

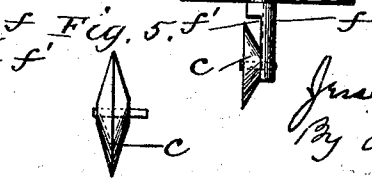
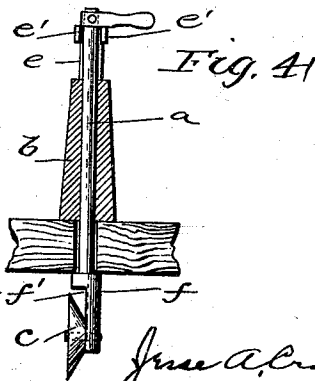
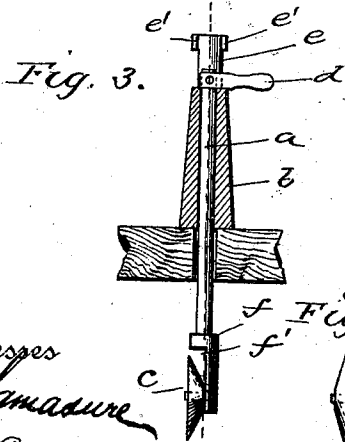
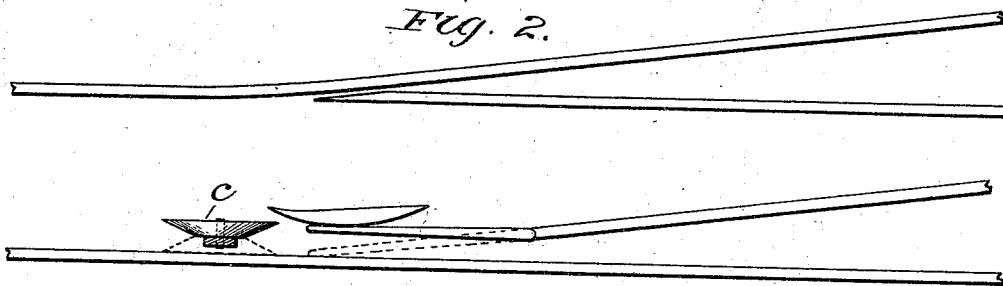
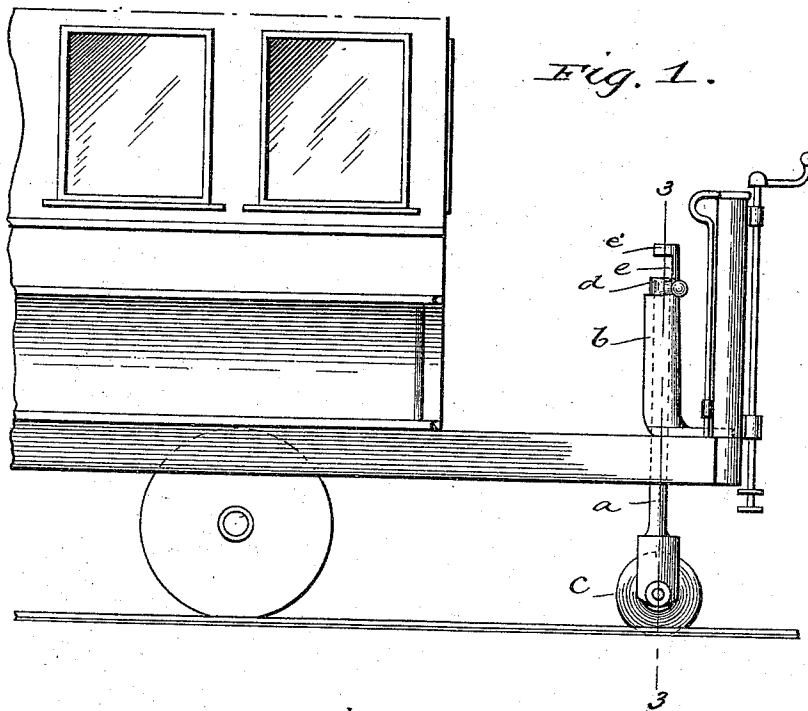
(No Model.)

J. A. CRANDALL.

SWITCH OPERATING DEVICE FOR STREET CARS.

No. 547,393.

Patented Oct. 1, 1895.



Witnesses
G. M. Lamasure
Chas. W. Muzzey

Inventor
John A. Crandall
By *Alexander Davis*
Attorneys

UNITED STATES PATENT OFFICE.

JESSE A. CRANDALL, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF
TO AUGUSTUS C. HALSEY, OSCAR HALSEY, AND WILLIAM S. LINNIKER,
OF SAME PLACE.

