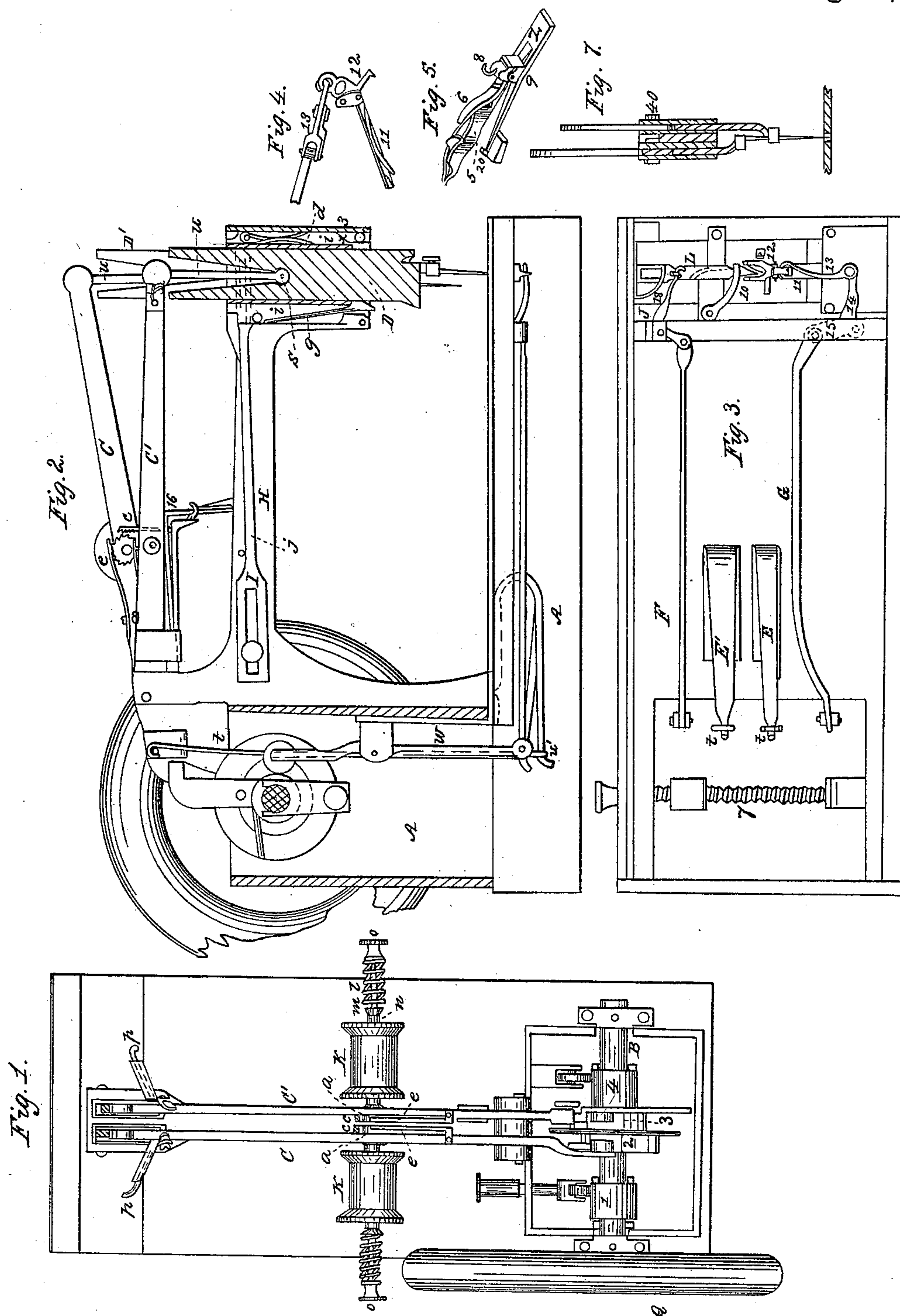


W. T. BARNES.
Sewing Machine.

2 Sheets—Sheet 1.

No. 25,084.

Patented Aug. 16, 1859.



