

No. 777,960.

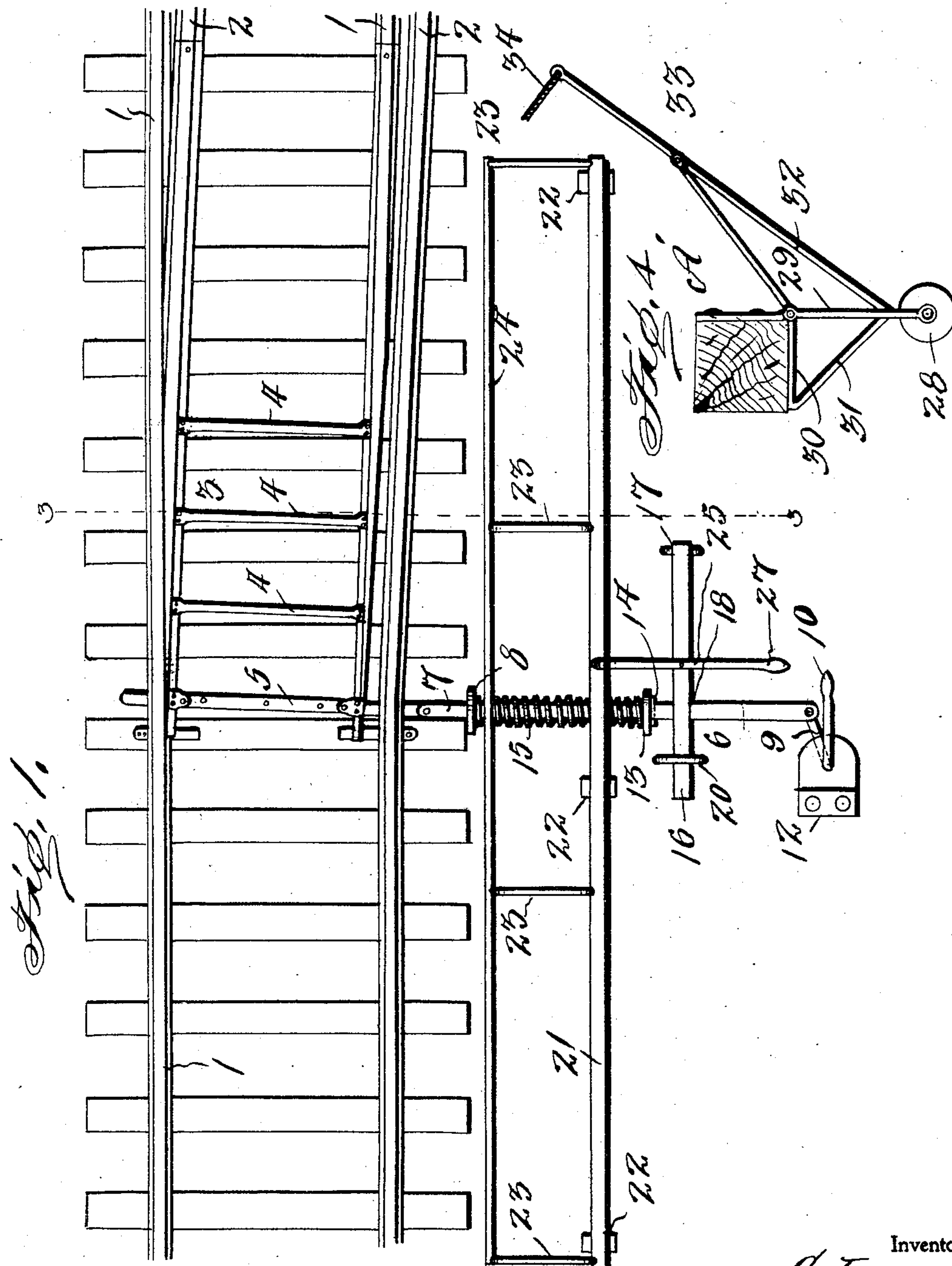
PATENTED DEC. 20, 1904.

C. LEE.  
AUTOMATIC RAILWAY SWITCH.

APPLICATION FILED OCT. 12, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

for a Koehf.

