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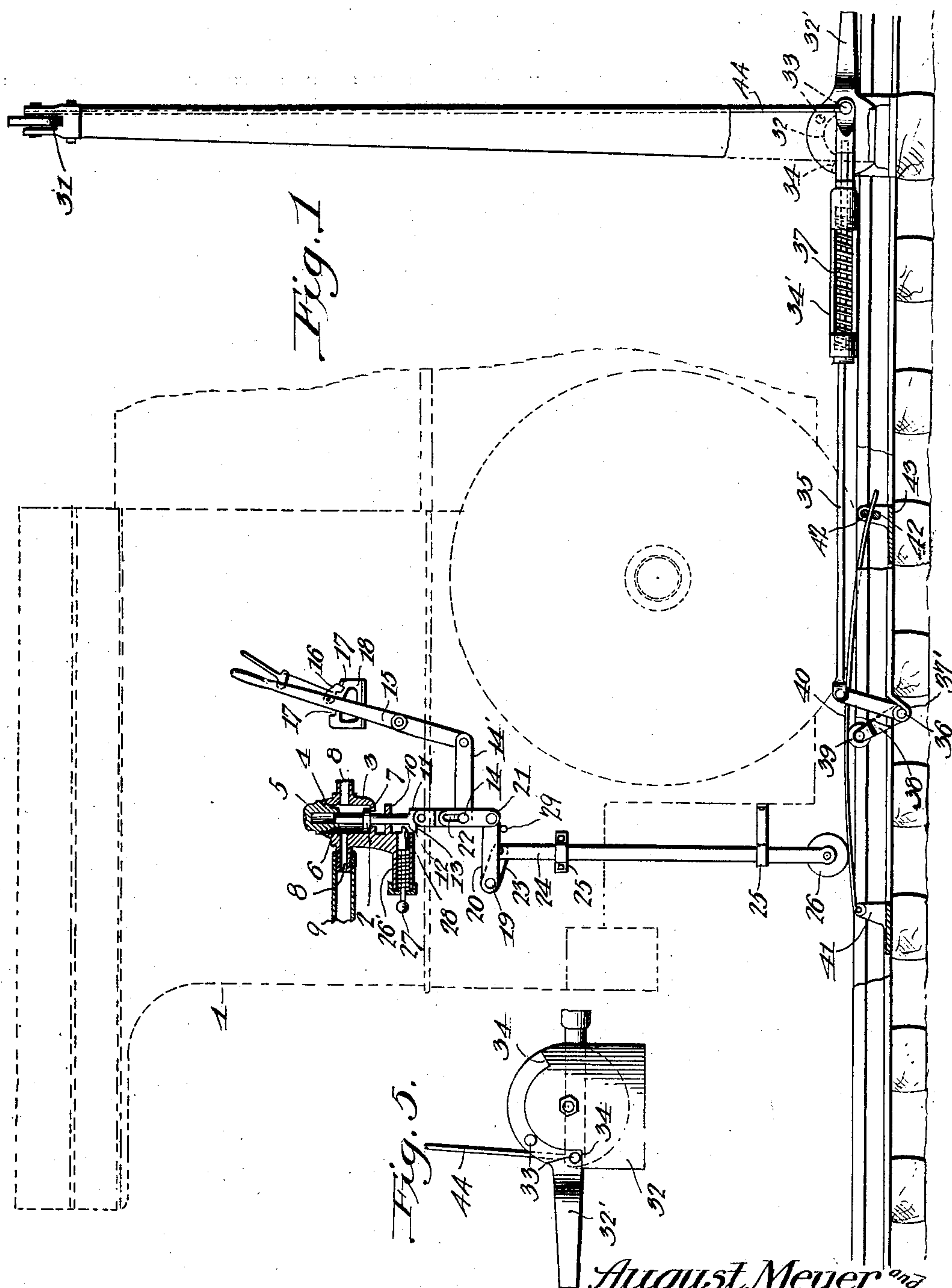
A. MEYER &amp; C. P. GERITZ.

