

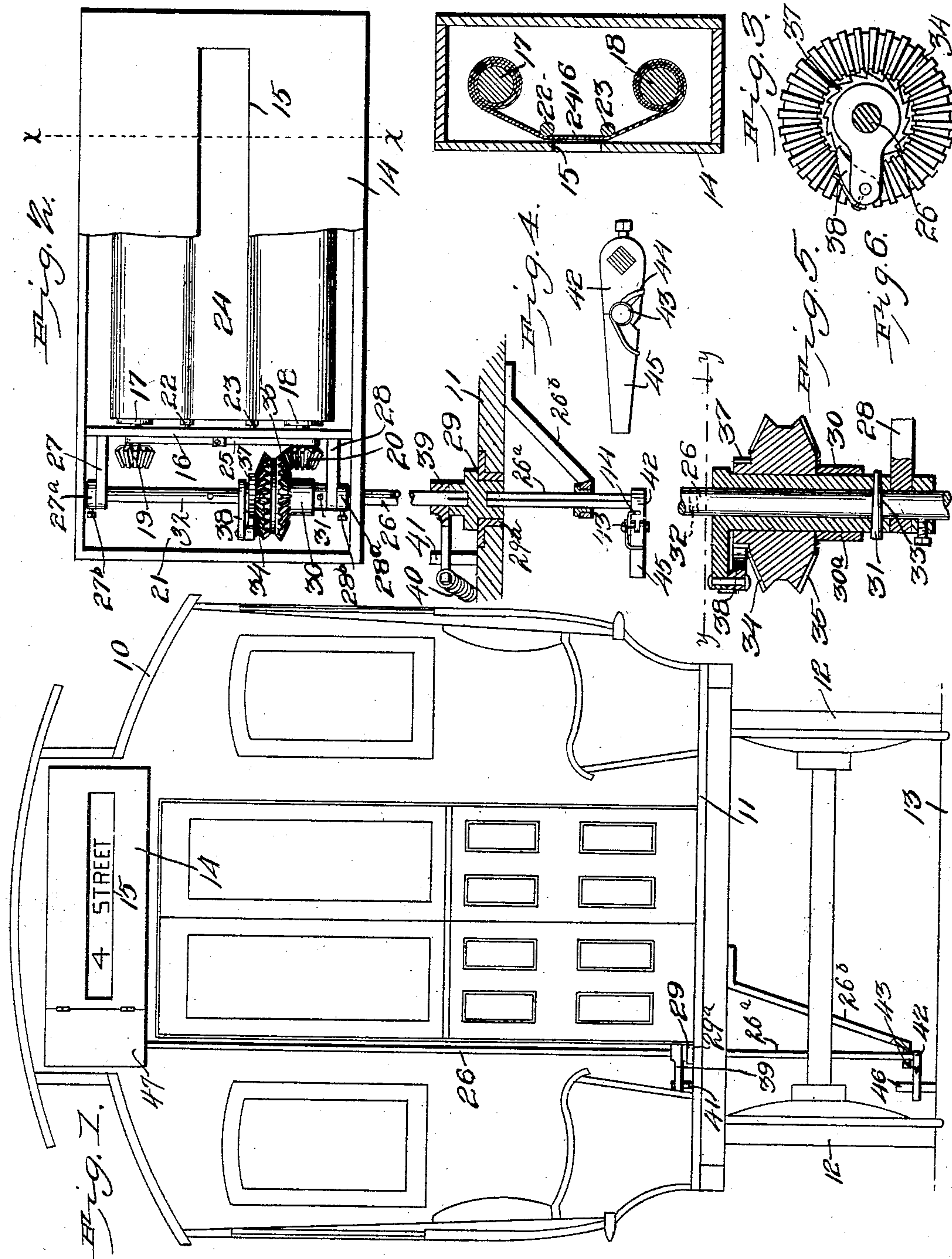
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Patented Nov. 11, 1902.

J. E. SMITH,  
STATION INDICATOR.

(Application filed Apr. 28, 1902.)

(No Model.)



Witnesses  
*E. J. Stewart*  
*L. H. Woodward*

*J. E. Smith*, Inventor.  
by *C. A. Snow & Co.*  
Attorneys



# UNITED STATES PATENT OFFICE.

JOHN E. SMITH, OF DELAWARE, OHIO.

## STATION-INDICATOR.

SPECIFICATION forming part of Letters Patent No. 713,516, dated November 11, 1902.

Application filed April 28, 1902. Serial No. 105,105. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN E. SMITH, a citizen of the United States, residing at Delaware, in the county of Delaware and State of Ohio, have invented a new and useful Station-Indicator, of which the following is a specification.

This invention relates to devices adapted to be attached to street or railway cars for the purpose of denoting the streets or stations; and it consists in certain novel features of construction, as hereinafter shown and described, and specifically pointed out in the claims.

