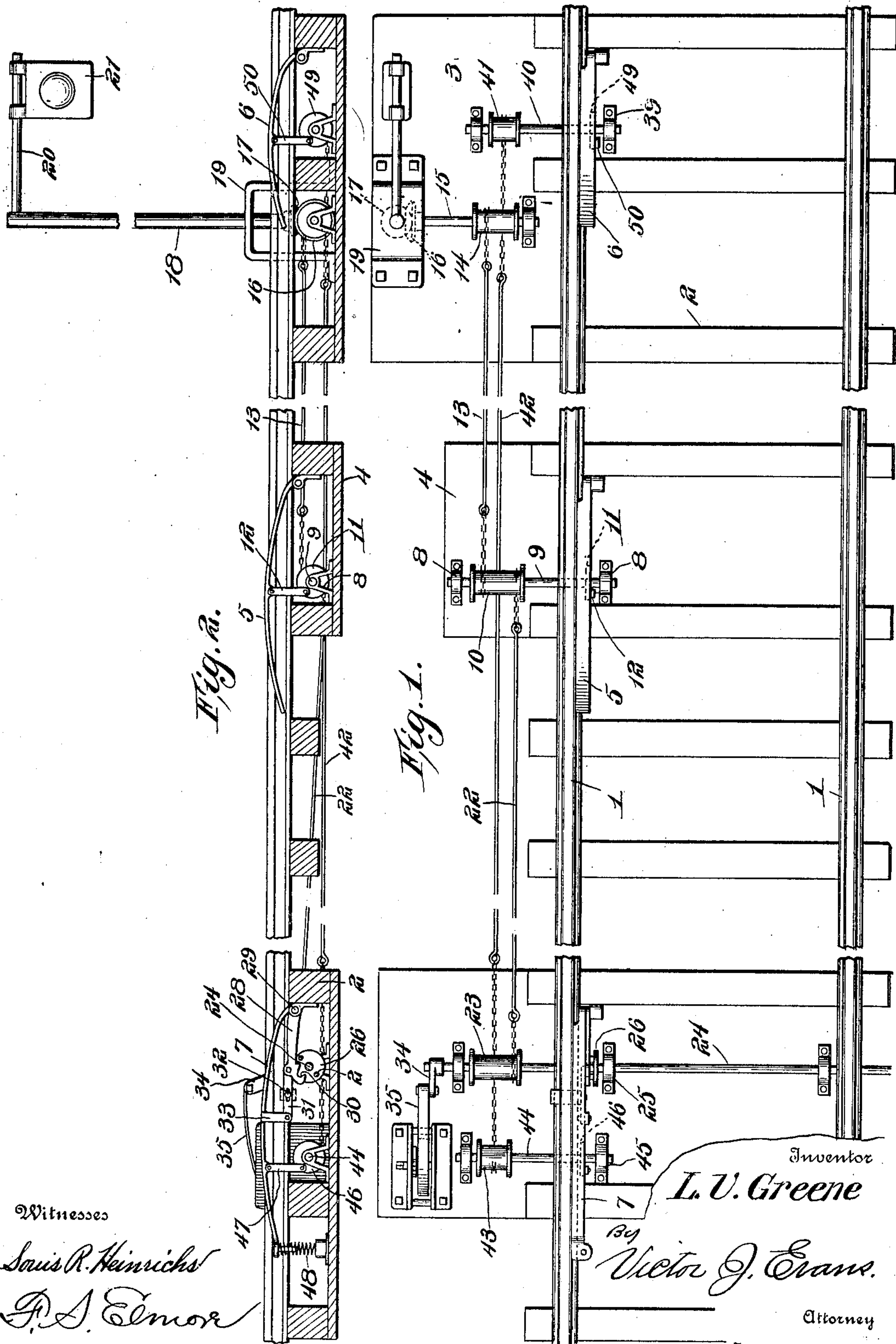


No. 827,628.

PATENTED JULY 31, 1906.

L. V. GREENE.  
SAFETY BLOCK SIGNAL.  
APPLICATION FILED APR. 28, 1906.

2 SHEETS—SHEET 1.



No. 827,628.

