

L. E. Kurtz, 2. Sheets, Sheet 1

Railway Switch.

No. 103202,

Patented May 17, 1870.

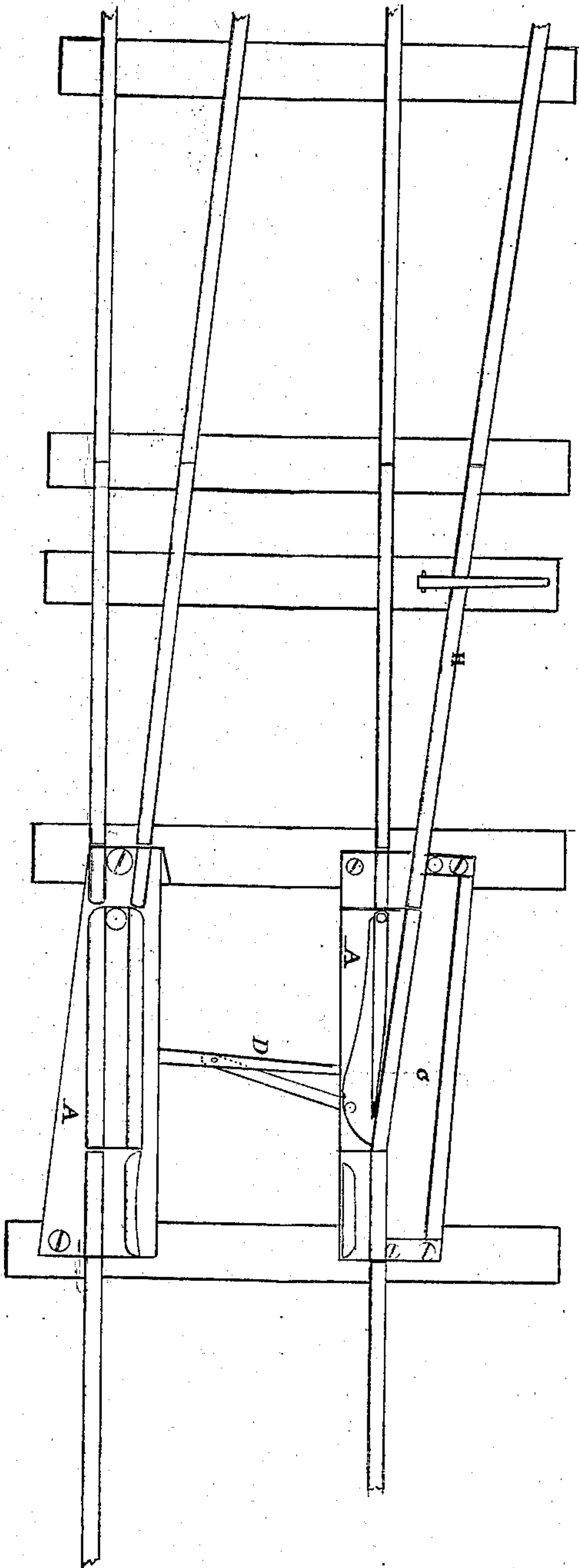


Fig. 2.

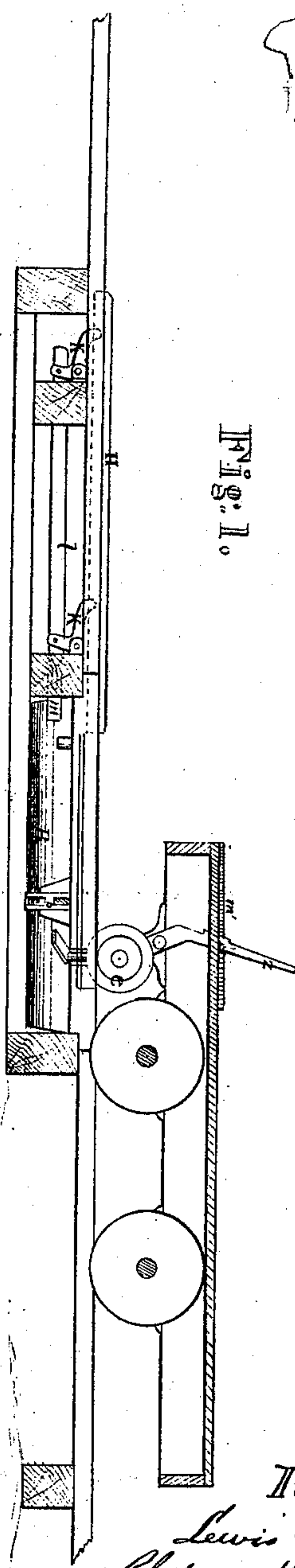


Fig. 1.

Witnesses.

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Fig. 3.

