

No. 747,724.

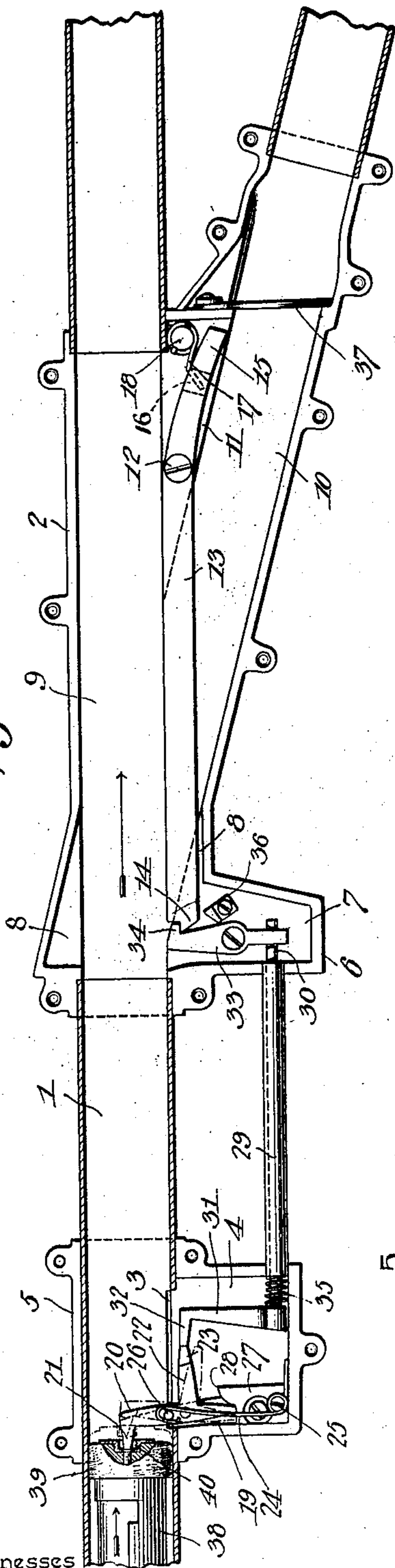
PATENTED DEC. 22, 1903.