PATENTED JULY 31, 1906.

L. V. GREENE.  
SAFETY BLOCK SIGNAL.  
APPLICATION FILED APR. 28, 1906.

2 SHEETS—SHEET 2.

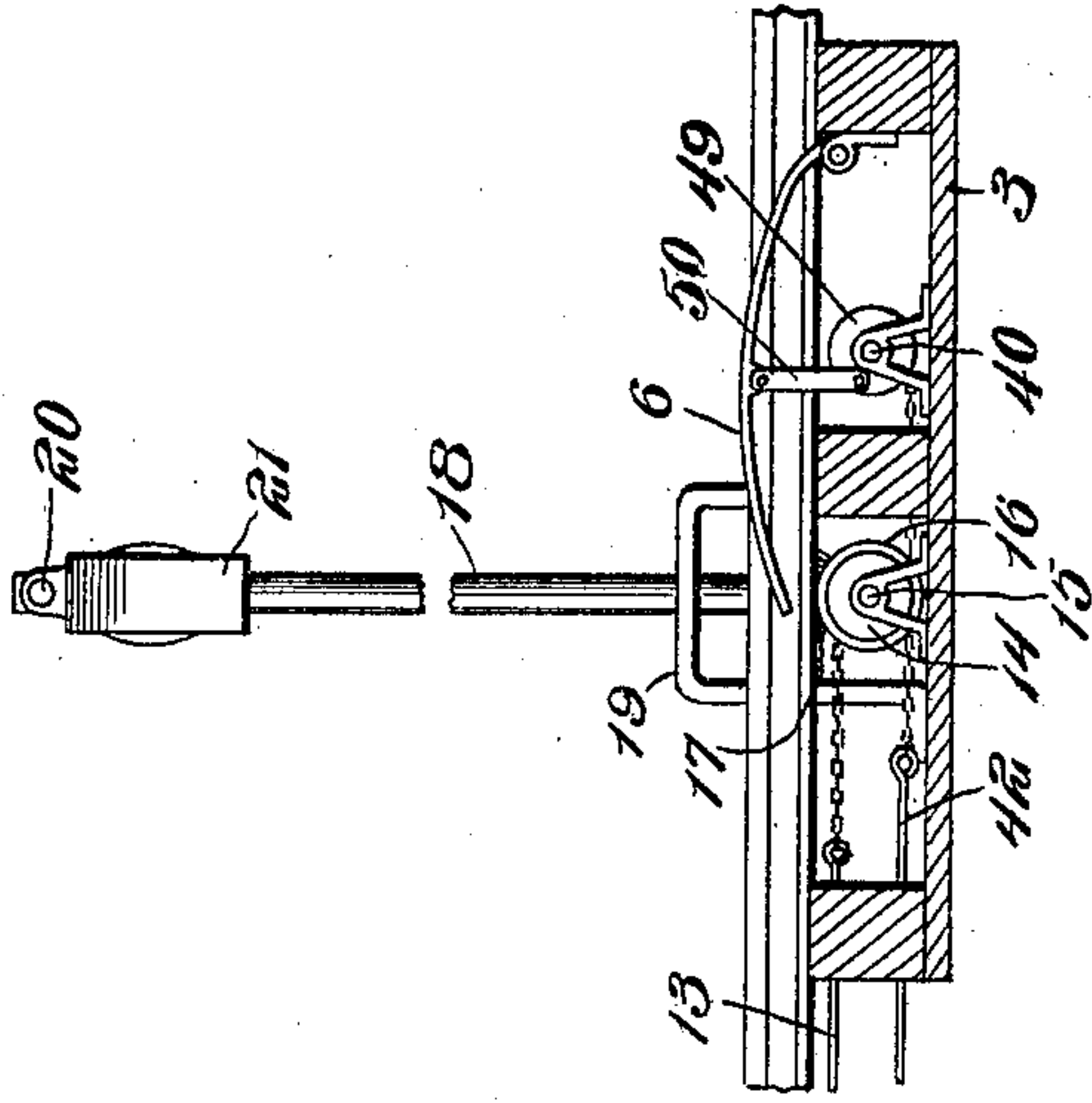


Fig. 3.

