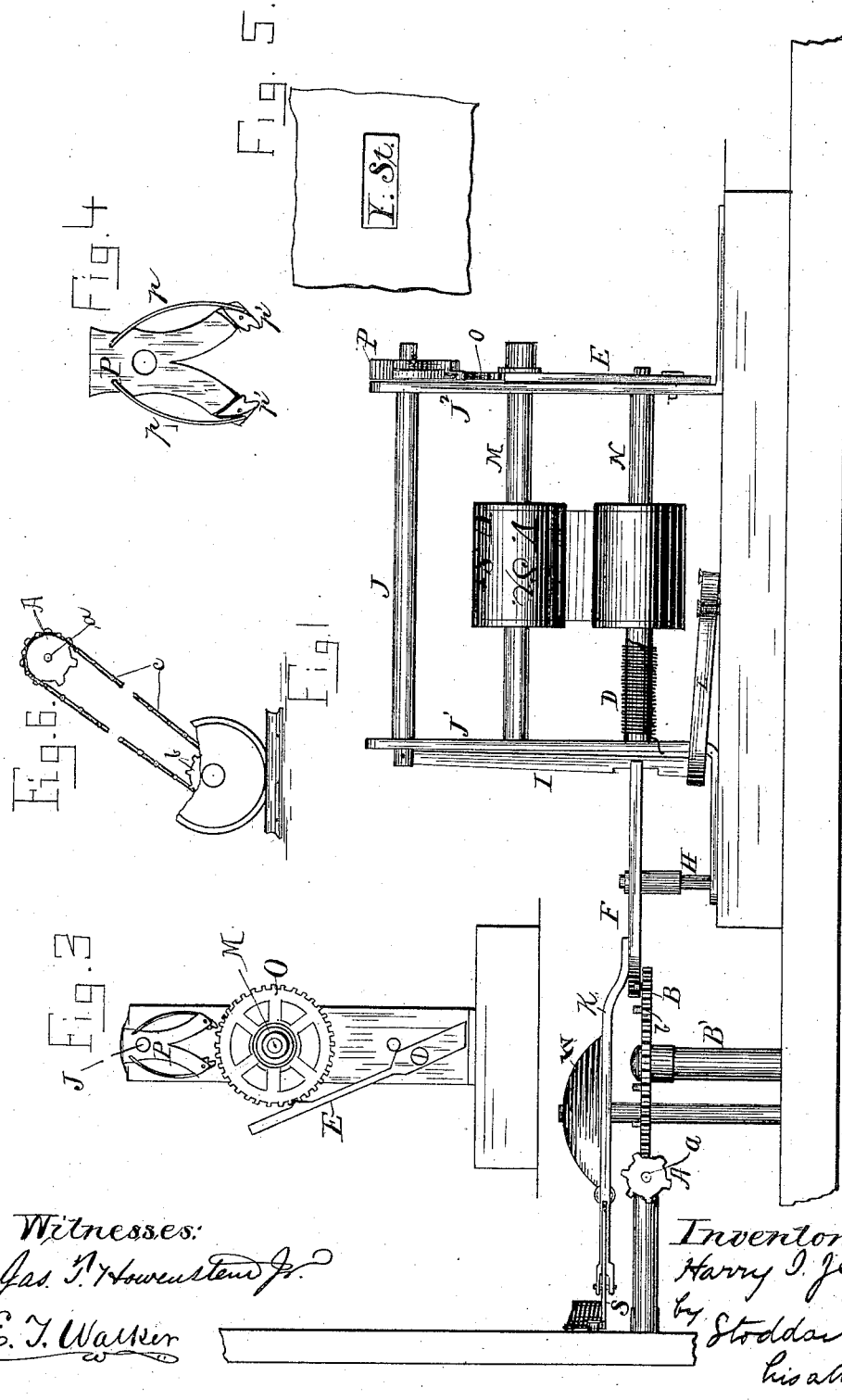


H. I. JEFFERS.

STREET INDICATOR FOR STREET RAILWAY CARS.

No. 344,047.

Patented June 22, 1886.



Witnesses:

Gas. F. Townsend Jr.  
E. T. Walker

E. J. Walker

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Harry J. Jeffers,  
by } Stoddard & Co.,  
his attorneys

