

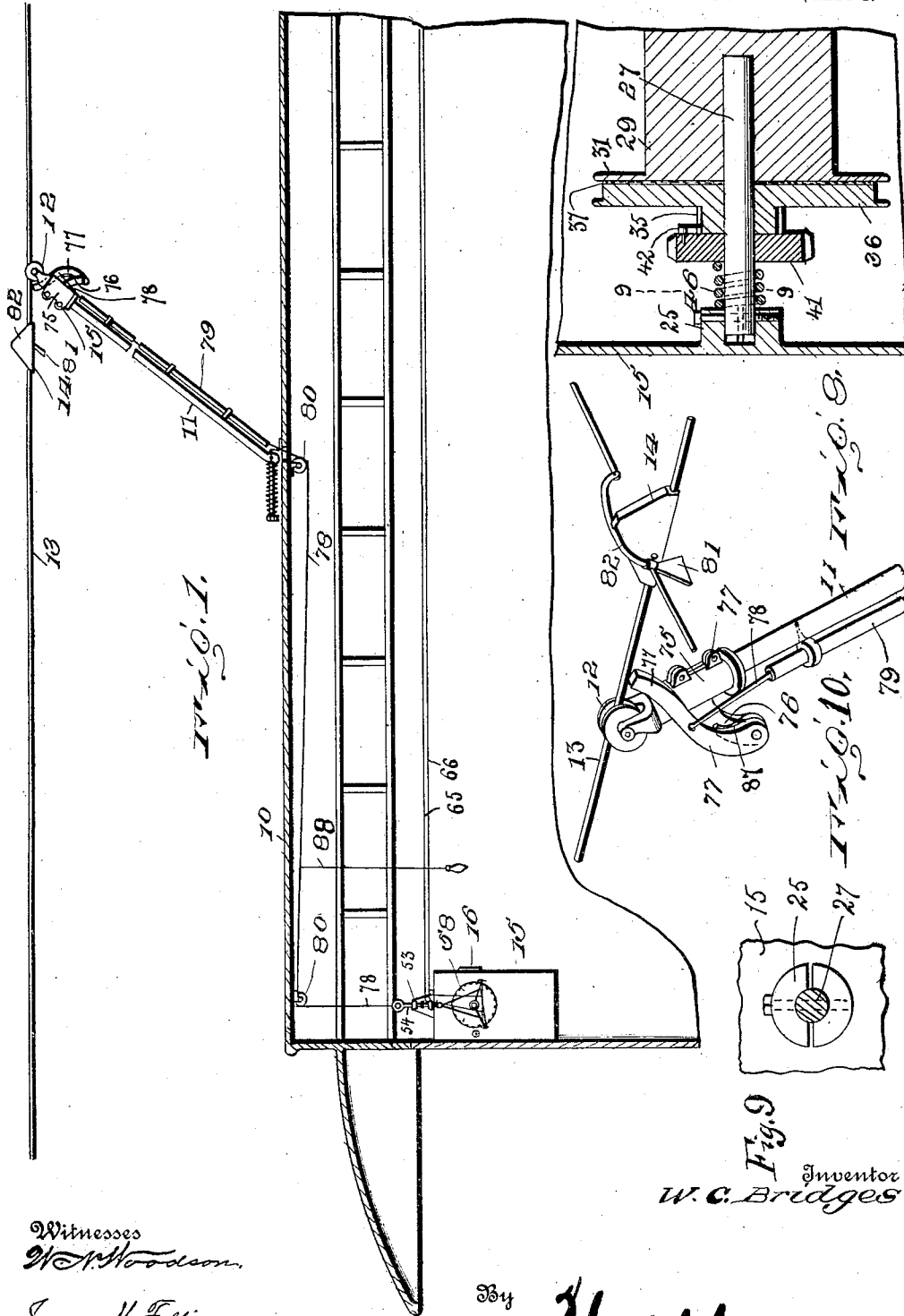
W. C. BRIDGES.
STREET INDICATOR.

