

(No Model.)

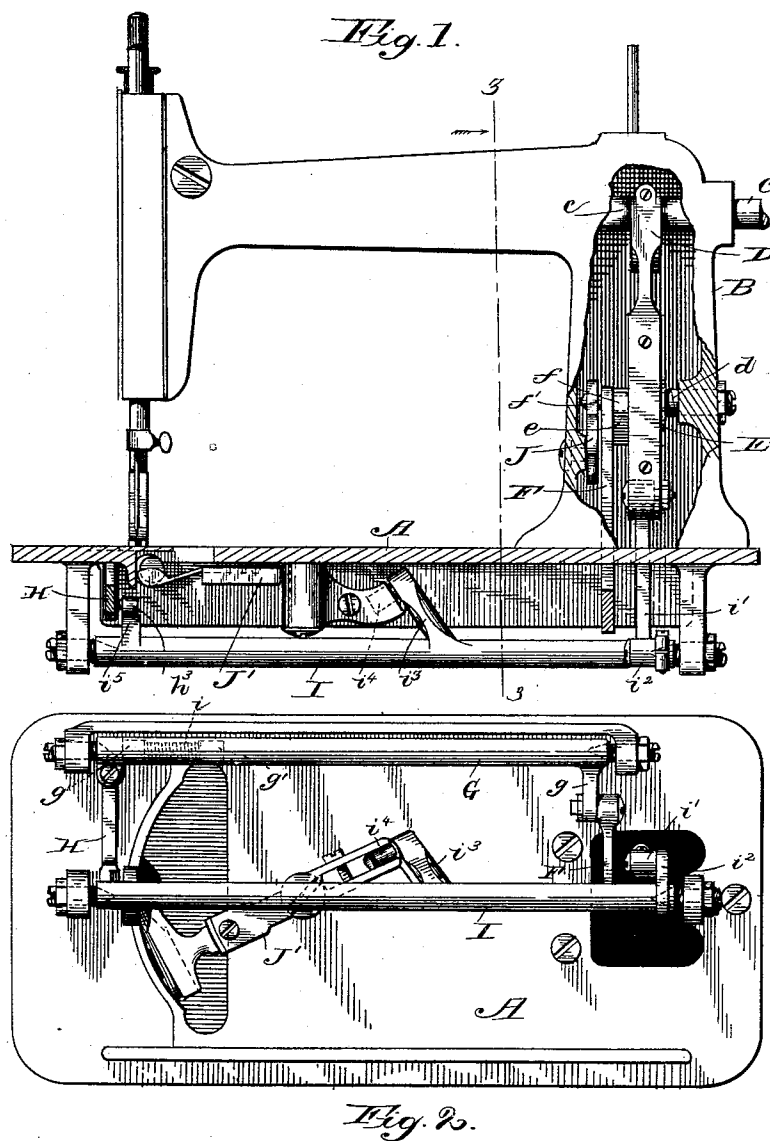
2 Sheets—Sheet 1.

J. BOLTON.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 484,402.

Patented Oct. 18, 1892.



Witnesses

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Fig. 3.

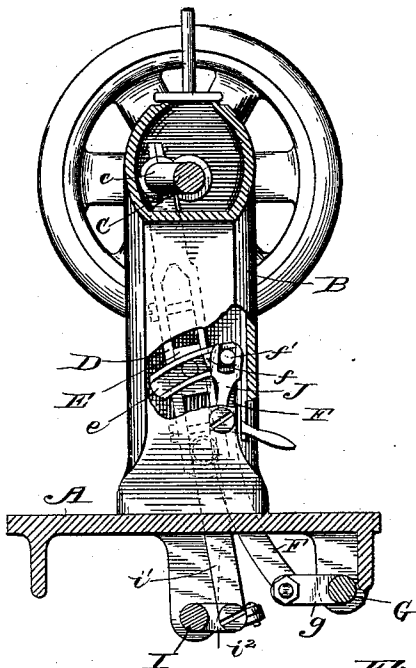


Fig. 4.

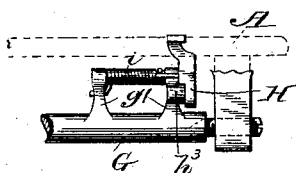
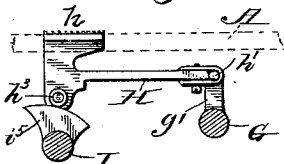


Fig. 5.



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UNITED STATES PATENT OFFICE.

JAMES BOLTON, OF CHICAGO, ILLINOIS.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 484,402, dated October 18, 1892.

Application filed March 3, 1892. Serial No. 423,643. (No model.)

To all whom it may concern:

Be it known that I, JAMES BOLTON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have
5 invented certain new and useful Improvements in Sewing-Machine Feeding Mechanisms, of which the following is a specification, reference being had therein to the accompanying drawings.

10 My invention has for its object to provide an improved sewing-machine feeding mechanism in which the main rotating shaft is journaled in the upper part of the arm of the machine and is provided with a crank or eccentric the movements of which are transmitted to the mechanism beneath the work-plate
15 by a pitman-lever.

In carrying my invention into effect the vibrating movements of the pitman-lever are
20 utilized for imparting motion to a rock-shaft, from which the longitudinal or feeding movements are given to the feed-bar and a feed-dog carried thereby. The lifting movements of the feed-bar and feed-dog are derived from a
25 suitable cam on a second shaft, which receives its movements from the pitman-lever.

