

No. 652,908.

Patented July 3, 1900.

J. B. HADAWAY.
STITCH SEPARATING MACHINE.
(Application filed May 2, 1900.)

(No Model.)

3 Sheets—Sheet 1.

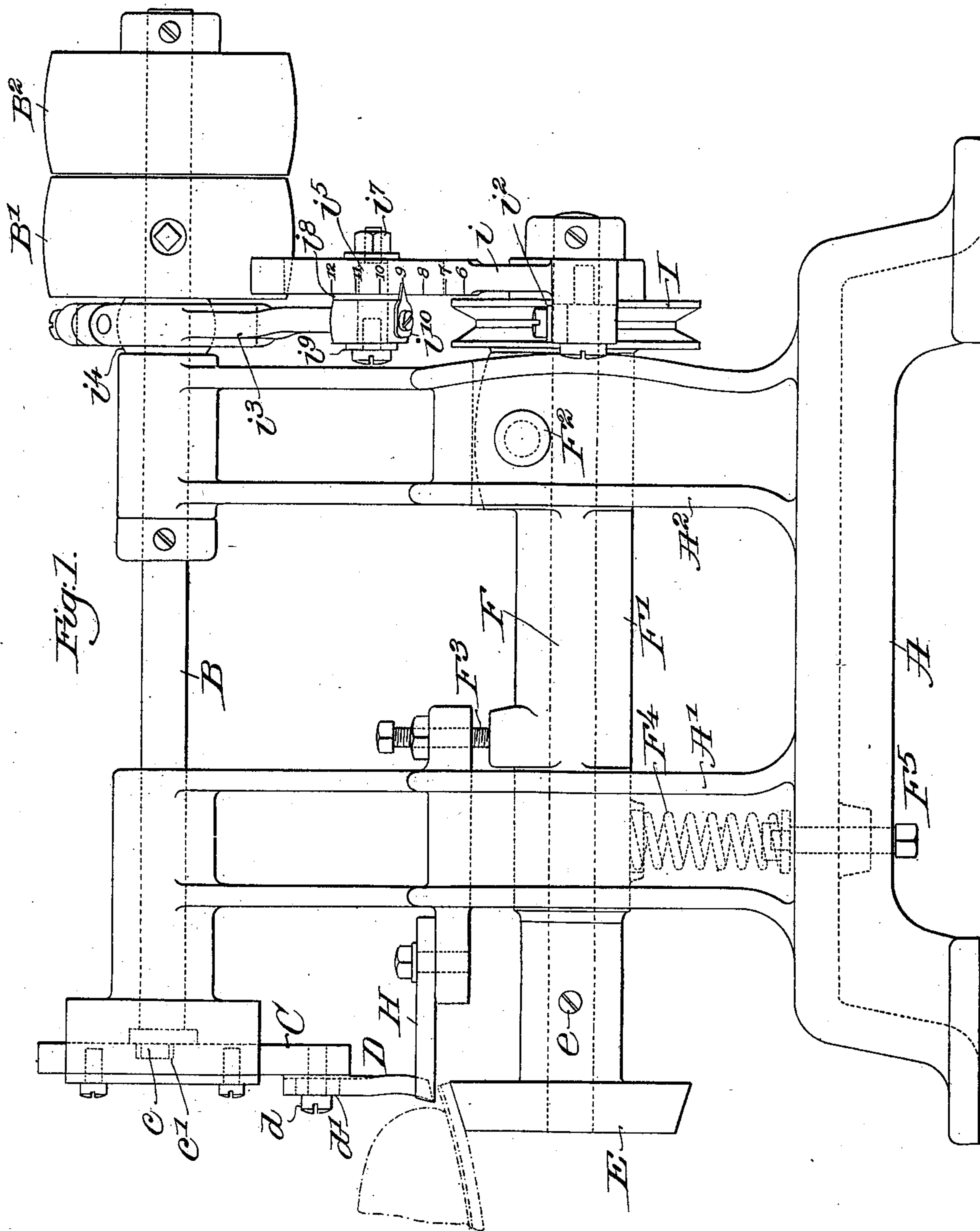


Fig. 1.

