

G. E. TOULLERTON.
AUTOMATIC RAILROAD SWITCH.
APPLICATION FILED AUG. 4, 1908.

931,660.

Patented Aug. 17, 1909.

2 SHEETS—SHEET 1.

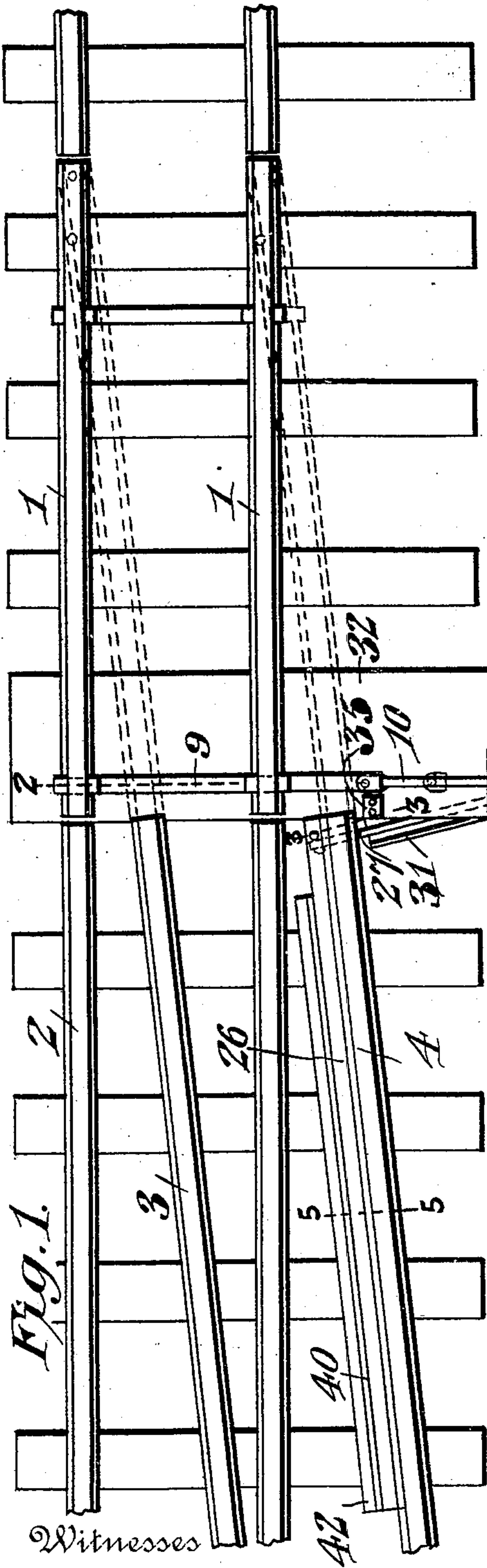


Fig. 1.

Witnesses

Jas. K. McLaughlin
J. J. Riley

Fig. 4.