APPLICATION FILED DEC. 10, 1910.

Patented Feb. 27, 1912.

3 SHEETS—SHEET 1.

1,018,693.



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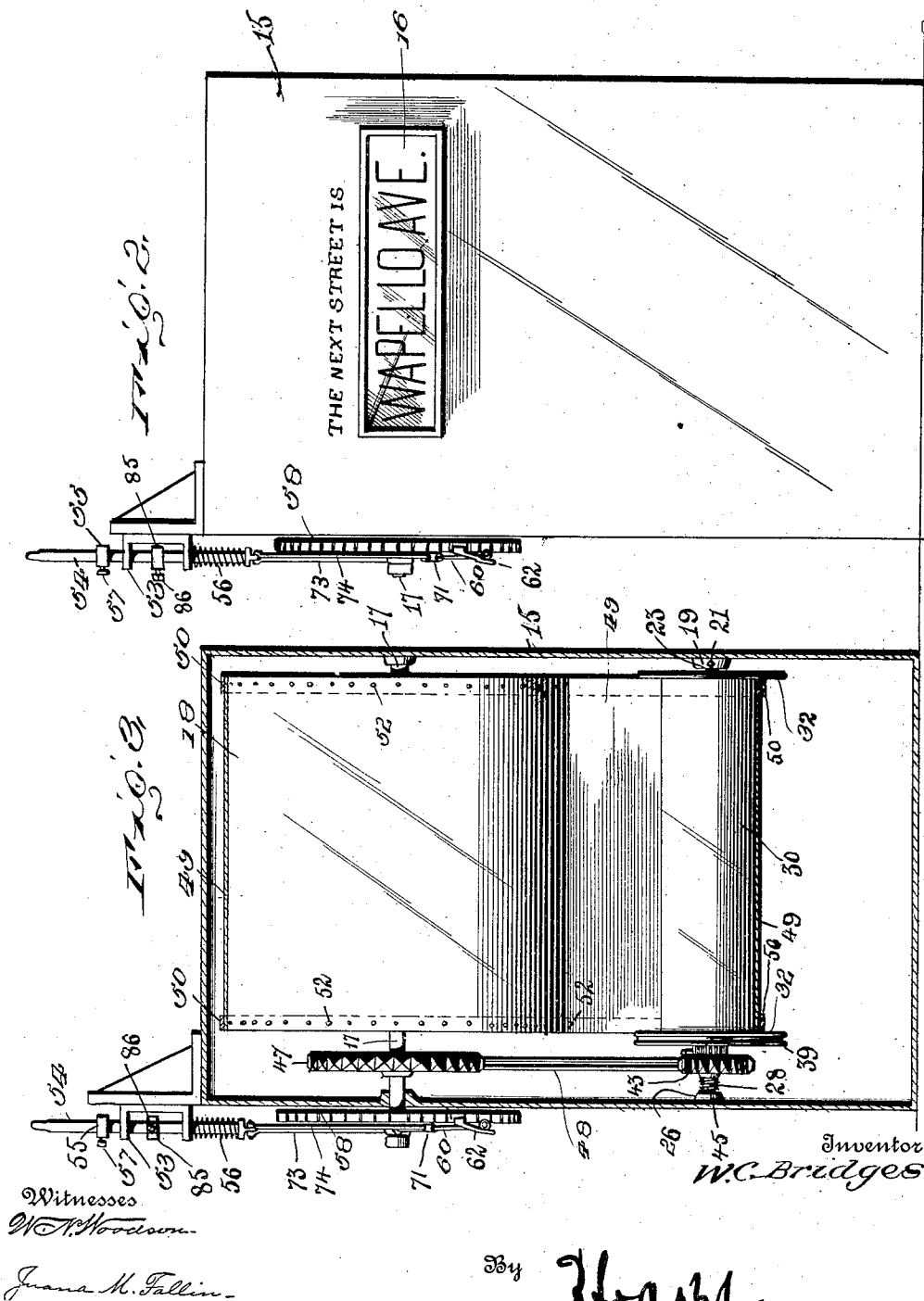
