

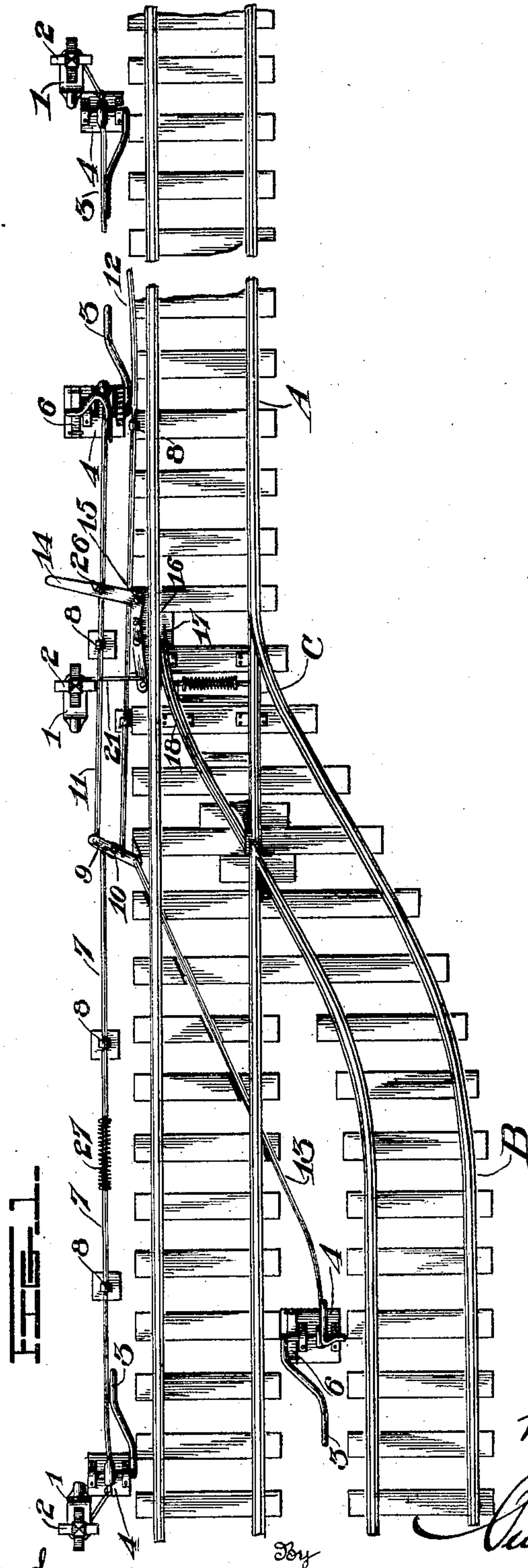
No. 897,098.

PATENTED AUG. 25, 1908.

M. I. HAULTER.  
AUTOMATIC SWITCH AND SIGNAL.

APPLICATION FILED OCT. 23, 1907.

