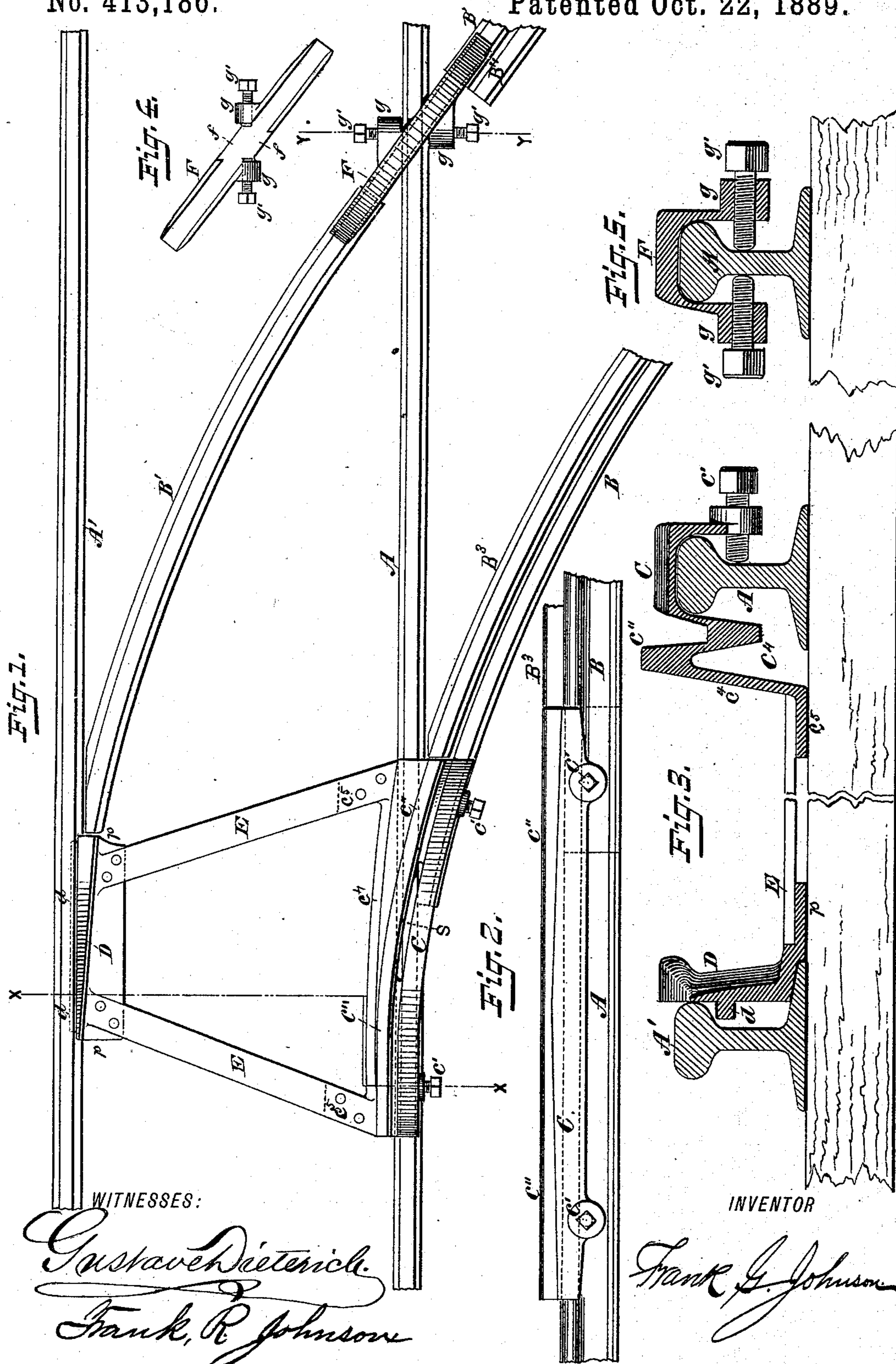


(No Model.)

F. G. JOHNSON.
PORTABLE RAILWAY SWITCH.

No. 413,186.

Patented Oct. 22, 1889.



WITNESSES:

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PORTABLE RAILWAY-SWITCH.

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To all whom it may concern:

Be it known that I, FRANK G. JOHNSON, a citizen of the United States, residing in the city, county, and State of New York, have invented new and useful Improvements in Portable Railroad-Switches, of which the following is a specification.

It is well known that "side tracks" of railroads are a great convenience to manufacturers and farmers; as such side tracks laid opposite and near to their lands and works save transportation therefrom to the nearest depot, which in many cases is miles away. As extensive farmers and manufacturers are willing to bear the expense of side tracks, they would be more generally employed, except for the objections which railroad companies have to cutting their main track to put in local stationary switches. These objections are that such switches are expensive and in various ways greatly increase liability of destruction to rolling-stock and life of passengers.

