

(No Model.)

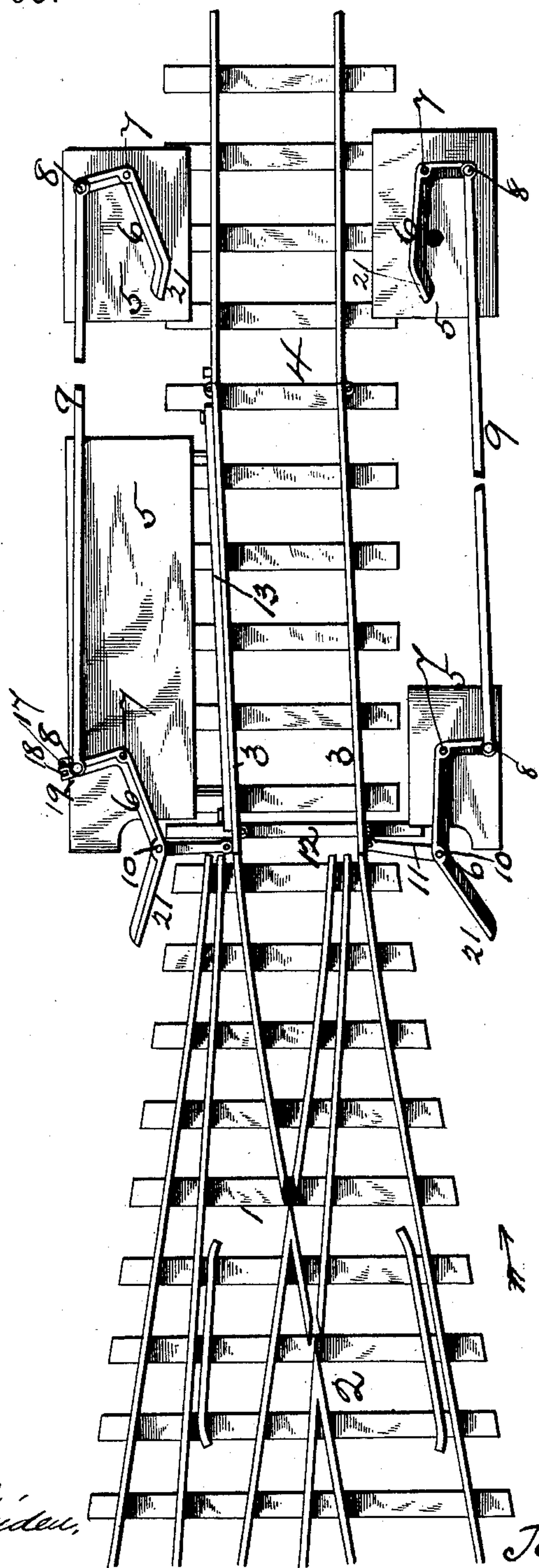
4 Sheets—Sheet 1.

J. W. ROBBERTSON.

RAILWAY SWITCH.

No. 367,765.

Patented Aug. 2, 1887.



Witnesses
Wm. S. Spiden
Henry Gardner, Jr.

Inventor
John W. Robberson
By his Attorney
Chas. J. Gooch

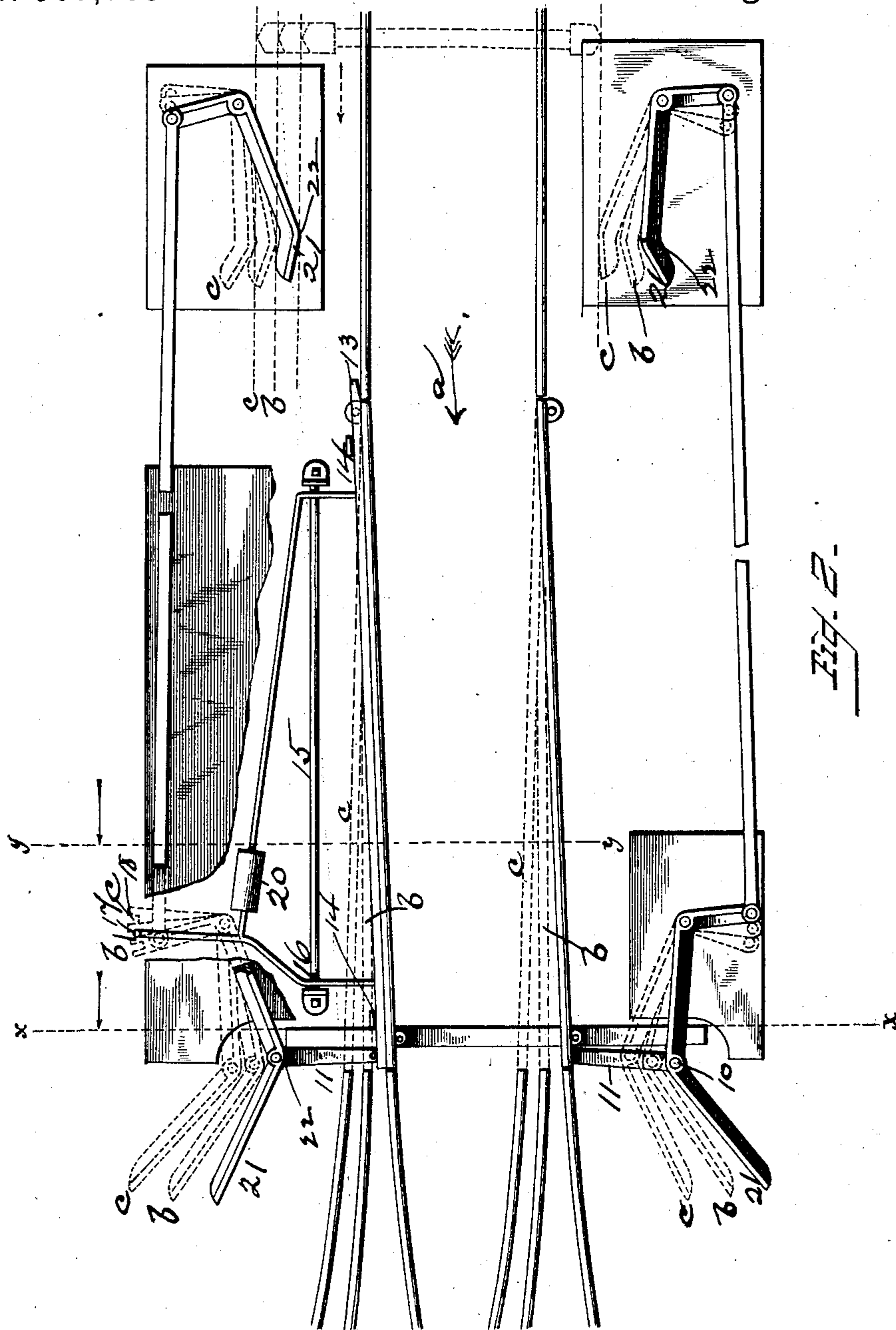
(No Model.)