O. JORDAN.
AUTOMATIC SWITCH.
APPLICATION FILED OCT. 10, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

E. Stewart
J. S. Emory

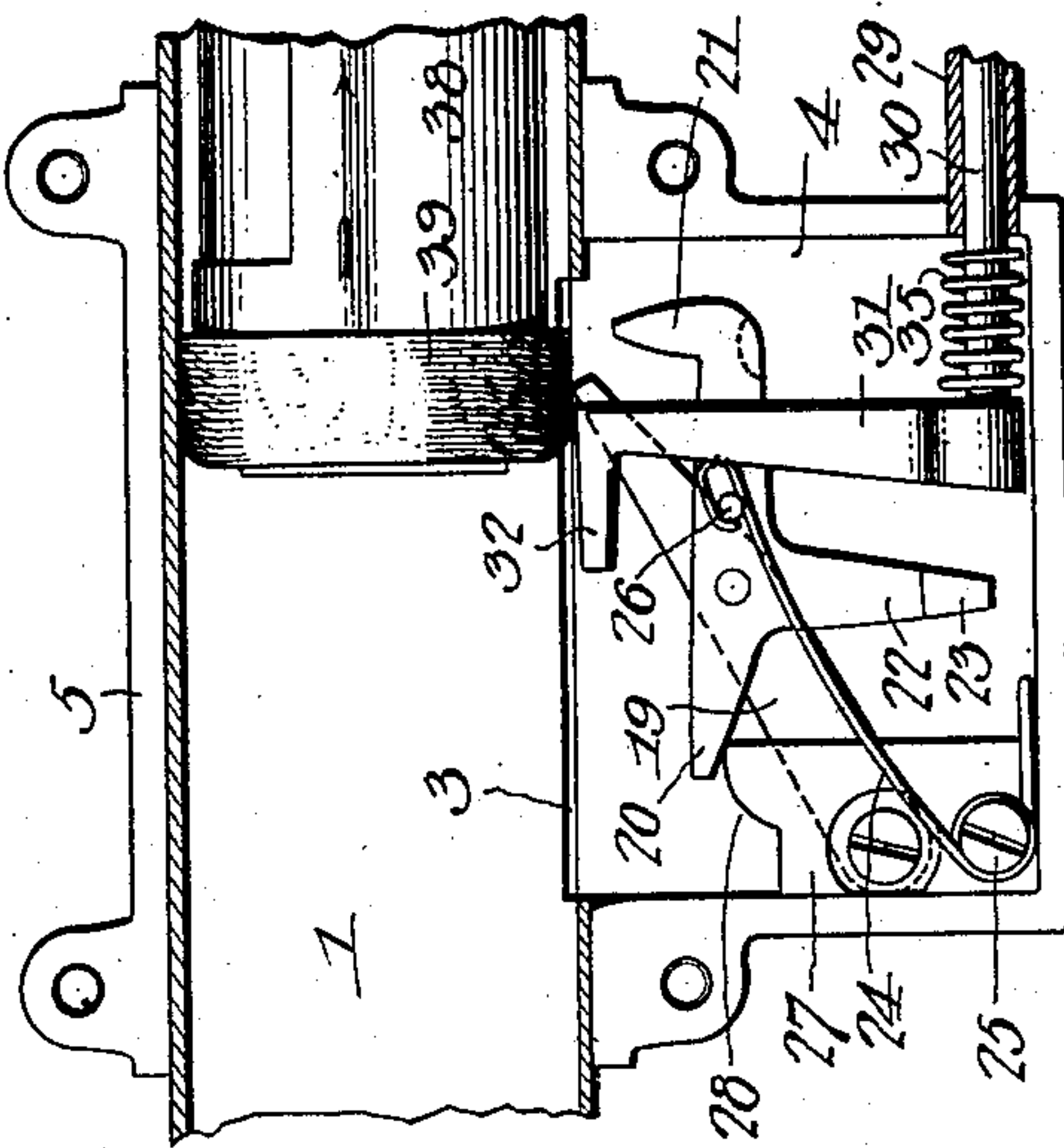


Fig. 4.

