

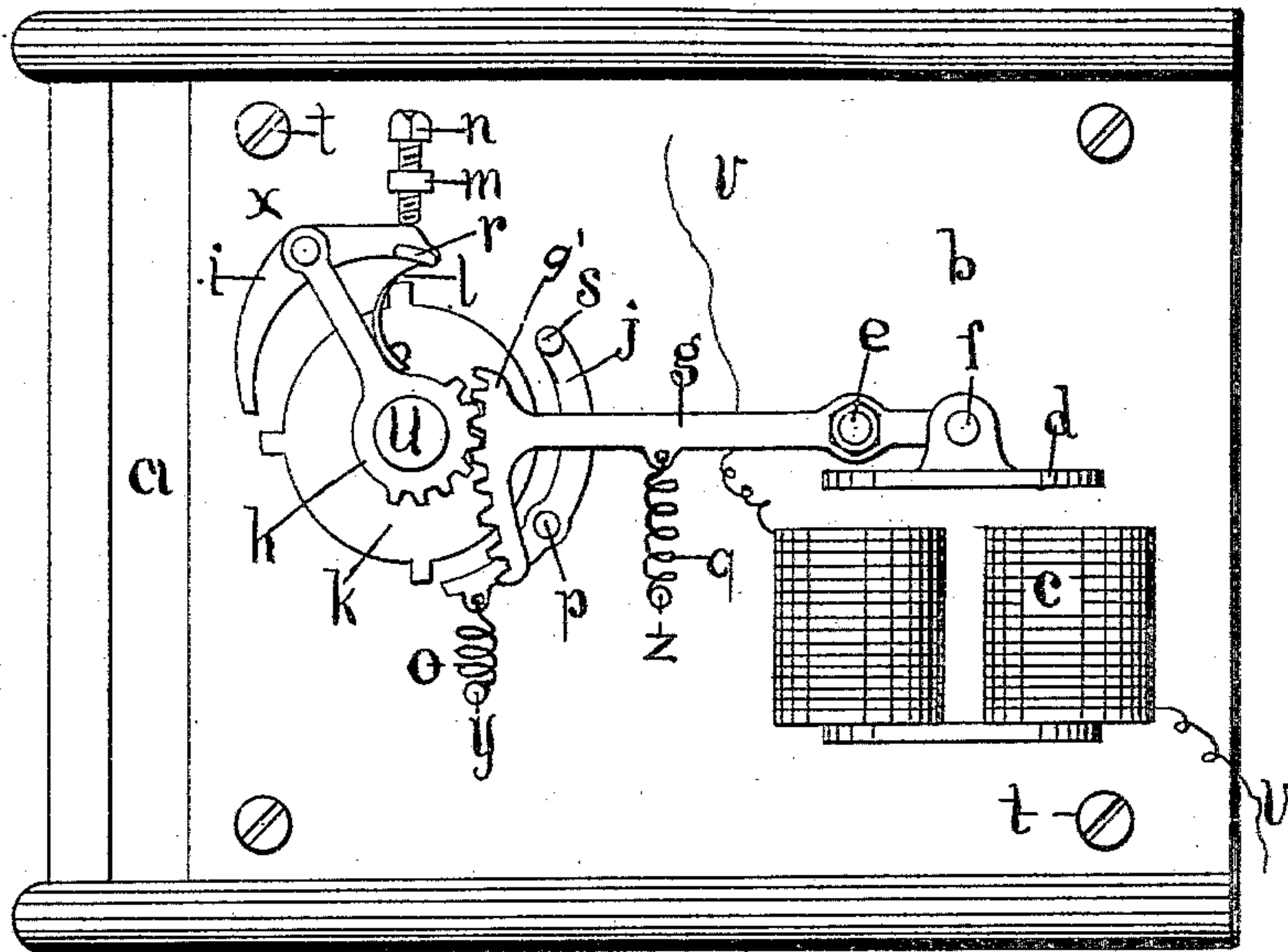
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