



No. 763,180.

PATENTED JUNE 21, 1904.

J. T. HAMBAY.

AUTOMATIC CUT-OFF FOR DETECTOR BARS.

APPLICATION FILED SEPT. 17, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

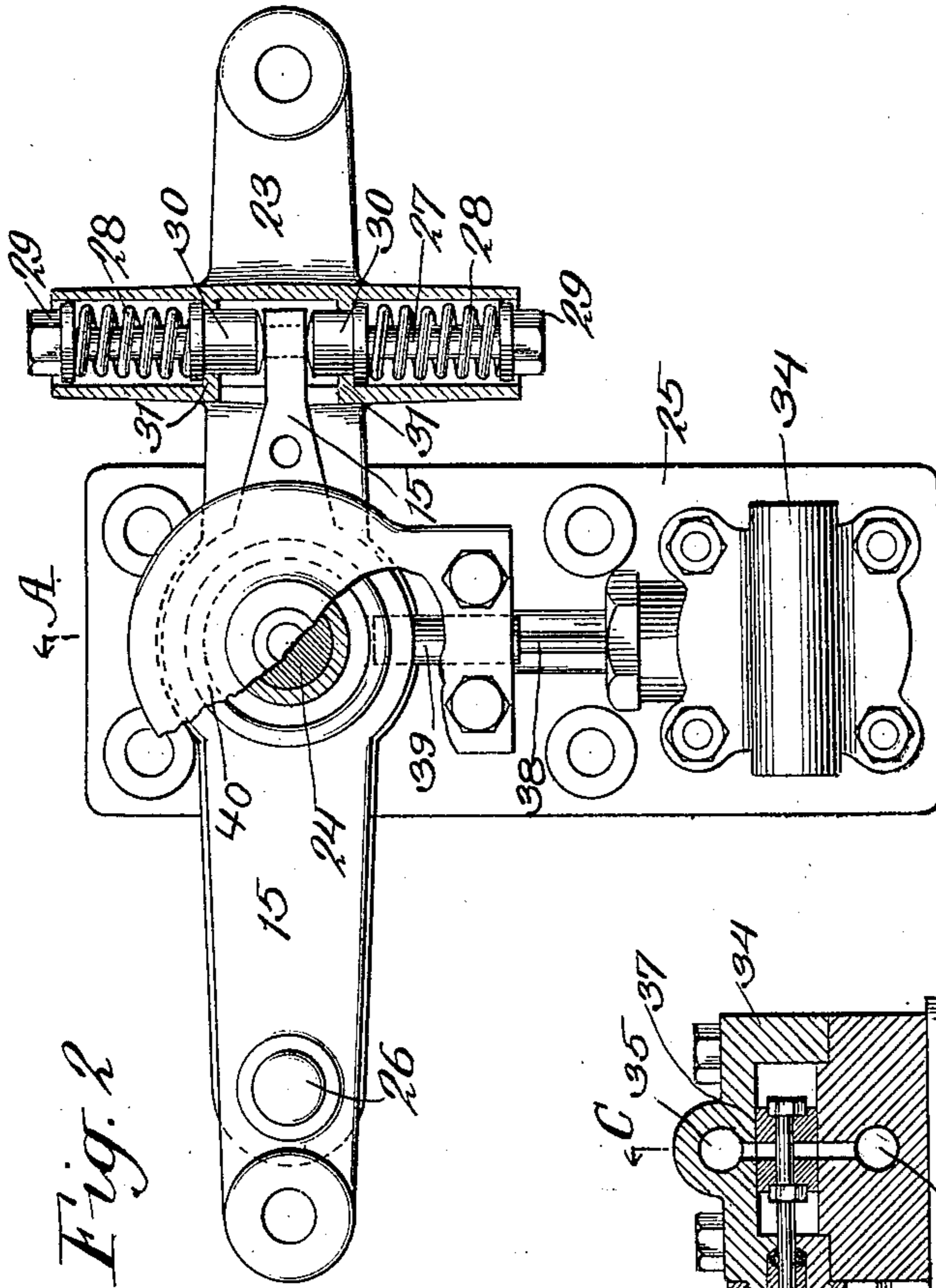


Fig. 2

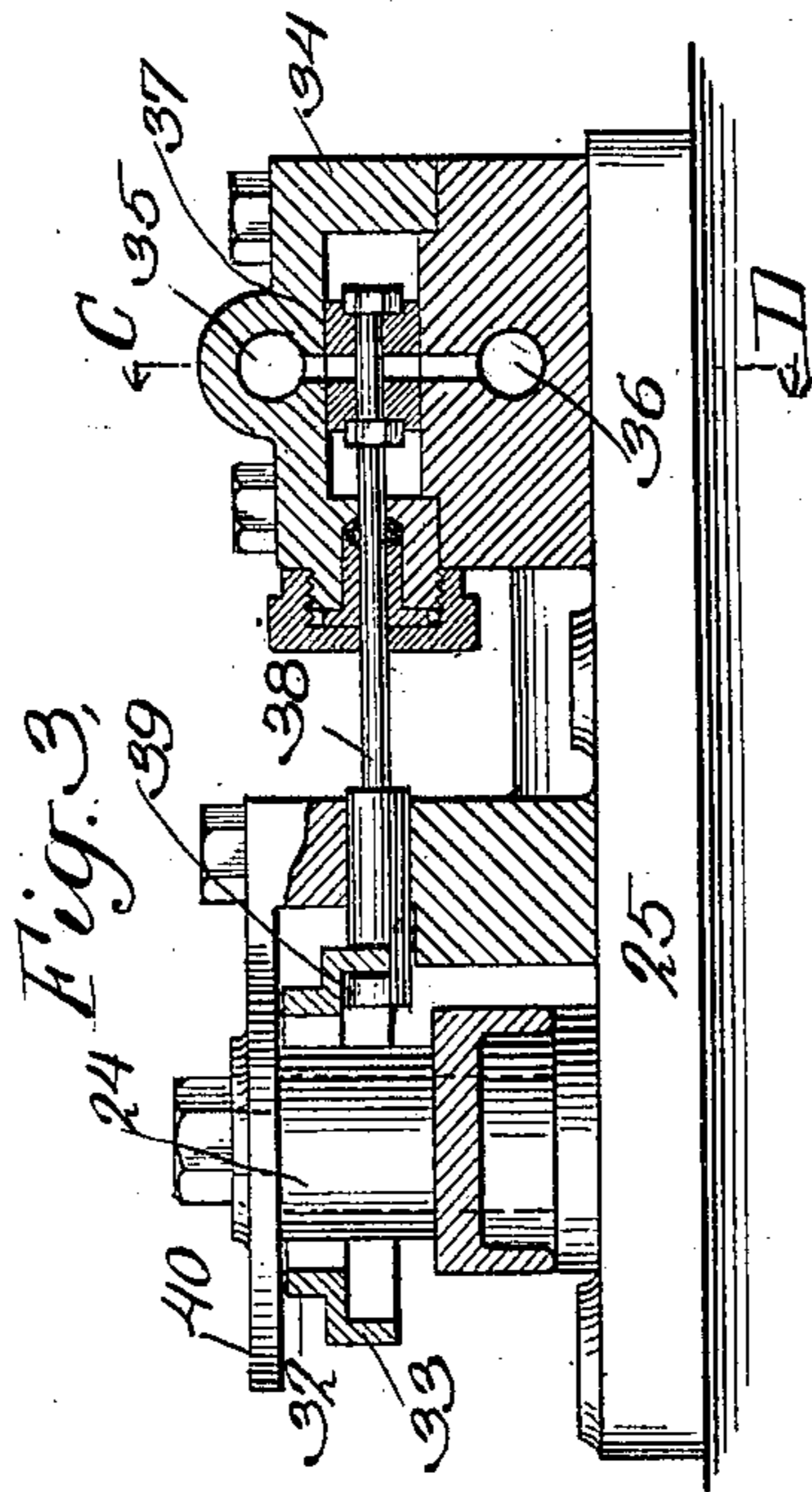


Fig. 3

