

(Model.)

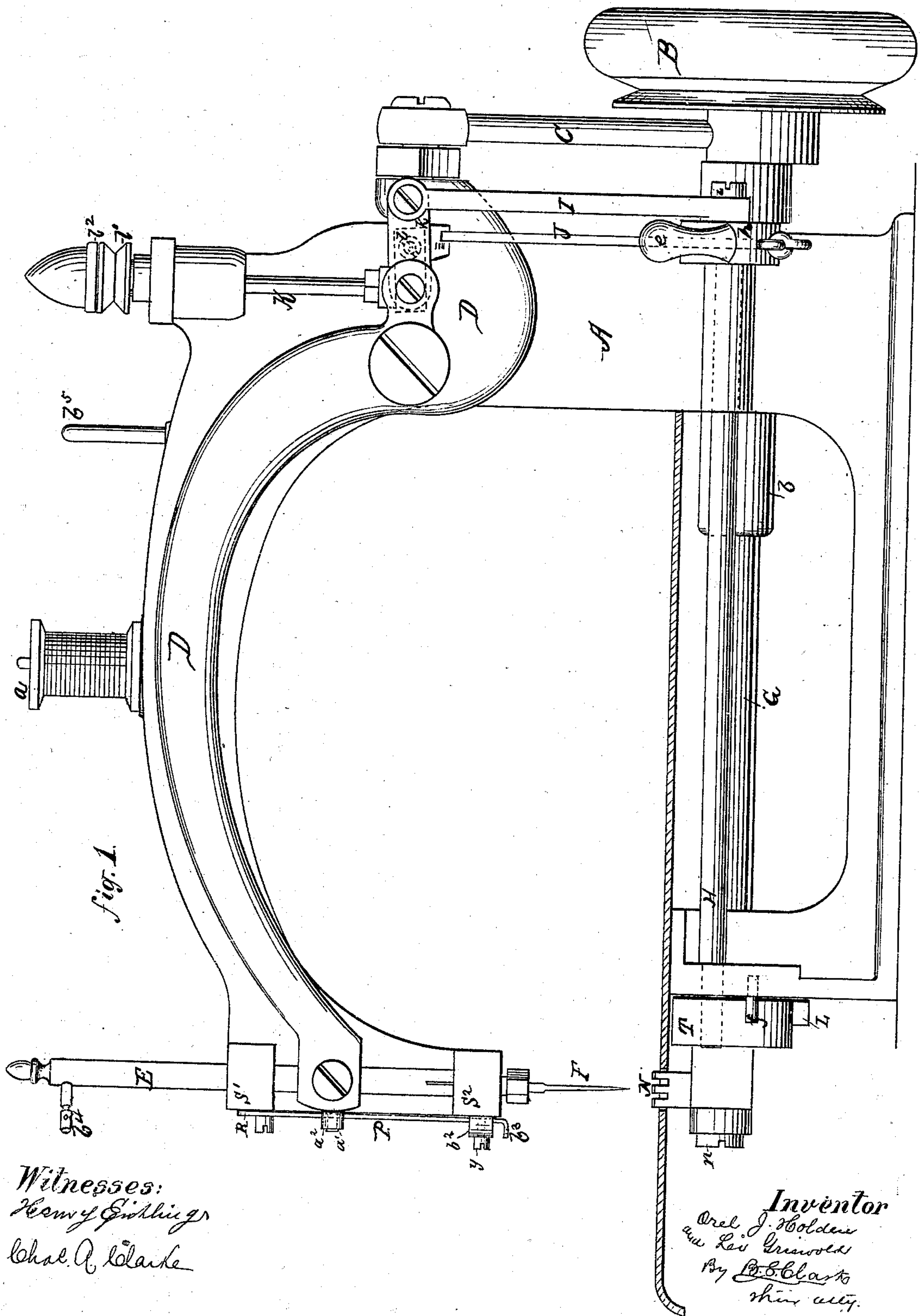
2 Sheets—Sheet 1.

