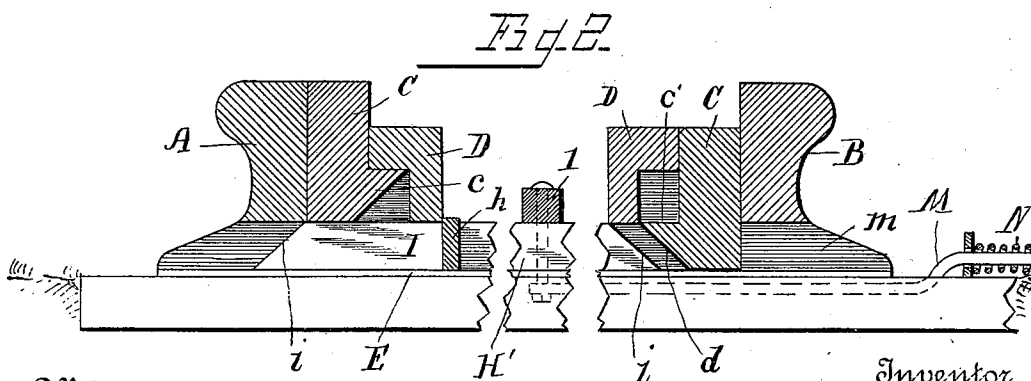
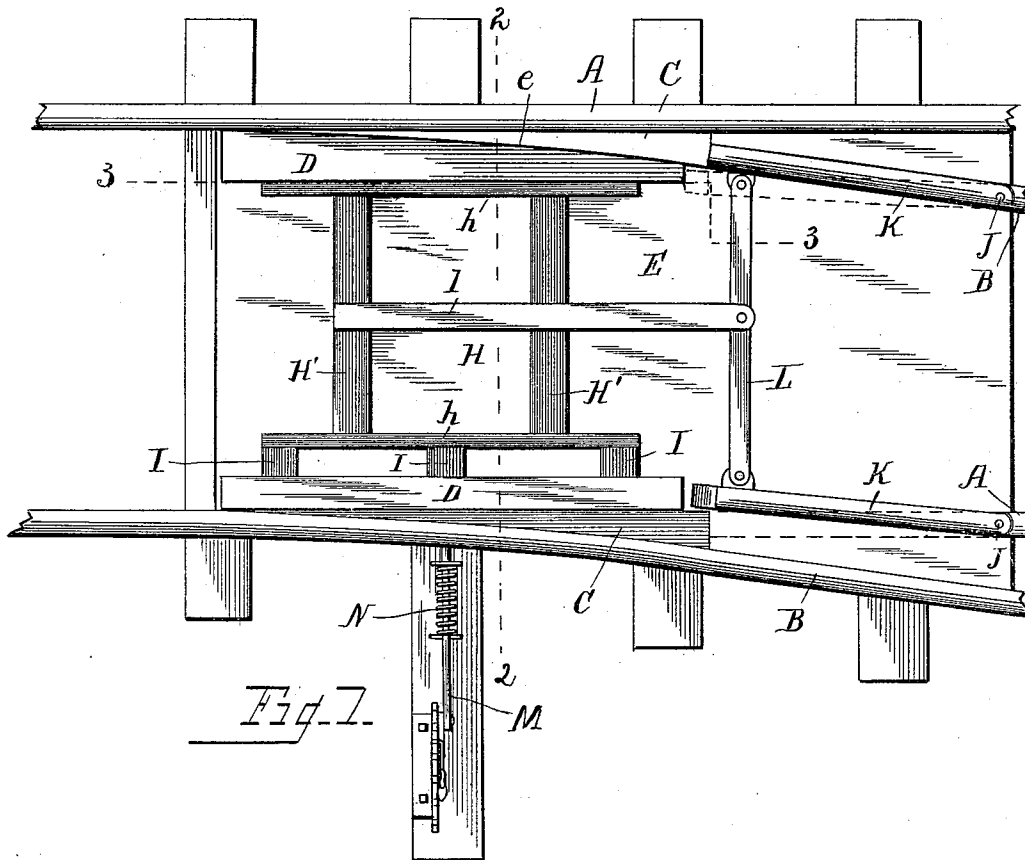


F. F. STEVENS.
SWITCH.

No. 547,094.

Patented Oct. 1, 1895.



