

No. 898,154.

PATENTED SEPT. 8, 1908.

J. TANGNEY & B. C. BARNES.
SAFETY RAILROAD SWITCH DEVICE.

APPLICATION FILED NOV. 25, 1907.

2 SHEETS—SHEET 1.

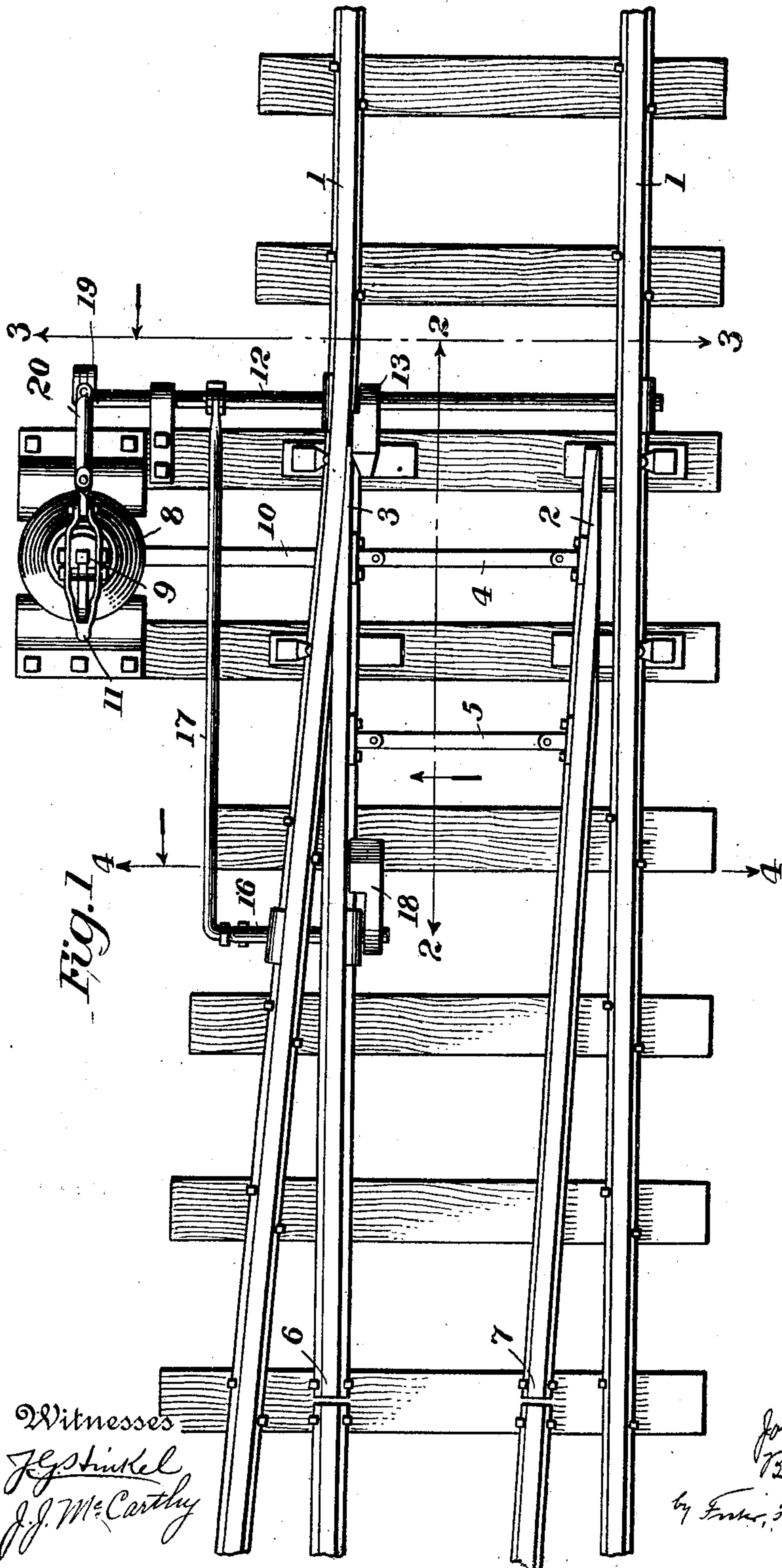


Fig. 1.