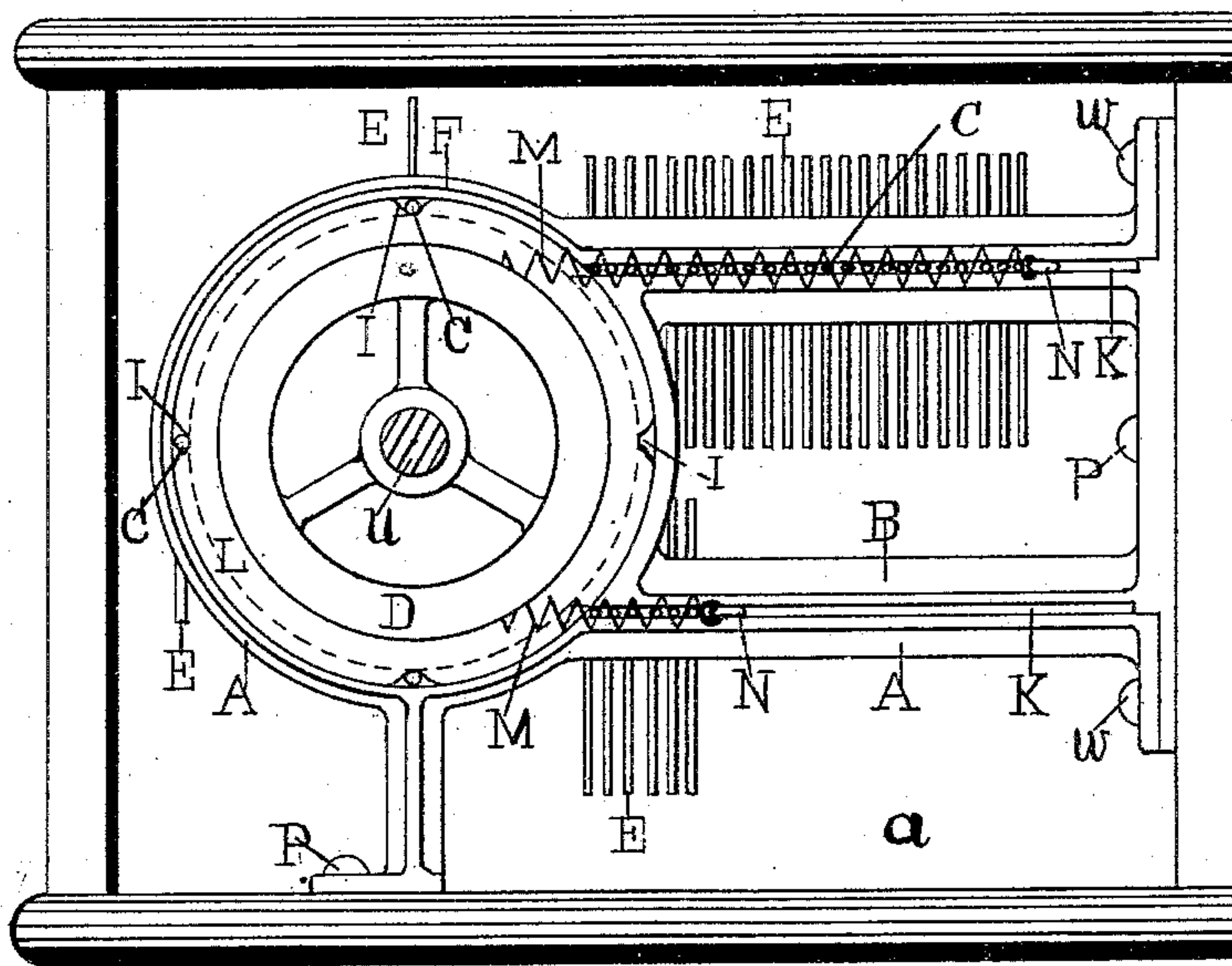
G. GUNTZ.  
ELECTRIC RAILWAY STATION INDICATOR.

