D. ROUSSEAU.

RAIL ROAD SWITCHES.

No. 184,430. Patented Nov. 14, 1876.

Fig: 1

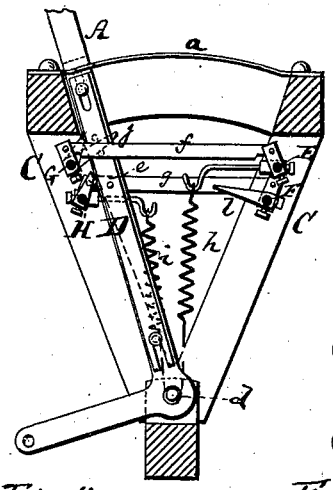


Fig: 2

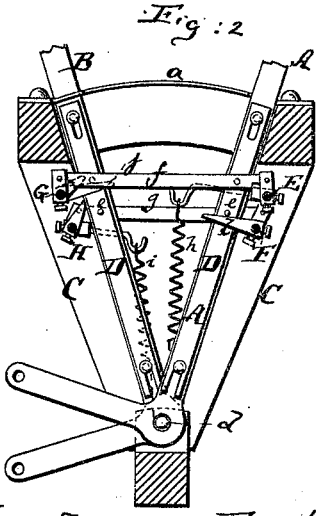


Fig: 3

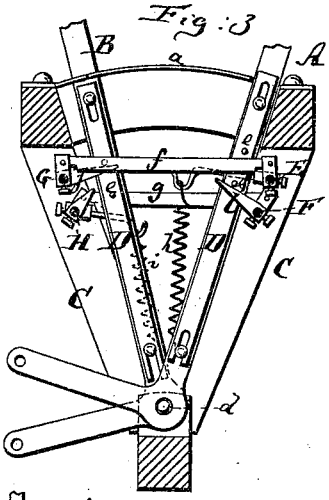


Fig: 4

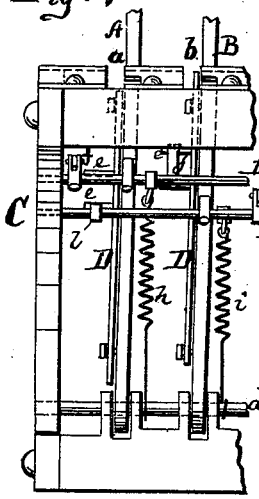


Fig: 5

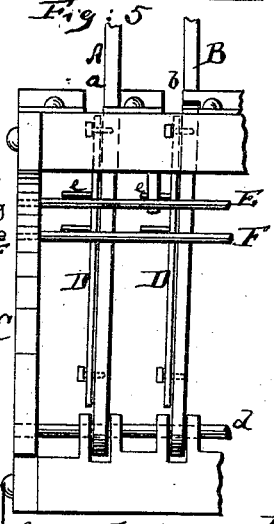


Fig: 6

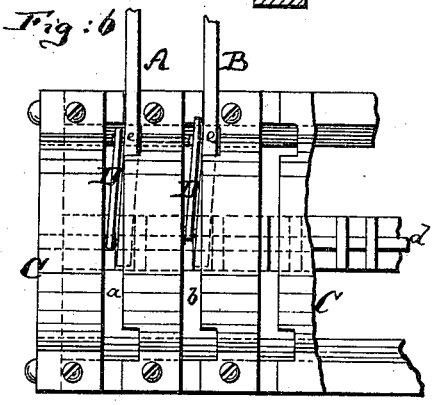


Fig: 7

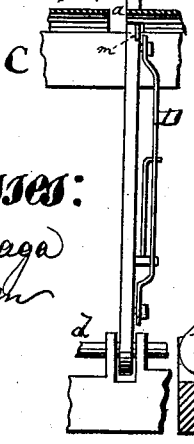


Fig: 8

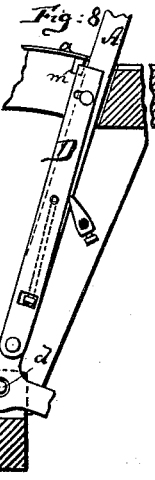


Fig: 9

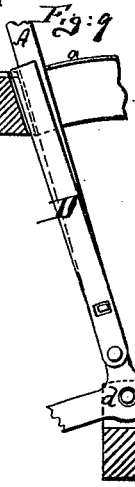
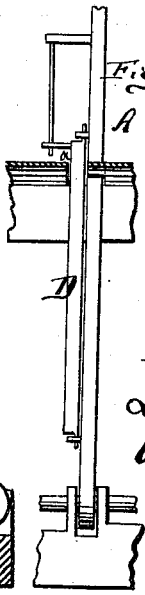


Fig: 10



Witnesses:

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D. V. Briesen

Inventor

D. Rousseau

by his attorney

A. V. Briesen

# UNITED STATES PATENT OFFICE.

DAVID ROUSSEAU, OF NEW YORK, N. Y., ASSIGNOR TO HIMSELF AND WILLIAM C. SMITH, OF SAME PLACE.

## IMPROVEMENT IN RAILROAD-SWITCHES.

Specification forming part of Letters Patent No. **184,430**, dated November 14, 1876; application filed September 19, 1876.

*To all whom it may concern:*

Be it known that I, DAVID ROUSSEAU, of New York city, in the county and State of New York, have invented a new and Improved Railroad Switch or Signal Moving and Interlocking Mechanism, of which the following is a specification:

Figures 1, 2, and 3 are vertical transverse sections of my improved railroad switch or signal moving and interlocking mechanism, showing the same in different positions. Fig. 4 is a front view of Fig. 1; Fig. 5, a front view of Fig. 2; Fig. 6, a top view of Fig. 1. Figs. 7, 8, 9, and 10 are views representing modifications thereof.

Similar letters of reference indicate corresponding parts in all the figures.

The object of this invention is to simplify the arrangement and construction of parts that pertain to combined switch and signal moving and interlocking levers, the mechanism being of such nature that the switch-moving lever will cause the signal-moving lever to be locked, and vice versa, whenever the position of the switch or of the signal renders such locking advisable or desirable.

The invention consists in combining a spring-lever with a locking-bolt, whereby it will be automatically locked in the notch of the guide, so that when so locked by said bolt the lever cannot be drawn out of the notch and moved to set the switch or signal, all as hereinafter more fully described. The invention further consists in other details of construction, hereinafter more fully pointed out.

