

No. 647,224.

Patented Apr. 10, 1900.

R. H. FORDE.
INDICATOR FOR RAILWAYS.

(Application filed June 9, 1899.)

(No Model.)

3 Sheets—Sheet 1.

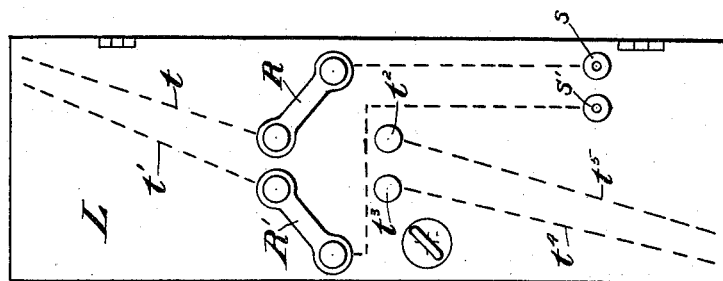


Fig. 2.

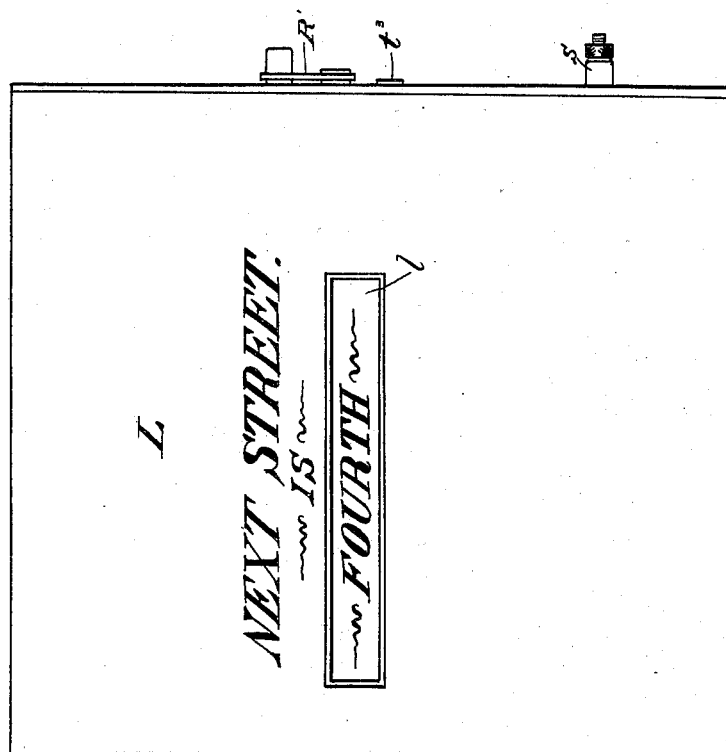


Fig. 1.

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No. 647,224.

