

No. 819,278.

PATENTED MAY 1, 1906.

J. McE. HUEY.

BLOCK SIGNALING AND SAFETY SYSTEM.

APPLICATION FILED FEB. 14, 1905.

2 SHEETS—SHEET 1.

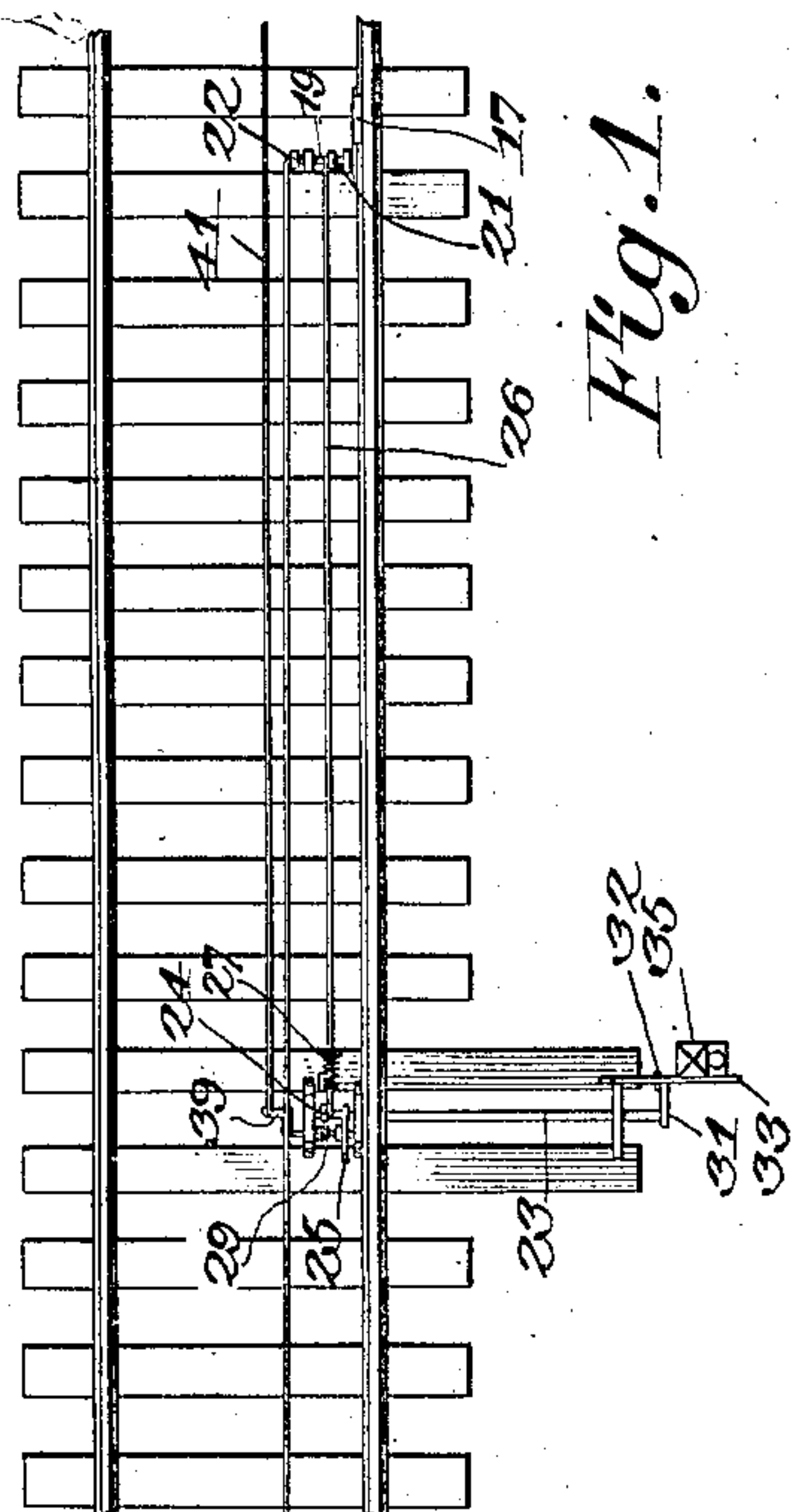


Fig. 1.