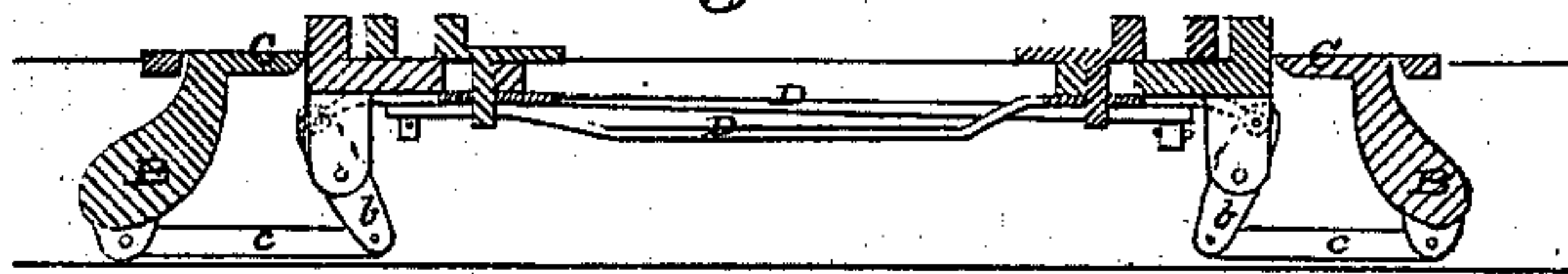
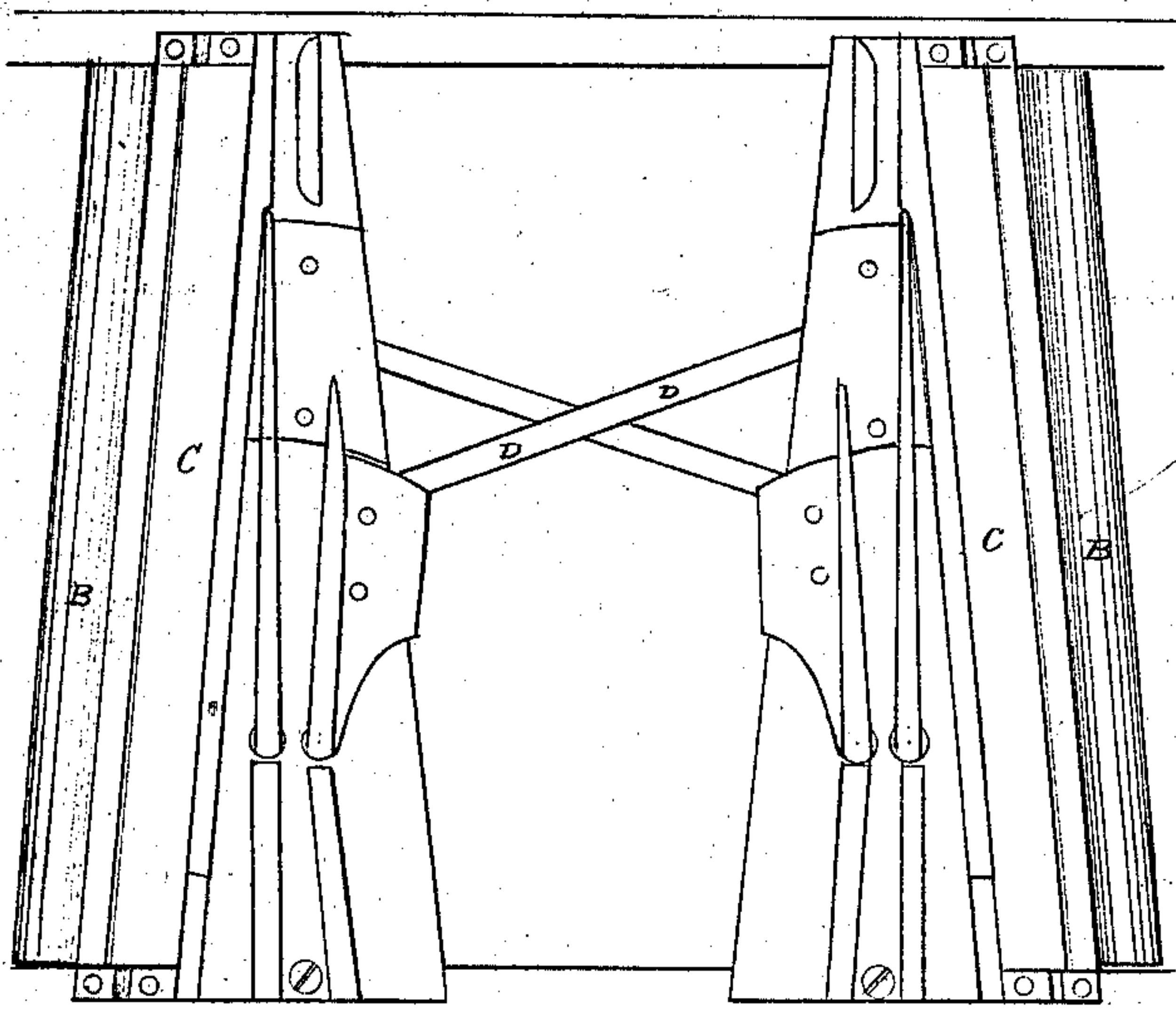


Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

LEWIS E. KURTZ, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN AUTOMATIC RAILWAY-SWITCHES.