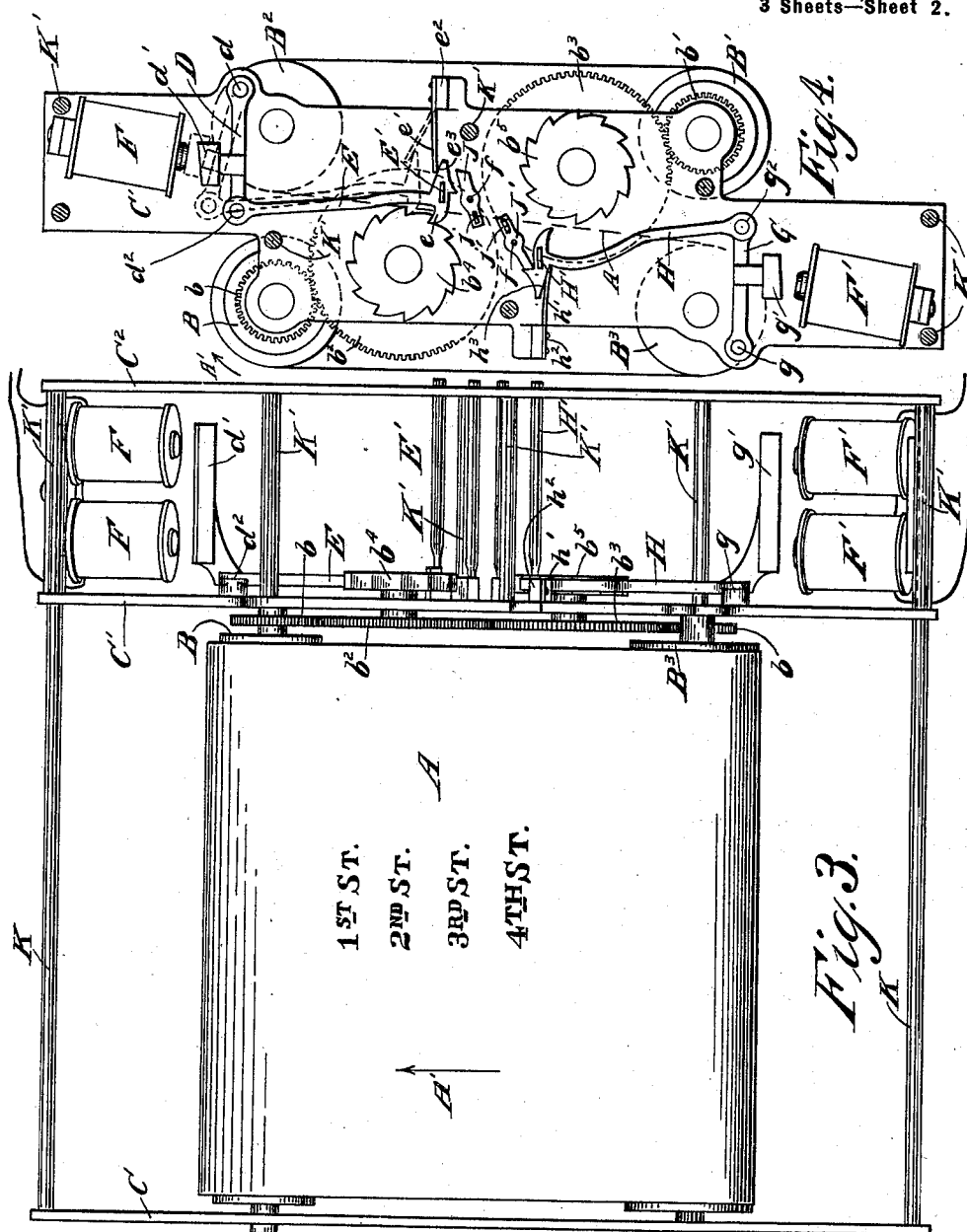
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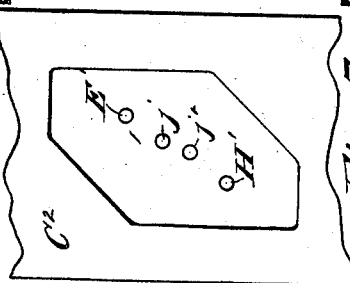
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(No Model.)

3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

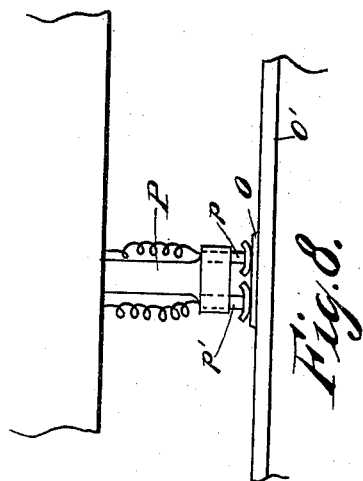


Fig. 8.

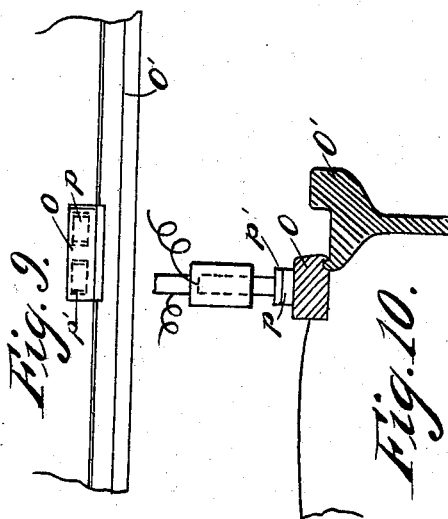


Fig. 9.



Fig. 10.