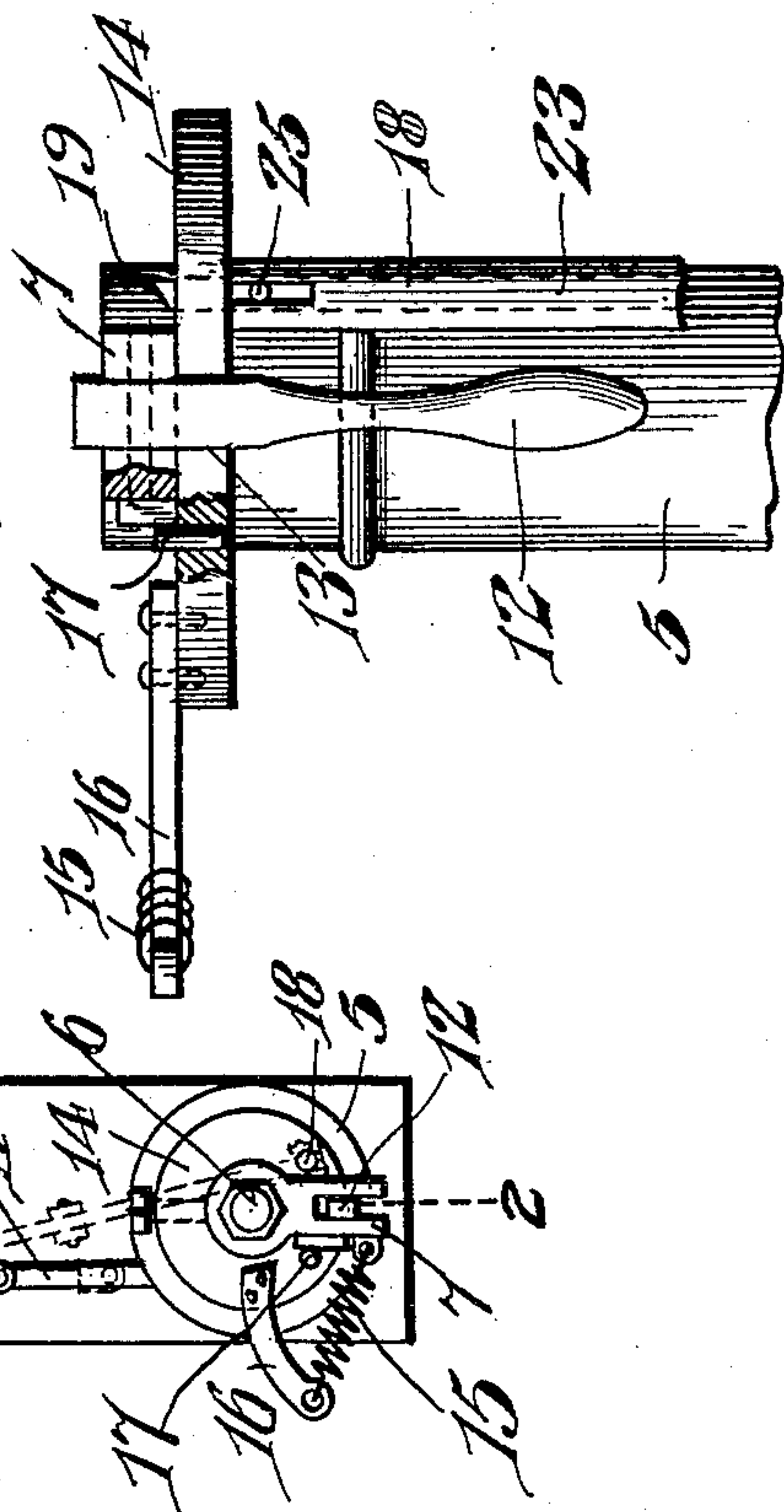
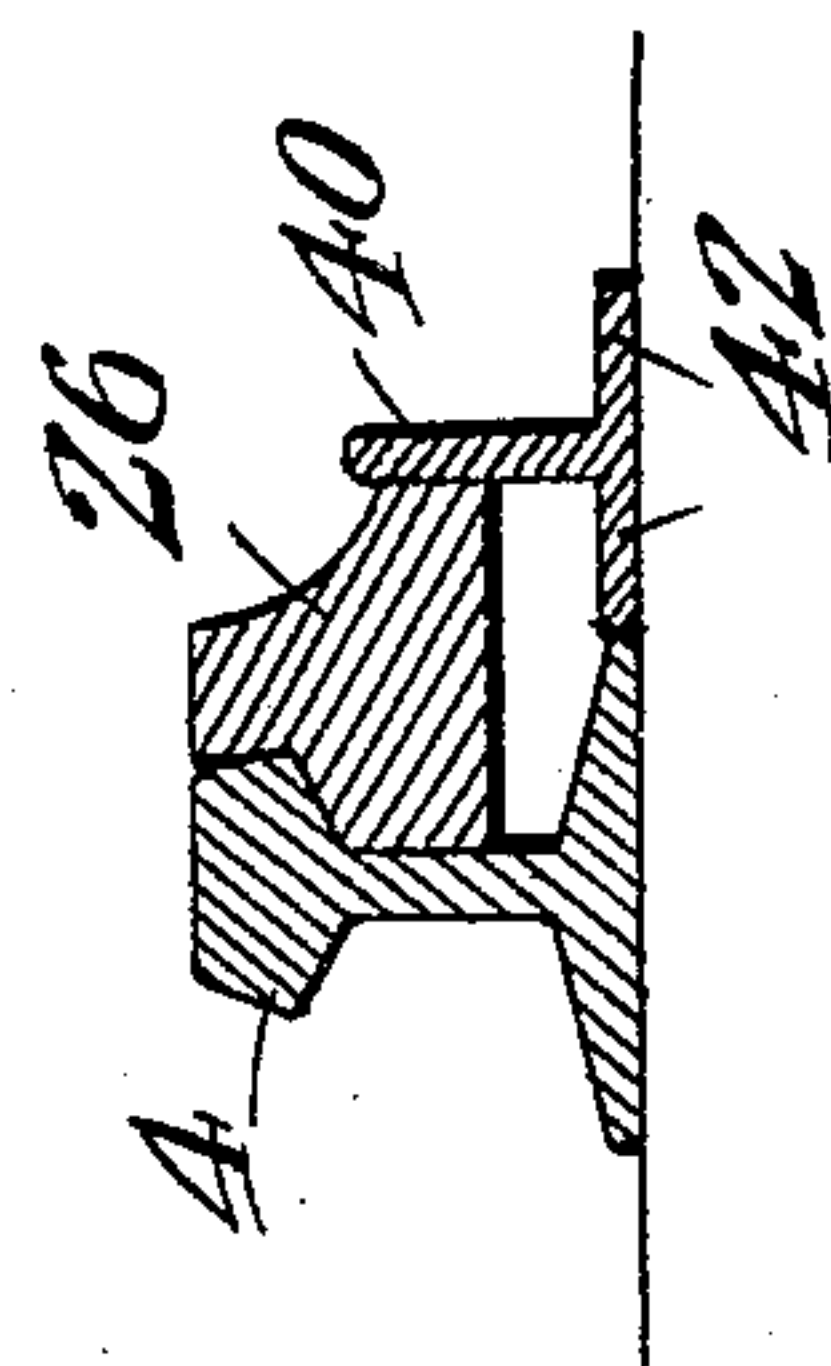


