

E. HAND.

CHANGE-GATE SIGNAL FOR STREET-CARS.

No. 172,730.

Patented Jan. 25, 1876.

Fig. 1.

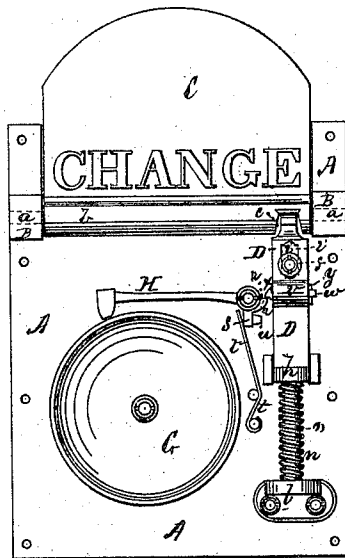


Fig. 4.

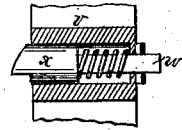


Fig. 2.

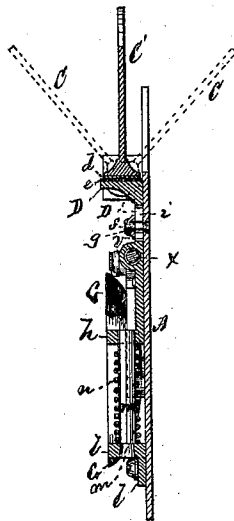
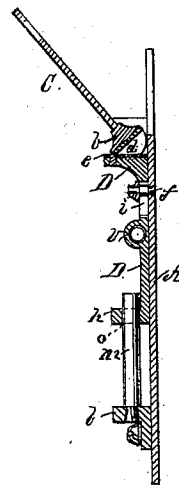


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE

EKINS HAND, OF ROCHESTER, NEW YORK, ASSIGNOR TO JOHN B. SLAWSON,
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IMPROVEMENT IN CHANGE-GATE SIGNALS FOR STREET-CARS.

Specification forming part of Letters Patent No. 172,730, dated January 25, 1876; application filed
December 18, 1875.

To all whom it may concern:

Be it known that I, EKINS HAND, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Change Gates or Bells for Street-Cars; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 represents a side elevation of my improved change-gate, and Fig. 2 a vertical transverse section of the same; and Fig. 3, a similar detail view of the same. Fig. 4 represents an enlarged detail section of the socket of the slide-bar tappet to show its construction.

My invention relates to that class of change-gates called "pivoted change-gates," and has for its object the simplification of the parts, in order to render it less complicated and costly.

My improvement consists in combining with a pivoted change-gate proper a single spring and slide-bar of peculiar construction, whereby, in whatever direction the gate may be pushed, the recoil of the spring will, when the gate is released from pressure, cause the latter to resume its normal position—*i. e.*, its position when at rest—and thus close the opening through which the change is made.

To enable others skilled in the art to make, construct, and use my improvement, I will now proceed to describe its parts in detail.

The working parts are all either secured to or mounted on a plate, A, of suitable size and construction, such as that shown in the drawing. To this plate are secured two lugs, B. In these lugs are formed bearings for the pivoted studs *a* of the change-gate C.

The change-gate C is provided with an enlargement, *b*, at its lower end, either by being cast in one piece therewith, or by being formed separately and afterward secured thereto, and which carries at its ends the pivotal pins *a*. The enlargement *b* has an angularly-shaped notch, *c*, cut on its under side near its outer edge, the inner end of which may or may not

be provided with a thin steel plate, *d*, as a wearing-surface. Into the notch *c* the upper end of a slide-bar, D, takes, and which, at its point of contact with the steel plate *d*, may or not be also provided with a corresponding plate, *e*, for a wearing-surface.

I prefer to use the wearing-plates *d* and *e*, and to so apply each that they may be readily renewed when worn.