No. 378,440.

Patented Feb. 28, 1888.



*Fig. 1*



*Fig. 2*

WITNESSES:

*Fred. G. Smith*  
*J. D. Nicholson*

*Geo. Guntz*  
INVENTOR

BY  
*Herbert W. Jenner*  
ATTORNEY

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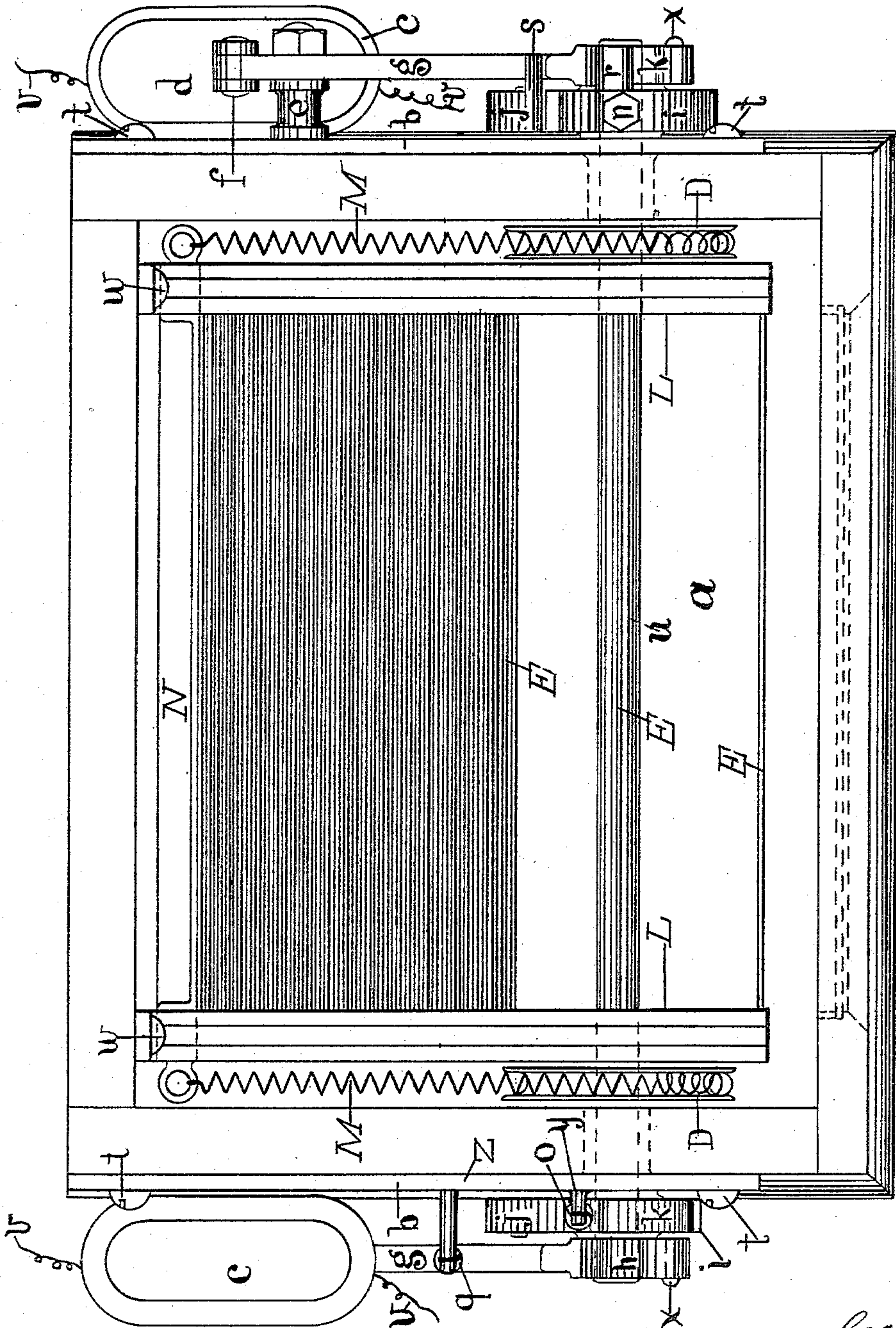