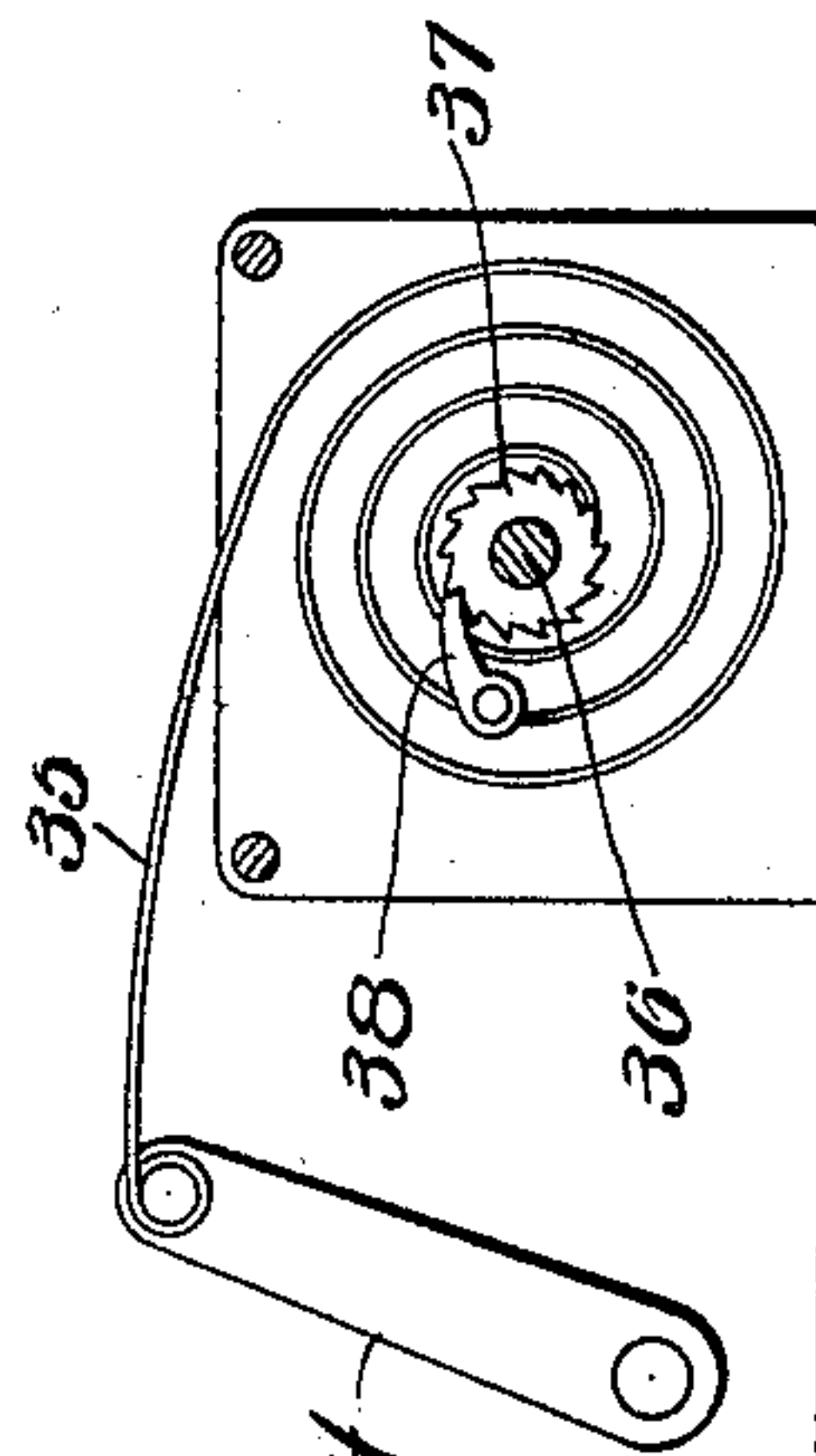
