(No Model.) 2 Sheets—Sheet 1.

D. H. FOREMAN.

RAILWAY SWITCH STAND.

No. 357,475. Patented Feb. 8, 1887.

Fig. 2.

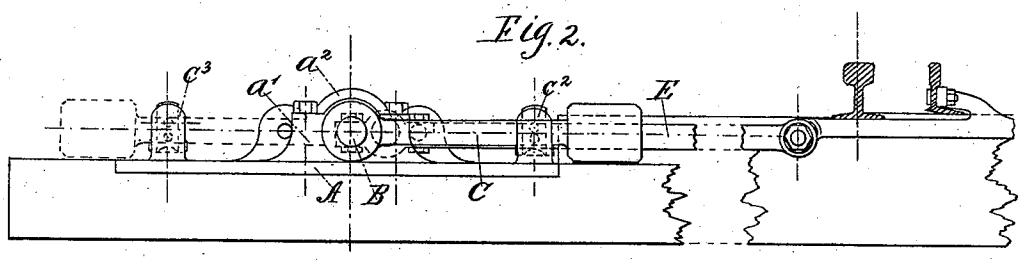


Fig. 1.

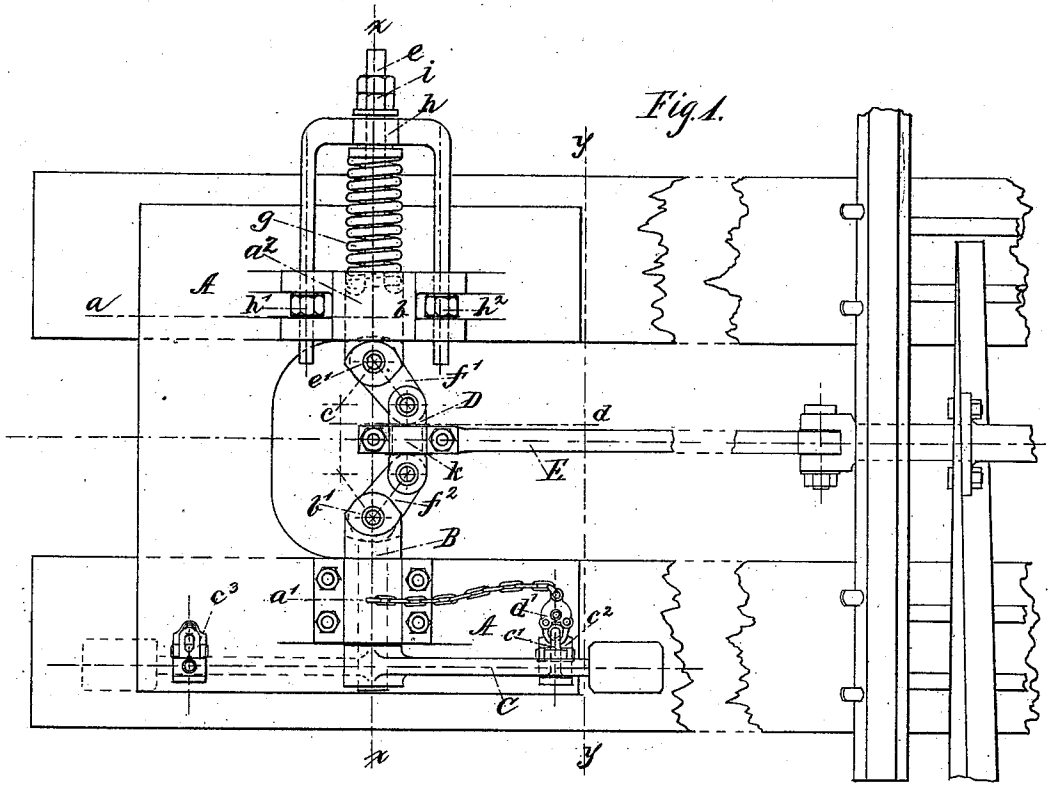
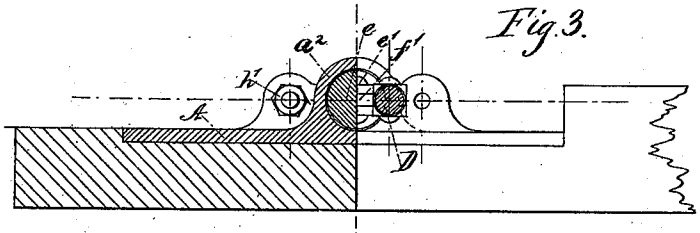


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

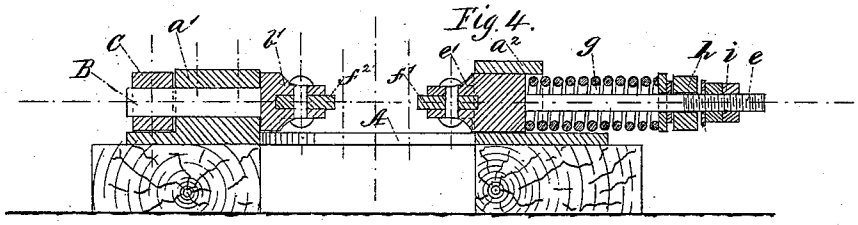


Fig. 5.