4 Sheets—Sheet 2.

J. W. ROBBERTSON.
RAILWAY SWITCH.

No. 367,765.

Patented Aug. 2, 1887.



Witnesses
Wm. H. Steider
Henry Gardner Jr.

Inventor
John W. Robberson
By his Attorney *Chas. J. Gooch*

(No Model.)

4 Sheets—Sheet 3.

J. W. ROBBERTSON.

RAILWAY SWITCH.

No. 367,765.

Patented Aug. 2, 1887.

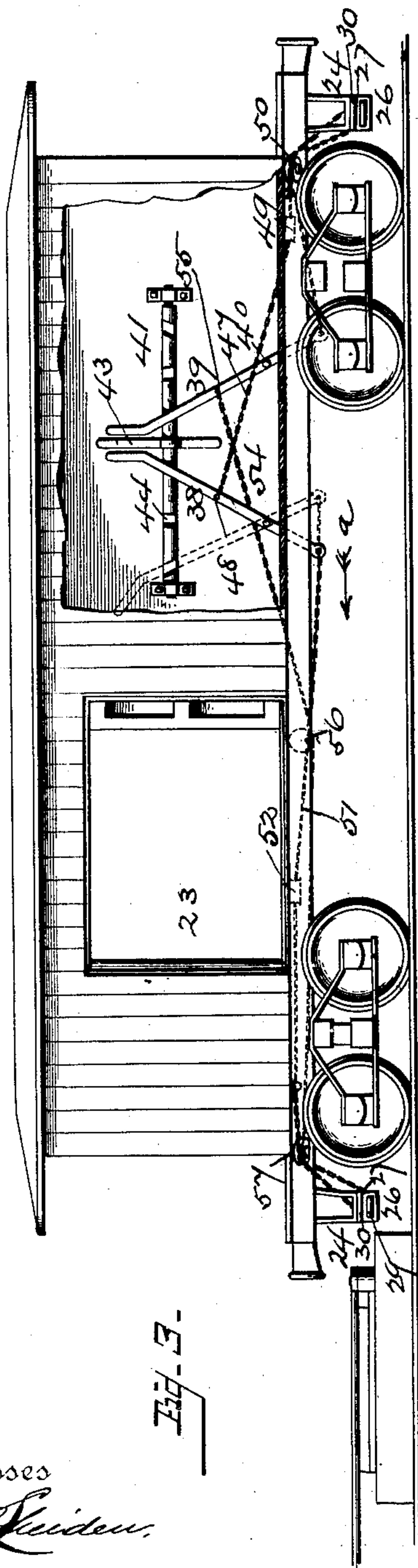


Fig. 3.

Witnesses
Wm. F. Gliden.
Henry Gardner, Jr.

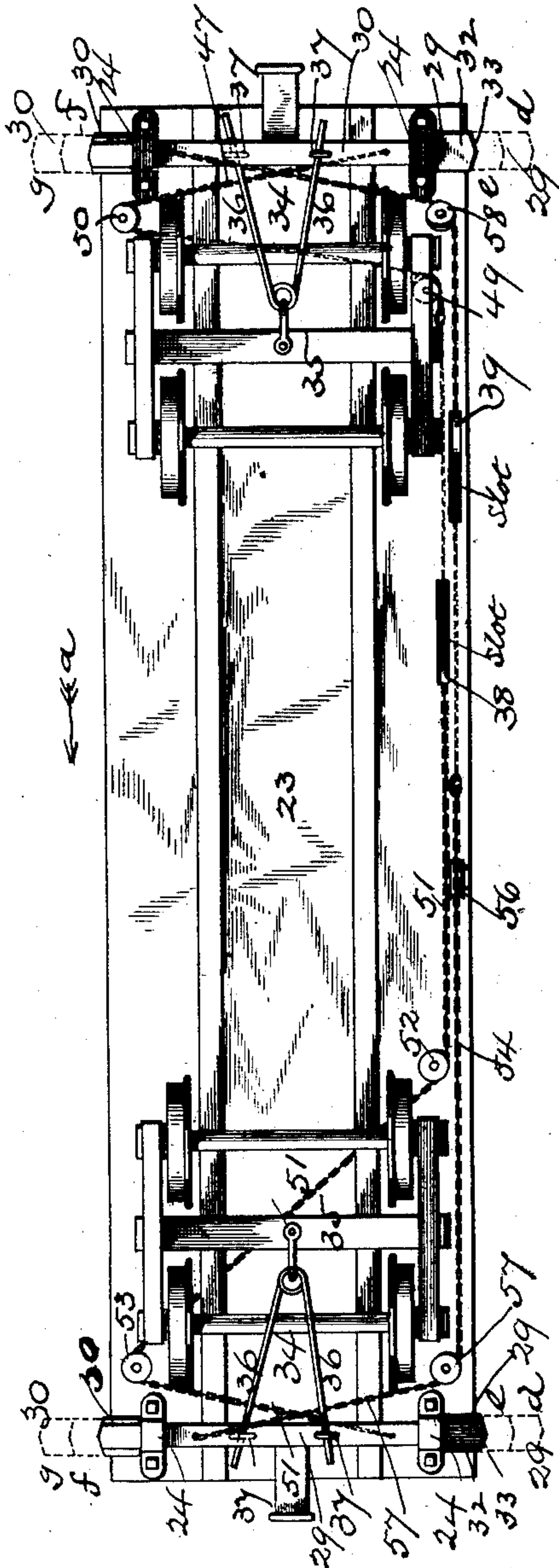


Fig. 4.

