

(No Model.)

S. W. WARDWELL, Jr.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 396,630.

Patented Jan. 22, 1889.

Fig. 1.

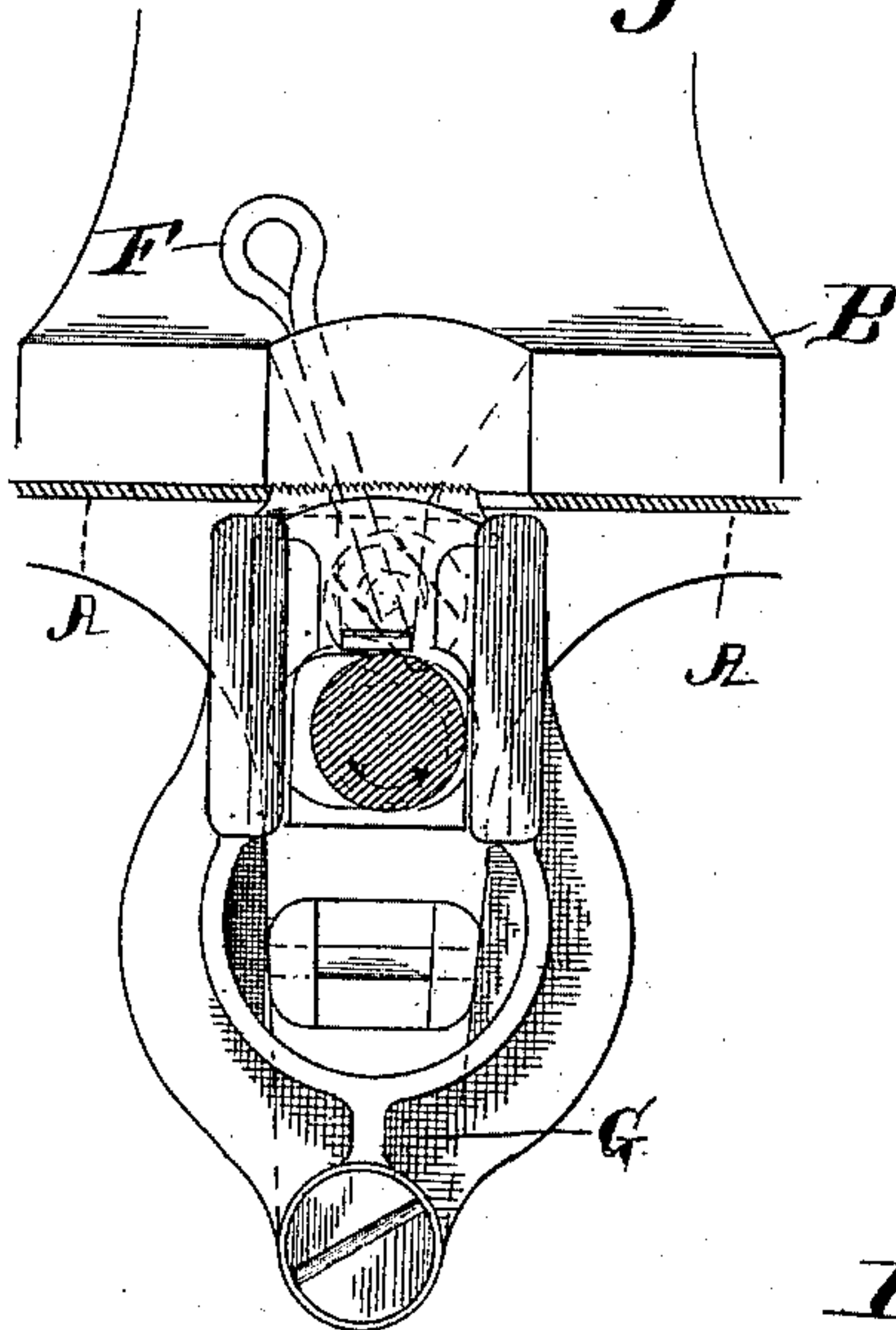


Fig. 2.

