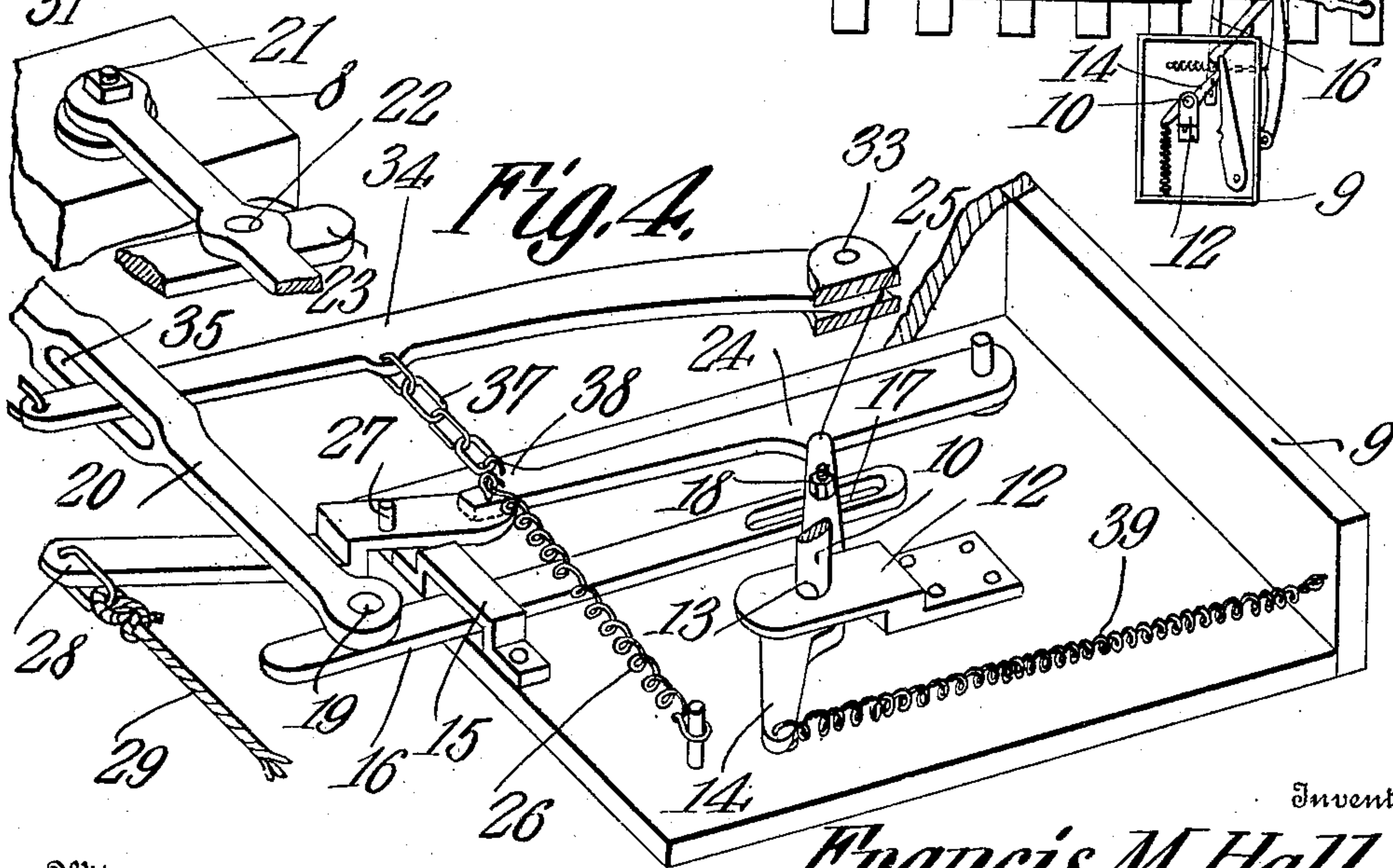
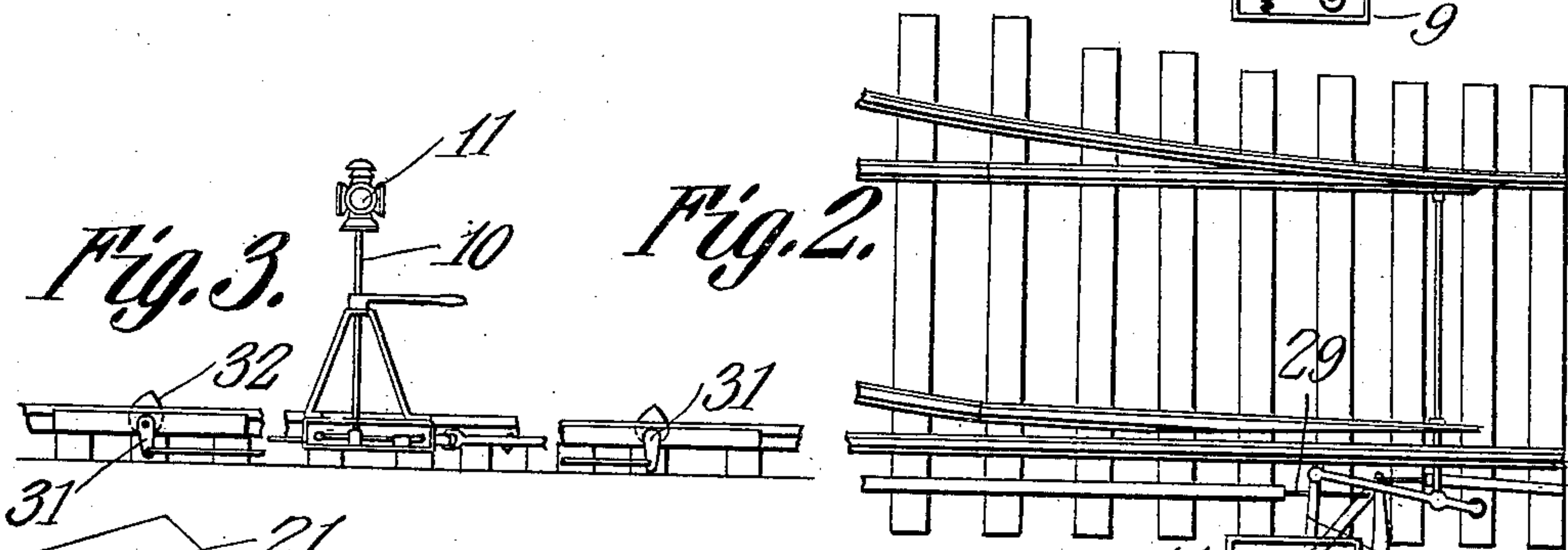