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Inventor:
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by his Attorney
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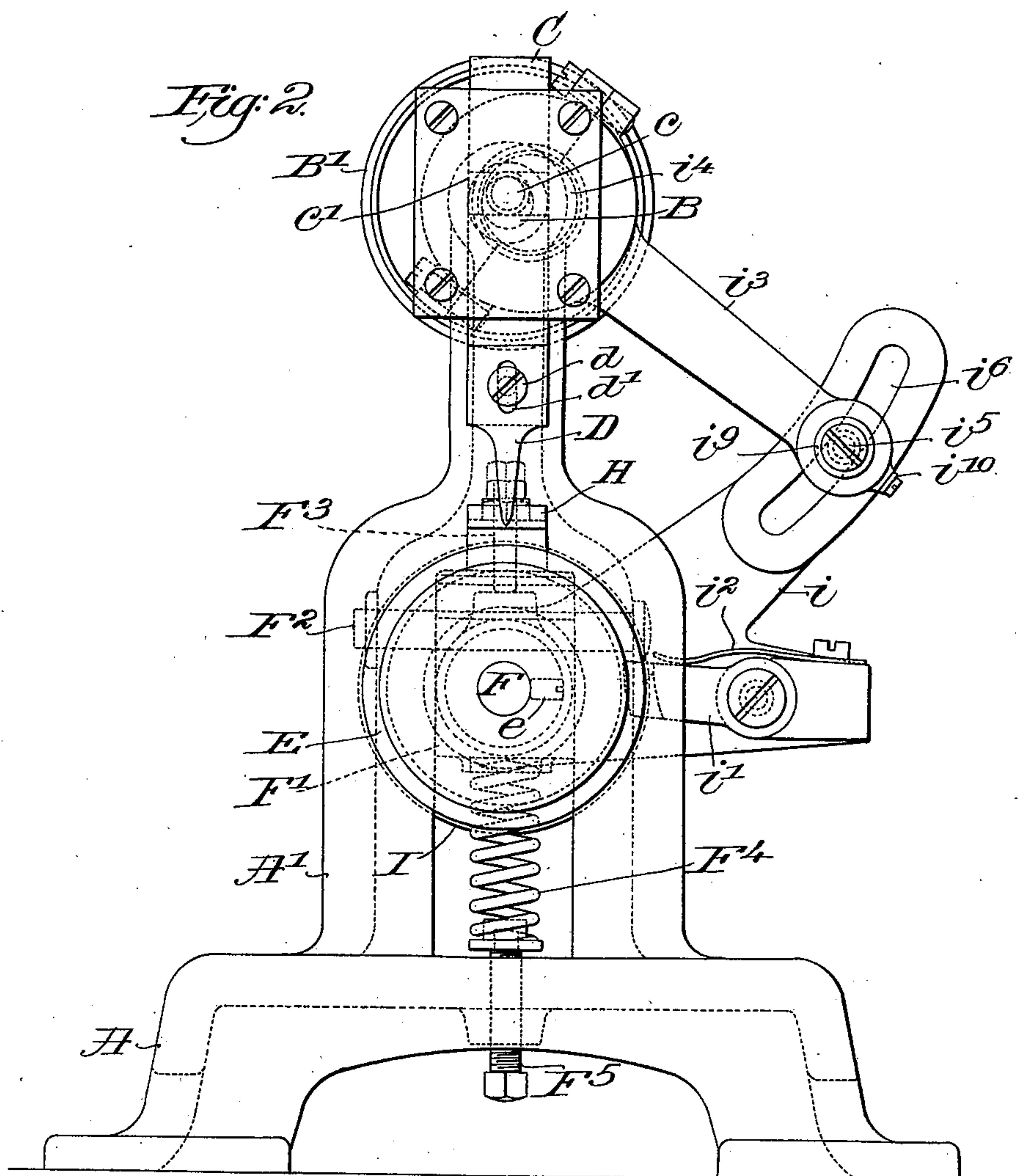