Inventor
John W. Robbertson
By his Attorney
Chas. Gooch.

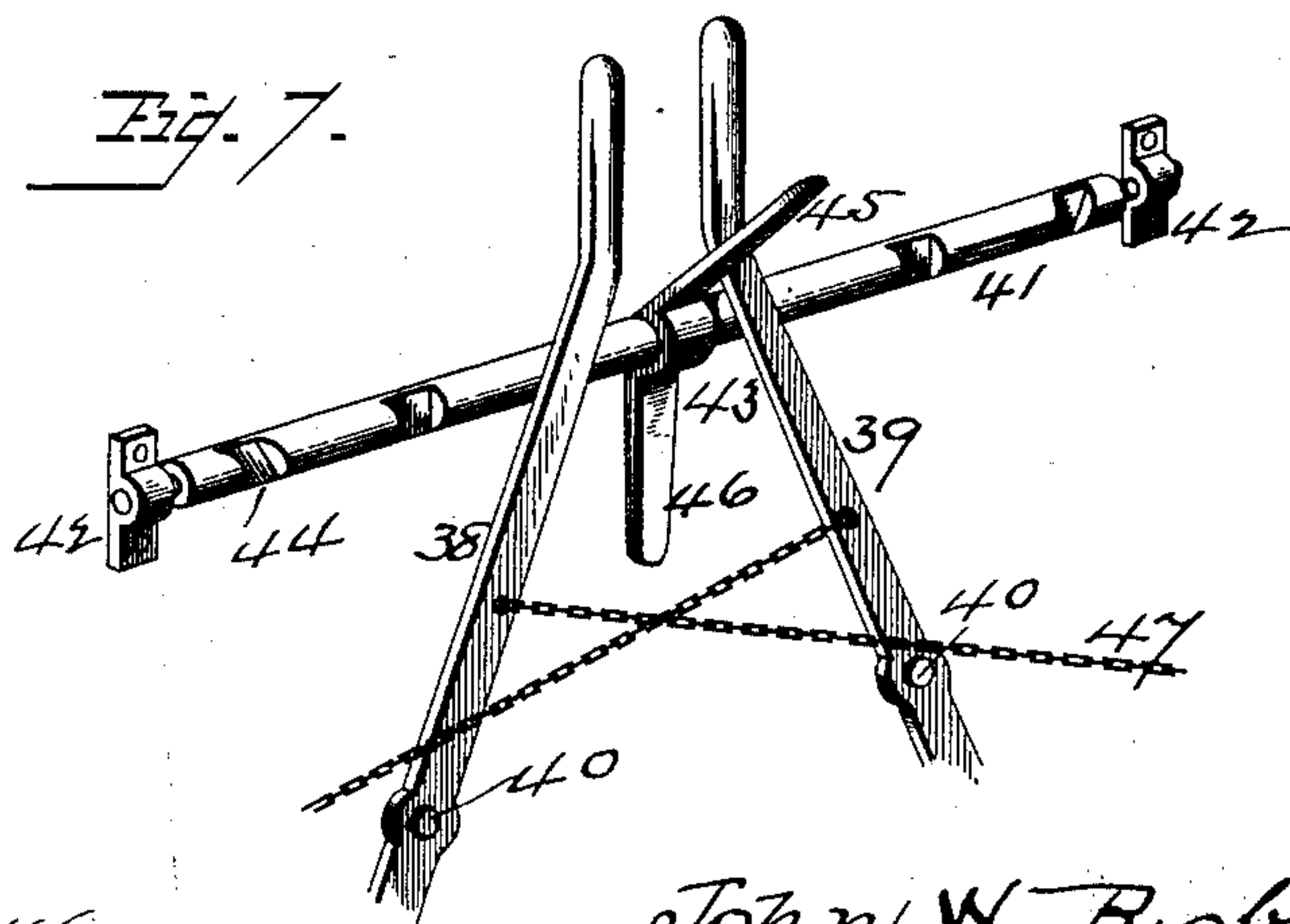