Fig. 5.



George E. Toullerton, Inventor

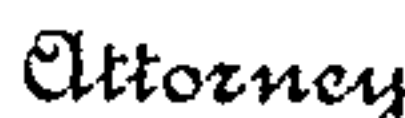
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APPLICATION FILED AUG. 4, 1908.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

GEORGE EDWARD TOULLERTON, OF HOUSTON, TEXAS.

AUTOMATIC RAILROAD-SWITCH.

No. 931,660.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed August 4, 1908. Serial No. 446,918.

To all whom it may concern:

Be it known that I, GEORGE E. TOULLERTON, a citizen of the United States, residing at Houston, in the county of Harris and State of Texas, have invented a new and useful Automatic Railroad-Switch, of which the following is a specification.

The invention relates to improvements in automatic railroad switches.

The object of the present invention is to improve the construction of automatic railroad switches, and to provide simple, inexpensive and efficient means for preventing rear end collisions, caused by or resulting through neglecting to throw the switch to the main line tracks after a train has passed into the siding.

A further object of the invention is to provide mechanism having operating means, located at the siding rails in position to be actuated by the train moving into the siding, so that the switch will be automatically thrown to the main rails by the train moving into the siding to positively leave the main line clear for an approaching train.

With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a plan view of an automatic switch, constructed in accordance with this invention. Fig. 2 is a sectional view, taken substantially on the line 2—2 of Fig. 1. Fig. 3 is an enlarged detail view, taken substantially on the line 3—3 of Fig. 1 and illustrating the construction of the connections between the depressible train-operated member and the compound levers. Fig. 4 is an elevation partly in section of the upper portion of the switch stand. Fig. 5 is a detail sectional view, taken substantially on the line 5—5 of Fig. 1. Fig. 6 is a vertical sectional view, taken substantially on the line 6—6 of Fig. 2.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1—1 designate movable switch rails, adapted to be shifted laterally from a position in alinement with the main rails 2 to a position in alinement with siding rails 3 and 4, as illustrated in dotted lines in Fig. 1 of the drawings. The movable switch rails are operated by a switch stand, consisting of a vertical tubular casing 5, and a vertical shaft 6, journaled in the casing 5 and provided with an upper operating arm 7 and having a lower arm 8, which is connected with the switch rails 1. The switch rails 1 are connected together by a transverse rod 9, and the latter is connected by a rod 10 with a link 11 extending to the lower arm 8 of the vertical shaft of the switch stand.

The improvements herein shown and described are applicable to various switch stands, and the connections between the switch stands and the switch rails are designed to be of the ordinary construction.

The operating arm 7 is bifurcated, and is equipped with a pivoted operating handle or member 12, which is adapted to swing downward into engagement with a notch 13 of the top or head 14 of the switch stand, when the switch is closed or thrown to the main line. The pivoted operating handle or member 12 is adapted to swing downward by gravity, when it is brought in alinement with the recess 13, and it forms a gravity lock for holding the switch rails 1 in their closed position.

