 for the roller J^6 to travel along when the pull occurs, and the beveled tooth m^4 , which separates the notches m' m^2 in the locking-plate M^5 of lever N will, as the switch-lever is moved to the dotted position shown in Fig. 6, slip up over the knife-edge m^3 , and must consequently depress the outer end N^2 of such lever, so as to clear the end of the roller J^6 and enable it to pass to the opposite side of same. This protruding end N^2 of the lever N is used as a safeguard to insure the roller J^6 taking the side of the guide-plate M^2 desired.

Should it be desired to operate a number of the indicators together, the pull-cord E' of each would be connected at one end to a main line, such as indicated at E^4 , Fig. 3, and the end of the sliding bar E , to which the pull-cord is ordinarily attached, would be bent down, as shown at e , so as to engage in a notch O in the rim or flange O' of a disk O^2 , to the periphery of which the other end of the pull-cord E' would be attached, and which is mounted on a spindle O^3 , carried in bearings cast in one with the base-plate D , a spiral spring O^4 , with ends attached, respectively, to the spindle and the bearings, serving to restore the parts to their normal position instead of the spring H' , which could be dispensed with. A pull upon the cord E' under these circumstances would rotate the disk O^2 in the direction indicated. This would move the bar E as formerly with the same results as regards the other parts, and upon releasing the cord the spiral spring would turn the disk in the reverse direction, and the lug O^5 at the back of the notch O would insure contact with the bent end e of the bar E and drive it back to its normal position. Any suitable system of rollers can be adopted to secure easy traveling of the cords.

The automatic reversal of the direction of travel of the band of cards upon the movement of either of the end ones thereof is se-

cured by the following means: The switch-lever M carries a rigid transverse bar, forming an arm on each side of the pivoting-point m of such lever, which arms are lettered P' P^2 , and are respectively connected with the end cards B' B^2 , pivoted as before mentioned, the connection in the one case (between P' and B') being secured through a rod Q' , connected to the card or plate B' at one end of the free edge of same and extending up and being connected with one end of the free edge of a plate R' , the opposite edge of which is pivoted at r to the casing beneath the shelf B^4 , a second rod S' being taken up from the other end of the plate R' and having its end bent so as to first loop over a vertical guide-pin T' , carried by a lug t' on the side of the base-plate D , and then loop over a third rod U' , one end of which is passed through an eye in the arm P' and bent to fit in a notch m^5 in the bottom edge of the locking-plate M^5 and the other end bent upward at right angles to form a detent V' , with which a pin or lug v' on the side of the base of the arm H engages at the proper time, as will be fully explained in the operation of these parts. The connection between P^2 and B^2 is secured through an arm Q^2 , projecting out from the free edge of the latter and having connected with it a rod S^2 , similar in every respect to S' , looped over a like vertical guide-pin T^2 , carried in the same way as the pin T' on the opposite side of the base-plate D , and also looped over a rod U^2 , bent and arranged similarly to the one U' in every way, and with a detent V^2 at the end, with which a lug v^2 on the opposite side of the base of the arm H will engage, the plate M^5 containing another notch m^6 similar to the one m^5 for the opposite returned end of this rod U^2 .

The operation of these parts is follows: The movement by the band of the last card B' to the position shown in Fig. 5 raises the plate R' from the position shown in Fig. 4 to that shown in Fig. 5, and this plate in turn elevates the rod S' and with it the rod U' till the latter is in the position shown in Fig. 2, with its detent end V' in the line of travel of the lugs on the base of the arm H , which is of course in its drawn position, or that consequent upon the pull on the sliding bar E required to move the band, and the elevation of this rod U' causes the end of it that is in contact with the locking-plate M^5 to raise same and consequently lower the end N^2 of the lever N , so as to clear the roller J^6 , as before described, thus making it possible, when the arm H is thrown back to its normal position, for the lug v' to engage the detent end V' of the rod U' and draw it along a sufficient distance to shift the switch-lever M in the same way as by hand. The movement of the last card B^2 operates in the same way through the arm Q^2 and rods S^2 and U^2 to throw the switch-lever M in an opposite direction. The depression of the end N^2 of the lever N to clear the roller J^6 is necessitated in the automatic reversal

