

(No Model.)

2 Sheets—Sheet 1.

A. C. MITCHELL.

MECHANISM FOR OPERATING AND REGULATING THE FEED MOVEMENTS
OF SEWING MACHINES.

No. 370,805.

Patented Oct. 4, 1887.

Fig. 1.

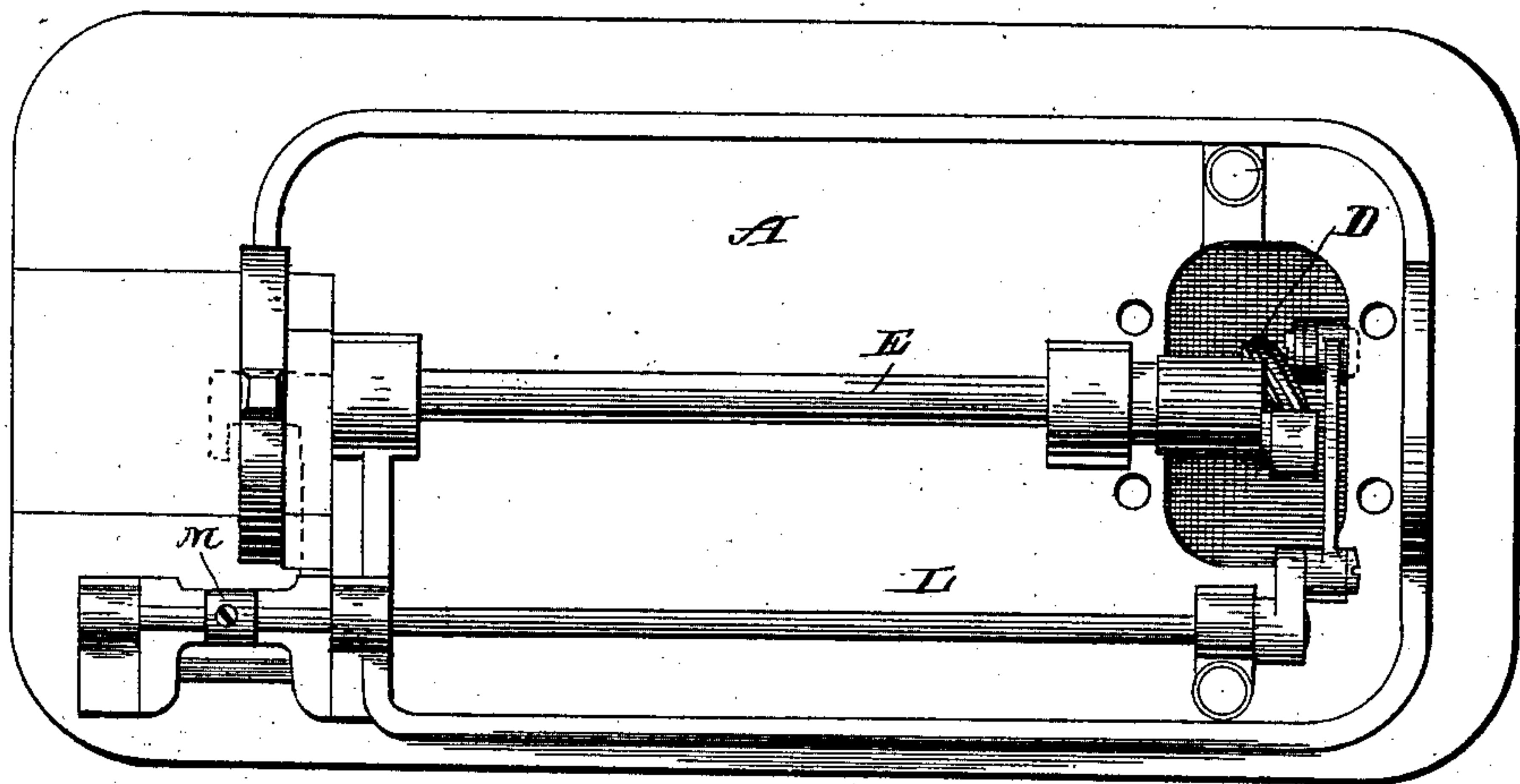


Fig. 2.