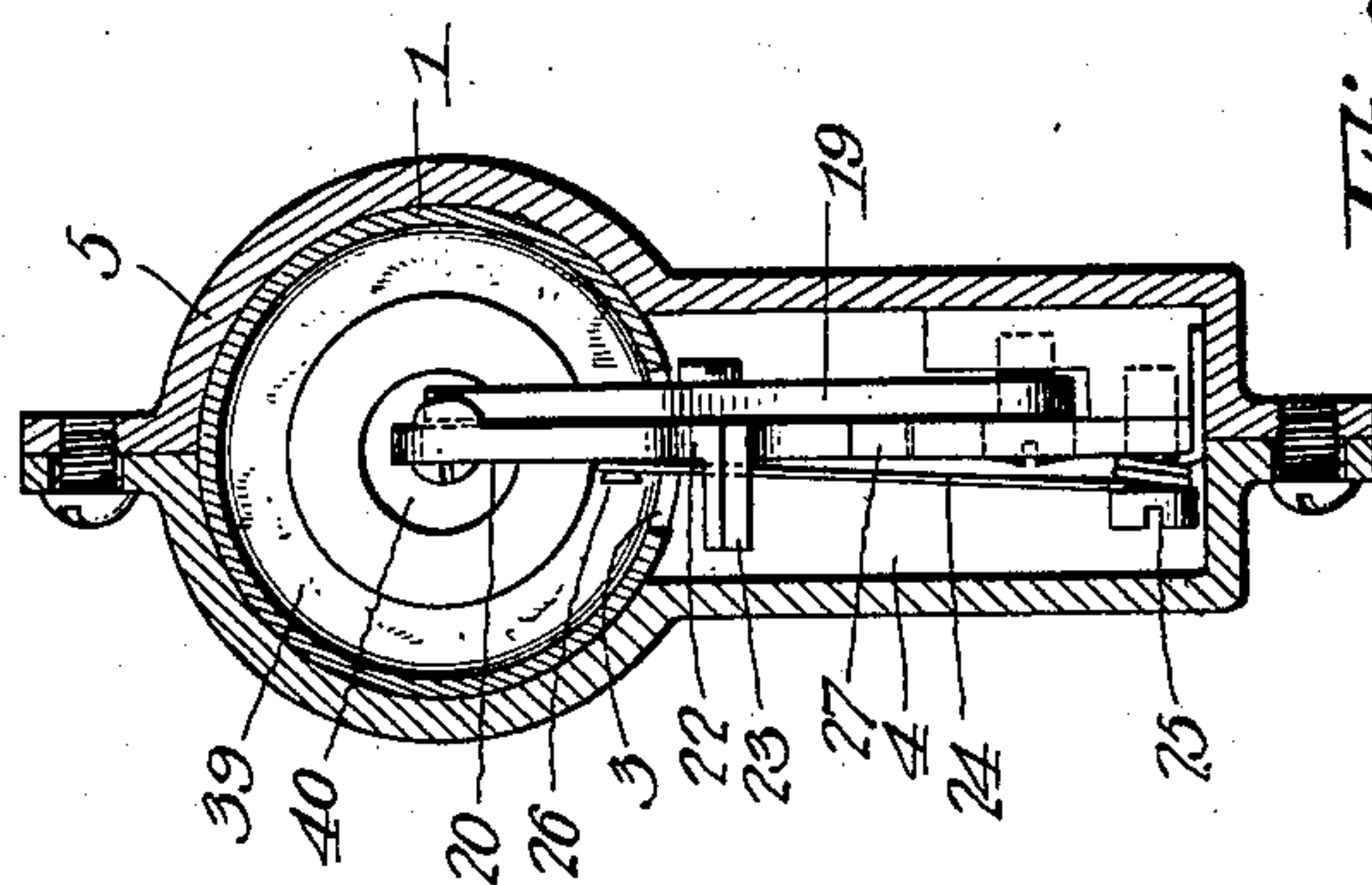


Fig. 5.