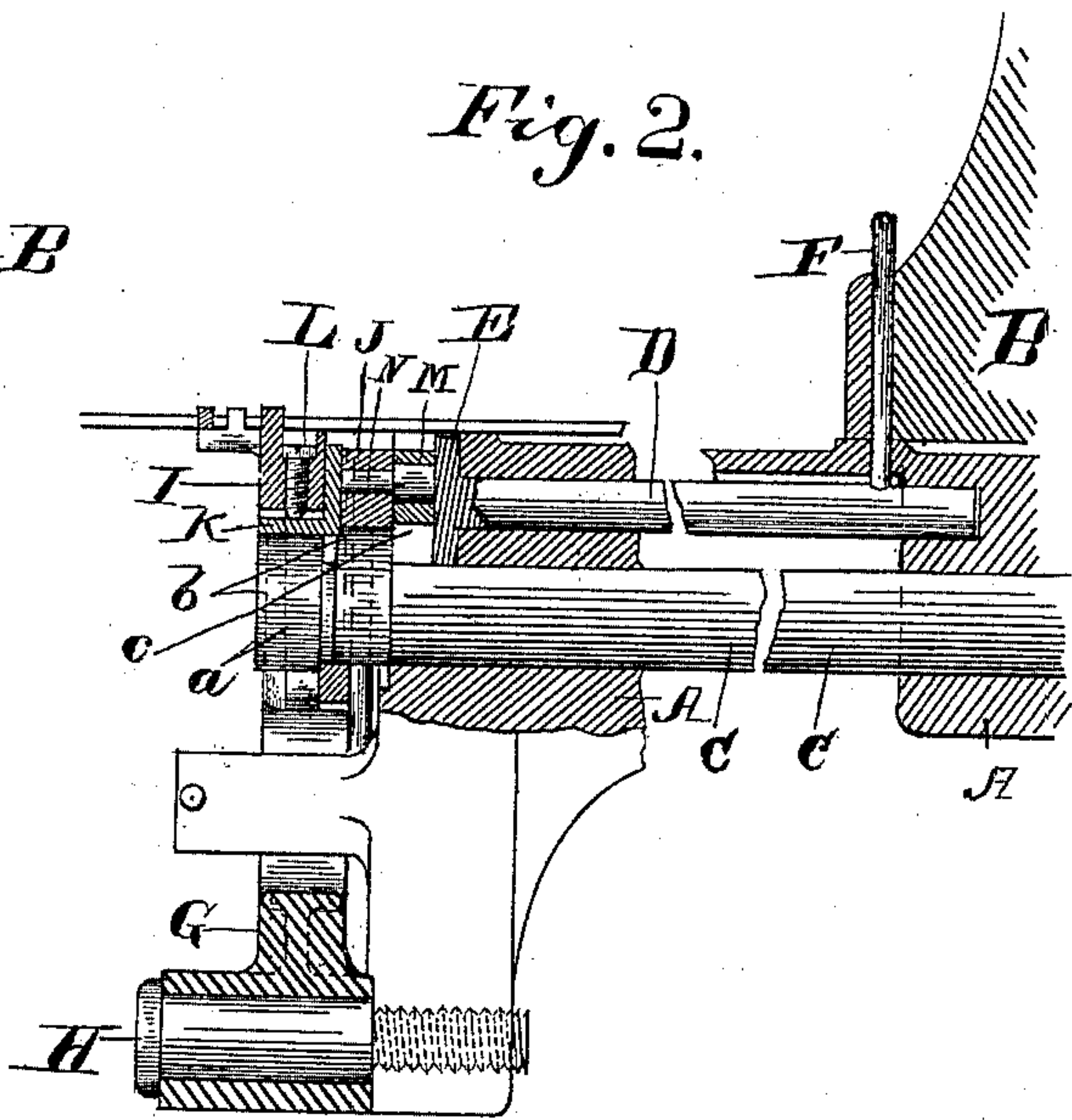


Fig. 6.



Fig. 3.