O. J. HOLDEN & L. GRISWOLD.

SEWING MACHINE.

No. 272,050.

Patented Feb. 13, 1883.



Witnesses:
Henry F. Gillingham
Chas. A. Clarke

Inventor
Orel J. Holden
and L. Griswold
By B. B. Clarke
their atty.

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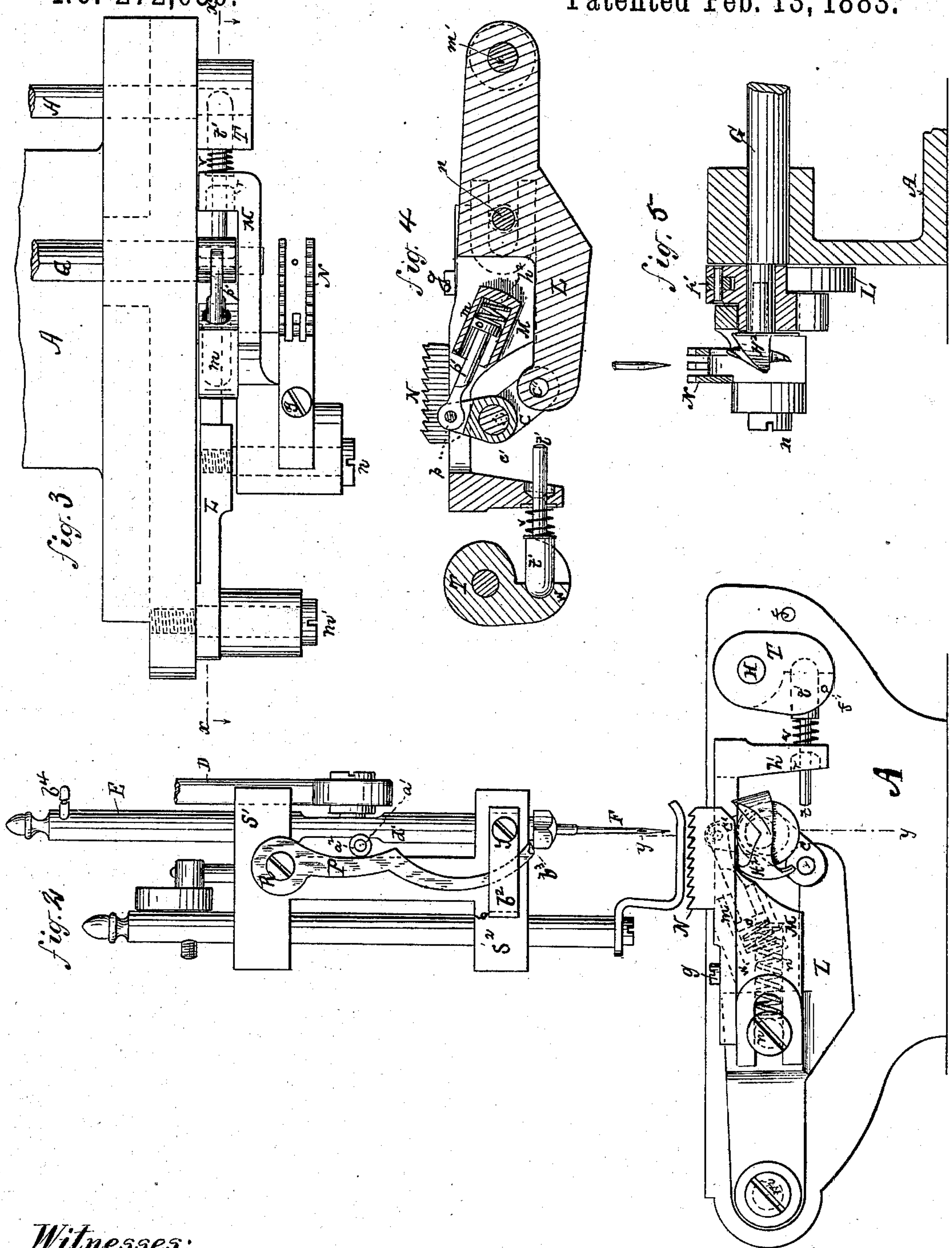
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UNITED STATES PATENT OFFICE.