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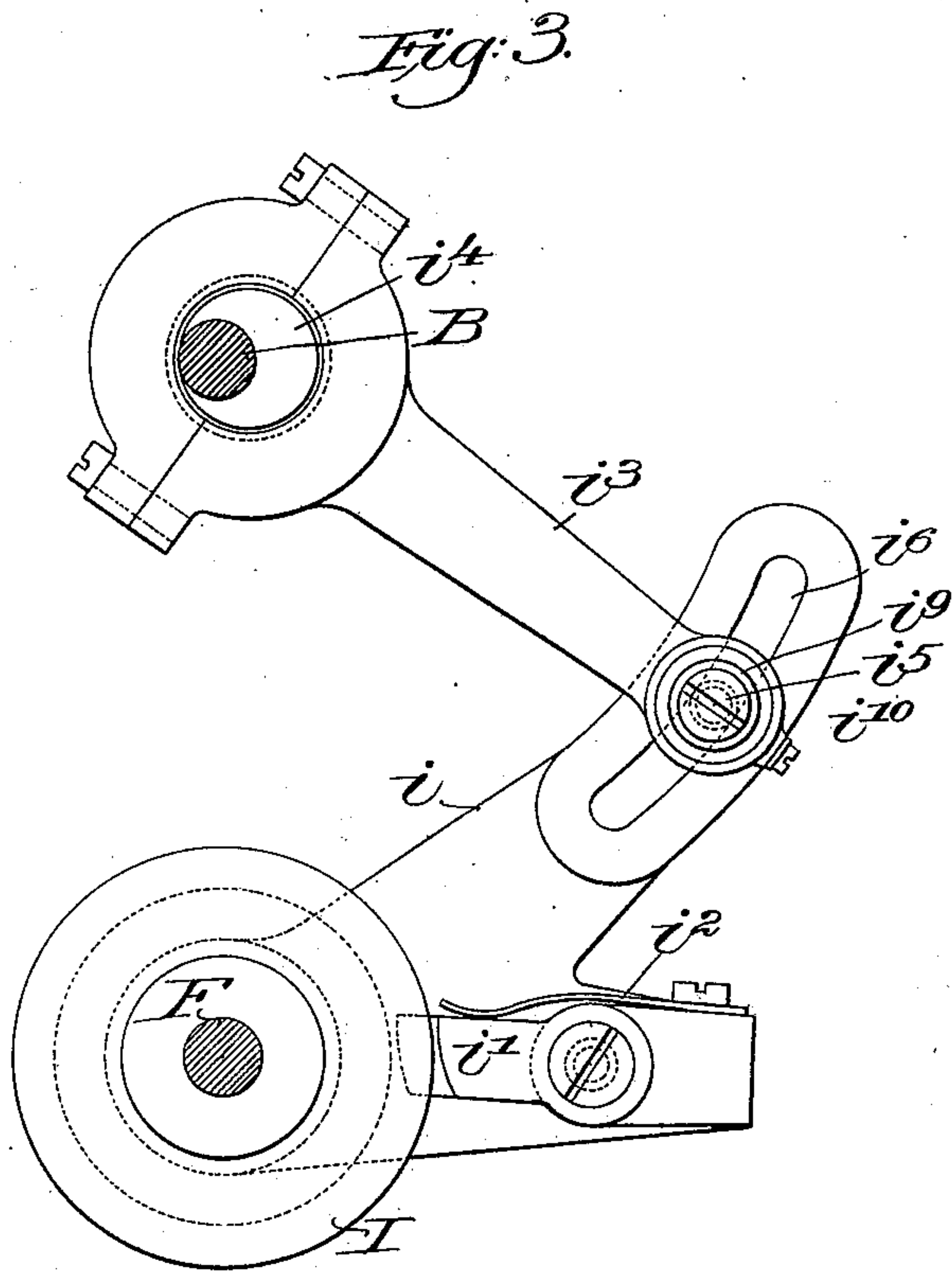
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3 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

