

No. 657,175.

Patented Sept. 4, 1900.

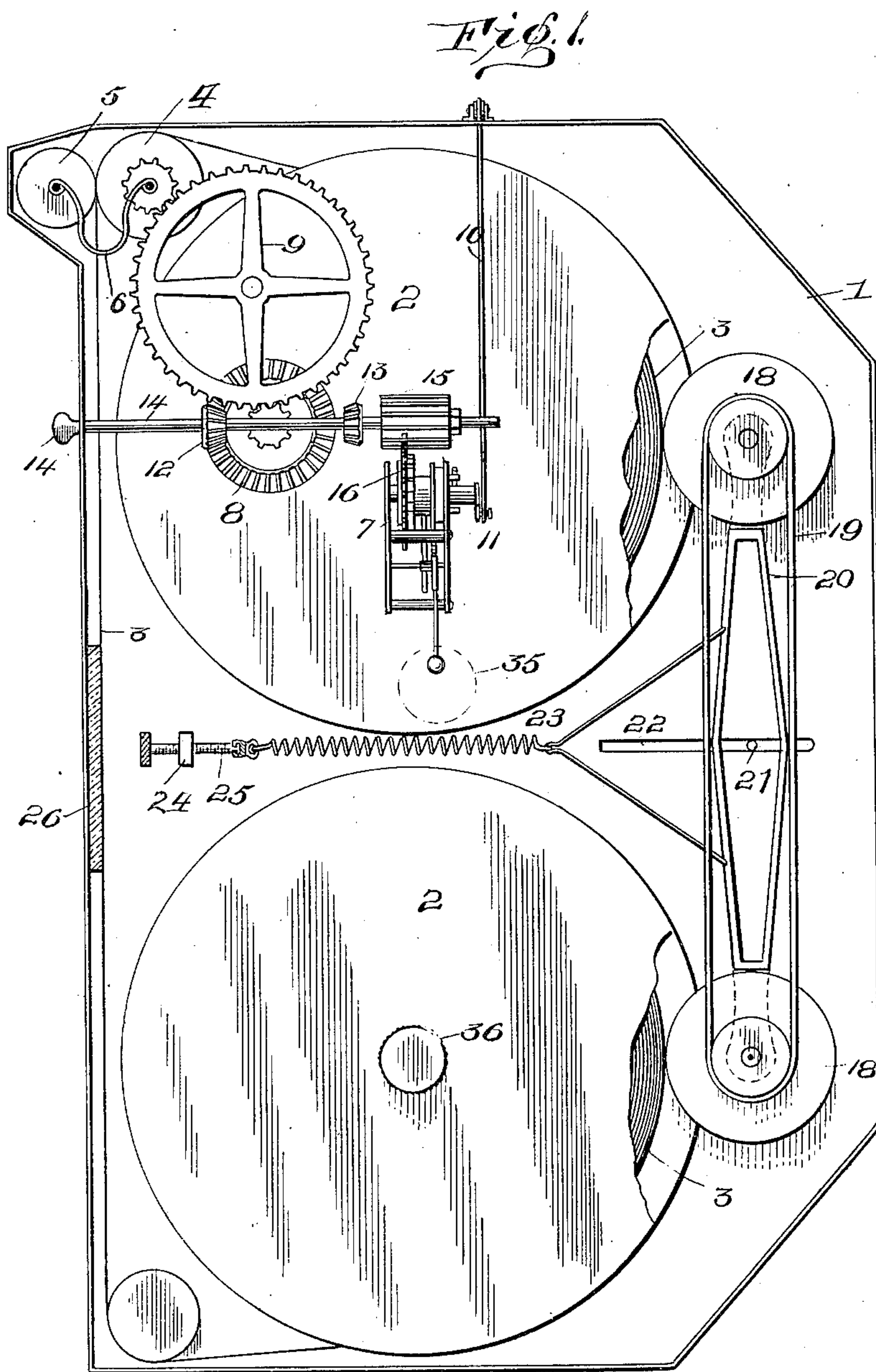
H. R. MILLER.

STREET AND STATION INDICATOR.

(Application filed Jan. 17, 1900.)

(No Model.)

2 Sheets—Sheet 1.



witnesses.

J. McFaulder Jr.
 A. A. Knight

z_5	1
y_2^2	30
p_1	2
y_1^2	29
p_2	3

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2 Sheets—Sheet 2.

