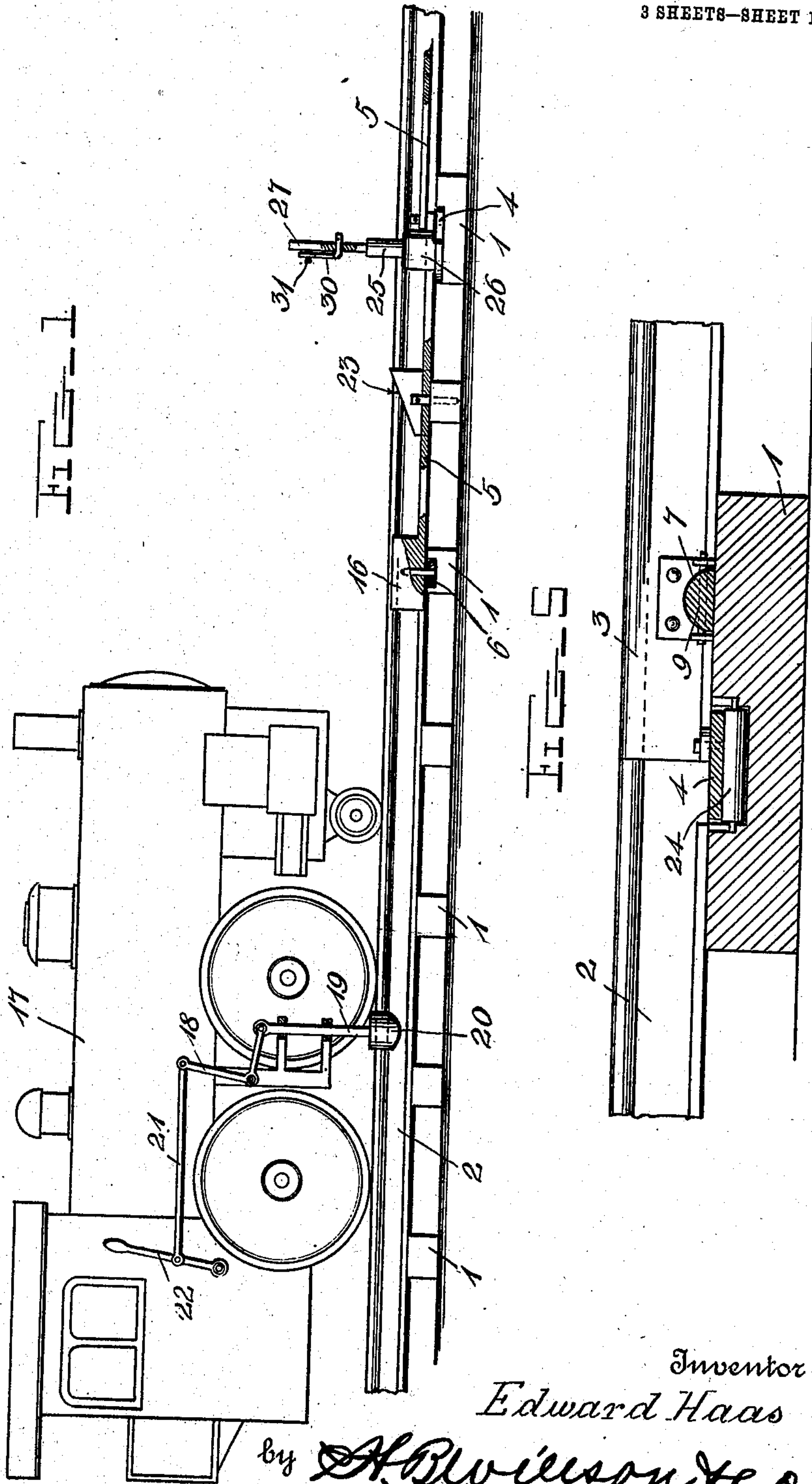


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 SWITCH MECHANISM AND TRAIN CARRIED ACTUATING MEANS THEREFOR.
 APPLICATION FILED NOV. 11, 1907.
 900,367.