In Figs. 1 to 6 I have represented two levers, A and B, the lever A being presumed to be connected with a switch, and the lever B with a signal pertaining to such switch, so that when the switch is in line with the track having the signal, said signal will stand in the position of "safety;" but when said switch is not in line with the track having such signal, the signal is to stand in the position of "danger." Now, the purpose of the improved mechanism is to hold the switch locked, and to absolutely prevent all motion thereof into a dangerous position until after the signal has been placed into the position of "danger," and also so to lock the signal, when it is in the position of "danger," that it cannot, by any possibility, be moved into the position of "safety" unless the switch is also and actually in the safe position respecting the line of track to which such switch-signal pertains. The levers A and B are pivoted in a frame, C, by a joint or separate pin, *d*, and are capable of moving in straight guide-slots *a* and *b*, respectively. The end of each of these slots has a notch, into which the lever will spring, as shown in Fig. 6, the guide-slot of each lever being at such position respecting the lower or pivoted end of its lever, laterally, that the lever, in moving in the main part of guide-slot, will be sprung, and always have the tendency to spring, into a notch as soon as it arrives in line therewith. To each of these levers A and B is applied a vertically-sliding bolt, D, which has one or more projecting pins, *e*, as shown. This bolt, when raised, as shown on the lever A of Fig. 4, will reach into the guide-slot of such lever, and prevent the lever from being swung out of the notch, and thereby from being moved along the guide-slot. In the frame C are also hung a series of shafts, E F G H, &c., of which two, more or less, are hung at one side, and the others at the opposite side, of the frame C, that side of the frame C at which the shafts E and F are hung being, for greater convenience, termed the front, and the other side the back, part of the apparatus. The shaft E is, by a crank and rod, *f*, connected with a crank of the shaft G, so that these two shafts, when one is vibrated, will vibrate simultaneously, and the shaft F is, by a crank and rod, *g*, likewise connected with the shaft H, so that these two shafts will move simultaneously. The shafts E and H are, respectively, connected with weights or springs *h i*, which tend to hold them in a certain position, as hereinafter specified.