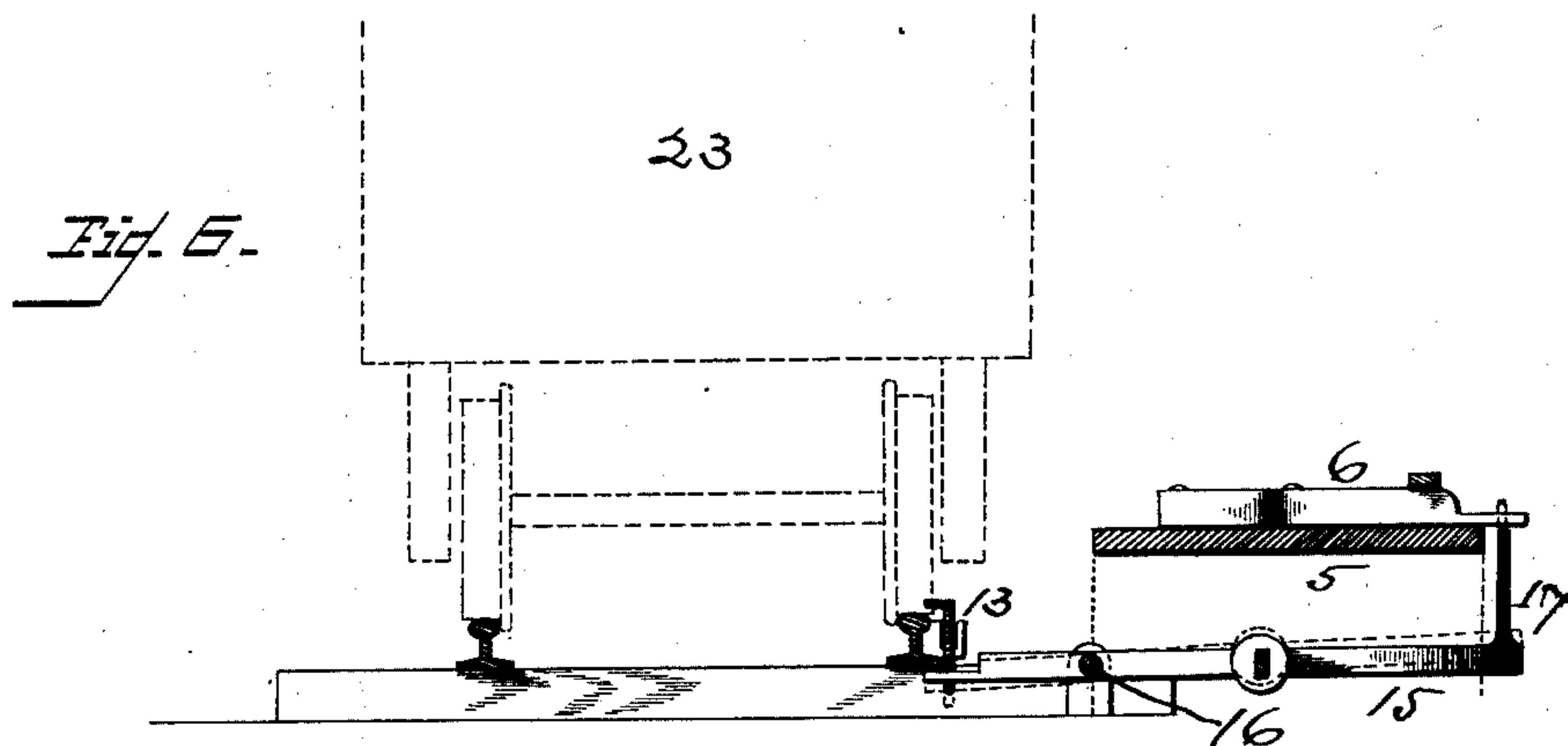
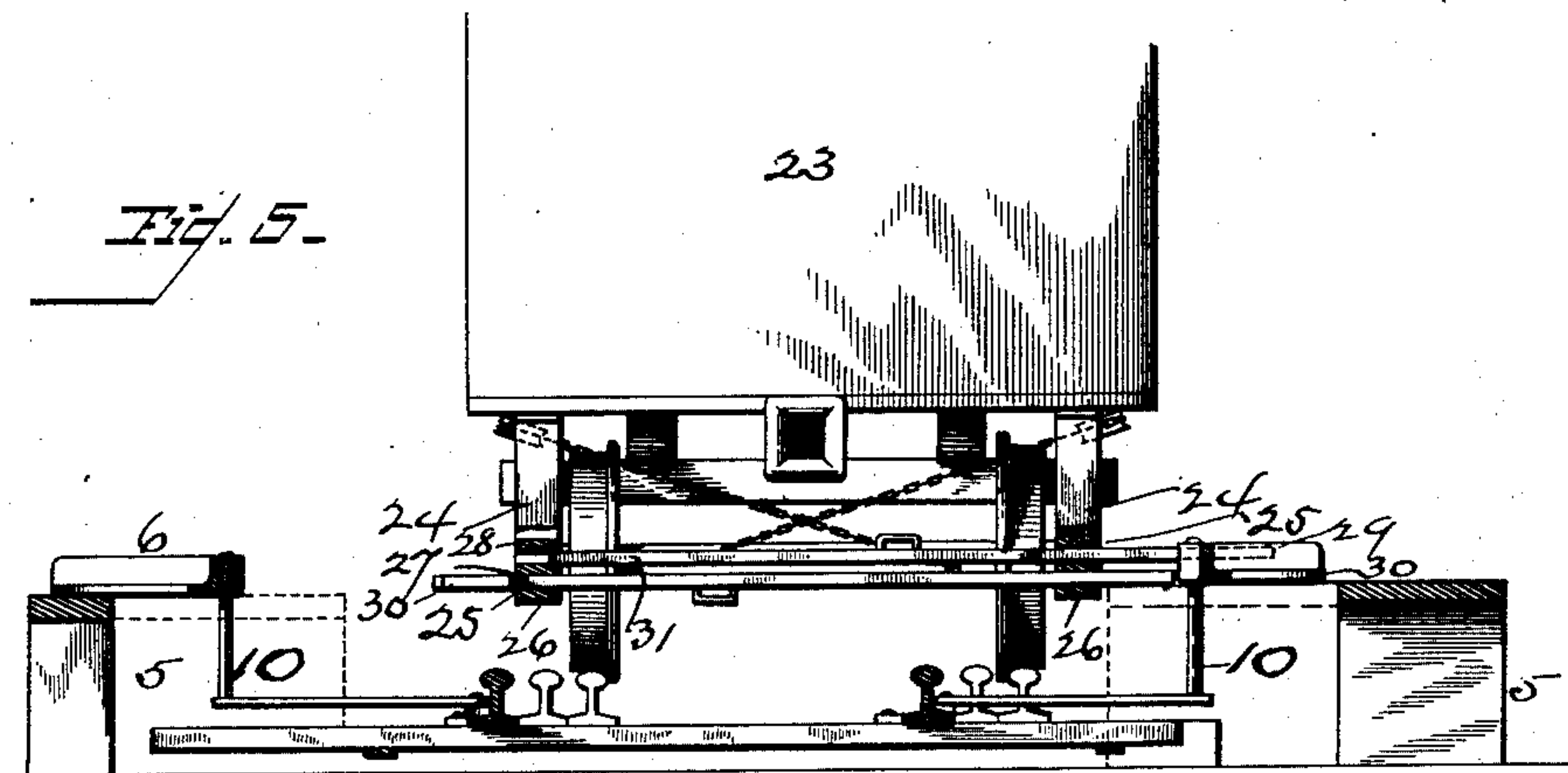
(No Model.)

