(No Model.) 2 Sheets—Sheet 1.

T. D. SMITH.

STATION INDICATOR.

No. 367,861. Patented Aug. 9, 1887.

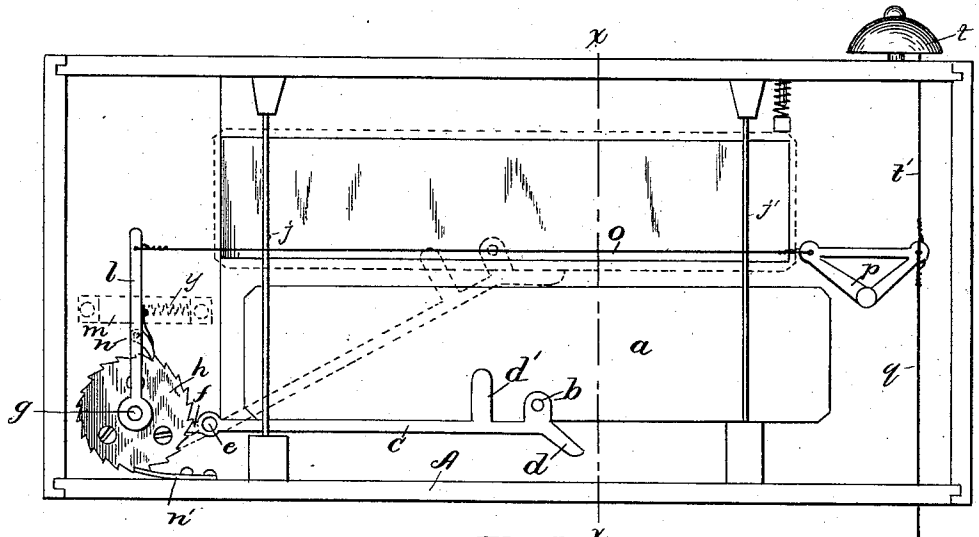


Fig. 1.

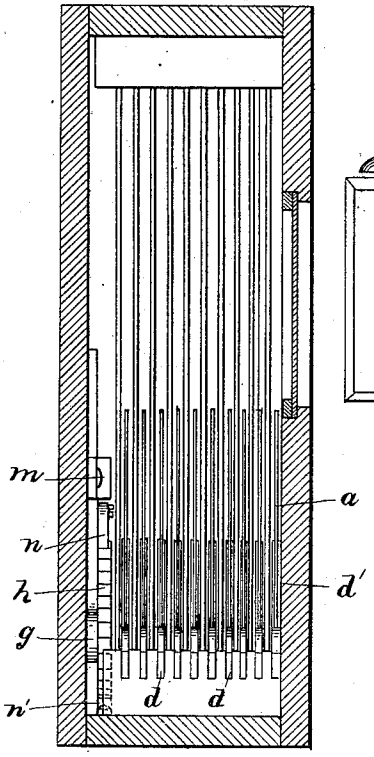


Fig. 3.

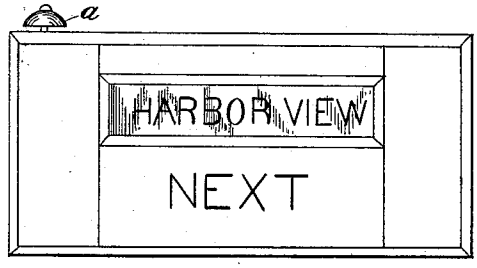


Fig. 2.

WITNESSES.
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C. P. Cocker

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N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

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STATION INDICATOR.