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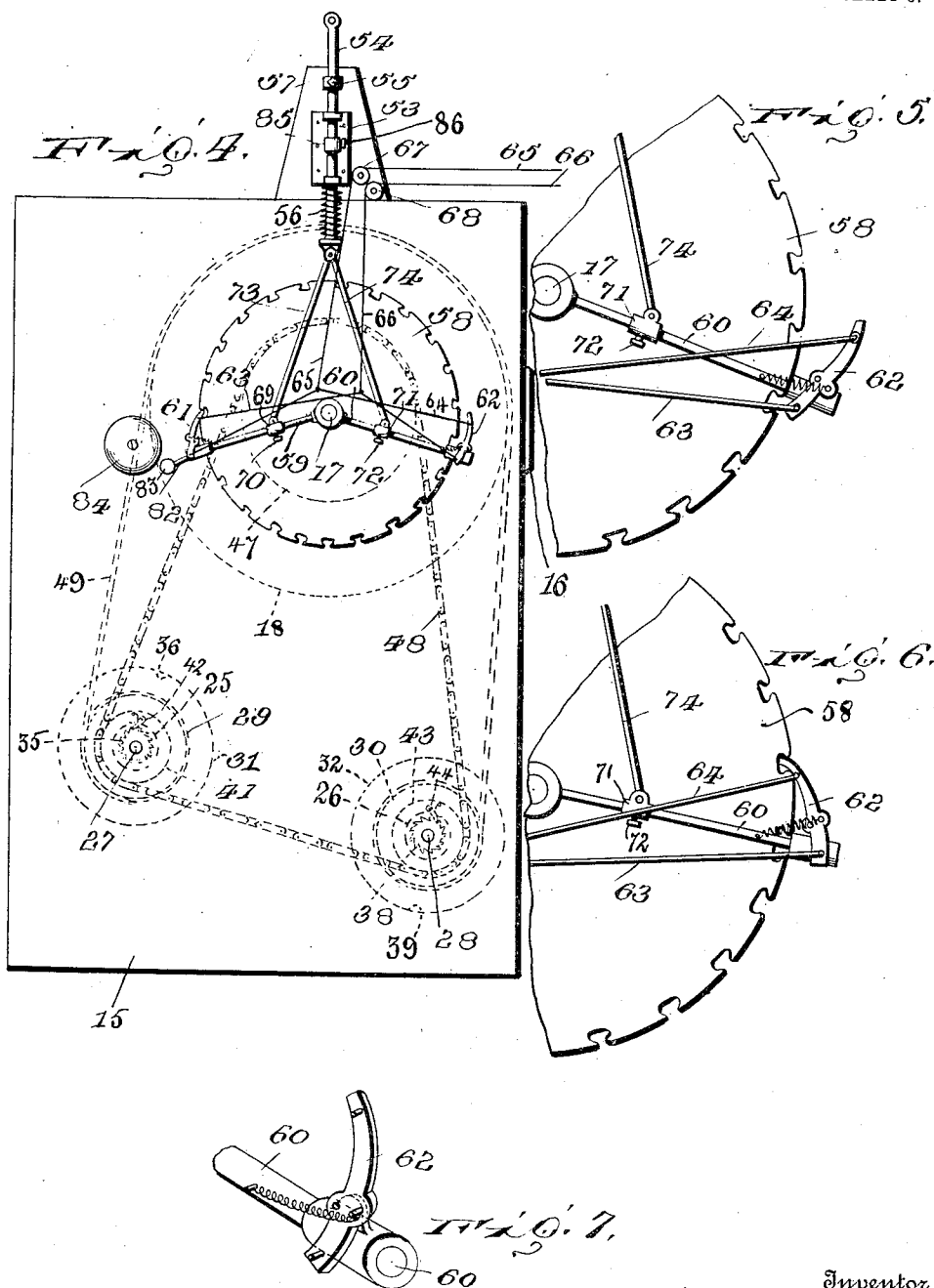
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

WILLIAM C. BRIDGES, OF WAPELLO, IOWA.