4 Sheets—Sheet 4.

J. W. ROBBERSON.
RAILWAY SWITCH.

No. 367,765.

Patented Aug. 2, 1887.



Witnesses
Amos S. Selden
Henry Gardner Jr.

Inventor
John W. Robberson
By his Attorney *Chas. J. Gooch*

UNITED STATES PATENT OFFICE.

JOHN W. ROBBERTSON, OF RED RIVER STATION, TEXAS.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 367,765, dated August 2, 1887.

Application filed October 23, 1886. Serial No. 217,047. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. ROBBERTSON, a citizen of the United States, residing at Red River Station, in the county of Montague and State of Texas, have invented certain new and useful Improvements in Automatic Railroad-Switches; and I do hereby 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 relates to that class of automatic switches wherein the operative devices are under the control of the engineer, brakeman, or other authorized person on the train or a portion thereof.

Briefly stated, my invention comprises a series of right-angled horizontal levers pivotally mounted upon suitable sills, blocks, or other supports adjacent to the terminus of each end of the switch-rail, each longitudinal pair of said right-angled levers being connected by a longitudinally-extending lever to secure the operation in unison of the series of right-angled levers, and the transverse pair of said right-angled levers adjacent to the front terminus of the switch-rail being connected by vertical rods and bridles to the front ends of the switch, whereby, on either of the series of said levers being rocked by the contact therewith of the actuating mechanism on the train or vehicle, said levers adjacent to the front end of the switch will turn the switch into line with the desired main-line rails on which the train is to travel or from which it is to be shunted onto the switch or siding; a vertically-reciprocating rail or bar supported upon a weighted rock-shaft or frame slightly above and adjacent to one of the switch-rails in order that as the wheel of the passing train strikes said rail it will be depressed, and will raise a pin or rod on the outer end of said weighted rock shaft or frame into engagement with a forked or perforated outward extension on one of the right-angled levers, and thus lock the same and the switch in position; a pair of spring-held transverse slides or levers having bearing in stirrups or hangers depending from each end of a car, locomotive, or tender; a pair of hand-levers pivotally connected to one side of a car or other portion of a train, and connected by suitable chains or

rods and chains or links to the transverse slides, whereby, as said hand-levers are pulled in one direction or the other, said slides will be projected out beyond the sides of the car or locomotive into position to engage the appropriate right-angled levers connected to the switch, and thus turn said switch to register with the appropriate main-line rails, and a rock-shaft pivotally journaled in suitable bearings on the side of the car or locomotive, and having notches or teeth therein or thereon with which the hand-levers are engaged to hold said levers in position when turned to project the switch-operating slides, the notched or toothed shaft or rod having an arm or lever whereby it may be readily rocked to throw the hand-levers out of engagement therewith or to place it either in or out of position for engagement with said hand-levers.

In the accompanying drawings, Figure 1 represents a top plan view of a portion of a railway track and switch with my switch-operating devices in position. Fig. 2 represents a similar view partly broken away to show the switch-locking mechanism, this view also showing, in dotted lines, the positions the several parts assume when the actuating-slides and the switch operating and locking mechanisms are arranged to switch trains onto or off of the respective main-line tracks. Fig. 3 represents a side elevation, partly in section, of a freight or baggage car, with the switch-connection operating devices thereon, this view also showing a portion of the switch-connections. Fig. 4 represents an under side plan view of a car with the operative slides and their connections in position. Fig. 5 represents a transverse section taken on the line *xx* of Fig. 2, and showing a switch and track with my switch connecting and operating devices, and a car with my operative mechanism thereon. Fig. 6 represents a transverse section taken on the line *yy* of Fig. 2, the full lines showing the position of the switch-locking mechanism previous to the car-wheel striking the reciprocating flanged bar connected therewith, and the dotted lines showing the position of such parts after the car or locomotive wheel has come in contact with said bar and depressed the same and raised the locking mechanism to lock the right-angled levers and the switch. Fig. 7 represents, on an enlarged scale, the

hand or operative levers, a portion of their connections with the slides, and the lever-locking device.

In the drawings I have represented the mechanism under the control of the engineer or other official on the train for operating the switch, and the switch-operating mechanism as connected to a baggage-bar. This has been done for convenience of illustration and to avoid unnecessary complication of parts. It is manifest, however, that the devices shown in the drawings as attached to a baggage-car can equally well be attached to an ordinary passenger-coach or to a tender or locomotive in substantially the same manner as herein illustrated. When attached to a locomotive, for instance, the hand-levers and their connections would be located in the cab, and rods or chains would project therefrom to the pilot-beam and to the rear of the tender, respectively, from which parts straps or hangers carrying the slides for operating the right-angled levers would depend. It would be found desirable, in practice, to supply each coach or car with a set of hand-levers and their connections, as represented in Figs. 3 and 4 of the drawings, in order that the devices may be operated equally well whether the train is backed or whether it is traveling in a forward direction with the engine in front, and so that however the train may be "made up," however many cars may be employed in the construction of a train, it will always be in a condition to secure the automatic operation of the switch. In order to prevent unauthorized handling or operation of the hand-levers and devices connected therewith, that portion of such devices within a car may be boxed up in a suitable receptacle or closet, or they may be locked together in any suitable manner.

1 represents the cross-ties or sleepers; 2, the main line; 3, the movable switch-rails; 4, the siding.

5 represents the sills or blocks or other suitable supports, upon which the right-angled levers 6 are pivotally mounted, as at 7. Of these right-angled levers there are four, one at each outer side of the track or siding rails adjacent to the rear terminus of the movable switch-rails, and one on each outer side of the front terminus of the movable switch-rails and adjacent to the connection thereof with the main-line rails. These right-angled levers are connected together at 8 8 by a pair of longitudinally-extending levers or bars or rods, 9, so that in whichever direction a train or locomotive is approaching the switch upon the operating-slides, to be presently described, strike that right-angled lever 6. Projecting inwardly, said lever will be rocked outwardly on its pivot 7, and will, through the lever 9, connecting said right-angled lever with the corresponding lever at the other end of the switch, similarly rock such lever connected with the lever that is struck outward. The right-angled lever 6, adjacent to the main line so operated, will, as it is moved outward

through the medium of the rod 10, depending vertically from the under side of said lever, and the bridle 11, connected thereto and to the short rail 12, connected to said bridle 11 and to the switch-rails 3, push the switch into alignment with the set of main-line rails it is desired that the train shall run upon, the set of main-line rails with which the switch-rails shall register depending upon the distance of traverse of said switch-rails across the road-bed, which is regulated automatically by means of the position to which the hand-levers, to be presently described, are drawn, and the consequent projection, more or less, of the slides connected thereto from the sides of the car. As the train moves along the track or along the siding, as the case may be, and the slides for operating the right-angled levers strike that lever projecting inwardly and rock the same and the similar right-angled lever at the other end of the longitudinal lever 9, connecting such pair of levers, the corresponding right angled levers, 6, at the other side of the track are drawn inward through the medium of the bridle 11 and rod 10, connected thereto and to the short rail 12, connecting the switch-rails, for the reason that as the switch is moved in one direction transversely of the track by the movement in that direction of one set of right-angled levers it will draw with it the bridle connected to the other set of right-angled levers. In this position the set of right-angled levers that has not been struck by the operative devices will be projected inward in readiness to receive the thrust of the operative devices from an approaching train from whatever direction it approaches.