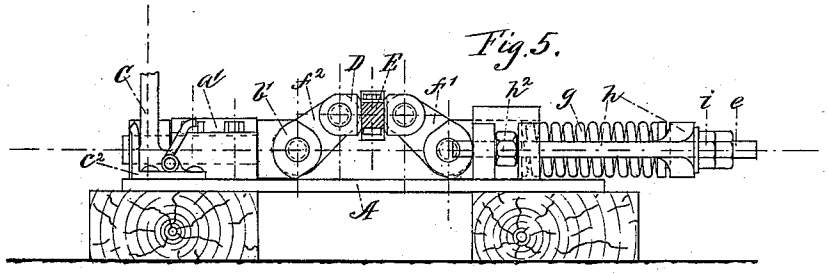


Fig. 6.

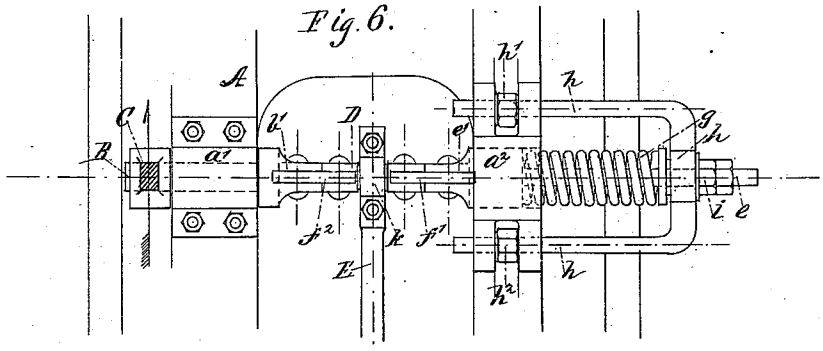
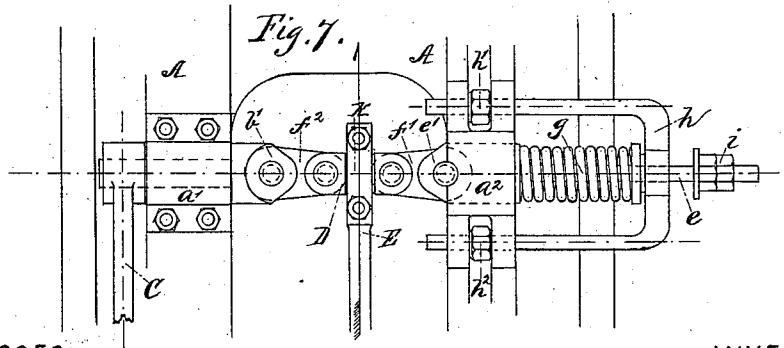


Fig. 7.



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UNITED STATES PATENT OFFICE.

DAVID H. FOREMAN, OF LANCASTER, PENNSYLVANIA.

RAILWAY SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 357,475, dated February 8, 1887.

Application filed September 28, 1886. Serial No. 214,731. (No model.)

To all whom it may concern:

Be it known that I, DAVID H. FOREMAN, of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Railroad Switch-Stands, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to that class of railroad switch-stands known as "automatic;" and the several objects of the construction are, first, to embody in a simple construction known as the "ground-lever" form the automatic feature; second, to enable the operating-lever, except when in actual use for throwing the switch, to lie flat upon the tie in either position, and to be securely locked, which locking does not in any way interfere with the action of trains upon the stand automatically; third, to provide the fewest possible parts to be operated on in the automatic action, said parts being under elastic resistance, thus insuring a construction that in practice will be efficient, durable, and positive.

In the accompanying drawings, in which similar letters of reference in all the figures indicate corresponding parts, Figure 1 is a plan view with the lever locked in normal position for the main line. Fig. 2 is a side elevation of Fig. 1, and Fig. 3 a sectional elevation taken on *a b c d*, respectively, of Fig. 1. Fig. 4 is a cross-section taken on the line *x x*, Fig. 1. Fig. 5 is an elevation on the line *y y*, Fig. 1. Fig. 6 is a plan showing the position of the parts when at half-throw by hand; Fig. 7, the same when at half-throw automatically by the train.

A is a cast-iron base-plate, upon which are formed two lugs or elevations, a' and a^2 a', forming a box, which carries the main rotating stand-shaft B. Upon one end of the shaft is secured a weighted hand-operating lever, C. The lever C is supplied with a locking-staple, c', that can be interlocked in either position with the fixed latches c^2 c^3 by means of any ordinary spring-padlock, d'. The opposite end of the shaft B is slotted and drilled, as shown at b', for the purpose as hereinafter described.