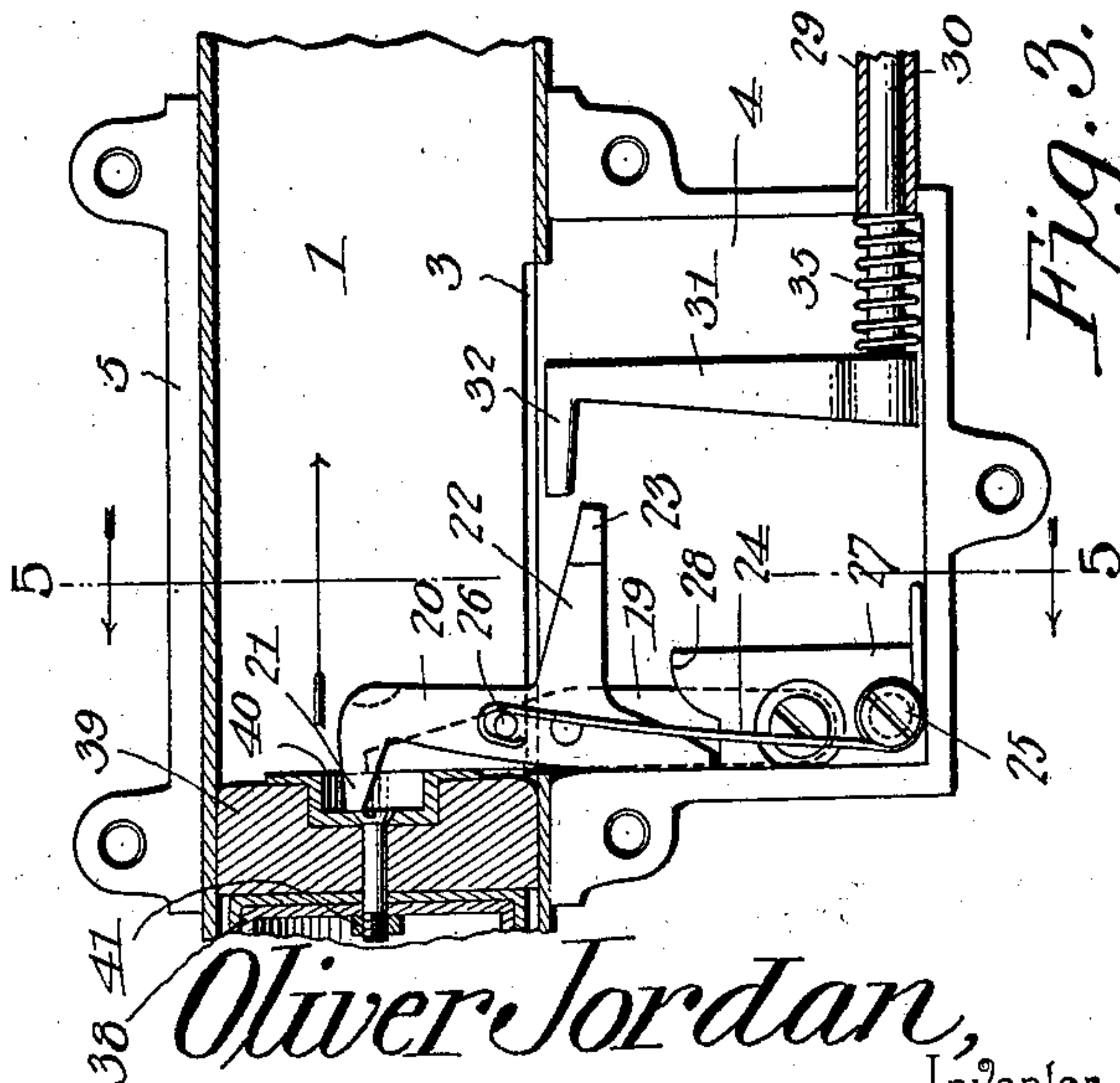


Fig. 3.

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NO MODEL.

2 SHEETS—SHEET 2.

Fig. 2.

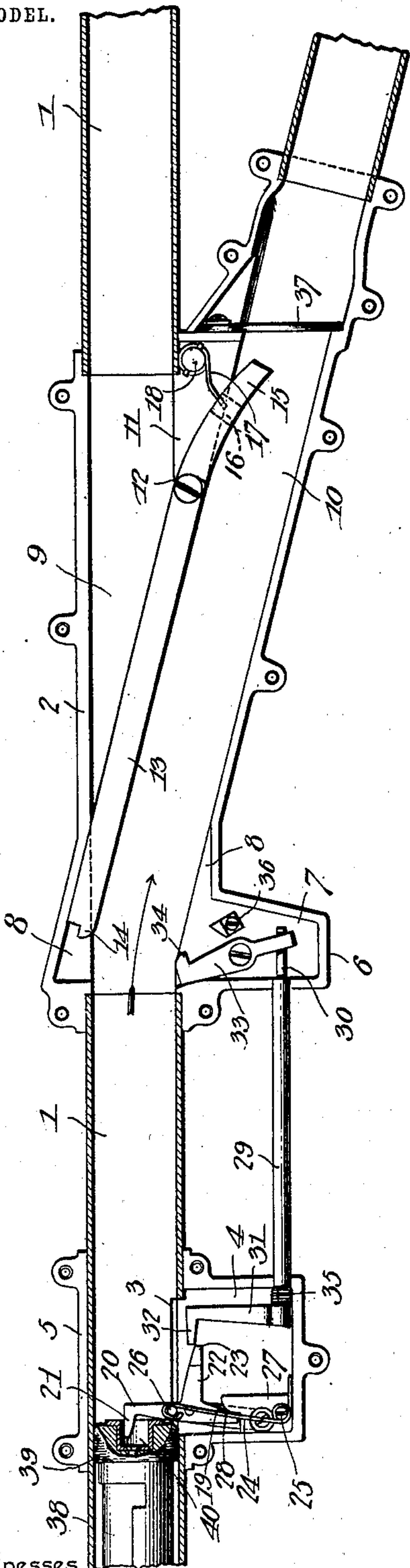


Fig. 7.