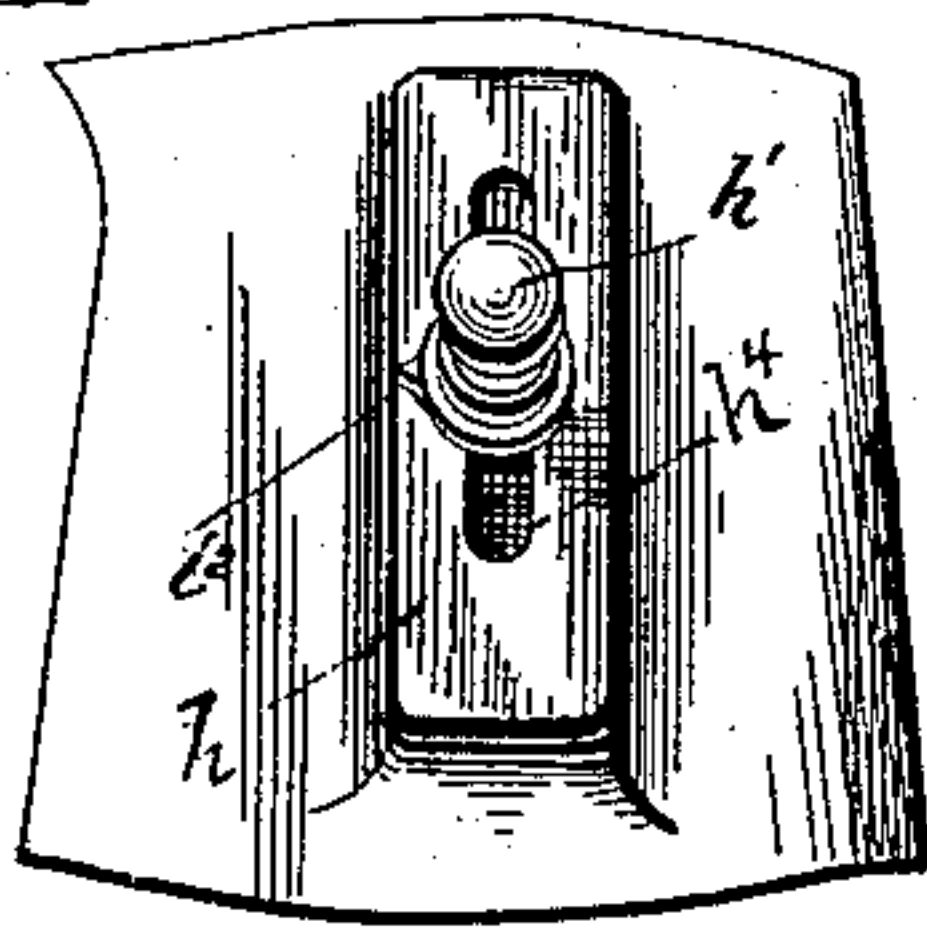