Fig. 5

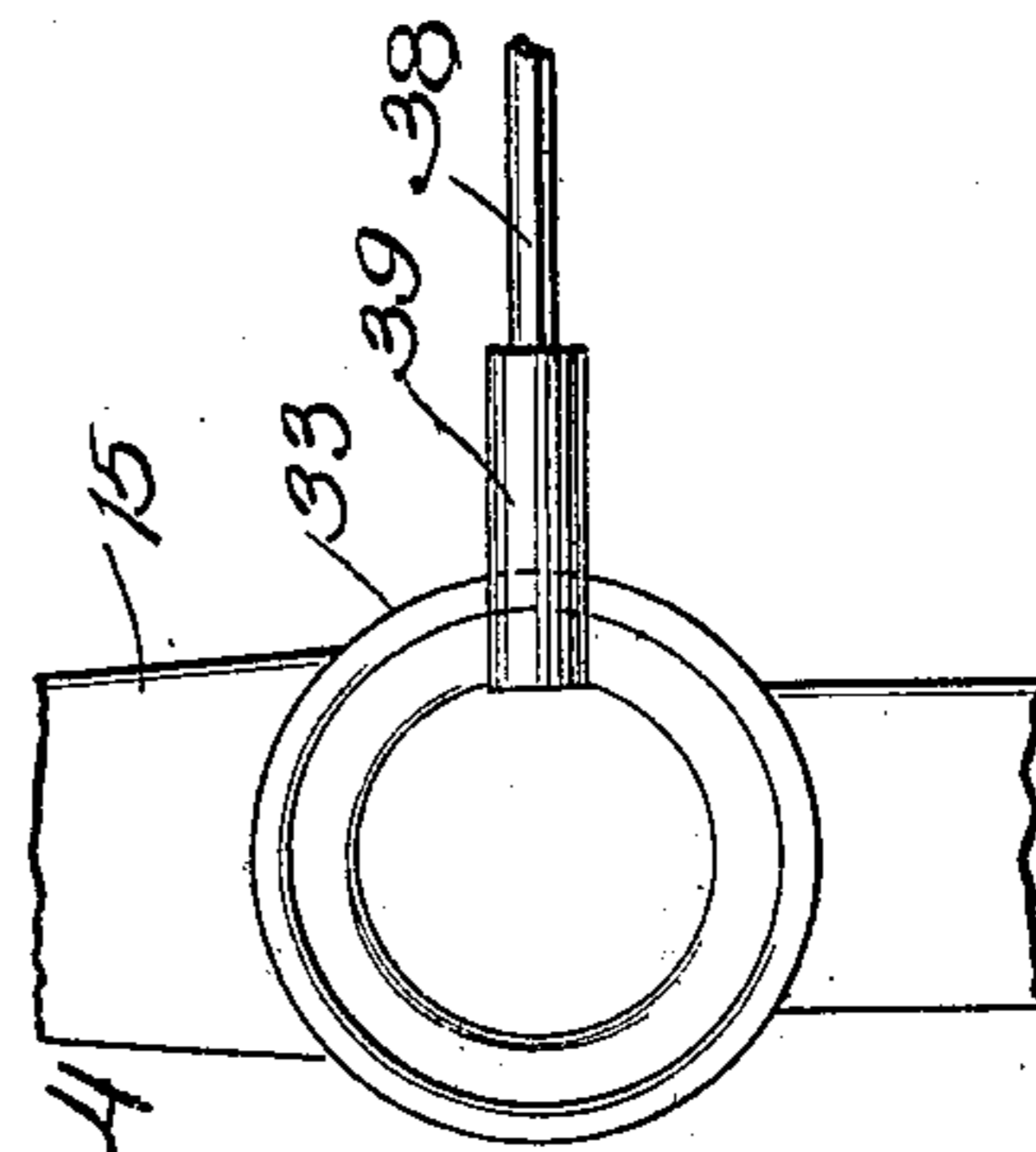
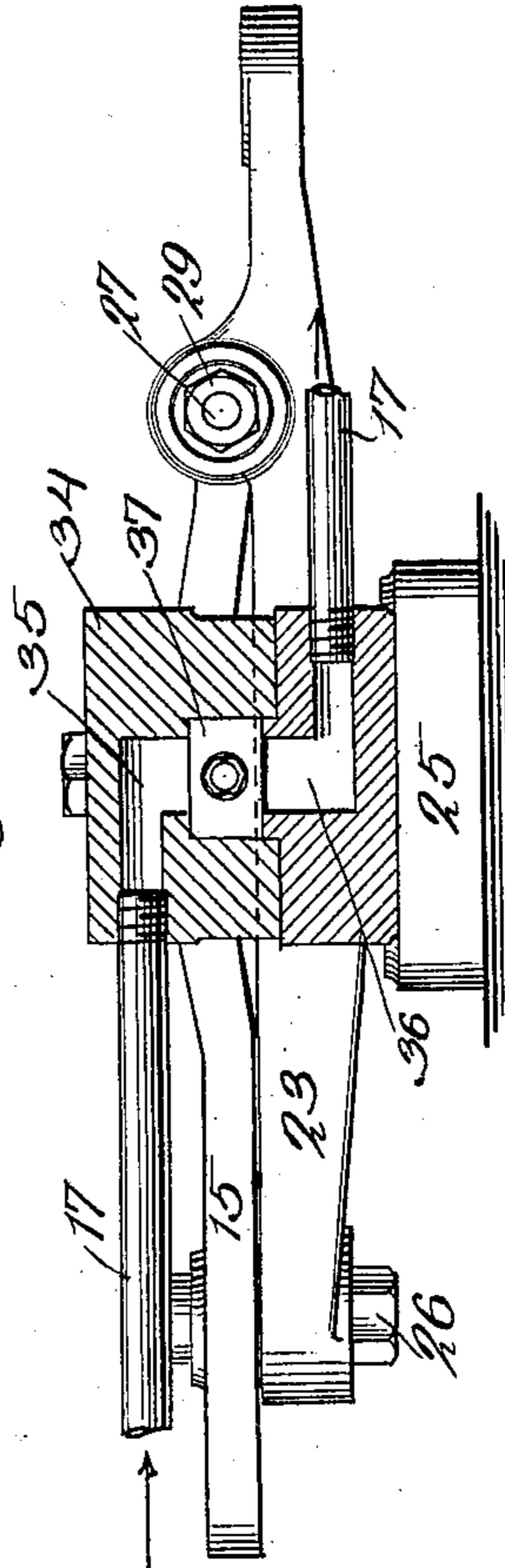