2 SHEETS—SHEET 1.



Witnesses

Lloyd W. Patch

A. A. Hammond.

Inventor

M. I. Haulter

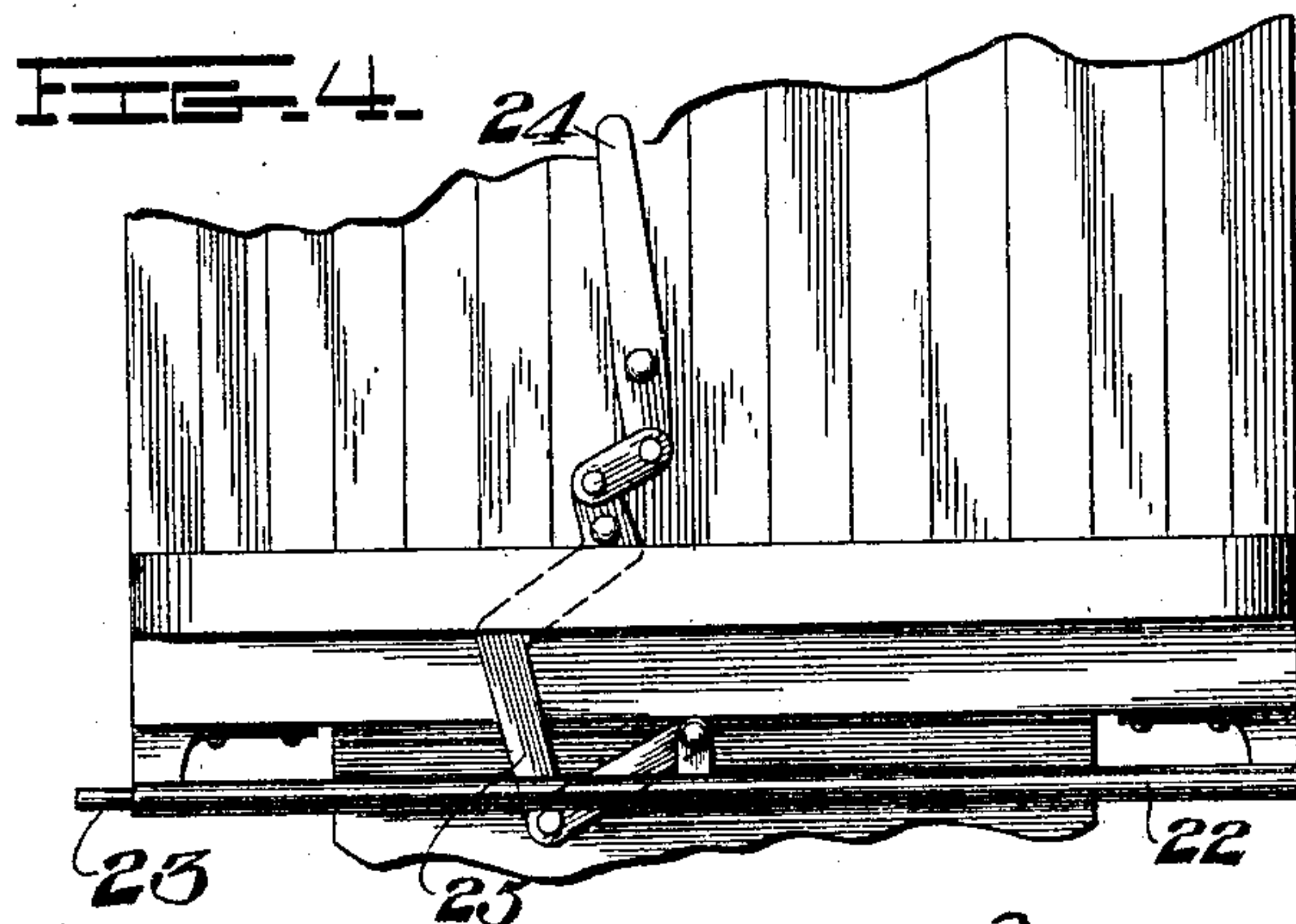