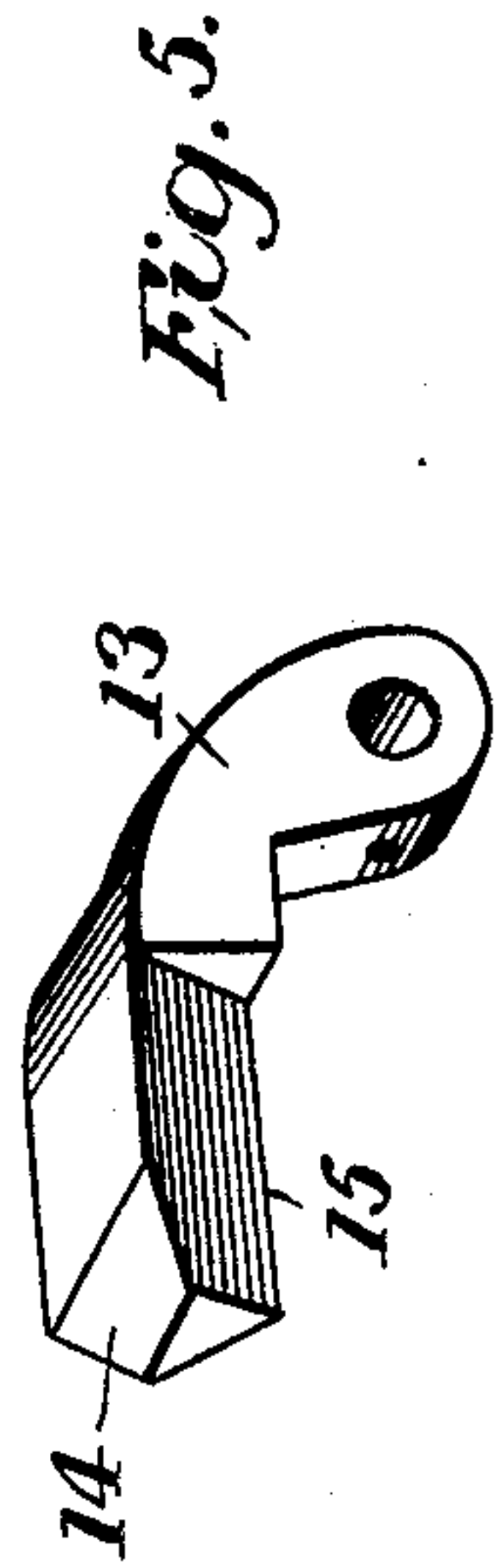


Fig. 5.

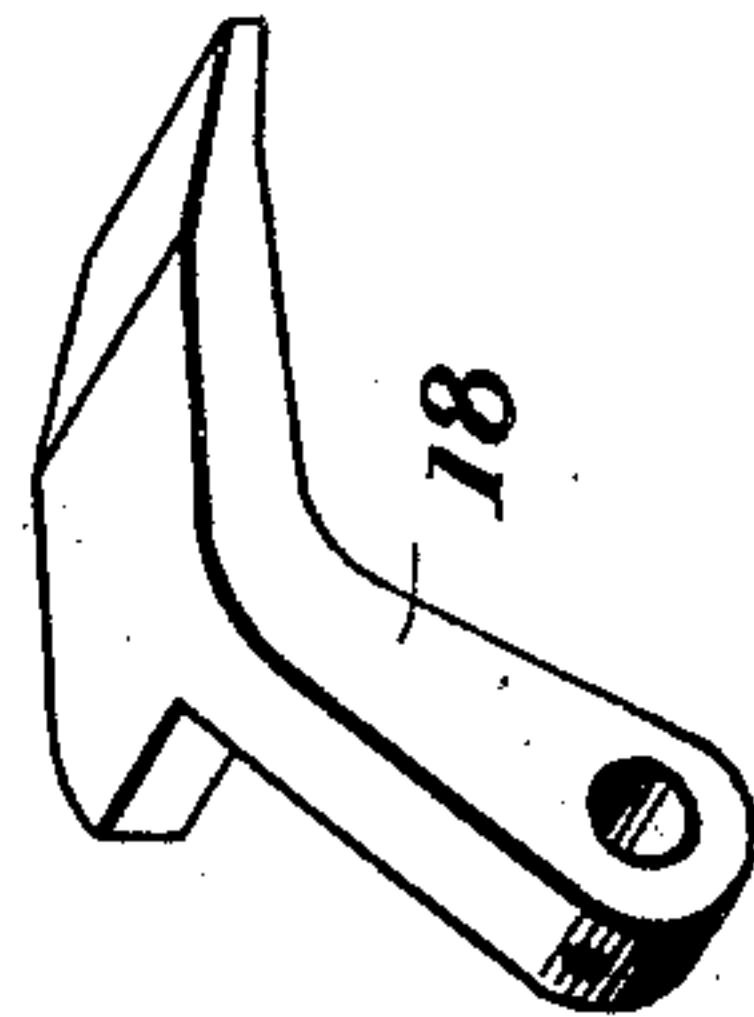


Fig. 6.

