

M. B. LEECE & A. R. BULLOCK.

AUTOMATIC STREET OR STATION INDICATOR AND ADVERTISING
MEDIUM.

No. 576,201.

Patented Feb. 2, 1897.

Fig. 1.

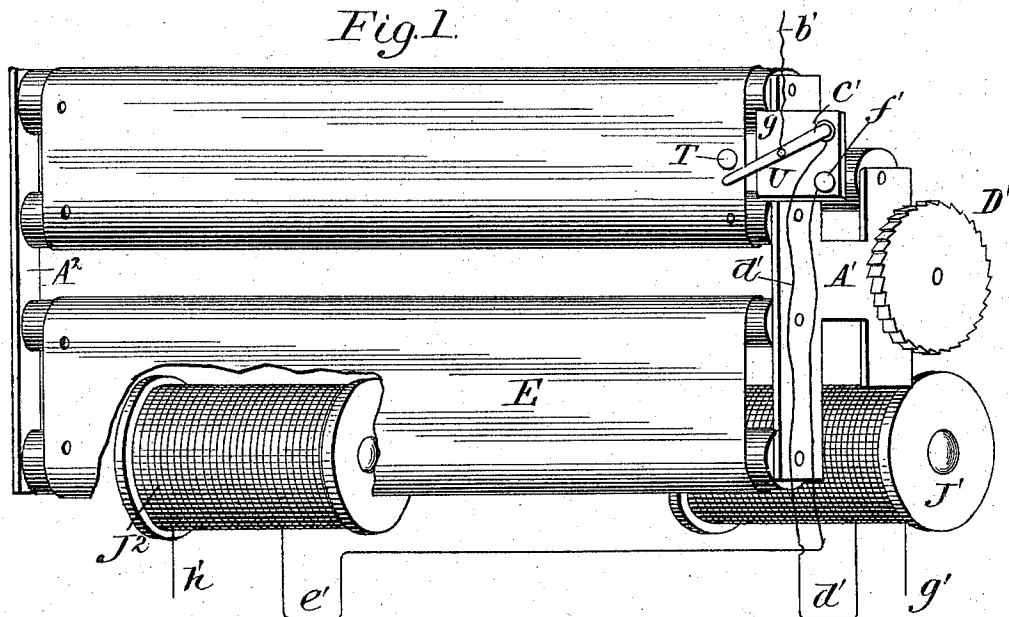
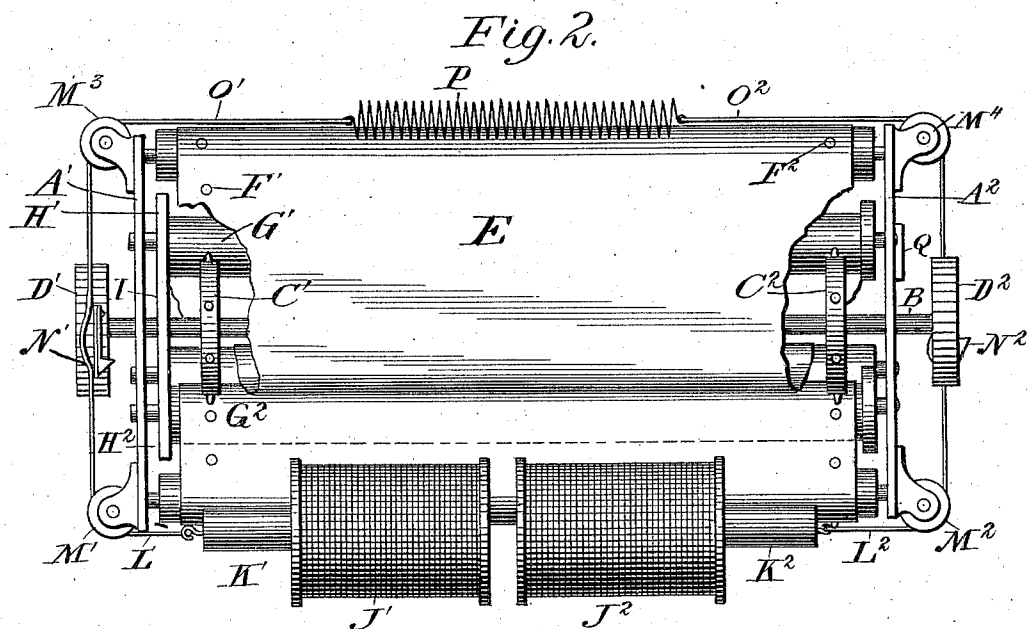


Fig. 2.