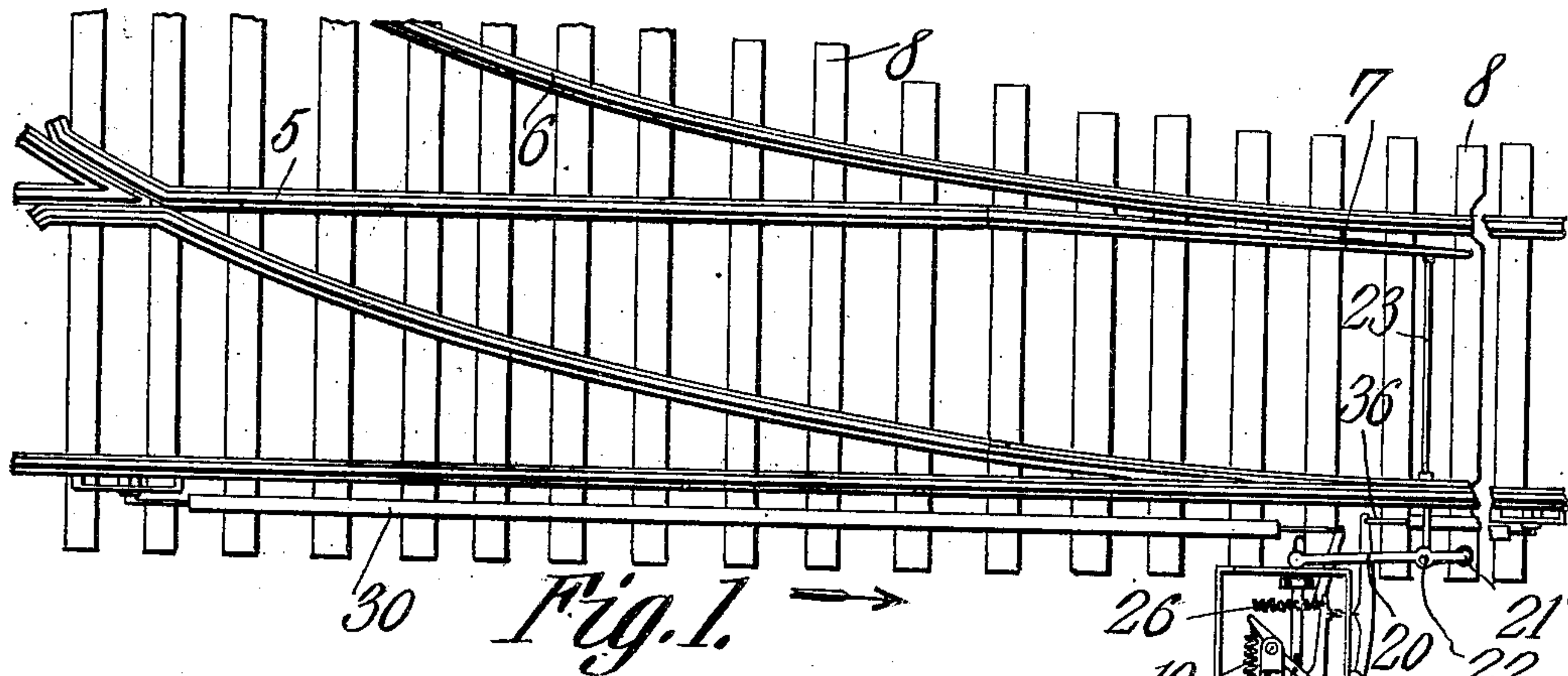