Fig. 2.

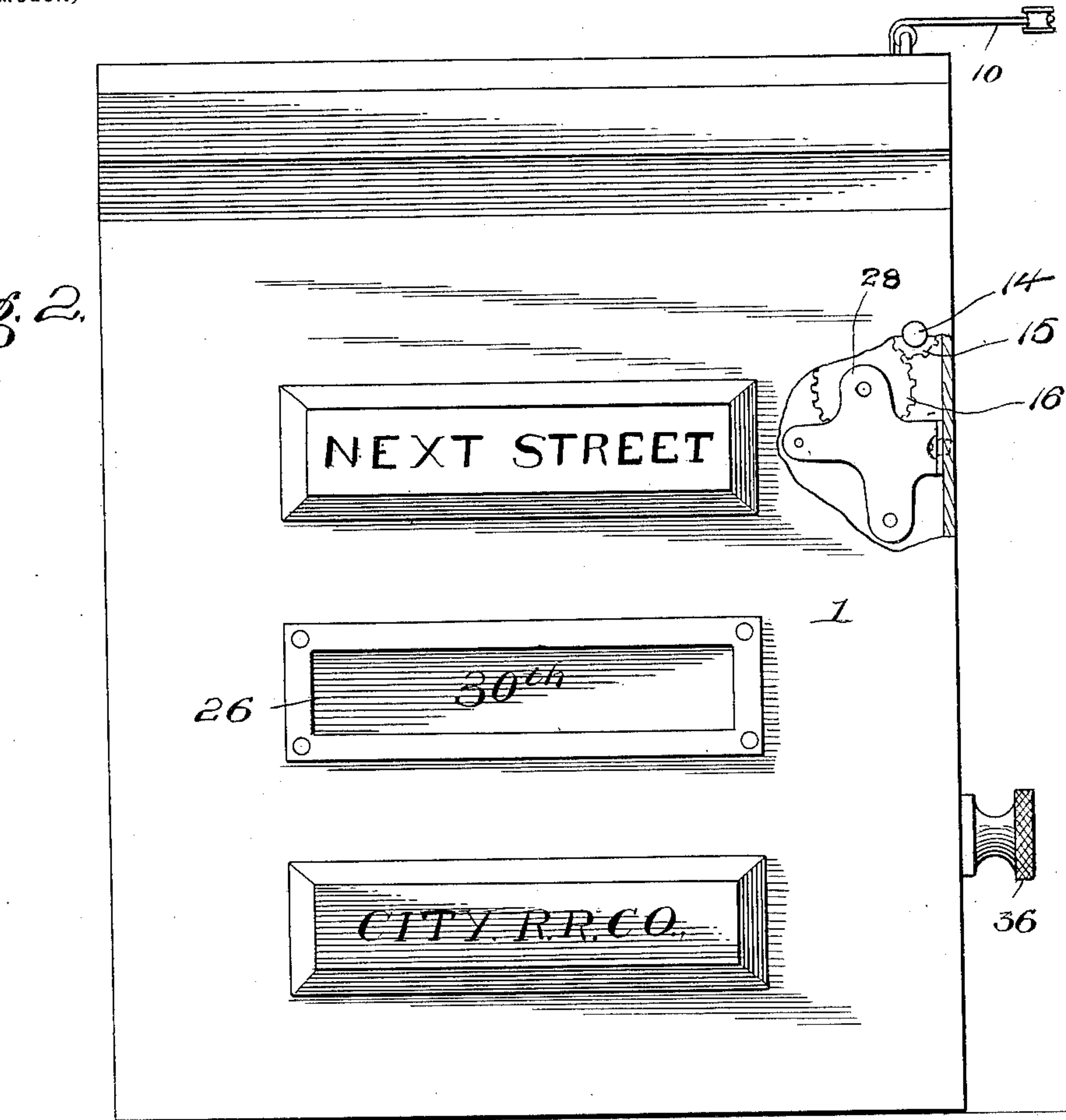