Patented Oct. 6, 1908.

3 SHEETS—SHEET 1.

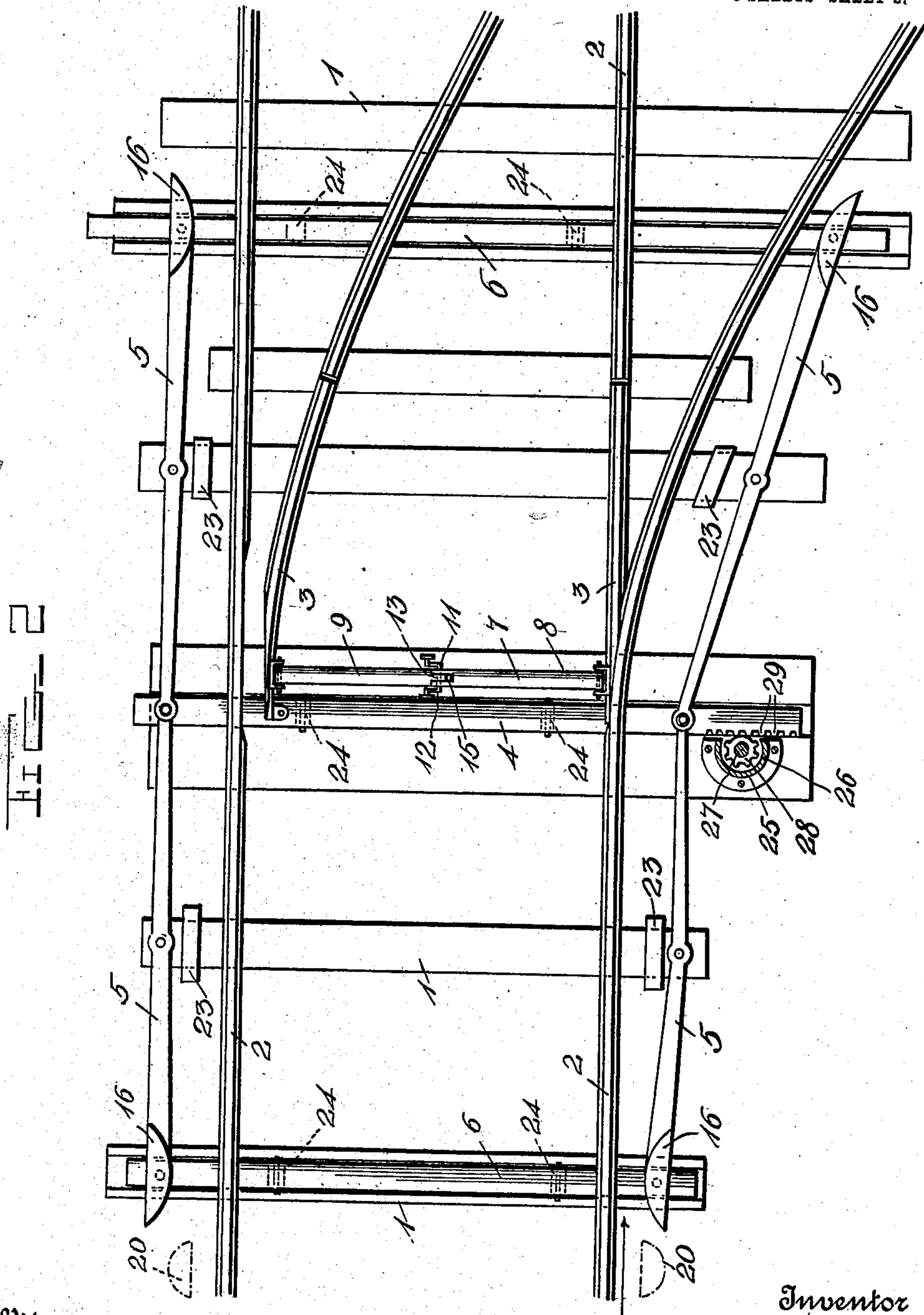


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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

