

(No Model.)

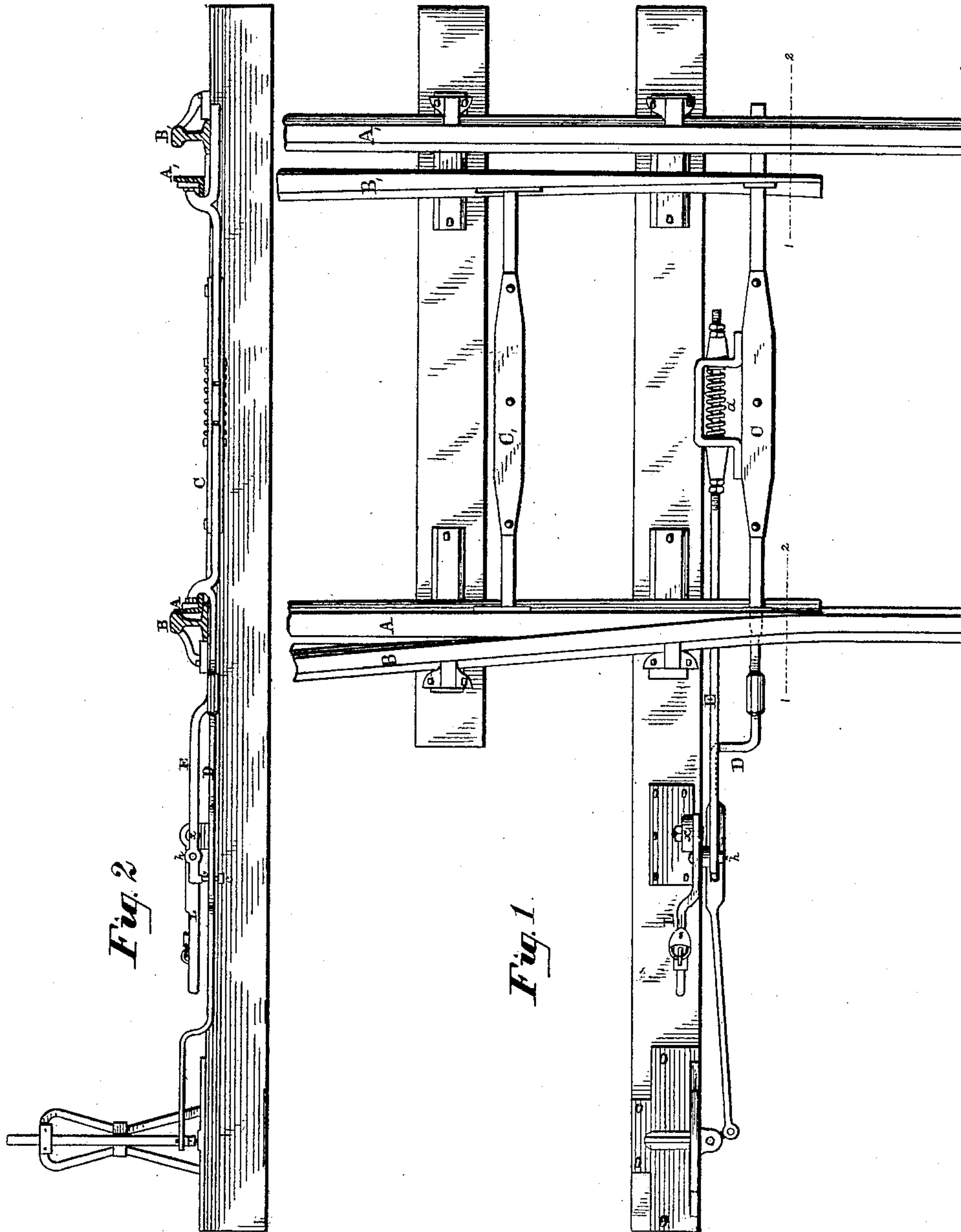
2 Sheets—Sheet 1.

M. F. BONZANO.

SAFETY GUARD FOR RAILWAY SWITCHES.

No. 322,783.