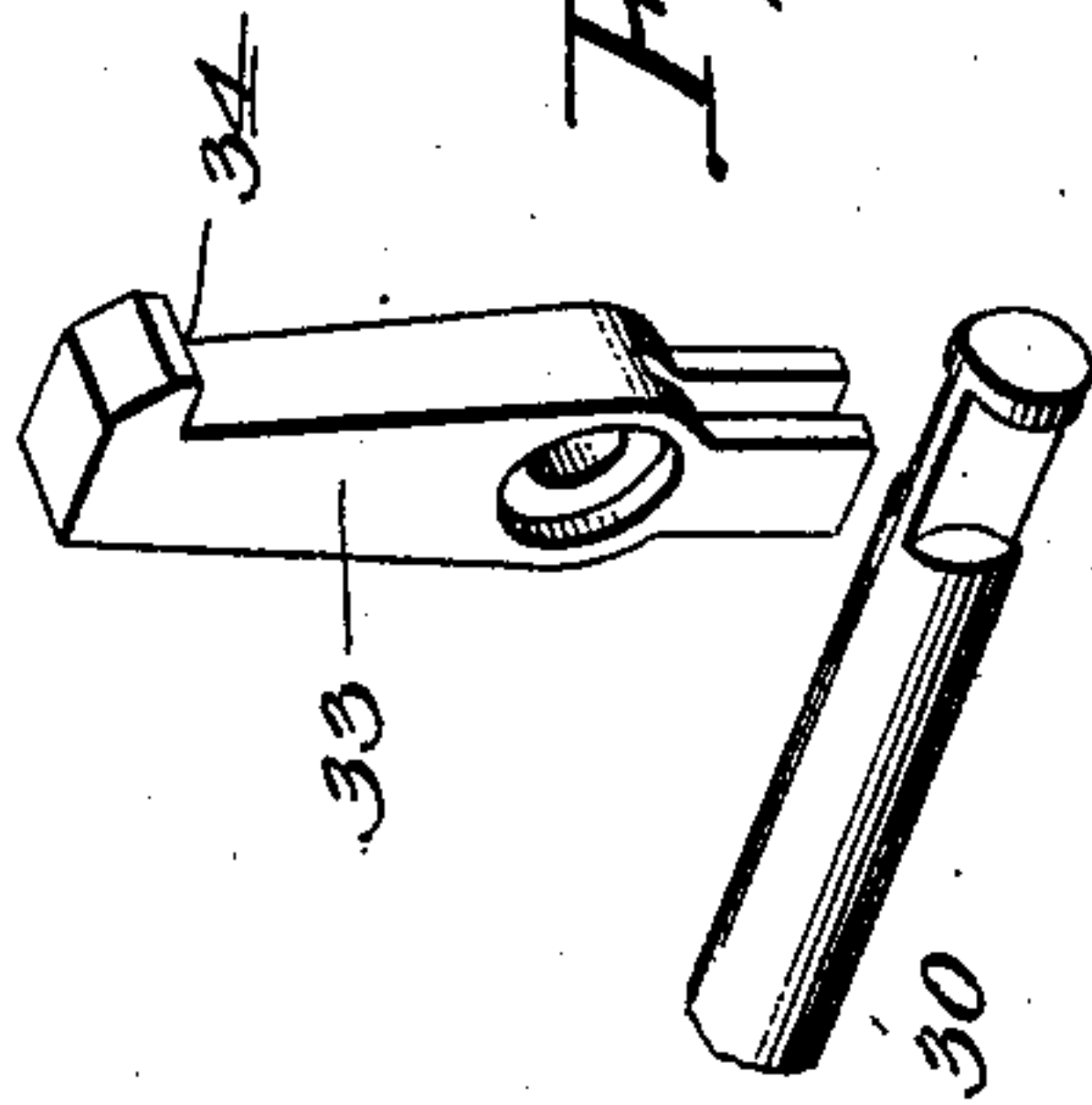
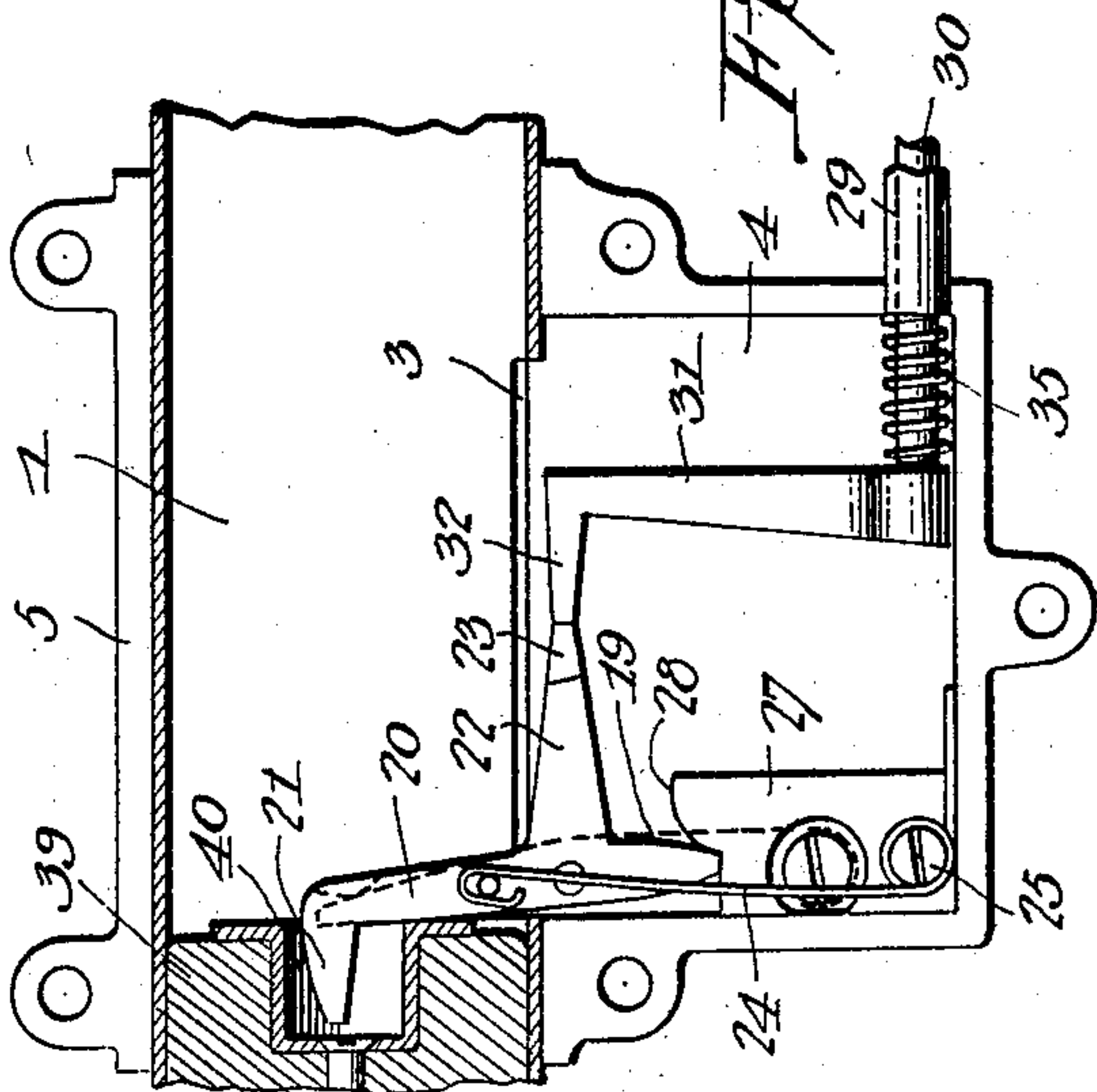