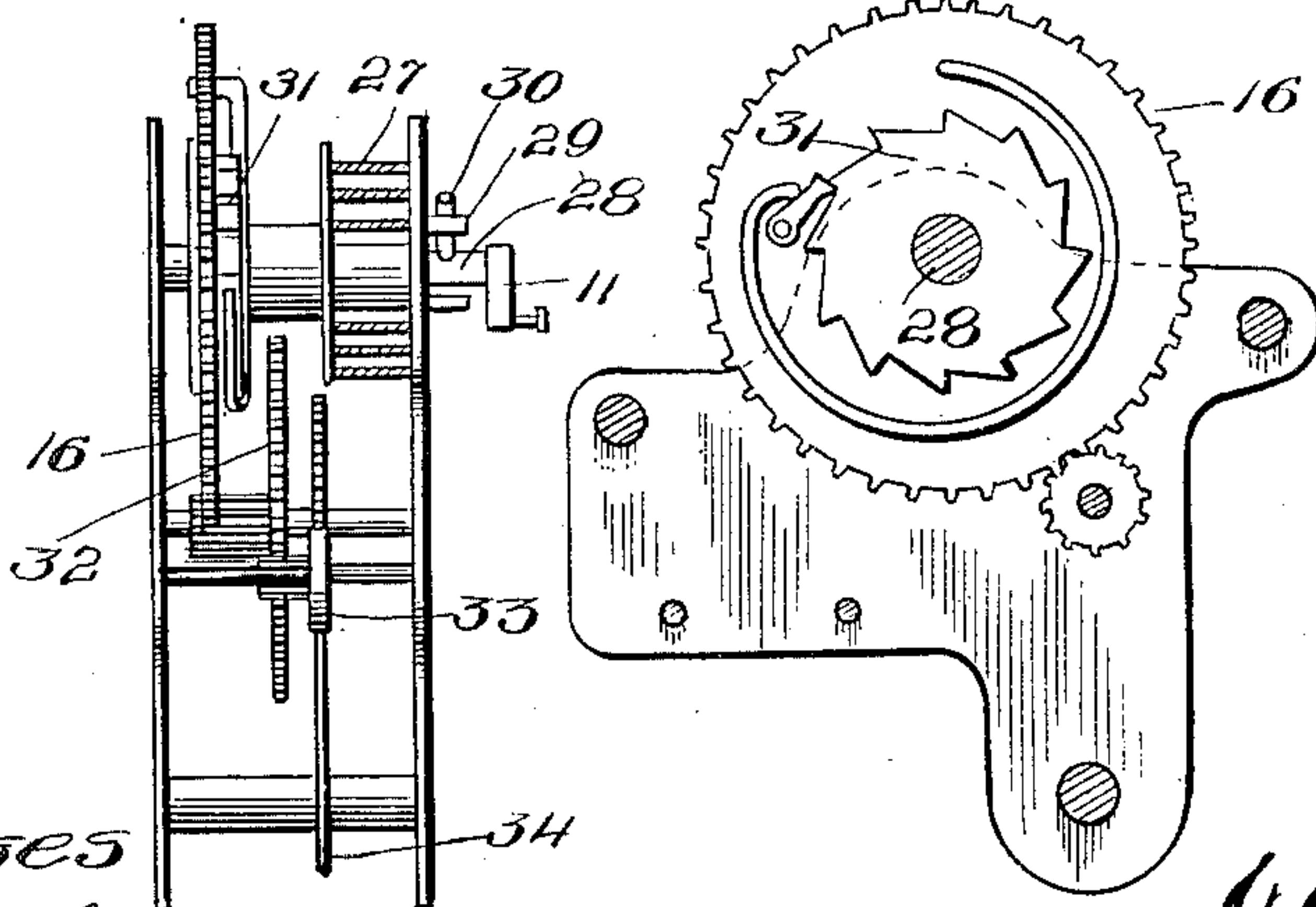