F. M. HALL.
AUTOMATIC SWITCH.
APPLICATION FILED MAR. 9, 1908.

898,879.

Patented Sept. 15, 1908.



Witnesses

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AUTOMATIC SWITCH.

No. 898,879.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed March 9, 1908. Serial No. 420,032.

To all whom it may concern:

Be it known that I, FRANCIS M. HALL, a citizen of the United States, residing at Potomac, in the county of Vermilion and State of Illinois, have invented a new and useful Automatic Switch, of which the following is a specification.

This invention relates to automatic rail way switches of that general class shown and described in United States Letters Patent issued to me on the 10th day of December 1907, under No. 873368.

The object of the invention is to improve and simplify the construction of the switch and to render the same more efficient in operation by dispensing with the chain engaging pulley and providing a direct connection between the tappet and switch throwing mechanism.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a top plan view of a switch throwing mechanism constructed in accordance with my invention showing the switch in open position. Fig. 2 is a similar view showing the switch in closed position. Fig. 3 is a side elevation. Fig. 4 is a perspective view of the casing or housing with the cover detached, a portion of the switch throwing lever and its associated parts being displaced.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved switch operating mechanism forming the subject matter of the present invention is principally designed for use in connection with steam or electric rail-ways and by way of illustration is shown applied to a rail way of the ordinary construction in which 5 designates the main line, 6 the siding

and 7 the switch points mounted on the cross ties 8, as shown.

Arranged on one side of the track and preferably disposed parallel with the adjacent main rail 5 is a casing or housing 9 having a standard or semaphore-arm 10 mounted for rotation therein and provided at its free end with a signal light 11 of any approved construction.

Secured to the base of the casing or housing 9 is an over-hanging arm or bracket 12 one end of which is spaced from the base of the casing and is provided with an opening 13 which forms a bearing for the lower end of the standard 10.

Interposed between the arm 12 and the base of the casing 9 is a cross arm 14 having its intermediate portion pierced by the adjacent end of the standard 10 and to which it is rigidly secured so that any movement imparted to the arm 14 will cause a corresponding movement of the semaphore-arm or standard 10.

Disposed within the housing 9 and slidably mounted in a keeper 15 is a bar 16 one end of which is provided with an elongated slot 17 for the reception of a bolt or similar fastening device 18 carried by the adjacent end of the arm 14, the opposite end of the bar 16 being projected beyond the housing 9 for pivotal connection at 19 with a switch throwing bar 20.

The bar 20 is pivotally connected at 21 with the adjacent cross tie 8 and is also pivotally connected at 22 with a bridle bar 23 so that lateral movement imparted to the bar 20 will effect the opening and closing of the switch.

Pivotally mounted within the housing 9 is a locking member 24 having a notch or recess formed therein for the reception of the adjacent end of the arm 14, said locking member being normally and yieldably held in engagement with the arm 14 by means of a coiled spring 26.

Pivotally mounted at 27 is an operating lever 28 the short end of which is pivotally connected with the adjacent end of the locking member 24 while the long end thereof is secured to one end of a cord or cable 29.

The opposite end of the cord or cable 29 extends within a conduit or casing 30 disposed parallel with the main track and connected with the crank arm 31 of a tappet 32 5 pivotally mounted on the track and disposed in the path of movement of a passing train, said tappet being actuated by one of the wheels on the car to operate the switch throwing mechanism.