Witnesses:
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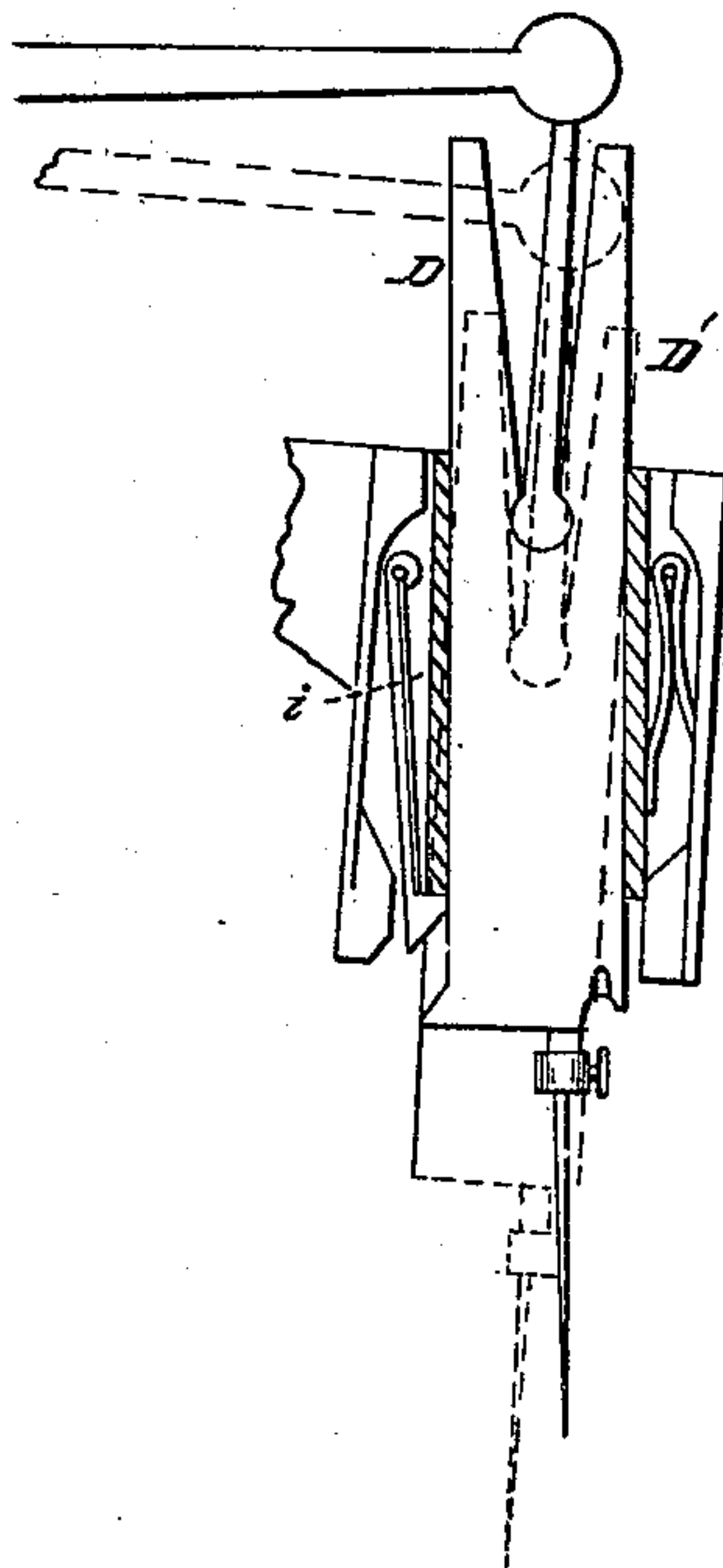
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Fig. 7.



UNITED STATES PATENT OFFICE.

WILLIAM T. BARNES, OF BUFFALO, NEW YORK.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 25,084, dated August 16, 1859.

To all whom it may concern:

Be it known that I, WILLIAM T. BARNES, of Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in the arrangement and employment of those parts which will be hereinafter particularly described.