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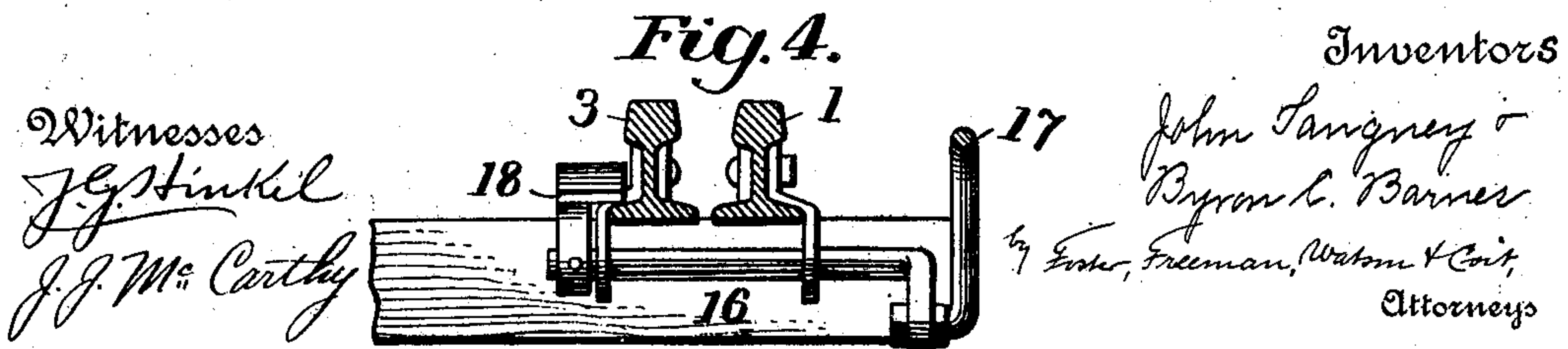
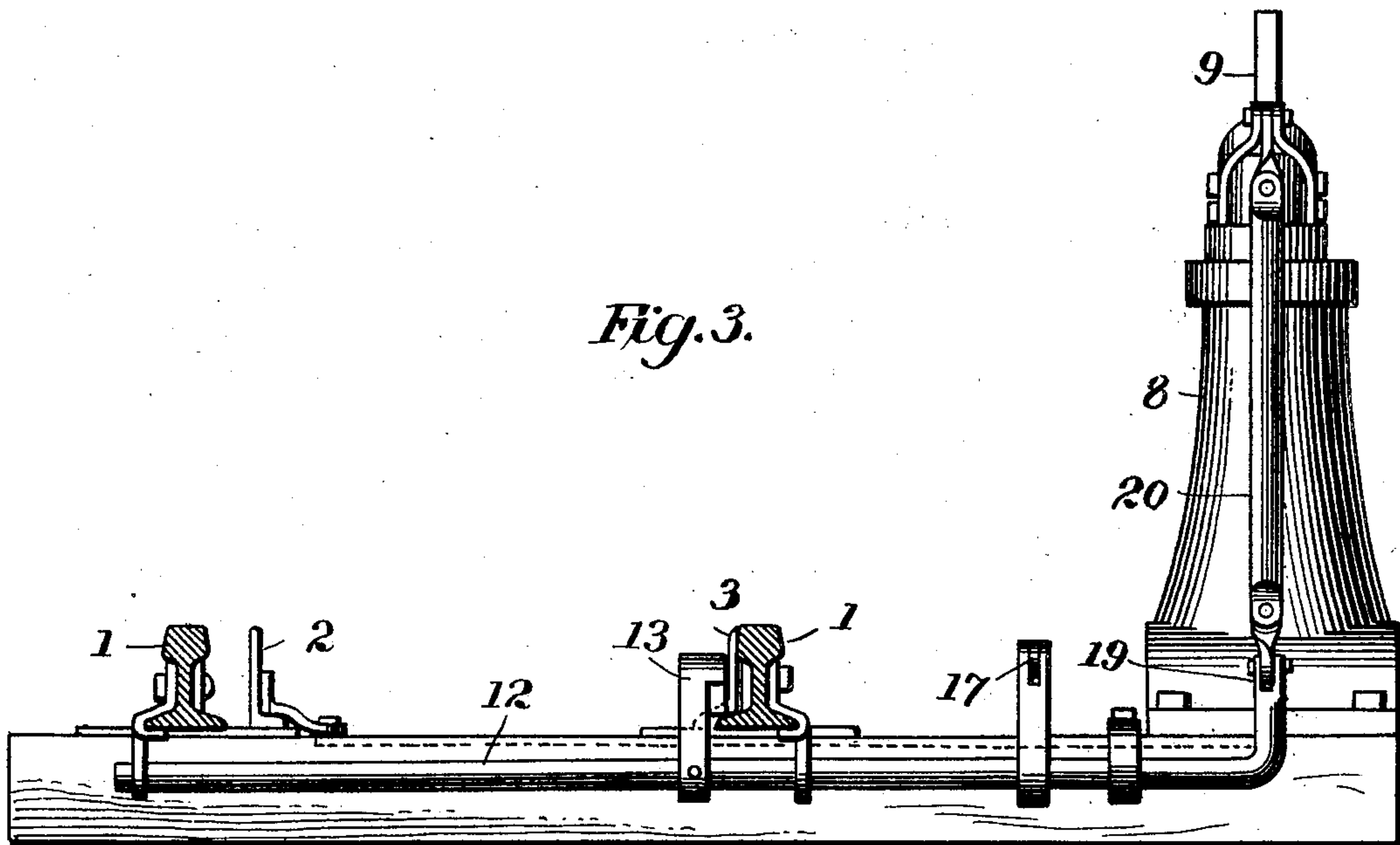
