H. COOK.

Railway-Switch.

No. 162,460. Patented April 27, 1875.

Fig. 1.

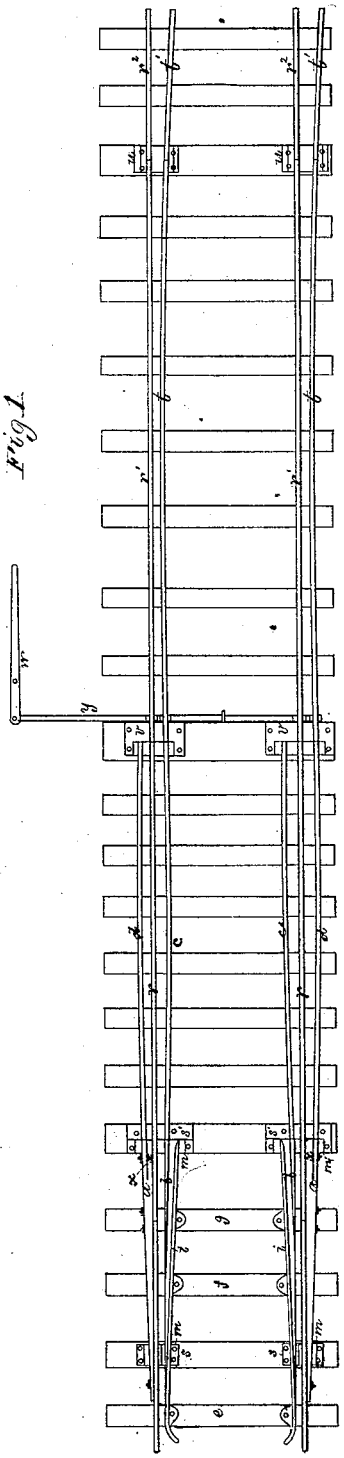
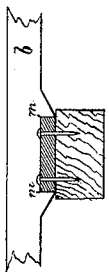


Fig. 2.



Witnesses.

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by his attorney.

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UNITED STATES PATENT OFFICE.

HIRAM COOK, OF NORWICH, CONNECTICUT.

IMPROVEMENT IN RAILWAY-SWITCHES.

Specification forming part of Letters Patent No. **162,460**, dated April 27, 1875; application filed May 1, 1872.

To all whom it may concern:

Be it known that I, HIRAM COOK, of Norwich, in the county of New London, of the State of Connecticut, have invented a new and useful Improvement in Safety-Switches for Railways; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 denotes a top view of a railway main track and a turnout-track, with my new or improved safety-switch mechanism. Fig. 2 is a transverse section taken through the inner-end chairs of the safety-frogs, to he hereinafter explained.

The nature of my invention consists in the arrangement and combination of two duplex frogs and guides, as hereinafter described, with a four-rail switch,(or with it and four safety-rails,) and also with main-track and turnout rails, all being to operate in manner as hereinafter explained, the whole constituting an excellent and easily operated safety-switch in connection with main and turn-out rails.

In such drawings, *a b a b* exhibit two duplex safety-frogs, each of which may be in one piece with the adjacent or intermediate part of the main-track rail *r*, or may be in separate pieces, as represented, and be formed and provided with flange-guides *i i*, all being as shown. The outer-side part *a* of each frog is bolted to the main rail *r*, and with the inner portion *b* is to be held in place by means of chairs *s s'*, disposed upon sleepers, as shown, such chairs being provided with shoulders or abutments *m* to rest against parts of the frog, and prevent lateral displacement of it. The inner portion of each frog is connected with the guide *i*, and the latter rests upon and is bolted to the sleepers *e f g*. The chairs may be in one piece with the frog, or be separate from it. The guards or guides *i i* are to force the flanges of the carriage-wheels obliquely across the part *a* of the frog. The said part *a* of each frog is provided with an inclined plane or recess, *x*, arranged as shown, its purpose being to raise the carriage-wheels so that their flanges may pass over and across the piece *a* and rail *r*, and drop down inside of the latter. Safety-rails *c d* are arranged on opposite sides of those parts of the main-track rails which are between the frog and the switch, such safety-rails being extended from the two parts of the frog, and alongside the main-track rail, in manner as shown. The switch is composed of four rails, r^1 r^1 *t t*, arranged as shown, and extended between the safety-rails and the main-track rails r^2 r^2 and turn-out rails t' t', and pivoted to their supporting-chairs *u u*. The four switch-rails are to rest on the next adjacent chairs *v v* of the safety-rails, and are to be connected so as to be capable of being simultaneously moved laterally, as occasion may require, by a lever, *w*, acting through a connection-rod, *y*, all being as represented.