Witnesses

Carroll J. Webster
A. E. Glascock

Inventor
Frank F. Stevens
By
James C. Young
his Attorney

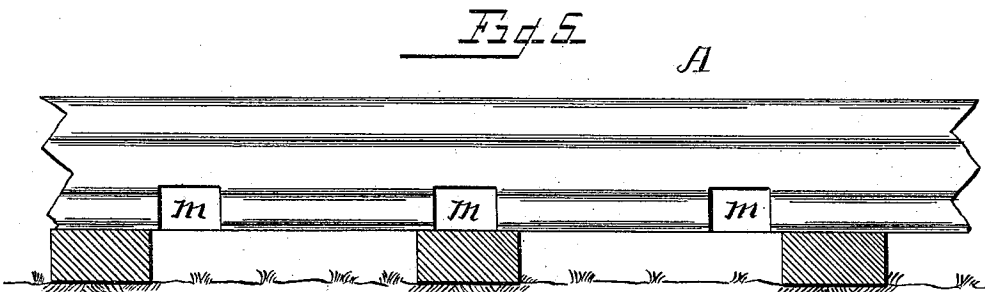
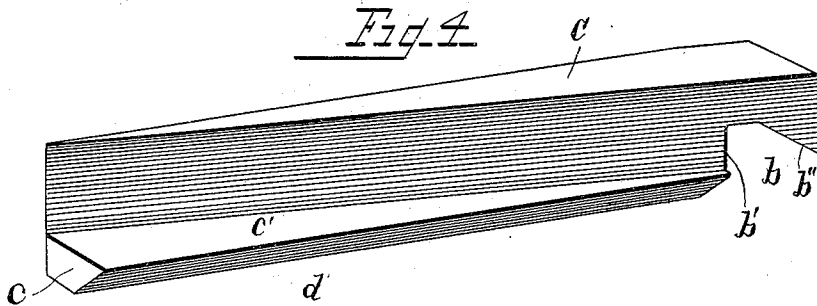
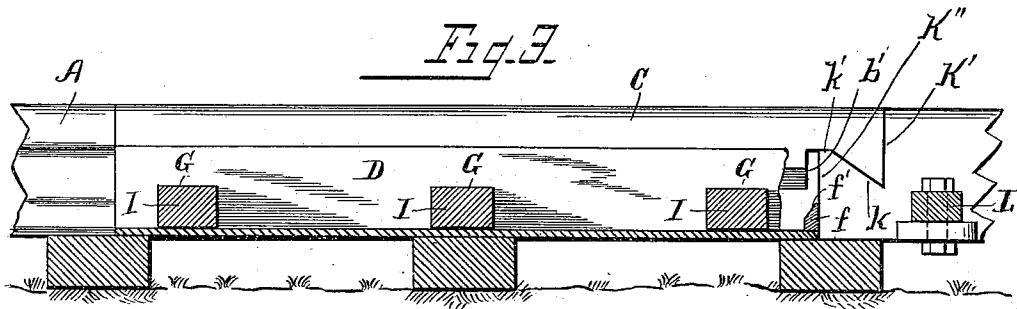
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

FRANK F. STEVENS, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF
TO HARRY A. MCCRARY.

SWITCH.

SPECIFICATION forming part of Letters Patent No. 547,094, dated October 1, 1895.

Application filed June 21, 1895. Serial No. 553,570. (No model.)

To all whom it may concern:

Be it known that I, FRANK F. STEVENS, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Switches, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a new and useful improvement in switches; and it consists in the construction and arrangement of parts hereinafter described, and definitely pointed out in the claims.

The aim and purpose of this invention is to provide a switch in which the point-rail has a vertical instead of a lateral movement, the advantages of this construction being that the switch can be easily operated and the point-rail can be placed or housed in a casing and in its vertical movement clean the switch from snow, ice, rocks, or other debris common to the blocking of split switches; also in making a safety-switch which, if out of position, will be set by the approaching train and prevent the derailing of the engine.

These objects are obtained by the construction illustrated in the accompanying drawings, wherein like letters of reference indicate corresponding parts in the several views, and in which—

Figure 1 is a plan view of my improved switch, being set for siding. Fig. 2 is a cross-section on the line 2 2, Fig. 1. Fig. 3 is a longitudinal section on the line 3 3, Fig. 1, parts being broken away. Fig. 4 is a perspective view of the point-rail removed; and Fig. 5 is a side elevation of the outer side of the main rail, showing the switch-operating block removed.

In the drawings, A represents the main rails, and B the switch or side rails.

C represents the point-rails, the upper portions of which are of the usual tapering shape.

D represents a casing in which point-rails are placed. These casings, the main and switch rails, and the point-rails rest on a plate E.

The parts of the switch being of the same construction on both sides, a description of one side will suffice for both. Near one end of the point-rail is a cut-away portion *b*, which

has the vertical side wall *b'*, the flat top, and the inclined side wall *b''*. The ends of the pivoted slide-rails engage the cut-away portion, as hereinafter described. Extending from this cut-away portion to the opposite end of the point-rail is a lateral flange *c*. This flange has the flat upper surface *c'* and the beveled lower surface *d*, as shown in Figs. 2 and 4. This point-rail fits snugly within the casing and has no longitudinal movement.

The top of the casing is beveled, as shown at *e*, to correspond with the taper in the point-rail, which will prevent any longitudinal movement of the rail in one direction. The opposite end of the casing is provided with a wall *f*, which has the beveled upper portion *f'*. This wall *f* is beyond the vertical side wall *b'* of the cut-away portion *b* of the rail and will prevent any longitudinal movement of the rail at that end. It will thus be seen that by the construction just described the rail can be adjusted vertically, but not longitudinally, and the cut-away portion corresponding to the shape of the rail a tight joint is formed and no snow or dust can enter the casing. The inner side of the casing is provided with a series of apertures G.