# AUTOMATIC BRAKE APPLYING DEVICE FOR RAILROADS.

APPLICATION FILED APR. 30, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses

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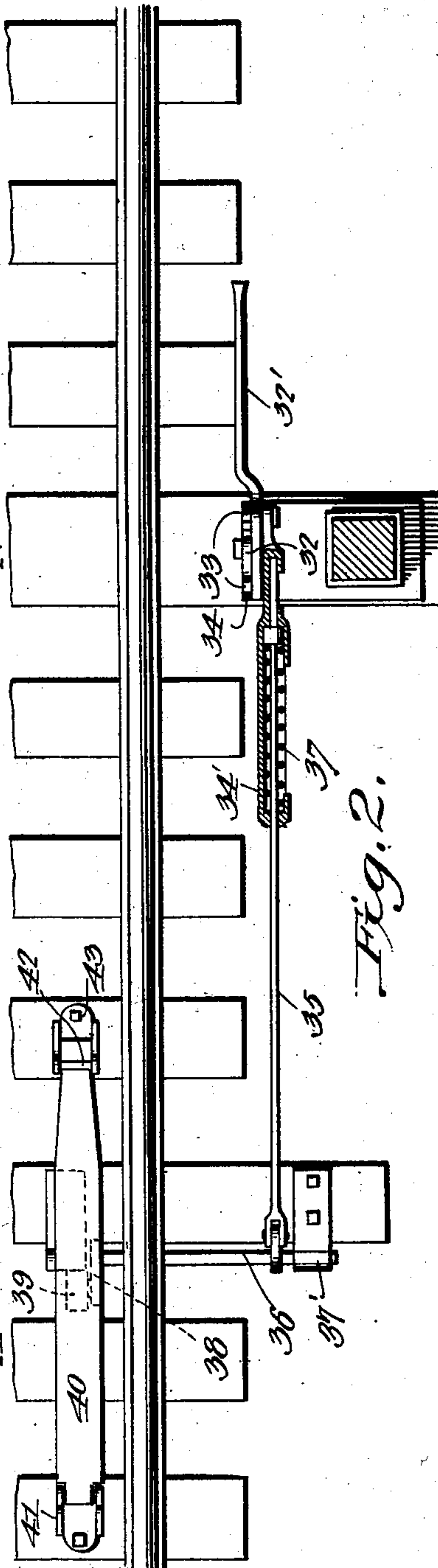
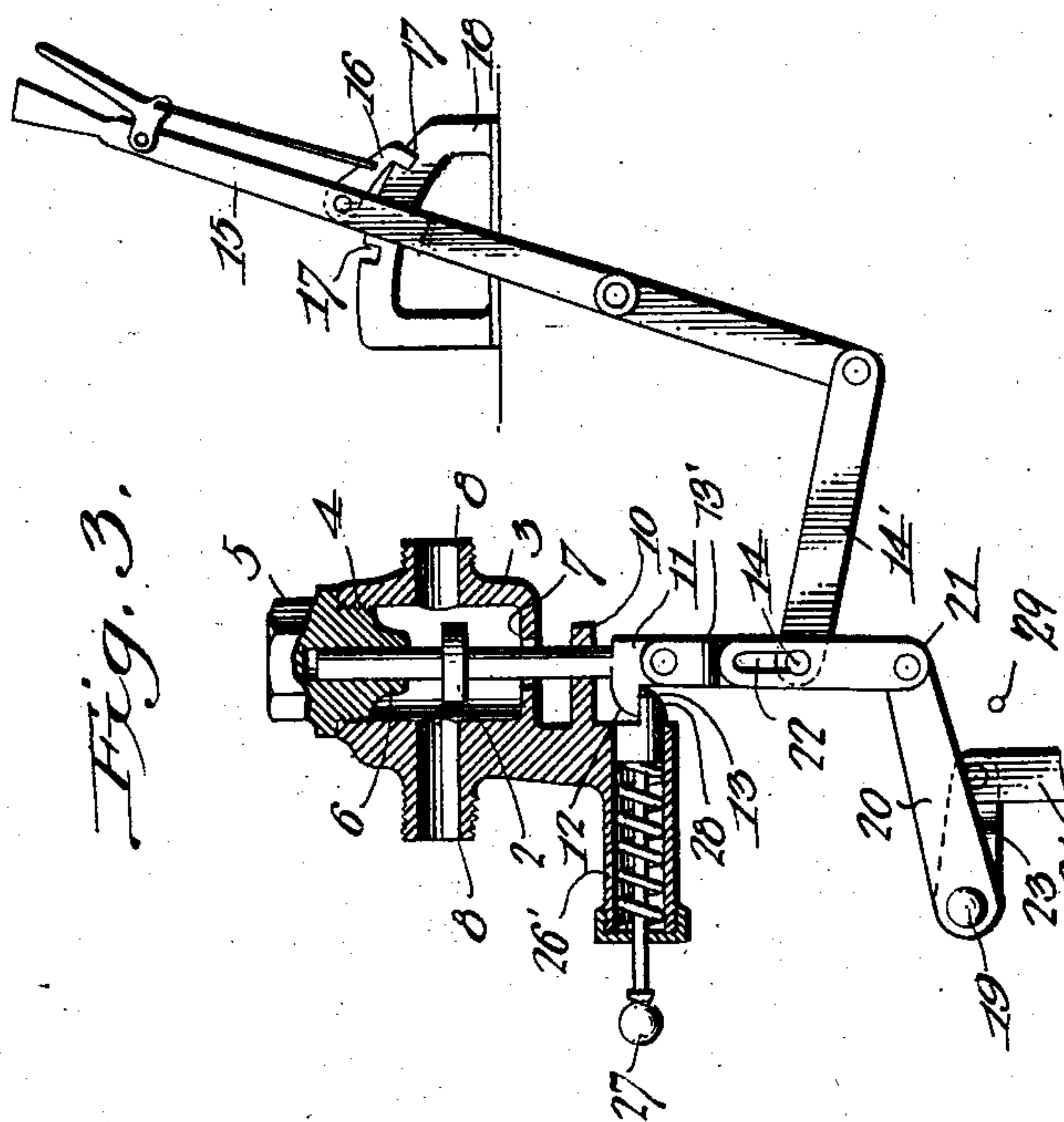
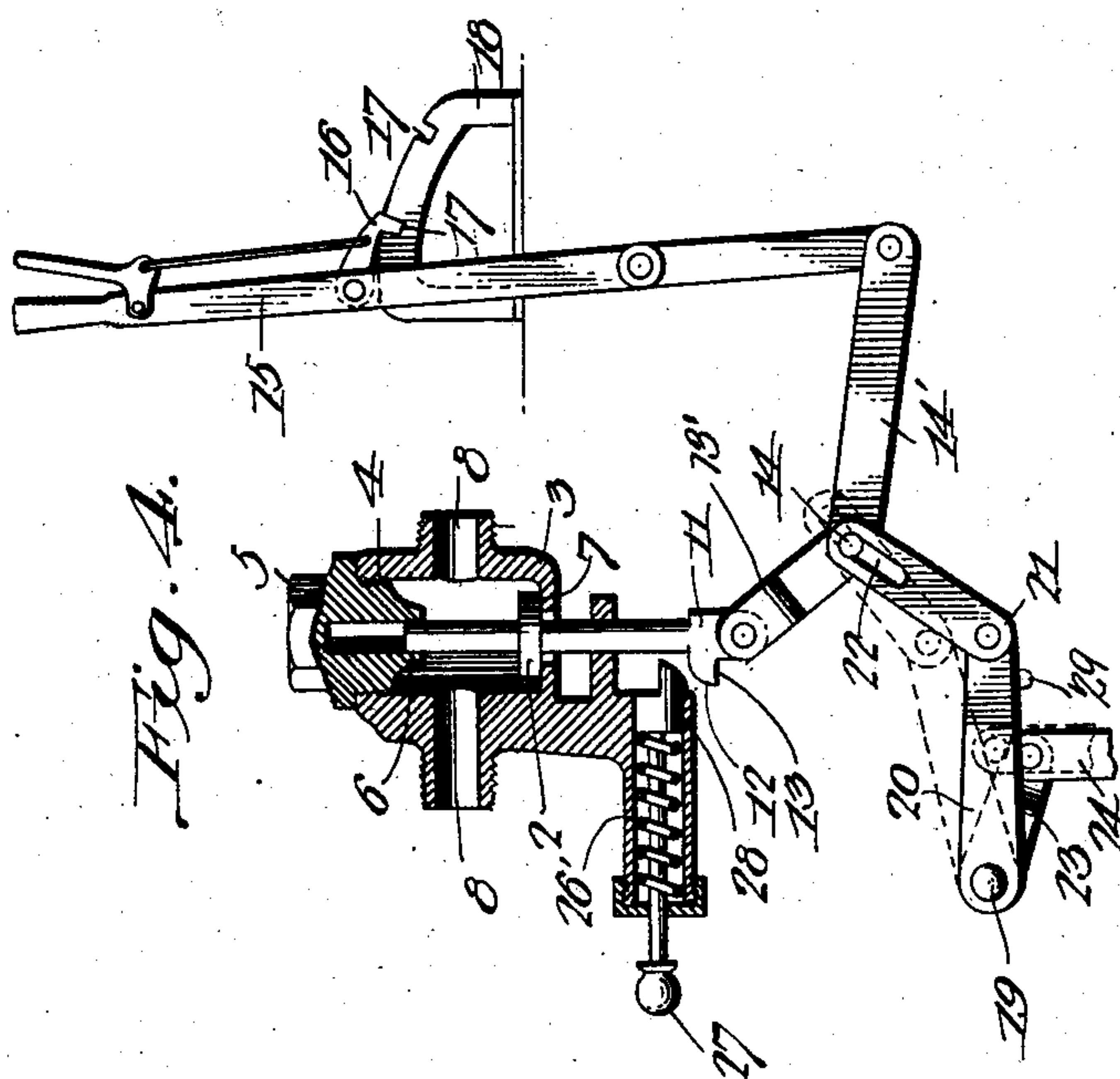
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# UNITED STATES PATENT OFFICE.

