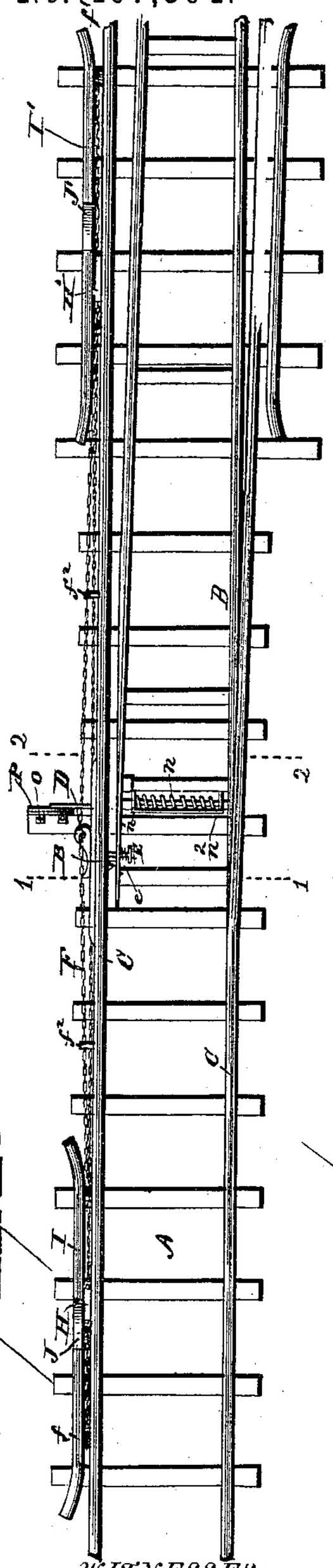
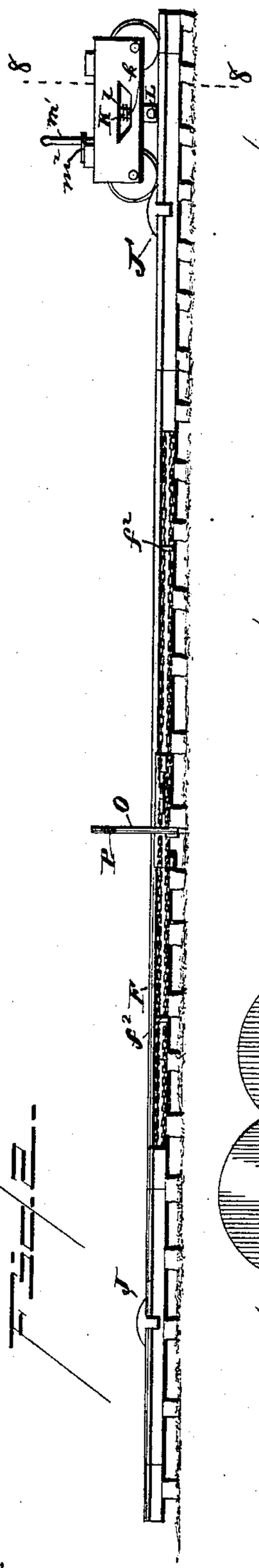
(No Model.) 2 Sheets—Sheet 1.