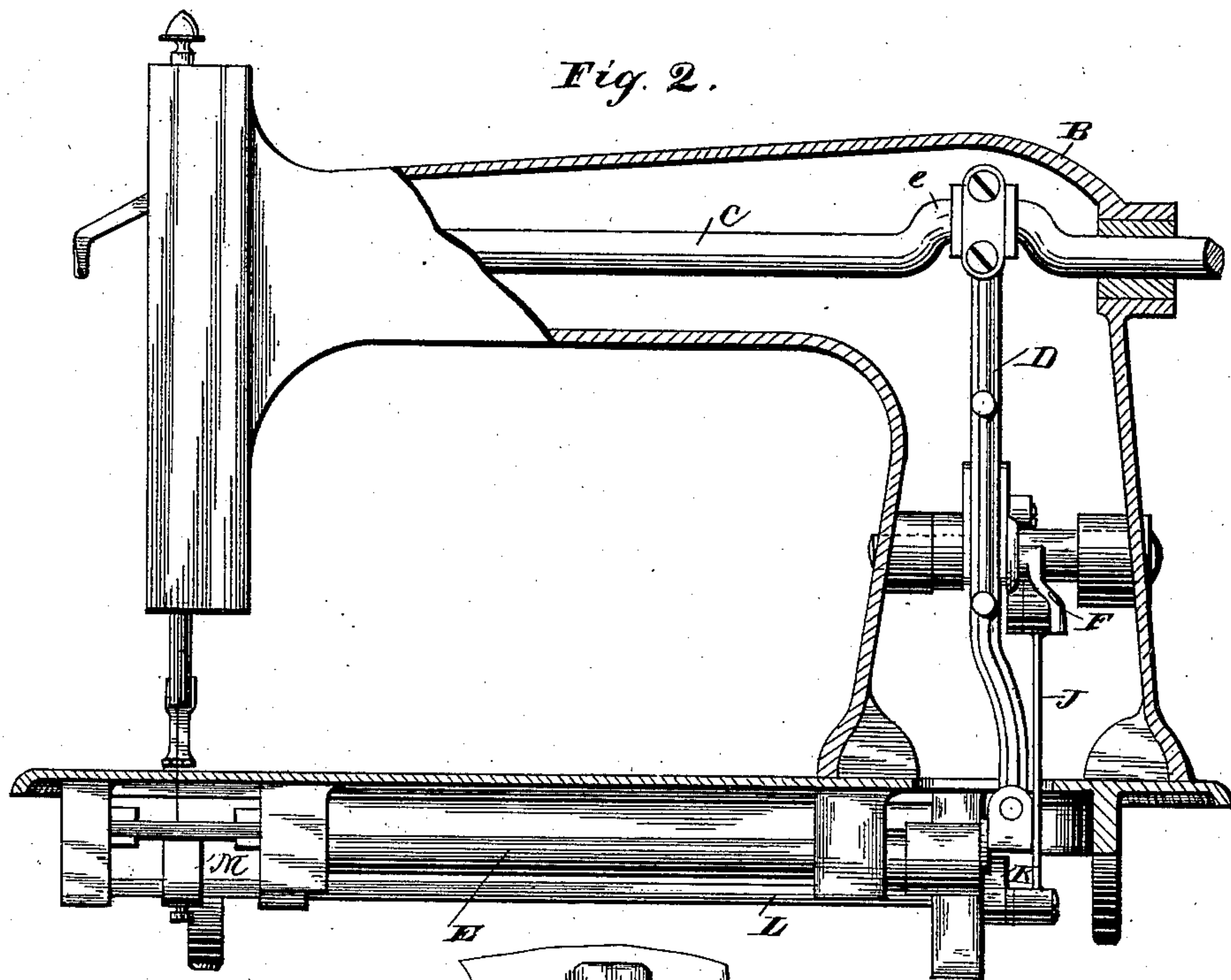