Fig. 3.

Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

HARVEY R. MILLER, OF BLOOMINGTON, ILLINOIS.

STREET AND STATION INDICATOR.

SPECIFICATION forming part of Letters Patent No. 657,175, dated September 4, 1900.

Application filed January 17, 1900. Serial No. 1,786. (No model.)

To all whom it may concern:

Be it known that I, HARVEY R. MILLER, a citizen of the United States, and a resident of Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Street or Station Indicators, of which the following is a specification.

My invention relates to street or station indicators employing a tape having its opposite ends attached to and alternately wound upon two cylinders rotating upon fixed axes, so that names or other indicia of streets or stations are successively presented before an exposure-opening in the device; and my invention consists in certain novel features of construction in the driving mechanism for the tape, in the means whereby winding motion imparted to one cylinder by propulsion of the tape is transmitted to the other winding-cylinder for the purpose of taking up the tape, and in the arrangement of the names or indicia on the tape, whereby the latter is adapted in its travel in opposite directions before the exposure-opening to designate a given series of streets or stations which occur repeatedly in the same order—as, for instance, in a railway operating on a belt-line or loop—all of which features will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is an end elevation of my improved indicator with one wall of the casing removed. Fig. 2 is a front elevation of the indicator. Figs. 3 and 4 are respectively edge and sectional views of the motor. Fig. 5 is a diagram illustrating an arrangement of streets or stations upon the tape.

1 represents a suitable casing, within which are mounted winding-cylinders 2 2, rotatable upon fixed axes and connected, respectively, with opposite ends of a tape 3, which may be driven in either direction by a drive-roll 4, having a pressure-roller 5, held thereto by a spring 6, the drive-roll 4 being rotated in either direction by means of a suitable motor 7 through the medium of a reversing-gear 8 and transmitting-wheel 9. While any suitable form of motor 7 may be employed for imparting a definite degree of rotation to the

drive-roll 4, I prefer to employ a spring-motor, to be hereinafter described, which is intermittently wound by a lever 11 under control of a cord 10, leading to a point within convenient reach of the conductor or other operator.

The reversing-gear comprises the bevel-wheel 8, meshing with the transmitting-wheel 9, and bevel-pinions 12 13, mounted on axis 14, which protrudes through the front of the indicator and is moved longitudinally to bring either of said pinions into mesh with the gear-wheel 8, said axis being rotated in the same direction by means of the elongated pinion 15, which is in constant engagement with the drive-wheel 16 of the motor 7.

By the above-described means the tape may be propelled in either direction, to be determined by the adjustment of the axis 14. In whichever direction the tape travels it rotates one of the winding-cylinders 2, and corresponding surface movement will be transmitted from the cylinder being rotated by the tape to the other cylinder, regardless of the diameter of the roll of tape accumulated upon the cylinders, by means now to be described.

18 represents rollers having frictional contact with the tape wound upon the cylinders 2, which rollers are connected by a belt 19, which causes either to be rotated by the other. Said rollers are journaled in a frame 20, mounted upon a pivot 21, movable in a slot 22, while a spring 23, suitably connected at one end to the frame 20 and at the other end to a fixed point 24, preferably through the medium of an adjustable screw 25, constantly holds the rollers 18 into contact with the cylindrical bodies of tape. By the pivoted mounting of the frame 20 the latter may rock upon its bearing, so as to compensate for the winding of the tape upon one roller and its unwinding from the other, and whatever the diameters of the bodies of wound tape may be equal surface movement will be imparted from one to the other, and the tape will be wound upon either cylinder as fast as it is unwound from the other by the driving-roll 4.

It will be understood that the motor is adjusted to propel the tape a given distance each time the lever 11 is drawn up and released, such distance being regulated so as to

bring the different markings of streets or stations consecutively before the exposure-opening 26 of the indicator.

The motor which I prefer to employ comprises a driving-spring 27 on the shaft 28 of the lever 11, which rotates said shaft a certain distance determined by the stop 29 on a fixed part of the motor-frame engaging the arm 30 on said shaft each time the lever 11 is drawn upward. The shaft 28 has a dog-and-ratchet connection 31 with the driving-wheel 16, hereinbefore referred to, so that each time the spring 27 is wound by drawing the cord 10 the wheel 16 remains stationary until the cord is released, when rotation will be imparted to said wheel by the unwinding of the spring and to a limited degree just sufficient to move the next marking of the tape in front of the exposure-opening. The motor is likewise preferably provided with the alarm and governing mechanism comprising a train of gearing 32, leading from the drive-wheel 16, and an escapement 33, carrying a striker 34, that coöperates with bell 35 to produce an audible signal each time the tape is shifted.