In the annexed drawings, Figure 1 represents a plan view of the machine. Fig. 2 is a side elevation, showing the internal arrangement of the needle-bars. Fig. 3 is a bottom view. Fig. 4 is a view of the feed apparatus. Fig. 5 is a perspective view of the looper.

In the several figures, A A represent the frame of the machine. At the rear and across the hollow perpendicular portion of the said frame is placed a shaft, B, to one end of which is secured the driving-wheel Q. This shaft B is provided with four cams, marked 1 2 3 4.

C C' represent two levers, which are for the purpose of operating the needle-bars. These levers are hinged to the frame back of their centers, and are provided at their rear ends with small friction-wheels. These wheels play on top of the cams 2 and 3, by means of which said levers are operated in one direction, said levers being operated in an opposite direction by means of springs E E', which are connected to the levers by connecting-rods t t. The front ends of the levers C C' are attached to the needle-bars D D by means of rods u u, which are pivoted to the levers and work with a ball-joint in the needle-bars. The upper ends of the needle-bars are forked in order to allow of proper play for the rods u u.

H is a projecting arm from the frame, the outer end of which is hollow. In said hollow end are placed two box-guides, i i, through which the needle-bars pass. The lower ends of the needle-bars are provided with inclined projections h on one side, as seen in Fig. 2.

d represents a spring, which is placed in the hollow of the arm, and which works against the box i on one side.

g represents a bar, which is also placed in the hollow of the arm and works against the box i on the other side. The lower end of

bar g is made wedge shape. On the opposite side of the box to bar g is a recess in the hollow arm, which has its lower side inclined, as is seen at x.

The needle-bar D, Fig. 2, is now represented as being down; but when the lever causes it to ascend the projection h on the end of the bar comes in contact with the wedge on the end of bar g, which causes the bar to sheer off to one side, it being allowed to enter the recess on the opposite side from bar g by the inclined side x. When the bar again descends, the spring d causes the bar to sheer back again as the projection h leaves the wedge on bar g.

In Fig. 6, which is a section of that part of the frame through which the needle-bars play, 40 represents pivots, on which the boxes i i turn partially as the machine operates. In Fig. 7 the positions of the boxes i i are seen in full and dotted line as the machine operates. When one needle descends, the other first moves to one side, as has been explained, and as is seen in Fig. 7, each needle-bar being secured in a separate box, i, which is allowed to oscillate to change the direction of the point, as also the position of the needle at the proper time.

Secured to each of the levers C C' is a rod, over which the spools k k pass, a tube, n, being inserted in each spool before putting it on the rod. m m represent hollow frustums of cones, which pass over the rods after the spools. The small ends of the cones pass into the end of the tube through the spool. Springs l l press against the cones, and are regulated by means of nuts o o on the end of the rod. A groove in the rod and a tongue on the cone prevent it from turning around when the spool turns. This arrangement is for the purpose of forming a tension for the thread. The spool-rods pass through the levers, and are provided on their inner ends with small ratchet-wheels a a. Serrated spring-bars c c are secured at one end to the arm H, which stand and press against said ratchet-wheels, and spring-ratchets e e, secured to the levers, catch in the teeth on the wheels a a. When the levers ascend, the serrated bars allow the ratchet-wheel to pass up; but when the levers return these bars hold the teeth of the ratchet-wheel, so that it revolves backward as it goes down, causing the spool to revolve for the purpose of taking up the slack thread. As the thread is needed

from the spool the tube *n*, on which the spool is secured, turns on the rod and allows the thread to pass off.

F and G represent two rods, which are operated on at their rear ends by means of two connecting-rods, *n n*, which are attached to them at one end, and which are provided with friction-wheels *m m* at their other ends, which are acted upon by the cams 1 and 4 on shaft B. Rod F connects at its front end with a bent lever, J, and said lever J connects with and operates the looper L. The looper L is composed of several parts. It is provided with two springs, (marked 5 and 7,) as is seen in Fig. 5. One of these springs, 5, springs laterally, and is pivoted to spring 7. One portion of 7 is formed very much like 5, but it changes as it extends back, and is so constructed as to spring vertically.

