

(No Model.)

J. W. CASSIDY & E. M. SMITH.

KNITTING MACHINE STOP MECHANISM.

No. 430,512.

Patented June 17, 1890.

Fig. 1.

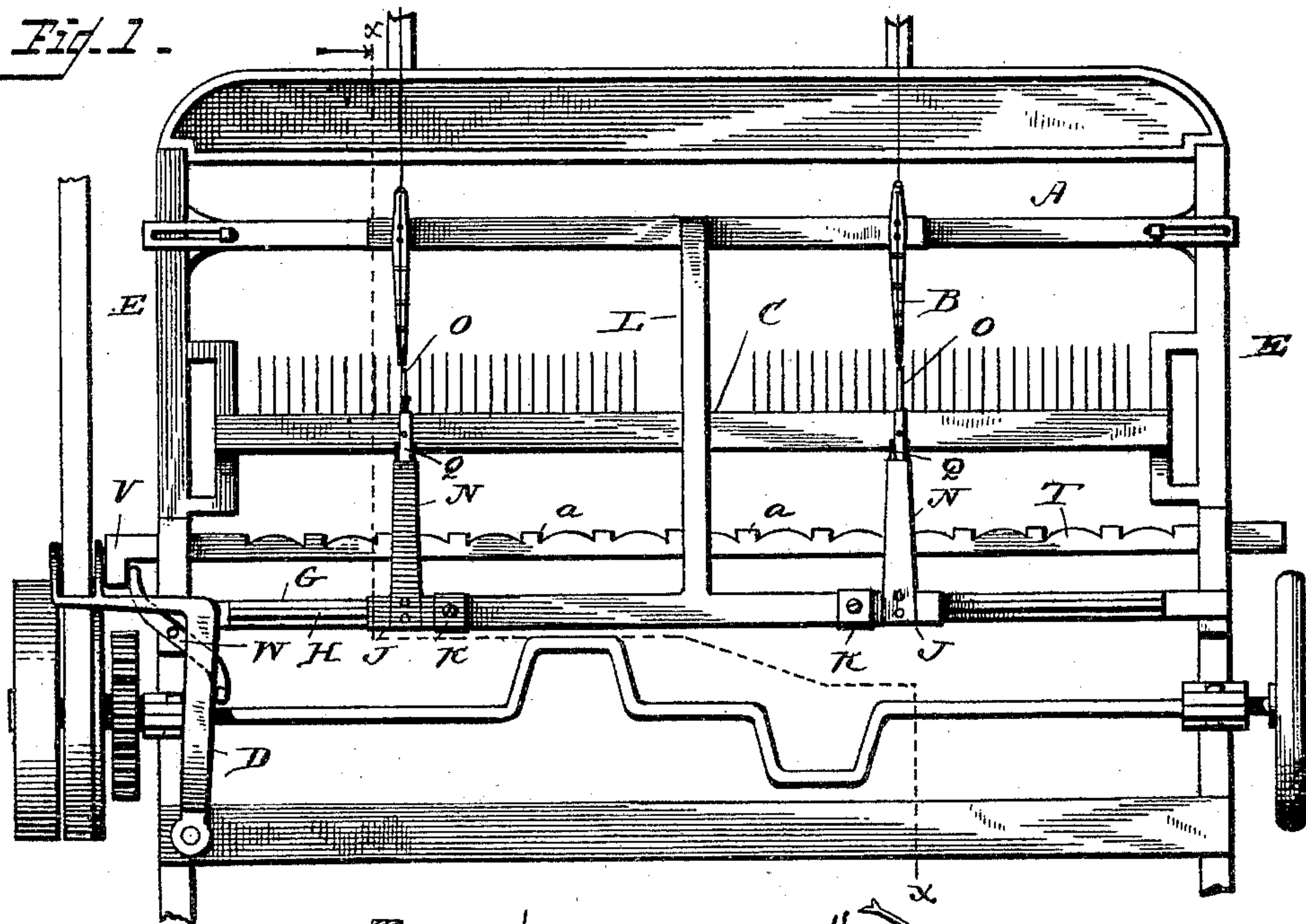


Fig. 2.