Fig. 3

WITNESSES:

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*S. O. Nicholson*

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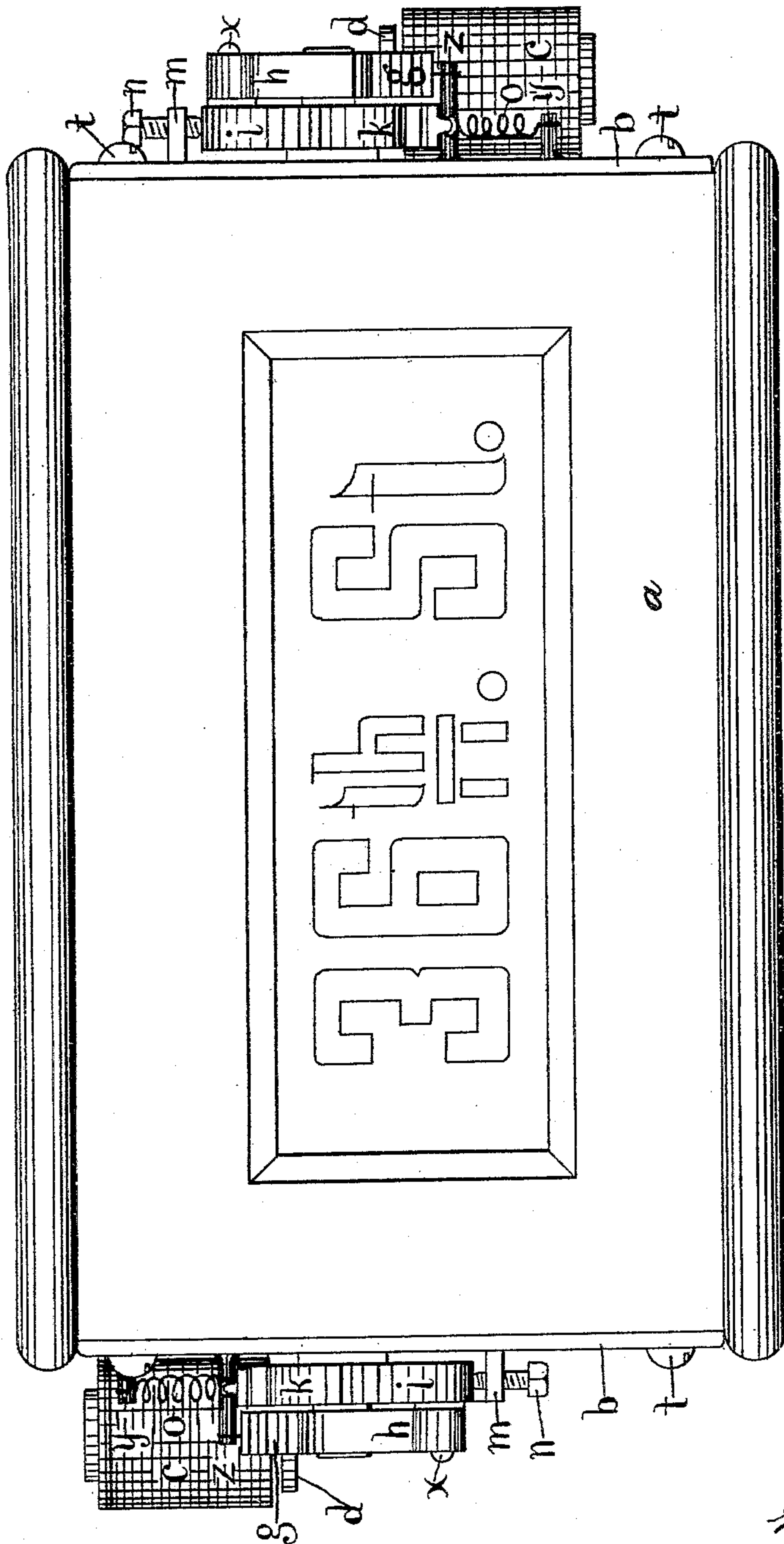


Fig. 4

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# UNITED STATES PATENT OFFICE.

