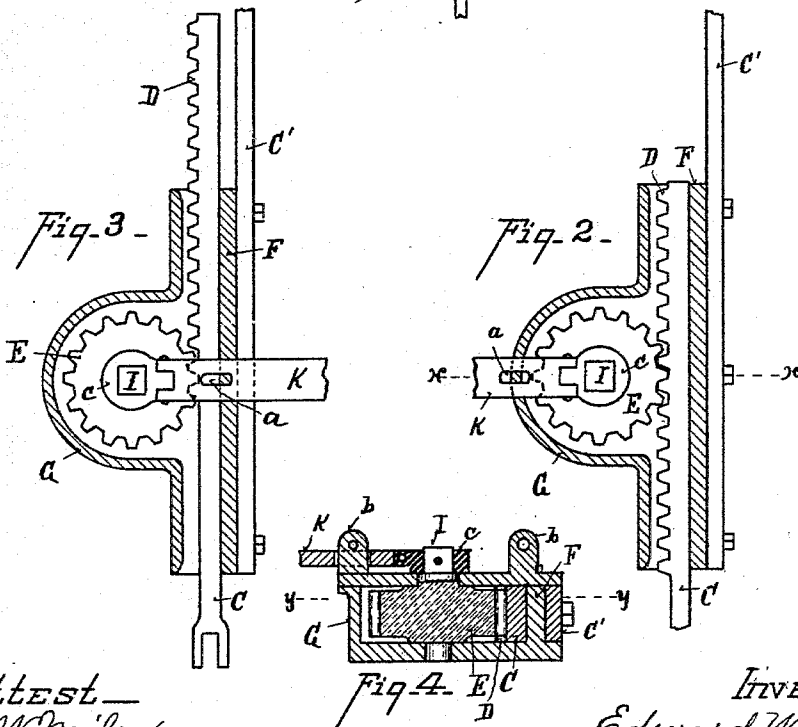
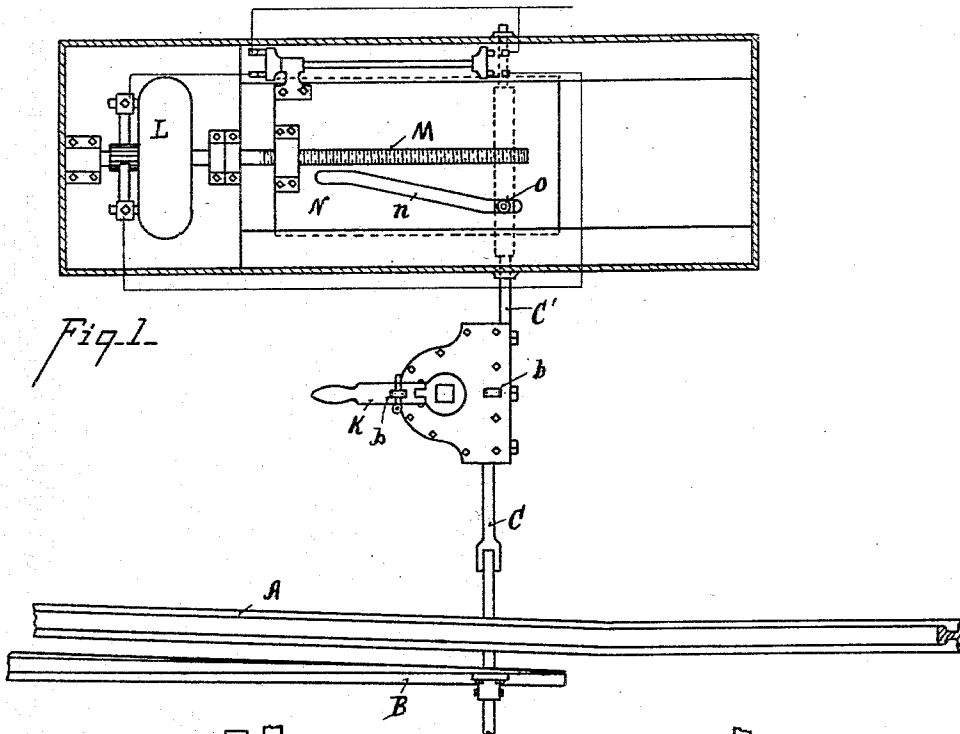


(No Model.)