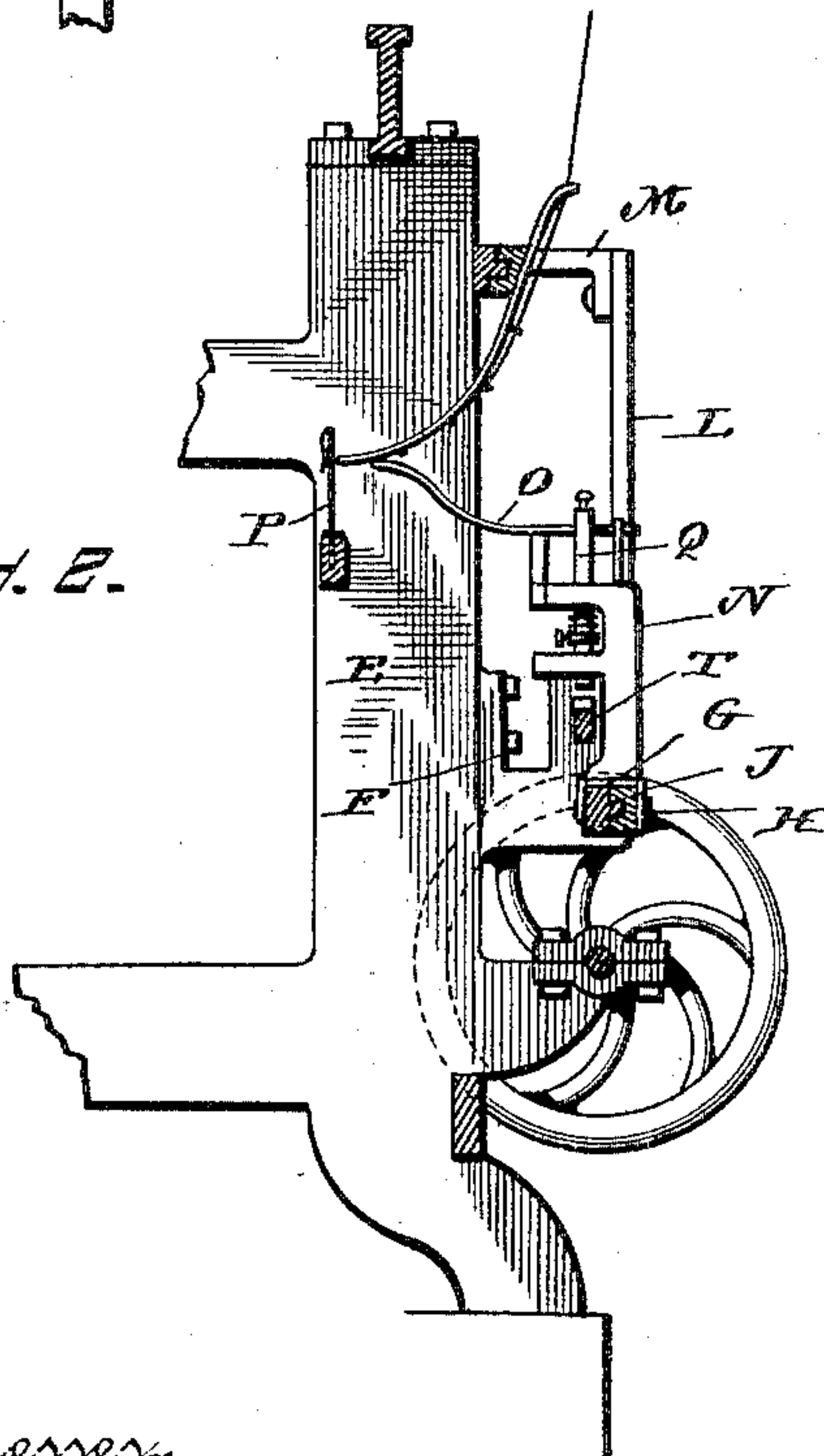