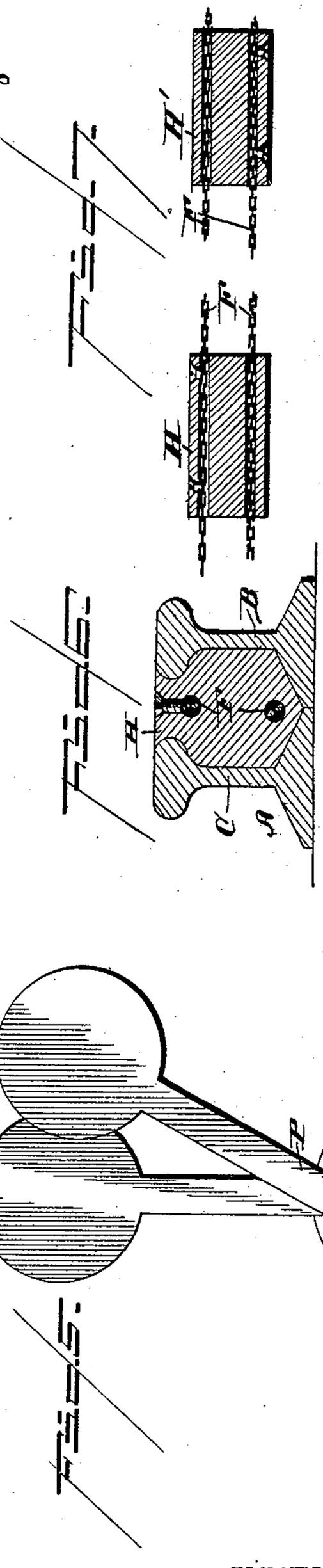
J. T. ARGO.

AUTOMATIC SWITCH FOR RAILWAYS.

No. 407,504. Patented July 23, 1889.







WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

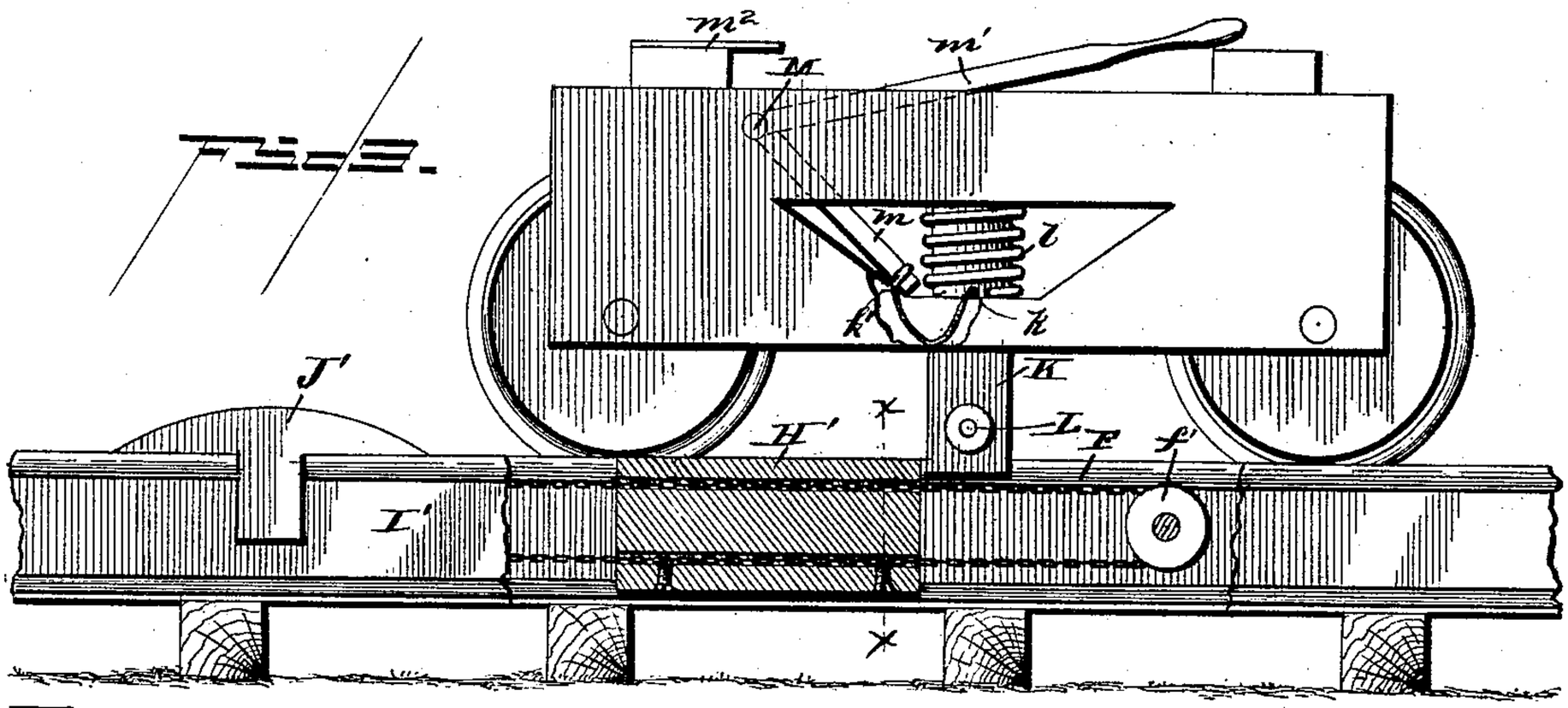

Fig. 4.