Fig. 9.

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2 Sheets—Sheet 2.

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Fig 4.

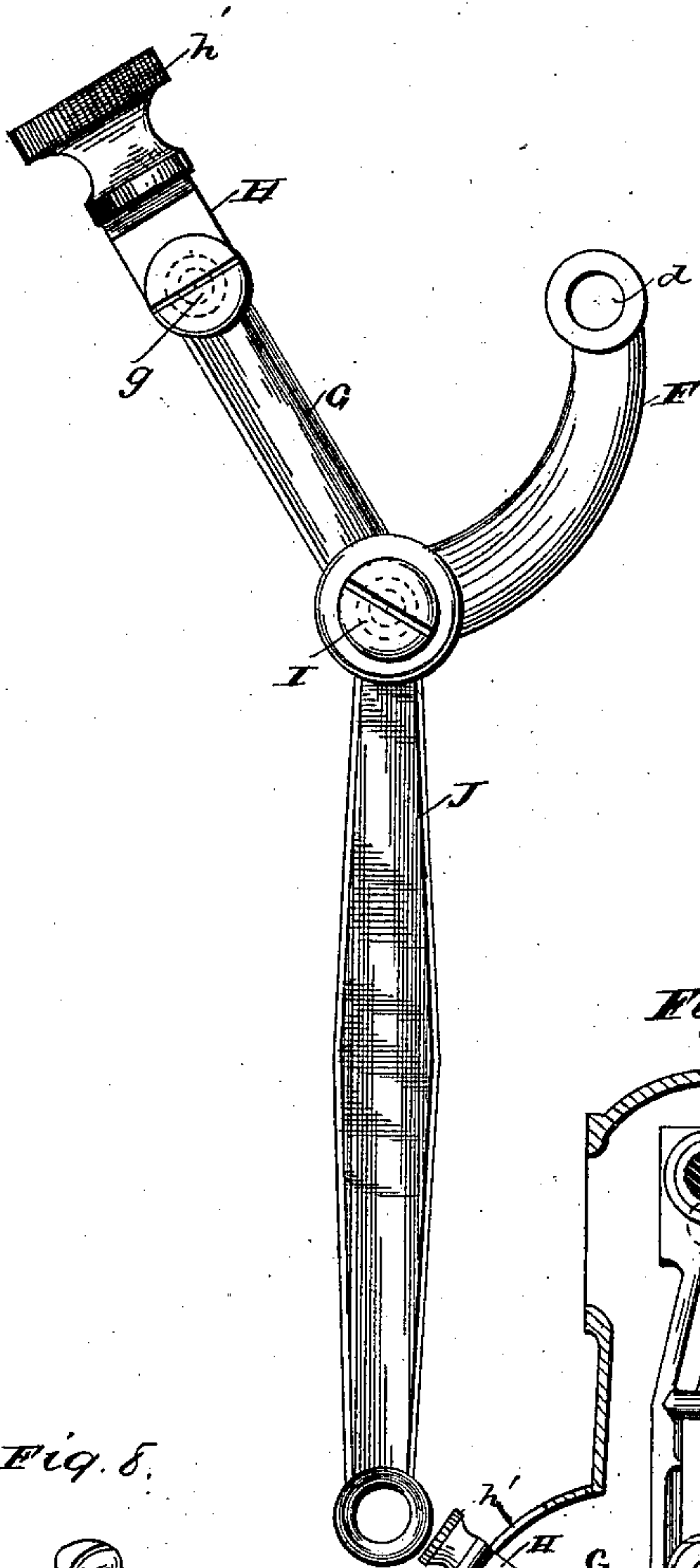


Fig 5.

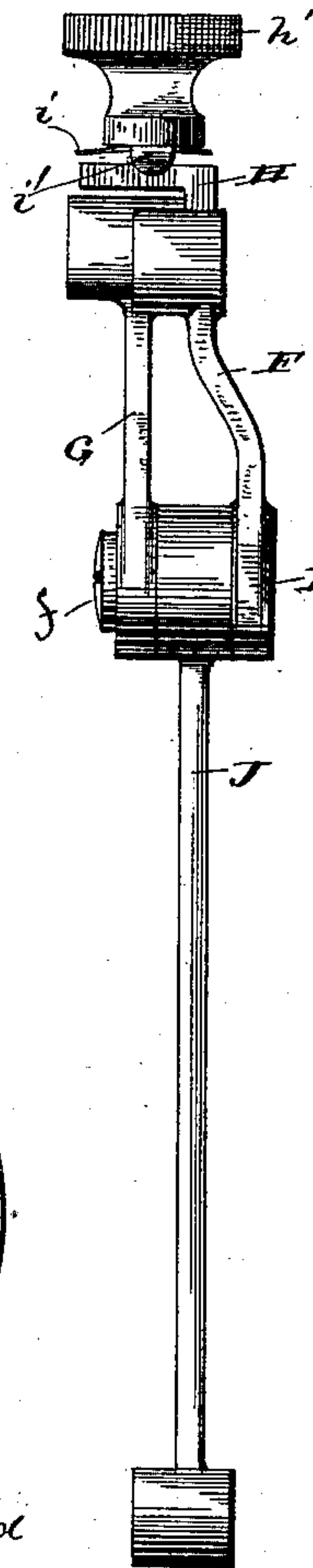


Fig. 6.

