S. H. FINCH.

RAILROAD SWITCH.

No. 189,207. Patented April 3, 1877.

Fig. 1.

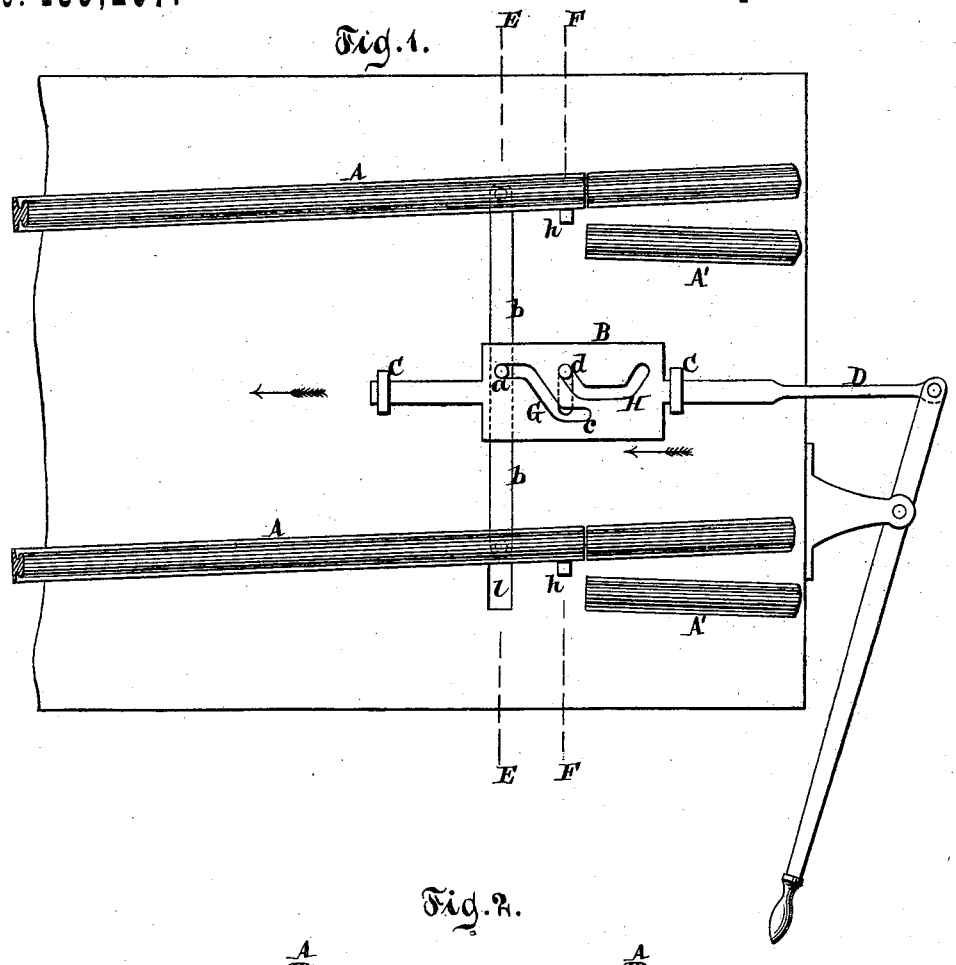


Fig. 2.

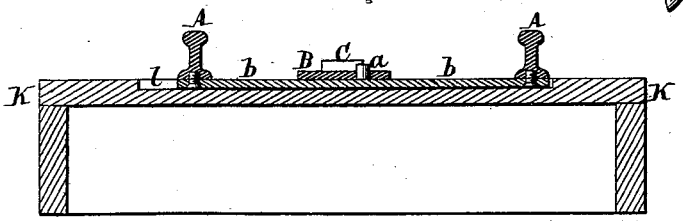
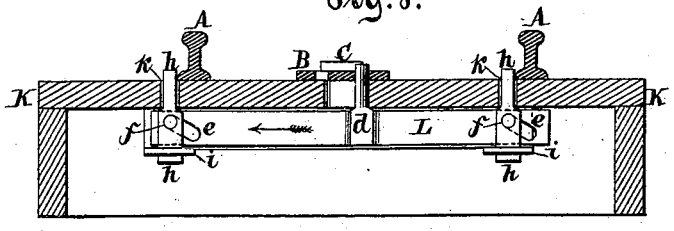


Fig. 3.



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UNITED STATES PATENT OFFICE.

SMITH H. FINCH, OF NEW YORK, N. Y.

IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **189,207**, dated April 3, 1877; application filed March 10, 1877.

To all whom it may concern:

Be it known that I, SMITH H. FINCH, of the city of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Railroad-Switches, of which the following is a specification, reference being had to the accompanying drawings.

My invention is an improvement upon an improvement in railroad-switches for which Letters Patent of the United States, No. 155,435, were issued to me September 29, 1874.