The switch is automatically closable, the operating arm 7 being connected with one end of a coiled spring 15, which is adapted to swing the arm 7 toward the recess 13, when the switch is free to move. The other end of the spring is secured to an arm 16, projecting from the head or top of the switch stand and rigidly connected to the same. The movement of the operating arm 7 toward the recess 13 is limited by a stop 17, consisting of a lug or pin projecting from the upper face of the switch stand. The stop, which is arranged in the path of the arm 7, prevents the same from swinging past the recess 13, so that the pivoted member 12 will automatically drop into engagement with the recess of the switch stand and lock the movable switch rails in alinement with the main rails, when the switch is closed by the operation of the coiled spring 15. When it is desired to run a train into the siding formed by the rails 3 and 4, the switch stand is operated to

carry the movable switch rails 1 from the main line position, illustrated in full lines in Fig. 1 of the drawings to the closed position shown in the said figure. The switch is locked in this position by means of a vertically movable locking rod 18, piercing the head or top plate of the switch stand and provided with a beveled upper end 19, adapted to be automatically depressed by the switch arm 7 in its movement away from the recess, and capable of automatically engaging and locking the arm against inward movement for retaining the switch rails in alinement with the siding rails 3 and 4. The locking rod 14 is actuated in its upward movement by a coiled spring 20, arranged within a barrel or casing 21 and engaging the same and a pin 22 of the locking rod. The upper portion of the locking rod is also guided in a tube or casing 23, coupled to and extending upward from the barrel or casing 20 and provided with a slot 24, receiving a pin 25 of the locking rod. The pin 25, which slides in the slot of the tube or casing 23, prevents the rotary movement of the locking rod and maintains the beveled engaging end of the same in position to be depressed by the arm 7 and for engaging and locking the same.

In order to effectually prevent the switch rails from being left in an open position in alinement with the siding rails 3 and 4, the locking device formed by the spring actuated rod 18 is connected by compound levers with a depressible train-operated member 26, extending along the inner side of the siding rail 4, in position to be engaged by the flanges of the wheels of a train moving into the siding. The compound levers consist of inner and outer levers 27 and 28, fulcrumed intermediate of their ends and transverse pins 29 and 30 of a suitable support 31, located beneath the plate or member 32 on which the switch stand is mounted and which slidably receives the movable switch rails 1. The levers 27 and 28 are connected at their adjacent ends by means of a vertical link 33, and the outer end of the outer lever is pivoted by a pin 34, or other suitable fastening device to the lower end of a spring actuated rod. The support 31, which is constructed of suitable metal, is suspended from the plate or member 32 by means of suitable hangers or brackets 35 and 35^a, and it consists of two sides and a connecting bottom portion, the top being open, as clearly shown in Fig. 6 of the drawings.

The inner end of the lever 27 is connected by a rod 36 with the depressible member 26 and the latter, when moved outward, is adapted to actuate the compound levers and withdraw the spring actuated locking rod from engagement with the arm 7 to permit the spring 15 to swing the said arm 7 to the stop 17 for closing the switch. As soon as

the train moving into the siding depresses the bar or member 26, the locking device will be withdrawn from engagement with the arm 7, but it will be impossible for the switch rails to move to their closed position in alinement with the main rails until the train has moved entirely on to the siding and has relieved the switch rails of pressure. The switch rails will then be thrown automatically to the main line rails to leave a clear main line for an approaching train. This effectually prevents the switch from being accidentally left open, and the switch is closed before the approach of the next train, and its closing movement does not depend for its operation on the latter train. This will also prevent the accidents resulting from defects in mechanism, operated by an approaching train for closing a switch to prevent rear end collisions.

The rod 36 has a threaded upper portion to screw into a threaded perforation of the depressible member 36, and the lower end of the rod is equipped with an eye 38 to receive a pivot 39 for connecting it to the inner arm of the inner lever 27. The depressible member, which may be mounted in any preferred manner, is arranged between the siding rail 4 and a guide 40, mounted in parallelism with the rail 4, as clearly shown in Fig. 1 of the drawings. The inner side of the depressible member 26 is recessed at the upper portion at 41 to receive the adjacent portion of the head of the rail, when the member 26 is at the limit of its upper movement, as illustrated in Fig. 1 of the drawings. The head of the rail 4 limits the upward movement of the member 26, and the guide 40, which is T-shaped in cross section, presents a flat vertical face to the adjacent side face of the depressible member. The T-shaped guide 40 has horizontal bottom flanges 42, which are spiked to the cross ties, but the depressible member may be guided in any other suitable manner.