AUGUST MEYER, OF JERSEY CITY, AND CLAUS PETER GERITZ, OF KINGSLAND, NEW JERSEY.

## AUTOMATIC BRAKE-APPLYING DEVICE FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 754,665, dated March 15, 1904.

Application filed April 30, 1903. Serial No. 155,022. (No model.)

*To all whom it may concern:*

Be it known that we, AUGUST MEYER, residing at Jersey City, in the county of Hudson, and CLAUS PETER GERITZ, residing at Kingsland, in the county of Bergen, State of New Jersey, citizens of the United States, have invented a new and useful Improvement in Automatic Brake-Applying Devices for Railroads, of which the following is a specification.

This invention relates to improved mechanism for automatically applying the air-brakes on a train of cars in case the engineer should for any reason fail to notice a danger-signal or attempt to run the train past a signaling-block.

One object of the invention is to provide an automatic device of this character which is simple and durable in construction and efficient in operation and which will automatically apply the brakes without any attention on the part of the engineer.

A further object of the invention is to provide means whereby when the signal is set to "danger" the track-operating mechanism will be automatically thrown in position for engagement with the valve-operating mechanism on the car, so that when the train passes the signal the valve will be automatically opened, reducing the train-pipe pressure and causing the brakes to be applied.

A further object of the invention is to provide means for automatically locking the valve in its open position, so as to prevent said valve being accidentally closed before the brakes have been fully applied and the train brought to a standstill.

A still further object is to provide means for throwing the valve-operating mechanism out of operative relation with the track mechanism, so as to permit the train to travel in either direction on the signaling-block when desired regardless of the position of the danger-signal.