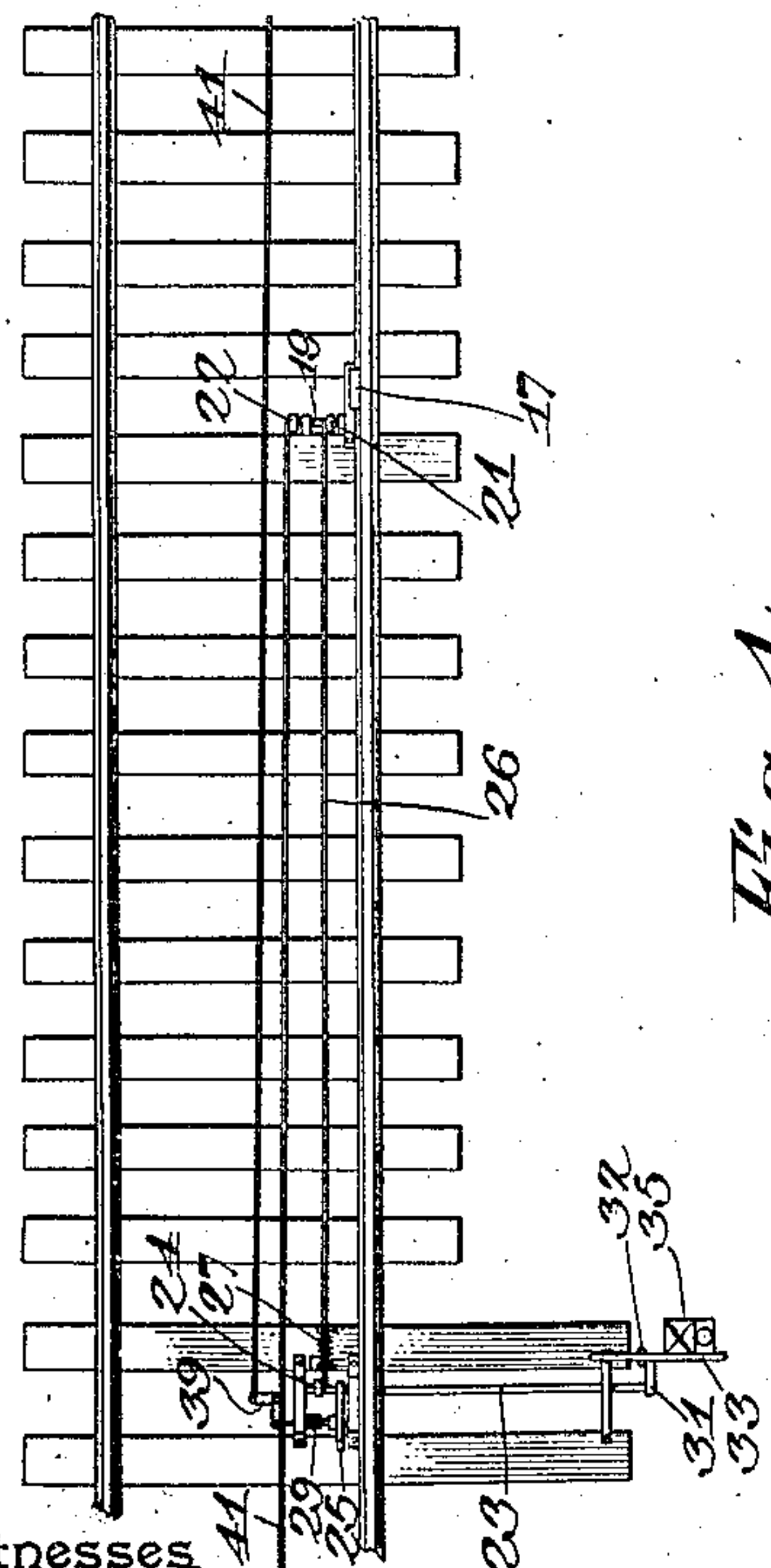


Fig. 4.

