

H. H. SHULTS.

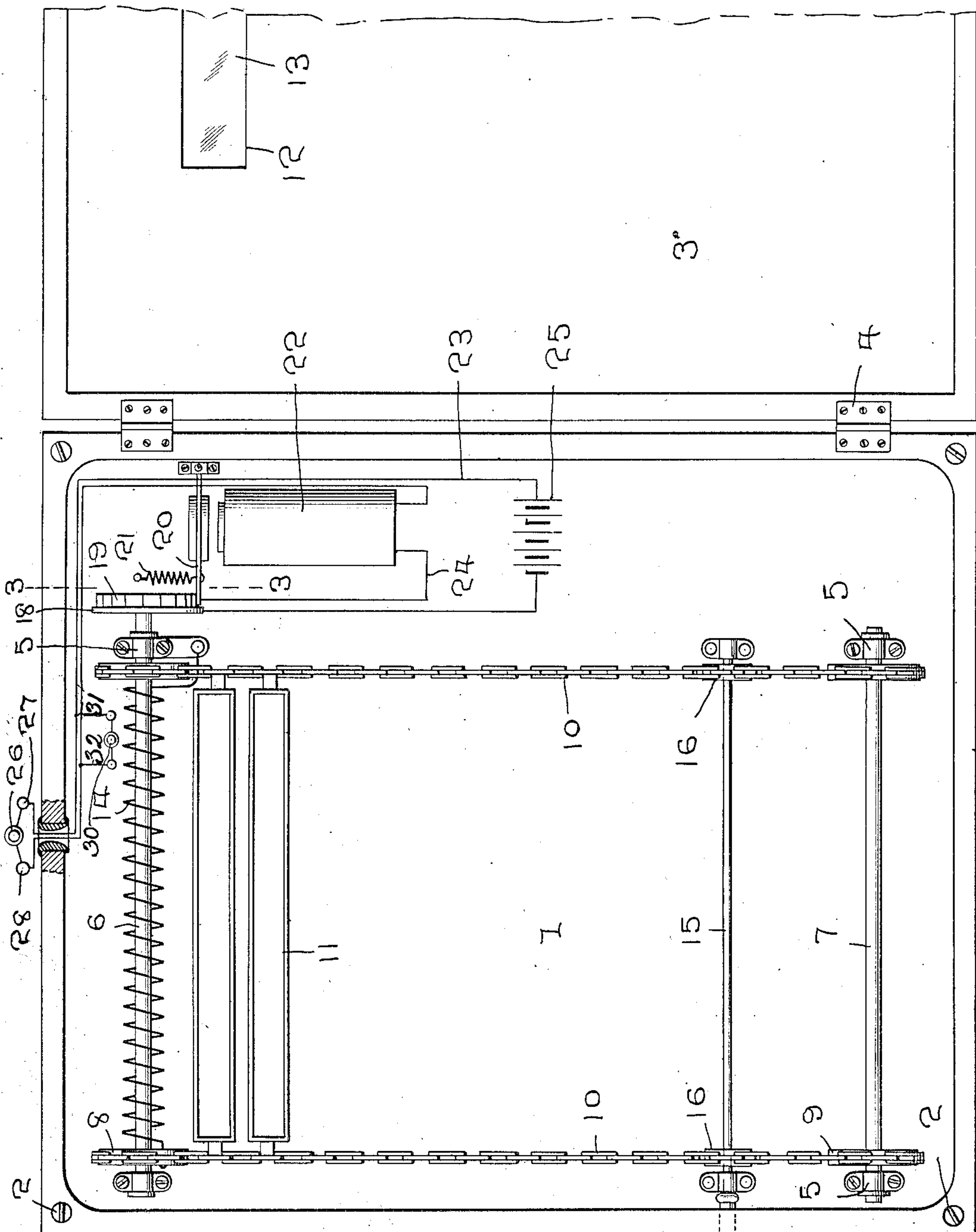
INDICATOR.

APPLICATION FILED AUG. 24, 1908.

926,026.

Patented June 22, 1909.