Into a boring formed in the lug a^2 is fitted a sliding rotating rod, *e*. This rod is slotted and drilled at e' in the same way that the shaft B is slotted and drilled at b'. The rod *e* and shaft B are connected (thereby forming a continuous shaft) by a pair of swinging links, f' f^2, jointed, respectively, at one end into the slots e' and b', and at their opposite ends to a connecting-link, D. The joint-pins may be rivets, as shown; or bolts and nuts may be used. The rod *e* carries a coiled spring, *g*, which abuts at one end against the shoulder formed upon the rod by the enlarged slotted bearing end, and is supported at the other end by an adjustable stirrup, *h*. This stirrup passes through holes in the lug a^2, and is secured thereby by adjusting-nuts h' h^2. The stirrup *h* also acts as a guide to the end of the sliding rotating rod *e*. The rod *e* is tapped and fitted with jam-nuts *i* upon the side of the stirrup-head opposite the spring *g*, designed to act as a stop upon the rod *e* to limit the distance it can be forced toward the rotating stand-shaft B by the spring *g*. The connecting-link D is turned upon the center, forming a crank-pin, which is fitted to the main switch-rod E by the boxing *k*.

It will be seen by referring to Fig. 1 that with the lever C locked in horizontal position the spring *g*, confined within the stirrup *h* by its elasticity, forces the horizontally-flexible construction f', D, and f^2 into the form of a crank, fulcrumed upon the shaft B and rod *e*. It will also be seen that the force exerted upon the rod *e* will be proportionally transmitted to the switch-rod E.

Referring to Figs. 1 and 4, both of which represent the stand completely thrown, it will be seen that the nuts *i* are clear of the stirrup *h*. It is evident, therefore, that the force exerted upon the switch-rod E by the spring *g*, as above stated, is resisted by the switch-point forced against the main rail, thus producing the desired constant cushioned pressure upon the switch-point.

In the operation of throwing the switch by the lever C, since the spring *g* is strong enough to resist the weight of the switch, it maintains the crank form in the link construction as the same is being rotated from right to left by the lever, the link D describing a distance sufficient to throw the point, as in the ordinary solid shaft and crank. When the lever C is at half-throw, as shown in Figs. 5 and 6, the

spring *g* is unresisted by any force from the switch-rod E. It will therefore force the sliding rod *e* down until the nuts *i* are brought against the stirrup *h;* but, since the switch-point will be thrown against the main rail before the lever C is completely thrown, in forcing said lever down to the horizontal position the sliding rod *e* is driven against the force of the spring *g*, thus sliding the nuts *i* clear of the stirrup *h* and restoring the desired constant elastic pressure upon the switch-point at either complete throw of the lever, as before stated. The lever C is brought to and rests upon a horizontal line cutting the center of the shafts in either position. Therefore, since the link construction embodies in this position all the functions of a toggle-joint to any unresisting force exerted upon the rod E, it will be seen that a train acting upon the switch will force the links f' f^2 through to the opposite side of the shafts by compressing the spring *g*, as shown in Fig. 7, when, by the force of the spring exerted upon the rod *e*, as before, the point will be securely held in position.

I do not overlook the fact that, since the lever C remains immovable after an action of this kind upon the links alone, the relative positions of the link D and lever C will be reversed; but there will be no obstruction to the practical working of the device from this cause, since the crank f' D f^2 can rotate around under the fulcrum-point as well as over and above it.

Having described my invention, what I claim is—

1. In a switch-stand, the combination, with a base-plate having bearings, of the shaft B, rod *e*, and the flexible crank-connection consisting of the swinging links f' f^2 and link D, substantially as set forth.

2. The combination, in a switch-stand, of a base-plate having bearings, shaft B, rod *e*, and flexible crank-connection, the rod *e* having the capacity of both rotary and end movement, substantially as set forth.

3. In a switch-stand, the combination of a base-plate, bearings, shaft B, rod *e*, flexible crank-connection, stirrup *h*, spring *g*, and nuts *i*, substantially as set forth.

4. The combination, in a switch-stand, of a base-plate, bearings, shaft B, rod *e*, flexible crank-connection, and weighted lever C, substantially as set forth.

5. The combination of the base-plate A, bearings, rotary shaft having a flexible crank-connection, and rod E, substantially as set forth.

6. A base-plate having bearings, a shaft mounted in said bearings and having a flexible crank-connection as a part thereof, combined with a switch-rod attached to the flexible crank-connection and a spring surrounding said shaft, substantially as set forth.

7. The combination, in a switch-stand, of the base-plate A, stirrup *h*, rod *e*, nuts *i*, spring *g*, flexible crank-connection, shaft B, rod E, and weighted lever C, substantially as set forth.

8. The base-plate A, having the lug or bearing a^2, combined with the threaded stirrup *h*, having the nuts h' h^2, substantially as set forth.

In testimony whereof I hereunto set my hand and seal.

DAVID H. FOREMAN. [L. S.]

Witnesses:
CHAS. C. SHIKE,
S. B. FOREMAN.