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 form, proportion, and mi-

nor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

In the accompanying drawings, Figure 1 is a side elevation of a portion of a locomotive provided with my improved air-brake-operating mechanism and also showing the arrangement of the danger-signal and track-operating mechanism. Fig. 2 is a top plan view of a portion of the track, showing the manner of connecting the tappet-plate and semaphore. Fig. 3 is a side elevation, partly in section, of the valve and operating mechanism, showing the valve locked in the open position. Fig. 4 is a similar view showing the position of the valve-operating mechanism when thrown out of operative relation with the track mechanism and also showing in dotted lines the position of the connecting-links when the tappet engages the tappet-plate. Fig. 5 is an enlarged detail view of the cam-lever for operating the tappet-plate.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a portion of a locomotive, to the cab of which is secured in any suitable manner a valve 2, suitably mounted in a valve-casing 3. Fitting within a threaded opening 4 in the upper part of the valve-casing is a correspondingly-threaded plug 5, provided with a depending tubular extension 6, which forms a guide for the valve-stem, the valve being normally closed and resting on the valve-seat 7 in the bottom of the casing. The valve-casing is provided with laterally-projecting tubular extensions 8, communicating with the interior of the casing, and to which are coupled the ends of the train-pipe 9, thereby permitting a free passage of air or other fluid through the casing as long as the valve is closed. The lower end of the valve-stem passes through an opening in a lug or ear 10, preferably formed integral with the valve-casing, being provided with an enlarged head 11, having an inclined or beveled face 12, defining a shoulder 13, said head being pivoted between the forked ends of a link 13'.

Pivoted to a lug or pin 14, secured in any



suitable manner to the end of the link 13', is a link 14', which is in turn pivoted to a lever 15, the upper end of which is provided with a locking-dog 16, adapted to engage any one of a series of notches 17, formed in a segmental plate or rack 18 and by means of which the valve-operating mechanism is thrown into and out of operative relation with the track-operating mechanism, as will be more fully explained hereinafter. Mounted in suitable bearings in the end of the cab is a rock-shaft 19, provided with a terminal crank-arm 20, to the end of which is pivoted a link 21, the opposite end of the link being slotted, as shown at 22, and fitting over the pin or lug 14 on the link 13'. An arm 23 is secured to the rock-shaft 19, and pivoted to the end of said arm is a depending lever or tappet 24, sliding in suitable guides 25, the lower end of the arm having a wheel or roller 26 journaled thereon and adapted to engage the track-operating mechanism, as will be more fully explained hereinafter.

Secured to the valve-casing 3, and preferably formed integral therewith, is a tube 26', within which is slidably mounted a spring-bolt 27, provided with an inclined or beveled end 28, adapted to engage the shoulder 13 on the valve-stem and by means of which the valve is locked in the open position, preventing the valve being accidentally closed before brakes have been fully applied and the cars brought to a standstill. A pin or lug 29 serves to limit the downward movement of the crank-arm 20.

Arranged parallel with the track 30, and preferably secured to one of the cross-ties, is a signal or semaphore 31, the base of which is formed with an upwardly-extending arm 32, to which is pivoted a hand-lever 32', said lever being provided with inwardly-extending lugs or pins 33, adapted to engage shoulders 34 in the arm 32 and limit the forward and rearward throw of the lever. Eccentrically pivoted to the lever 32 by means of a pin 33 is a tube or casing 34', within which is slidably mounted a rod 35, one end of which is pivoted to a rock-shaft 36, the opposite end thereof being provided with a coiled spring 37, fitting within the tube or casing 34' and by means of which the rod may be moved independently of the hand-operated lever. The rock-shaft 36 is mounted in suitable bearings 37', and secured to the end of the rock-shaft is an arm 38, provided with an antifriction-roller 39, adapted to engage a tappet-plate 40 and elevate the center thereof slightly above the level of the track when the hand-lever 32' is thrown back. One end of the tappet-plate 40 is pivoted between the upwardly-extending arms of a bracket 41, secured in any suitable manner to one of the cross-ties of the track, the opposite end of said plate passing through guides 42 in a similar bracket 43, which permits the plate to be raised and lowered when engaged

by the arm 38. A rod 44 connects the semaphore-arm with the hand-lever 32', so that when said lever is thrown rearwardly the arm will be elevated and display the danger-signal.