The object therefore of my invention is to provide a portable switch which can be carried on a freight-train and handled by two men, and laid down at any point on the main track wherever there may be a "siding," and without cutting or in any manner interfering with the main track, and yet serving the purpose equally as well as the stationary switch for switching or transferring cars from the main to the side track, and vice versa, which I accomplish by the device illustrated in the accompanying drawings, consisting of one sheet, in which—

Figure 1 is a plan view showing the main and side tracks, which are permanently fastened to the road-bed, and the switch in position for use; Fig. 2, a side elevation of main piece of the switch; Fig. 3, an enlarged transverse section on the line *xx* of Fig. 1; Fig. 4, a bottom view of one of the switch-pieces as seen in position in Fig. 1; Fig. 5, an enlarged transverse section on the line *yy* of Fig. 1.

Similar letters refer to similar parts throughout the several views.

A and A' is the unbroken or main track; B' B' and B, the side track, terminating adjacent to the main track within a few inches of the same, the side rail B' B' being broken

and the broken ends separated to leave a space through which the corresponding rail A of the main track extends.

B'' and B³ are pieces of ordinary guard-rails, commonly laid along the convex side of the main rails wherever the latter have a short curve.

F, Fig. 4, is a portable bridge-rail detached from the rest of my device, and which consists of one piece, except the two set-screws *g' g'*. In Fig. 4 it is seen bottom side up, exposing its gutter-shaped form, it consisting of a top and vertical sides, the sides being diagonally cut away at its central portion just sufficient and at such an angle as to slip over and fit onto the head of the main rail A when in use, so that the top at *ff* will rest on top of the head of said main rail. The inside or gutter of this bridge-rail F is made to fit the head of the side rails B' B'. Diagonally to its longitudinal line this bridge-rail has cast or forged upon its opposite sides two lugs *g g*, which two lugs stand transversely or at right angles opposite to each other, as they relate to the main rail A when the said bridge-rail is in use, as seen on the line *yy*, Fig. 1. Through these lugs work the set-screws *g' g'*, the points of which, when screwed up, bear opposite to each other against the web of the said rail A, just under its head, as seen in Fig. 5, to prevent the possibility of this bridge-rail from jumping up as the cars pass over it. The top of this bridge-rail F is as thick at its center *ff*, where it bears on the main rail, as the depth of the flange of the car-wheels, and from this point toward both ends it gradually diminishes to a "feather" thickness, that the car-wheels may gently enter upon and pass off of it. Its inner vertical side at its ends is also "feathered down" to prevent the liability of the flanges of the wheels striking abruptly against it in case the opposite guard-rail B³ should be too widely set from the side rail B.

The other and principal part of my device consists of the rigid frame composed of the two switch-pieces C and D, united together by being riveted or bolted to the two flat cross-bars E and E.

D (which I will term the "feathered switch-piece") is a short piece of cast or forged steel, feathered at one end and of ordinary rail shape

(partly cut away longitudinally) at the other to butt up against the end of the side rail B'. The base *pp* of this feathered switch-piece extends outward toward the opposite rail far enough to rivet thereto the cross-bars E E and to add strength to the said piece. On the back of this feathered switch-piece, and being a part of the same, is a longitudinal rib *d*, (best seen in Fig. 3,) which, when the switch is laid for use, projects under the head of the main rail A' to prevent it (the said piece) from jumping up as the cars pass over it. The big or butting end of this piece is somewhat higher than the main rail A', as seen in Fig. 3, as also is the side rail B', to correspond therewith, for reasons hereinafter explained.

C (which I will term the "switch bridge-piece") is a peculiarly-shaped piece of cast or forged steel. This part of my device combines two important features—the bridge portion C, which joins the face of the main rail A to the face of the side rail B, (bridging the space between them,) and the guard-rail portion *c'' c''*, which (when the switch is laid for use) forms a continuation of the guard-rail B³ of the side rail B, thus forming a groove for the flange of car-wheels between the bridge C and the guard-rail *c'' c''*, which said continuation of the guard-rail B³ is absolutely indispensable, as will hereinafter appear. These two portions—the said bridge C and guard-rail *c'' c''*—are joined together as one piece by the solid portion or partition *c³*, (best seen in Fig. 3,) which extends the whole length, except for a short distance, where the said bridge passes onto the main rail A and guard-rail portion crosses the said main rail, as shown at *s* in Fig. 1. The longitudinal form of these parts is that of a curve corresponding to the curve of the side rail B and its guard-rail B³, and terminating for a short distance in a straight line, where they fall in line with the main rail A. The bridge portion of this switch bridge-piece is in the form of a gutter, suited in form to fit over the head of the main rail A. (Best seen in Fig. 3, shown on the line *xx* of Fig. 1.) The front vertical side of this gutter is continuous, as shown by Fig. 2, and is provided with two lugs not far from the ends, which carry each a set-screw *c' c'*, which take effect one on the web of the main rail A on the line *xx* and the other on the web of the side rail B to prevent this side of the switch from jumping up and to otherwise hold it in place. The back vertical side of this gutter is also continuous from end to end, except where it comes in contact with the main rail A. This inner side is made thinner than the front side to prevent crowding the wheels too much toward the opposite side. It is also feathered at the ends to prevent abrupt obstruction to the flanges of the car-wheels. The top of the bridge portion of this switch bridge-piece is as thick as the depth of the car-wheel flange along that por-