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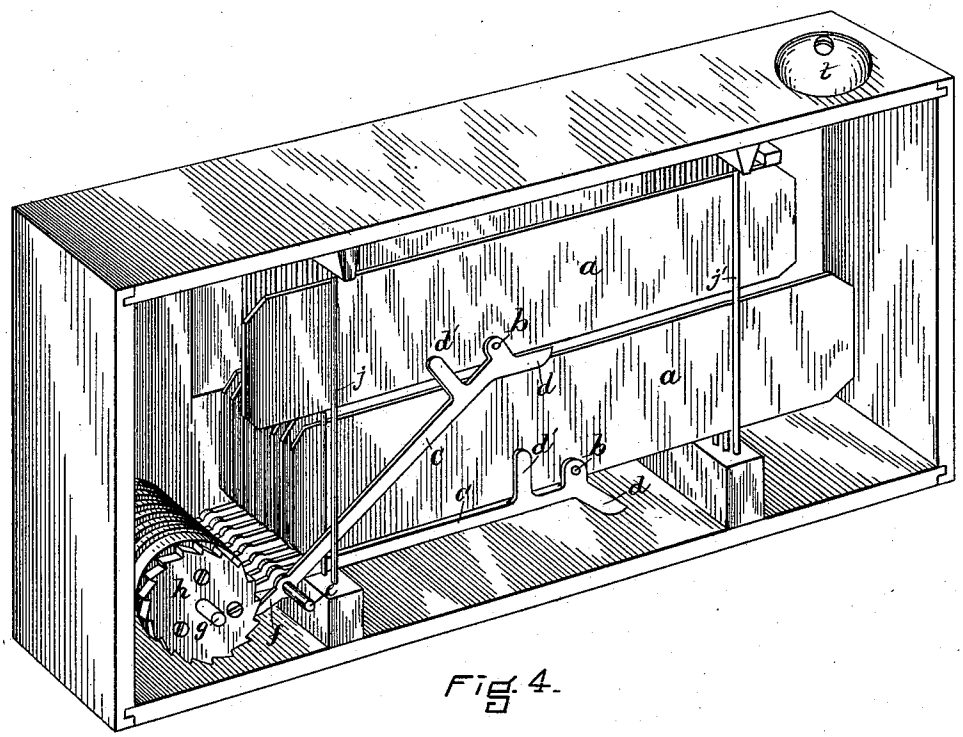


Fig. 4.

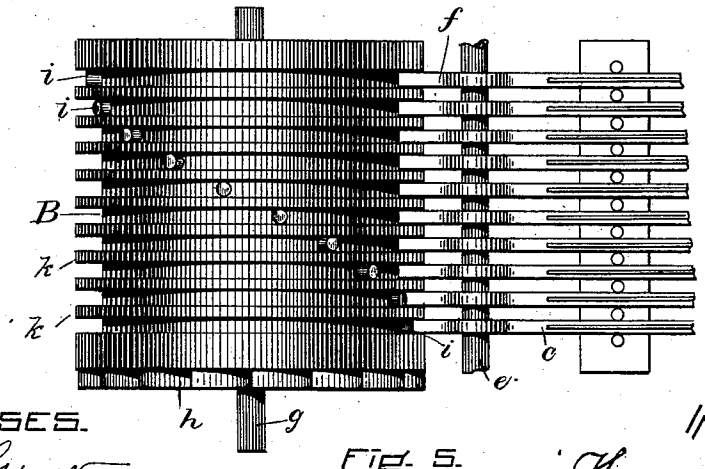


Fig. 5.

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UNITED STATES PATENT OFFICE.

THOMAS D. SMITH, OF LYNN, ASSIGNOR OF ONE-HALF TO GEORGE H. HEATH, OF BOSTON, MASSACHUSETTS.

STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 367,861, dated August 9, 1887.

Application filed March 19, 1887. Serial No. 231,520. (No model.)

To all whom it may concern:

Be it known that I, THOMAS D. SMITH, of Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Station-Indicators, of which the following is a specification.

My invention relates to devices designed to be applied to railway or street cars to indicate the stations, streets, or stopping-points; and it has for its object to provide a station-indicator which shall be simple in construction, certain in its operation, and which on steam and elevated railways may be made entirely automatic.

My invention consists in the improvements hereinafter described and claimed.

Reference is to be had to the accompanying drawings, and to the letters of reference marked thereon, forming a part of this specification, the same letters indicating the same parts wherever they occur.

Of the drawings, Figure 1 represents a rear elevation of my invention, the rear side of the box or case containing the indicating-cards and immediately-connected mechanism for operating the same being represented as transparent, and other parts being shown in section and as broken away. Fig. 2 represents a front view of the device on a reduced scale. Fig. 3 represents a section on the line *x x*, Fig. 1. Fig. 4 represents a rear perspective view of the device, the rear side or plate of the box and parts connected therewith being removed. Fig. 5 represents a top plan view of the indicating barrel or drum, the rear ends of the levers for operating the cards, and some of the associated parts of the latter.