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

1. The combination of a switch having movable switch rails, a spring for normally urging the switch rails to their closed position, a switch-stand provided with manually operated mechanism connected with the switch rails for moving the same to their open position, said mechanism including a movable operating member, a locking device arranged to automatically engage the operating member to hold the switch open while a train enters the siding, and a releasing device arranged to be engaged by a train after the same has entered the siding and connected with the locking device for disengaging the same from the said operating member to permit the spring to automatically

move the switch rails to their closed position.

2. The combination of a switch including movable switch rails, and a switch stand having an operating arm, a spring connected with the operating arm for closing the switch, a locking device for engaging the operating arm to hold the switch in its open position, and mechanism arranged to be operated by a train moving into a siding for withdrawing the locking device from engagement with the operating arm to permit the switch to close.

3. The combination of a switch including movable switch rails, and a switch stand having an operating arm, a spring connected with the operating arm for automatically closing the switch, a spring actuated locking device for engaging the operating arm to hold the switch in its open position, a depressible train-actuated member arranged to be engaged by a train moving into a siding, and compound lever connections between the said member and the locking device.

4. The combination of a switch including movable switch rails, and a switch stand having an operating arm, a spring connected with the operating arm for automatically closing the switch, a spring actuated locking device for engaging the operating arm to hold the switch in its open position, a depressible train-actuated member arranged to be engaged by a train moving into a siding, and inner and outer levers fulcrumed at an intermediate point and connected together at their adjacent ends, the outer lever being connected with the locking device and the inner lever being connected with the said depressible member.

5. The combination of a switch including movable switch rails, and a switch stand having an operating arm, a stop for limiting the movement of the operating arm in one direction, a spring connected with the operating arm for moving the same toward the stop, a vertically movable spring actuated arm to hold the switch open, a depressible train-actuated member, and connections between the said member and the locking device for actuating the latter to release the operating arm of the switch.

6. The combination of a switch including movable switch rails, a switch stand, and a shaft connected with the switch rails and provided with a horizontal operating arm, means for actuating the switch to close the same, a vertically movable locking rod located exteriorly of the switch stand and arranged to engage the operating arm of the switch to hold the latter open, an exteriorly arranged barrel or casing receiving the rod, a spring mounted within the barrel or casing for actuating the rod, a depressible train-actuated member, and means for connecting the same with the said rod for releasing the operating arm of the switch.

7. The combination of a switch including movable switch rails, a vertical switch stand having a horizontally swinging operated rod and connected with the switch rails, a vertically movable locking rod having a beveled upper end and arranged to engage the operating arm of the switch to hold the latter open, a barrel or casing receiving the rod and having a spring mounted within the barrel or casing for actuating the rod, a tube receiving the rod and connected with the barrel or casing and provided with a slot, means carried by the rod and operating in the slot for holding the rod against rotary movement, and train-actuating mechanism arranged to be operated by a train moving into the siding for actuating the rod to release the switch.

8. The combination of a switch including movable switch rails, and a switch stand connected therewith and having an operating arm, a locking device for engaging the operating arm to hold the switch open, a depressible train-operated member extending along one of the siding rails, a support extending transversely of the switch and provided with hangers, levers extending longitudinally of and fulcrumed on the support and connected with each other, and means for connecting the levers with the locking device and with the said member.

9. The combination with movable switch rails, main rails, and siding rails, of a manually operable switch-stand connected with the switch rails to open the switch and including a movable operating member, means also connected with the switch rails for normally urging the same to their closed position, a locking device mounted on the switch-stand and arranged to engage the said operating member for holding the switch open, and a depressible member located between the terminals of the siding rails and arranged to be engaged by a train after the same has entered the siding for disengaging the locking device from the operating arm to permit the switch to close automatically.

10. The combination with movable switch rails, main rails, and siding rails, of a switch stand connected with the switch rails, a locking device for holding the switch open, a guide arranged adjacent to one of the siding rails, a depressible member mounted between the guide and the adjacent siding rail, means connected with the said member and the locking device for releasing the switch when the said member is depressed, and means for automatically closing the switch when the same is released.

11. The combination with a switch including movable switch rails, and a switch stand provided with a recess and having an operating arm, said operating arm being provided with a gravity acting pivoted member arranged to automatically engage the recess for locking the switch in its closed position,

means for automatically closing the switch, a locking device for holding the switch in its open position, and means arranged to be operated by a train moving into a siding for disengaging the locking device from the switch to permit the latter to close.

In testimony, that I claim the foregoing

as my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE EDWARD TOULLERTON.

Witnesses:

W. T. BIAN.

E. A. PALMER.