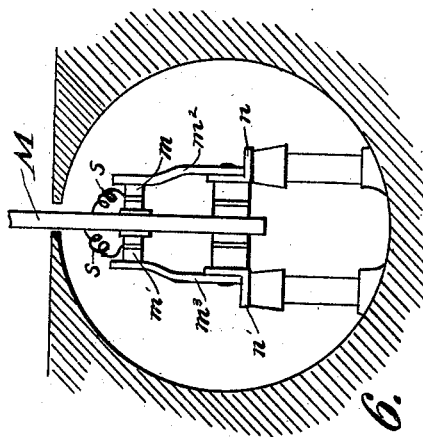


Fig. 6.

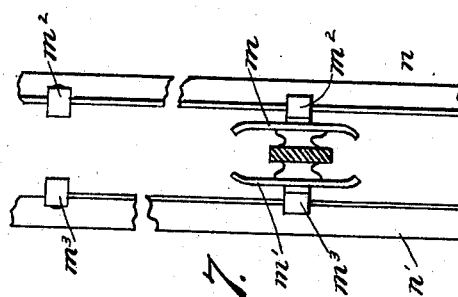


Fig. 7.

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UNITED STATES PATENT OFFICE.

RICHARD H. FORDE, OF NEW YORK, N. Y.

INDICATOR FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 647,224, dated April 10, 1900.

Application filed June 9, 1899. Serial No. 719,920. (No model.)

To all whom it may concern:

Be it known that I, RICHARD H. FORDE, a citizen of the United States, and a resident of New York city, county of New York, and State of New York, have invented certain new and useful Improvements in Indicators for Railways, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters of reference indicate corresponding parts.

My invention relates to an improved device known as an "indicator" for railways, and has for its object to provide an apparatus whereby passengers are informed of the arrival of the car at the various streets and stations along its route. I attain this object by the device illustrated in the accompanying drawings, in which—

Figure 1 is a general front view of the apparatus. Fig. 2 is a side view. Fig. 3 is an interior front view of the working parts. Fig. 4 is a side view of the working parts. Fig. 5 is a detail view. Fig. 6 is a view of contact-brushes in conduit used in conjunction with this apparatus. Fig. 7 is a top view of said brushes. Fig. 8 is a side view of the contact-brushes employed on an ordinary railroad. Fig. 9 is a top view of the contact-piece in the ground, and Fig. 10 is a section through track and contact-piece.

In the practice of my invention I attach a strip A of flexible material upon rollers B, B', B², and B³. The said rollers are revolvably mounted on the plates C and C'. Fastened upon the axle of the rollers B and B' are the gear-wheels b and b', the said gear-wheels b and b' engaging with large gear-wheels b² and b³. The large gear-wheels b² and b³ are revolvably mounted on the plate C'. Attached to the axle carrying the large gear-wheels are the ratchet-wheels b⁴ and b⁵.

Pivotally mounted at d upon the plate C' is an arm D, which has formed upon it an armature-block d' and carries upon its outer end d² an arm or rod E. The said arm or rod E is formed with a ratchet-tooth e upon its lower end, said ratchet-tooth engaging in the teeth of the ratchet-wheel b⁴. A flat spring e', securely fastened at e², engages against the beveled end e³ of the arm E and is employed

to normally keep the ratchet-tooth in contact with the ratchet-wheel b⁴.

An electric magnet F is securely mounted between the plates C' and C² and is employed in conjunction with the electric current to attract the armature-block d'.

Pivotally mounted at g is an arm G, which has formed upon it an armature-block g'. Attached to this rod or arm G at g² is an arm H, which has formed upon its end a tooth h, which is adapted to engage against the ratchet-wheel b⁵.

A flat spring h', securely mounted at h², engages against the beveled end h³ of the arm H and is adapted to normally keep the tooth h of the arm H against the ratchet-wheel b⁵ when the lower magnet F' is in use. The said magnet F' is securely mounted between the plates C' and C² and is employed by means of an electric current to attract the armature-block g'.

The ends of the arms E and H are provided with secondary arms E' and H'.

Pivotally mounted upon the plate C' at f and f' are the locking-pieces J and J', which are employed to hold back the arms E and H when said arms are not in use. The locking-pieces J and J' are provided with the arms j and j'.