As the train or locomotive approaches the switch, and immediately after the right-angled levers have been turned to operate the switch, the front wheel of the car or locomotive rides upon and depresses a false rail or flanged plate, 13, on the outer side of one of the switch-rails, which rail 13 is supported at 14 upon a rocking bearing-frame, 15. As this rail or plate 13 is depressed by the wheel, it will force upward the outer portion of the frame 15, which is pivoted at each end, as shown at 16, and bring the pin or rod into engagement either with the forked or perforated portion 18 of an outwardly-extending arm, 19, on the heel of one of the front right-angled levers, 6, or on either side thereof, as represented in Figs. 1, 2, 5, and 6 of the drawings, and thus hold said lever, and consequently the whole series of such levers, and also the switch, from further movement, and securely lock the whole in position until the train has passed, the rail or plate 13 being of sufficient length to permit of several wheels resting thereon at the same time. The retention of said switch-lock in locking position is assured until the last wheel of the train has safely passed over the switch, whereupon, the pressure of the wheels upon said false rail or plate 13 being removed by the passage thereof of the train, the weight 20, mounted on or attached to the rocking frame 15, will draw

down the outer portion of said frame, and thus draw the pin or rod 17 from engagement with the forked arm 18 19, and permit of the switch being again operated by the actuating devices carried by the train or locomotive.

Referring to Fig. 1 of the drawings, the switch is shown in position to either shunt a train from the right-hand main track (viewed in the direction of the arrow) onto the siding 4, supposing the train to be traveling in the direction of the arrow, or, supposing the train to be traveling in a reverse direction, then from the siding or switch onto the main-line rails on the right hand, viewed in the direction of the arrow. In this position the right-angled lever having the forked arm or extension 18 19 is turned, so that when the rail or plate 13 has been depressed by the car-wheels the pin 17 will be raised so as to engage with the rear face of the forked extension, as clearly represented in Fig. 1, and grippingly hold said lever from movement.

Referring to Fig. 2 of the drawings, the full lines represent the switch-rails and the right-angled levers in the position they assume when the switch-rails are in register with the left-hand main set of rails viewed in the direction of the arrow *a*, (the corresponding set of rails indicated as the right-hand set in Fig. 1.) The dotted lines *b b* represent the position the several parts assume when the switch has been turned to register with the central track, and the dotted lines *c c* represent the position of the several parts when the switch has been turned to register with the outer or right-hand set of main rails. In this Fig. 2 the right-angled levers 6 are shown as though operated by the operative mechanism attached to a train traveling in the direction of the arrow *a* along the switch or siding to the main line, the dotted lines at the right hand of this figure representing the position of the slide operating said right-angled levers in the several positions it is caused to assume to turn the several right-angled levers to the positions indicated. When the train is traveling in the reverse direction to that indicated by the arrow *a*, the several right-angled levers and the switch-rails and the switch-locking mechanism would be turned to and occupy the several positions just referred to, the only difference being that the slides shown in dotted lines at the right hand of said figure would operate upon the right angled levers adjacent to the main line of rails instead of the set farthest therefrom.

The right-angled levers 6 each have a beveled front end, 21, or a curved front end, to receive and guide the outwardly-projected ends of the slides for operating said levers when such levers project into position to be operated upon by such slides, and also for the purpose of taking such levers out of line with the projecting slides when it is not desired to have them come in contact. While a slight operative movement is imparted to said levers 6 upon the impact therewith of the slides, the direct positive and wholly effectual operative

movement is not imparted thereto until the slides have impinged against the swell or corner 22 of said right-angled levers, upon reaching which the levers are turned their full distance and the pin 17 is projected upward into gripping contact with the forked arm 18 19.

I will now proceed to describe the devices I have devised for actuating the several sets of right-angled levers 6 and the thereto-connected switch.

23 represents a baggage car having my novel switch-operating devices connected thereto. Although I have shown these devices as applied to a baggage car, they can manifestly be applied with equal facility to and operated from a freight-car, a passenger-coach of any description, or to a locomotive and tender, the adaptation of the devices to be now described to a car being represented in the drawings simply for the sake of convenience of illustration, the manner in which the several parts to be hereinafter described are applied to a locomotive or to a passenger-coach being the same as shown in the drawings, with the single exception that the hand-levers and parts immediately connected therewith would be located in the cab of the engine and the straps supporting the slides located at or near the pilot-beam and the end of the tender, respectively, and in the case of a passenger coach the hand devices would be located at or near either end of the coach. With these minor exceptions, the illustration of these parts shown in the accompanying drawings and hereinafter referred to would apply equally well to a description of the parts when applied to either a locomotive or a passenger-coach.

24 represents straps or hangers depending from each end and on both sides of the car. These straps or hangers are at their lower ends each formed with guideways 25 25, composed of bottom plates or strips, 26, upon which rest and slide the lower right-angled lever-operating slides, 29, central strips, 27, which serve as a rest and support for the upper lever-operating slides, 30, and, in connection with the bottom strip, 26, as a guideway for the lower slide, 29, and a top strip, 28, which with the central strip, 27, serves as a guideway for the upper slide, 30. These hangers are secured at their upper ends in any convenient manner to the truck or body of the car. The slides 29 30 for operating the right-angled switch-operating levers are each formed with a straight rear portion, 31, which rests and slides within the hanger-guideways, and with a widened front or outer end, 32, which projects outwardly beyond the hangers, as shown in Fig. 4, the outer edge of each front end of each slide being of forwardly and rearwardly curved or bevel shape, as shown at 33, to facilitate their engagement with and riding along the beveled or curved portions of the right-angled levers 6. By forming the outer ends of the slides 29 30 of increased width, not only are they prevented from passing entirely through the guideways in the

hangers on their retraction from engagement with the levers 6, but this form also furnishes a strong impacting end with which to strike and rock the right-angled levers 6.