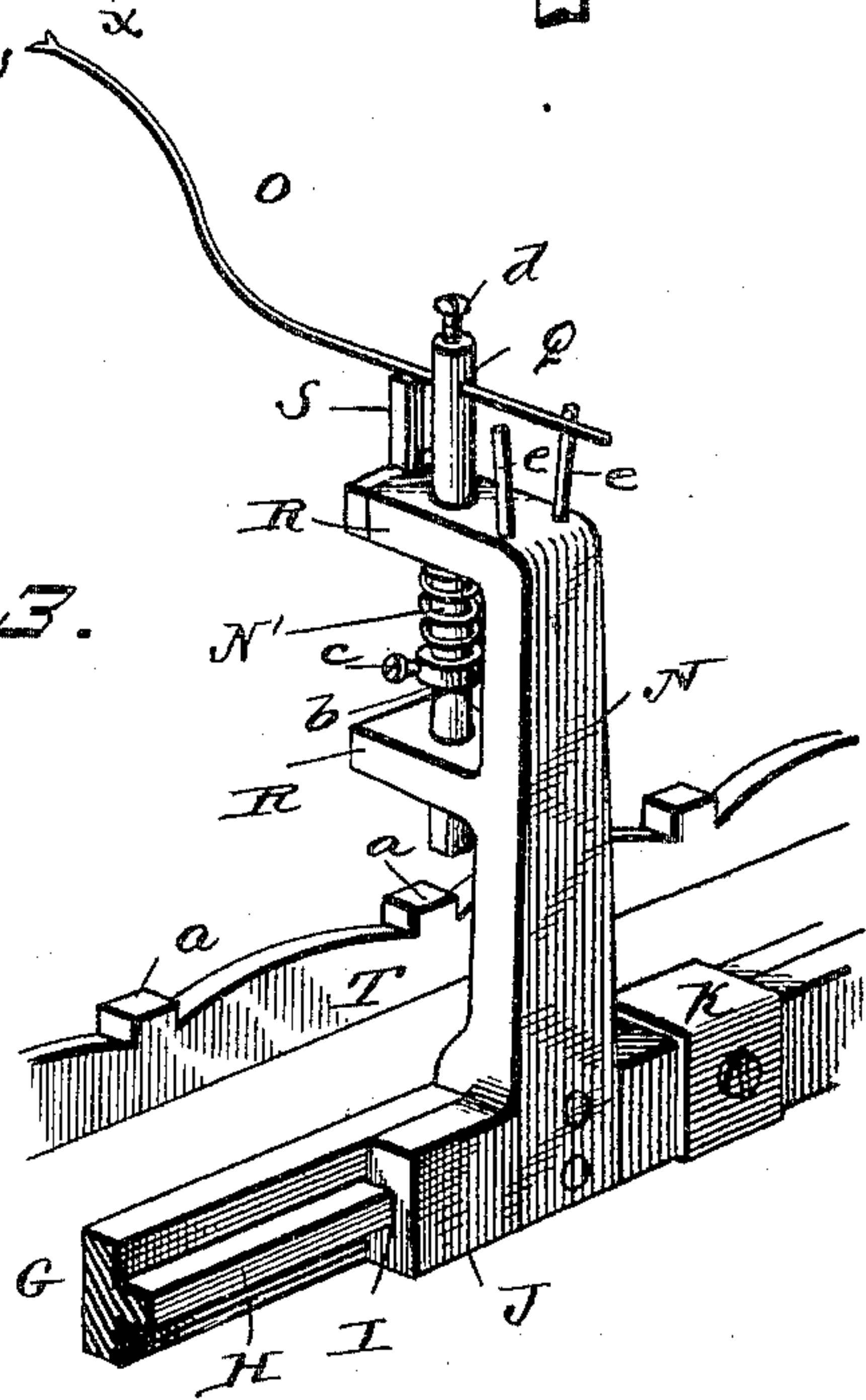