STREET-INDICATOR.

1,018,693.

Specification of Letters Patent.

Patented Feb. 27, 1912.

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To all whom it may concern:

Be it known that I, WILLIAM C. BRIDGES, a citizen of the United States, residing at Wapello, in the county of Louisa and State of Iowa, have invented certain new and useful Improvements in Street-Indicators, of which the following is a specification.

This invention relates to improvements in street and station indicators for street or other cars, more particularly to electrically operated cars employing the overhead trolley system, and has for one of its objects to provide a simply constructed device of this character in which the trolley pole is utilized to support a tripping mechanism through which motion is imparted to a flexible belt bearing the names of the streets or stations in successive order.

Another object of the invention is to provide a device having a flexible belt carrying the names of the streets or stations in successive order with simply constructed reversing mechanism which is operative independently of the tripping mechanism.

Another object of the invention is to provide a device of this character in which a plurality of frictionally controlled devices are employed to receive the belt carrying the street or station bearing names and by which the tension is automatically maintained.

With these and other objects in view the invention consists in the novel features of construction herein shown and described, and then specifically pointed out in the claims, and in the drawings illustrative of the preferred embodiment of the invention; Figure 1 is a side elevation of a portion of a trolley car together with the trolley pole and a portion of the conductor wire, with the improved device applied and partly in section. Fig. 2 is an enlarged front elevation of the casing containing the indicating mechanism. Fig. 3 is a front elevation of the indicating mechanism partly in section. Fig. 4 is a side elevation of the indicating mechanism, on the same scale as Figs. 2 and 3. Figs. 5 and 6 are enlarged details illustrating the operation of the belt moving mechanism. Fig. 7 is a perspective detail of one of the reversible pawls. Fig. 8 is an enlarged sectional detail of one of the winding drums. Fig. 9 is a sectional detail, on the line 9-9 of Fig. 8. Fig. 10 is a perspective detail illustrating the construction of tripping mechanism.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

The improved device may be adapted without material structural changes to trolley cars of various constructions, but for the purpose of illustration is shown applied to a conventional car a portion of which is shown at 10 with the trolley pole at 11, the trolley wheel at 12, the conductor wire at 13 and one of the trolley wire hangers at 14.

Mounted in the car 10 at any convenient point is a casing 15 having a glass covered opening 16 so located as to be in plain view by the passengers, and through which the street or station names can be read. Mounted for rotation in the casing 15 is a main shaft 17 carrying a relatively large drum 18. Connected to one of the walls of the casing 15 are two split sockets, one shown at 19, the sockets being provided respectively with clamp bolts 21. The split sockets support stub shafts 23 projecting inwardly, and connected to the casing 15 at the side opposite to the split sockets are other sockets 25-26 in which other stub shafts 27-28 are supported, one of the stub shafts 23 and 27 being in alinement and the other stub shafts 23 and the stub shaft 28 being in alinement transversely of the casing and in parallel relations to the shaft 17 and the drum 18. Mounted for rotation upon the stub shafts 23 and 27 is a winding drum 29, while a similar winding drum 30 is mounted for rotation upon the other stub shaft 23 and the stub shaft 28. The drum 29 is provided with end flanges 31, while the drum 30 is provided with similar end flanges 32.

Mounted for rotation upon the stub shaft 27 is a ratchet wheel 35 having a flange 36 corresponding to the end flange 31 of the drum 29, and provided with a yieldable disk such as hard paper, represented at 37, for bearing against the drum flange 31, while the stub shaft 28 is provided with a similar ratchet 38, flange 39 and yieldable friction member operating in connection with the drum flange 32. Mounted for rotation upon the stub shaft 27 is a chain wheel 41 carrying a pawl 42 which engages the ratchet 35, while a similar chain wheel 43 is mounted for rotation upon the stub shaft 28 and provided with a pawl 44 for engaging the ratchet 38.