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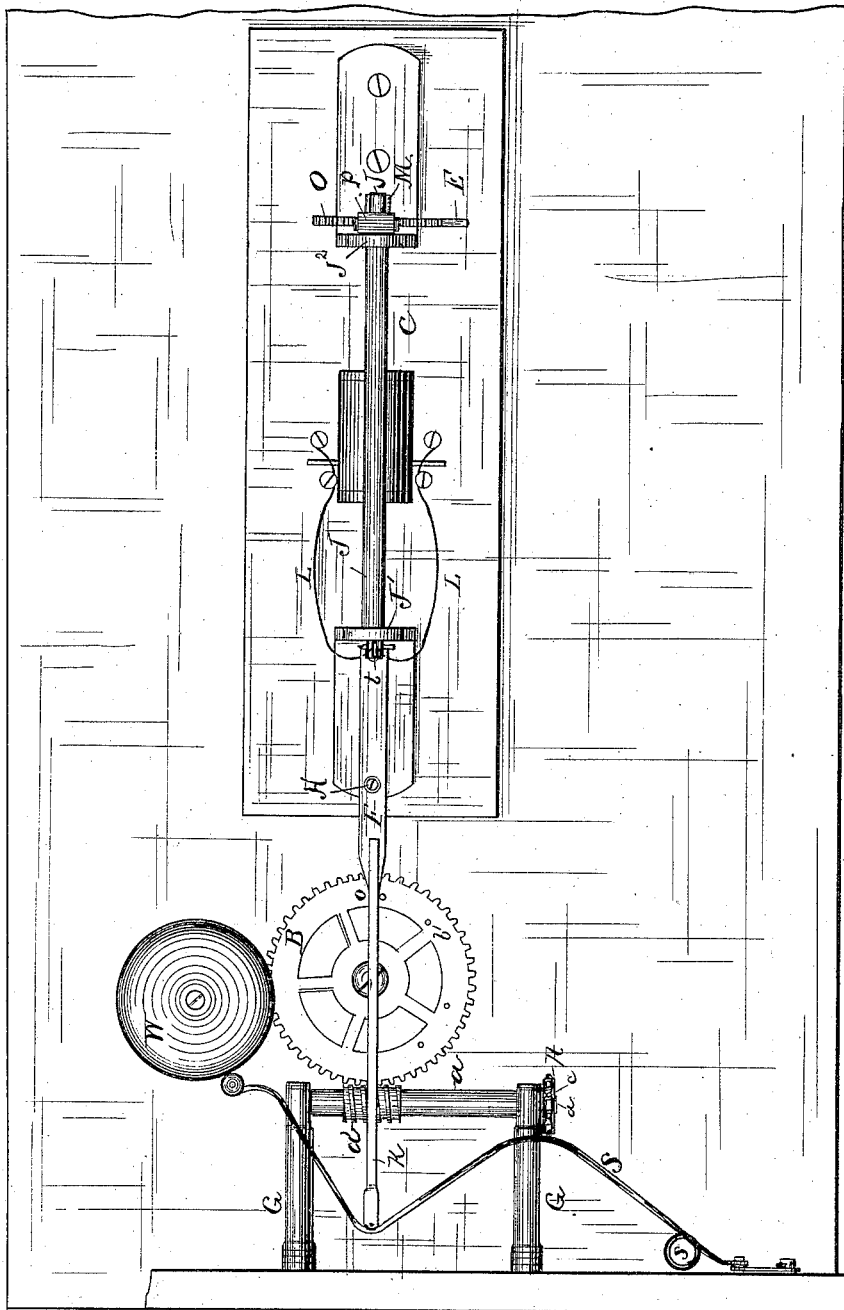
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Fig. 2.



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# UNITED STATES PATENT OFFICE.

HARRY IRWIN JEFFERS, OF MANCHESTER, IOWA.

## STREET-INDICATOR FOR STREET-RAILWAY CARS.

SPECIFICATION forming part of Letters Patent No. 344,047, dated June 22, 1886.

Application filed May 18, 1885. Serial No. 165,897. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY IRWIN JEFFERS, a citizen of the United States, residing at Manchester, in the county of Delaware and State of Iowa, have invented certain new and useful Improvements in Street-Indicators for Street-Railway Cars; 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 improvements in street-indicators for street-railway cars; and it consists of simple and inexpensive apparatus which, when properly applied to a street-car, will automatically indicate the name of the street at which the car has arrived, calling attention at the same time by a stroke on a bell to the particular street indicated.

My apparatus will usually be put up in one end of a car, and its driving-wheel will be connected through suitable belts or gearing with one of the car-axles or with a friction-wheel bearing on one of the car-wheels.

In order to enable others to make and use my invention I will describe it by reference to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 represents a side elevation of my improved street-indicator. Fig. 2 represents a plan of the same; Figs. 3, 4, and 5 show details, and Fig. 6 shows the means for connection between the shaft of the indicator apparatus and one of the car-axles.

The same letters indicate the same parts throughout.

A is the driving-wheel on the shaft *a*, which shaft is supported in the posts G G, secured to one side of a car or to one side or end of a case attached thereto. The wheel A derives its motion from one of the car-axles, being connected with a wheel, B, thereon by a sprocket-chain, *c*, as shown. It is obvious that the motion may be derived from a car-wheel, instead of a car-axle, and that any suitable means may be employed for making the connection.

On the shaft *a* is a worm, *a'*, which engages with a wheel, B, mounted on a post, B'.