2 SHEETS—SHEET 1.



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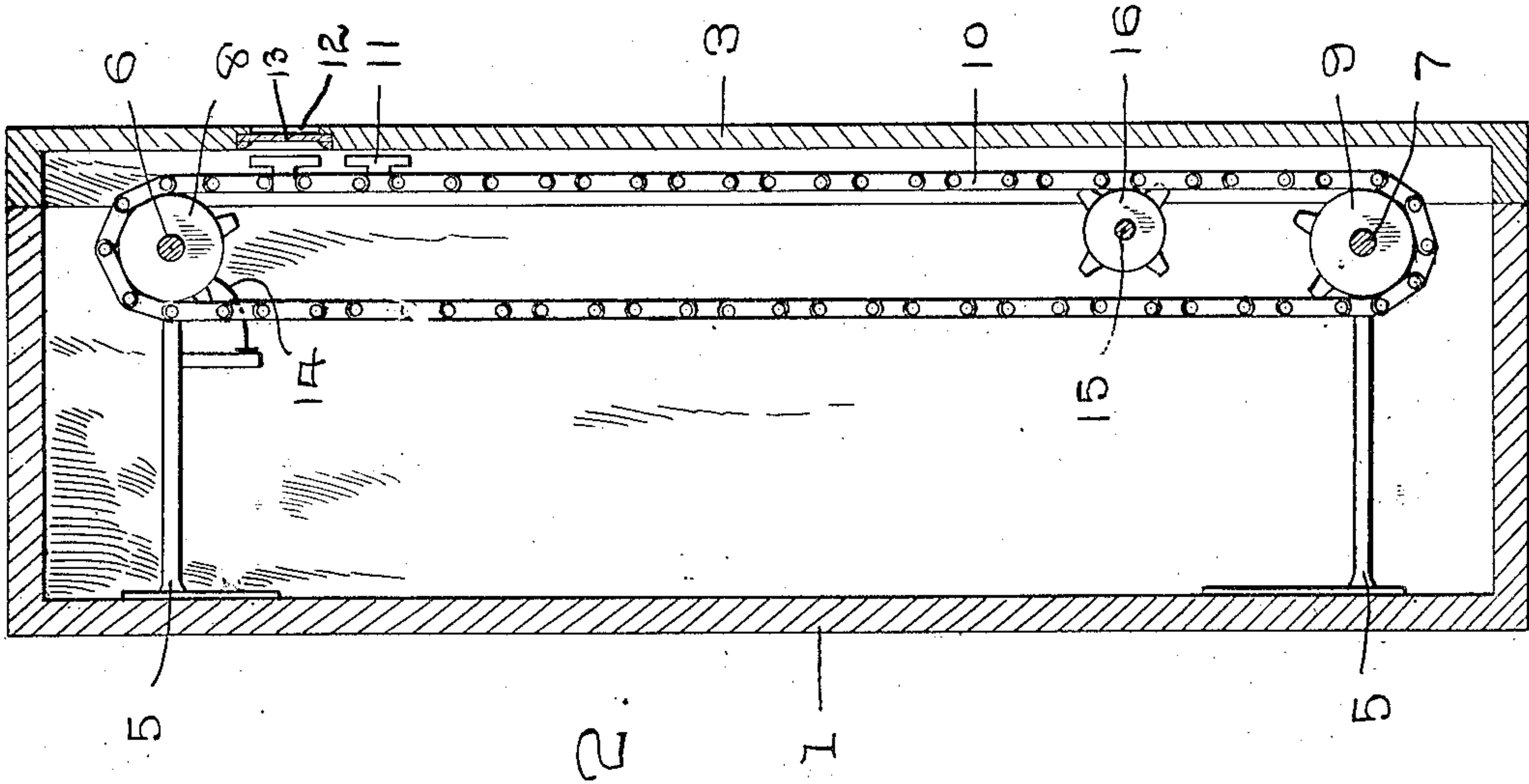
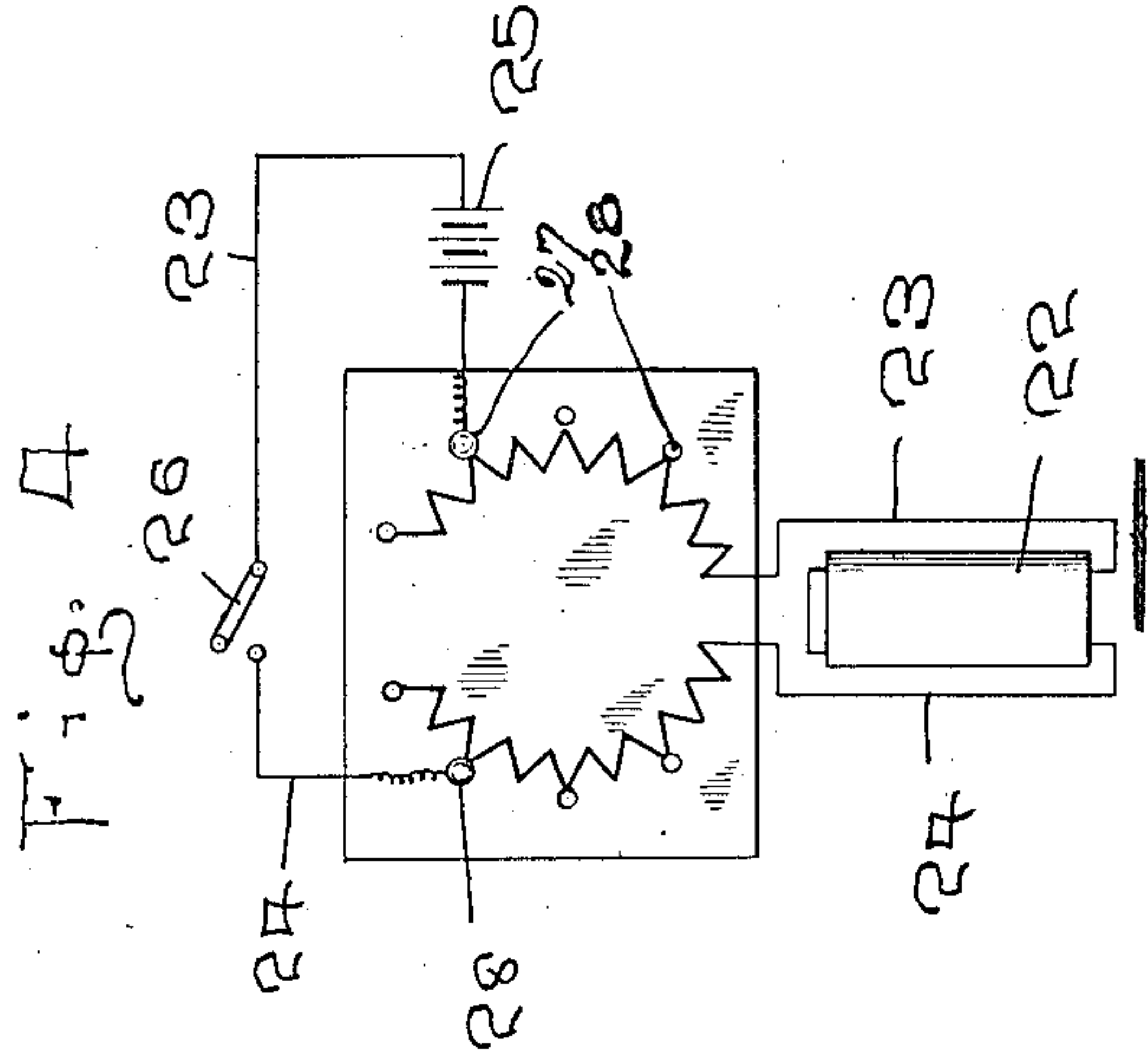