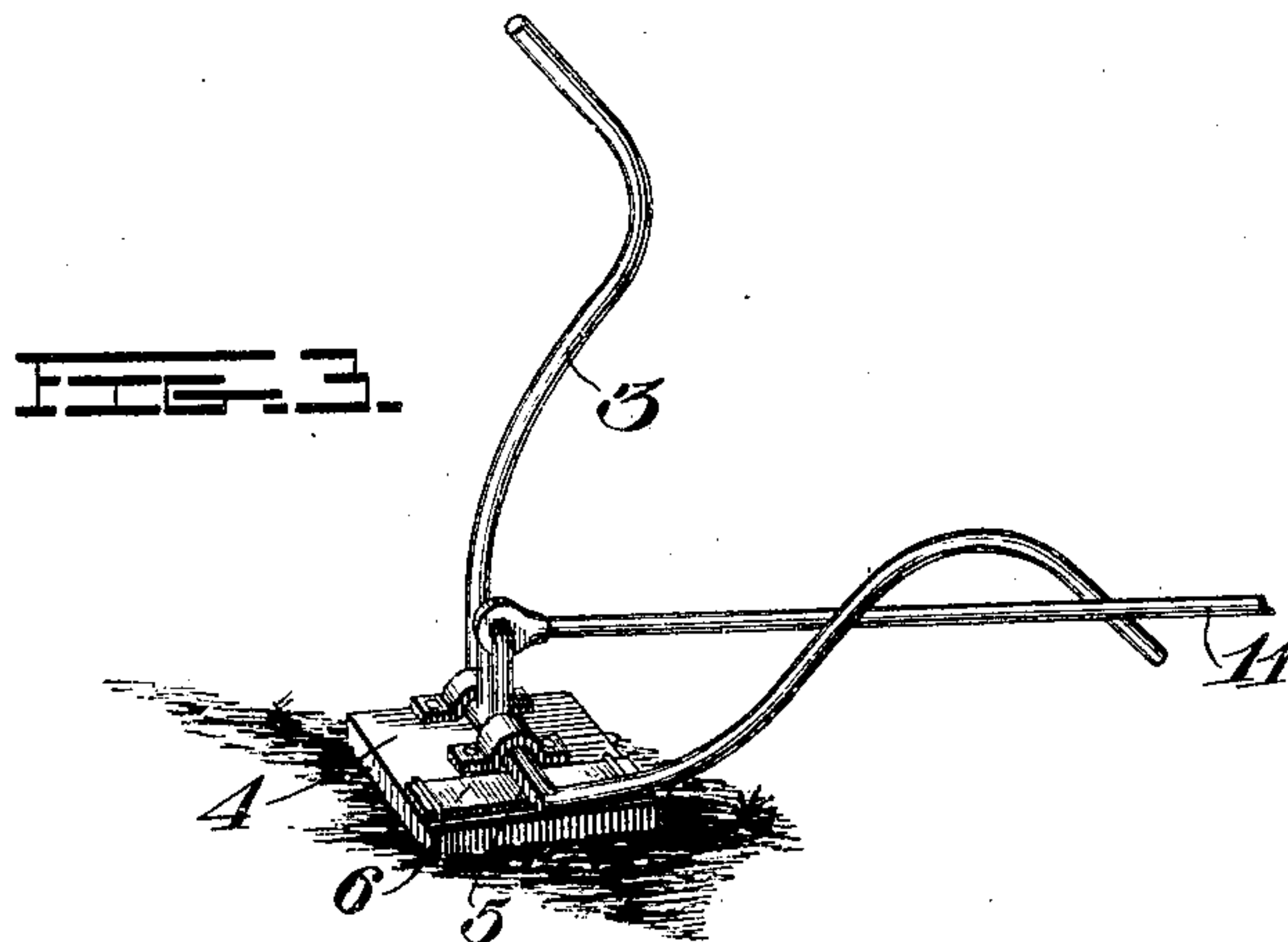
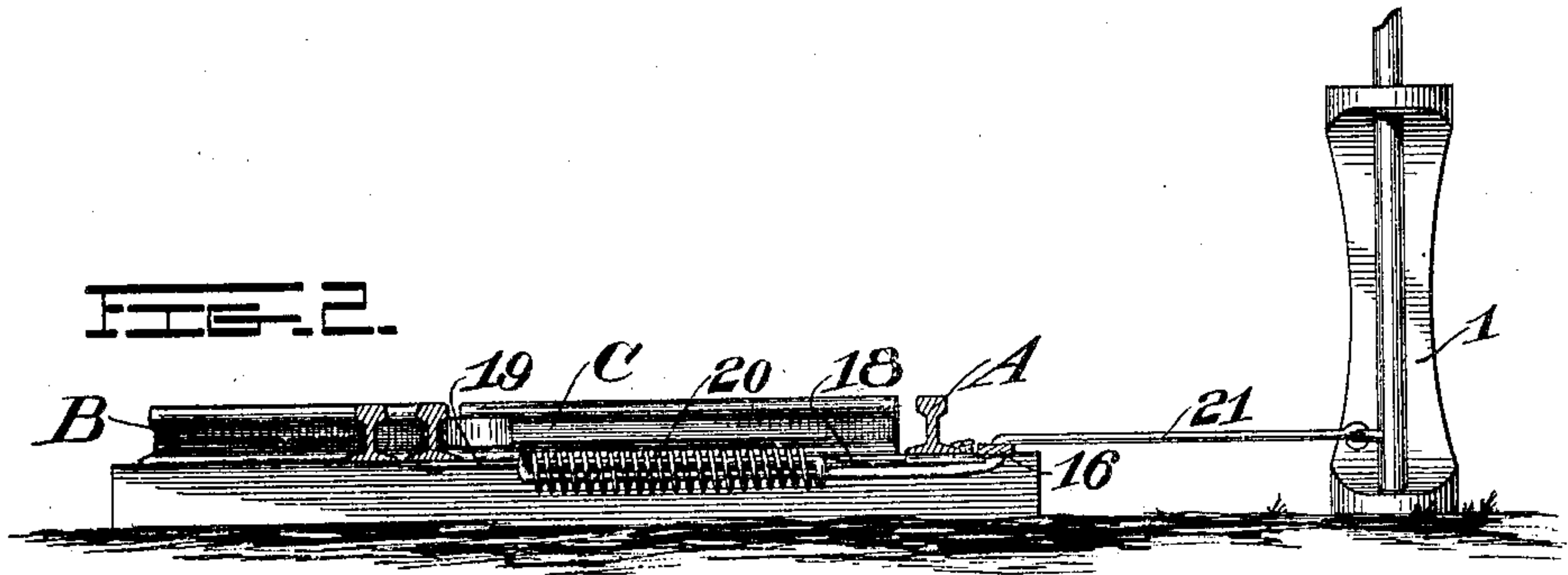
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Inventor