E. W. HARDEN.
RAILWAY SWITCH.

No. 516,050.

Patented Mar. 6, 1894.



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UNITED STATES PATENT OFFICE.

EDWARD W. HARDEN, OF CINCINNATI, OHIO, ASSIGNOR TO FREDERIC C. WEIR, OF SAME PLACE.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 516,050, dated March 6, 1894.

Application filed June 30, 1893. Serial No. 479,262. (No model.)

To all whom it may concern:

Be it known that I, EDWARD W. HARDEN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Railway-Switches, of which the following is a specification.

The object of my invention is to provide a hand-switch to be used in connection with a switch bar capable of independent movement, such as by an electric motor, or a mechanical device used in interlocking systems; the hand switch riding on and moving with the switch bar, and the various features of which are fully set forth in the description of the accompanying drawings making a part of this specification, in which—

Figure 1 is a plan view of my improvement as applied to a switch bar moved by an electric motor. Fig. 2 is a plan view of the hand-switch with the housing in section on line *y, y*, Fig. 4. Fig. 3 is a similar view of Fig. 2, but showing the hand lever reversed in position. Fig. 4 is a section on line *x, x*, Fig. 2.

A represents the main rail, B the switch rail, C C' a sectional switch bar; section C is provided with rack teeth D.

E represents a pinion meshing with the rack teeth; when the pinion E is turned the switch bar C moves longitudinally in its housing supported by bar F.

G represents a housing incasing the pinion and rack. The pinion journals in said housing and projects up through on the top side and is provided with the stud I with which the hand lever K engages. The housing is mounted upon and supported by the sectional switch bar C'. Lever K is provided with a slot *a* engaging over studs *b*; it is hinged to the socket hub *c*, preferably by a tenon joint. For illustration I have shown an electric motor L provided with a screw M moving a cam plate N, having a slot *n* engaging with the stud *o*, so that when the electric motor is turned the plate N is moved and throws the switch. This is simply shown as one of the mechanical means for moving railway switches at a distance, as employed in interlocking systems. The hand lever K is engaged with one of the studs *b* and locked in position when the switch is to be thrown by the electric motor or other mechanical

means, and the housing moves with the sectional switch bars C C' which are thus clutched together.

When it is desired to move the switch by hand the lever is unlocked, lifted up out of engagement with the lug, and as it is turned round it drives the pinion E which engages with the teeth of the rack-bar and moves the section C only and with it the switch rail B. When the lever K is locked to either of the studs *b* then the switch is moved by the appliances connected to the sectional switch bar C', and the hand lever, its pinion and housing riding as an idler back and forth on said bars.

Having described my invention, what I claim is—

1. The combination with a railway-switch, of a switch-bar composed of two bar sections, one of which is connected with a switch-rail and is movable longitudinally beside and independent of any movement of the other bar section, operating mechanism connected with the latter bar section for moving it lengthwise, a pinion mounted on a part of one of the bar sections and engaging the other bar section, and means for rotating and locking the pinion stationary, substantially as described.

2. The sectional switch bar C C', the rack D, pinion E, lever K, and the locking device for clutching said switch bars together so that both will move in unison when the switch is thrown, substantially as specified.

3. The sectional switch bar C C', rack D, pinion E, lever K, and locking device for holding said lever immovable, and clutching the sectional switch bars together, the housing G rigidly connected to the section C', substantially as specified.

4. The combination of the sectional switch bar C', the housing G provided with the bearing F, sectional switch bar C, rack D, pinion E, lever K, and the locking device rigidly attaching said lever to the housing, substantially as specified.

In testimony whereof I have hereunto set my hand.

EDWARD W. HARDEN.

Witnesses:

T. SIMMONS.

C. W. MILES.