10 Pivotally mounted between a pair of ears or lugs 33 secured to the casing or housing 9 is a bar 34 the free end of which extends through an elongated slot 35 in the bar 20 and is connected through the medium of a 15 cord or cable 36 with a tappet similar in construction to the tappet 32 so that a train approaching the switch from either direction will operate the latter.

Secured to the bar 34 is a chain or other 20 flexible medium 37, which latter extends through an opening in the casing or housing 9 for connection with the locking member 24, there being a lug or projection 38 formed on the locking member for limiting the lateral 25 throw of the latter.

A spring 39 connects one end of the arm 14 with the casing or housing, said spring serving to tilt the cross arm when the locking member 24 is released to close the switch.

30 It will thus be seen that when a train approaches the switch in the direction of the arrow indicated in Fig. 1 of the drawings one of the car wheels will engage and depress the adjacent tappet 32 and through the medium 35 of the cable 29 operate the lever 28 to release the locking member 27, the spring 39 moving the arm 14 to the position shown in Fig. 2 of the drawings. As the arm 14 is tilted it will move the sliding bar 16 in the direction of the 40 main track 5 and thus tilt the bar 20 and through the medium of the bridle 23 move the switch to closed position.

Should the train approach the switch in the opposite direction the car wheel will en- 45 gage the adjacent tappet and through the medium of the cable 36 move the bar 34 to release the locking member so that the spring 39 will actuate the arm 14 to effect the closing of the switch, in the manner before stated.

50 Having thus described the invention what is claimed is:

1. The combination with the main rails and siding, of the switch rails, a housing, an arm 55 pivotally mounted in the housing, a sliding bar connected with the arm, a pivoted switch throwing lever having one end thereof pivotally connected with the free end of the arm, a connection between the intermediate portion of the switch throwing lever and the switch 60 rails, a locking member engaging the arm for locking the switch in open position, and track devices operatively connected with

the locking member for releasing the latter to effect the closing of the switch.

2. The combination with the main rails and siding, of the switch rails, a housing, a stand- 65 ard journaled in the housing, an arm secured to and movable with the standard, a sliding bar operatively connected with the arm, a switch throwing bar disposed at substantially 70 right angles to the sliding bar and operatively connected with the switch rails, a locking member engaging the arm for locking the switch in open position, and track devices 75 operatively connected with the locking member for releasing the latter to effect the closing of the switch.

3. The combination with the main rails and siding, of the switch rails, a housing, an arm 80 pivotally mounted in the housing, a sliding bar having a pin and slot connection with the arm, a pivoted switch throwing lever having one end thereof pivotally connected with the free end of the sliding arm and its opposite end operatively connected with the switch 85 rails, a locking lever adapted to engage the arm for locking the switch in open position, a pivoted lever for releasing the locking member, and a tappet operatively connected with the pivoted lever and actuated by a passing 90 train.

4. The combination with the main rails and siding, of the switch rails, a housing, an arm 95 pivotally mounted in the housing, a sliding bar operatively connected with the arm, a connection between the sliding bar and switch rails, a locking lever engaging the arm for normally locking the switch in open position, tappets disposed on opposite sides of the switch, a pivoted bar having a flexible con- 100 nection with the locking lever, a pivoted lever engaging said locking lever, and connections between the tappets and the pivoted bar and pivoted lever, respectively.

5. The combination with the main rails and siding, of the switch rails, a housing, an arm 105 pivotally mounted in the housing, a sliding bar having a pin and slot connection with one end thereof, a locking member adapted to engage the arm for normally holding the switch 110 in open position, a lever pivotally mounted near the main rail and pivotally connected with one end of the sliding bar, a bridle bar pivotally connected with the intermediate portion of said lever, tappets disposed on op- 115 posite sides of the switch, and a connection between the tappets and the locking member for actuating the latter to close the switch.

6. The combination with the main rails and siding, of the switch rails, a housing, an arm 120 pivotally mounted in the housing, a bar slidably mounted in the housing and having a pin and slot connection with the arm, a switch throwing lever pivotally mounted near

the track and pivotally connected with the sliding bar, there being an elongated slot formed in the switch throwing lever and switch rails, a locking lever adapted to engage the arm, a bar pivotally mounted on the housing and having a flexible connection with the locking lever, a trip lever bearing against the locking lever, track devices disposed on opposite sides of the switch, and

connections between the track devices and the trip lever and pivoted bar, respectively. 10

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

FRANCIS M. HALL.

Witnesses:

J. C. SMITH,
CHAS. JESTER.