JOHN B. HADAWAY, OF BROCKTON, MASSACHUSETTS.

STITCH-SEPARATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 652,908, dated July 3, 1900.

Application filed May 2, 1900. Serial No. 15,207. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. HADAWAY, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Stitch-Separating Machines; and I 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.

The present invention relates to improvements in stitch-separating machines or "stitch separating and indenting machines," as they are sometimes called, and more particularly to that class of such machines by which the stitch-separating operation is performed after the seam has been finished.

The object of the present invention is to provide a simple and effective means of compensating for the slight variations in the length of stitches commonly found in boot and shoe work, so that the stitch-separating tool will accurately indent the intervals between the stitches whether of varying or uniform length. While I am aware that it is not broadly new to provide for such compensation, such provision having been made in several machines heretofore patented by me, I have by my present invention produced a simple and effective means of securing this result which greatly reduces the cost of machines of this class without impairing their efficiency.

To the above end the present invention consists of the devices and combinations of devices hereinafter set forth and claimed.

A preferred form of my present invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying the same. Fig. 2 is a front end elevation, and Fig. 3 is an elevation of a portion of the mechanism for actuating the feed.

In carrying out my present invention I provide a stitch-separating tool which has a fixed path of movement to and from the work to be operated upon, so as to always act upon the work at a certain fixed point in its travel, and combine with this tool a feeding mechanism for feeding the work uniform distances between the indenting operations so arranged

as to allow the indenting-tool in acting on the stitches to shift the work backward or forward to compensate for variations in the length of the stitches. To allow of this shifting action, I provide a feeding mechanism which may engage the work with sufficient friction to feed it between the indenting operations and yet allow the work to slip through the feeding mechanism under the action of the tool on the stitches, or the operating devices of the feed mechanism may be arranged to allow the feed mechanism to move with the work independently of its operating devices.

In the preferred form of my invention, to be hereinafter specifically described, I provide an indenting-tool rigidly secured upon a slide reciprocating in fixed guides and a yieldingly-mounted sole supporting and feeding roll, to the shaft of which is secured a grooved friction driving-disk. With this disk coöperates a suitable friction-pawl, whereby the feed-roll, and consequently the friction-disk, may be shifted either backward or forward independently of the pawl without interfering with the proper action of the pawl in turning the feed-wheel uniform distances.

As shown in the drawings, in which like reference characters indicate like parts, the frame of the machine consists of the base A and the two uprights A' and A².

B is the main shaft, journaled at the top of the uprights A' A² and provided with the fast and loose pulleys B' B². Reciprocating in fixed guideways in the upright A' is the tool-carrying slide C. This slide is reciprocated by a crank-pin c at the end of the shaft B engaging a slot c' in the slide. The stitch separating or indenting tool D is secured to the lower end of the slide C, so as to be capable of vertical adjustment, by means of the screw-bolt d, passing through a vertical slot d' in the shank of the tool.

Directly beneath the reciprocating tool D is the work supporting and feeding roll E, secured by a screw e to a feed-shaft F. This shaft is journaled in a block F', pivoted at F² in an opening in the lower part of the upright A² and adapted to swing vertically in an opening in the upright A'. The block F' is held yieldingly against an adjustable stop F³ on the upright A' by means of the coil-

spring F^4 , situated in the opening in the upright A' and beneath the free end of the block. The upper end of this spring is seated in a recess formed in the lower part of the free end of the block F' , and its lower end rests on the shoulder of a block carried by a vertical adjusting-screw F^5 .

Situated just above the roll E and extending from a lug on the upright A' to the proximity of and slightly beyond the working edge of the tool D is a combined gage and upper guard H , which will be more particularly described hereinafter. This part H is secured to a lug of the upright A' by means of a screw-bolt, as shown.

Fast on the end of the shaft F opposite to the roll E is the disk I , the periphery of which is formed with a V-shaped groove. Coacting with this grooved disk is a friction-pawl mechanism comprising a lever i , loosely pivoted on the shaft F and having pivoted thereto the friction-pawl i' . This pawl is provided with a V-shaped end, which is adapted to engage the correspondingly-shaped groove of the disk I and is pressed into engagement with the disk by the spring i^2 , secured to the lever i and bearing upon the upper side of the pawl. The lever i is oscillated in order to give the requisite feed movements to the disk I by means of a rod i^3 , connected at one end to the outer end of the lever i and at its opposite end provided with a strap surrounding an eccentric i^4 on the main shaft. This frictional pawl-and-ratchet mechanism is designed to move the feed-roll forward intermittently uniform distances corresponding to the normal length of the stitches in the work being operated upon, and in order to adjust the distance through which the feed-roll is moved in each feeding movement to correspond with the different lengths of stitches found in different styles of work—as, for instance, in shoes of different sizes—I provide an adjustable connection between the lever i and the rod i^3 . As shown, this connection consists of a pin i^5 , passing through a slot i^6 in the outer end of the lever i , held in adjusted position by means of the screw-nut i^7 and forming a pivot for the end of the rod i^3 . The rod i^3 is held upon the pin between a flange i^8 on the pin and an end washer i^9 .

i^{10} is a pointer carried by the end of the rod i^3 and moving over a scale on the lever i to indicate the kind of work for which the feed-operating devices are adjusted.