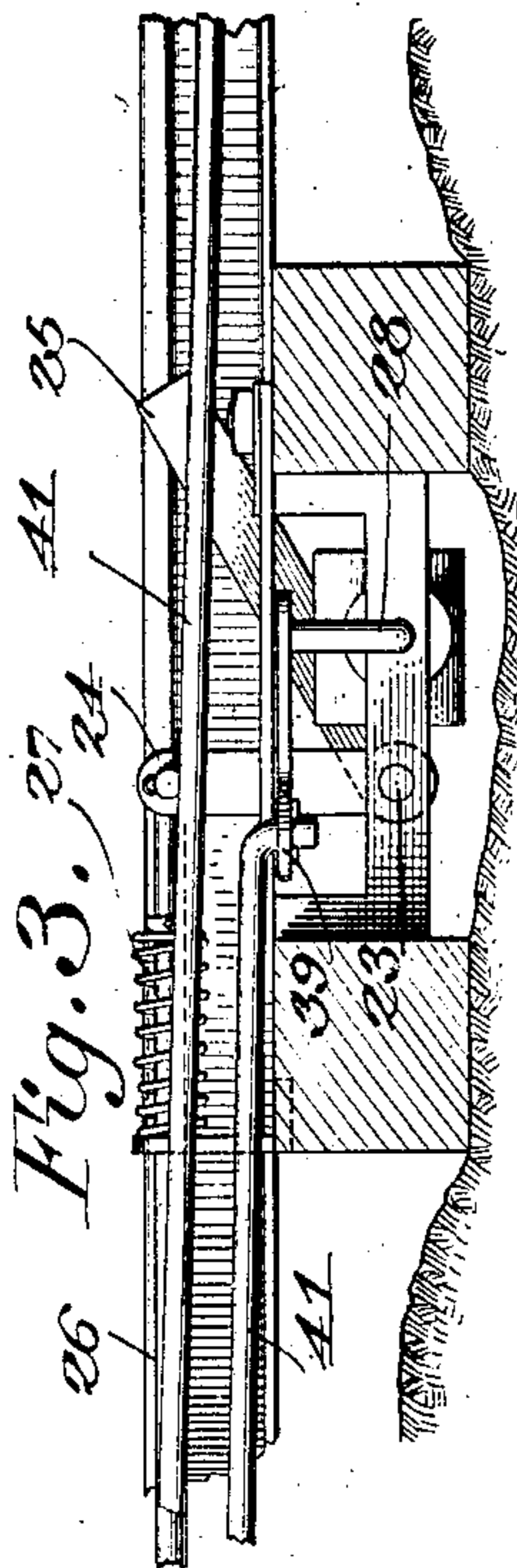
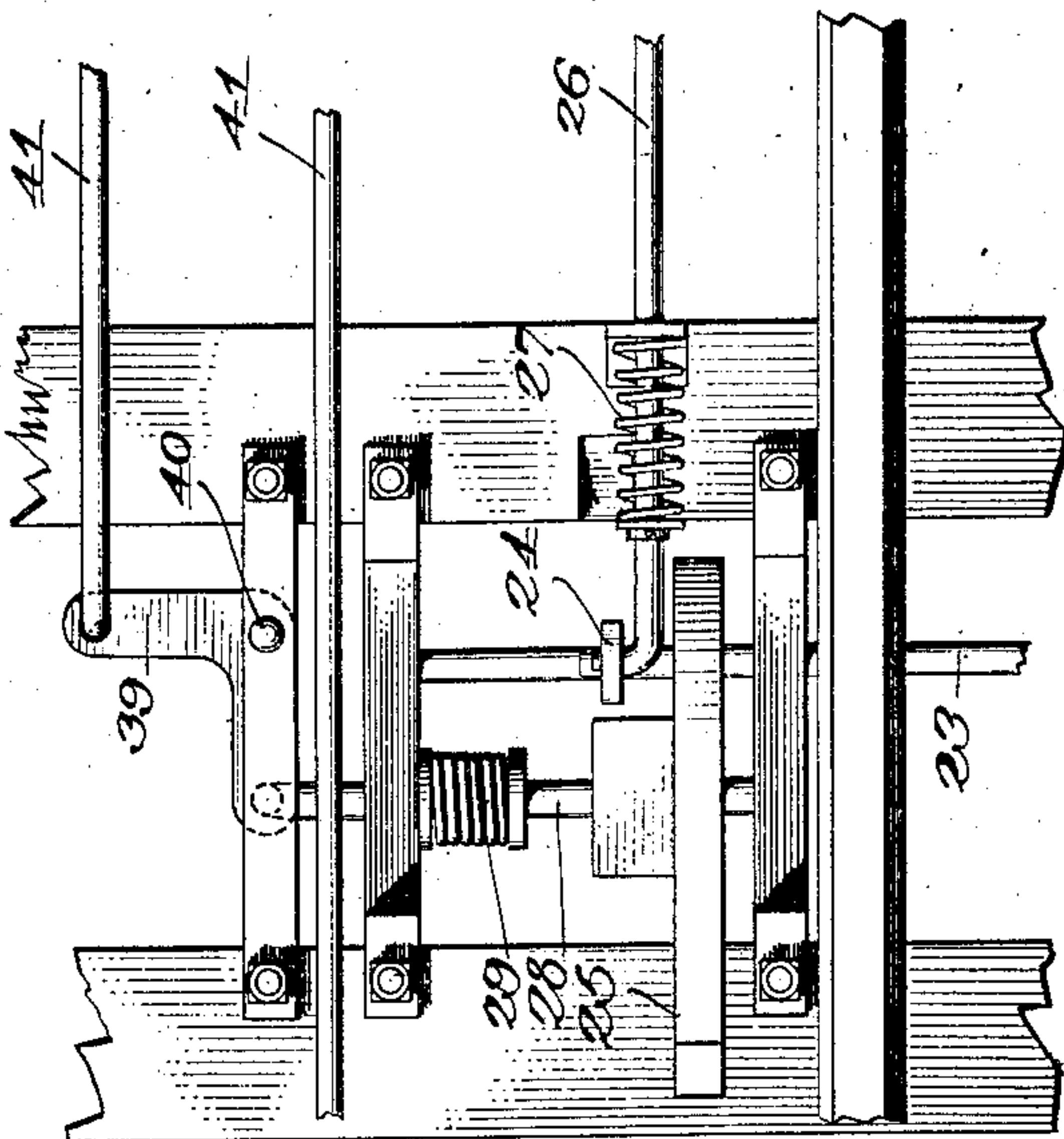