Fig. 4

WITNESSES:

Otto R. Osners  
May 1. 1904.

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# UNITED STATES PATENT OFFICE.

JAMES T. HAMBAY, OF NEW YORK, N. Y.

## AUTOMATIC CUT-OFF FOR DETECTOR-BARS.

SPECIFICATION forming part of Letters Patent No. 763,180, dated June 21, 1904.

Application filed September 17, 1903. Serial No. 173,563. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES T. HAMBAY, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented an Automatic Cut-Off for Detector-Bars, of which the following is a specification.

My invention relates to an automatic cut-off for detector-bars of the class adapted to enable the operator of a switch or signal to detect the presence of a train or car standing over or in the immediate vicinity of the switch by the impingement of said detector-bar against the wheel of the car, and if such train or car is present to prevent the opening of the switch and consequent derailment of the train. Such detector-bars and the usually accompanying switches are operated by power applied in a variety of ways, such as by simple manual operation, by means of compressed air, or electrically.

As at present constructed if there is a car on the rail above the detector-bar the maximum power to normally move the bar and unlock and operate the switch is applied in an attempt to move the same against the resistance of the car-wheels, this resulting in an undue strain on the detector-bar, which eventually tends to break the same or to deflect it concavely, and hence should the car be resting over the broken or concavely-deflected portion the detector-bar would be permitted to be raised, and consequently the switch unlocked and opened and the car or train derailed.

The object of my invention is to provide means to prevent such undue strain on the detector-bar, and hence to lessen the tendency to accidents.

In the following I have described, with reference to the accompanying drawings, a structure embodying one form of my invention in connection with compressed-air apparatus, the features thereof being more particularly set out hereinafter in the claims.

In the drawings, Figure 1 represents a plan view of a portion of a railway-track, showing a switch mechanism, means for operating the same, a detector-bar, means for operating the

same, and my automatic cut-off as applied for use in a compressed-air system. Fig. 2 is an enlarged view of a portion of the automatic cut-off, parts being broken away to show the same more clearly. Fig. 3 is a sectional view along the line A B in Fig. 2 looking in the direction of the arrows. Fig. 4 is a detailed view of a portion of the parts shown in Figs. 2 and 3. Fig. 5 is a view, partly in section and partly in elevation, along lines C D of Fig. 3 looking in the direction of the arrows.

Similar numbers refer to similar parts throughout the several views.

1 1 indicate the main rails of a line of railway-track, and 2 2 indicate the switch-rails, movably controlled in the usual manner by switch-bar 3, pivotally connected to one end of rod 4, the other end of which is pivotally connected to a crank 5, mounted on a suitable base-plate 6.

7 indicates a rod connecting the ends of switch-rails 2 2 and having pivoted thereto the switch-locking rod 8, the other end of rod 8 being mounted in a fixed bearing 9 on base-plate 6, said rod being provided with suitable holes for the reception of the locking-pins 10 10, as hereinafter set forth.

11 indicates a detector-bar mounted on links 12 in brackets 13 on the rail 1.

14 is a rod pivotally connected to the detector-bar 11 at one end and pivotally connected at the other end to one end of a lever 15.

16 indicates an air-cylinder of the usual construction, the air being conveyed thereto through pipe 17 and inlet-valve 18 in the usual manner.

19 is a bar adapted to be reciprocated by the piston of the air-cylinder, said bar sliding through fixed bearings 9 and 20 on base-plate 6. Bar 19 is provided with a roller 21, adapted to contact with the tailpiece 22 of crank 5, thus causing the switch-rails 2 2 to be thrown one way or the other in accordance with the position of the tailpiece at the time of the throw. The bar 19 also carries locking-pins 10 10, hereinbefore mentioned, which are adapted to pass through suitable holes in the bearing 9 and enter corresponding holes in

the end of locking-rod 8. Bar 19 is pivoted to one end of lever 23, swinging on pin 24, mounted on base-plate 25, the other end of the lever 23 being pivoted to lever 15 at 26.

5 Lever 15, pivotally connected at one end to rod 14, as hereinbefore described, is supported at the other end on a bolt 27, which passes through a suitable perforation in the end of the lever and on which the lever is adapted to slide. The sidewise movement of the lever 15 on bolt 27 is controlled by springs 28 28 on bolt 27, confined between adjustable nuts 29 29 on each end of the bolt 27 and sliding heads 30 30, bearing against shoulders 31 31, respectively, the parts being preferably so arranged that a sidewise movement of the lever 15 in either direction will compress both springs. Lever 15 carries, preferably integral therewith, a ring 32, having a dependent rim 33, said rim surrounding pin 24, but having a space between said rim and said pin permitting movement between the same.