OREL J. HOLDEN, OF TARRYTOWN, AND LEV GRISWOLD, OF NEW YORK, N. Y.,
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SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 272,050, dated February 13, 1883.

Application filed October 10, 1882. (Model.)

To all whom it may concern:

Be it known that we, OREL J. HOLDEN, of Tarrytown, State of New York, and LEV GRISWOLD, of the city of New York, county and State of New York, are the joint inventors of an Improvement in a Sewing-Machine, of which the following is a specification, reference being had to the drawings accompanying the same.

Our invention consists in an improved feed device for sewing-machines, whereby any requisite number of stitches to the inch may be made by the operation or manipulation of a single crank, as hereinafter described.

In the drawings, Figure 1 is a side view of a sewing-machine containing our improvements. Fig. 2 is an end view, showing the various devices for operating and regulating the feeding. Fig. 3 is a view looking-down from the top onto the same. Fig. 4 is a front sectional view of the feed and the mechanism operating the same, and a cross-section on line x , Fig. 3. Fig. 5 is a side view of the same, showing the driving-shaft, rotary hook, and side view of the serrated feed-surface, and is a section of Fig. 2 on line y .

As set forth in Fig. 1, we show our improved tension device for which we filed our application for Letters Patent on the 28th day of September, 1882, Serial No. 72,920, and we do not need to go into a detailed description here of the same, reference being made to said application for a full description thereof. We will only describe the same as may be necessary in order to show its connection with our feeding device.

A is the frame-head of a sewing-machine having the driving-wheel B and connecting-rod C, whereby motion is communicated to the rocking arm D, and the needle-bar E is worked up and down, in which bar is the needle F.

a is the spool-holder usually found on sewing-machines.

G is the shaft, on one end of which is the wheel B, which shaft passes through the frame and the sleeve b , and on its other end has devices attached, hereinafter described.

H is a shaft, which has on its end toward the driving-wheel the wheel h , which has the handle-arm e out of its center, and on one side of and to this wheel, by screw i , is fastened the rod or arm I. This bar or arm I is moved

up by pushing the handle e up, and thus turning the wheel h partially around, and is lowered when the handle e is pulled down, thus raising and lowering the tension-rod K by means of arm k and nut or arm l , (dotted lines,) and thus increasing the tension of the disks l' and l'' , the arm k and nut l and tension-rod K receiving a certain rocking motion from the rocking bar D.

J is the indicator or rod, fastened to the wheel h , and serves to indicate on a dial (not shown in the drawings) the length of stitch obtained when adjusted.

All the particular movements of these several parts are minutely described and shown in the application above referred to, and it is not considered necessary to describe the same minutely here.

At the end of the driving-shaft after it leaves the casting A the diameter is much reduced for the purpose of making an eccentric thereon, on which is fixed the link composed of the lower arm, c , which is connected to the bar L by the pin c'' , for the purpose of vibrating the arm L. The upper arm of the link c' holds the rod p' fastened therein by the pivot p .

On the end of rod p' is the head o , which works in the socket m . This socket m is permanently fixed to the side of the feed-bar M, and drives the feed-bar forward when feeding.