Fig. 3.



Witnesses

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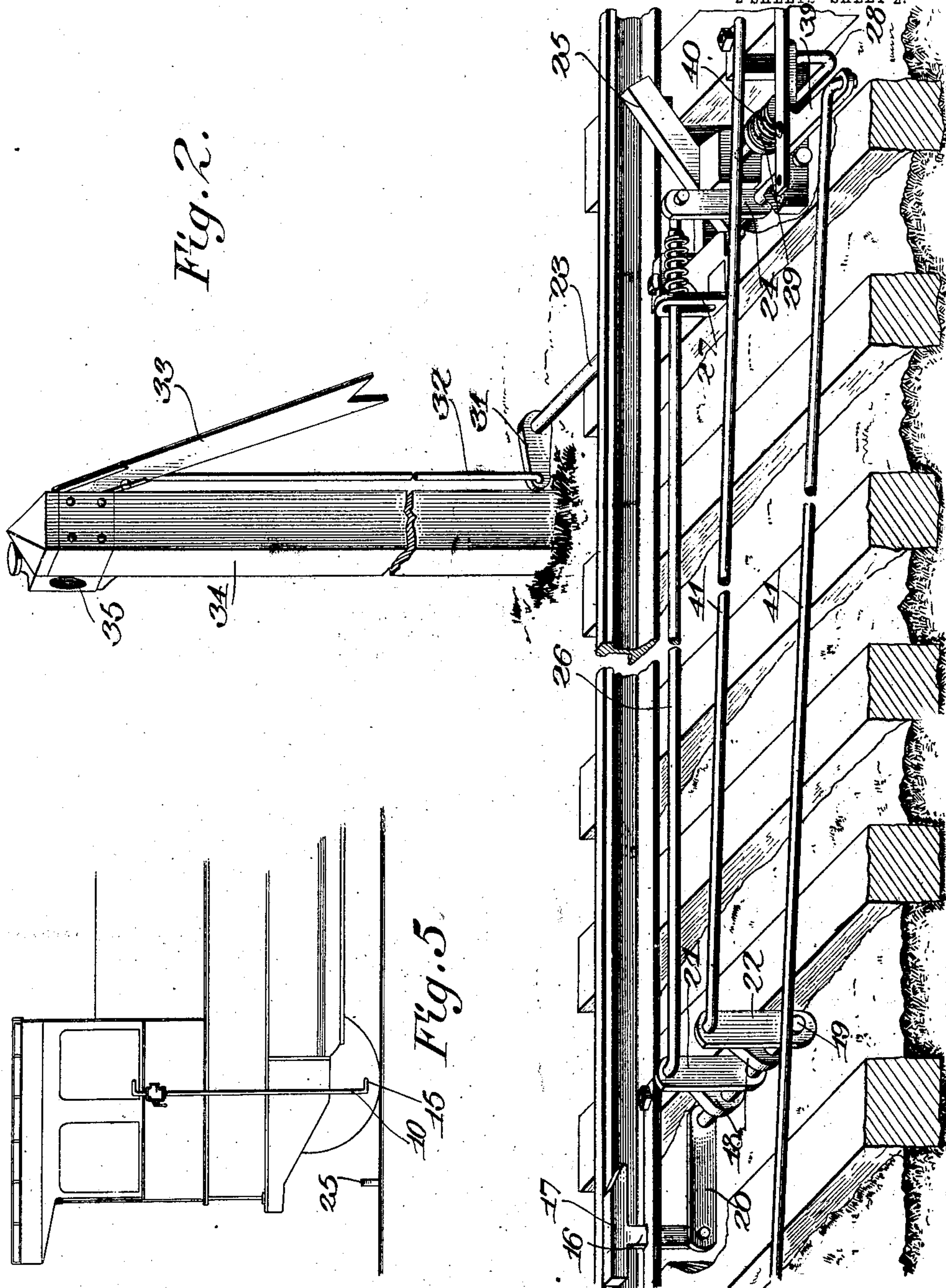
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Witnesses