The safety-rails and the parts of the main rails between them may be omitted in some cases, and the switch be arranged so as to work directly with or against the main rails and the parts of the frogs, but, from reasons which will be easily comprehended by engineers, the safety-rails are especially useful and desirable. In either position of the switch two of its rails will be in alignment with the main-track rails between the safety-rails, one of its other rails being in alignment with an inner safety-rail, and the other in alignment with its next adjacent outer safety-rail. In one of its positions the switch will be set so as to put the turn-out rails t^2 t^2 at one end of the switch in alignment with the main-track rails at the opposite end of the switch, the same being so as to cause a train to pass from the main track upon the turn-out or from the turn out to and upon the main track, the other portion of the switch being to keep the parts of the main track in due alignment so as to prevent a carriage or train from running from the main track to and upon the turn-out. If, while the switch is set for a carriage or train to run from the main track to and upon the turn-out, or vice versa, we suppose a carriage or train to be run upon the switch from the main track, and in a direction from the turn-out to the frogs, we shall see that the carriage or train will run on one outer and one inner safety-rail, and, by the inner part of one frog and its guide, the wheels of one side of the carriage or train will be directed upon the main track, and the flanges of the wheels of the other side of the carriage or train will ride upon and over the opposite

outer part of the frog, and pass obliquely over the main rail and drop between it and the guide, so as to bring the treads of the wheels on the main rail. So in running from the turn-out over the switch to and upon the main track, the wheels of the carriage by the outer part of one frog, and the inner part of the other and its guide, will be similarly caused to take the main track.

My safety-switch being provided with four rails instead of six, as are various other switches, is simpler and can be operated with greater ease.

I am aware of the invention of T. D. Simpson, as described in his rejected application for a patent filed in the Patent Office on March 11, 1844, which differs very materially from mine. First, the switch of the said Simpson has six rails, and each frog has of necessity, to be a triplicate one instead of a duplex one, as in my case. Consequently his switch, of necessity, has to be fifty per cent. heavier than mine when of like length, and his frogs have to be correspondingly or very materially increased in weight and cost. My switch is pivoted at one end at the main and turn-out tracks so as to move at its opposite end transversely with respect to the frogs or the safety-rails, such requiring but four rails to the switch, whereas Simpson's switch, by being pivoted to or at the triplicate frogs, and being movable at its opposite end, of necessity must have six rails.

Thus it will be seen that my improved safety-switch not only materially differs in the construction and arrangement of its parts from that of the said Simpson, but is simplified, and can be operated with less power. Therefore, I make no claim to the switch, frogs, and rails made, arranged, combined in manner and to operate as described in the said application of the said Simpson; but

I claim—

1. The arrangement and combination of the two duplex frogs *a b a b*, and guides *i i*, as described, the four-rail switch r^1 r^1 *t t*, and the main and turn-out rails r^2 r^2 *t′ t′*.

2. The arrangement and combination of the two duplex frogs *a b a b*, and guides *i i*, as described, the four safety-rails *c d c d*, the four-rail switch r^1 r^1 *t t*, and the main and turn-out rails r^2 r^2 *t′ t′*, all being substantially as shown and explained.

HIRAM COOK.

Witnesses:
P. F. M. ANDREWS,
H. L. PARKER.