34 represents a convenient form of spiral or coiled slide-retracting spring connected at its rear portion to a cross-bar, 35, on the truck, or to any other suitable support, and from thence extending by arms 36 to and connecting with the respective pairs of slides by means of eyes 37, as represented in Fig. 4 of the drawings. Straight, spiral, or any other suitable form of slide-retracting springs different from those herein represented may, however, be employed, as desired, as I do not limit myself to the precise form of spring shown in the drawings, as any suitable form of spring capable of retracting and drawing the several slides inward on the hand-levers being released from engagement with their locking mechanism may be employed.

38 39 represent hand-levers which are pivoted at 40 either directly to the car or to a plate, beam, or other suitable device within the car.

41 represents a notched or toothed shaft rockingly journaled at each end in bearings or straps 42, secured to the side of the car; and 43 represents a two-armed lever secured to said shaft 41 for the purpose of rocking the same in its bearings, so as to either turn the notched or toothed portion out of vertical position to prevent the hand-levers engaging therewith, or of bringing the notches 44 or teeth into vertical position in readiness to permit of said hand-levers engaging therewith. When either or both of the hand-levers are engaged with the notches 44 and it is desired to disengage them therefrom, by pushing up the arm 45 the rock-shaft 41 will be turned on its pivotal bearings, the notched portion will be forced out of vertical position, and the hand lever or levers forced out of engagement therewith. As said levers are thus disconnected from the rock-shaft, the tension upon said hand-levers will be released and the springs 34 will then draw back and inward the slides connected thereto, and, by reason of the devices connecting said slides and hand-levers, also draw back said hand-levers to their normal position, as shown in full lines in Fig. 3 of the drawings. When it is desired to rock the shaft 41, so as to bring the notches or teeth therein or thereon into vertical position to engage with the hand-levers, either the upper arm, 45, or the lower arm, 46, is pushed down, whereupon the shaft will assume the position represented in Fig. 7 of the drawings.

In the position represented in full lines in Fig. 3 of the drawings the hand-levers are out of operative position, and consequently the slides 29 30 are in retracted position.

The hand-lever 38 is connected to the slide 30 at the left-hand side of the rear of the car, viewed in the direction of the arrows *a*, Fig. 3, and the right-hand side of the under plan

view, Fig. 4, by means of a chain, 47, (or partly by chains and partly by rods, as may be preferred or found most convenient according to the exigencies of any particular occasion,) connected at one end at or near the center of said hand-lever, as at 48, and from thence passing to and over a grooved pulley, 49, journaled on the top of the truck or other suitable part of the car, and from thence to and over a similar grooved pulley, 50, journaled on the truck, to the slide 30. The lower end of said hand-lever 38 is similarly connected by a chain or rod, 51, with the slide 30 at the forward end of said car and on the same left-hand side thereof. From the lower end of said hand-lever 38 said chain 51 passes to and over grooved pulleys 52 53, journaled in the truck or frame of the car, to and connects with the slide 30 at the front of the car. Consequently when the engineer finds on approaching the switch that the right-angled levers on that side of the track adjacent to the side of the car on which the slides 30 are located project inward into position for being operated upon, he will draw or push the hand-lever 38 into engagement with the appropriate notch or tooth 44, and thereby project the slides 30 at each end of the car a sufficient distance to engage with and rock said right-angled levers and thereby turn the switch to engage with the appropriate main-line rails.

As represented in dotted lines in Fig. 3 of the drawings, the hand-lever 38 is drawn to engage with the outermost notch in the rock-shaft 41. In this position the slides 30 will be pushed outward to their farthest extent, as represented at *g g* in Fig. 4 of the drawings, and so as to push the right-angled levers to their farthest outward position and throw the switch into engagement with the left-hand set of main rails, as viewed in the direction of the arrow *a* in Fig. 2 of the drawings, when the train is traveling in the direction of said arrow and in the direction of the arrows *a* in Figs. 3 and 4 of the drawings. When the hand-lever 38 is placed in engagement with the inner notch, the slides will be projected to a less extent, as shown at *f*, Fig. 4 of the drawings, so as to engage with the right-angled levers and place the switch in register with the central main line rails.

Supposing that the train is still traveling in the direction of the arrows *a* in Figs. 2, 3, and 4 of the drawings, and it is found that the right-angled levers 6 on the right-hand side of the track are projecting inwardly, the engineer then, if the switch is in register with the left-hand set of rails, and if he desires to run onto the central track, draws back the hand-lever 39 into engagement with its inner notch on the shaft 41, which act will project the slides 29 30 outward at each end of the car and on the right-hand side thereof into the position represented by dotted lines *e* in Fig. 4 of the drawings. If he desires to run onto the right-hand track, whether the switch registers either with the left-hand or the central track, he then places the hand-lever 39 in en-

gagement with the outer notch in the shaft 41, and thereby projects the slides 29 29 to their farthest outward position, as represented in dotted lines *d d* in Fig. 4 of the drawings.

5 Supposing the train or locomotive to be traveling in a direction the reverse of that represented by the arrows *a* in Figs. 2, 3, and 4 of the drawings, the operation of the several parts will be the same as that previously described, except that the slides 29 will be operated to actuate the right-angled levers on the then right-hand side of the track, (heretofore referred to when describing Figs. 3 and 4 of the drawings as the left-hand side,) and 15 the slides 30 will be operated to actuate the right-angled levers on the opposite side of the track. The hand-lever 39 is connected to the slides 29 29 in a similar manner to that described with reference to the connection of the hand-lever 38 with the slides 30 30—that is to say, a chain, 54, or a rod and chain, as desired, is connected at 55 with said hand-lever 39, and from thence passes to and over grooved pulleys 56 and 57 to the slide 29 at one end of the car, and a chain, 58, connected to the bottom of said lever 39, and from thence passing to and over a grooved pulley, 59, to the slide 29 at the other end of the car.