Fig. 3.



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# UNITED STATES PATENT OFFICE.

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## KNITTING-MACHINE STOP MECHANISM.

SPECIFICATION forming part of Letters Patent No. 430,512, dated June 17, 1890.

Application filed February 18, 1890. Serial No. 340,872. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES W. CASSIDY and EDWARD M. SMITH, citizens of the United States, residing at Cohoes, in the county of Albany and State of New York, have invented certain new and useful Improvements in Knitting-Machine Stop Mechanism; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to knitting-machines, more particularly to what is known as a "rib-knitting machine," and has for its object to provide means for automatically stopping the machine when a knot or unusual thickness in the thread approaches the needles, and thereby prevent the abnormal thickness of knot from entering the eye of the needle and injuring the parts, as is the case when no means are employed to prevent it.

To the accomplishment of the foregoing purpose the invention consists in the construction and in the combination of parts herein after particularly described and claimed, reference being had to the accompanying drawings, illustrating the application of the invention to a two-section rib-knitting machine, although it may be applied to other forms, and in which—

Figure 1 is a perspective of so much of such a machine as will illustrate the application of the invention to the machine. Fig. 2 is a vertical transverse section on the line  $x$  of Fig. 1; Fig. 3, a detail showing the parts for acting on the belt-shifter.

In the drawings, the letter A designates the thread-bar of a rib-knitting machine having the thread-guides B, while C designates the needle-bar carrying the upright needles P, and D is the belt-shifter, usually operated by hand to shift the belt to throw the machine into and out of action, as may be desired.

The parts so far described in construction, operation, and purposes effected are the same as in machines well-known to the trade, and therefore will not be more enlarged upon, as the same is unnecessary to an understanding of the present invention.

To the upright end portions E of the machine below the needle-bar we secure brack-

ets F, which support a transverse bar G, having preferably a bead or tongue H extending lengthwise thereof, and which enters a groove I in a bar J, adapted to be reciprocated longitudinally of the bar G, and which is held to that bar by suitable means, say by clasps K. This bar J is reciprocated from the reciprocating thread-bar A by connecting it thereto by means of a rod L, which at its upper end may be connected to an arm M on the thread-bar, so that its upper end may stand out in the vertical plane of its lower end.

The reciprocating bar J is provided with a series of upright standards or supports N, preferably with one for each thread-guide, and designed to support fingers O, with their forward ends near enough to the needles P or the thread-carriers for the thread to pass by the same freely without interference there-with unless there be a knot or abnormal thickness in the thread, and in that event to strike or bear against the fingers so as to move the same to release a detent or locking-pin, which, when released, will set in motion a shifting-bar to operate a belt-shifter to throw the machine out of operation, and thus prevent injury and afford an opportunity to remove the knot or abnormal thickness. The preferred manner of setting the fingers is to pass them through or otherwise attach them to the detents or locking-pins Q, which pass loosely through one or more lateral arms R, extending from the supports N, and to provide a bridge or rest S on the upper arm R, on which the wire will rest when in its normal position, and from which it will be dislodged when moved by the knot in the thread. When in its normal position, the finger will hold up the detent or locking-pin, so that the reciprocating bar carrying it will be free to move back and forth with the movement of the thread-bar; but when moved from its rest the pin or detent will drop and engage a projection on the shifting-bar T, so as to lock the two bars together and cause them to move in unison far enough for the shifting-bar to act on the belt-shifter to throw off the belt and stop the machine. This shifting-bar slides in ways or slots made in the brackets F, and, except when moved by the engagement of the locking-pin therewith, remains stationary. It



is formed with a series of projections *a*, made preferably by serrating its upper edge, and preferably so as to make the projections of the convex and angular shapes illustrated.

5 The detent or pin may drop wholly by gravity; but it is preferred to quicken its dropping by positive means, which may be a coiled spring *N'*, encircling the pin, with one end connected to it, say by bearing against the collar *b*, held  
10 thereto by a set-screw *c*, by which the tension of the spring can be regulated, and the other end bearing against a suitable bearing, say against one of the arms *R*.