GEORGE GUNTZ, OF WILKES-BARRÉ, PENNSYLVANIA.

## ELECTRIC RAILWAY-STATION INDICATOR.

SPECIFICATION forming part of Letters Patent No. 378,440, dated February 22, 1883.

Application filed March 16, 1885. Serial No. 159,017. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE GUNTZ, a citizen of the United States, residing at Wilkes-Barré, Luzerne county, Pennsylvania, have invented certain new and useful Improvements in Electric Railway-Station Indicators, of which the following is a specification.

The invention consists in the novel construction and combination of the parts, hereinafter fully described and claimed.

In the drawings, Figure 1 is an end view of the indicator. Fig. 2 is also an end view with the end of the case and the mechanism attached to it removed. Fig. 3 is a plan view from above of the indicator with the top of the casing removed to show the interior mechanism. Fig. 4 is a front view of the indicator.

The inclosing case *a* is provided with an opening in front, through which the cards may be seen.

*E* are the cards, preferably made of tin, with the names of the stations painted on them. Each card has pivots *C* projecting from its ends above its center of gravity, so that the cards always hang vertical, as shown in Fig. 2. Two frames are secured to the inside of the case by screws *P* and *w*, and in these frames are formed the upper and lower guide slots, *K*, for the pivots *C* to slide in. The frames are built up of separate portions *A* and *B*, as shown, for convenience in manufacture, and their front ends are formed into loops *F*. A spindle, *u*, is journaled in the plates *b*, which are secured to the outside of the case by the screws *t*.

*L* are grooved wheels secured upon the shaft *u* inside the case, and have notches *I* for receiving the pivots *C* of the cards. The loops *F* of the frames extend around the grooved wheels *L*, so that the pivots cannot fall out of the notches. The middle portions of the frames enter the grooves of the pulleys, so that when the pulleys are revolved the cards will be carried around from the upper guide-slots, displayed in front of the case, and deposited in the lower guide-slots, or the reverse. In order that the cards may be fed to the pulleys *L*, the grooved pulleys *D* are journaled loose upon the spindle *u* alongside the pulleys *L*.

A separate follower, *N*, passes through both the upper and lower guide-slots behind the

last cards, and *M* are helical springs which pass over the pulleys *D* and have their ends secured to the ends of the followers. A constant tension is thus produced, and as the cards are carried from the upper to the lower guide-slots the pulleys *D* will be revolved by the helical springs, the ends of which thus accommodate themselves to the accumulation of cards in either guide-slot and keep at one uniform tension.

Two similar sets of electrical actuating apparatus are secured to the plate *b* outside each end of the case. One set revolves the spindle *u* in one direction and the other set in the reverse direction, and for this purpose the other set is placed in an inverted position from that shown in Fig. 1, to which the description will be confined.

An electro-magnet, *c*, is secured to the plate *b* and provided with an armature, *d*, which is pivoted by the pin *f* to the short end of lever *g*. This armature is attracted every time an electric current is sent through the wire *V* to the electro-magnet. The lever *g* is pivoted on pin *e*, projecting from the plate *b*, and has the circular toothed rack *g'* on its longer end. A spring, *q*, attached to the lever and to the pin *z*, forms a resistance to the attraction of the magnet, and restores the lever to its normal position, as shown in Fig. 1, when the current ceases. A ratchet-wheel, *k*, is secured upon the spindle *u* for revolving it intermittently, and *h* is a toothed segment loosely journaled on the said spindle alongside the ratchet-wheel and in gear with the toothed rack *g'*. A pawl, *i*, is pivoted by the pin *x* to the toothed segment *h* for operating the ratchet-wheel, and *l* is a spring under the tail *r* of the pawl for forcing it into gear with the ratchet. A lug, *m*, projects from plate *b*, and *n* is an adjustable set-screw which passes through the lug. The tension of spring *q* forces the tail *r* against the end of the set-screw, so that when in its normal position the pawl *i* is clear of the ratchet-wheel, and the spindle *u* can be turned freely by hand in either direction.