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

OLIVER JORDAN, OF LOWELL, MASSACHUSETTS.

AUTOMATIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 747,724, dated December 22, 1903.

Application filed October 10, 1903. Serial No. 176,551. (No model.)

To all whom it may concern:

Be it known that I, OLIVER JORDAN, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Automatic Switch, of which the following is a specification.

My invention relates to automatic switches for pneumatic carriers, and has for its objects to produce a comparatively simple device of this character wherein a plurality of carriers having predetermined points of destination will during their travel through the carrier-duct be automatically directed each to its proper destination.

To these ends the invention comprises the novel features of construction and combination of parts more fully hereinafter described.

In the accompanying drawings, Figure 1 is a sectional elevation of a portion of a carrier system having my invention embodied therein, showing a carrier in the act of passing without tripping the switch. Fig. 2 is a similar view showing a carrier in the act of tripping the switch and the latter shifted. Fig. 3 is an enlarged detail view showing the secondary tripping member thrown by a carrier to prevent releasing of the switch. Fig. 4 is a similar view showing the carrier at the completion of its travel past the tripping device. Fig. 5 is a vertical transverse section on the line 5 5 of Fig. 3. Fig. 6 is a view similar to Fig. 3, showing a carrier acting first upon the primary tripping member in order to release the switch. Fig. 7 is a detail perspective view.

Referring to the drawings, 1 designates a pneumatic carrier tube or duct communicating at one end with and attached in any suitable manner to a switch-casing 2, the tube being provided at a point in advance of and suitably remote from the casing with a longitudinal elongated opening 3, communicating with a chamber 4, formed in a casing 5, attached to the tube.

The switch-casing 2, which has at its forward end a hollow projecting portion 6, forming a chamber 7 and above the chamber an angularly-disposed recess 8, is provided with a primary passage or duct 9, communicating with and forming a continuation of the duct 1, and a secondary branch passage or duct

10, leading from the primary duct, there being formed between said ducts at their point of divergence a bridging-wall 11, having a flat inner face.

Pivoted to the wall 11, as at 12, is a switch member or lever 13, having its forward end recessed or notched to form an engaging-finger 14 and its rear end beyond the pivot angularly bent to produce a contact portion 15, which is in turn provided with a seat 16 for the end of a torsion-spring 17, attached to and coiled around a post 18, projecting from the wall 11. This spring serves in practice to throw the switch when released from the position shown in Fig. 1 to that of Fig. 2, in which latter position the forward end of the lever will lie within the recess 8 and the contact portion 15 within the branch duct 10.