Sliding bar D has a vertical slot, *i*, cut in its upper end, through which a confining-screw, *f*, passes into the plate A. A washer, *g*, may be interposed between the head of the screw and bar D. The screw serves to keep the bar D in place, while the slot allows it to slide freely up and down. The lower end of the bar D is provided with an inwardly-projecting lug, *h*, through which is cut an opening, *o*, into which the upper end of a guide-pin, *m*, loosely fits, the guide-pin being secured to a bracket, *l*, made fast to the lower end of the plate A. Around the guide-pin *m* is coiled a spiral spring, *n*, the ends of which bear, respectively, against the stationary bracket *l* and the projecting lug *h* of the slide-bar; or, instead of securing the guide-pin *m* to the stationary bracket, it may be secured to the lug *h*, and find a slide-bearing in an opening in the stationary bracket *l*. Either plan will answer an excellent purpose. In the drawing it is represented as being secured to bracket *l*.

Thus constructed, as the change-gate is pushed in either direction, as shown in dotted lines, the lower edge of the steel plate of the change-gate, according to the direction in which it is turned, will force the slide-bar D down, compressing the spring *n*, which, when the pressure is removed, will, through its recoil, force the slide-bar up again, and, in so doing, bring the change-gate again to its original position to close the change-opening. To this end, by reference to Fig. 2, it will be seen that the inner face of the notch *c*, and which is formed by the steel plate *d*, consists of a wide flat surface, which, being pivoted, when moved, causes the outer ends of the plates *d* to turn in the arc of a circle, and consequently—the upper end of the slide-bar D being correspondingly provided with a flat surface formed by the plate *e*—when so

moved, depresses the slide-bar D by pressing with one of its ends upon the wearing-surface of the latter, and vice versa.

To the plate A, at one side of the slide-bar D, is secured a bell, G, and at a short distance above, and on the side of the bell next the slide-bar, is pivoted a hammer, H. The hub or sleeve of the hammer is provided with a tappet, *r*, and a projecting arm, *s*, against the latter of which the upper end of a strong spring, *t*, is made to bear, there being a small stud-pin, *u*, to restrain the spring from forcing the arm *s* beyond a certain distance, in order to prevent the hammer from resting on the bell.

To operate the bell the slide-bar D is provided with a spring-slide tappet, *x*, an enlargement, *v*, for this purpose being formed on one side of the slide-bar. This enlargement contains a socket, which passes entirely through it, but is made wider on the side next the hammer-tappet than on the other. Into this the tappet *x* is inserted, and which being of greater diameter at the tappet end than at the other, the latter forms a stem, *w*, which is made to project through the small opening of the socket, as shown in Fig. 1. A small stop-pin is passed through an opening in the stem *w* on the outside of the socket-hole, to retain the tappet *x* in place once it has been inserted. Around the stem *w* is arranged a small spiral spring, which finds its points of resistance against the inner end of the tappet *x* proper, and inner end of the widened portion of its socket.

Thus constructed, when the slide-bar D is depressed it causes the flat surface of the tappet to act on the tappet *r* of the hammer H, thereby raising the latter until the tappet *x* passes beyond or below the tappet *r* of the hammer. When this occurs the spring *t*, which by that act has been bent, reacts on the arm *s* of the hammer, causing the latter to de-

scend with a sharp blow on the bell, and thus calls the attention of the driver to the fact that change is wanted, or of the passenger that his change is ready. Pressure being removed from the change-gate, spiral spring *n* reacts on the slide-bar D, forcing it upward, and in so doing brings the curved side of the tappet *x* against the curved side of the tappet *r*, which, being immovable in that direction by reason of the stud *u* resisting the further turning of the arm *s* of the hammer, forces the tappet *x* into its socket until the latter has passed tappet *r*, when the small spiral spring around the stem *w* of tappet *x* forces the latter out again ready to engage with tappet *r* on the next descent of slide-bar D.

The lever which carries the hammer H should possess sufficient resiliency to impart a sharp blow to the bell, despite the fact that when at rest it does not or should not touch the bell, because of the arrangement of the stop-stud *u* and the arm *s* on its hub or sleeve.

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

1. The combination of the slide-bar D and spring *n* with a pivoted change-gate, substantially as set forth.

2. The combination of the slide-bar D and slide-tappet *x* with the hammer *h* and its tappet *r* and bell G, substantially as set forth.

3. The combination of a pivoted change-gate, C, provided with a wearing-plate, *d*, with a slide-bar, D, provided with a corresponding wearing-plate, *e*, substantially as set forth.

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

EKINS HAND.

Witnesses:

E. B. SCOTT,
R. F. OSGOOD.