It will be noted that the peripheral surface of the roll E is at an angle to the axis of the roll and that the lower surface of the part H is substantially parallel with this axis. By reason of this construction the part H acts as a gage for the work on the roll E and properly positions it with relation to the separating-tool D . As stated above, the part H extends slightly beyond the tool D and so acts as a guard for the upper of a shoe being operated upon by preventing the upper passing beneath the tool.

In the operation of the machine the roll E is first adjusted by means of the adjusting-stop F^3 to the proper distance below the gage H . The proper position for the roll E will be determined by the thickness of the shoe-sole being operated upon and by the distance to which the sole extends beyond the upper. The actuating devices of the feed mechanism having been adjusted to give the length of feed required, the workman places the shoe the stitches of which are to be indented upon the roll E , as shown in Fig. 1, the bottom of the sole engaging the feed-roll and the sole being properly positioned under the separating-tool D by the gage-plate H . The shoe is held upon the roll E and properly guided by the workman during the indenting operation. So long as there are no irregularities in the stitches it will be evident that the movements given to the feed-roll E by its actuating mechanism will properly position the work beneath the tool D at each feeding operation. Should, however, irregularities occur, the work will not be properly positioned and the tool will strike to one side of the space between the stitches. In such case it is necessary that the work be shifted by the action of the tool on the stitches, and this is provided for in my present invention by the novel construction and arrangement of my feeding mechanism and actuating devices. It will be noted that my feeding mechanism engages the bottom of the sole only and that by reason of its frictional engagement therewith the sole can be made to slip over the engaging surface under the action of the indenting-tool on the stitches. I may rely on this slipping action alone or I may so arrange the feeding mechanism with relation to its actuating devices as to allow a movement of the feed mechanism with the work under the action of the tool on the stitches independently of the feed-mechanism-actuating devices or I may combine these methods of operation. The apparatus shown in the drawings and described above may be so constructed as to act in any one of these three ways.

It will be seen that the feeding-roll E is always free to move forward independently of its actuating devices and that it is free to move backward during the return stroke of the lever i . It will also be seen that the actuating devices will act to move the feed-roll uniform distances after the feed-roll has been shifted in either direction. Preferably I so arrange the actuating devices of the feed mechanism with relation to the mechanism for actuating the separating-tool as to cause the indenting action to take place while the feed mechanism is free from its actuating devices. I may, however, cause the indenting action to take place at the end of the feed movement and while the feed mechanism is still engaged by its actuating devices. In such case the feed mechanism would move forward with the work in compensating for a

long stitch; but the work would slip backward through the feed mechanism in compensating for a short stitch. It will, moreover, be evident that the feed mechanism might be mounted with sufficient friction to cause the work to slip when moved by the action of the separating-tool on the stitches instead of actuating the feed mechanism.

Having thus described my invention and explained the operation thereof, what I claim, and desire to secure by Letters Patent, is—

1. A stitch-separating machine, having, in combination, a stitch-separating tool, a feeding device acting on the bottom of the sole arranged to permit the sole to be moved in either direction by the action of the tool on the stitches, and mechanism to actuate the feed to cause it to feed the sole uniform distances, and mechanism to actuate the separating-tool, substantially as described.

2. A stitch-separating machine, having, in combination, a stitch-separating tool, feed mechanism movable in either direction by the action of the tool on the stitches, means to actuate the feed mechanism to feed the sole uniform distances in one direction, and mechanism for actuating the tool, substantially as described.

3. A stitch-separating machine, having, in combination, a feed-roll, movable in either direction by the action of the tool on the stitches, mechanism for actuating the feed-roll to feed the sole uniform distances, having provision for releasing it to permit its movement by the separating-tool, and mechanism for actuating the tool, substantially as described.

4. A stitch-separating machine, having, in combination, a stitch-separating tool, a feeding device in constant engagement with the work arranged to permit the work to be moved in either direction by the action of the tool on the stitches, mechanism to actuate the feed to cause it to feed the work uniform distances, and mechanism to actuate the separating-tool, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN B. HADAWAY.

Witnesses:

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ALFRED H. HILDRETH.