(No Model.)

C. H. JOHNSON & C. ALLEN.

LOCKING MECHANISM FOR RAILROAD SWITCHES.

No. 382,530. Patented May 8, 1888.

Fig. 1.

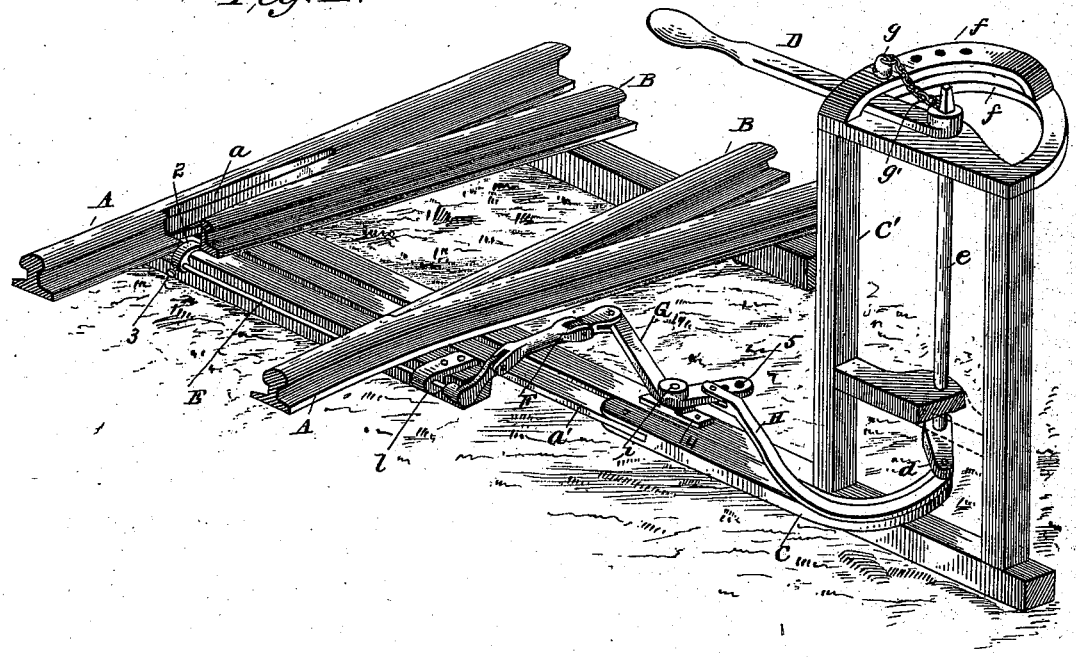
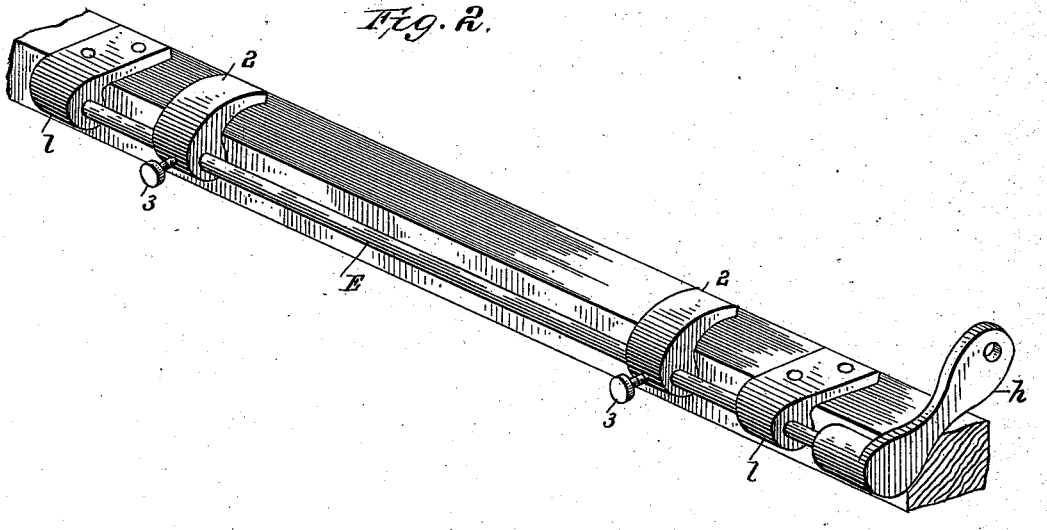


Fig. 2.



WITNESSES.

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CHARLES H. JOHNSON AND CHARLES ALLEN, OF CHILLICOTHE, IOWA.

LOCKING MECHANISM FOR RAILWAY-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 382,530, dated May 8, 1888.

Application filed December 5, 1887. Serial No. 256,999. (No model.)

To all whom it may concern:

Be it known that we, CHARLES H. JOHNSON and CHARLES ALLEN, citizens of the United States, residing at Chillicothe, Wapello county, State of Iowa, have invented new and useful Improvements in Locking Mechanism for Railroad-Switches, of which the following is a specification.