Patented July 21, 1885.



WITNESSES:

*E. Kreeker*  
*J. J. J. J.*

INVENTOR

*Maximilian F. Bonzano.*

(No Model.)

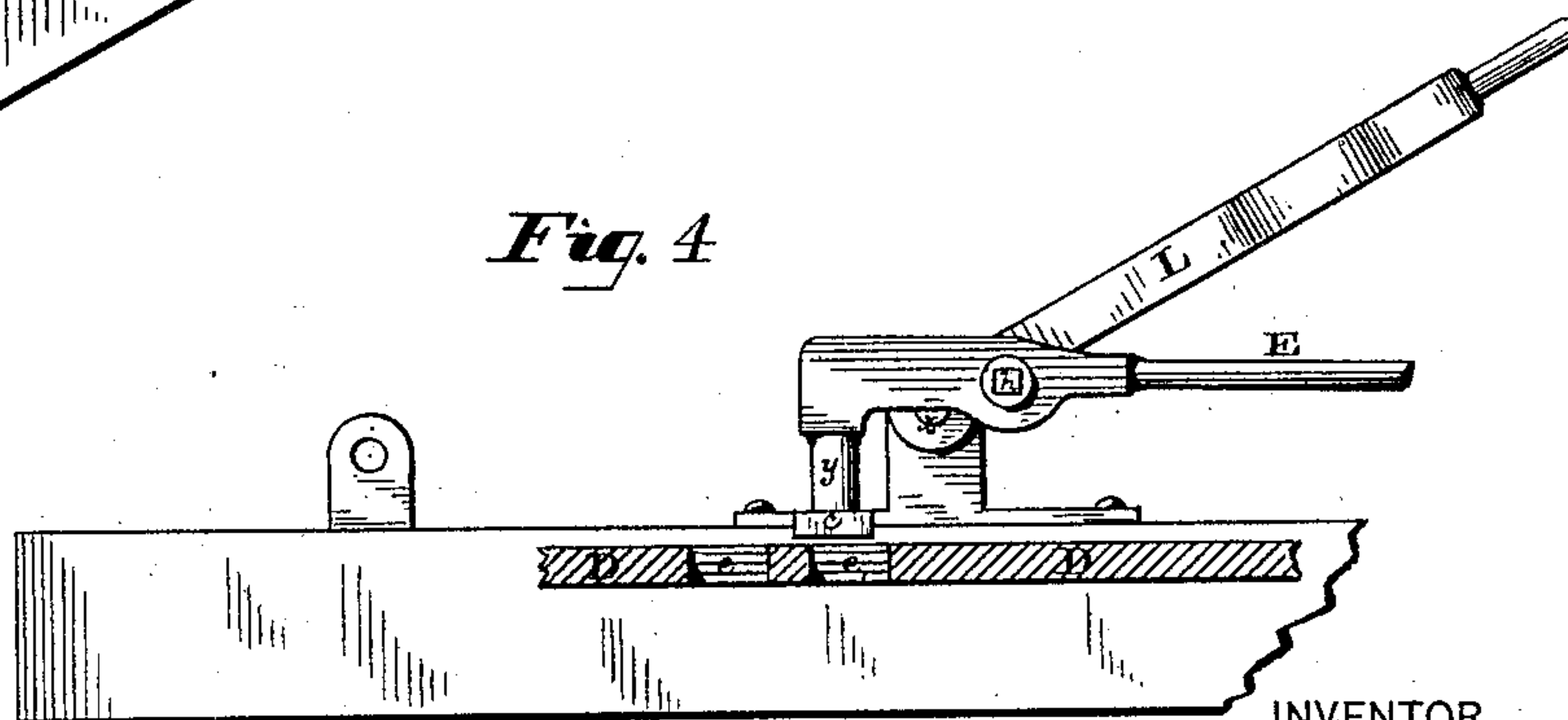
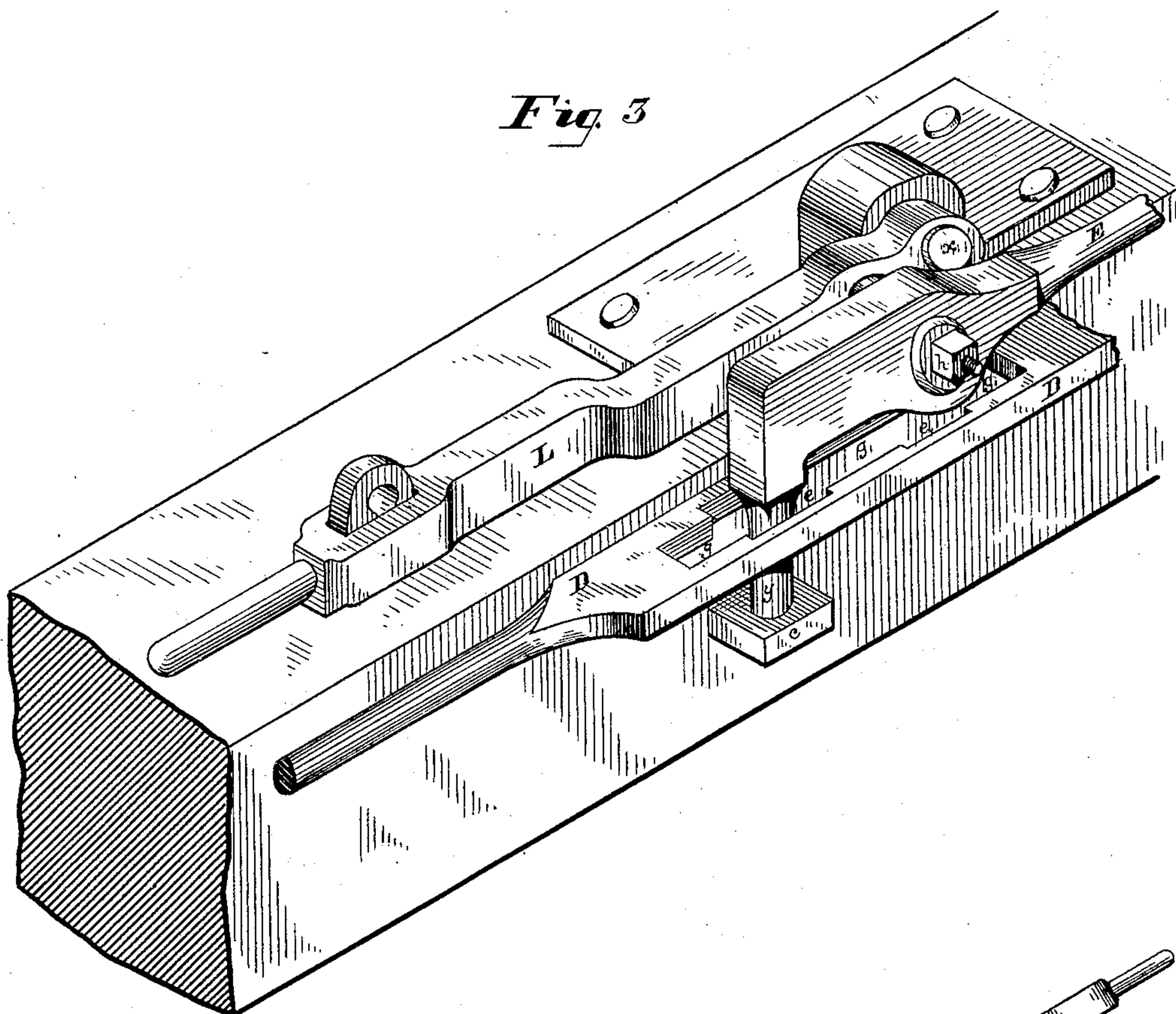
2 Sheets—Sheet 2.