M. I. Haulter

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Attorney



# UNITED STATES PATENT OFFICE.

MERL I. HAULTER, OF SHIPPENSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO J. BRUCE MCCREARY, OF SHIPPENSBURG, PENNSYLVANIA.

## AUTOMATIC SWITCH AND SIGNAL.

No. 897,098.

Specification of Letters Patent.

Patented Aug. 25, 1908.

Application filed October 23, 1907. Serial No. 398,799.

*To all whom it may concern:*

Be it known that I, MERL I. HAULTER, a citizen of the United States, residing at Shippensburg, in the county of Cumberland and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Switches and Signals, of which the following is a specification.

My invention relates to an improvement in automatic railway switches and signals, and the object is to provide such a means whereby the train men can draw a certain lever on the car which will strike a projection along the road which will throw the switch, and at the same time turn the signal, and as it passes on to the switch it again returns the switch, so that the main line is clear, and turns the signal to show a clear track, but while it is passing into the switch the signal stands at danger. These switches and signals can be operated by hand as well as automatically.

The invention relates to certain novel features of construction and combinations of parts which will be hereinafter described and pointed out in the claims.

In the accompanying drawings Figure 1 is a plan view; Fig. 2 is a sectional view through the switch connecting mechanism; Fig. 3 is a perspective view of one of the switch levers, and Fig. 4 is a view of the lever tripping mechanism.

A represents the railroad track, and B the side track. Connecting between the main track A and the side track B is a switch C. Along the track or road-bed the usual signal standards 1, 1 are placed, carrying the signals 2, 2.

Along the track, and preferably between the end signals and central signals, are switch levers 3, 3. The switch levers near the end signals are preferably provided with a single lever, but the levers placed near the central signal and between the side and main tracks have double levers, and these levers are all supported upon bearing blocks 4, 4.

The double levers are provided on one side with squared shoulders 5, 5, which bear against flat springs 6, 6 placed on the bearing blocks 4, 4, thereby causing a frictional movement, or a tendency to keep the levers from becoming displaced or being easily

moved from the position left by the passing train.

The double switch levers are shown preferably with a hook end, and when one lever is down, the other is standing upright, and in position to be struck by the tripping mechanism of the car. These levers are preferably in alinement with each other, so that they are always certain to be struck when the tripping mechanism is in position to trip them. The object in having the hooked ends is to provide the tripping mechanism means for easily sliding over the tops. The single levers are made like the double levers, with the exception that one of the levers is cut off at the base or near the connection to the bearing block, as it is only necessary to have a single lever at or near the end signals. These signals and switch arms are all connected together by means of rods 7, 7. Taking one of the end signals it is first connected by means of the rod 7 to the first single switch lever by any suitable means, and then the rod extends over pulleys 8, 8 to a cross bar 9, which is pivotally mounted upon a post 10. The rod 11 passes over pulleys 8, 8 to the double switch lever beyond the central signal from the cross bar 9. Extending from the cross-bar 9 is the rod 12 passing over the pulleys 8, 8 to the single lever, and from the single lever to the other end signal, thereby connecting all of the levers together along the main track. The double signal between the main and side tracks is connected by means of a rod 13 to the cross-bar 9.

A hand lever 14 pivotally connected at 15 and pivotally connected to a lever arm 16, which is pivotally connected at 17, and connected to the end of the lever arm is a rod 18 passing beneath the main rails and switch, and the end of this rod connected loosely to a rod 19, which is similarly connected to the rod 18, and also connected to the main rail of the switch. Between these two connecting ends of the rods 18 and 19 a coil spring encircles both rods and is held between their ends, thereby forming a spring connection and allowing a certain amount of play for the hand lever 14 when the switch is being thrown, if it happens to be thrown by the hand lever, and the same result is obtained when the switch is thrown out automatically,



by reason of the fact that the hand lever 14 is connected to the rod 12 by a coupling 26 and the lever is preferably locked to this coupling. This connection of the two rods  
 5 can replace the single rod which is now used, and performs an additional function and allows a better leverage instead of a dead pull of the single rod when the switch is being thrown. The central signal, which is placed  
 10 on the outer side or beyond the rods 11 and 12, is connected to the lever arm 16 by a connecting rod 21.