The slides 29 30 may be of any suitable shape other than that represented in the drawings, if desired, so long as they are adapted to slide outward on the respective hand-levers, being operated in the manner heretofore described, and so long as they are prevented from sliding too far through their supporting guide-ways. They are arranged so as to be in line with the inner faces of the right-angled levers 6, which inner faces are of sufficient breadth to insure the said slides always striking them 40 when projected into operative position. If desired, the longitudinal levers 9, connecting the several right-angled levers 6, may be connected to said levers 6 in any other suitable manner than that herein represented. For 45 instance, they may be connected to said levers on the under side thereof by suitable depending rods or pins, and so as to be nearer the way than represented in the drawings.

When the switch is in correct position to 50 register with the main line upon which the train is traveling to the siding or upon which it is desired to run from the siding, all of the slides 29 30 may be left in their retracted position. When, however, it is desired to shift 55 the switch to register with the main-line rails to the right, the slides on the right-hand side of the car are projected outward, and when the switch is to be turned to the left the slides on the left-hand side of the car are projected 60 outward. When the switch is to be turned to register with the main-line rails next adjacent to said switch, the respective slides are slid outward to the position represented in dotted lines *e* or *f* in Fig. 4 of the drawings, 65 according to the direction in which the train is traveling or the position of the switch and

switch-operating levers 6, and when the switch is in register with one of the outer sets of main-line rails, and it is desired to turn said switch to register with the other outer set of main-line rails, the slides are slid out to their farthest position, as represented in dotted lines *d* or *e* in Fig. 4 of the drawings, as the nature of the case may require.

Having thus described my invention, what 75 I claim is—

1. In an automatic switch, the combination, with the switch-rails and their connecting-bar, of a series of levers pivotally mounted upon suitable supports on opposite sides of 80 the track and adjacent to each end of the switch, each of said levers having curved front and right-angled rear ends, rods extending parallel with the track and connecting the rear ends of each pair of said curved switch-operating levers, a vertical rod depending 85 from the pair of curved levers adjacent to the main-line rail; bridles connecting said depending rods and the switch-rails, and a pair of horizontal slides or levers supported in suitable bearings depending from each end of a locomotive or car, hand-levers and devices, 90 substantially as described, connecting the same, and the slides at each end of the locomotive or car for securing the reciprocation 95 of said slides, substantially as and for the purpose set forth.

2. The combination, with a switch-rail, of connected pivoted switch-operating levers on either side of the track, a rail or flanged plate 100 mounted adjacent to and parallel with one of the switch-rails, a transversely-extending rocking frame or support connected to and supporting said rail or flanged plate to permit of the depression of said rail upon and during 105 the contact of the car-wheels therewith, said rocking frame having a weighted outer end for the purpose of returning said rail to a position flush with or slightly above the top of the switch-rail upon the release of pressure 110 upon said rail, an arm or pin extending upwardly from the outer portion of said frame, and a forked or perforated horizontal arm extending outwardly from one of said switch-operating levers, and with which said arm or 115 pin engages to hold and lock said switch-operating levers and the thereto-connected switch during the passage of a train, substantially as set forth.

3. In combination with a switch-rail and 120 horizontally-rocking levers connected thereto and disposed on each outer side thereof, horizontal levers or sliding arms supported in suitable bearings depending from each end of a car or locomotive, hand-levers pivotally connected to said car or locomotive within reach 125 of an operator, and suitable mechanism connecting said levers and said sliding arms or levers, whereby upon either or both of said hand-levers being rocked the levers or slides 130 connected therewith will be projected beyond the sides of the car or locomotive into position

to engage the pivoted rocking levers connected with the switch, substantially as and for the purpose set forth.

4. The combination of curved or right-angled rocking levers connected with the switch, horizontal slides or arms supported at each end of a car or locomotive in depending supports, springs connected to said slides for the purpose of retracting the same, hand-levers having pivotal bearing in or on the vehicle, mechanism connecting said levers and slides, and a notched or toothed bar or rod to receive and hold said hand-levers in their operative positions, and thereby lock the slides or arms in position for operating the switch-operating levers, substantially as set forth.

5. The combination of curved or right angled rocking levers connected with the switch, horizontal slides or arms supported at each end of a car or locomotive in depending supports, springs connected to said slides for the purpose of retracting the same, hand-levers having pivotal bearing in or on the vehicle, mechanism connecting said levers and slides, a notched or toothed bar or rod to receive and hold said hand-levers in their operative positions, and thereby lock the slides or arms in position for operating the switch-operating levers, said notched or toothed bar or rod having rocking or pivotal bearing at each end, and an arm or lever extending transversely thereof to permit of said bar or rod being rocked in its bearings to release the levers from the notches or teeth and place the notched or toothed portion of said bar or rod in or out of position for the engagement therewith of the hand-levers as desired, substantially as set forth.

6. The combination of rocking switch-operating levers connected with the switch, hangers depending from a car or locomotive, and each having at their lower ends suitable ways or supports for the slides or arms for operating the switch-operating levers, transversely-extending slides resting within said hangerways, retracting-springs connected to said

slides, hand-levers attached to the vehicle, and mechanism connecting said hand-levers and the switch-lever-operating slides, substantially as set forth.

7. In combination with a series of pivoted switch-operating levers and mechanism for actuating the same, substantially as described, one of said levers having a forked or perforated heel or outward extension, as described, a rail having bearing supports adjacent to one side of the switch to permit of the vertical reciprocation of said rail upon pressure thereon by a car-wheel and the removal of such wheel therefrom, a weighted frame or rod extending outwardly from and connected to said vertically-moving rail, and an upwardly-extending pin or rod connected to the outer portion of said weighted rod or frame for the purpose of engaging and locking one of the switch-operating levers and the switch, substantially as set forth.

8. In combination with a series of pivoted levers connected together and to a switch, a car or other suitable portion of the rolling-stock of a railway having suitable depending hangers at each end and at or near each corner thereof, spring-held slides supported within said hangers so as to be adapted to be projected outwardly from each side thereof, as set forth, a pair of hand-levers having pivotal bearing within said car, chains or rods connected, respectively, to said hand-levers at the bottoms thereof, and also at a position above the pivotal connections of said hand-levers, and also connected to the respective slides on either side of the car, and suitable rollers to receive, support, and guide said chains or rods during their reciprocatory movements when operated by the hand-levers, substantially as and for the purpose set forth.

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

JOHN W. ROBBERTSON.

Witnesses:

W. S. THURSTON,
M. YATES.