Directly the armature is attracted by the magnet the tail leaves the set-screw, and the pawl falls into gear with the ratchet-wheel and turns it one-quarter round, thus bringing another card into view. Just before the armature touches the magnet the lever *g* strikes



the pin *s* on the tail of the stop-pawl *j*, which is pivoted upon the pin *p*, projecting from plate *b*. This throws the said pawl against the tooth of the ratchet-wheel and prevents the spindle *u* revolving. When the lever *g* leaves the pin *s*, the spring *o*, which is secured to the stop-pawl and to the pin *y*, restores the stop-pawl to its normal position. The electric current for working the apparatus is sent through the wire *V*, and may be obtained from any convenient source and controlled from any part of the train. A separate indicator is placed in each car, and all the indicators are actuated simultaneously by the same current.

What I claim is—

1. The combination of the frames provided with upper and lower guide-slots, a series of indicator-cards having pivots projecting from their sides above their centers of gravity and sliding in the said guide-slots, and the intermittently-revolving pulleys provided with notches for the card-pivots, for transferring the cards from one guide-slot to the other.

2. The combination of the intermittently-revolving grooved pulleys provided with notches for the card-pivots, the frames provided with the upper and lower guide-slots, the loops extending around the pulleys and the middle portions entering the grooves of the pulleys, and a series of indicator-cards having pivots projecting from their sides above their centers of gravity, sliding in the said guide-slots, and transferable from one to the other by the said pulleys.

3. The combination of the frames provided with upper and lower guide-slots, a series of indicator-cards pivoted above their centers of gravity in the said guide-slots, the intermittently-revolving pulleys provided with notches for the said card-pivots for transferring the cards from one guide-slot to the other, the helical tension-springs, the followers secured to the ends of the springs and bearing against the

last cards, and the loose pulleys for carrying the springs.

4. The combination of the intermittently-revolving grooved pulleys provided with notches for the card-pivots, the frames provided with the upper and lower guide-slots, a series of indicator-cards pivoted above their centers of gravity in the said guide-slots, an electro-magnet provided with an armature for operating the said pulleys, and the intermediate ratchet-lever mechanism connecting the said armature with the pulleys, substantially as and for the purpose set forth.

5. The combination of the electro-magnet, the pivoted lever *g*, provided with the toothed rack, the armature pivoted to the lever, and the resistance-spring *q*, the loose toothed segment *h*, gearing into the said rack, the spring-pawl *i*, pivoted to the said segment, the intermittently-revolving ratchet-wheel *k*, operatively connected to the indicator-spindle *u*, and a stationary set-screw for holding the said pawl out of gear with the ratchet-wheel when in its normal position, substantially as and for the purpose set forth.

6. The combination of the electro-magnet, the pivoted lever *g*, provided with the toothed rack, the armature pivoted to the lever, and the resistance-spring *q*, the loose toothed segment *h*, gearing into the said rack, the spring-pawl *i*, pivoted to the said segment, the intermittently-revolving ratchet-wheel *k*, operatively connected to the indicator-spindle *u*, a stationary set-screw for holding the said pawl out of gear with the ratchet-wheel when the lever *g* is in its normal position, the pivoted stop-pawl *j*, operated by lever *g*, and the spring *o*, connected to the said stop-pawl, substantially as and for the purpose set forth.

GEO. GUNTZ.

Witnesses:

B. W. MARCY,  
A. S. SLYKER.