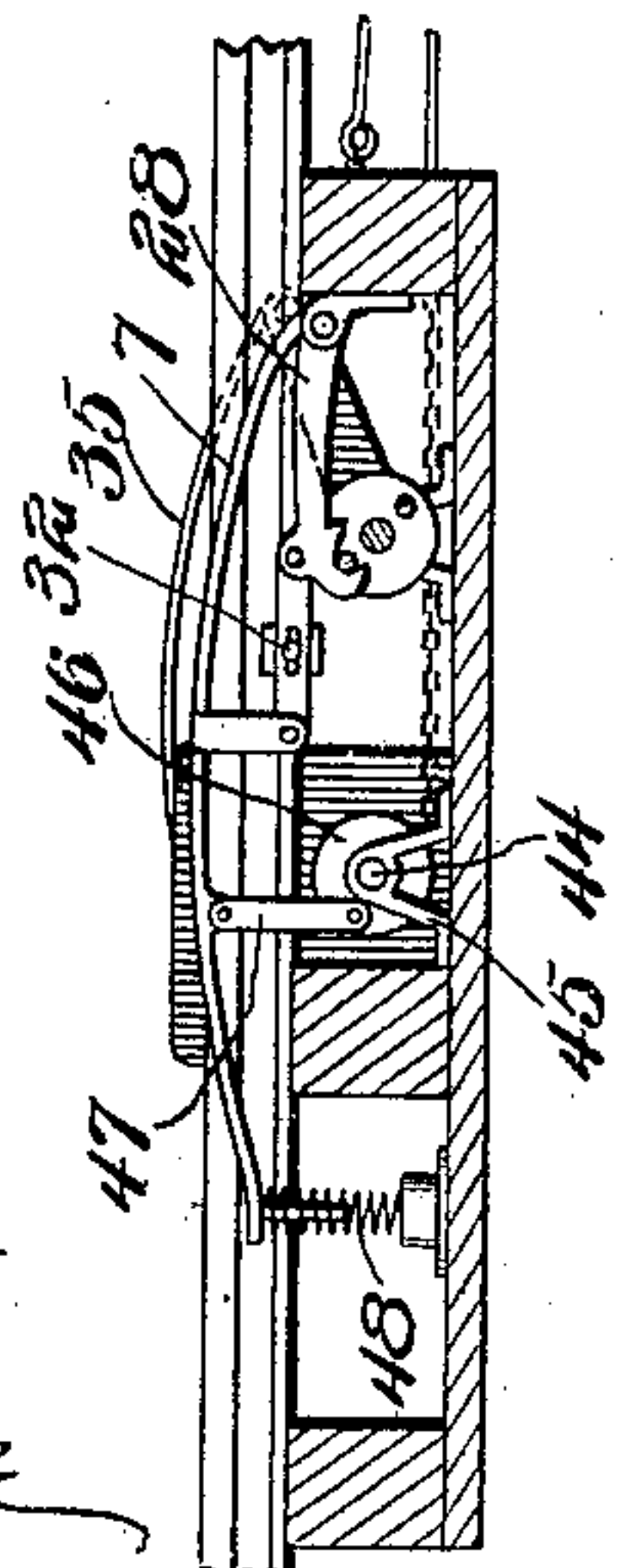
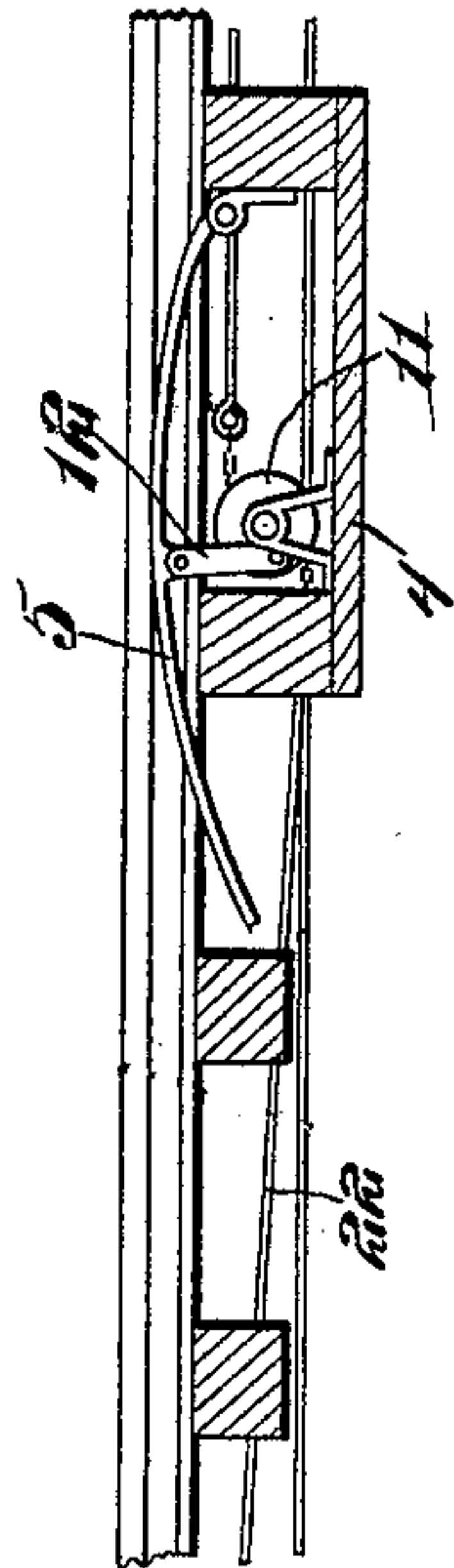