When the indicator is used upon a car running upon a belt-line, it is necessary that the tape be provided with a double set of markings arranged in alternating positions and in reverse order, as suggested in Fig. 5, in order that the reciprocal movement of the tape will present the names or numbers of the streets or stations in proper order, the markings being so disposed with relation to the distance the tape is shifted each time that they will be alternately presented for reading. Thus in traveling around the belt with the tape moving in one direction one set of markings—for instance, from "1" to "30"—will be presented consecutively before the exposure-opening 26, and when the belt is completed and the car starts to make the same circuit again the driving mechanism is shifted, the tape moves in the opposite direction, and the alternate set of markings, also running from "1" to "30," will be presented. If the indicator is used upon a car running upon a route having a loop at one end, so that the last few markings are presented, and then the car returns to the portion of the route upon which the streets or stations are passed in reverse order, the tape is marked for all the series of stations or streets, including the loop, and when the travel of the loop is completed the tape will be adjusted manually in the direction to which it has now been reversed until the stations or streets occurring in the loop and which are not passed in reverse order are past the exposure-opening and the series of stations or streets which are to be passed in the reverse direction are reached in the tape. This manual adjustment of the indicator may be effected through the medium of a milled knob or head 36 on one of the winding-cylinders.

Having thus described my invention, the

following is what I claim as new therein and desire to secure by Letters Patent:

1. An indicator of the character described, comprising a tape, cylinders spaced apart upon fixed axes and upon which the tape is wound, means for driving one of the tape-cylinders, and a frictional surface-contact driving connection between the two cylinders, comprising a pair of friction-rollers bearing against the tape wound upon the respective cylinders, a belt connecting the axles of said rollers, and means for holding said rollers in contact with their respective cylinders.

2. An indicator of the character described, comprising a tape, cylinders upon which the ends of the tape are wound, spaced apart upon fixed axes, a motor for driving the tape, a reversing connection between said motor and said tape-driving means, and a frictional surface-contact device making driving connection between the surfaces of the two cylinders, consisting of a pair of rollers, means for holding said rollers in contact with their respective cylinders, and a belt connecting the axles of said rollers, substantially as and for the purpose set forth.

3. An indicator of the character described comprising a tape, cylinders spaced apart upon fixed axes, and upon which the tape is wound, suitable means for driving the tape, and a frictional surface-contact driving connection between the two cylinders comprising a pair of connected friction-rollers bearing against the tape wound upon the respective cylinders, and a pivotal frame upon which said rollers are mounted; substantially as and for the purpose set forth.

4. An indicator of the character described comprising a tape, cylinders spaced apart upon fixed axes, and upon which the tape is wound, suitable means for driving the tape, and a frictional surface-contact driving connection between the two cylinders comprising a pair of connected friction-rollers bearing against the tape wound upon the respective cylinders, a frame in which said rollers are journaled and which is mounted upon a pivot movable to and from the plane of the cylinders' axes, and means for holding said rollers in contact with their respective cylinders; substantially as and for the purpose set forth.

5. An indicator of the character described comprising a tape, cylinders spaced apart upon fixed axes, and upon which the tape is wound, suitable means for driving the tape, a pair of connected friction-rollers bearing against the tape wound upon the respective cylinders, a frame in which said rollers are journaled, a pivot for said frame movable to and from the plane of the cylinders' axes, and a spring moving said pivot for holding said rollers in contact with their respective cylinders; substantially as and for the purpose set forth.

6. In an indicator, the combination of a pair

of winding-cylinders, a tape wound alternately from one cylinder to the other, and means for driving the tape alternately in opposite directions; said tape having arranged
5 upon it in reverse order two identical series of names or the like, with the names of each series alternating in position, said driving connection being adjusted to shift the tape a distance from one name to another in either
10 series, skipping over the intermediate name of the other series, and the cylinders being provided with means for adjusting them so as to start with either series; substantially as set forth.

15 7. An indicator of the character described comprising a tape, cylinders upon which the tape is wound, a tape-driver, a motor having a limited movement, means for actuating said motor, a reversing connection between said

motor and tape-driver, and a frictional surface-contact driving connection between the two cylinders; substantially as and for the purpose set forth. 20

8. In an indicator of the character described, the combination of the winding-cylinders, having driving connection with each other, a tape-driver, a motor and a reversing connection between the tape-driver and the motor comprising the axially-adjustable shaft having constant connection with one of said parts, 25 the bevel-gears upon said shaft, and a bevel-wheel connected with the other of said parts, said shaft projecting in position to be manipulated, as explained. 30

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Witnesses:

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