tion where it crosses over the main rail A, as shown through the openings in Fig. 1, and in both directions from this portion it becomes thinner and thinner and terminates with feathered ends, so as not to abruptly obstruct the rolling of car-wheels thereon, as shown by the dotted line of the tops of the rails A and B. (Seen in Fig. 2.) The guard-rail portion *c'' c''* of this switch bridge-piece is higher than the bridge portion thereof and corresponds with the height of the guard-rail B³. From the back of the guard-rail *c'' c''* there extends down on the inside of the main rail A a continuous plate *c⁴*, which assists in giving strength to the structure and affording the projections *c⁵* and *c⁵*, to which to fasten the connecting cross-bars E E. The butting end of the feathered switch-piece D is somewhat higher than the main rail to correspond with the rise of the wheels in passing over the switch bridge-piece C.

Having described the various parts of my device, the explanation of its operation and use is briefly described as follows: When the switch is laid for use, whichever way the car is going—whether from the main to the side or from the side to the main track—the flanges of the car-wheels in passing the curve of the side track nearest to the main track will be held from liability of jumping the main rail A or striking the portable bridge-piece F by being held therefrom by the guard-rail *c'' c''* and B³. To lay the switch down, the feathered switch-piece D is placed first against the main rail A', with its larger end against the end of the side rail B', and then the switch bridge-piece C is dropped down upon the main rail A and side rail B and secured by the set-bolts *c' c'*. These set-bolts will require to be only thumb set-bolts to hold the switch beyond all possibility of being misplaced until the said set-bolts are turned back from under the head of the rails A and B, while the other side of the switch D cannot be raised until its opposite side C is raised, on account of the rib *d* projecting under the head of the rail A'. The portable bridge-piece F cannot be vertically raised until its set-screws *g' g'* are turned back from under the head of the main rail A, and it cannot be laterally misplaced because of its vertical sides striding the side rail B', and it cannot be misplaced longitudinally because of the vertical sides striking against the main rail A where they stride the said rail.

I am of course aware of a patent granted and issued to me but a few days ago, December 4, 1888, No. 393,985, in which I claimed, in a portable railroad-switch, a bridge-rail formed and held in a manner different from that above described, and in which said patent I also claimed some of the features contained and described in the foregoing specification. Therefore I do not herein claim so broadly as to embrace what is not new and

useful in the device described in this foregoing specification; but

What I do claim, and desire to secure by Letters Patent, is—

5 1. In a portable railroad-switch, the gutter-shaped bridge-rail F, having the lugs *g g*, set-bolts *g' g'*, and vertical sides diagonally cut away at *ff* to stride the main track, in combination with the ends of the broken side-track rail B' B', main-track rail A, bridge switch-piece C, guard-rail *c'' c''*, guard-rail B³, and feathered switch-piece D, the top of the said bridge-rail resting on the head of the said main rail, and being laterally, vertically,
15 and longitudinally held in place, substantially as described.

2. In a portable railroad-switch, the peculiarly-formed curved gutter-like bridge switch-piece C, having the guard-rail *c'' c''*,
20 in line with the guard-rail B³, in combination with the main-track rail A and side-track rail B, whereby the said piece C, besides furnishing a bridge from the main-track rail A to the side-track rail B, also furnishes a guard-rail
25 *c'' c''* to keep the car-wheels free from and from jumping the curve of the opposite rail formed by the feathered switch-piece D and the side-track B', as and for the purpose set forth.

30 3. In a portable railroad-switch, the feath-

ered switch-piece D, having the projection *d* to extend under the head of the main-track rail A, in combination with the switch bridge-piece C, having the guard-rail *c'' c''*, connecting-bars E E, main-track rail A' and side-track rail B', whereby, when the portable switch is laid for use, the said feathered switch-piece cannot be lifted or otherwise misplaced until the said bridge-piece C is raised from the rails A and B, as and for the purposes described. 35 40

4. In a portable railroad-switch, the peculiarly-formed curved gutter-like switch-piece C, having the guard-rail *c'' c''* in line with the guard-rail B³, the lugs and set-bolts *c' c'*,
45 in combination with the feathered switch-piece D, having the projection *d*, connecting-bars E E, main-track rail A and side-track rail B, whereby both of the said switch-pieces C, with the guard-rail *c'' c''* and the said feathered switch-piece, are securely fastened to the main-track rail A' on the one side and to the main-track rail A and side-track rail B on the other by the two set-screws *c' c'*, as and for the purpose set forth. 50

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Witnesses:

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