*[Signature]*

Inventor

C. Lee.

By

*[Signature]*

Attorney

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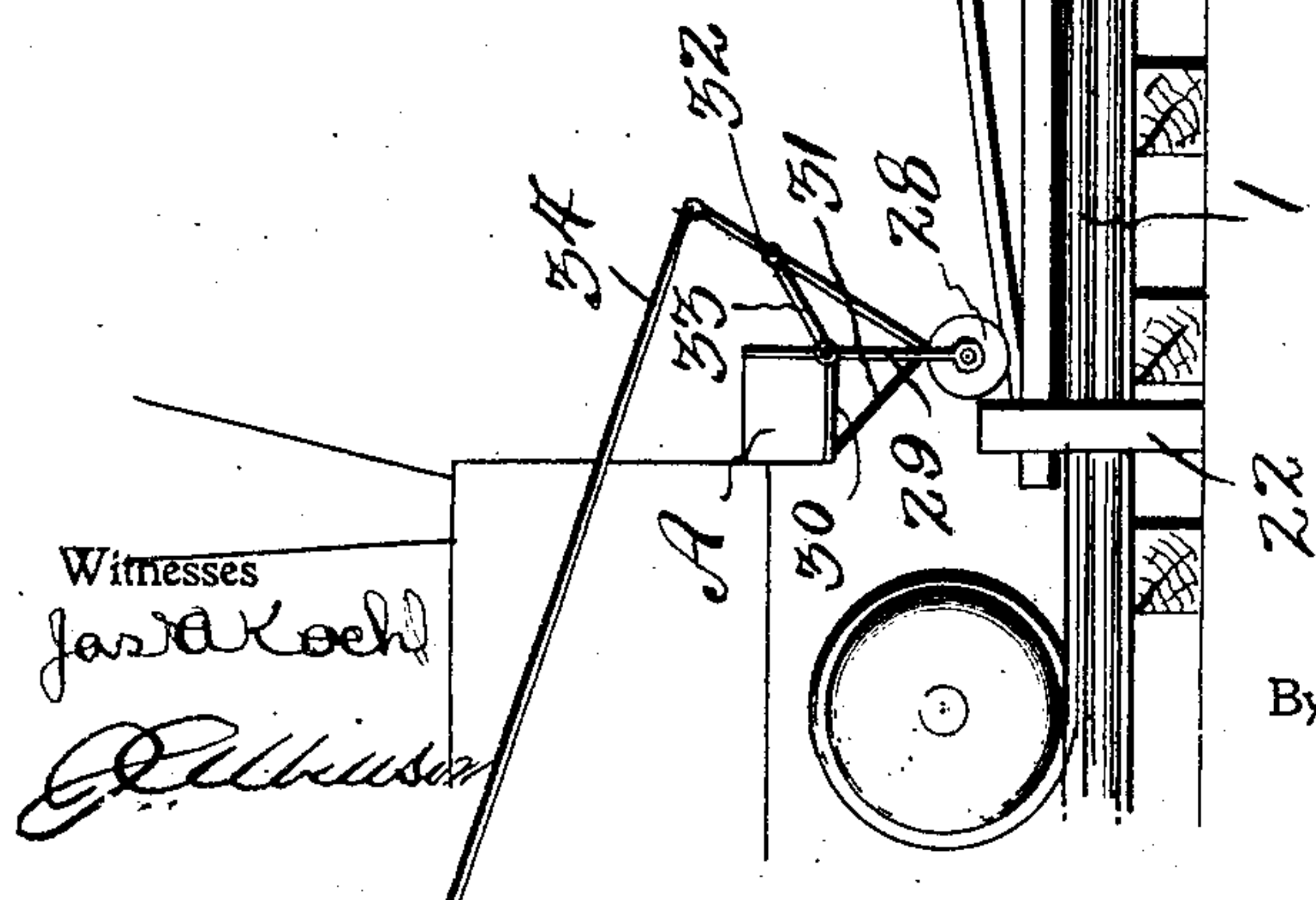
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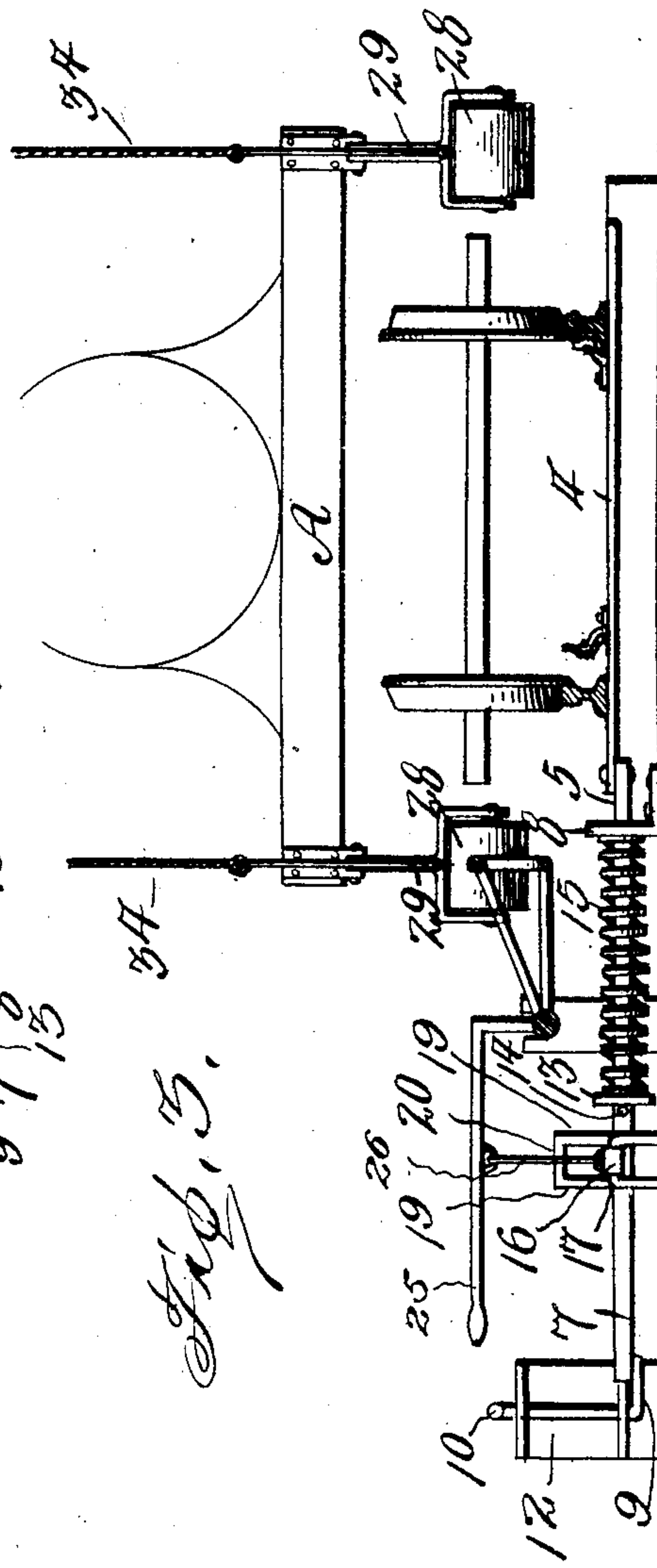
2 SHEETS—SHEET 2.