Pivoted at its lower end in the chamber 4 and extending upward through the opening 3 into the tube or duct 1 is a primary tripping member or lever 19, to which there is in turn pivoted a secondary tripping member or lever 20. The lever 20, which normally lies parallel with the member 19, has at its upper end a forwardly-projecting portion or finger 21 and between its ends, adjacent to its pivotal point, with a rearwardly-projecting arm 22, having a laterally-extending lug or portion 23, said secondary member being maintained in its normal position by a torsion-spring 24, wrapped around a screw-post 25 and having its active end engaging a lug 26 on the side of the member. Disposed beneath the member 20 is a relatively fixed stop-block 27, having at its upper end a curved cam-face 28, lying in rear and directly in the path of the member for the purpose which will hereinafter appear.

Extending loosely through a tube 29, between the chambers 4 and 7, is a longitudinally-slidable rod or shaft 30, carrying at one end within the chamber 4 a right-angularly-disposed arm 31, provided at its outer end with a rearwardly-projecting finger 32, while the forward end of the shaft is pivotally connected with the lower end of a latch member 33, pivoted in turn within the chamber 7 and having at its active end an engaging tip or portion 34, designed for engagement with the finger 14 of lever 13 for normally holding the same in the position illustrated in Fig. 1.

The shaft is acted upon for maintaining the latch member in engaging position by a normally expanded spring 35, bearing at one end upon the wall of the casing 4 and at its other 5 end against the arm 31.

36 is an adjustable stop pivoted in chamber 7 to bear upon the forward face of latch member 33 for limiting the movement of the latter to its latching position, this stop being 10 adjustable for determining the amount of engagement which the latch member will have with the switch-lever whereby the parts may be regulated to insure the switch being more or less readily released.

15 37 is a flap-valve composed of leather or other suitable material and designed to close the branch duct 10, just in rear of the switch, whereby after a carrier has passed the latter retrograde movement of the carrier, due to 20 back draft or suction, is wholly obviated.

38 designates a carrier of the usual construction, except that its heads 39 are, in accordance with my invention, each provided with a socket 40, formed by a metal thimble 25 seated centrally in said head and secured in position by a screw or its equivalent, tapped through the end of the carrier and engaging a strengthening block or bar 41, disposed upon the interior of the carrier. It may here 30 be stated that in the system there will be a number of groups of carriers and that all of the carriers of each group will have end sockets 40 of a uniform depth, but that the depth of these sockets will vary throughout 35 the different groups. It is also to be noted that in practice all of the carriers of one group will in passing through the ducts travel to one point of destination, those of a second group to a second point of destination, 40 and so on.

In practice a carrier destined to pass through the main duct without tripping the switch, as in Fig. 1, will have an end socket 40 of a depth somewhat less than the length of finger 21, whereby as the carrier advances the 45 inner end wall of its socket will first contact with the extremity of finger 21 and trip member 20 to throw its arm 22 out of alinement with finger 32. The carrier continuing to advance, its end will contact with member 19 50 and swing the latter downward to the position shown in Fig. 4, when the carrier will pass freely over the same. During this downward swinging of member 19 the lower end 55 of member 20 will ride upon the cam-face 28 to swing the member on its pivot, and thus prevent its arm 22 in any wise affecting the latch-operating shaft 30. Thus it will be seen that the switch will remain untripped 60 and the carrier will continue its travel through the main duct. On the other hand, a carrier destined to be switched through the branch duct 10 will have a socket 40 of a depth somewhat greater than the length of finger 21, 65 whereby as the carrier advances the finger will pass into the socket and the member 20 remain unaffected until the end of the car-

rier contacts with the primary tripping member 19, when both members will be moved as one, as shown in Fig. 2, and the arm 22, 70 which is in alinement with, will act upon the finger 32, thus imparting a movement to shaft 30 sufficient for actuating the latch member 33 to release the switch, which will then be immediately and automatically thrown by 75 spring 17 to the position shown in Fig. 2, thus bridging the main duct and directing the carrier into the branch duct. The carrier on passing into the branch duct acts upon the contact portion 15 of the switch to 80 return the latter to normal position for engagement with the latch member, which of course is, as before stated, maintained in its engaging position by the spring 35.