In the accompanying drawings, Figure 1 is a side view, partly in section, of a sewing-machine embodying my invention. Fig. 2 is a
30 bottom view of the same. Fig. 3 is a sectional view on line 3 3, Fig. 1, looking in the direction of the arrows adjacent to said line. Figs. 4 and 5 are detail views.

A denotes the work-plate, and B the bracket-arm, of a sewing-machine. Journaled in the
35 upper part of the bracket-arm B is the main driving-shaft C, provided with a crank or eccentric e , to which is connected the upper end of a pitman-lever D, the latter being slotted
40 to receive a pivot-pin d , which is rigidly secured in the vertical portion of the bracket-arm. Surrounding the pivot-pin d and embraced by the slotted portion of the pitman-lever is a rocking block E, provided with a
45 curved rocker e , which is rigidly attached to said block or formed integral therewith. The said rocker is slotted to receive a sliding block f , provided with a pin f' , to which is jointed
50 the upper end of a link or pitman F, connected at its lower end to an arm g , formed on the rear end of a feed-operating rock-shaft G, suitably journaled beneath the work-plate

of the machine and having at its forward end arms g' , in which is pivoted a rod h' , to which latter is attached the feed-bar H, provided
55 with a feed-dog h of any well-known construction. Surrounding the rod h' is a torsional spiral spring i , connected at one end to one of the arms g' and at its other end to a pin h^3 , fixed to the feed-bar H.

Pivoted to the vertical part of the bracket-arm B is a feed-regulating bell-crank lever J, the upper arm of which is slotted to embrace the pin f' of the slide or block f , which is
60 movable in the slot of the curved rocker e , so that the said slide or block f may be adjusted nearer to or farther from the pin d , which forms its center of movement, to thereby regulate the rocking movements of the shaft G,
65 and consequently vary the horizontal movements of the feed-bar. When the slide or block f is in the horizontal position shown in Fig. 3, near one outer extremity of the rocker
70 e , the feed movements of the feed-bar will be nearly or quite at their greatest length and in a forward direction; but if the said slide be
75 adjusted to the opposite side of the fulcrum-pin d the feed will be reversed and the length of the reversed feed can of course be varied by adjusting the slide or block f to different
80 positions nearer to or farther from the said fulcrum-pin.

Instead of connecting the lower end of the pitman-lever D directly to the arm of a shaft arranged beneath the work-plate in the usual
85 manner, so as to impart a rotary movement to the said shaft, I have herein shown the said pitman-lever as being somewhat shortened and having its lower end connected by a link or pitman i' to an arm i^2 on the rear end of a
90 shaft I, supported beneath the work-plate, and to which a rocking instead of a rotating movement is to be imparted. This rocking shaft is herein shown as being provided with an inclined crank-arm i^3 , provided with a
95 crank-pin i^4 at a right angle thereto and embraced by a yoke on the rear end of the shuttle-operating lever J, as shown in my application Serial No. 423,143, filed February 29, 1892,
100 and this shuttle-operating mechanism is therefore not claimed in this specification. The said shaft I is provided near its forward end with a cam i^5 , on which rests a pin or roller-stud h^3 , carried by the feed-bar H, the said

pin or roller-stud being held in contact with the said cam by the torsional spring *i*, connected to the said feed-bar.

From the foregoing it will be apparent that when the driving-shaft C is set in motion a rocking movement will be imparted to the feed-shaft G through the pitman-lever and link connection hereinbefore described, and thus longitudinal feeding movement of any desired length may be imparted to the feed-bar, the latter being raised and lowered by the cam on the rock-shaft I and the spring co-operating therewith, as will readily be understood.

It will of course be apparent that instead of the cam on the rock-shaft I for raising the feed-bar an equivalent cam for effecting this operation and carried by a rotating shaft may be employed.

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

1. In a sewing-machine, the combination, with the main rotating driving-shaft arranged in the upper part of the arm of the machine and provided with a crank or eccentric, of a feed-operating rock-shaft arranged beneath the work-plate of the machine, a feed-bar connected to the forward end of the rock-shaft and provided with a suitable feed-dog, a pitman-lever operated by said crank or eccentric and provided with a slotted portion, a rocking block embraced by the slotted portion of the said pitman-lever and provided with a slotted rocker, a slide or block arranged in the slot of said rocker and provided with a pin, a link or pitman connecting the said pin with an arm on the rear end of the said feed-operating rock-shaft, a feed-regulating

device for adjusting said block or slide in the said rocker, and means for imparting vertical movements to the said feed-bar.

2. In a sewing-machine, the combination, with the main rotating driving-shaft C, journaled in the upper part of the arm of the machine and provided with a crank or eccentric *c*, a feed-operating rock-shaft G, arranged beneath the work-plate of the machine and having arms at its forward and rear ends, a feed-bar connected with the arm or arms at the forward end of the said rock-shaft and provided with a suitable feed-dog, a pitman-lever connected to said crank or eccentric and provided with a slotted portion, a rocking block E, embraced by the slotted portion of the said pitman-lever and provided with a slotted rocker, an adjustable slide received in the slot of said rocker and provided with a pin, a link or pitman jointed to said pin and to the arm on the rear end of said feed-operating rock-shaft, a feed-regulating lever for adjusting said slide in the slot of the rocker, a shuttle-operating rock-shaft arranged beneath the work-plate of the machine and provided near its forward end with a feed-bar-lifting cam and at its rear end with a suitable arm, a link or pitman connecting the lower end of the said pitman-lever to the said arm on the rear end of the said shuttle-operating rock-shaft, and a spring for assisting in the downward movements of the feed-bar.

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

JAMES BOLTON.

Witnesses:

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