34 is a valve-casing in connection with pipe 17 and having an inlet-port 35 and an outlet-port 36. 37 is a valve within said casing 34, provided with a valve-stem 38, which projects without the casing and has at its further end a hook 39 in engagement with rim 33 of ring 32, the parts being so arranged that by reciprocation in either direction of the valve-stem 38 the valve 37 will close the ports, and hence cut off the air-pressure from cylinder 16. The valve-casing 34 is provided with a suitable stuffing-box, through which the valve-stem 38 extends, as is shown in Fig. 3, and the ring 32 is provided with a suitable cover 40.

The operation of the apparatus is as follows: In the position of the parts as shown in Fig. 1 the bar 19 in the operation to be described moves from right to left in bearings 9 and 20. If there is no car on the track above the detector-bar 11, then the bar 19, as shown, in its movement will first release the locking-rod 8 by pushing pin 10 out of engagement therewith and simultaneously move the levers 15 and 23, actuating the rod 14, and in the continuance of its movement throw the detector-bar from one position of rest through its entire stroke to its other position of rest. During this movement the roller 21 will have been brought into contact with the tailpiece 22 of crank 5, and the switches 2 2 will be thrown into the position desired, the other pin 10 then passing into a suitable hole in rod 8, locking the switch in its then position. Should there, however, be a car on the track over the detector-bar, then the bar 19, if levers 15 and 23 were but one straight single piece, would be unable to be reciprocated, and hence the switch mechanism could not be released. The force of the cylinder 16 would be expended in an endeavor to raise the detector-bar, thus straining the same and eventually causing the same to break or bend, so that it would give and allow the switch to be

unlocked and opened when it should not be so unlocked and opened. By means of the levers 15 and 23 and arrangement as shown bar 19 is permitted a sliding movement, not sufficient, however, to disengage the pin 10 from the locking-rod 8, and pushing the end of lever 23, causing the other end of lever 15, supported on bolt 27, as described, to move the rim 33, pushing valve-stem 38, so as to shut off the valve in pipe 17, and consequently the supply of air to cylinder 16, thus cutting off the pressure therein and causing the same to be inoperative and taking away all tendency to strain the apparatus.

It is obvious that in the device as above described there may be many changes of details and arrangement of parts and that other kinds of power than compressed air may be utilized in actuating the same, and I do not restrict myself to the arrangement of parts shown or to the particular kind of power as herein illustrated and described.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In an apparatus of the character described, a detector-bar and means governed by the pressing of the bar against the car-wheel whereby the power normally adapted to move the bar when free is controlled or shut off.

2. In an apparatus of the character described a detector-bar and automatic means to control or shut off the power normally adapted to move the same when free, operated by the initial application of said power when the bar is resting against the car-wheel.

3. In an apparatus of the character described, a detector-bar and yieldingly-controlled means governed by the pressing of the bar against the car-wheel whereby the power normally adapted to move the bar when free is controlled or shut off.

4. In an apparatus of the character described, a detector-bar, means governed by the pressing of the bar against the car-wheel whereby the power normally adapted to move the bar when free is controlled or shut off and a switching mechanism, the parts being so arranged with relation to one another that the switch cannot be moved unless the detector-bar be free.

5. In an apparatus of the character described a detector-bar, a lever normally adapted to actuate the same and means actuated by the movement of said lever whereby the operating power may be shut off.

6. In an apparatus of the character described a detector-bar, a lever normally adapted to actuate the same, an air-cylinder, a pipe to conduct air to said cylinder, a valve in said pipe, means operated by the air in said cylinder to actuate the lever and means operated by the lever to close the valve in the pipe.

7. In an apparatus of the character described a detector-bar, a lever normally adapted to actuate the same, a switching mechanism,

an air-cylinder provided with means for operating the switching mechanism and said lever, a pipe to conduct air to said cylinder, a valve in said pipe and means controlled by the initial  
5 movement of said lever whereby said valve may be closed when the detector-bar is not free to respond to the movement of the lever.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JAMES T. HAMBAY.

Witnesses:

GRACE L. HEASLEY,  
CHARLES S. JONES.