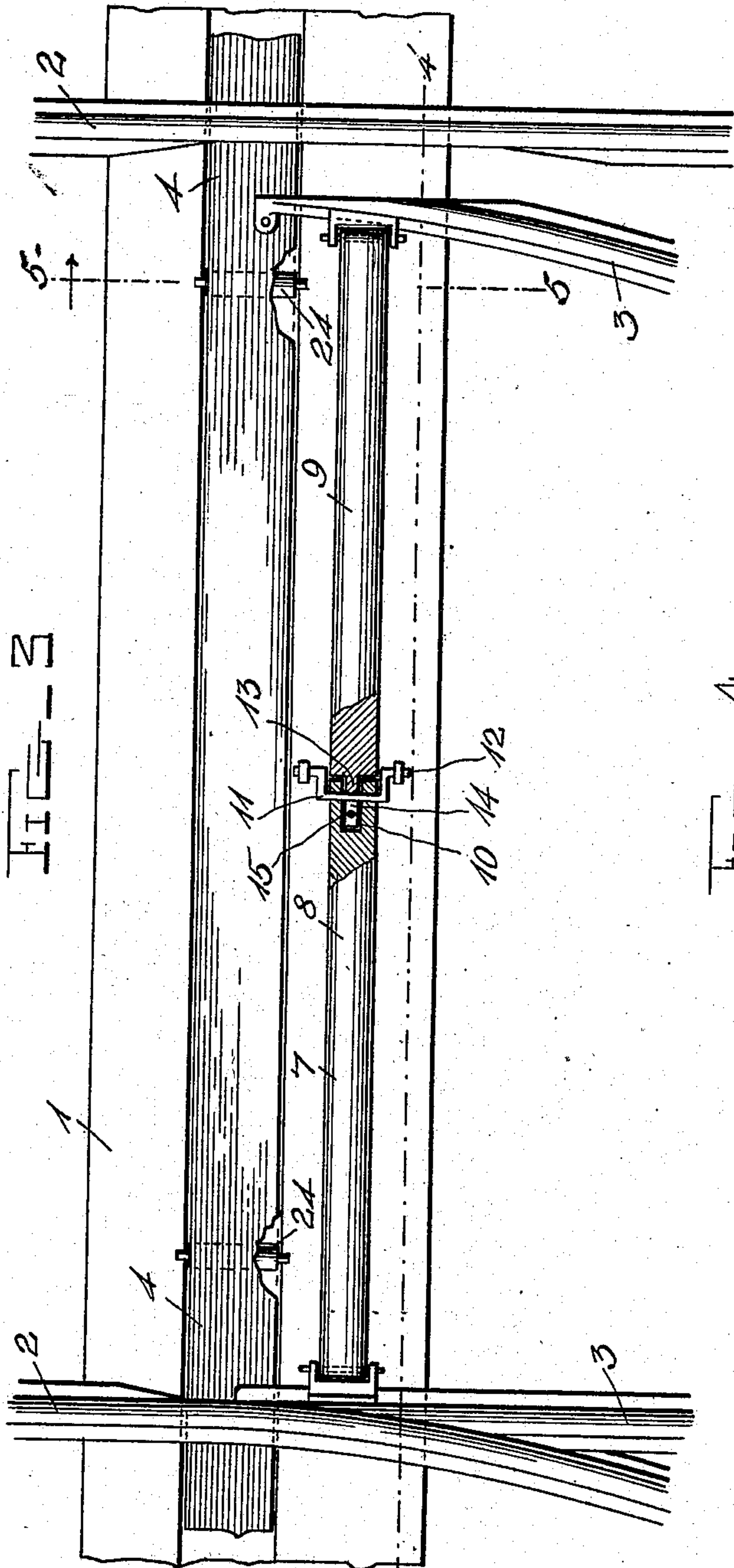


FIG. 3

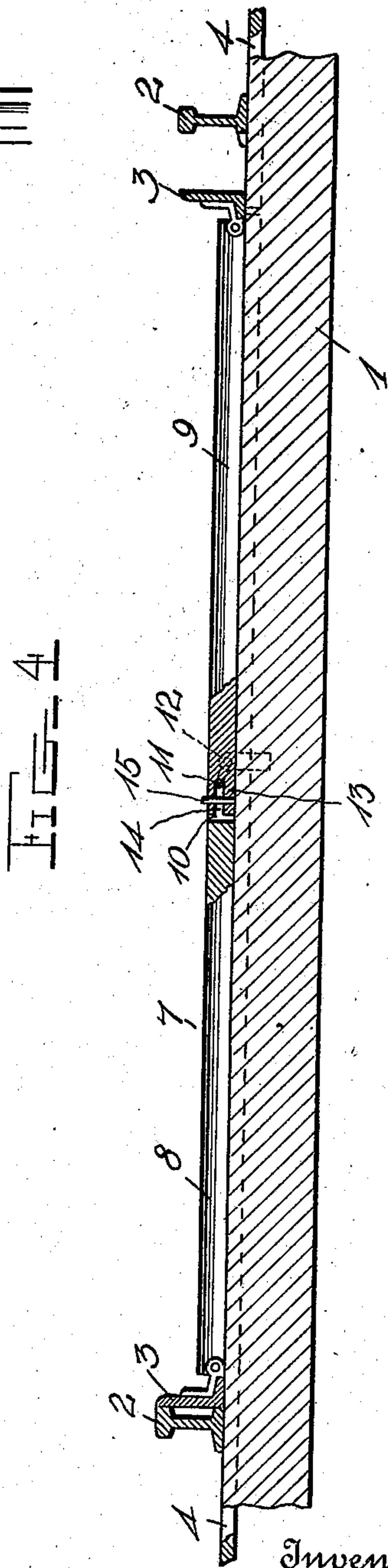


FIG. 4

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UNITED STATES PATENT OFFICE.

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SWITCH MECHANISM AND TRAIN-CARRIED ACTUATING MEANS THEREFOR.

No. 900,367.

Specification of Letters Patent.

Patented Oct. 6, 1908.

Application filed November 11, 1907. Serial No. 401,755.

To all whom it may concern:

Be it known that I, EDWARD HAAS, a citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have invented certain new and useful Improvements in Switch Mechanism and Train-Carried Actuating Means Therefor; 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.

This invention has relation to new and useful improvements in switch mechanism and train-carried actuating means therefor, and has for its object to provide a simple and positively operating form of mechanism adapted to be arranged longitudinally of a railway or other track and operate to throw the switch when actuated and means adapted to be carried by the engine of a train, for actuating the switch mechanism.

While the invention is particularly applicable to steam railways, it may be used in connection with street railway service.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings,—Figure 1 is a side elevation of a section of a railway track with the switch mechanism applied thereto and an engine provided with my improved switch actuating means running thereon, the shoe of one of the vertically movable operating rods of the switch actuating mechanism lowered to engage the cam plate or block of one of the switch throwing bars of the switch mechanism to throw the switch; Fig. 2 is a plan view of a section of a railway track with the switch mechanism in position; Fig. 3 is an enlarged detail cross sectional view taken through the locking bar or member and the ends of the switch tongues; Fig. 4 is a vertical sectional view of the switch tongues and under one end of a laterally movable bar for connecting the ends of the tongue. Fig. 5 is a cross sectional view taken on the plane indicated by the dotted lines 5—5 of Fig. 3.