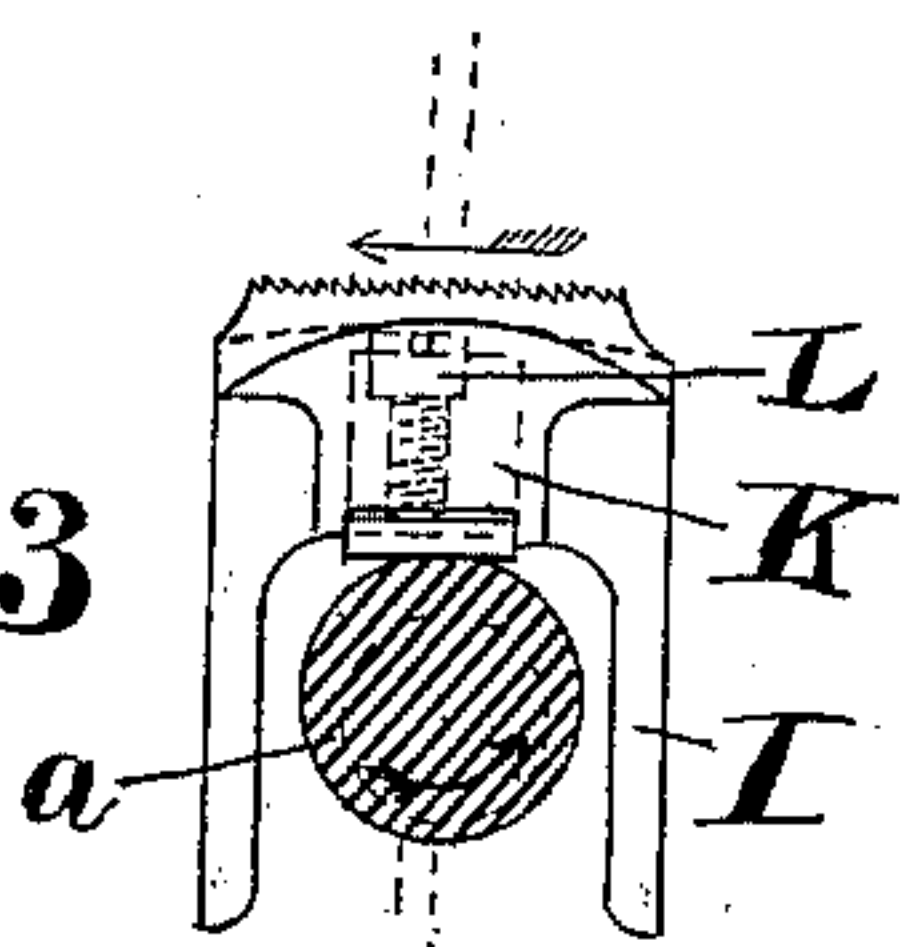


Fig. 5.