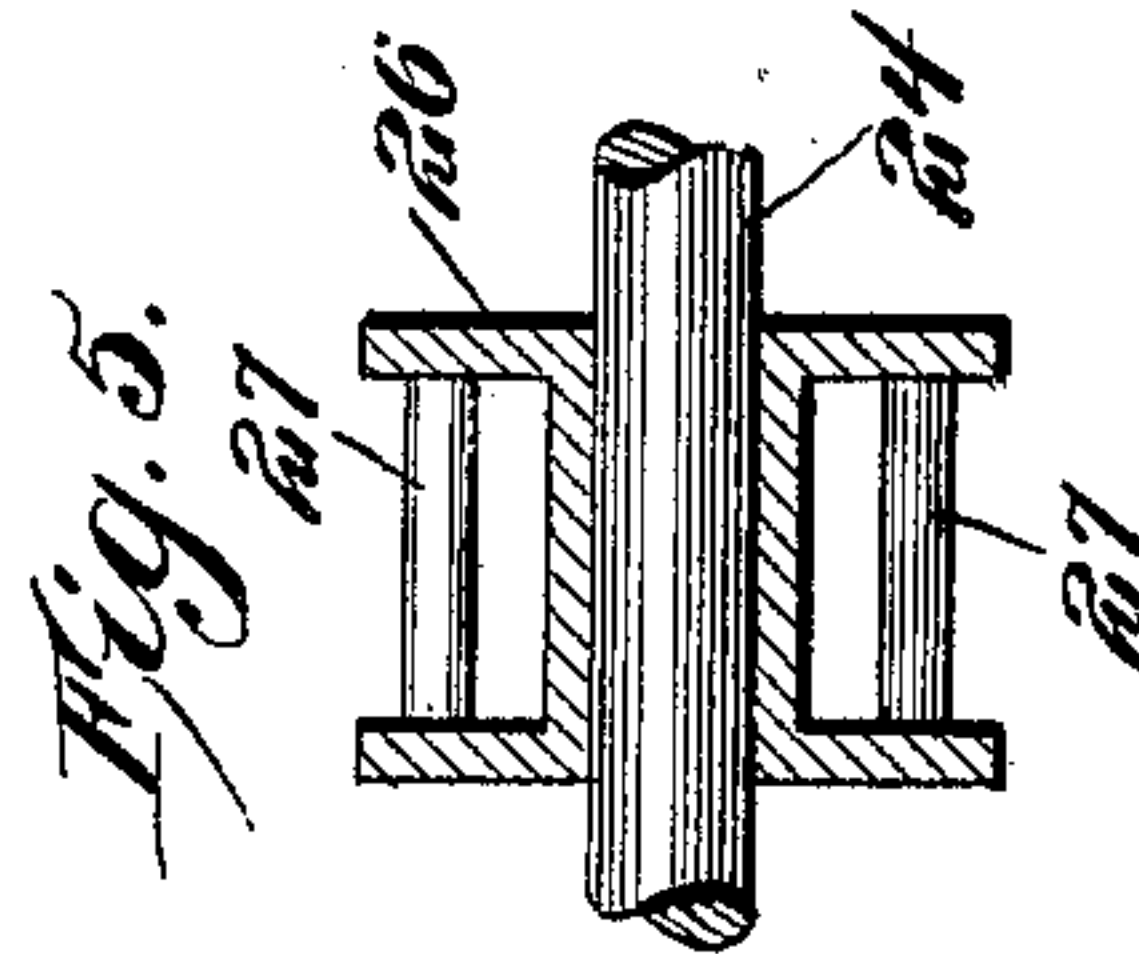