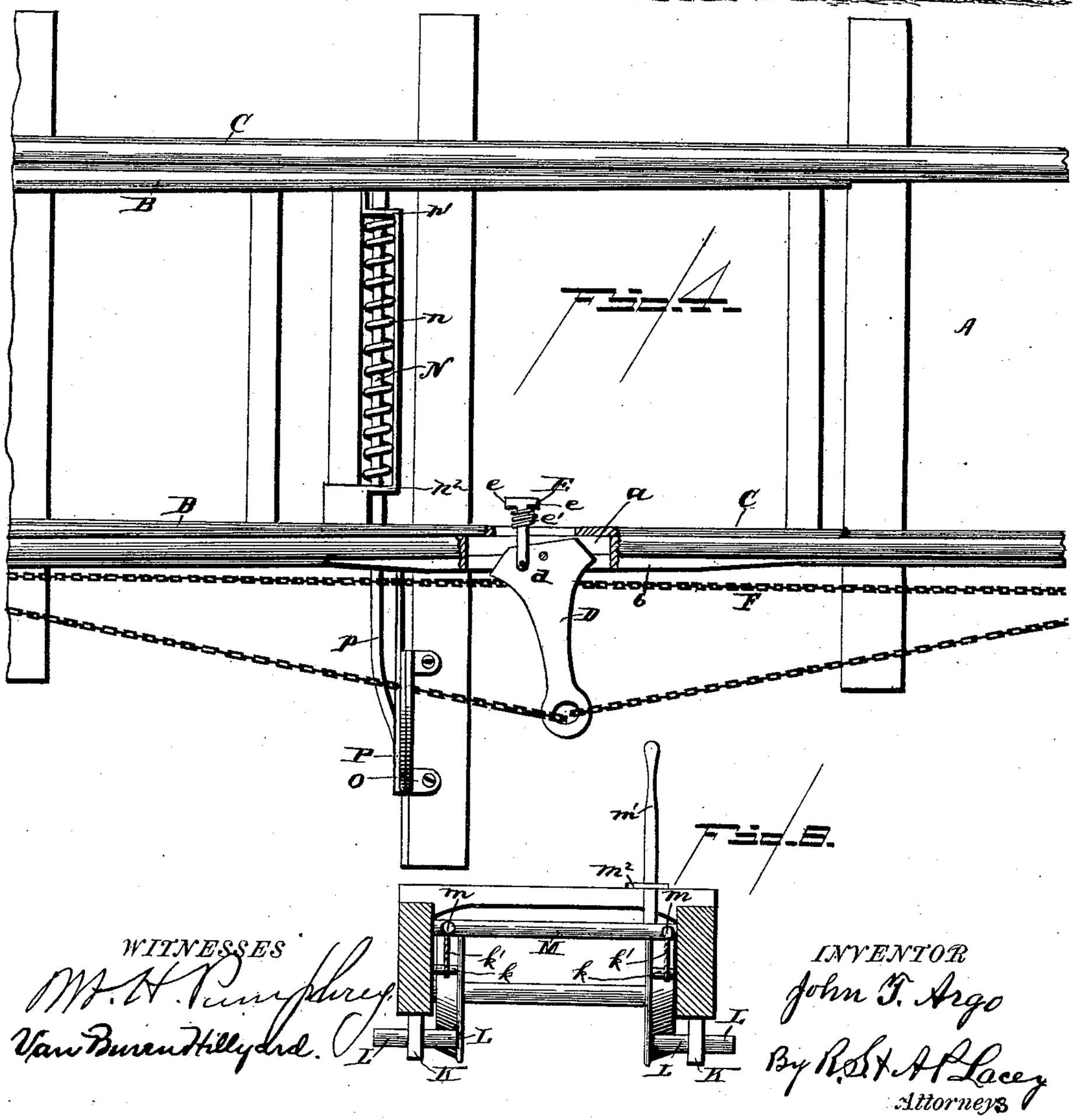

Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN T. ARGO, OF POINDEXTER, KENTUCKY.

AUTOMATIC SWITCH FOR RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 407,504, dated July 23, 1889.

Application filed July 25, 1888. Serial No. 281,005. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. ARGO, a citizen of the United States, residing at Poindexter, in the county of Harrison and State of Kentucky, have invented certain new and useful Improvements in Railroad-Switch Operators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to railroad-switches, and particularly to the mechanism for automatically operating the switch from the train from either approach.

The main track is yieldingly held closed in the usual manner, so as to allow the train to enter thereon from the side or branch track. A lever pivoted to one of the rails and adapted to work in a horizontal plane has one end constructed to bear against the switch-rails, and has the same end provided with a connection which passes through the rail and is provided with a stop on its projecting end, a spring being mounted on the said connection and confined between the said stop and the side of the rail opposite to that from which the connection entered. An endless cable passing around pulleys placed at a proper distance on each side of the said lever and connected with the lever is provided with stops at its ends. One stop at one end is connected with the upper portion of the cable. The other stop at the other end is connected with the lower portion of the said cable. The guard-rail opposite the stops has a double-inclined block applied thereto to disengage the operating device on the train from the said stop at the proper time.

The improvement consists of the peculiar construction and combination of parts, which hereinafter will be more fully described and claimed, and shown in the annexed drawings, in which—

Figure 1 is a plan view, parts being broken away, of a railroad-switch embodying my invention; Fig. 2, a side view of the railroad-switch; Fig. 3, a detail side view, partly in section, of the right-hand end of the switch shown in Fig. 2, on an enlarged scale; Fig. 4, a plan view of the switch between the lines 1 1 and 2 2 of Fig. 1, on an enlarged scale and in a reversed position; Fig. 5, a detail side view of the switch-stand; Fig. 6, a cross-section on the line X X of Fig. 3; Fig. 7, longitudinal sectional views of the stops which are secured to the upper and the lower portions of the cable, respectively; and Fig. 8, a vertical section on the line 8 8 of Fig. 2.

The main track A and the switch B are of ordinary construction. The rail C is provided with an opening *a*. nearly opposite the end of the switch, through which extends the inner end of the lever D, which operates in a horizontal plane. The pivotal support *d* of the lever is held between the rail and the casting *b*. The inner end of the lever is adapted to bear against the switch, and is provided with the connection E, that passes through one of the switch-rails and has the stop *e* on its end. The spring *e'*, mounted on the end of the connection projected through the switch-rail, is confined between the said rail and the stop *e*.

The purpose of lever D is to operate the switch-rails. In one position it forces the switch-rails over against the pressure of the spring, and in the other position allows the spring to reset the switch or closes the switch through the connection E, as shown most clearly in Fig. 4. It will be observed that the spring *e'* is interposed between the head *e* of connection E and the side of the switch-rail, and when the switch is set if a car comes from the left on the main rail the said spring *e'* will be compressed to permit the flanges of the wheels to pass between the switch and main rails. Otherwise, if no provision were made for yielding, the car would be in danger of derailment or the connections would be strained and broken.