The stub shafts 27—28 are provided respectively with springs 46— which bear against the chain wheels 41—43 and maintain the yieldable members 37 in constant engagement with the drum flanges 31 and 32. Connected to the shaft 17 is a chain wheel 47 and connected by an endless chain 48 with the chain wheels 41—43.

It will be noted that the ratchets 35—38 and the pawls 42—44 are reversely arranged, the object to be hereafter explained.

A belt 49 of canvas or other suitable material is connected at its ends to the drums 29—30 and wound from one to the other over the larger drum 18. At its edges the belt 49 is provided with enlarged bindings 50 of leather or the like, and provided with spaced apertures to engage over pins 52 in the ends of the larger drum 18 so that the belt will not slip when running over the drums.

The names of the streets or stations are placed in successive order upon the belt and are readable through the opening 16, as the belt and drums are operated. Connected to the casing 15 above the drum 18 is a vertical bearing 53 through which a rod 54 is slidably disposed, the rod being provided with a stop collar 55 above the bearing and a spring 56 below the bearing, the spring operating to maintain the rod yieldably in its downward position and the stop collar limiting the downward movement. The stop collar 55 is adjustable upon the rod 54 by means of a set screw 57, as shown. Another stop collar 85 is adjustably coupled to the rod 54 by a set screw 86 to limit the upward movement.

Connected to the shaft 17 is a toothed wheel 58, and swinging upon the shaft are two arms 59—60, the arm 59 having a swinging pawl 61 and the arm 60 having a swinging pawl 62. The pawls 61—62 are mounted to swing intermediate their ends with the upper ends arranged to engage the toothed wheel from opposite sides. The pawl 61 is connected above its pivot to the pawl 62 below its pivot by a cord 63, while a similar cord 64 connects the pawl 61 below its pivot to the pawl 62 above its pivot. Pull cords or cables 65—66 are connected respectively to the cords 63—64 and lead thence over guide pulleys 67—68 to a point convenient to the conductor or other official. By this arrangement it will be obvious that the pawls 61—62 may be alternatively engaged with the toothed wheel 58 to reverse the direction of motion of the shaft 17 and the belt 49, as hereafter more fully explained.

Slidably engaging the arm 59 is a sleeve 69 and adjustable thereon by a set screw 70, while a similar sleeve 71 is adjustably mounted upon the arm 60 by a set screw 72. Swingingly connected to the sleeve 69 and the rod 54 is a pull rod 73, while a similar

pull rod 74 is swingingly connected to the rod 54 and the sleeve 71.

Connected to the trolley pole 11 is a split sleeve 75 having an arm 76 and adjustable upon the pole by clamp screws. Swinging upon the arm 76 is a trip lever 77, and connected to the trip lever is a pull cord or wire 78 which leads through guides 79 upon the trolley pole and over guide pulleys 80 upon the car 10 to the rod 54, as shown. A spring 87 is arranged to yieldably maintain the lever 77 in position so that it will not be broken when the car runs backward.

Connected to the conductor wire supports at predetermined points, for instance between the streets or stations, are stationary trip stops 81 with which the trip lever 77 engages and by which it is actuated. The trip stop may be connected to any convenient portion of the trolley wire supports, but for the purpose of illustration is shown connected by an arm 82 to one of the conventional supports 14.

A signal device is employed in the improved device and arranged to be sounded each time that the drum 18 is actuated, and comprises striker members 82 connected to one of the arms 59 or 60, for instance to the arm 59, and is provided with a "hammer" 83 at the outer end, and a gong 84 is located in the path of the hammer, so that the gong will be sounded every time that the rod 54 is operated by the trip devices.