Fig. 4.



Witnesses

Louis R. Heinichs  
J. S. Elmore

Inventor  
Lonzo V. Greene

By Victor J. Evans.  
Attorney



# UNITED STATES PATENT OFFICE.

LONZO V. GREENE, OF WEBSTER, MASSACHUSETTS.

## SAFETY BLOCK-SIGNAL.

No. 827,628.

Specification of Letters Patent.

Patented July 31, 1906.

Application filed April 28, 1906. Serial No. 314,319.

*To all whom it may concern:*

Be it known that I, LONZO V. GREENE, a citizen of the United States of America, residing at Webster, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Safety Block-Signals, of which the following is a specification.

This invention relates to railway-signals, being especially directed to mechanism for operating the signals, and has for its objects to produce a comparatively simple device of this character which may be readily and inexpensively installed for use, one wherein a train on entering a track-section or block will automatically set the signals at the ends of the block, one in which the signals will when so operated be automatically locked in position, and one wherein the train on leaving the block will release the signals for automatic return to normal or non-danger position.

With these and other objects in view the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a plan view of a portion of a railway-track equipped with a signal-operating mechanism embodying the invention. Fig. 2 is a vertical longitudinal section taken on a line centrally between the rails and showing the parts in normal position. Fig. 3 is a similar view showing the signal set and locked in danger position. Fig. 4 is a detail view of the actuating-spring. Fig. 5 is a detail sectional view of one of the locking-heads.

Referring to the drawings, 1 1 designate the railway-rails sustained by cross-ties 2, there being attached to certain of the ties at the ends of the track-section or block base-plates 3 and at a point adjacent the center of the block a base-plate 4, which together with the plates 3 is disposed at the outer side of one of the rails, at the inner side of which there is arranged a signal-setting lever 5, situated opposite the plate 4, and a pair of releasing-levers 6 and 7, situated, respectively, opposite the plates 3, it being noted that the levers, which are upwardly curved or arched, lie in contact with the inner side of the rail in position to be depressed by the wheel-flanges and are each pivoted at one end to one of the cross-ties 2.

Journalled in bearings 8 on the base-plate 4 is a rotary shaft 9, carrying a drum 10 and

provided with a fixed annular head or disk 11, to which is eccentrically pivoted one end of a link 12, having its other end pivoted to and adjacent the longitudinal center of the lever 5, there being engaged with the drum 10 one end of a flexible traction element 13, having its other end engaged with a drum 14, carried by a signal-operating shaft 15, journaled in suitable bearings on one of the plates 3 and equipped with a bevel-gear 16 in mesh with a bevel-pinion 17, fixed on the lower end of a vertical rotary standard 18, sustained in a bearing 19 and provided at its upper end with a horizontal arm 20, carrying a signaling member or lamp 21. It will be noted that when the lever 5 is depressed the shaft 9 will be rotated in a direction for exerting traction on the element 13 to rotate the shaft 15 from right to left and swing the arm 20 across the track.