The endless cable F, passing around the pulleys *f* and *f'* and through the guides f^2, is connected with the lever D, and is provided with stops at its ends. The stop H is secured to the upper portion of the cable and the stop H' to the lower portion of the said cable. By this arrangement the stops move with equal speed toward or away from one another. Each of the stops has two openings, through which the parts of the cable pass,

one part of the cable being fast with the stop, the other part free to slide through the other opening. The stop H works between the guard-rail I and the main rail C, and the stop H′ between the guard-rail I′ and the rail C. The sides of the stops are expanded to fit the space between the foot and the tops of the rails, which hold them against vertical displacement.

The double-inclined blocks J and J′, secured to the guard-rails, serve to disengage the yielding arm K on a truck of the train from the stops. The arm K works vertically through openings in the truck-frame, and is provided with the stops *k* and with the lateral rollers L, which are adapted to run on the rails. The spring *l* on the arm K is confined between the stops *k* and the upper beam of the truck and holds the arm within the path of the stop.

The rotatable shaft M, having the arm *m* connected with the arm K by the connection *k′*, is provided with the lever *m′*, by means of which it is rotated to lift the arm K out of the path of the stops H H′ when it is desired not to operate the switch, the lever being held by the hook m^2. The connection *k′*, which is a chain or rope, is connected at one end to the arm *m* and at its other end to the stop *k*, as most clearly shown in Figs. 3 and 8. There will be an arm and connections for each side of the truck, both being connected with the shaft M.

The switch is held against the main rail by the spring *n*, which is mounted on the rod N and confined between the stop *n′* on the rod N and the stop n^2 on the switch. The switch-stand O and the switch-lever P are of usual construction, and the switch-lever has a connection with the switch by means of the rod *p*.

When it is desired to operate the switch from an approaching train, the arm K is lowered and the rollers L thereof travel on the rails. As the train approaches the arm K will engage with the stop H and operate the cable and the lever D and change the position of the switch. The parts are so disposed that when the switch is operated one of the rollers L will ride on the block J and disengage the said arm from the stop. When the train reaches the second stop and operates it, the switch will be returned to its normal position, after which one of the rollers L will ride on the block J′ and disengage the arm from the second stop.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the main track and the switch, of the lever D, means for operating the said lever, as the cable having stops connected with the lever, the connection E, passing through a rail of the switch and having a stop *e*, and the spring *e′*, held between the said rail and the stop *e*, substantially as and for the purpose described.

2. The combination, with the switch, the lever D, for operating the switch and the endless cable, of the stops and the double-inclined blocks, substantially as and for the purpose described.

3. In a switch-operating mechanism, the combination, with the endless cable, of the two stops, one stop being at one end and connected with the upper portion of the cable, the other stop being at the other end and connected with the lower portion of the cable, substantially as and for the purpose described.

4. The combination, with the main and switch rails, the endless cable connected with a lever to operate the said switch-rails and the guard-rail, of the stop having two longitudinal openings which receive the upper and the lower parts of the cable, one of said parts being secured to the said stop and having its sides expanded to fit in the space between the foot and the top of the said rails, substantially as and for the purpose described.

5. The combination, with the main track, the switch, the lever D, for opening and closing the switch, and means for operating the said lever, of the connection E, passing through the switch and connected at its outer end with the lever D, and having a stop *e* on its inner end, and the spring *e′*, interposed between the said stop *e* and the side of the said switch-rail, substantially as described, for the purpose specified.

6. The combination, with the switch, the switch-operating devices, and the inclined block, of the truck, the vertically-movable arm K, the stops, the spring, and the lateral rollers, substantially as and for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN T. ARGO.

Witnesses:
CHAS. T. WILSON,
S. R. BOYD.