by the difference in the forces applied automatically and by hand, the former being hardly strong enough to overcome the friction of the knife-edge m^3 . To prevent the bell being sounded at certain times, such as during the night in sleeping-cars, we arrange in hangers w from the base D a wire rod W, bent at one end to project through the opening A^5 in the casing and having a handle W' , by which it can be moved so as to operate a right-angled arm W^2 , carried on its inner end, which arm bears upon the trig-arm F and throws it out of the line of movement of the hooked end of the sliding bar E, thus preventing the operation of the hammer F' .

What we claim is as follows:

1. In a station-indicator, the combination, with a casing having two openings in its face and interior metal supports, of a series of cards in band form carrying on one side the station-indicating matter and on the reverse side advertisements and the ends of such band terminating at different levels, one between and the other below such openings, so that both sides of same shall be visible through said openings, a carrier for shifting such band of cards, a portion only of which rests on same at one time, and means for rotating and arresting the movement of such carrier.

2. In a station-indicator, the combination, with a casing having one or more openings in its face and an interior metal frame, of a series of cards in band form bearing the names of the stations, a carrier for shifting such band of cards, a portion only of which rests on same at one time, having a disk in connection therewith, a movable locking-spindle for holding such disk stationary, a movable carriage and spindle carried by it for disengaging said locking-spindle and rotating such disk, and means for carrying, moving, and partially rotating such carriage.

3. In a station-indicator, the combination, with a casing having one or more openings in its face and an interior metal frame, of a series of cards in band form bearing the names of the stations, a carrier for shifting such band of cards, a portion only of which rests on same at one time, having a disk in connection therewith, a locking device for holding such disk stationary, a movable carriage and spindle carried by it for disengaging said locking device and rotating such disk, a switch-lever and guide-plate carried by it, and means for carrying and moving said carriage into and out of contact with and along said guide-plate, and means for locking said switch-lever in alternate positions, for the purposes set forth.

4. In a station-indicator, the combination, with a casing having one or more openings in its face and an interior metal frame, of a series of cards in band form bearing the names of the stations and each end card of the series being pivoted to such casing, a carrier for shifting such band of cards, a portion only of which rests on same at one time, having a disk in connection therewith, a locking device for holding such disk stationary, a movable carriage and spindle carried by it for disengaging said locking device and rotating such disk, a switch-lever and guide-plate carried by it, means for locking said switch-lever in alternate positions, connections between each of the pivoted end cards and such switch-lever having detent projections, and means for carrying and moving said carriage into and out of contact with and along said guide-plate and for engaging and drawing on said detent projections, for the purposes set forth.

5. In a station-indicator, the combination, with a casing, a metal frame within same, and a sliding bar for operating a band bearing the names of the stations, of a bell hung on said casing, a trig-hammer pivoted in said metal frame and having a light and heavy spring coiled on either side of same on its pivot-pin, each end of the heavy spring bearing normally upon the said frame, but one end being arranged to make contact with the upper side of such hammer, and the ends of the light spring bearing, respectively, upon such frame and the under side of said hammer, for the purpose set forth.

6. In a station-indicator, the combination, with a casing, a metal frame within same, a sliding bar E for operating a band bearing the names of the stations, and a bell F^2 , of the trig-hammer $F F'$, hangers w , and the rod W, having a handle W' , and an arm w^3 for throwing said trig-hammer out of its normal position, for the purpose set forth.

7. In a series of station-indicators, the combination, with their casings, metal frames within same, bands bearing the names of the stations, carriers for shifting such bands, and rotating mechanisms, of a number of the sliding bars E, having bent ends e , and notched disks O^2 , mounted so as to be rotated by pull-cords E' taken along their peripheries and having spring connections whereby such sliding bars can be moved back and forth, as and for the purposes set forth.

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