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UNITED STATES PATENT OFFICE.

JAMES McENERY HUEY, OF RUSTON, LOUISIANA.

BLOCK SIGNALING AND SAFETY SYSTEM.

No. 819,278.

Specification of Letters Patent.

Patented May 1, 1906.

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To all whom it may concern:

Be it known that I, JAMES McENERY HUEY, a citizen of the United States, residing at Ruston, in the parish of Lincoln and State of Louisiana, have invented a new and useful Block Signaling and Safety System, of which the following is a specification.

This invention relates to signaling and safety appliances for use in connection with railways, and has for its principal object to prevent rear-end collisions by rendering it impossible for a train to enter an occupied block.

A further object of the invention is to provide means whereby a train on entering a block will move to display position a signal at the entrance of said block, thereby warning a following train that the block is already occupied.

A still further object of the invention is to provide means whereby a train occupying one block may adjust mechanism in a following block or at the entrance of the same block that will automatically set the brakes of a train about to enter the block should the engineer disregard the danger-signal.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a plan view, partly in the nature of a diagram, illustrating a block signaling and safety system arranged in accordance with the invention. Fig. 2 is a detail perspective view of the mechanism belonging to each block. Fig. 3 is a detail sectional view illustrating particularly the construction and mounting of the rocker-arm which actuates the air-brakes. Fig. 4 is a plan view of the same. Fig. 5 is a detail view illustrating the mechanism carried by the locomotive for setting the brakes.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

Each of the trains on the road is provided

with a vertically-disposed shaft 10, adapted to suitable bearings carried by the frame of the engine and extending up into the cab, where its upper end is connected to the operating-lever of the engineer's brake-valve, so that when the brake-valve is operated either to set or release the brakes the shaft will be turned. At the lower end of the shaft is a crank-arm 15, that normally occupies a position at a right angle to the direction in which the train is running, while the brakes are in normal position. Should this crank-arm strike any obstruction on the road-bed, it will be turned to a predetermined extent, and this movement will be transmitted, through the shaft 10, to the engineer's brake-valve, moving the latter for either a service or emergency stop, as may be desired. When the engineer turns the handle of the brake-valve to release position, the crank-arm 15 is again adjusted to a position transversely of the track in readiness for a subsequent operation. The obstructions or crank-engaging members are moved automatically into and out of operative position by the moving trains.

At the entrance of each block is arranged a vertically-guided arm 16, to the upper end of which is secured a cam-shaped head 17, that is placed parallel with and close to the inner side of one of the traffic-rails in a position to be engaged and depressed by the flanges of the forward truck of the locomotive. At a point adjacent to the arm 16 and supported by suitable brackets 18 is a transversely-disposed shaft 19, carrying a horizontally-disposed rocker-arm 20, that is connected to the lower end of the arm 16, and said shaft is further provided with two rocker-arms 21 and 22, that normally rest in a vertical position.

At a short distance from the shaft 19 is arranged a second transversely-disposed shaft 23, that is provided with a vertically-disposed rocker-arm 24 and a rocker-arm 25, that normally assumes a position oblique to the horizontal. The rocker-arms 21 and 24 are connected by a rod 26, around which extends a helical spring 27, that normally tends to maintain the arm 25 in the oblique position. This arm 25 when moved to vertical position constitutes the obstruction hereinbefore referred to and when in vertical position is arranged in the path of the crank-arm 15, so that if struck by the latter the brakes of a passing train will be set and the train stopped. At a point adjacent to the shaft 23 are arranged guides for a longitudinally-

slidable locking-bar 28, that is normally pressed in the direction of the arm 25 by means of a spring 29, and when said arm is moved to the vertical position the spring acts to project the locking-bar into engagement with the normally lower side of said arm, and thus maintain the arm in vertical operative position.