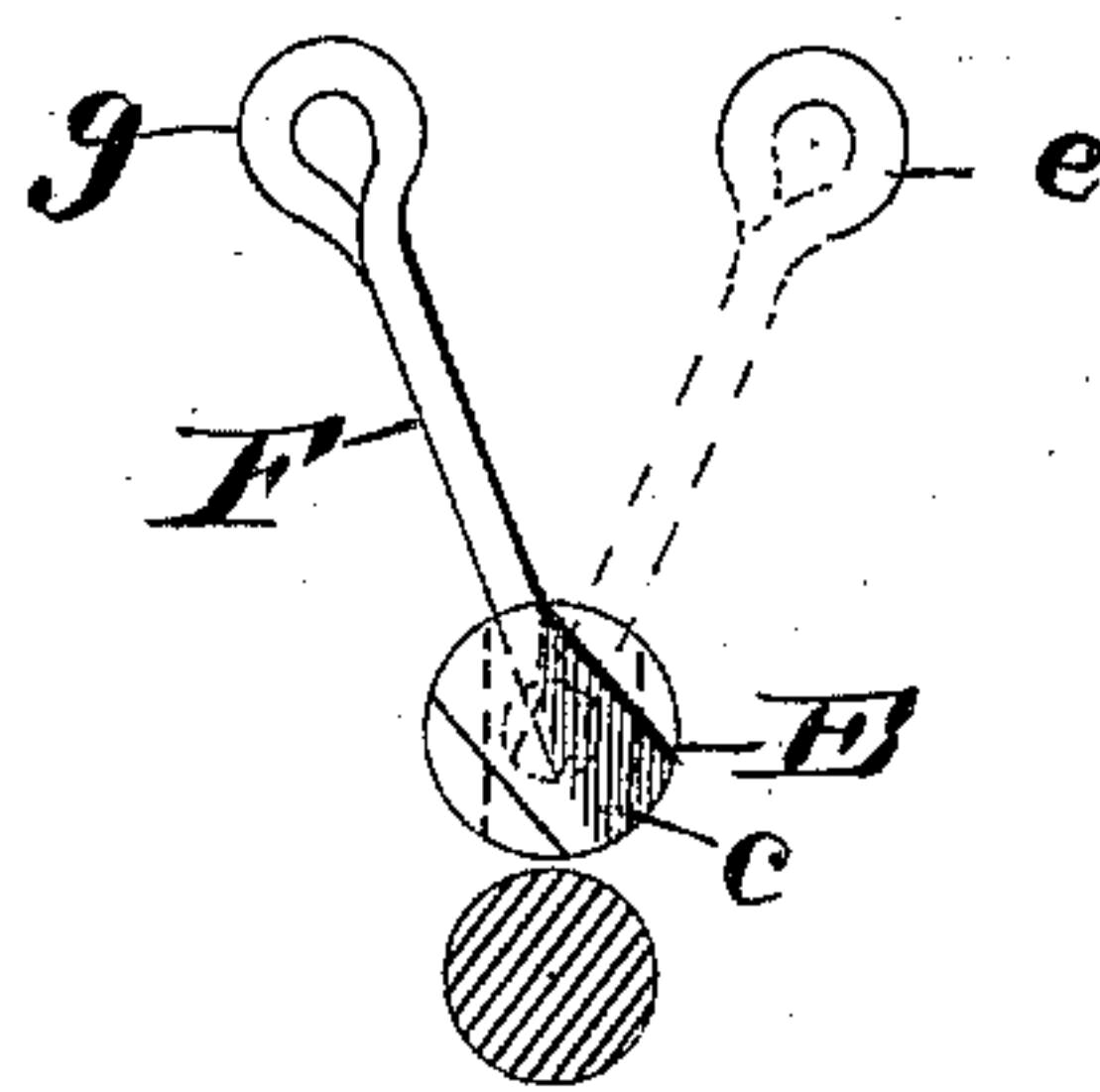


Fig. 4.

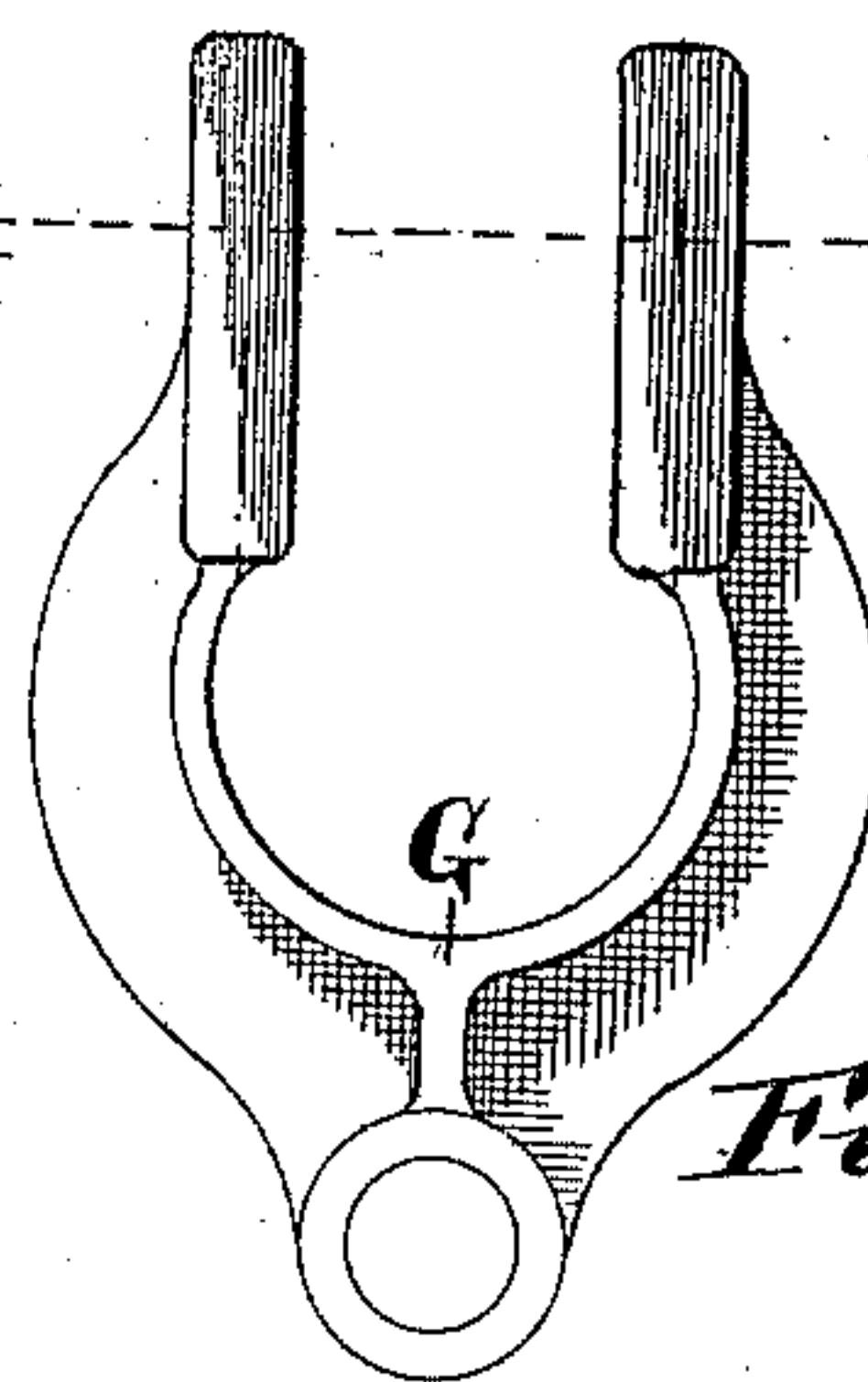
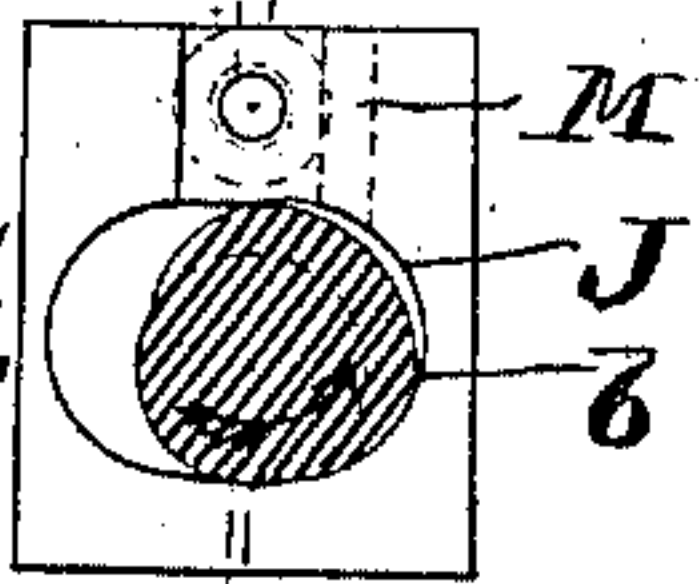