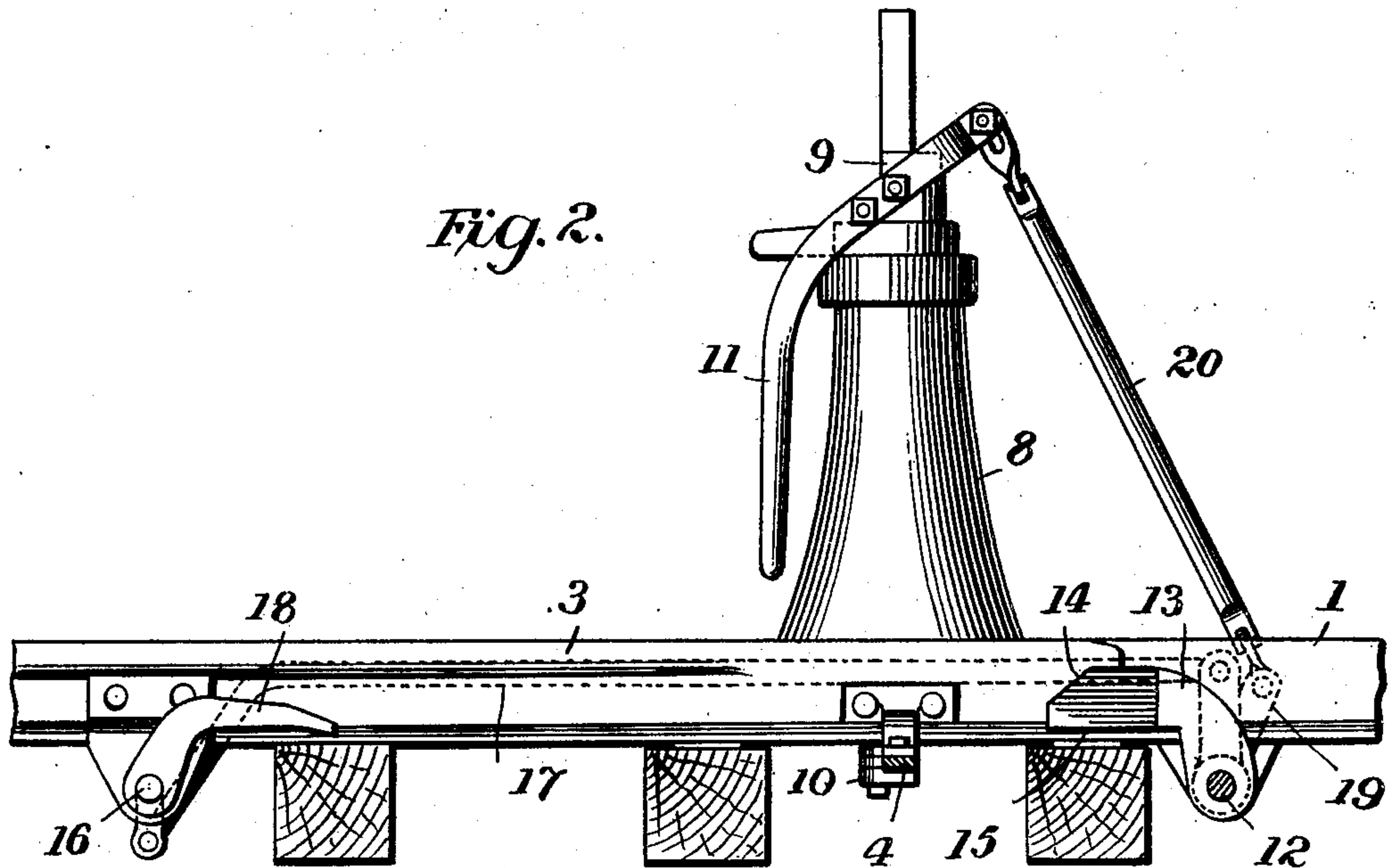
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JOHN TANGNEY AND BYRON C. BARNES, OF COLTON, CALIFORNIA.