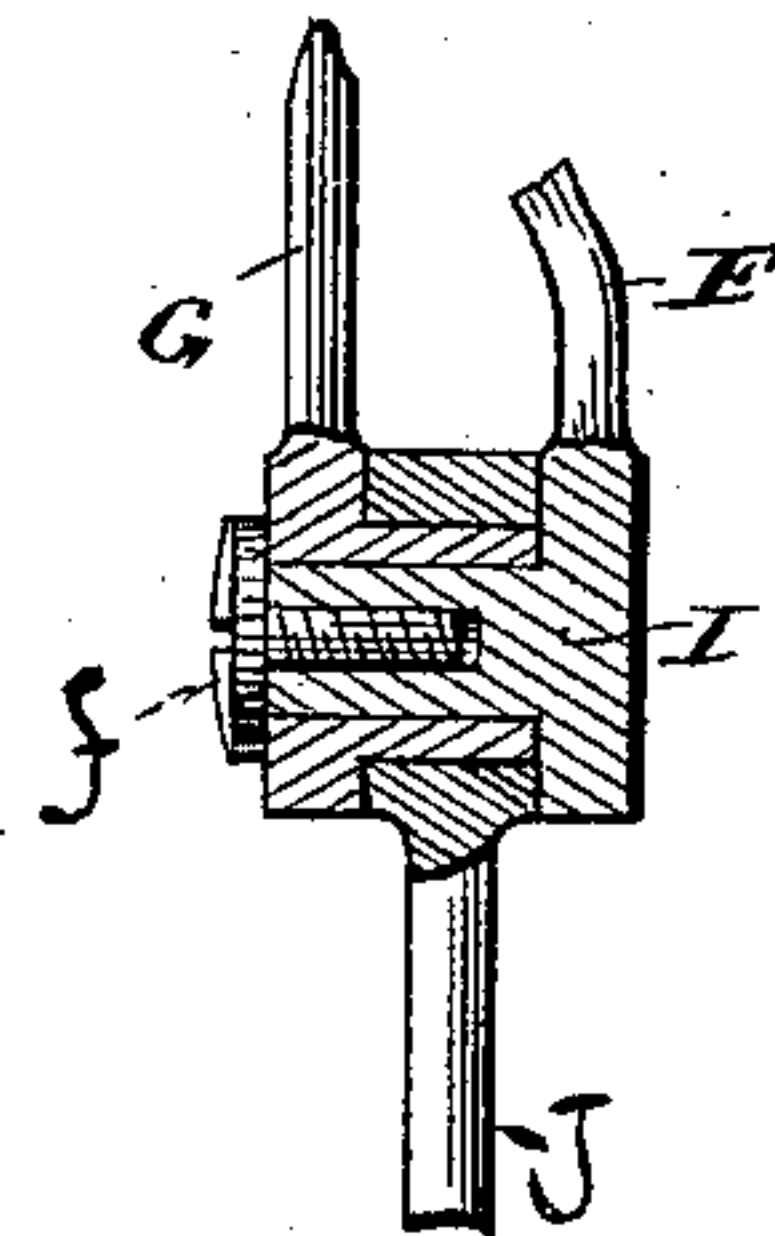


Fig. 3.