6 is a finger, which is secured to a hook, 8, with which the bent lever J connects. This hook works on a pivot, and when the lever J draws upon it, and thus operates the looper backward, the finger 6 is raised off of the springs 5 and 7; but when the lever pushes the looper up toward the needle the finger bears upon the springs 5 and 7 and presses them up to the under side of the table and spreads them upon a wedge, 10. (Seen in Fig. 3.) This wedge is secured to the bottom of the table in such a position as to enter between the points, or between the springs 5 and 7, near their points, so as to spread them when the loop is on them. Rod G operates the feed. It connects with levers 15, 14, and 13. 13 connects with a small bent lever, 12, which is pivoted to a slide, 11. This lever 12 is bent at right angles, and one end of it is provided with two points, (.,) which pass through slots in the bed-plate and serve to feed the material to the needle. This lever 12, being pivoted to the slide, first moves upon its pivot before moving the slide. When one end of it is drawn on by the lever 13, the points on the other end draw out of the cloth, and after having drawn out the lever 12 is so arranged as to stand with its points in that position until 13 draws it and the slide back the length of a stitch. As soon as 13 bears upon 12 to move it forward the points run into the cloth, and the slide, moving forward, carries up the cloth again, and thus the operation of feeding the cloth continues.

I represents a steel spring, slotted at its rear end, and secured through this slot, by means of a screw, to the arm H.

j is a pin in arm H, just above the spring I, and against which the spring bears. The forward end of this spring is secured to the shoe-arm by a screw or pin on said arm, which plays in a slot in the forward end of said spring. This is a straight metallic spring, made thicker vertically at its rear, and gradually tapering toward its front end. This spring, it will be seen, is adjustable on the pins which pass through it, and by pressing it forward or drawing it back the pressure

upon the shoe-arm is regulated. Said shoe-arm is constructed in the ordinary manner.

The lever C' is made in two parts, one part being secured to the other by means of spring 16, which is attached to one part, and which holds by means of a catch in the other. The object in making this lever in two parts is to enable me to throw one of the needles in or out of gear at pleasure. 17 is a screw which passes through the frame, as seen, by means of which the cams 1 and 4 on shaft B are moved and adjusted.

In the operation of my machine the cloth is placed under the needles upon the table and the machine is set in motion. The feed apparatus, which has been described, acts on the cloth and against the shoe on top of the cloth and moves it along. One needle at a time descends, and both pass into the same hole by means of the arrangement of the needle-bars hereinbefore described. As one ascends it sheers off to make place for the other, and they ascend and descend alternately. When the needle passes through the cloth and carries the thread down, the looper moves up toward it and the points of the two springs 5 and 7 enter the loop. The finger 6 then presses upon the springs, bears them down, and spreads them upon the wedge 10. They hold the loop open until the next needle comes down at the back of the loop and takes it off from the springs, which draw back and again come forward and take the loop from the needle and hold it open until the next needle descends and takes it, and so it continues to operate. The slack of the thread is taken up each time the needle passes down, and the tension of the thread is regulated, as has been described.

18, Fig. 3, represents a spring which stands at the back of the looper, and serves to press it straight forward into the loop. When the looper has moved into the loop a certain distance, it is stopped by means of a pin or shoulder, as is seen at 20, Fig. 5. When the looper strikes this pin, then the finger 6 is acted upon, as before described, so as to push the springs 5 and 7 toward the table.

Having thus fully described my invention, I claim—

1. Working two needles vertically and alternately in the same hole in the bed-plate, substantially in the manner and for the purpose herein set forth.

2. The arrangement of springs 5 and 7, wedge 10, finger 6, spring 18, and stop 20, substantially in the manner herein specified.

3. The arrangement of lever 13, slide 11, and lever 12, when said lever 12 is provided with points, is pivoted to slide 11, and made to operate substantially in the manner herein described.

4. The arrangement of the ratchet-wheel *a*, serrated bar *c*, and ratchet *e*, with the spool-rod and levers C C', substantially as set forth.

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