*Fig. 2.*



Witnesses  
*Jas. A. Koch*  
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*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

CHARLES LEE, OF SAN ANTONIO, TEXAS.

## AUTOMATIC RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 777,960, dated December 20, 1904.

Application filed October 12, 1903. Serial No. 176,705.

*To all whom it may concern:*

Be it known that I, CHARLES LEE, 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 Automatic Railway-Switches; 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 relates to improvements in automatic switch-throwing mechanism for railways.

The object of the invention is to provide mechanism which may be operated by devices carried by a moving train to throw the switch-point and automatically close the switch on the main-line tracks should the same have been inadvertently left open.

Another object is to provide means whereby the switch may be operated by hand to open or close the same.

A further object is to provide such mechanism which will be simple in construction, strong and durable in use, positive in action, and which will be comparatively inexpensive of manufacture.

With these 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 top plan view of a portion of the main-line and switch tracks of a railway, showing the application of the switch-throwing mechanism. Fig. 2 is a side view showing the manner of operating the same. Fig. 3 is a sectional view through the tracks on the line 3 3 of Fig. 1 looking in the direction of the arrow and showing front end of a locomotive with the switch-operating devices in place. Fig. 4 is an enlarged view of one of the operating devices carried by the locomotive.

Referring more particularly to the drawings, 1 denotes the tracks of the main line; 2, the tracks of the switch or siding. 3 denotes the switch-points, connected by the usual bridle-rods 4 and switch-rod 5. These parts

may be of the usual or any suitable construction.

6 denotes the switch-throwing mechanism, consisting of an operating-bar 7, slidably mounted in a bearing or bracket 8 and having its inner end connected to the switch-rod 5 and its outer end connected to the crank-arm 9 of a hand operating-lever 10, which is pivoted in a supporting-bracket 12. The operating-bar 7 has arranged thereon a washer 13, which is held in place by a pin 14 and serves as a stop for a coiled spring 15, which is also arranged upon the bar 7 between said stop-washer and the bearing-bracket 8, the tendency of the spring being to normally retract the bar 7 and close the switch-points. To open the switch-points, the operating-lever 10 is actuated to turn the crank-arm 9 and force the bar 7 inwardly, thereby compressing the spring 15. In order to hold the switch open, a pivoted latch-bar 16 is provided, said bar being pivoted at one end, as at 17, and adapted to drop into engagement with a notch 18, formed in the bar 7, thereby holding said bar in and the switch-points open. The free end of the latch-bar 16 is guided and limited in its upward movement between guide-bars 19, connected at their upper end by a cross-piece 20. When the latch-bar is raised out of the notch 18, the spring 15 will retract the bar 7 and close the switch-points. In order that the latch-bar may be raised and the operating mechanism released by a moving train, a tripping mechanism is employed, which consists of a horizontally-disposed longitudinally-arranged rock-shaft 21. Said shaft is loosely mounted in bearings 22 along the side of and at a suitable distance from the tracks. Fixed to said rock-shaft are laterally-projecting arms 23, connected at their outer ends by a longitudinally-disposed curved trip-rod 24, which lies along the line of and adjacent to one of the track-rails.