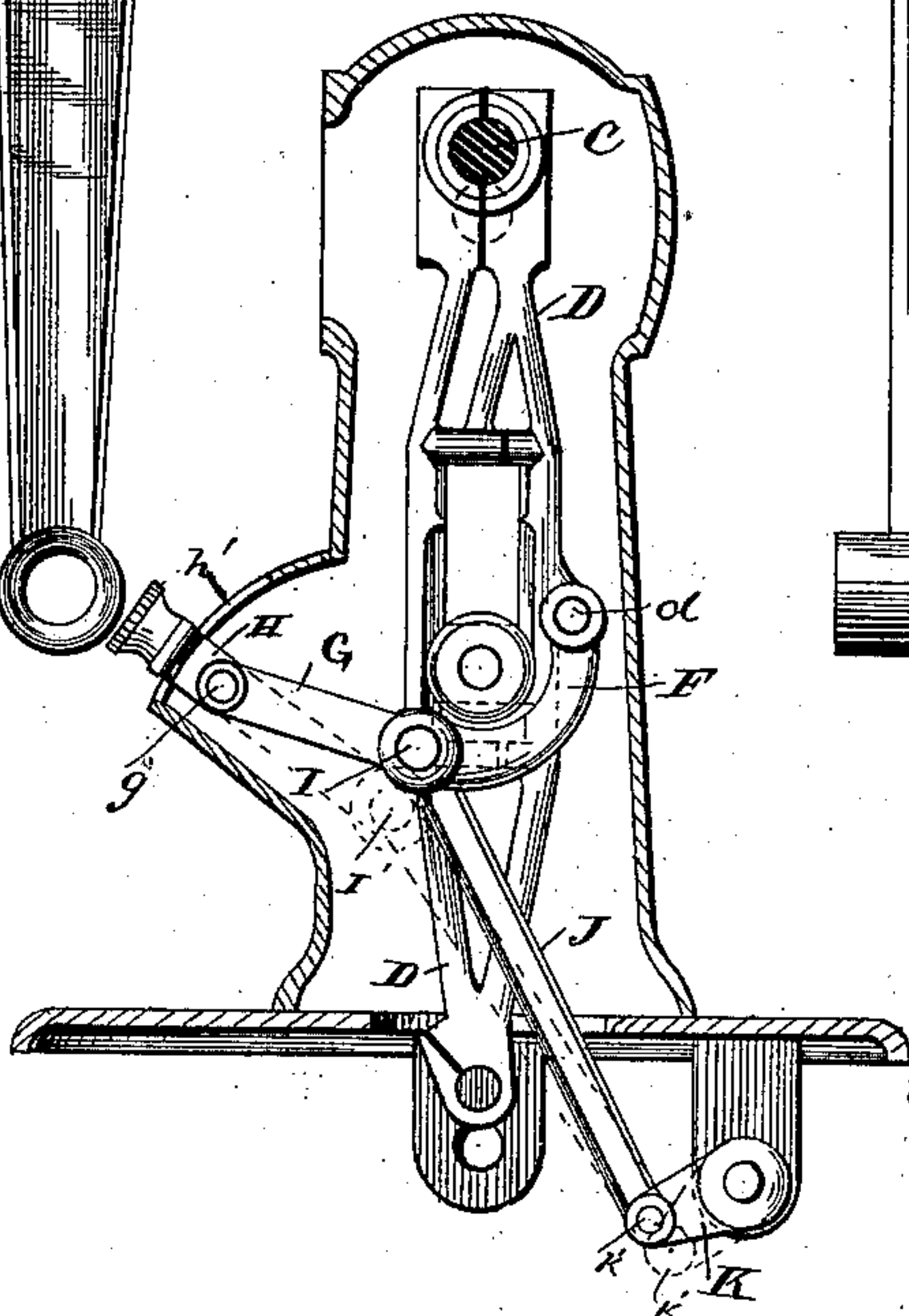


Fig. 8.