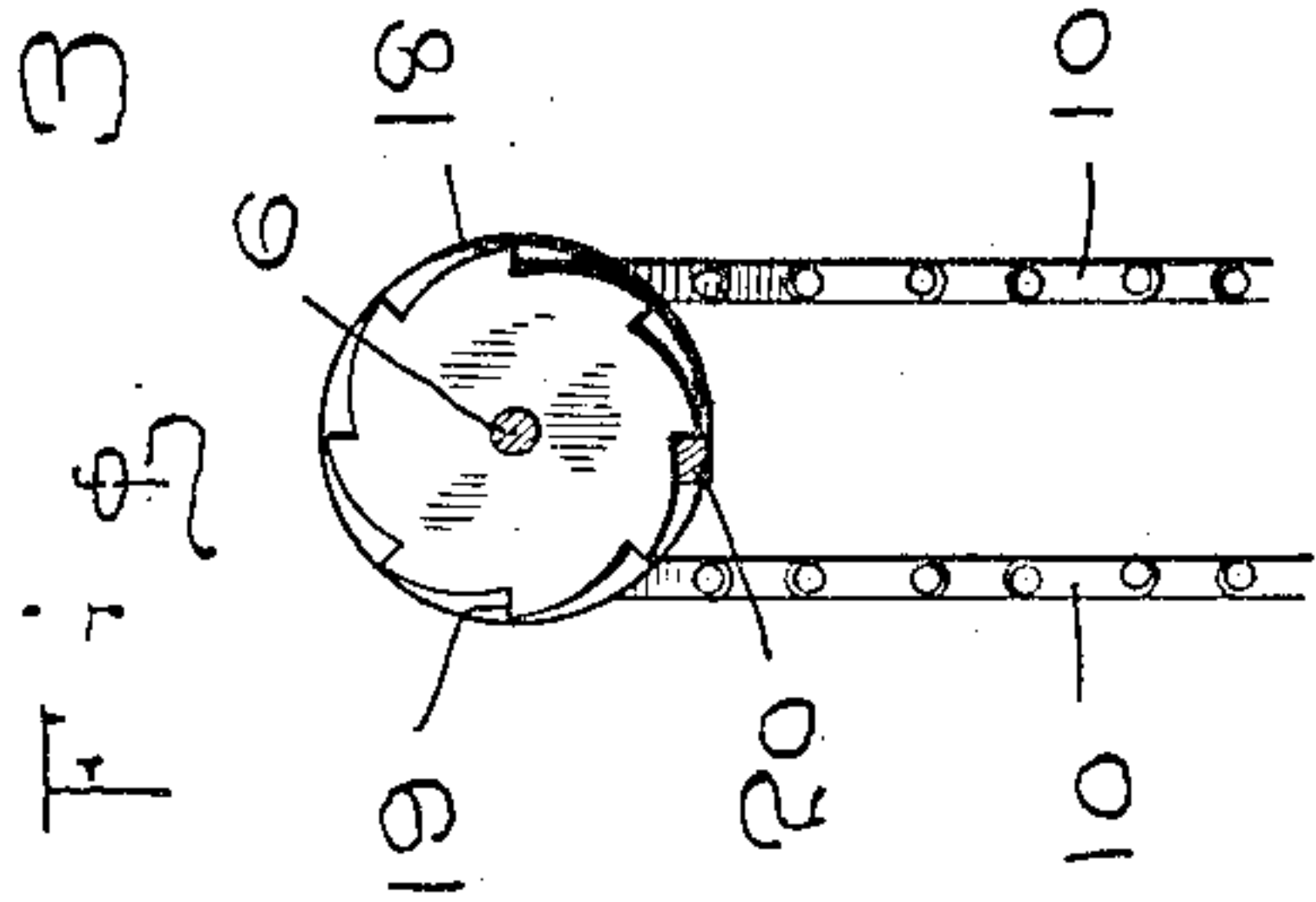
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UNITED STATES PATENT OFFICE.