In carrying out my invention I construct a box or casing, A, of suitable form and dimensions, making an aperture or opening in the front, through which the inscriptions on the cards displayed from time to time may be seen, and inscribe the word "Next" therebelow, as shown in Fig. 2.

a represents the indicating-cards, composed, preferably, of tin or similar material, and having the names of the stations printed or painted thereon, so that when any of said cards are raised the inscription thereon will be exhibited at the opening or aperture in the front of the casing, before explained.

Each card *a* is pivoted at its lower edge in a slotted ear, *b*, of a lever, *c*, at a point slightly to the rear of its longitudinal center, as shown most clearly in Figs. 1 and 4. Lever *c* is provided at its forward end with a finger, *d*, which extends outward and (when the lever is in a horizontal position) downward at an angle of about forty-five degrees, for a purpose to be presently explained.

e represents a rod, upon which the levers *c* are pivoted, the rearward ends or feet, *f*, of the latter extending into close proximity with the periphery of barrel or drum B, having trunnions *g* and suitable bearings therefor upon and in which it may rotate. Barrel B is provided on its rear end with a ratchet-wheel, *h*, and on its periphery or face with studs or pins *i*, in number corresponding with the teeth of the ratchet-wheel. Said studs or pins extend diagonally across the barrel B from one end to the other, as represented in Fig. 5, and back again on the opposite side to the point of beginning, so that as said ratchet-wheel is turned the distance of one tooth intermittingly, as it is intended it should be, by the means to be hereinafter explained, one of the pins will be brought in contact with the foot *f* of a lever, *c*, and rock said lever on its pivot-rod *e*, effecting the raising of a card, *a*, on the forward end of said lever, as shown in Fig. 4.

Levers *c* extend from pivot-rod *e* forward between vertical guide-wires *j*, which serve also to guide one end of the cards *a* in their movements, the other end being guided by like vertical wires *j'* in the other end of the box or casing; and to further support cards *a* in position and guide them in their movements I provide levers *c*, with a slotted lug or projection, *d'*, rearward of the point at which the cards are pivoted to said levers, through which slotted lugs the cards extend, as shown. As now barrel B is operated to bring one of the pins *i* in contact with the foot *f* of a lever, *c*, said lever will be rocked on its pivot or fulcrum rod *e* and have its forward end, with the card *a* thereon, raised, so as to display the inscription on said card at the opening or aperture in front of the casing or box A. The portion of the card *a* forward of the point at which it is pivoted to lever *c* being heavier

than the other portion of said card, as the lever is raised said forward end of the card will drop by gravity upon the upper face of finger *d*, and so be maintained in proper horizontal position. The arrangements of the pins *i* on the barrel B is such as that when said barrel is turned the distance of one tooth of ratchet-wheel *h* one of said pins will be brought into contact with the foot *f* of a lever, *e*, and be held thereon until the barrel is again moved, when a pin or stud, *i*, will operate on the foot of the next adjacent lever. In this way, if the barrel should be rotated intermittingly by turning ratchet-wheel *h* one tooth at a time and starting with the parts in the position in which they are represented in Fig. 5, all of the levers would be successively operated, beginning with the most rearward and proceeding to the front and back again to the rear at each turn or revolution of barrel B.

I prefer to provide barrel B with ribs or washer-like projections *k*, between which the pins or lugs *i* are arranged and the rear ends or feet, *f*, of the levers *e* extend, so as to insure the engagement of said pins with said feet.

As a means for intermittingly and automatically operating barrel B, as hereinbefore described, I provide devices, which I will next proceed to explain.

l indicates a lever fulcrumed on one of the trunnions *g* of barrel B, and extending upward therefrom behind a yoke or guard block or plate, *m*, secured to the rear wall or side of the box or case A. A pawl, *n*, is pivoted to the side of lever *l*, and so arranged as to engage with the teeth of ratchet-wheel *h*, a holding-pawl, *n'*, being secured to the bottom of the box and adapted to engage the teeth of the ratchet-wheel to keep it from turning backward, all as clearly represented in Fig. 1.