Witnesses:

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Wm. M. Ross

Inventors

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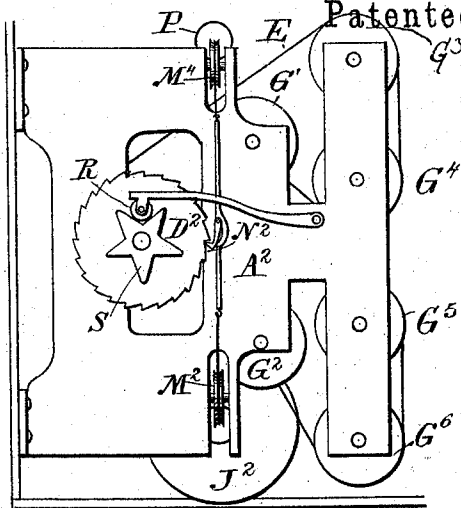


Fig. 3.

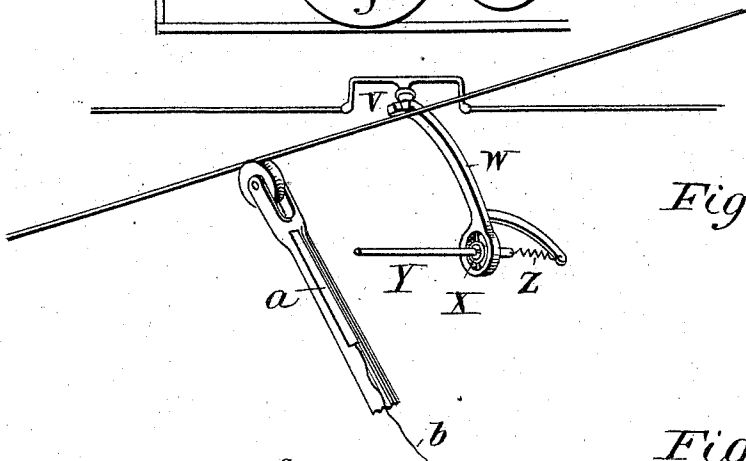


Fig. 4.

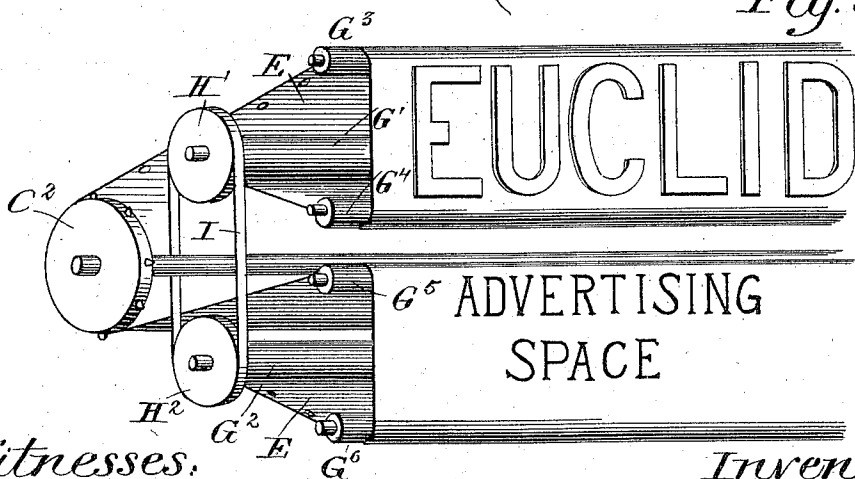


Fig. 5.

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UNITED STATES PATENT OFFICE.

MAJOR B. LEECE AND ARTHUR R. BULLOCK, OF CLEVELAND, OHIO.

AUTOMATIC STREET OR STATION INDICATOR AND ADVERTISING MEDIUM.

SPECIFICATION forming part of Letters Patent No. 576,201, dated February 2, 1897.

Application filed June 2, 1896. Serial No. 594,055. (No model.)

To all whom it may concern:

Be it known that we, MAJOR B. LEECE and ARTHUR R. BULLOCK, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Device for Indicating Street, Station, or Stopping-Places of Tram Cars or Railways, of which the following is a specification.

Our invention relates to improvements in street, station, or stopping-place indicators; and the objects of our improvements are, first, to provide an entirely automatic street, station, or stopping-place indicator; second, to provide a series of moving signs or advertising-cards moving automatically in connection with said street, station, or stopping-place names. We attain these objects by the mechanism illustrated in the accompanying drawings, of which—

Figure 1 is a perspective showing automatic switch Q, solenoids J' and J², peg or raised surface T, and electric circuits. Fig. 2 is a back view of indicator, showing electrical solenoids with cords, angle-pulleys, sliding pawls, and spring, together with ratchet and sprocket wheels, the film or ribbon being partly removed to show same. Fig. 3 is the left end elevation showing one ratchet-wheel and rolling clutch. Fig. 4 is a perspective of trolley, showing mode of contact. Fig. 5 is a perspective front and end view showing arrangement of film or ribbon, sprocket-wheel, and feed and take-up rollers, together with belt for tension.

Similar letters refer to similar parts throughout the several views.