In the socket m at the head o is placed the spiral spring h^2 , which serves as a cushion to the pressure of the rod p' , and also serves to keep the feed-bar at h' against the casting A, for the spiral spring h^2 is nearer the face of the casting A than the spring n^2 is, and thus has a tendency to overcome the attempt of spring n^2 to throw h' of the feed-bar away from the casting A; also, it has a tendency to keep the feed-bar pressed down as it rides on the link c , the socket m being placed at such an angle to the feed-bar M, whereby it receives the downward thrust. Both parts c c' are fixed and worked by shaft G on the eccentric formed thereon. The bar L is fastened to the casting A by screw m' , on which it works. The feed-bar M is fastened to the bar L by means of the screw n , on which it has a motion. The spiral spring n' , Fig. 2, dotted lines, placed in the recess formed in the feed-bar M serves to push the bar back again when it is

pushed forward by the arm p' and head o . The opposite end of feed-bar M has an arm, h' , projecting downward. In the lower end is the hole r , in which one end of the pin t passes.

5 The other end of said pin t is placed in socket t' , resting in the arm T on a rim, w , made for that purpose, so as to hold it up, and as it is a bolt-socket every motion is allowed to said pin t to adjust the pin t to the feed-bar.

10 On the pin t , between the arm h' and the socket t' , is a spiral spring, v , so placed that it has a constant pressure against the arm h' , pressing it from the arm T, and serving also as a cushion to the feed-bar. A small rubber

15 or leather washer is placed between the said spiral v and socket t' , so that abrasion is avoided. This arm T is placed on and worked by the shaft H when the handle e is turned.

f is a pin, which serves as a stop to the arm

20 T, and prevents its turning too far back from the arm h' , and f' is a like pin, stopping the arm T from proceeding too far in an opposite way. This arm is riveted fast onto the end of shaft H, so that it partakes of every motion of

25 said shaft.

N is the serrated feed-surface usually found in sewing-machines, and is fastened onto the feed-bar M by screw g .

P is the take-up, fastened at one end, at R, to

30 the casting-piece S' , and is free at its other end. It is of a peculiar construction, and is minutely described in the application now on file and above referred to. It holds the thread on its passage to the needle, and is moved back

35 out of line by means of the pin a' , on which revolves a loose wheel or sleeve, a^2 , coming into contact with the projection on its surface, d' . It works behind the guard b^2 , which is fixed to the bar or plate S^2 by being set tight

40 and held against the casting on piece S^2 by screw y . The space left between said piece S^2 and guard b^2 at G is for the thread to pass through, so as to come between S^2 and b^2 as it is put into the guard of the take-up b^3 , and

45 lies against the washer on said screw y , which is placed between the guard b^2 and the casting S^2 . When the take-up is pressed back farthest from the needle the thread is pressed against the screw y .

50 b^4 and b^5 are other thread-guides, through which the thread is passed on its way to the needle. The thread-guide b^4 , being on the needle-bar E, works up and down with the said needle-bar.

55 At the end of the shaft G there is a hole, g' , bored in the center of said shaft, in which is placed the arm of the hook H^2 . This hook in its construction and operation is the same as that usually found in good sewing-machines.

60 The operation of the machine is as follows: The thread and needle being in place, the tension device is adjusted for the desired stitch by lowering or raising the handle e , thus moving the bar I, fixed on the wheel h , thereby

65 raising or lowering the tension-rod K and tightening the grasp of the disks l and l' on the thread, the rocking arm D giving an up-and-

down motion to the tension-rod, thus tightening or loosening the tension. By the turning of the wheel h the shaft H has been turned so

70 as to throw the arm T in toward the feed-bar at h' , thus pressing the pin t farther into the hole r , thereby compressing the spiral v between the shoulder of the pin t and against the feed-bar at h' . The object of the hole r

75 is to hold the pin t , on which is placed the spiral v , and holds the spiral spring between the arm h' and arm T. The spiral spring v , when pressed sufficiently to be exhausted between the arm h' and the shoulder of the

80 pin t , stops the movement of the feed backward, thus shortening the stitch to the greatest degree possible. When the spiral spring v is allowed its greatest expansion it relieves the pressure against the arm h' and allows the

85 longest stitch possible. All this and the intermediate lengths of stitch may be obtained at the option of the operator. On the end of the shaft G, outside of the frame, the link $c c'$ is fitted onto the eccentric formed on the end