The construction of my device will be readily understood, and the operation thereof is as follows: When it is desired to set the signal, the hand-lever 32' is thrown rearwardly until the lug 33 engages the rear stop or shoulder 34, which causes the rod 44 to elevate the semaphore-arm and display the danger-signal and at the same time causes the crank-arm carrying the roller 39 to be brought into engagement with the tappet-plate 40, elevating the same slightly above the level of the tracks and in position to be engaged by the tappet 24 as the train passes the signaling-block. The valve 2 on the locomotive being closed and the operating mechanism in the position shown in Fig. 1 of the drawings, should the locomotive approach the signaling-block in either direction the tappet 24 will ride up the inclined tappet-plate 40, causing the link 21, carried by the crank-arm 20, to engage the lower end of the link 13', forcing the valve-stem upwardly and unseating the valve, thereby reducing the pressure in the train-pipe and causing the brakes to be applied in the usual manner. As the valve-stem is forced upwardly the inclined face 12 of the enlarged head 11 engages the correspondingly-beveled end of the locking-bolt 27, forcing the bolt outwardly and permitting the head to clear the bolt, when the spring will cause the bolt to engage the shoulder 13, locking the valve in the open position until the brakes have been applied and the train brought to a standstill. The valve 3 may be closed by simply releasing the bolt, which causes the stem to drop by gravity, closing the valve, the operating mechanism assuming the position shown in Fig. 1 of the drawings. When for any reason it is desired to pass the signaling-block after the signal has been set at "danger" without applying the brakes automatically, the lever 15 is thrown rearwardly until the lug 16 engages the last opening in the rack 18, which causes the links 13' and 21 to be moved out of alinement with each other, so that when the tappet 24 engages the tappet-plate the upward movement of the crank-arm 20 will force the link 21 upwardly without affecting the valve, the lost motion being taken up by the slot in said link, as clearly shown in Fig. 4 of the drawings.

The mechanism herein shown and described may be used on any of the well-known block systems and in all cases will automatically and effectually apply the brakes should the engineer attempt to pass a danger-signal.

The particular arrangement of the valve-operating mechanism may be varied or the location thereof changed to suit the different styles of locomotives, and the train-pipe may



also be provided with the usual stop-cocks for shutting off the supply of steam or air when desired.

Having thus described the invention, what we claim, and desire to secure by Letters Patent, is —

1. In an air-brake apparatus, a train-pipe, a valve, a tappet, a link connection between the valve and the tappet, a lever pivotally connected to said link connection for throwing the links out of alinement with each other, a signaling means on the road-bed, a valve-operating device adjustable to operative position by the signaling means and adapted to open the valve, and means for locking the valve in the open position.

2. In an air-brake apparatus, a train-pipe, a valve, a tappet, a link pivoted to the end of the valve-stem, a slotted link connecting the pivoted link with the tappet, a signaling means on the road-bed, a valve adjustable to operative position by the signaling means, means for locking the valve in the open position and a lever for disengaging the valve-operating mechanism from the signaling means.

3. In an air-brake apparatus, a train-pipe, a valve, a tappet, a link connection between the valve and the tappet, a lever pivotally connected to said link connection for throwing the links out of alinement with each other, a signaling means adjacent to the road-bed, and a valve-operating device adjustable to operative position by the signaling means.

4. In an air-brake apparatus, a train-pipe, a

valve, a tappet, a link connection between the valve and the tappet, a lever pivotally connected to said link connection for throwing the links out of alinement with each other, a signaling means adjacent to the road-bed, and a valve-operating device adjustable to operative position by the signaling means.

5. In an air-brake apparatus, a train-pipe, a valve, a tappet, a link pivoted to the end of the valve-stem, a slotted link connecting the pivoted link with the tappet, a signaling means adjacent to the road-bed, a valve-operating device adjustable to operative position by the signaling means, and means for disengaging the valve-operating means from the signaling means.

6. In an air-brake apparatus, a train-pipe, a valve, a tappet, a valve-stem provided with a lug or projection having an inclined face, a link connection between the valve-stem and the tappet, a signaling means on the road-bed, a valve-operating device adjustable to operative position by the signaling means, and a spring-bolt adapted to engage the inclined face of the lug for locking the valve in the open position.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

AUGUST MEYER.

CLAUS PETER GERITZ.

Witnesses:

CHARLES S. PARKER,  
MARTIN MORRISSEY.