25 denotes a crank arm or lever connected at one end to the rock-shaft 21 and projecting laterally therefrom in a direction opposite to that of the arms 23 and over the latch-bar 16 and is connected to said bar by a link or rod 26. The free end of the arm 25 projects beyond its connection with the link 26



and forms a handle 27, by which the latch-bar 16 may be raised out of the notch.

Any suitable means carried by the locomotive may be employed to actuate the trip mechanism to close said switch-points. In the present instance a roller 28 is employed, said roller being journaled in the lower end of an arm or bar 29, which is hinged at its upper end to the forward sill A of the locomotive near the end of the same. The bar 29 is provided with a rearwardly-projecting right-angularly-disposed arm 30, which forms a stop to engage the under side of the sill A and limit the rearward movement of the roller 28. The end of the arm 30 and the bar 29 are connected by a back brace 31.

32 denotes an upwardly-projecting inclined bar or lever connected at its lower end to the lower end of the bar 29 and having its upper end connected to and braced by an inclined brace-bar 33, which projects from the upper end of the bar 29, as shown. An operating-cord 34 has one end connected to the upper end of the bar or lever and its opposite end extending back in position to be grasped by the engineer in the cab.

It will be understood that the means for actuating the tripping mechanism, as just described, is arranged on both sides of the locomotive, so that the tripping mechanism, which is arranged on both sides of the track, may be actuated by a train when going in either direction.

The operation is as follows, it being understood that the means carried by the locomotive for actuating the tripping mechanism is normally in position to engage the same at all times. In this position as a train approaches a siding where the switch-points have been inadvertently left open one of the rollers 28 will engage the lower end of the curved trip-rod 24 and ride upon and force the same downwardly, thereby turning the rock-shaft 21 through the arms 23 and raising the crank arm or lever 25, which in turn raises the link 26 and latch-bar 16 out of the notch 18, thereby releasing the operating-bar 7 and permitting the spring 15 to retract the same and close said switch-points, allowing the train to pass along the main-line track. Should it be desired at any time to run the train onto the siding, the engineer may pull upon the cord 34 and swing the arm 28 and roller 29 upwardly out of the path of the curved rod or bar 24, thereby preventing the actuation of the tripping mechanism and the consequent closing of the switch-points. After the switch-points have been closed either automatically or by hand they may be opened and reset by actuating the operating-lever 10

to turn the crank and force the operating-bar 7 inwardly until the latch-bar 16 drops into the notch 18, which will hold the parts in place with the switch-points in open position. The latch-bar may at any time be raised by hand by grasping the handle 27 of the lever 25 and raising the same, thereby lifting the latch-bar 16 out of the notch 18 in the bar 7 and permitting the spring to actuate the same, as has been hereinbefore described.

From the foregoing description, taken in 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, 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 thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In combination with the switch-points of a railroad-track, a longitudinally-movable operating-bar connected thereto, a spring to close the switch-points, a latch-bar coacting with the operating-bar to lock the latter in position to hold the switch-points open, against the tension of the spring, a rocking element on one side of the track, pivoted on an axis parallel to the track-rails, said rocking element having a longitudinally-disposed trip-bar oppositely inclined toward its ends, connections between said rocking element and the latch-bar, to operate the latter, and means carried by a moving train, to depress said trip-bar and hence turn said rocking element, to disengage the latch-bar from the operating-bar, substantially as described.

2. In combination with the switch-points of a railway-track, a longitudinally-movable operating-bar connected thereto, a spring to close the switch-points, a latch-bar coacting with the operating-bar to lock the latter in position to hold the switch-points in open position against the tension of the spring, and a train-operated rocking element extending longitudinally of the track in opposite directions from the operating-bar and having a handle, the latter being connected to the latch-bar for the purpose set forth, substantially as described.

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

CHARLES LEE.

Witnesses:

W. NOONAN,  
C. G. CARTTAR.