Referring to the drawings for a more particular description of the invention, the numerals 1, 2, and 3 represent, respectively, the cross ties, track rails and switch tongues

of a section of a railway track. The switch tongues are pivotally connected at their inner ends to one of the cross ties, as usual, in any suitable manner, and are connected at their free or outer ends to a laterally movable connecting bar 4 arranged to work under the track rails and in a corresponding guide groove in one of the cross ties. One set of switch throwing bars 5 is arranged longitudinally of and at each side of the track, the bars comprising each set being connected at their inner ends to and near the ends of said laterally movable connecting bar 4, and pivotally connected immediately of their ends to the tops of the adjacent cross ties, and the outer ends of the bars of one set being connected with said ends of the bars of the other set by transversely disposed connecting bars 6, mounted to slide under the track rails on the adjacent cross ties. A locking bar 7 is arranged between and hingedly connected at its ends to the outer or free ends of the switch tongues 3 for locking the switch in position after it has been thrown. This bar is made in two sections 8 and 9, section 8 having a longitudinal central recess 10 in its inner end through which extends the central or intermediate portion 11 of a U-shaped link or hinge member 12, hinged at its ends to one of the cross ties, so that it may be swung or moved either to the right or to the left relatively to the track rails. The other section is provided at its inner end with a tongue 13, corresponding with and adapted to be received by the recess in said section 8. This tongue is also provided with a central elongated recess 14, which extends from the outer end thereof to within a suitable distance of its inner end, for receiving the central or intermediate portion of the U-shaped link or hinge member 12. These members are detachably connected by passing a vertical pin 15 through corresponding aligned openings or apertures in the ends of said tongue at a point inwardly of the central or intermediate portion of the U-shaped link.

In practice, and assuming that the switch is thrown to the right relatively to the direction of the engine, (see Fig. 1), the locking bar will also be caused to move to the right and swing or move the U-shaped link or hinge member 12 toward the right hand track rail. It will be obvious that when the locking bar is in this position, the right hand switch tongue will be held in secure engage-

ment with the adjacent track rail, the sections of the locking bar being made of heavy metal to cause this engagement to be more effectual.

5 The purpose of making the central recess 14 of the tongue 13 of one of the sections elongated in form is to allow for the necessary expansion of the locking bar when being moved from one side of the track
10 towards the other, as during this operation the central portion of the bar will be necessarily raised with the U-shaped link or hinge member 12 and the length of the locking bar thereby slightly increased. Cam blocks 16,
15 having their inner faces at their outer ends curved or beveled outwardly, are secured on the upper faces and at the outer ends of the switch throwing bars 5.

The mechanism carried by the engine 17
20 for actuating the switch mechanism comprises bell crank levers 18, one arranged near the center and on each side of the engine, and vertically movable operating rods 19 connected to the ends of the forwardly extending arms of said levers, said operating
25 rods having shoes 20 formed on or secured to their lower ends for engaging the inner beveled surfaces of the cam blocks to actuate the switch mechanism. Longitudinally disposed connecting bars or rods 21 are connected at their front ends to the vertical
30 arms of the bell crank levers and at their rear or opposite ends to operating levers 22 pivotally connected to the sides of the engine in position to be grasped by the engineer or
35 fireman.

In practice, assuming that it is desired to throw the switch to the left relatively to the direction of the train, the engineer pushes
40 forwardly on the upper or front end of the operating lever 22 at the right hand side of the engine, causing the adjacent movable operating rod 19 to simultaneously move downward so that the shoe 20 at the lower
45 end thereof may be in position to engage the beveled surface of the adjacent cam block 16, and through the medium of the switch throwing bars 5, throw the switch to the left. Blocks 23, having inclined upper faces
50 or surfaces are arranged near the track rails longitudinally of the track for automatically throwing either of the vertically movable operating rods into its normal position after the switch has been thrown.