SWITCH-OPERATING DEVICE FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 547,393, dated October 1, 1895.

Application filed February 23, 1895. Serial No. 539,392. (No model.)

To all whom it may concern:

Be it known that I, JESSE A. CRANDALL, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Switch-Operating Devices for Street-Cars, of which the following is a specification, reference being had therein to the accompanying drawings.

In the drawings annexed, Figure 1 is a side elevation of a portion of a car, showing my improved switch-operating device; Fig. 2, a plan view of a portion of a railway-track, showing the manner in which the bevel-wheel shifts the pivoted tongue; Fig. 3, a vertical sectional view of the shifting device let down; Fig. 4, a similar view of the shifting device held up out of use, and Fig. 5 a detail elevation of another form of shifting-wheel.

This invention is designed to provide a street-car with a simple device, within easy reach of the driver or motorman, by means of which the usual pivoted tongue may be shifted in either direction, whereby the operator may direct the car onto either track without dismounting from the car, as more fully hereinafter described. The device consists of a vertical shaft *a*, working through a vertical opening in the front platform of the car and through a tubular stand or pedestal *b*, bolted upon the upper side of the platform, said vertical shaft carrying a bevel-wheel *c* at its lower end and a horizontal handle *d* at its upper end. The shaft is free to move vertically and rotatively in the pedestal *b*, and it is supported in its raised position by means of a vertical extension *e*, extending up from the front side of the pedestal and carrying a pair of supporting-lugs *e'* at its upper end, said lugs being separated sufficiently to permit the shaft *a* with its handle to pass up between them. It will be observed that to hold the shaft and its wheel up out of the way it is simply necessary to raise the shaft and turn it sufficiently to permit the handle to rest upon one or the other of the lugs *e'*, as shown in Fig. 4, and when it is desired that the bevel-wheel shall engage the rail-tongue and shift it the handle is lowered until it rests upon the upper end of the pedestal. To prevent the shaft being raised too high it is provided with shoulder *f* near its lower end, which abuts

against the under side of the car-platform. The wheel *c* is journaled on a horizontal pin carried by the lower end of the shaft, and it is beveled off to a thin edge, the bevel being upon one side only, making one of the side faces of the wheel of less area than the other. As will be seen, the larger side of the wheel is turned away from the shaft and is outside or to one side of the vertical axis of the shaft, while the smaller face of the wheel is adjacent to the portion of the shaft to which it is pivoted and is in the same vertical plane approximately with the axial line of the shaft. To thus set the wheel in to bring its smaller face in the same plane as the axial line of the shaft, the lower end of the shaft is cut away and flattened, as shown at *f'*. By thus peculiarly mounting the bevel-wheel it will be observed that when the vertical shaft is rotated the bevel-wheel will be moved bodily about the vertical center of the shaft, whereby the operator may readily shift the bevel-wheel, so as to engage upon either side of the pivoted tongue and force it by means of the bevel-surface in either direction, as shown in dotted lines in Fig. 2.

As shown in Fig. 5, the shifting-wheel may be beveled in opposite directions, instead of in only one direction, as shown in the other views.

It will be observed that the vertical extension *e* not only serves to support the lugs *e'*, but it also serves as an abutment for the arm or handle *d*, thereby preventing the shaft being rotated while the bevel-wheel is in engagement with the pivoted tongue.

It will be observed that to shift the switch-tongue the driver or motorman need not dismount from the car, but simply has to drop the vertical shaft and set the bevel-wheel to swing the tongue in either direction desired.

Having thus fully described my invention, what I claim is—

1. In a device for operating a switch, the combination of a car, a vertically movable and rotatable shaft supported on the car and having one side of its lower end cut away, substantially as described, and the wheel *c* journaled upon the cut-away part of the shaft, said wheel being beveled at its periphery so that one of its sides will be of less area than the other, the side of the smaller area being

brought adjacent to the cut away part of the shaft and approximately in the same vertical plane with the axis of the shaft, substantially as and for the purposes described.

- 5 2. In a device for operating switches, the combination of a car, a tubular pedestal mounted on the car and provided with an extension on the front side of its upper end, said extension carrying a pair of forwardly-extending lugs, a vertical shaft carrying a lateral
10 handle adapted to rest on the upper end of the

pedestal and upon the lugs and abut against the extension, said shaft extending down through the pedestal and the car and provided with a beveled shifting wheel, substantially
15 as described.

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

JESSE A. CRANDALL.

Witnesses:

NOAH TEBBETTS,

WILLIAM H. CUNNINGHAM.