SAFETY RAILROAD-SWITCH DEVICE.

No. 898,154.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed November 25, 1907. Serial No. 403,751.

To all whom it may concern:

Be it known that we, JOHN TANGNEY and BYRON C. BARNES, citizens of the United States, and residing at Colton, in the county of San Bernardino and State of California, have invented certain new and useful Improvements in Safety Railroad-Switch Devices, of which the following is a specification.

10 This invention relates to switch operating and locking devices for railways.

It is a well known fact that in the use of many forms of switch operating devices now in common use it frequently happens that 15 the switch points are left in a partially closed condition, resulting in railroad wrecks. This defective operation is some times due to carelessness on the part of the operator, and some times to the fact that the switch point becomes slightly bent and does not fit snugly 20 against the main line rail.

Our invention is intended to overcome these defects and to positively force the switch points into proper position and to re- 25 tain them securely held in that position.

It includes means which will indicate to the operator whether or not the points of the switch have been brought to the proper position and also means whereby, if the switch 30 point becomes bent or if the operator through carelessness leaves the switch partially open, the points will be thrown either to their fully open position or to their fully closed position by the train itself as it approaches the switch.

35 In the accompanying drawings, Figure 1 is a plan view showing our invention; Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1, and looking in the direction of the arrow; Fig. 3 is a sectional view upon the line 40 3—3 of Fig. 1, looking in the direction of the arrow; Fig. 4 is a sectional view of a portion of Fig. 1 taken on the line 4—4; and Figs. 5 and 6 are detail perspective views of the locking dogs which we use in carrying out 45 our invention.

In the drawings, 1 represents the main rails of a railroad line.

2, 3 represent the switch points which are connected by rods 4, 5, and which turn upon 50 the points 6, 7 as pivots. The switch points are moved from one side to the other by means of an ordinary switch stand 8, which has therein a rotary element 9 connected at its bottom by the link arm 10 to the rail 55 point 3. The element 9 may be rotated by turning the handle 11, thereby moving the

link arm 10 lengthwise. The above mentioned features are all old and well known in the art.