55 To eliminate friction as much as possible to enable the switch mechanism to be operated easily, suitable wheels or rollers 24 may be journaled under the laterally movable connecting bar 4 for connecting the switch
60 tongues and the transversely disposed connecting bar 6 connected to the outer ends of the switch throwing bars 5 to run on the tops or upper faces of the cross ties under said connecting bars. A switch stand 25 is ar-
65 ranged at one end of the laterally movable

connecting bar on the switch tongues, for enabling the switch mechanism to be actuated manually or by hand, instead of from the train, should it be desirable. This stand essentially comprises a hollow base 26, fixed
70 near one end of said laterally movable connecting bar 4, and a vertically disposed switch stand rod 27, which works through said base. A mutilated gear 28 is arranged at the lower end of the rod 26 to engage cor-
75 responding teeth 29 formed on one edge and at one end of the laterally movable connecting bar. A turning lever or handle 30 is pivotally connected to the switch stand rod to enable it to be turned in actuating the
80 switch mechanism to throw the switch, and a catch 31 is arranged on the switch stand rod to engage the free end of the turning lever or handle when not in use.

From the foregoing description, taken in
85 connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion,
90 and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described the invention, what I
95 claim as new and desire to secure by Letters-Patent, is:

1. In switch mechanism, the combination with the switch tongues, of a connecting bar connecting the free ends of the tongues and
100 arranged to work under the track rails, switch throwing bars arranged longitudinally of the track, pivoted intermediately of their ends to the cross ties, and connected at their inner ends to the connecting bar for
105 the switch tongues, transverse bars connecting the outer ends of said switch throwing bars, and cam blocks having outwardly beveled inner faces arranged at the outer
110 ends of said switch throwing bars.

2. In a switch mechanism, the combination with the switch tongues of a connecting bar arranged between the free ends of the
115 tongues, a pair of pivoted switch-throwing bars arranged at each side of the track the inner ends of the bars being connected with said connecting bar, connecting bars for connecting the outer or free ends of one pair of switch-throwing bars with said ends of the
120 other pair of said bars, and cam blocks arranged at the outer ends of the switch-throwing bars.

3. In switch mechanism, the combination with the switch tongues, of a laterally movable connecting bar arranged to work under
125 the track rails for connecting the free ends of said tongues, a locking bar comprising two separate sections arranged between and hinged at its ends to the free ends of the switch tongues, a U-shaped hinge member
130

hinged to one of the cross ties and connected at its central or intermediate portion to the inner ends of the locking bar sections and coacting therewith to hold either of the switch tongues in secure engagement with the adjacent track rail after the switch has been thrown, and means adapted to be actuated for moving the laterally movable connecting bar in either direction.

10 4. In switch mechanism and train carried actuating means therefor, the combination with the switch tongues of a laterally movable connecting bar for connecting the free ends of the tongues, a pair of pivoted switch
15 throwing bars arranged at each side of the track and connected with said connecting bar, transverse connecting bars arranged between the outer or free ends of the switch throwing bars, cam blocks having outwardly
20 beveled inner side faces arranged at the outer ends of the switch throwing bars, and means adapted to be carried by a train for actuating the switch mechanism, said means comprising shoes adapted to engage the beveled
25 faces of the cam blocks.

5. In a switch mechanism, the combination with the switch tongues of a laterally movable connecting bar arranged to slide under the track rails and as a connection for
30 the free ends of the tongues, a set of pivoted

switch-throwing bars arranged at each side of the track, the inner ends of the bars of each set being connected with the adjacent end of the connecting bar, connecting bars for connecting the outer or free ends of the switch-throwing bars of one set with said
35 ends of the bars of the other set and switch actuating mechanism adapted to be carried by a train for actuating the switch-throwing bars.

6. In a switch mechanism, the combination with the switch tongues of a locking bar hingedly connected between the free ends of the tongues, said bars comprising two
40 separable sections detachably connected at their inner ends, a U-shaped hinge member hinged at its ends to one of the cross ties and connected at its intermediate portion to the inner ends of said locking bar section
45 and adapted to be swung in the direction in which the switch is thrown, with means arranged along the track and adapted to be actuated for throwing the switch.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

EDWARD HAAS.

Witnesses:

B. MENDER,
K. MENDER.