The object of the invention set forth in said Letters Patent was to provide a means for unlocking, shifting, and relocking railroad-switches by one movement of a lever. Previously two separate levers had been required to accomplish this result—one to remove and replace a wedge or block, the other to move the rails. In the practical use of the device set forth in said Letters Patent, it was found advisable to provide an iron box-tie to accommodate the operative parts, which equaled the latter in cost. Experiment has resulted in the present improvement on the invention in said Letters Patent set forth. It consists of the same slotted bar or its equivalent, arranged, however, in a different position, which obviates the use of the iron box-tie, and also dispenses with the "bell-crank I" claimed in said Letters Patent. Said Letters Patent were granted for a combination of which said bell-crank I was a component part.

Figure 1 is a plan of my device as at present improved; A A A′ A′ being the rails, B being the slotted bar, provided with two slots, G and H, the guides C C, and the arm D, connected with a switch-lever or other suitable source of motion. Fig. 2 represents a sectional view at dotted line E, Fig. 1. Fig. 3 is a sectional view on dotted line F, Fig. 1.

B is the slotted bar, provided with two peculiar-shaped slots, G and H. In slot G moves a pin, *a*, fixed in bar *b b*, which is connected at its extremities with the rails A A. It will be observed that should the slotted bar B be forced in the direction of the arrow, the pin *a* will move toward the inclined portion of slot G, then down said inclined portion, and finally come to rest at C; that the bar *b* must partake of the motion of its pin *a*, and switch the rails A A into connection with A′ A′.

In slot H, bar B, moves a pin, *d*, fixed in shifting-bar L, Fig. 3. Bar L is provided with two slots, in which move pins *f f*. Pins *f f* are fixed in bolts *h h*. The bolts *h h* and the bar L are both guided by a piece of metal, *i*, bolted onto the under side of a tie underlying the rails, and concealed in Fig. 3 by the bar L. A square hole in the ends of *i i*, together with the orifices *k k*, through which bolts *h h* emerge by the side of rails A A, guide said bolts, and confine them to a perpendicular motion, while bar L moves between them on the bottom, and the timber K on its top, and also between the timber concealed by said bar L in its rear, and the bolts *h h* in its front. Thus it is confined to a single motion to and fro.

Having now fully described the operative parts so that another skilled in the manufacture to which this device is allied can construct the same, I now proceed to describe its mode of operation.

Suitable supports K K for rails A A are provided and placed in position. In a recess, *e*, therein (see Fig. 2) is placed bar *b*, and bolted securely to the rails. The slotted bar B is then placed on the same, (K,) the pin *a* inserted in slot G, and the pin *d* in slot H, and secured by guides C. A timber or other suitable support is then firmly secured to K (or a casting or single timber may be used of the combined shape of both) between dotted lines E and F, Fig. 1. Proper openings *k*, Fig. 3, are made through K to allow bolts to protrude. The bar L and its connections are placed in position, as hereinbefore set forth, and this device is then ready to operate. The manner in which, when the slotted bar B is forced in the direction of the arrow, Fig. 1, the rails A A are moved, has been already set forth. The operation of bar L remains to be described. As the slotted bar B is forced in the direction of the arrow, Fig. 1, it will be observed that the pin *d* is forced to descend the inclined portion of slot H, then to move in a straight line, and then to ascend to the opposite end of slot. The effect produced by this movement of pin *d* will appear from Fig. 3. As the pin *d* descends the incline of the slot H, Fig. 1, it

moves bar L, Fig. 3, in the direction of the arrow, pins *f f* of bolts *h h* are forced down slots *e e*, and disappear below surface of K, leaving the rails unlocked. It will be noticed that this takes place while pin *a*, Fig. 1, which moves rails, is passing through the straight portion of slot G. The pin *d* then strikes the straight portion of slot H, Fig. 1, and the bar L, Fig. 3, remains stationary, with the bolts *h h* withdrawn, while the pin *a* is traversing the inclined portion of slot G and the rails are shifting. The pin *a* then reaches the second straight portion of slot G, and the movement of the rails is complete, while the pin *d* is forced up the second incline of slot H, thereby moving bar L, Fig. 3, back to its original position, and thereby causing pins *f f* of bolts *h h* to rise in slots *e e*, and the bolts to again protrude through K, thus relocking the rails. Thus the parts remain until the slotted bar B is returned to its original position, when the same operations, reversed in order, take place, and the rails return to the position from which they started. Motion may be imparted to slotted bar B either by an ordinary switch-lever, or such other means as from surrounding circumstances is deemed advantageous. The slotted bar B may also be placed at the side of the rails as well as between them, and the working parts may be covered, if preferred, to exclude dirt, &c.

Having thus described my invention, I claim as new and desire to patent—

The slotted sliding bar B, in combination with the pins *f f*, the sliding bar L, and the bolts *h h*, substantially as and for the purpose described.

In testimony that I claim the foregoing improvement in railroad-switches, as above described, I have hereunto set my hand this 9th day of March, 1877.

SMITH H. FINCH.

Witnesses:

J. LAVORIO CONTRELL,

HENRY P. WELLS.