The plates C and C' are suitably held together by means of rods K, and the plate C² is securely held by the rods K'.

The flexible material A is properly marked to indicate the various streets, avenues, or stations, the said markings being equally spaced.

In Fig. 3 of the drawings I show four markings—viz., "First street," "Second street," "Third street," and "Fourth street." These markings are to extend throughout the length of the roll A.

The device as far as described is inclosed within a casing L, which is securely fastened in some convenient position in the car. The said casing L is provided with an opening l, through which the markings on sheet A are seen. Directly above the opening l on the said case L are suitable markings, which indicate that the name seen through the opening l is the next street or station along the route of the car. In the drawings the marking

reads: "Next street is," and directly below in the opening *l* is the word "Fourth," which indicates that the next stopping-place of the car is Fourth street.

5 My device is operated by means of an electric current obtained by suitable means from an overhead trolley or underground conduit, as the case may be. Extending from the bottom of the car downwardly is a drop *P*. This
10 drop has fastened upon it two brushes *p* and *p'*. These brushes are suitably connected with the circuit by means of wire conductors and normally keep the circuit open. Placed at indicated distances along the track are the
15 metal blocks *O*. These blocks act to close the circuit by forming a contact with the two brushes *p* and *p'* when the car passes over the said block *O*, thereby causing the current to flow and operate the device.

20 Another method which may be employed in the underground system is that shown in Figs. 6 and 7. A drop *M* projects downwardly from the electric car and carries the brushes that take up the electricity for driving the motors
25 in the car. Fastened to this said drop *M* in any convenient position are the brushes *m* and *m'*. These brushes engage against the upright pins *m*² and *m*³, which are fastened directly to the electric conductors *n* and *n'*.

30 The operation of my device is as follows: When the car is in motion and it is desired to indicate the street in the direction in which the car is going, the apparatus is properly set. In the drawings I show the roll or sheet
35 A working in the direction indicated by the arrow *A'*. The lower part of the apparatus carrying the magnet *F'* is prevented from operating by means of the switches *R* and *R'*, which are set to operate upon the magnet *F*.
40 The arm *H* is held back by means of the locking-block *J'*. At various points along the route of the car are placed the aforesaid upright bars *m*² and *m*³. The brushes *m* and *m'* coming in contact with the said uprights
45 cause the electric current to pass through the wires *s* and *s'* to the switches *R* and *R'*. Thence it passes through the wires *t* and *t'* to the magnet *F* and attracts the armature-

block *d'*, thereby pulling up the arm *E* and causing the ratchet-wheel *b*⁴ to turn, which
50 in turn revolves the gear-wheels *b*² and *b* and moves up the sheet *A* one marking and indicates to the passengers in the car the next stopping-place. When the end of the route is reached, the apparatus is reversed, as follows: The arm *H* is released, and the arm *E*
55 is fastened back by means of the lock *J*. The switches *R* and *R'* are moved down to the contact-points *t*² and *t*³, thereby allowing the current to pass through the wires *t*⁴ and *t*⁵
60 and operate upon the magnet *F'*, which reverses the direction of the sheet *A* and indicates the stations in their reversed order.

The turning knobs *B*⁴ and *B*⁵ are fastened to the axles of the rollers *B* and *B'* and extend through the case *L*. Said knobs *B*⁴ and *B*⁵ are employed to set the device at any indicated street.

Having thus described my invention, what I claim as new, and desire to secure by Letters
70 Patent, is—

The combination, in the herein-described device, of an indicating-roll *A* provided with suitable markings representing streets and stations, the magnets *F* and *F'*, pawls *E* and
75 *H*, operated by said magnets, gear-wheels *b*² *b*³ and *b'* in turn operated by said pawls and adapted to turn said indicating-roll *A*, contact-brushes *p* and *p'* for closing the circuit and actuating said magnets, locking-detents *J* and *J'* adapted to lock the pawls *H*
80 or *E* out of operation, the arms *j* and *j'* attached to the said locking-detent, and the arms *H'* and *E'* attached to the said pawls *H* and *E* and employed to adjust the said pawls
85 *H* and *E* and locking-detents *J'* or *J*, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 1st day of June, 90
1899.

RICHARD H. FORDE.

Witnesses:

SETH B. ROBINSON,
BELLE MCCOMB.