By arranging the sleeves 69 and 71 for adjustment upon the arms 59—60; the sleeve 55 for adjustment upon the rod 54; and the sleeve 75 for adjustment upon the trolley pole 11, the parts may be caused to operate in unison and adjusted to compensate for wear or other misadjustments.

The casing 15 will be preferably provided with the words "The next street (or station) is" above the opening 16, as shown in Fig. 2, as a guide to the passengers.

All of the parts of the belt mechanism are concealed and protected within the casing 15 except a portion of the rod 54 and its stop collar 55.

With a device thus constructed the operation is as follows. Assuming that the car is at one end of its trip with the belt 49 unwound from one of the winding drums and wound upon the other, the name of the first street or station beyond the starting point will appear opposite the opening 16, in the casing 15. The conductor then actuates the pull cord or cable 65 or 66 to dispose the pawl 61 or 62 as the case may be, in position to cause the drum 18 to be operated in the proper direction to wind the belt upon the empty winding drum and to incidentally unwind it from the full drum. As the car moves over the track and the trolley pole lever 77 will strike the first trip stop 81 and

cause the drum 18 to be rotated the distance of one of the teeth of the wheel 58 to bring the name of the next street or station into view through the "window" 16, and at the same time sound the signal gong 84. Then as the car proceeds the belt 49 is moved intermittently as the trip lever 77 successively engages the trip stops, as will be obvious.

It will be understood that one of the pawls 61 or 62, and one of the pawls 42 or 44 remains "idle" during the movement of the car in one direction, and the other pawls remain "idle" during the movement in the opposite direction.

As the belt 49 is wound intermittently upon one winding drum and unwound from the other winding drum during the operation of the device, one drum is constantly increased and the other drum is constantly decreased in size and with corresponding change in peripheral speed, hence the necessity for the arrangement of the frictional members between the drums and the ratchets, as by this means an effectual compensating mechanism is produced whereby the proper tension upon the belt is assured. The belt is caused to move exactly the same distance at each stroke of the rod 54 by reason of the coaction of the apertured bindings 50 and the pins 52, while a uniform and constant tension is produced upon the belt by the novel frictional mechanism above described. This is an important feature of the improved apparatus and adds materially to its value and efficiency.

A short pull rope 88 is connected to the main pull line 78 to enable the conductor to manipulate the indicator device independently of the trolley mechanism when required, as for instance if the car is backed up, to readjust the indicator device and set the name belt in proper position.

Having thus described the invention, what is claimed as new is:—

1. In a street and station indicator, an operating drum, winding drums, a belt hav-

ing names of the streets or stations and connected to said winding drums and bearing over said operating drum, a rotatable member for each of said winding drums and frictionally engaging the same, means for rotating the rotatable member, a toothed wheel rotative with said operating drum, two pivoted arms, a pawl pivoted intermediate its ends to each of said arms and adapted to engage said wheel from opposite sides, a cord connecting one of said pawls above its pivot to the other pawl below its pivot, and another cord connecting said first mentioned pawl below its pivot with the other pawl above its pivot, and a pull member connected to each of said cords.

2. In a street and station indicator, an inclosing casing, an operating drum for rotation in said casing, two winding drums mounted for rotation in said casing, a belt having the names of streets or stations and connected to said winding drums and bearing over said operating drum, a rotatable member for each of said winding drums and frictionally engaging the same, means for rotating the rotatable member, a toothed wheel rotative with said operating drum, two pivoted arms, a pawl pivoted intermediate its ends to each of said arms and adapted to engage said wheel from opposite sides, a cord connecting one of said pawls above its pivot to the other pawl below its pivot, another cord connecting said first mentioned pawl below its pivot with the other pawl above its pivot, a spring-controlled rod carried by said casing, independent connecting members between said spring-controlled rod and said arms, a pull cord connected to said spring-controlled rod, and other pull cords connected respectively to said pawl-connecting cords.

In testimony whereof, I affix my signature in presence of two witnesses.

WILLIAM C. BRIDGES. [L. S.]

Witnesses:

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