From the foregoing it will be seen that I 85 produce a device of simple construction which in practice will admirably perform its functions and will be entirely automatic in its action. In attaining these ends I do not limit myself to the precise details herein shown 90 and described, inasmuch as minor changes may be made therein without departing from the spirit or scope of the invention.

Having thus described my invention, what I claim is— 95

1. In a device of the class described, the combination with a main duct, of a branch duct leading therefrom, a normally closed and locked switch disposed between said ducts; means operable by a carrier for releasing the 100 switch, and means for automatically opening the switch.

2. In a device of the class described, the combination with a main duct, of a branch duct leading therefrom, a normally closed and 105 locked switch disposed between said ducts, means operable by a carrier for releasing the switch, and means for automatically opening the switch, said switch being returnable to closed position by the passing carrier. 110

3. In a device of the class described, the combination with a main duct and a branch duct, of a plurality of carriers designed for travel through said ducts, a normally closed and locked switch disposed between the 115 ducts, means operable by certain of the carriers for releasing the switch, and means for automatically opening the switch.

4. In a device of the class described, the combination with a main duct, of a branch 120 duct leading therefrom, a normally closed and locked switch disposed between said ducts, means operable by a carrier for releasing the switch, and a spring for automatically opening the switch. 125

5. In a device of the class described, the combination with a main duct, of a branch duct leading therefrom, a normally closed and locked switch disposed between said 130 ducts, means operable by a carrier for releasing the switch, and a torsion-spring bearing upon and serving to automatically throw said switch to open position when released.

6. In a device of the class described, the

combination with a main duct, of a branch duct leading therefrom, a normally closed switch disposed between said ducts, a latch member engaging the switch, a tripping member connected with and operable by a carrier for actuating the latch to release the switch, and means for automatically opening the switch.

7. In a device of the class described, the combination with a main duct, of a branch duct leading therefrom, a normally closed switch disposed between said ducts, a latch member engaging the switch, a tripping member situated in the duct in advance of and operatively connected with the latch, said tripping member being operable by a carrier for actuating the latch to release the switch, and means for automatically opening the switch.

8. In a device of the class described, the combination with a main duct, of a branch duct leading therefrom, a normally closed switch disposed between said ducts, a tripping member situated at a point remotely in advance of the switch and operable by a carrier, a latch member engaging the switch, and operating mechanism between the latch and tripping member.

9. In a device of the class described, the combination with a main duct, of a branch duct leading therefrom, a normally closed switch disposed between said ducts, a tripping member situated at a point remotely in advance of the switch and operable by a carrier, a latch member engaging the switch, a shaft connected with the latch member and having an arm acted upon by the tripping member, and means for automatically opening the switch when released.

10. In a device of the class described, the combination with a main duct, of a branch duct leading therefrom, a normally closed switch disposed between said ducts, a tripping member situated at a point remotely in advance of the switch and operable by a carrier, a latch member engaging the switch, a shaft connected with the latch member and having an arm acted upon by the tripping member, a spring disposed upon the shaft and serving to hold the latch in engaging position, and a spring for opening the switch when released.

11. In a device of the class described, the combination with a main duct, of a branch

duct leading therefrom, a normally closed and locked switch disposed between said ducts, a plurality of carriers designed for travel through the ducts, a tripping member operable by certain of the carriers but non-operable by the others for releasing the switch, and means for automatically opening the switch when released.

12. In a device of the class described, the combination with a main duct, of a branch duct leading therefrom, a normally closed and locked switch disposed between said ducts, a plurality of carriers designed for travel through the duct, a tripping device comprising a primary and a secondary member, the primary member being operable by certain of the carriers for passage without releasing the switch and the secondary member by other of the carriers to release the switch, and means for automatically opening the switch when released.

13. In a device of the class described, the combination with a main duct, of a branch duct leading therefrom, a normally closed and locked switch disposed between said ducts, means for releasing the switch including a primary tripping member and a secondary tripping member having a finger, means for automatically opening the switch when released, and a plurality of carriers designed for travel through the ducts and having end sockets varying in depth relative to the length of said finger whereby certain of the carriers will act upon the secondary member to release the switch.

14. In a device of the class described, the combination with a main duct, of a branch duct leading therefrom, normally locked switches closing the branch ducts, independent releasing means for the switches including a tripping member having an extended finger, means for automatically opening the switches when released, and a plurality of carriers having sockets to receive the fingers, and each non-registering with all the fingers except one.

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

OLIVER JORDAN.

Witnesses:

CHARLES DAGGETT,
FREDERIC B. LEEDS.