The tripping mechanism, which is placed on the end of a car or engine, can be any  
 15 suitable means, but I have shown one form having a trough or chute 22 secured to the car, and in this chute a bar 23 is capable of being slid back and forth by means of a lever 24 and a bell crank 25, the lever operated  
 20 throwing the bar 23 outward, which is adapted to strike the switch arms for either throwing the switch for the main line or for the side track, as is desired. The rod 7 is made in two parts, and is provided with a spring 27  
 25 between the ends to relieve the jar of the engine upon the rods.

The operation can be ascertained from the foregoing, but to recapitulate, the operation is as follows:—The switch is thrown so that  
 30 there is a clear main track, but it is desired to take the side track; therefore, the tripping mechanism is thrown outward so that the bar 23 strikes the only standing switch lever, which is one of the levers of the double  
 35 lever. As the bar strikes this lever it immediately transmits motion to the rod 12, which causes the hand lever 14 to move, and the cross bar 9. Through the motion transmitted to the hand lever 14 the switch is  
 40 caused to be thrown so that the side track can be entered, and by the motion transmitted to the cross bar 9 the double switch lever between the main and side tracks is caused to turn, so that when the train passes  
 45 through this switch, it can strike the lever and throw the switch back in position, if desired, for a clear main track. This same motion operates both end signals and causes all of the levers along the track to take an up-  
 50 right position, and the central signal is also turned as the hand lever 14 throws the switch in position for the side track indicating danger, but as soon as the train takes the side track and strikes the double lever, it  
 55 immediately causes the signals to be turned to show a clear track, and at the same time throwing the switch over, so that the main track is clear and safe. Should it happen that the car should come between the signals,  
 60 and the tripping mechanism was not used, and it was desired to take the side track, the locking means could be taken from the coupling 26, which holds the hand lever 14, and the hand lever could be thrown, where-

by the switch could be thrown independ- 65  
 ently of the signal mechanism excepting the central signal. The end levers are only used when the switch has been left open by any means, and by the tripping mechanism the switch can be thrown to the position desired. 70

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I do not wish to limit myself to the 75  
 exact construction herein set forth, but:—

Having fully described my invention, what I desire to secure by Letters Patent is:—

1. In an automatic switch and signal, the combination with switch rails and switch op- 80  
 erating mechanism comprising a pivotally mounted hand lever, a lever arm to which one end of the hand lever is pivotally connected, and a rod connected with the switch rails and to which the lever arm is pivotally 85  
 connected, and means detachably connected with the hand lever adapted to be actuated by the passing train to shift the switch rails, said means comprising switch levers and rods, the switch levers being pivotally sup- 90  
 ported in the path of a passing locomotive or train, and one of the rods connected to the hand lever.

2. In an automatic switch and signal, the combination with switch rails and switch op- 95  
 erating mechanism comprising a pivotally mounted hand lever, a lever arm to which one end of the hand lever is pivotally connected, and a rod connected with the switch rails and to which the lever arm is pivotally 100  
 connected, and means detachably connected with the hand lever adapted to be actuated by the passing train to shift the switch rails, said means comprising switch levers and rods, the switch levers being pivotally sup- 105  
 ported in the path of a passing locomotive or train, and one of the rods detachably connected to the hand lever.

3. In an automatic switch and signal, the combination with switch rails and switch op- 110  
 erating mechanism comprising a pivotally mounted hand lever, a lever arm to which one end of the hand lever is pivotally connected, and a rod connected with the switch rails and to which the lever arm is pivotally 115  
 connected, and means detachably connected with the hand lever adapted to be actuated by the passing train to shift the switch rails, said means comprising switch levers and rods, the switch levers being pivotally sup- 120  
 ported in the path of a passing locomotive or train, and one of the rods connected to the hand lever, signals and means actuated by the switch levers connected with the signals for actuating the latter. 125

4. In an automatic switch and signal, the combination with switch lever, of end and central signals, means connecting the switch

levers and end signals, a lever connected to said means, a lever arm connected to the lever, means connecting the central signal and lever arm, and spring-controlled means connected to the switch and lever arm.

5 5. An automatic switch and signal, comprising switch levers, said switch levers having squared shoulders, means bearing against said shoulders for controlling the movement

of the switch levers, and means connecting the switch levers with the signals and switch.

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

MERL I. HAULTER.

Witnesses:

S. A. ANGLE,  
ELMER E. ZINN.