HARRY HUNTLEY SHULTS, OF CHERRY CREEK, NEW YORK.

INDICATOR.

No. 926,026.

Specification of Letters Patent.

Patented June 22, 1909.

Application filed August 24, 1908. Serial No. 450,108.

To all whom it may concern:

Be it known that I, HARRY HUNTLEY SHULTS, a citizen of the United States, residing at Cherry Creek, in the county of Chautauqua and State of New York, have invented certain new and useful Improvements in Indicators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to new and useful improvements in indicators and more particularly to that class adapted to be used in indicating streets or stations along electric railway lines and my object is to provide an electrically operated controlling device to limit the movement of the displaying device.

A further object is to provide means for manually operating the controlling mechanism.

A further object is to provide a spring for operating the displaying device when released by the controlling mechanism.

A still further object is to provide an endless carrier and secure thereto a number of plates on which are to be placed the names of the streets or stations along the car line and a still further object is to provide means for manually re-winding the displaying device when the initial end of the route has been reached.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the claims.

In the accompanying drawings which are made a part of this application, Figure 1 is an elevation of the displaying mechanism, showing the case in which the same is inclosed. Fig. 2 is an edge elevation of the displaying mechanism showing the case in section. Fig. 3 is a detail sectional view as seen on line 3—3, Fig. 1, and, Fig. 4 is a plan view of the circuit closing mechanism and the plugs employed for increasing or decreasing the electric current required to control the indicator-releasing mechanism.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates a case, which may be constructed in any preferred manner and is secured in any suitable position to the wall of the car as by means of screws 2; said case being preferably provided with a cover 3, by which means ready access may be had to the

interior of the case, the cover being secured to the case by means of hinges 4.

Secured to the wall of the case 1 are standards 5, said standards being preferably arranged in pairs and disposed adjacent the upper and lower ends of the case and provided at their outer ends with any suitable form of bearings in which are mounted shafts 6 and 7, the shaft 6 being located adjacent the upper end of the case and the shaft 7 adjacent the lower end thereof.