When the lever A is thrown back, as in Figs. 1 and 6, the switch is presumed to be in position of "danger," and at the same time the lever B is also thrown back, as in Fig. 6, holding the signal with which such lever acts also in the position of "danger;" but while the two levers are in such position the bolt D of the lever B is elevated into the guide-slot *b*, so as

to prevent the lever B from being moved out of the notch into which it is sprung. This elevated position of the bolt D of the lever B is obtained by a finger, *j*, on the shaft G, which supports the said bolt D in its raised position by resting one of the pins *e* of such bolt. The consequence of this position of parts is, that the signal-lever B cannot be moved into the position of "safety" while the switch remains in the position of "danger." As soon as the lever A is thrown forward to move the switch into the position of "safety," and at the very end of its forward stroke, said lever strikes a crank or toe of the shaft E, and thereby swings said shaft, and with it the shaft G, lowering, thereby the crank *j*, and causing the bolt D of the lever B to drop out of the slot *b*. This unlocks the lever B, and it is an important fact that under my invention the signal-lever is not unlocked and allowed to be moved until the switch has reached the position of actual safety.

Fig. 2 shows the position of parts after the lever A has been moved forward. If, now, the signal is also to be moved into the position of "safety," it is simply necessary to swing the lever B out of the notch and move it in the guide-slot *b* to the front of the frame C, where it will spring into the other notch of the slot *b;* but as soon as such forward motion of the lever B is started, as in Fig. 3, the spring *i* will swing the shaft H, and thereby also the shaft F, and cause a toe or crank, *l*, of the shaft F to bear under one of the pins *e* of the bolt D of the lever A, and to raise said bolt into the slot *a*, and lock the lever A, all as indicated in Fig. 3. Before the lever B was started in its forward motion, a toe on the shaft H was pressed against it by the action of the spring *i*, to prevent the shaft H from being vibrated until after the lever B was moved away from such toe. Thus it is that whenever the switch-lever is in the position of "danger" the signal-lever will be absolutely locked in the position of "danger," and that it is not possible to move the switch-lever into the position of "danger" until after the original lever has been moved into the position of "danger," for it is clear that the toe *l* will not be drawn away from under the pin of the bolt of the lever A until after the signal-lever has again struck the toe of the shaft H.

Instead of placing the bolts D alongside of the levers A B, to which they are connected by suitable pins passing through slots, as indicated in Figs. 2 and 3, I may apply a vibrating bolt to each lever, as indicated in Figs. 7 and 8, and cause the same, by a suitable toe on one of the shafts, to be locked behind a lug, *m*, that projects from the frame C; or the vibrating bolt may be caused to lock into an extension of the guide-slot, as indicated in Fig. 9, or it may be pivoted to the side of the lever A or B, as in Fig. 10, so as to project transversely into the guide-slot, until after a cam or finger on one of the shafts has folded it close against the lever, and allowed the latter to be moved; or a bolt may be connected in any other suitable manner, and operated by automatic means, in substantially the manner stated.

I claim as my invention—

1. The combination of the spring-lever with the adjustable bolt D, and with the notched guide-slot, all arranged so that the motion of the lever B will affect the position of the bolt D, substantially as described.

2. In combination with the spring-levers A B and their bolts D D, the shafts E F G H and their fingers *j l*, all arranged to act substantially as specified.

Signed by me this 15th day of September, 1876.

DAVID ROUSSEAU.

Witnesses:

ERNEST C. WEBB,

F. V. BRIESEN.