This invention relates to certain new and useful improvements in locking mechanism for railroad-switches; and it consists, substantially, in such features of arrangement, construction, and combinations of parts, as will hereinafter be more particularly described.

In many former instances with this class of inventions it has been usual to depend entirely upon simple bolts or pins to hold railroad switches to their shifted positions, and which mode of locking is frequently so insecure that accidents occur to the trains, resulting in great loss of life and property. It has further been common to resort to various modes of auxiliary mechanism for locking railroad-switches; but the most secure and reliable of these are of such complicated form as to render the same both too expensive for use and difficult to operate.

The object of our invention is to supply a simplified form of locking mechanism for railroad-switches, which in points of effectiveness and ease of operation will be found to possess much superiority over many former inventions for a like purpose, all as will more fully hereinafter appear when taken in connection with the accompanying drawings, wherein—

Figure 1 represents in perspective a view of a railroad-switch and its operating mechanism, together with the locking mechanism embodying our invention. Fig. 2 represents a view of the lock in perspective, wherein the same is disconnected from the mechanism that operates the same.

Reference being had to the several parts by the letters marked thereon, A A represent two rails constituting the main track, and B B indicate the switch-rails, the former being recessed in their sides, as at *a*, by which proper intersection of the latter therewith will be had when shifted.

The mechanism for operating the switch consists of a rod or flat strip of metal, *a'*, attached in any suitable manner to the under side of the switch-rail and linked at its outer end to the end of a curved lever, *c*, that is connected to a small crank, *d*, carried by the lower end of an upright operating-shaft, *e*. This shaft is suitably supported in the stand *c'*, and is provided at its upper end with a hand-lever, D, for turning the same to shift the switch-rails. The said hand-lever moves between two arc-shaped guides, *f f*, and is held to its positions by means of a bolt or pin, *g*, entering openings in such guides, as shown, the said pin or bolt being fastened to the guides or shaft by means of a small chain, *g'*, so as to prevent its loss and to be always conveniently at hand when wanted.

The switch-lock consists of a rock-shaft held in bearings 1 1, secured to the tie on which the ends of the switch-rails rest, the said shaft having thereon dogs 2 2, designed to turn up alongside the switch-rails in the manner hereinafter explained. These dogs are adjustable on the shaft by means of the set-screws 3 3, so as to be accommodated to suit varying conditions of the position of the rails, due to loosening thereof and like causes resultant from heavy loads passing thereover. On the end of this shaft E is carried a crank, *h*, to which is movably connected a toggle-lever, F, which in turn is movably connected to a bell-crank lever, G, having its fulcrum on a pivot, *i*, projecting upwardly from the base 4 of the switch-stand. The shorter arm of this bell-crank lever is movably and adjustably connected to one end of an arm, H, whose other end is connected to the crank *d* on the upright shaft *e* in like manner as the arm or lever *c*, and in this way it will be seen that both the mechanism for shifting the switch and that for locking the same will act simultaneously. The shorter arm of the bell-crank lever is formed or provided with perforations 5, so that a greater or less turning of the locking-dogs may be had by simply adjusting the point of connection of the curved arm H therewith.

From the foregoing description it will be seen that when it is desired to shift the switch-track all that is necessary to do is to simply move the hand-lever in its guides, whereupon

the upright shaft will be turned and the shifting effected through the medium of the described connections. It will also be seen that at the same time the curved arm H will exert a draw or pull upon the shorter arm of the bell-crank lever, thereby drawing the longer arm thereof backwardly and causing the shaft to turn in its bearings through the aid of the toggle-lever. This will bring the dogs up over to rest alongside of and close to the switch-rails; and it is evident that by inserting the pin or bolt through the openings in the guides for the hand-lever the said locking-dog will be held securely in place, and thereby prevent the ends of the rails from slipping out of position.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In locks for railroad switches, the combination, with the rock-shaft bearing adjustable dogs designed to turn up alongside the switch-rails and carrying at one end a crank, of a toggle-lever movably connected to said crank, a bell-crank lever movably connected to said toggle-lever, and a curved arm movably connected to said bell-crank lever, the said arm being operated by an upright shaft carrying a hand-lever designed to be held to its position by a bolt or pin, substantially as described.

2. In locks for railroad-switches, the combination, with the rock-shaft having adjustable dogs thereon and carrying at one end a crank, of a toggle-lever movably connected to said crank, a bell-crank lever, and a curved arm movably and adjustably connected to said bell-crank lever, the upright shaft having a hand-lever moving in arc-shaped guides, and a pin or bolt passing through openings in said guides for holding the parts to their positions when operated in substantially the manner shown and described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

CHARLES H. JOHNSON.
CHARLES ALLEN.

Witnesses:
W. E. CHAMBERS,
JENNIE EMMET.