Attached to the drum 10 is one end of a second traction element 22, having its other end engaged with a drum 23, carried by a signal-operating shaft 24, journaled in suitable bearings 25 and extended transversely across the track for operating a second signal (not shown) and to which it is connected in the manner above described, there being fixed on the shaft 24 a member or head 26, constituting a keeper and provided with engaging portions or spokes 27, adapted for engagement by a locking member or lever 28, pivoted, as at 29, to one of the ties 2 and having its outer end, which is provided with a recess 30, pivoted to one end of a tripping-lever 31, in turn pivoted at its longitudinal center, as at 32, and having its other end pivoted to a depending arm 33, provided on the releasing-lever 7, while fixed on the outer end of shaft 24 is a crank-arm 34, engaged with a clock-spring 35, wound upon a shaft 36, sustained in suitable bearings and carrying a ratchet 37, adapted for engagement by a pawl 38 to hold the spring-carrying shaft or arbor against rotation. It is apparent that when the shaft 9 is rotated, as before explained, traction will be exerted on the element 22 for rotating shaft 24 to set the other signal, as in the instance of the signal 20, and at the same time place the actuating-spring 35 under tension for action to return the parts to normal position, and, furthermore, that the locking member 28 will move by gravity into engagement with one of the spokes 27 for locking the shaft 24 against movement and with the signals set in dan-



ger position, the locking member being moved for releasing the signals and to permit their automatic return to normal position under the influence of spring 35 by means of the lever 7, which when depressed rocks the tripping-lever 31 on its pivot and lifts the locking member out of engagement with the keeper.

Rotatively mounted in bearings 39 at a point adjacent the shaft 15 is an auxiliary shaft 40, carrying a drum 41, with which is engaged one end of a traction element 42, having its other end engaged with a drum 43, carried by a second auxiliary shaft 44, journaled in bearings 45 adjacent the shaft 24 and carrying an annular head or disk 46, to which is eccentrically pivoted one end of a link 47, having its other end pivoted to the lever 7, the free end of which is yieldably sustained by a vertical spring 48, there being fixed upon the shaft 40 a disk-like head 49, to which is pivoted one end of a link 50, having its other end pivoted to the lever 6. It will be noted that under this arrangement when the lever 6 is depressed shaft 40 will be rotated in the proper direction for exerting traction on the element 42 to rotate shaft 44 from right to left and through the medium of head 46 and link 47 depress lever 7 for operating the locking member 28 in the manner heretofore explained, whereby provision is made for releasing the signals upon the train leaving the track-section or block in either direction.

It may be stated briefly that in practice when the train has entered and reaches the center of the block the lever 5 will be depressed, thereby operating the mechanism to set the signals at opposite ends of the block to danger position, in which condition they will be locked through engagement of member 28 with the keeper 26 and will remain in

locked condition until one or the other of the levers 6 and 7 is operated by the train passing out of the block, as heretofore explained.

Having thus described my invention, what I claim is—

1. In a signaling device, a pair of rotary signal-operating shafts, an intermediate setting-shaft operatively connected with the operating-shafts, a track-lever connected for actuating the setting-shaft, means for locking one of the shafts against movement with the signals in set position, and track-levers disposed at the ends of the block and connected for operating said means to release the shaft.

2. In a signaling device, a pair of rotary signal-operating shafts, means including a track-lever disposed between said shafts for operating them to set the signals, locking means for holding the signals in danger position, means including track-levers for releasing the signals, and means for returning the signals automatically to normal, non-danger position.

3. In a signaling device, a pair of rotary signal-operating shafts, an intermediate setting-shaft, operative connections between the setting and operating shafts, a track-lever disposed and connected for actuating the setting-shafts, a locking member adapted for engagement with one of the shafts to lock the signals in danger position, mechanism including track-levers for operating the locking member to release the signals, and means for returning the signals to normal position.

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

LONZO V. GREENE.

Witnesses:

JOHN L. FLETCHER,  
K. ALLEN.