The shaft 23 is projected some distance beyond the ends of the rail-supporting ties and at its outer end carries a rocker-arm 31, that is connected by a rod 32 to a semaphore-arm 33, the latter being pivoted on a post 34 and carrying the red or danger lens 35, which may be moved opposite the lamp supported by the post. When the shaft is actuated to move arm 25 to vertical position, the movement is transmitted also to the semaphore-arm and the latter moved to display position, and its red lens moves in front of the light, so that an approaching train will be warned of danger ahead.

Each of the slidable locking-rods 28 is connected to one arm of a bell-crank lever 39, pivoted on a stud 40, the opposite arm of said bell-crank lever being connected by a rod 41 to the rocker-arm 22 of the operating mechanism belonging to the block ahead, so that each time a train enters a block and actuates the mechanism disposed therein movement will be transmitted, through the rod 41, to the bell-crank lever 39 at the entrance of the block immediately behind, and the slidable locking-bar 28 will be withdrawn from under the arm 25, allowing spring 27 to return said arm to its normal oblique position.

In practice the heads 17 are placed at a distance from the shafts 23 greater than the distance between the forward wheels of the locomotive-truck and the valve-operating shaft 10 on the same locomotive. As each locomotive enters a block the flanges of its wheels will engage the head 17 and depress the same. This movement will be transmitted, through the arm 20, to the shaft 19, and the two rocker-arms 21 and 22 will be actuated. The movement of arm 21 will be transmitted, through the rod 26, to the rocker-arm 24, causing a partial rotation of the shaft 23 and movement of the arm 25 to vertical position, where it will engage the crank-arm 15 on any locomotive attempting to enter the block and will set the brakes. At the same time the signal will be moved to display position; but even if the engineer disregards or accidentally passes the signal the brakes of his train will be set and the train stopped. The movement is also transmitted, through rocker-arm 22 and rod 41, to the releasing device of the next following block, so that at the entrance of said following block the locking-rod 28 will be withdrawn, and the arm 25 will move to inoperative position, and at the same time the semaphore-arm will drop by gravity to safety position, movement of the parts being

assured by the weight of the semaphore-arm added to the stress of the spring 27.

Having thus described the invention, what is claimed is—

1. In block systems, a train-actuated member in each block, a train-engaging member arranged in each block, a connecting-rod extending between the two members, a spring tending to normally maintain the train-actuated member in operative position and the train-engaging member in inoperative position, an automatically-operated locking device arranged in each block for engaging and holding the train-engaging member in operative position, and means connecting the train-actuating means of each block to the locking device of the following block.

2. In block systems, a train-actuated means arranged in each block, a train-engaging member, and a semaphore-arm also arranged in each block and connected to said train-actuating means, an automatic locking device for holding both the train-engaging member and the semaphore-arm in adjusted position, and mechanism connecting the train-actuated means of each block to the locking device of the following block.

3. In block systems, the combination with a train-carried brake-setting device, of a rocker-arm movable to an upright position to engage said brake-setting device, a bar arranged to be engaged by the wheel-flanges of a train, a rock-shaft to which said bar is connected, a rocker-arm carried by said shaft and connected to the brake-operating arm, a second rocker-arm carried by the rock-shaft, a locking device engaging the brake-operating arm, and means connecting said second rocker-arm to the locking device.

4. In block systems, a vertically-guided bar arranged in each block and having a cam-shaped head to be engaged by the wheel-flanges of a train, a rock-shaft having three rocker-arms, one of which is connected to said bar, a second rock-shaft, a pair of arms carried thereby, one of which is movable to form a road-bed obstruction, a sectional rod including a spring member connecting the second rocker-arm of the first shaft to the second rocker-arm of the second shaft, a spring-pressed locking-bar adapted to automatically engage the road-bed-obstruction arm, a bell-crank lever connected to the locking-bar, a rod connecting said bell-crank lever to the third rocker-arm of the first-named rock-shaft, and a brake-setting member carried by the train and arranged to be engaged by the road-bed-obstruction arm.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES MCENERY HUEY.

Witnesses:

JAMES LAWRENCE,
T. E. JANSSEN.