A wire, *o*, is attached by one end to the upper end of lever *m*, and at the other end to one arm of an angular lever, *p*, pivoted to the side of the box or case A at the end opposite that at which lever *p* is secured thereto. A wire, *q*, extends from the other arm of lever *p* down through the bottom of the car, where it is attached to the upper end of an inverted T-shaped lever, *r*, pivoted in a bracket, *s*, secured to the floor of the car.

u represents a standard or pin secured to one end of a short rod, *v*, adapted to turn in bearings attached to a sleeper on the road-bed, a spring, *w*, being coiled about or otherwise made to operate on rod *v*, so as to hold standard or pin *u* normally in an upright position.

t represents a bell arranged on the top of the box or case A, a wire, *t'*, being connected with the hammer of said bell and with one arm of lever *p*, and a spring, *y*, is interposed between lever *l* and guard plate or block *m*, so as to hold the various parts connected with wire *o* in their normal position, which is the position in which they are represented in Fig. 1.

In the movement of the train, when an arm of the inverted-T-shaped lever shall be brought in contact with spring-pressed stud or pin *u*, said lever will be moved so as to draw down on the wire connected therewith, ring bell *t*, and operate lever *l*, so as to move barrel B the distance of one tooth of ratchet-wheel *h*, release and let fall the lever *e* and its attached card that happens to be raised, and operating an adjacent lever to bring the next succeeding card into view. The pins or studs *i* being arranged on barrel B, on the opposite side from that exposed to view in Fig. 5, so as to lead back from one end to the other in reverse order, it follows that after all of the levers *e* and their attached cards shall have been successively operated, by continuing to turn barrel B in the same direction they will be again operated, but in reverse order, it being presumed that a car in traveling over its route will have turned barrel B one-half way around and so have exposed all of the cards *a* successively to view through the aperture of the casing A, and on the return of the car over the route that barrel B will be again turned one-half way around, operating the cards successively in reverse order, as before.

The spring-holding pin or stud *n* in upright position will be strong enough to cause said stud to operate lever *r*, and yet so as to be turned aside without damage or detriment by the cow-catcher or any other thing or part of the engine or cars of the train that may happen to come in contact therewith.

It is obvious that by removing any of the pins *i* from barrel B any of the cards *a* may be skipped or passed over without exposing them to view through the aperture of the indicator, and that the wire extending down from lever *p* may be provided with means wherewith it may be operated by the hand of the brakeman or conductor, or the wire *q* or *o* may be attached to a gate such as are employed on elevated railroads and the indicator operated by opening and closing the same. In this way I provide a station-indicator of simple construction, which can, if desired, be made to be automatically operated or be worked by hand, be certain in its movements, and efficient for the purposes for which it is intended.

Although I have been particular to describe the various parts of my device and their form and arrangement, it is obvious that these may be varied within the limits of mechanical skill without departing from the nature or spirit of the invention.

Having thus described my invention, what I claim is—

1. In a station-indicator, the combination, with a case or box, of a rotary pin-studded barrel, B, a series of pivoted levers arranged to be successively acted upon at one end by the pins of said barrel, and indicating-cards *a*, pivoted to the other end of said levers, as set forth.

2. In a station-indicator, the combination, with a case or box, of a series of oscillating levers, *e*, provided with angular fingers *d*, and the cards pivoted to one end of said levers at a point beyond their longitudinal centers, and a

rotary pin-studded barrel, B, adapted to act on the other end of said levers, as set forth.

3. In a station-indicator, the combination, with the card-operating levers C and indicating-cards pivoted to one end of said levers, of barrel B, provided with pins or studs *i*, arranged therearound, as described, and adapted to act on the other end of said levers, a ratchet-wheel connected with said barrel, an oscillating lever, and a pawl on said lever arranged to engage said ratchet-wheel, as set forth.

4. In a station-indicator, the combination, with the case or box, of a rotary pin-studded barrel, B, a series of pivoted levers arranged to be successively acted upon by the pins of said barrel, indicating-cards pivoted to the other end of said levers, devices, substantially as described, for intermittingly rotating said barrel, a spring-stud secured to the road-bed, a lever pivoted to the car and arranged to be brought in contact with said spring-stud, and a wire connecting said lever with the devices for intermittingly rotating the barrel, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 15th day of March, A. D. 1887.

THOMAS D. SMITH.

Witnesses:
ARTHUR W. CROSSLEY,
C. F. BROWN.