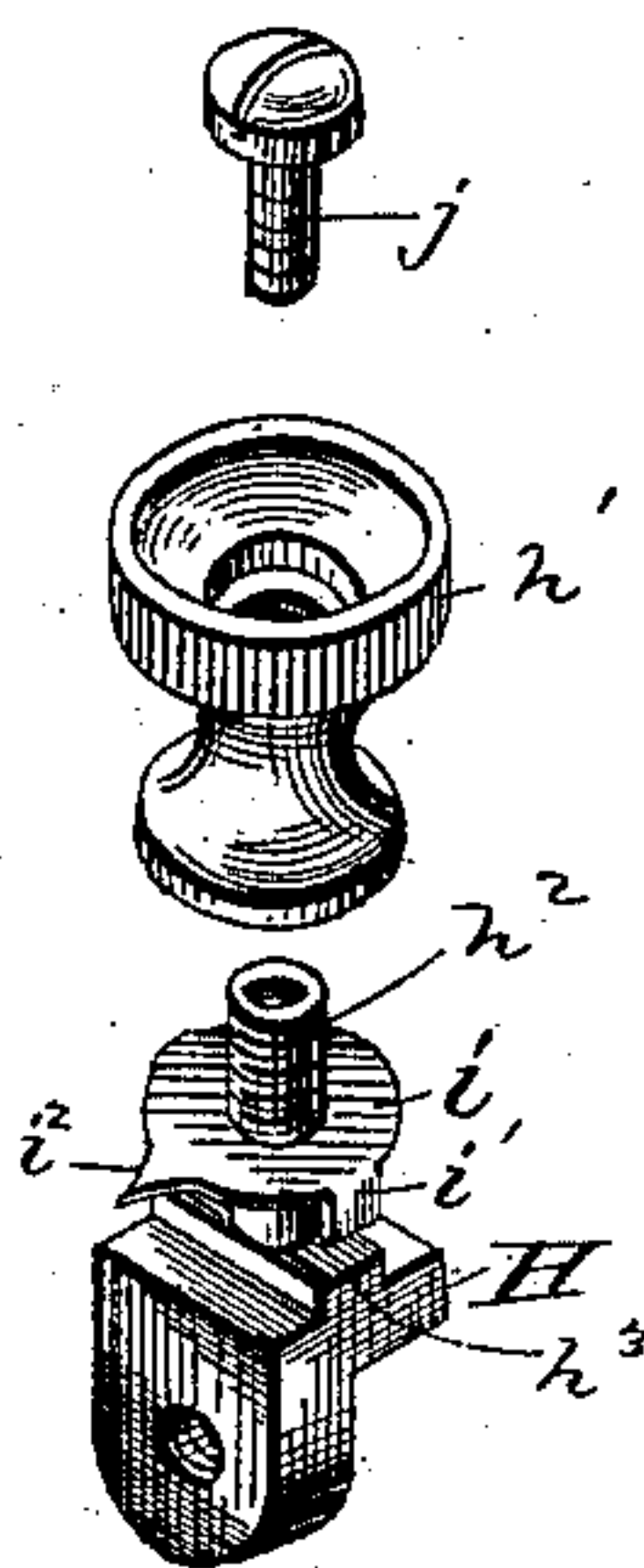
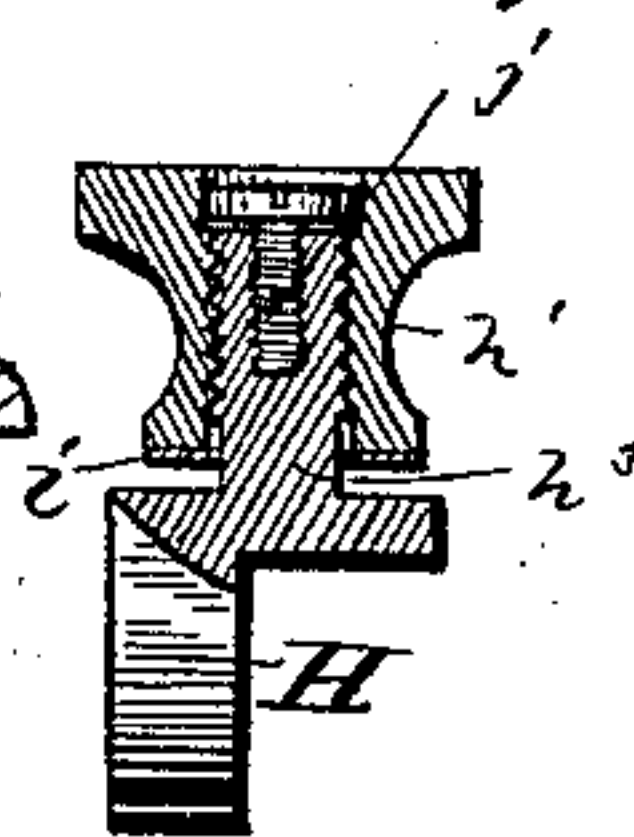


Fig. 7.



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UNITED STATES PATENT OFFICE.

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MECHANISM FOR OPERATING AND REGULATING THE FEED-MOVEMENTS OF SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 370,805, dated October 4, 1887.

Application filed September 6, 1886. Serial No. 212,844. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH C. MITCHELL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Mechanism for Operating and Regulating Feed-Movements; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in mechanism for operating and regulating the feed-movement in sewing-machines, and may be adapted to all machines having a rotating shaft in the arm in conjunction with an eccentric and depending connection-rod, by means of which it may be operated.

The object of my invention is to provide mechanism which will insure regularity in the movement of the feed and easy and quick adjustment for length of stitch, and prevent liability to pulling or ruffling the cloth, which is unavoidable in some of the best-known feeding devices. This difficulty is caused by the irregularity of the movement of the feed, which does not always return to the exact point from which it started and changes its position with the variation in the length of the stitch, and has heretofore been overcome by few of the appliances now in use. I obtain these objects by means of the mechanism illustrated in the accompanying drawings, and more particularly pointed out in the claims.

In the accompanying drawings, Figure 1 represents a plan view of the underside of the bed of a sewing-machine with my device attached. Fig. 2 is a side elevation, partly in section, of the bed and arm of the same machine, showing the connection of my device with the main shaft of the machine and with the feed. Fig. 3 is a transverse section through the upright portion of the arm, showing my device pivotally attached to the connection-rod, and also the screw or nut for regulating the same. Figs. 4 and 5 are views of improved device detached from the machine, and Figs. 6, 7, and 8 are details of the same. Fig. 9 is a side view of the arc and locking-screw.