90 of shaft G. The upper part of this link c' is jointed to the rod p' , having the head o , which works in the socket m . The socket, being permanently fastened to the feed-bar M on the side

95 next to the frame, causes, in its motion on the eccentric on the end of G, the feed-bar M to move forward against the pressure of the spiral spring n' till the force of the arm p' , being thrown forward by the eccentric, is exhausted

100 in limit, thus compressing the spring n' in its recess against the screw n . In the socket m , pressing against the head o , is the spiral spring h^2 , which serves a double purpose, as above set forth. As soon as the pressure of the rod

105 p' is exhausted and is drawn back by the eccentric on shaft G the spiral spring n' presses the feed-bar M backward to its original or first position against the spring v . This feed-bar

110 M at one end rests on the screw n and at the other rests on the link c , which link c , in its motion on the eccentric of shaft G, gives the feed-bar at that end its upward and downward motion. The other end of the link c is jointed on the bar

115 L, and in its motion works said bar L, which bar L gives the feed-bar M, at its other end, a like downward and upward movement, the screw n , which holds that end of the feed-bar

120 M, being permanent or fixed into the bar L. The tension being adjusted and the thread passed through the guides and take-up to the needle, the wheel B is revolved, thus turning

125 the shaft G, and on it the eccentric holding the said link $c c'$, rod, and head, thus throwing the feed-bar M forward, and when exhausted the bar L, thrown down by the link c , carries

130 with it the screw n and that end of the feed-bar M. The rod and head pressure being removed, the spring n' presses the feed-bar M backward till the arm h' exhausts the spring n . Then the link c raises the feed-bar arm h' up,

135 while the arm L raises the other end of the feed-bar up, both together. Now the feed-bar and its connected devices are ready for another stitch. The link $c c'$ being jointed on the

bar L at one end, *c*, the rod *p'* being attached to the upper end, *c'*, the eccentric or driving device in the center of the link gives more motion to the rod *p'* than it would if the bar *p'* were attached to the center or directly opposite the eccentric, thus giving a long feed with a short throw of eccentric, and does not necessitate the use of an eccentric with a greater throw for the purpose of getting a long stitch, thus causing the feed to raise and lower to a greater extent than required. By our adjustment we avoid this. The pins *f* and *f'* limit the lateral movement of the arm T for longest and shortest stitches. The take-up is thoroughly described in combination with an automatic device, as above stated.

It is unnecessary to describe the action of the hook here in its operation with the thread, as it is the same usually found in all good single-thread sewing-machines.

We do not intend to claim singly the jointed feed composed of the arms L and M, as the same is not new.

What we claim, and desire to secure by Letters Patent, is—

1. In a sewing-machine, the feed-bar M, with its screw and spring-bar L, attached to and operated by and in combination with link *c c'*,

with rod, head, and socket, and spring *h²*, substantially as described, and for the purpose specified.

2. In a sewing-machine, the feed-bar M, with its screw and spring-bar L, connected with and worked by and in combination with the link *c c'*, rod, head, and socket, shaft H, arm T, pin *t*, and spiral spring *v*, substantially as described, and for the purpose specified.

3. The combination of the feed-bar M, with its spring and screw, by which it is fastened to the bar L, link *c c'*, rod, head, and socket, spring *h²* in said socket, in combination with the shaft H, arm T, with its rim, stops *f* and *f'*, spiral spring *v*, and pin *t*, substantially as described, and for the purpose specified.

4. In a sewing-machine, the eccentric on end of shaft G, in combination with link *c c'*, rod *p'*, head *o*, socket *m*, and feed-bar M, substantially as described, and for the purpose specified.

Witness our hands this 2d day of October, 1882.

OREL J. HOLDEN.
LEV GRISWOLD.

Witnesses:

W. H. HICKS,
A. H. JOCELYN.