Fig. 7.

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FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 396,630, dated January 22, 1889.

Application filed September 2, 1886. Serial No. 212,558. (No model.)

To all whom it may concern:

Be it known that I, SIMON W. WARDWELL, Jr., a citizen of the United States, and a resident of Woonsocket, Providence county, Rhode Island, have invented certain new and useful Improvements in Sewing - Machine Feeds, of which the following is a specification.

My invention is a feed for sewing-machines, the action, construction, and arrangement of which are simple, compact, and rigid, having few parts and articulations, with little liability of wear and small momentum and inertia, and at the same time capable of nice and quick adjustment.

In the accompanying drawings, Figure 1 is a front elevation, and Fig. 2 is a vertical longitudinal section, of so much of a sewing-machine as is necessary to show the arrangement of my feed. Fig. 3 is a detached view of the feed-slide and cam for operating it. Fig. 4 is a similar view of the feed-driver slide and its operating-cam. Fig. 5 is a front elevation of the stitch-adjusting device. Fig. 6 is a section through the rocking feed-frame at the line X X, and Fig. 7 is a front view of the detached rocking feed-frame.

A represents the bed-plate, B the neck, and C the main shaft, of a sewing-machine of any desired construction. The main shaft C has proper bearings in the frame of the machine, and the rocking feed-frame G has a bearing upon a suitable support or fulcrum-stud, H, also secured to the frame or bed of the machine.

Sliding in the ways *d* of the rocking feed-frame are the feed-slide I and feed-driver slide J.

The feed-slide I is provided with suitable feed-teeth upon its upper surface, and its under side is recessed and has downwardly-extending arms straddling the main shaft C, carrying the feed-lifting cam *a*, and in order to regulate the normal height of the feed-teeth on the upper part of the slide above the bed-plate A an adjustment-shoe, K, is provided, which moves in a vertical slot in the feed-slide, and is regulated by the adjusting-screw L, passing through the top of the slide, where it may be readily reached for adjustment.

The feed-driver slide J is provided with an

elongated slot fitting the feed-driver cam *b*, secured to the main shaft C, and projecting from one side is a stud, N, carrying a friction-roll, M, which engages and moves in an adjustable deflecting-guide formed by the slot *c* in the head E of the stitch-adjusting shaft D, a lever, F, being attached to said adjusting-shaft and extending through some convenient part of the frame of the machine for the purpose of readily adjusting the shaft and controlling the length of the feed of the material being operated upon, and consequently the length of the stitch being made.