Specification forming part of Letters Patent No. **103,202**, dated May 17, 1870.

To all whom it may concern:

Be it known that I, LEWIS E. KURTZ, of Baltimore, in the county of Baltimore and State of Maryland, have invented a new and valuable Improvement in Automatic Railroad-Switches; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a longitudinal vertical section of my invention. Fig. 2 is a top view of the same. Fig. 3 is a cross-section of a double switch arranged on the same principle. Fig. 4 is a top view thereof.

My invention relates to means for preventing accidents arising from unguarded switches upon railways; and consists in the construction and novel arrangement of a pivoted plate with a weighted arm alongside the outer rail of the side track, designed to be operated from the engine as it approaches the point of juncture.

The letters A A of the drawings designate the base-plates, which rest upon the cross-ties, and to which the shifting rails are pivoted.

If the side track branches from the right of the main track, the base-plate of this side is provided with a lever, *b*, pivoted to the under side thereof, and operated by means of a connecting-bar, *c*, pivoted to the lower end of a weighted arm, B, attached to the under side of the pivoted plate C.

The upper end of the lever *b* operates the shifting rail through a slot in the base-plate of the same side, and, by means of a connecting-rod, D, extending under and across the track, at the same time moves the corresponding shifting rail of the opposite side.

The operation of the weighted arm is such that, when left to gravitate freely, the shifting rails will be kept in line with the main track. When, however, it is desired to switch off, that edge of the pivoted plate C which lies adjacent to the rail is pressed down by means of a wheel, *e*, attached to the lower end of an adjustable lever, *z*, pivoted to and operated from the engine. The weighted arm is thus thrown outward, producing, through the medium of

the lever *b* and its connections, the requisite movement of the shifting rails.

When there are branch tracks on each side of the main track, they may both be easily operated by a reduplication of the parts above described for a single switch, as shown in Figs. 3 and 4.

In order to prevent the automatic return of the shifting rails to their usual position in line with the rails of the stem or main track after the engine has passed and until the last car of the train shall have been safely guided off upon the side track, it is necessary that the weighted arm which operates the switch shall be kept up, or in the position in which it is placed by the lever *z* of the engine. This I design to accomplish by means of a bent lever, *m*, arranged to press outward upon the weighted arm B when the rail H, adjacent to the pivoted plate C, is depressed by the weight of the cars passing over it.

The proper mechanical connection between the rail H and the lever *m* may be brought about in several ways. In the drawings I have shown the rail as pivoted to and resting upon bent levers *k k* at or near its ends, which are arranged to produce a longitudinal movement of the connecting-bar *l*, pivoted to one end of the bent lever *m*. In other words, the downward vertical motion of the rail H is converted, by the bent levers *k k*, into horizontal motion. The weight of the arm B, in this mode of accomplishing the desired result, should be sufficient to raise the rail H after the weight of the last car is removed from it; and, in order that the rail H may not rise between any two wheels of the train, it must be of sufficient length to span the space between them, in order that one wheel may not leave it before the wheel following has come upon it.

A suitable ratchet, *m'*, or other adjustable catch, is provided on the engine to secure the operating-lever *z* in the proper position with the roller raised or depressed on the track, as may be required.

In order to provide means for guiding a train through the switch with the engine in rear, it is only necessary to attach a similar lever to the front platform of the forward car.

When desired, the switch can be operated by

a switch-tender beside the track. Provided with a suitable bar or lever, it is only necessary for him to insert the end thereof in the fulcrum-staple *s* just inside the sinking rail, when he will be able to control the switch. Sometimes I propose to attach a lever by an eye to the staple *s* for this purpose, so arranged that, should the switchman not have time to throw it off the track, the fender of the engine or wheel of the car will readily cast it aside.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with the pivoted plate *C*, having the weighted arm *B*, the lever *b*, with its connections, and the sinking rail *H*, when constructed and arranged to be operated by the weight of the passing train, as specified.

2. The automatic railroad-switch herein described, opened by the weight of the passing train and closed by the weight of the pendent arm *B*, as specified.

3. The sinking rail *H*, of sufficient length to span the distance between any two wheels of the train, when arranged to keep the weight *B* up, the whole operating as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

LEWIS E. KURTZ.

Witnesses:

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