In order to positively lock the switch 60 points either in the closed or open position we provide a rock shaft 12 slightly in advance of the end of the switch point and mount upon this shaft a locking dog 13. This locking dog is made in curved form, as shown 65 clearly in Fig. 5, and when in an opened position extends at an incline above the switch point, so that being close to the rail it will be forced downward by the flange of the train wheels before those wheels reach the switch 70 point itself. The outer end is also beveled at 14 in order to offer no resistance or obstruction and to effect the same purpose when the train is coming from the opposite 75 direction, being connected with the other dog, Fig. 6. The under surface of the locking dog is made wedge-shaped, coming to a sharp point at 15, and it should be noted that we preferably so form the wedge surfaces that the point 15 will be not in the center but 80 a distance from the edge next to the rail of about two-thirds of the total width of the dog. The dog being held positively upon its rock shaft in position against the side rail or switch point, it will be apparent that its 85 wedge-shaped under surface will engage the sharp end of the switch point if it should happen to be out of position, and will in descending force that point either into its closed or fully opened position. The ques- 90 tion whether it is forced opened or closed, depends upon which side of the wedge-shaped under surface of the locking dog engages it, and it will be understood that it will be forced into its closed position if it is not more than 95 two-thirds open. If it is more than two-thirds open it will be forced entirely open. It will be noted therefore that when this dog is turned to its lowered position to close the switch it will force the point into close contact with the 100 rail whether that point is left partially open through negligence, or because of the fact that it was bent.

The rock shaft 12 is operated from the switch stand 8 by means of the same handle 105 11 which moves the switch points. It is connected to said handle by a link arm 20 attached to the arm 19 on the end thereof. The rock shaft however is operated, not by turning the handle 11 in a horizontal plane, 110 but by raising and lowering it as will be apparent. The connections are such that the

handle 11 cannot be brought to its lowered position as shown in Fig. 2, without bringing the locking dog into its locked position as shown in that figure, and therefore the fact
5 that the handle does not fall to its lowered position will indicate to the operator that the locking dog has not reached its locked position and that the switch point is not forced home to its proper position.

10 In connection with the above mentioned locking dog and rock shaft we preferably use a second rock shaft 16 placed along the track some distance from the rock shaft 12 but connected thereto by a link arm 17 which
15 makes the two shafts rock together. Mounted on this second shaft adjacent the rail is a second dog 18 which extends upwardly and at an incline opposite to that of the incline on the locking dog 13. The connection between the rocking shafts is such that they
20 rotate in opposite directions and thereby when one dog is forced downwardly the other descends with it. By using this second dog 18 therefore, the train in approaching the
25 switch will, by depressing this dog, first also depress the locking dog 13, thus positively locking the switch point in its closed position.

Having thus described our invention, what we claim and desire to secure by Letters
30 Patent is—

1. In locks for railroad switches, the combination with a rock shaft, of a dog mounted thereon having a wedge-shaped lower surface adapted to engage and move a switch
35 point, and means for operating the rock shaft.

2. In locks for railroad switches, the combination with a rock shaft, of a dog mounted thereon having a wedge-shaped lower surface, the point of the wedge being nearer one side
40 of the dog than the other, and means for operating the rock shaft.

3. In a device of the class described, the combination with the main rails, of switch points, means for shifting said points, a rock
45 shaft adjacent the end of a switch point, a dog carried by said shaft having a wedge-shaped under surface, the position of the dog being such that when in its lowered position it will engage the end of the switch point on
50 one side or the other thereby locking the switch either in its open or closed position, and means for operating the rock shaft.

4. In a device of the class described, the combination with the main rails, of switch points, means for shifting said points, a locking dog having a wedge-shaped under surface, a pivotal support for said dog in advance of the end of a switch point, means for preventing lateral movement of said dog, and means for turning said dog on its pivot
60 whereby its wedge-shaped under surface will engage the switch point and force it into its open or closed position.

5. In a device of the class described, the combination with the main rails, of switch points, means for shifting said points, a locking dog having a wedge-shaped under surface pivotally mounted in advance of a switch point and projecting at an incline thereover, a second dog pivotally mounted adjacent the
70 rail and having an incline opposite to that of the locking dog, and connections between said dogs whereby they turn together on their pivots into their elevated or lowered positions.

6. In a device of the class described, the combination with the main rails, of switch points, means for shifting said points, a locking dog adapted to engage the end of a switch point and force it into its fully open or fully
80 closed position, the said dog having a portion which when unlocked projects in the way of the car wheel so as to be operated thereby, a second dog adjacent the rail projecting in the way of the car wheel and adapted to be turned
85 thereby, and connections between said dogs whereby they turn together.

7. In a device of the class described, the combination with the main rails, of switch points, means for shifting said points, a locking dog for the switch point, a second dog adapted to project in the path of the car wheel and to be operated thereby, connections between said dogs whereby they operate together and whereby the locking dog is
95 closed when the second dog is struck by the car wheel.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN TANGNEY.
BYRON C. BARNES.

Witnesses:

B. A. MYERS,
J. D. TURNBULL.