H represents the point-rail-operating frame, which is located between the two casings and consists of the cross-pieces H' and the longitudinal end pieces *h*. These end pieces are adapted to bear against the sides of the casings. Extending laterally from the end pieces are blocks I, corresponding in number to the apertures G in the casing and are of a size to snugly fit the apertures and at the same time freely slide therein. These blocks are beveled at their ends, as shown at *i*. The frame and blocks rest on the plate E.

K represents the slide-rails, which are pivoted at one end to the plate E, as shown at J. These rails make a tight joint with the main and switch rails A B. The opposite ends of these rails are cut away, forming the vertical walls K', the inclined bottoms *k*, the flat portions *k'*, and the vertical portions *k''*. This cut-away portion is adapted to pass under the cut-away portion *b* of the point-rail and support the end of the rail, and the vertical portion *k''* bears against the wall *f*, as shown in Fig. 3. The free ends of these slide-rails are connected by the cross-rod L, and this rod is

connected to the switch-operating frame by the link *l*, which has one end rigidly secured to the frame and the opposite end pivoted to the cross-rod.

5 It will be seen by referring to Fig. 1 that the switch is set for a siding, and when the switch-operating frame is moved laterally one point-rail will fall and the other will be raised by virtue of the beveled blocks *I* being forced
10 against the beveled lower surface of the flange *c* on the point-rail, and at the same time the slide-rails will also be moved laterally by the link *l* and cross-rod *L*, and the main slide-rail will engage the cut-away portion of the point-
15 rail, and the switch will then be set for the main tracks.

The main rails have apertures *m*, registering with the apertures in the casing, as shown in Fig. 5, and into which the ends of the
20 blocks *I* enter when the block is in to raise the slide-rail.

M is an operating-rod having the usual lever and spring *N*. This rod is connected at its opposite ends to the switch-operating
25 frame and to a tumbling-rod connected to the rails. When moved laterally, one point-rail will be raised and the other lowered, the slide-rail brought to place, throwing the other rail out of place, whereby the switch is changed.
30 One of my principal objects in throwing these slide-rails is to prevent accident. Anything passing over them cannot be derailed. If the switch is wrong, the flange of the wheel will force the slide and point rails back to place,
35 and thereby with its connection with switch force the switch over. The spring in the switch-rod throws it back after it is relieved of the train.

I am aware that many minor changes can be
40 made in the construction and arrangement of parts without in the least departing from the nature and principle of my invention.

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

1. In a switch, the combination with the main rail and switch rail, of a vertically movable point rail, a lateral flange on the point rail having a beveled lower surface, a block
50 having a complementary beveled portion to the bevel on the flange, and means for laterally moving the beveled portion of the block into engagement with the bevel on the flange, substantially as described.

55 2. In a switch, the combination with the main rails and switch rails, of vertically movable point rails, pivoted slide rails having their free ends adjacent the point rails, means for raising one point rail when the other point

60 rail is lowered, and a connection between said means and slide rails, substantially as described.

3. In a switch, the combination with the main rail and switch rail, of a casing adjacent the main rail having a tapered opening in its
65 top portion, a vertically movable point rail within the casing having a complementary taper with the taper in the top portion of the casing, a longitudinal flange on the side of the point rail extending laterally therefrom
70 and having a beveled lower surface and a laterally moving block having a beveled portion adapted to engage the bevel on the flange, substantially as described.

4. In a switch, the combination with a main
75 rail having a series of apertures therein and a switch rail, of a casing adjacent the main rail having a series of apertures in its side portion registering with the apertures in the main rail, a plate on which the main and
80 switch rails and casing are supported, a vertically movable point rail in the casing normally resting on the plate and normally having its upper surface flush with the upper surface of the casing a lateral flange on the point
85 rail having a beveled lower surface, a sliding frame on the plate, a series of blocks on the frame passing through the apertures in the casing, beveled end portions on the blocks engaging the beveled portion on the flange of
90 the point rail and means for operating the frame, substantially as described.

5. In a switch, the combination with the main rails and switch rails, of vertically movable point rails, pivoted slide rails having
95 their free ends adapted to support the end of the point rails when the point rails are raised, means for raising one point rail when the other point rail is lowered, and a connection between said means and slide rails, substantially as
100 described.

6. In a switch, the combination with the main rails and switch rails, of vertically movable point rails having a cutaway portion at one end, pivoted slide rails having a cutaway
105 portion on their free ends, adapted to engage under the cutaway portion of the point rails when the point rails are raised, means for raising one point rail when the other point rail is lowered, and a connection between said
110 means and slide rails, substantially as described.

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

FRANK F. STEVENS.

Witnesses:

KITTIE REES,
MYRTLE WOODLING.