In the wheel B are fixed a series of pins, *b*, which are arranged in an order corresponding to the order of the streets crossed by any given

car. The number and arrangement of the pins *b* can easily be made to suit any car-route. For example, if a car passes over a route in which it has to cross eighteen streets, among which are X, Y, and Z streets, and if the distance between X and Y streets is greater than that between Y and Z, the number of pins *b* will be eighteen, and three of them, corresponding to streets X, Y, and Z, will bear a similar relation as to distance, the pin corresponding to X street being proportionately farther from that corresponding to Y than the pin which answers to Z street. The absolute distance between the pins will be determined by the gear-connections and by trial, as will be hereinafter explained. The pins *b* act upon one end of the lever F, which lever is mounted on the post H in such a manner as to be capable of rotary motion thereon. The opposite end of the lever is provided with a notch, *t*, as shown in Fig. 2, and within the notch is located the vertical lever I, which is keyed to the shaft J. Now, it is evident that as the car moves the driving-wheel A will be operated, and that thereby the shaft *a*, the worm *a'*, the wheel B, and the pins *b* will be kept constantly in motion. The movement of the lever F will be periodic, taking place only when a pin *b* has been brought into operative contact with it by the rotation of the wheel B.

It is intended that the gearing connected with the driving-wheel A shall be so proportioned and the pins *b* so arranged as to bring a pin *b* into operative contact with the lever F, say at the middle of every cross-street. It is also intended that the pin shall remain in operative contact with the lever while the car is passing a distance equal to about one-half the width of a street. If desired, the pins may of course be arranged to strike the lever when or before the car reaches a cross-street. The shaft J being loosely mounted in its bearings J' and J<sup>2</sup>, it is evident that every time the lever F is moved by a pin *b* the shaft will make a partial rotation. The levers F and I are restored to position by the springs L L, which bear against the lower end of the lever I, as shown.

The street-indicating apparatus proper—that is, the drums or rollers carrying a strip

or ribbon which has the streets marked upon it in their order—is mounted on the shafts M and N, and in the normal condition of the apparatus has no positive connection with the parts already described.

A spring, D, is provided for taking up the slack of the ribbon in a manner well understood. The ribbon is placed behind an opening in a case, (see Fig. 5,) which contains the whole apparatus, and will usually be located at one end of a car. The opening will be just large enough to allow the name of a single street to show through; or there may be two openings—one to show the street at which the car has arrived, and the other to show the name of the next street ahead. There is a cog-wheel, O, on the shaft M, and this is so related to the drums or rollers on the shafts M and N as to size and number of teeth that a movement of the wheel one cog forward will cause the ribbon to move far enough to bring a new name opposite the opening. Such a movement is effected every time the shaft J receives its partial rotation, the means therefor being best illustrated in Figs. 3 and 4. They consist, essentially, of the forked piece P, which is fixed to the shaft J, and is provided with springs *p p*, which bear against the toe-pieces *p' p'*, pivoted in recesses at the ends of the fork-arms. These toes are normally located in a position to engage with the cogs of the wheel O, (but out of engagement therewith,) and when the shaft J is moved in either direction, one or the other of them will make engagement and move the wheel one cog. When the shaft flies back, however, the spring *p* will yield, allowing the toe to slip over a cog without moving the wheel back. A spring, E, holds the wheel in position after it has been moved. The same indicator will serve for a car going in either direction, as the motion of the wheel B will be reversed and so bring the pins into contact with the lever F in reverse direction and reverse order.

At the same time that the station-indicating apparatus is operated as above described, an alarm apparatus is also brought into operation by the following means: An extension, K, of the lever F is provided at its inner end with a yoke and pin, as clearly shown in Fig. 1. A

bent spring, S, pivoted at *s*, normally rests against the pin of the yoke, and while it is so resting a bell-hammer on its free end touches the bell W. The curves of the spring are such that when the lever F is moved in either direction it will push the bell-hammer away from the bell. When, however, the pin *b* passes off from the lever and allows it to fly back into place, the hammer strikes with force against the bell and attention is called to the particular street indicated.

In some cases a single shaft with a single large indicating-drum may be employed in place of the two shafts and drums shown. The shaft *a* will usually be easily removable or adjustable, so that if on trial the pins do not strike the lever F at the proper points on the route, the gear-connections can be changed to remedy the defect.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with gear mechanism adapted to be connected with the axle of a street-railway car, one part of the said mechanism being a wheel provided with pins arranged in the same order as the streets crossed by the car, of apparatus adapted to be acted on by the pins, consisting of the following parts: the levers F and I, the shaft J, the fork P, the cog-wheel O, and the shaft M, carrying an indicating-drum, substantially as described.

2. The combination, with the driving-shaft and worm-gear, of the wheel B, pins *b*, levers F and I, shaft J, fork P, cog-wheel O, and roller-shafts M and N, substantially as and for the purpose set forth.

3. The combination, with the driving shaft and worm-gear wheel B, the pins *b*, levers F and I, shaft J, fork P, cog-wheel O, and drum-shaft M, of the extension K, provided with a yoke and pin, the bent spring S, carrying a bell-hammer, and the bell W, as and for the purpose set forth.

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

HARRY IRWIN JEFFERS.

Witnesses:

W. B. MILLETT,  
H. A. MILLETT.