On the hangers or brackets A' and A² is shaft B, carrying two (2) sprocket-wheels C' and C² and two (2) ratchet-wheels D' and D², referred to hereinafter. The film or ribbon, consisting of celluloid or other substance, (marked E,) has punctured holes F' and F², which by means of sprocket-wheels C' and C² feed said film or ribbon from roller G' to roller G², or vice versa, according to the direction the car may be going. The rollers G' and G² are provided with grooved pulleys H' and H² and a belt I for the purpose of winding up one roller when the other unwinds.

Driving-shaft B is actuated by sliding pawls N' and N², in connection with cords O' and

O², in their turn being actuated by spiral spring P. The electrical solenoids J' and J², together with their plungers or cores K' and K², are connected with cords L' and L², which run over angle-pulleys M' and M². When the current is applied on solenoid J', sliding pawl N' is drawn a sufficient distance to engage in teeth on ratchet-wheel D', (on return motion,) at the same time expanding spiral spring P. When the circuit is broken, the spring P contracts and draws pawl N' and ratchet-wheel D', together with sprocket-wheels C' and C², carrying film or ribbon from roller G² to roller G', a sufficient distance to display another name, and so on to the end of the line. When the circuit is changed by means of automatic switch Q, pawl N² and ratchet-wheel D² are actuated by solenoid J² and spring P, as previously described, feeding film or ribbon E in the opposite direction, thus reversing the action of the instrument at each terminal. Theoretically it may appear that the said spring P is unnecessary or superfluous, it being obvious that the solenoids could be made to pull directly on the ratchet-wheels; but we find by practical tests that the spring in a manner regulates and modifies the too direct or immediate action of the solenoids alone.

Revolving lock-catch R, engaging in star-wheel S, holds film or ribbon E in place, thus preventing street names or stations from being misplaced by moving or jolting of the car.

The switch Q, which transfers the current from solenoid J' to solenoid J², or vice versa, is operated automatically as follows: When the solenoid J', in connection with ratchet-wheel D', pawl N', and spring P, has wound film or ribbon E the required length, (the car having reached its terminal and about to start on a return trip,) peg or raised surface T on film or ribbon E comes in contact with switch-lever U, changing the current from solenoid J' to solenoid J², when solenoid J² continues to operate the film in connection with spring P until the opposite terminal is reached, when the motion of the ribbon is automatically reversed, and so on indefinitely, as previously described.

The contact for closing the circuit is as follows: At intervals between each cross-street we clamp on the span-wire-insulating bracket V, between the trolley-wire and the

point of insulation, a stationary projecting arm W. In the end of said arm, connected with a gimbal or universal joint X, is a contact-finger Y, said contact-finger Y being held at proper angle by means of a bracket, assisted by spiral spring Z. The current flows from trolley-wire through span-wire-insulating bracket V to projecting arm W and its bracket to spiral spring Z, from spiral spring Z to contact-finger Y, from contact-finger Y to contact-plate *a'* on trolley-pole, thence to wire *b'*, to switch-lever U, from switch-lever U to contact-button *c'*, thence through wire *d'* to solenoid J', and thence through wire *g'* to ground through framework of car. When switch is on contact-button *f'*, the current flows from button *f'* through wire *e'* to solenoid J², and thence through wire *h'* to ground through framework of car.

We are aware that prior to our invention street or station indicators have been made with longitudinal rollers carrying a ribbon or film on which is placed names or signs. We therefore do not claim such a combination, broadly.

What we do claim as our invention, and desire to secure by Letters Patent, is—

1. The combination in a street or station indicator of six or more longitudinal rollers carrying a film or ribbon of celluloid or other flexible material, together with sprocket-wheels C' and C² and ratchet-wheels D' and D², together with their pawls N' and N² and two electrical solenoids J' and J² in combination with electrical switch Q, all as substantially set forth.

2. In an automatic street or station indicating instrument, the combination of two electrical solenoids J' and J², together with

their plungers K' and K², two pawls N' and N² and two ratchet-wheels D' and D² in combination with automatic switch Q, all as substantially set forth and described.

3. In a street or station indicating instrument, the combination of a span-wire bracket V with a stationary projecting arm W, connected with a contact-finger Y by means of a gimbal or universal joint X, spiral spring Z and contact-plate *a'*, for the purposes specified.

4. In a street or station indicating instrument the combination of a film or ribbon E having advertising-signs on one side of said film or ribbon and street-names or station-names and house-numbers on the other side of said film or ribbon, together with six or more rollers, two sprocket-wheels, two ratchet-wheels with their pawls and two electrical solenoids for the uses and purposes herein described.

5. In a street or station indicating instrument a film or ribbon E in combination with sprocket-wheels C' and C², together with rollers G', G², G³, G⁴, G⁵, G⁶, and pulleys H' and H², together with belt I for the uses specified.

6. In a street or station indicating instrument, the combination of film or ribbon E, shaft B, ratchet-wheels D' and D², sliding pawls N' and N², angle-pulleys M', M², M³ and M⁴, and spiral spring P in combination with electrical solenoids J' and J², substantially for the purposes set forth and described.

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Witnesses:

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