The invention may be applied to either street or railway cars to denote either streets or stations; but for the purpose of illustration it is shown in the drawings applied to an ordinary street-car.

Figure 1 represents a transverse section of a street-car and track with the improved indicator applied thereto. Fig. 2 is an enlarged front elevation of the operative apparatus, partially in section. Fig. 3 is a vertical section on the line *xx* of Fig. 2. Fig. 4 is a sectional detail of the spring trip-pawl detached. Fig. 5 is an enlarged sectional detail of the name-belt-operating mechanism. Fig. 6 is a sectional detail view taken on the line *yy* in Fig. 5 and looking downward.

The car-body is represented at 10, the floor at 11, the traction-wheels at 12, and the road-bed at 13, of the usual construction. In the end of the car in a conspicuous position, so as to be in sight of all the passengers, is a casing 14, having an elongated aperture 15 in its front. The casing 14 is formed with a transverse vertical partition 16 near one end, and revolubly mounted through this partition and one end of the casing are two drums 17 18, each drum having a bevel-pinion 19 20 on its respective journal and extending into the compartment 21, formed by the partition. Supported by their ends within the casing above and below the aperture 15 are two small guide-rollers 22 23.

The names of the streets or stations are placed upon a belt 24, of canvas or other suitable material, and secured by its ends to the drums 17 18 and wound upon the drums, as shown in Fig. 3, passing around outside the guide-rollers 22 23 in its progress from one

drum to the other. By this arrangement when the drums are revolved the belt will pass in the rear of the aperture 15 and expose the name of each of the streets or stations consecutively and conceal all the others. The guide-rollers 22 23, holding the portion of the belt on which the street or station it is desired to expose, are located in close proximity to the aperture.

Attached to the partition 16 is a tension-spring 25, engaging by its ends the hubs of the pinions 19 and 20 and serving as a "brake" to retard the motion of the drums, so that the belt will not slip too easily from the drums, but will be held taut across the guide-rollers 22 and 23.

Supported in the car in vertical alinement with the center of the compartment 21 and extending through it is a shaft 26, the upper part of the shaft being supported within the compartment by brackets 27 28 and the lower part supported in a collar 29, which is supported in turn revolubly upon the floor 11, with a wearing plate or sleeve 29<sup>a</sup> between the collar and the floor. The lower end of the shaft 26 is square or otherwise irregularly formed and adapted to engage a correspondingly irregularly shaped cavity in the collar 29, so as to be readily detachable from the collar, while at the same time revoluble therewith.

Connected to the collar 29 at its lower side is a shaft-section 26<sup>a</sup>, forming a continuation of the shaft 26 and suitably supported beneath the floor 11 by brace 26<sup>b</sup>, as shown, so that a rotative motion imparted to the section 26<sup>a</sup> will be imparted to the section 26, as hereinafter more fully described.

Upon the portion of the shaft 26 within the compartment 21 is slidably disposed a sleeve 30, adapted to be secured to the shaft 26 alternately at two points, as by a removable pin 31, adapted to be alternately inserted in apertures 32 33 in the shaft.

Loosely mounted upon the sleeve 30 and supported, as by a collar 30<sup>a</sup>, is a double bevel-gear having an upwardly-facing bevel-gear 34 and a downwardly-facing bevel-gear 35, the gear 34 adapted to engage the pinion 19 when the sleeve is in its upper position and the gear 35 adapted to engage the pinion 20 when the sleeve is in its downward position.



Attached to the double gear is a ratchet member 37, and attached to the sleeve 30 is a spring-pawl 38, adapted to engage the ratchet from one side, so that when the shaft 26, with its attached sleeve 30, is revolved in one direction it will carry the double gear with it, but not affect the gear when turned in the opposite direction.

Attached to the collar 29 of shaft 26 near the floor 11 is an arm 39, having a spring 40, adapted to maintain the arm normally in engagement with a stop 41, and thus maintain the shaft normally in one position.

Attached to the lower end of the shaft-section 26<sup>a</sup> is a trip-pawl 42, having a rule-joint at 43, supported by a spring 44, so that the outer end 45 of the pawl will yield when the trip is engaged from one side, but will be rigid when engaged from the other side.

At some point between the streets or stations, preferably near the street or station just passed, is a stationary stop 46, so located as to engage the end 45 of the trip-pawl from its rigid side as the car passes, and thus revolve the shaft 26<sup>a</sup> 26 backward a sufficient distance to set the ratchet 37 one notch backward on the spring-pawl 38 and at the same time actuate the spring 40 through the arm 39, and then when the trip-pawl passes the stop 46 the reaction of the spring 40 will actuate the shaft 26<sup>a</sup> 26, and thus expose the name of the next street or station by revolving the belt 24 upward or downward, according to the direction in which the car is moving. Thus the only work the pawl 42 and trip 46 has to do is to "set" the ratchet upon the double gear-wheel.