Secured to the shafts 6 and 7 are sprocket wheels 8 and 9, respectively, which sprockets are likewise arranged in pairs on the shafts and are adapted to be engaged by sprocket chains 10, which chains are preferably endless and adapted to travel around the shafts when said shafts are rotated, the chains forming bearings for a plurality of plates 11, on which are adapted to be printed the names of the various streets or stations along the car line and in order to display but one of the names at a time, the cover 3 is provided with a slot 12, through which the plate is exposed, and to provide a comparatively dust-proof casing, the slot 12 is covered with a glass 13 or other transparent material, thereby preventing dust, etc., from entering the case at this point.

The carrier formed by the chains 10 and plates 11, is of sufficient length to contain a duplicate number of the names of the stations or streets along the car line and the two sets are placed in reverse order to each other so that when the end of the line is reached and the car starts on its return trip, the names of the streets will be indicated in order as the car travels toward the initial or starting end of the line, although the shafts continue to rotate in the same direction.

In order to cause the carrier to move lengthwise at the proper time, a coil spring 14 is placed around the shaft 6, one end of which spring is fixed to one of the sprockets 8, while the opposite end of said spring is secured to the case 1 or parts of one of the standards. In assembling the device the carrier is placed on the sprocket wheels so that the name of the last station on the route appears above the opening 13, so that it will require inverse rotation of the carrier to bring the name of the first street or station, at which the car will thus arrive after leaving the terminal, in registration with the slot in the cover, and the tension of the

spring 14 will thus be increased to such an extent as to move the carrier lengthwise at predetermined intervals while the car is traveling in both directions over the route.

5 As shown in Figs. 1 and 2, the end of the spring 14 secured to parts of the standard 5 is first directed downwardly from the shaft, thence outwardly a distance parallel to the shaft and then rearwardly into engagement 10 with parts of the standard, this manner of arranging the end of the spring permitting the plates 11 to operate without engaging the end of the spring.

When the car has made a complete circuit 15 of the route, it will be necessary to re-wind the endless carrier to move the same lengthwise its full length to bring the plates in proper position to indicate the names of the streets as the car travels over the route, this 20 operation again re-winding the spring 14 and rendering the same in condition to move the carrier lengthwise when desired.

The endless carrier is preferably rewound manually through the medium of a rod 15, 25 which rod extends laterally through the case 1 between the paralleling sections of the chains 10, said rod having sprocket wheels 16 thereon, which are adapted to engage the chains 10 and cause the carrier to move 30 lengthwise when the rod 15 is rotated, a turn button 17 being preferably secured to the extended end of the rod 15, whereby the rod may be readily rotated and without opening the covering 3.

35 The shaft 6 is adapted to be rotated at intervals whereby the plates will be intermittently moved into registration with the slot 12 and to accomplish this result, one end of the shaft 6 is extended beyond its 40 bearing and provided with a wheel 18, on which are provided a plurality of teeth 19, with which are adapted to engage the free end of an armature 20, the opposite end of said armature being pivotally secured to a 45 portion of the case 1 and the free end of the armature is normally held in engagement with the teeth 19 by means of a spring 21 and it will be readily seen that as long as the armature is in engagement with one of the 50 teeth, the shaft 6 will be held against rotation. In order, however, to release the armature from the teeth and permit the shaft 6 to rotate, I provide a magnet 22, which is placed immediately below the armature 20 55 and in position to attract the armature when the magnet is energized. The magnet 22 is in turn connected to an electrical supply through the medium of wires 23 and 24, the wire 23 being extended from the wheel 18 60 through a battery 25 to one section of a circuit closer 26, while the wire 24 extends from the free end of the armature 20 through the magnet 22 and to the opposite section of the circuit closer 26, so that when the cir- 65 cuit is closed, the magnet 22 will be ener-

gized and the armature 20 attracted and swung free of the teeth 19, the spring 14 causing the shaft 6 to rotate as soon as the armature is released from the teeth, but as the circuit is only closed momentarily, the 70 spring 21 will immediately return the armature into the path of the teeth 19 and stop the rotation of the shaft 6, the teeth 19 being so arranged that the carrier will only move the distance between the plate exposed 75 through the slot 12 and the next succeeding plate, thereby exhibiting the name of the next succeeding street or stop.