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No. 322,783.

Patented July 21, 1885.



WITNESSES:

E. Kreeker  
Insward.

INVENTOR

Maximilian F. Bregno



# UNITED STATES PATENT OFFICE.

MAXIMILIAN F. BONZANO, OF PHILADELPHIA, PENNSYLVANIA.

## SAFETY-GUARD FOR RAILWAY-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 322,783, dated July 21, 1885.

Application filed December 31, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, MAXIMILIAN F. BONZANO, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented an Improvement in Safety-Guards for Railroad-Switches, of which the following is a specification.

My invention relates to a device for insuring the proper movement of a railroad-switch in connection with the ordinary operating methods, the operation and mode of application being described in detail hereinafter.

In the accompanying drawings, Figure 1, Sheet 1, is a plan showing an ordinary railroad-switch with the safety-guard attached. Fig. 2, Sheet 1, is an elevation of the same, which also shows a transverse section of the rails on the line 1 2. Fig. 3, Sheet 2, is a perspective view, presenting the safety-guard in detail. Fig. 4, Sheet 2, illustrates a feature of my invention.

Referring to Figs. 1 and 3, inclusive, A and A' are portions of the switch or point-rails of a switch. B and B' are parts of rails necessary and usual in a switch. L is the ordinary lever or crank by which the switch is turned. E is the connecting-rod between the lever L and the switch. C is the main switch-rod with the usual spring, *a*. C' is another switch-rod. D is a bar or rod connected with the main rod C, and projecting so as to engage with the locking-bolt *c*, as hereinafter explained.

The term "switch" includes, in general, the parts A, A', C, B, B', *a*, and E.

The operation of this device may be explained as follows: When the lever L is turned about the pivot *x*, the pivot *h* travels in an arc whose center is at *x*, and at the same time the bolt *c*, being rigidly connected to the rod E, is raised through the recess *e* in the bar D. The movement of the lever L and the rod E causes the switch-rails A and A' to move, together with the rods C and D. Should there be any obstruction between the rails A and B or A' and B' the spring *a* could be compressed and the lever L placed in the position shown in Figs. 1, 2, and 3, or the one corresponding to the opposite condition of the switch, were it not for the bolt *c*, which must pass through

the rod D before the lever L can be placed in either of its normal positions. To accomplish the desired result, the recesses *e e'* in the bar D are made so that the head of the bolt *c* can pass through the rod D only when the switch-points A and A' are in either of their proper positions, or when the switch is open or closed entirely. The operation of this is partly shown in Fig. 4. In addition to the holes or recesses *e e'* in the rod D, slots *g g'* can be provided, as shown by Fig. 3, whose object is to provide for the possibility of an engine or car running through the switch when it is misplaced. In such a case, referring to Fig. 1, the rails A and A' would be pressed towards the rail B, carrying with them the rods C and D and compressing the spring *a*. This movement of the rod D, and the rigidity of the rod E when the lever L is stationary, which is obvious from the drawings, make the slot *g* necessary for the prevention of breakage to the stem *h* of the bolt *c* or to the rod D. In this construction the slot *g* cannot interfere in any way with the functions of either the bolt *c* or the corresponding recess, *e*.

The recess *e* can be cut on the side of the rod D, and the stem *y* of the bolt *c* can be free to move along the bar or rod D after the head or enlarged portion has passed entirely below the bar D. The bolt *c* could also be attached to any other portion of the rod E within a reasonable distance of the point *h*. Again, the bolt *c* could be attached to the lever L, or an extension of it, and be so arranged as to pass through a recess in the rod D before the said lever could be placed in either of its normal positions. The rod D may be attached to either or both of the switch-rails A and A', or to any part of the rods C and C' moving in unison with them.

I claim as my invention—

1. The combination of a recessed bar, D, a railroad-switch, the guard-bolt *c*, and the lever L, substantially as specified.

2. The combination of a railroad-switch and a recessed and slotted bar connected thereto, and a guard-bolt, *c*, connected to the rod E, substantially as specified.

3. The combination of a railroad-switch, a recessed and slotted bar, D, the bolt *c*, con-

nected to the lever L, and the lever L, substantially as specified.

4. The guard-bolt *c*, with a head and stem, in combination with the recessed bar D, the  
5 lever L, and a railroad-switch, substantially as described.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

MAXIMILIAN F. BONZANO.

Witnesses:

E. KRECKER,  
JOS. S. WARD.