The finger *O* may be passed through a hole  
15 in the pin *Q* and held therein at any desired adjustment by a set-screw *d*, and pins or stops *e* will limit the lateral movement of the finger. It is preferred to form the end of the finger *O* with a notch or fork *v*, through  
20 which the thread will pass, and any enlargement in the thread striking the finger or wall of the fork will move the finger and operate it, as hereinbefore described.

The end of the shifting-bar *T* next to the  
25 power-belt and its pulley is provided with a downhanging arm *V*, which when moved in one direction—say to the right of the machine—will strike a pivoted arm or lever *W*, preferably of the form shown, and turn the  
30 same so as to throw its other end against the belt-shipper *D* and move the same so as to throw off the belt. On the other hand, if the shifting-bar be moved to the left its downhanging arm will strike the fork of the belt-  
35 shipper and move the same so as to throw off the belt. We do not limit ourselves to the particular devices shown for actuating the belt-shipper.

It will be seen from the foregoing that in  
40 whichever direction the fingers be traveling when the locking-pin is dropped the shifting-bar will be moved to throw off the belt and stop the machine.

We have shown and described what we consider to be the best construction and arrangement of parts, but by doing so do not wish to be understood as restricting ourselves to such details.

Having described our invention and set  
50 forth its merits, what we claim is—

1. In a knitting-machine, the combination, with the needles and thread-carrying bar, of a reciprocating bar connected with the thread-  
55 bar to move therewith, fingers carried by said reciprocating bar and having their ends in such proximity to the needles or thread-guides as to be moved by a knot or abnormal thickness in the thread fed from the thread-guides, and means set in motion by the derangement of said fingers and actuating the belt-shipper to throw off the belt and stop the machine, substantially as and for the purposes set forth.

2. In a knitting-machine, the combination, with the needles and thread-carrying bar, of 65 a reciprocating bar connected with the thread-bar to move therewith, uprights or supports carried by said reciprocating bar, a detent or locking-pin carried by each support, a finger supported from each upright and having a 70 connection with said detent or locking-pin to act thereon, with a part of the finger in such proximity to the needles or thread-guides as to be moved by a knot or abnormal thickness in the thread fed from the thread-guides to 75 release said detent or locking-pin, a shifting-bar normally standing at rest and connected to the reciprocating bar to move therewith by said locking-pin when the same is released by the derangement of said finger, and a belt- 80 shipper actuated from said shifting-bar to stop the machine when a knot or abnormal thickness in the thread approaches the needles, substantially as and for the purposes set forth. 85

3. In a knitting-machine, the combination, with the needles and thread-carrying bar, of a reciprocating bar connected with the thread- 90 bar to move therewith, uprights or supports carried by said reciprocating bar and having each thereon a rest or bridge, detents or locking-pins carried by said supports, fingers connected with said detents and resting on said bridges and having a portion thereof in such 95 proximity to the needles or thread-guides as to be moved by a knot or abnormal thickness in the thread to release the detents or locking-pins, a shifting-bar having projections thereon and standing at rest, except when 100 locked to the reciprocating bar by said detent or locking-pin, and a lever acted on by said shifting-bar to actuate a belt-shifter to stop the machine as a knot or abnormal thickness in the thread approaches the needles, substan- 105 tially as and for the purposes set forth.

4. In a knitting-machine, the combination, with the needles and thread-carrying bar, of a finger standing in such proximity to the needles or thread-guides as to be moved by a knot or abnormal thickness in the thread, a 110 reciprocating bar below the needles, carrying said finger, and means intermediate of said finger and a belt-shipper and actuated by the derangement of said finger to transmit motion to the belt-shipper to stop the machine when 115 a knot or abnormal thickness in the thread approaches the needles, substantially as and for the purposes set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JAMES W. CASSIDY.  
EDWARD M. SMITH.

Witnesses:

TIMOTHY McDERMOTT,  
JOHN SCOTT.