The battery 25 may consist of the usual form of cells or the current may be shunted 80 from the trolley wire and used to energize the magnet, as may be best suited to the occasion and in order to increase or decrease the amount of energy supplied to the magnet 22, I provide the usual form of plugs 85 27, which plugs may be adjusted in any of the series of holes 28, as desired, the adjustment of the plugs in one direction increasing the electric energy and decreasing the same when adjusted in the opposite di- 90 rection.

One face of the teeth 19 is flat, whereby the armature 20 may be positively engaged with the teeth and prevent the rotation of the wheel 18 in one direction until such 95 time as the armature is released from the teeth, but in order to permit the wheel to freely rotate in the opposite direction, as when the spring 14 is being rewound, the opposite faces of the teeth 19 are beveled 100 so that the armature will readily move over the same and permit the wheel 18 to rotate.

As best shown by dotted lines in Fig. 2, should length of the car line be unusually 105 long, an extra length of carrier may be added to provide space for the number of stops or streets by providing idler sprockets and arranging the same to properly support the carrier. 110

In operation, the carrier is placed in position on the sprockets 8 and 9 and then moved lengthwise to bring before the slot 12, the name of the street or station at which 115 the car will arrive after leaving the terminal, this operation increasing the tension of the spring 14 sufficiently to operate and move the carrier endwise during the round trip of the car. As the car moves forward and the first street is passed, the motorman 120 closes the circuit between the wires 23 and 24 by operating the circuit closer 26, which will energize the magnet 22 and attract the armature 20, thus releasing the armature from the teeth 19 and permitting the shaft 125 6 to rotate and move the carrier a sufficient distance to display the name of the next succeeding stop.

As will be clearly apparent, when the

armature 20 is attracted and released from the teeth 19, the circuit in the wires 23 and 24 will be broken, whereupon the spring 21 will immediately draw the armature into engagement with the next succeeding tooth and stop further rotation of the shaft 6, it being likewise understood that the motorman immediately releases pressure on the circuit closer as soon as the same has been depressed.

In view of the arrangement of the carrier, it will have moved its full length by the time the car has completed the round trip, thereby necessitating the carrier being re-wound to its initial or starting position, which may be accomplished through the medium of the button 17 and to prevent any tampering or disarranging of the carrier, whereby the wrong name would be exposed through the slot 12, the button may be removably secured to the rod 15 and retained in the possession of one of the attendants, who will attach the button to the rod at such time as it is desired to re-wind the carrier.

As each succeeding station or street is passed, the motorman depresses the circuit closer 26 and operates the armature 20, this operation being repeated during the entire trip of the car.

In view of the great simplicity of my improved indicator, it will be readily seen that the same can be very cheaply constructed and readily installed and that any number of plates may be added to the carrier as the route may require. It will likewise be seen that by placing the indicator in a case as shown, the indicator may be readily installed in any car and placed in the most convenient position for exhibiting the names of the streets and stations. The fact of employing the screws 2 is of great benefit, as said screws permit quick installation or removal of the machine and in view of the fact that the device is manually operated, should the plates be moved faster than the travel of the car, the carrier may be reversely rotated to rectify the mistake through

the medium of the rod 15. Should the motorman fail to operate the circuit closer 26, after passing a street, he would have no means of ascertaining that fact, except by a personal inspection of the indicator and in order to permit the conductor, within whose view the indicator is arranged, to remedy the motorman's oversight, and suitably display the required street name, a circuit closer 30 is positioned at any suitable point in the car and connected to the wires 23 and 24 by wires 31 and 32, respectively.

While not shown in the drawings, it is believed to be readily apparent that instead of applying a battery for energizing the magnet as shown, the wires can be readily attached to the usual form of lamp socket placed in all electrically-equipped street cars.

What I claim is:

1. In a displaying device, the combination with a carrier, having a plurality of names thereon, supporting shafts for said carrier and means to rotate one of said shafts and move the carrier lengthwise; of a toothed wheel fixed to one of said supporting shafts a manually operated rod adapted to move said carrier lengthwise and electrically controlled means cooperating with said wheel to limit the rotating movement of the shaft.

2. In a displaying device, the combination with an endless carrier, means to move said carrier longitudinally and additional means to control the movement of the carrier; of a rod introduced between the sections of the carrier, means on the rod adapted to engage and move the carrier longitudinally when the rod is rotated and a removable button for the end of the rod, whereby said rod may be readily rotated when desired.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY HUNTLEY SHULTS.

Witnesses:

NORA B. LAKE,
S. N. SMITH.