In the drawings, A represents the bed of a sewing-machine; B, the arm; C, the main shaft; D, the connection-rod; E, the main shaft under

the bed of the machine; e, the crank or eccentric, which gives reciprocating movement to the connecting-rod D. F and G are short links situated in the arm, F being pivoted at one end upon the connection-rod and at the other at I to one end of the link G, which is similarly attached to the lower part of the clamping device shown at H, which moves in a slot in the side of the arm. From the joint I, by which the links are connected, depends a third link or connection-rod, J, by which the movement of the link F and of the pivotal point I is transmitted to the arm K and through it to the feed-shaft L.

The operation of this device may be seen by reference to Fig. 3, where the connection-rod D is shown at the highest limit of its stroke. Upon its downward movement the projecting wrist d and arm B are depressed. The point I, being below the point d, receives some of the movement of the point d, and the link G swings easily upon the pivot g. Through the connecting mechanism before mentioned the reciprocating movement of the point I is made to oscillate the feed-shaft L. In the figure the screw-clamp H, being lowered as far as possible on the measuring-arc h, the movement of the pivot I and connecting-rod J is the greatest, and thereby a greater oscillation caused in the feed-shaft L; but by raising the clamping-screw upon the arc h the pivotal point I will be brought more nearly in line with the pivotal points g on the clamping-screw and k' upon the lower end of the connecting-rod, thus causing a mere vibration of the rod J upon the point k' without transmitting perceptible movement to the arm K or shaft L, the point I returning from each vibration to the original position from which it started, as shown in dotted lines at I', thus causing great regularity and complete and easy means for altering the movement of the feed mechanism and length of stitch.

Fig. 6 shows the manner of forming the pivotal joint I, the parts being made to interlock by means of an annular projection upon the head of the link G, over which is fitted the head of the connection-rod D, and into which is inserted a wrist set at right angles to the head of the link F, the whole being clamped closely together, and retained in position by the broad-headed screw f, thus forming a rigid

joint with sufficient bearing to prevent wear and the rattling accompanying it.

Fig. 7 is a sectional view of the clamping device. Fig. 8 shows detail views of the same, 5 and Fig. 9 is a side view of the graduated arc and screw. In these figures H is the clamping-piece; h', the thumb-screw; i, the spring, which also serves as a pointer; and j a small screw inserted in the upright spindle h² of the 10 clamping-piece, to prevent the thumb-screw from being detached. The spring i has wings or projections i', which are intended to be turned down over the narrow faces of the neck h³, which projects through the slot h⁴ in the 15 arm. These wings prevent the spring, which also has a pointer, i'', attached, from turning.

In Fig. 2, M is a forked arm attached to the feed-rod, and receives in its slot a bar in the sliding frame of the feed, thus transmitting the 20 movement of the shaft L to the feed.

All the parts of my afore-described device may be altered in length or proportions, thus obtaining any desired play of the parts or alterations in the amount of the feed, which is 25 an apparent advantage.

In a modification of my device the regulating mechanism may be arranged longitudinally under the bed of the machine and connected with the lower end of the connection-rod in the arm, operating substantially as before. 30 In this arrangement the adjusting-screw

and graduated arc would appear on the upper surface of the bed.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, 35 is—

1. The combination of a main shaft, a vertically-reciprocating connecting-rod, and a feed-shaft with three links, one of which is connected with the connecting-rod, one with 40 the feed-bar, and one with a hand piece or nut, adjustable on the arm of the machine, said three links being pivotally joined on a common center and operating substantially as set forth. 45

2. In a sewing-machine, the following elements, in combination: a feed-shaft, a main shaft, a reciprocating connecting-rod on the main shaft, and three links interposed between the said rod and the feed-shaft, said links being pivoted at one end on a common center 50 with each other, and one each of said links attached to the connecting-rod and the feed-shaft, respectively, and the third link provided with a handle and locking mechanism, 55 whereby the position of the three links can be controlled, and thereby the feed of the machine, substantially as set forth.

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