The relative proportions of the pinions and gears and the length of the trip-pawl will be so proportioned that each time the trip-pawl is engaged the belt will be moved just far enough to expose the name of the next street or station.

Two sets of the collars 29, shaft-sections 26<sup>a</sup>, and trip-pawls 42 will generally be employed, one at each end of the car, so that at the end of the route the trainmen or conductors will transfer the casing 14 and its attached shaft-section 26, arm 39, and spring 40 to the other end of the car and engage them to the other shaft-section 26<sup>a</sup>, so that on the return trip the passengers will at all times face the device. This transfer arrangement will not be required where cars run around loops at the ends of the routes, but will be provided in cases where the cars simply run backward and forward and are not reversed. In any event the position of the sleeve 30 and its attached double gear 34 35 will be reversed by means of the pin 31, as before described, so that during the return journey the belt 24 will be operated in the opposite direction to indicate the names of the streets or stations in the reverse order. The rule-joint in the pawl 42 provides that if for any reason the car is backed the indicator will not be operated. By this simple means the

street or station which the car is approaching will be automatically indicated and in plain view of all the passengers.

The apparatus is very simple and requires no attention from the operatives, except for a brief period at the end of each route to reverse the position of the parts as above described, sleeve 30 and its gear, and of the trip-pawl 42.

The trip-stops 46 may be located between the rails or outside them, as preferred. When used in connection with street-cars, the stops will generally be located between the rails, and when employed in connection with railways the stops may be outside the rails and near the outer ends of the ties. The operation would be the same, however, and it is immaterial, so far as the results produced are concerned, where the stops are located.

The brackets 27 28 are formed in one piece, as shown in Fig. 2, and not only carry the vertical shaft 26, but also carry the journals of the drums 17 and 18, so that all the operative parts are rigidly held and supported and any tendency to draw apart or get out of alinement obviated.

Upon the shaft 26 and adjacent to the bracket members 27 28 are collars 27<sup>a</sup> 28<sup>a</sup>, adjustable upon the shaft, as by set-screws 27<sup>b</sup> and 28<sup>b</sup>, to not only support the shaft, but also to provide for its vertical adjustment to regulate the relative positions of the gears and pinions and maintain them in proper operative correlations.

The device may be adapted to any length of road or route, as the belt 24 may be made of any required length.

The distances between the street or stations' names will be graduated, so that the gradual increase in size of one drum and the decrease in size of the other as the belt is wound on one and off from the other will cause the name to appear in proper position in the rear of the aperture 15.

The proportions of the parts and their relative locations may be altered and modified in minor particulars without departing from the spirit or scope of the invention or sacrificing any of the advantages.

The compartment 21 will be provided with a hinged cover 47, by which access may be had to the sleeve and gearing when required.

The trip-pawl 42 may be operated horizontally or vertically, as preferred, or in some cases from points near the upper part of the car, and I do not, therefore, wish to be limited to any specific location or direction of operation of the pawl.

Having thus described my invention, what I claim as new is—

1. In a street or station indicator, the combination of rollers suitably mounted and having pinions upon their shafts, a belt bearing the names of the streets or stations and connected by its ends to said rollers, a vertical operating-shaft, means for intermittently oscillating said shaft, a sleeve mounted slidably



upon said shaft and provided at its lower end with a collar and at its upper end with a laterally-extending arm having a spring-pawl, a double bevel-pinion mounted upon said sleeve 5 and having a ratchet engaging the spring-pawl and means for securing the sleeve, and the parts supported thereby, upon the operating-shaft in operative position, substantially as set forth.

10 2. In a device of the class described, the herein-described means for transmitting motion to the belt-carrying rollers, the same comprising an oscillatory operating-shaft, a sleeve mounted movably thereon, means for 15 securing said sleeve at different elevations upon said shaft, a double bevel-gear mounted rotatably upon the sleeve and having a ratchet-wheel formed integrally therewith, an arm projecting from the sleeve, a spring-pawl 20 connected pivotally with said arm and engaging said ratchet, and pinions mounted upon the shafts of the belt-carrying rollers, substantially as set forth.

25 3. In a device of the class described, the combination with the operating-shaft composed of two sections having squared ends,

of a flanged collar provided in its opposite ends with square recesses engaging the ends of the shafts, and a sleeve revolubly supporting said flanged collar, said sleeve extending 30 through the car-floor, substantially as set forth.

4. In a device of the class described, the operating-shaft composed of two parts or sections having squared ends, in combination 35 with a flanged connecting-collar having squared recesses to receive the ends of the shaft-sections, an arm extending from said collar, a spring connecting said arm with a fixed point, thereby operating to oscillate the 40 shaft in one direction, and a jointed arm at the lower end of the lower shaft-section adapted to engage some fixed obstruction, to thereby oscillate the shaft against the tension of the spring, substantially as set forth. 45

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN E. SMITH.

Witnesses:

WM. C. NYE,  
D. E. HUGHS.