The relative positions of the lever F and slot *c* in the head of the stitch-adjusting shaft D when the horizontal stroke of the feed is at its minimum and maximum are represented in Fig. 5 by the dotted lines *e* and full lines *g*, respectively.

Such being the preferred construction of the parts, their operation will be as follows: The feed-slide being in its downward and backward position, the rotation of the main shaft C in the direction of its arrow causes the feed-lift cam *a*, which is secured to or preferably formed on and is a part of the main shaft, to raise the feed-slide I, and with it the feed-teeth formed thereon, to a position above the upper surface of the cloth-plate, the height being determined by the position of the adjusting-screw L and shoe K. At this moment the feed-driver cam *b*, secured to or formed on the main shaft, raises the feed-driver slide J, and with it the stud N and its friction-roll M, which latter plays freely in the slot *c* of the head E of the adjustment-shaft D. When this slot *c* is vertical, as shown in dotted lines in Fig. 5, the roll, stud, and slide J will have a vertical motion only; but when the slot *c* is in an inclined or oblique position, given it by the adjustment-lever F, as shown in the full lines in Fig. 5, the roll, stud, and slide J will move obliquely upward and forward and the rocking feed-frame G, carrying said slide J, will be moved forward, and as the feed-slide I is also carried by said rocking feed-frame G it will move forward in the direction of its arrow, and, being in its elevated position, as before described, it will carry forward with its teeth any cloth or other material that may rest upon the teeth

under the usual presser-foot of machines of this class. When the teeth have reached the limit of said forward movement, the feed-lift cam *a* acts to lower the teeth below the cloth and cloth-plate, and when so lowered the feed-driver cam *b* carries the feed-driver slide J downward, and the roll M on the stud N, working in the slot *c*, causes the said driver-slide to move obliquely backward, and as the slide works in the ways *d* of the rocking feed-frame G the frame is caused to move backward and carries with it the feed-slide I, which also works in said ways, and the feed-teeth are in the position first assumed ready to be operated upon again in the same manner.

It will be seen from the above that my feed device embodies few parts of simple form and compact relations, and owing to the few and simple articulations there is little liability to wear, and as the parts are light and the motions short there is little momentum or inertia to overcome.

While I have thus specifically described and shown my feed device as applied to one type of machine, it is to be understood that I do not limit myself to the exact construction shown, as the construction and arrangement of parts may be varied to suit the requirements of other styles of machines without departing from the spirit of my invention, and some of the parts may be used alone or in combination with other equivalent parts to those specifically set forth.

What I claim is—

1. In a sewing-machine feed, the combination of a feed-frame, a slide mounted therein and provided with cloth-engaging projections, mechanism for giving the said slide up and down movements, another slide also mounted in the frame, and mechanism for giving forward and back motions to the said second slide, and through it to impart lateral motions to the frame and the other slide carried thereby, substantially as described.

2. In a sewing-machine feed, the combination of a feed-frame, a slide mounted therein having cloth-engaging projections, a cam for giving said slide up and down movements, an-

other slide mounted in the frame, a cam for moving the said second slide, and an adjusting deflecting-guide with which the second slide engages, whereby said second slide and through it the frame and other slide are given lateral movements, substantially as described.

3. In a four-motioned feed for sewing-machines, the combination of a rocking frame having ways, two slides, one provided with cloth-engaging projections independently movable in said ways, cams for independently actuating said slides, and a deflecting-guide with which one of the slides engages, substantially as described.

4. In a sewing-machine feed, the combination of a rocking frame, two slides, one provided with cloth-engaging projections, movable independently of each other in said frame on lines radial to its pivot, cams for moving said slides independently, and means for imparting lateral motions to one of the slides to rock the frame, substantially as described.

5. In a sewing-machine feed, the combination of a rocking frame, two slides movable up and down therein independently of each other, one of the slides having feeding-teeth and the other a laterally-projecting stud, and a deflecting-guide with which said stud engages, whereby said slide is given a lateral motion and the frame rocked, substantially as described.

6. In a sewing-machine feed, the combination, with the main shaft and cams carried thereby, of two slides, one of which is provided with cloth-engaging projections, moved by said cams independently of each other, but in the same directions, a frame in which the slides are mounted, an adjustment-shaft, and a guide carried by said shaft, with which one of said slides engages and by which it is deflected, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SIMON W. WARDWELL, JR.

Witnesses:

JEFFERSON ALDRICH,
CHAS. H. REEVES.