

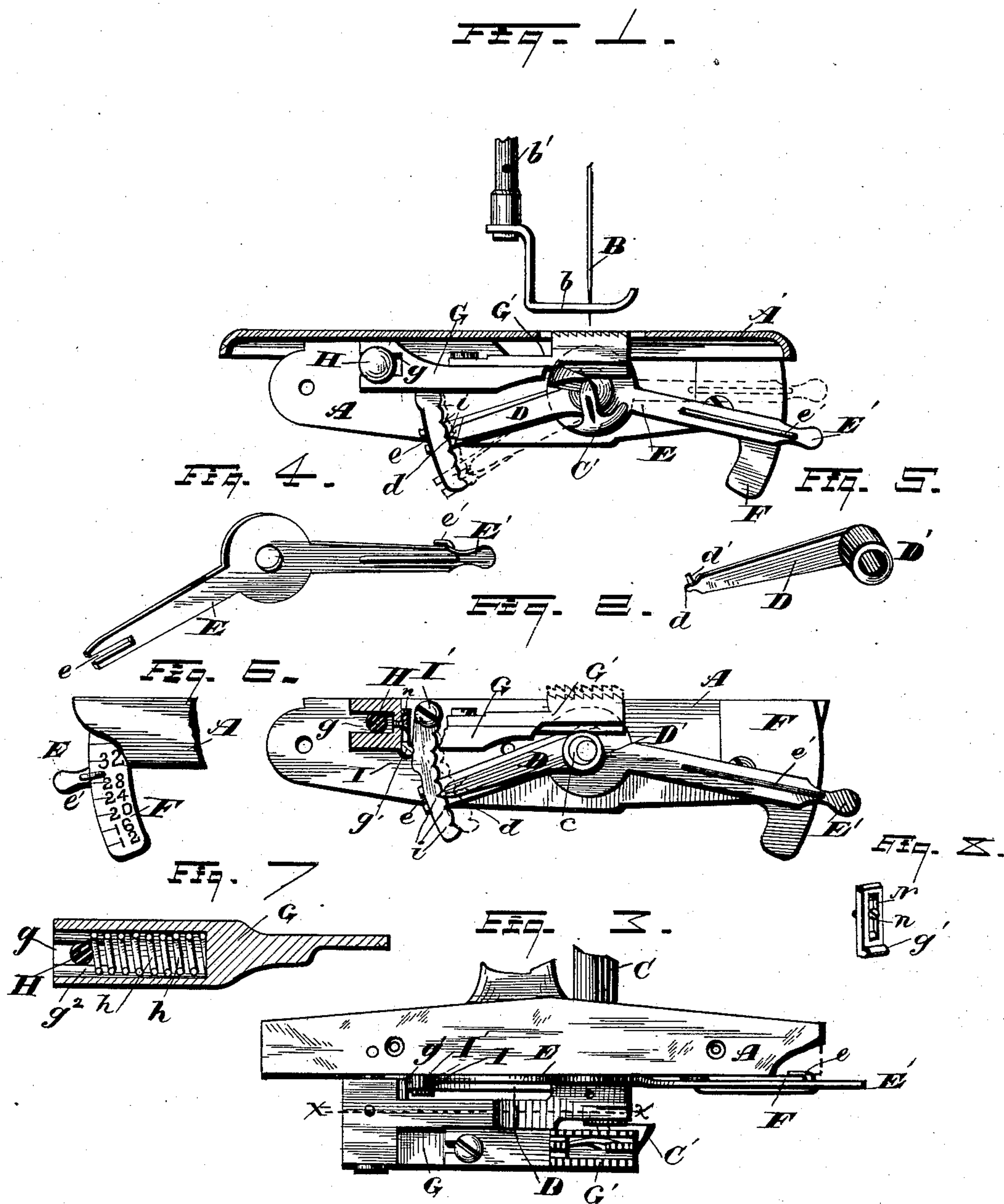
(No Model.)

R. W. WHITNEY.

FEED MECHANISM FOR SEWING MACHINES.

No. 317,255.

Patented May 5, 1885.



WITNESSES

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# UNITED STATES PATENT OFFICE.

RUEL W. WHITNEY, OF CLEVELAND, OHIO, ASSIGNOR TO THE WHITE SEWING MACHINE COMPANY, OF SAME PLACE.

## FEED MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 317,255, dated May 5, 1885.

Application filed October 20, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, RUEL W. WHITNEY, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Feed Mechanisms for Sewing-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 pertains to make and use the same.

My invention relates to improvements in feed mechanism for sewing-machines, the object being to simplify and improve the construction and reduce the initial cost.

With these objects in view my invention consists in certain features of construction and in combination of parts hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved feed device, showing the cloth-plate in section and a portion of the needle and other parts above. Fig. 2 is a side elevation of the feed-works with a portion of the feed-bar broken away, showing more clearly the lever and attachments that actuate the feed-bar. Fig. 3 is a plan view with the cloth-plate removed. Fig. 4 is a view in perspective of the shifting-lever and pointer. Fig. 5 is a view in perspective of the push-bar and hub. Fig. 6 is a rear side view in elevation, showing a portion of the bed A and a plate depending therefrom with a scale and pointer. Fig. 7 is a longitudinal vertical section of a feed-bar on the line of  $x$ , Fig. 3. Fig. 8 is an enlarged view in perspective of the adjustable abutment-plate  $g'$ .

A represents the front lower end of the bed or frame of the machine, and has attached the cloth-plate A'. Above the cloth-plate is shown in Fig. 1 the needle B, the presser-foot  $b$ , and a portion of the presser-bar  $b'$ .

C is the hook-shaft that actuates the feed mechanism, and to the front end of which is attached the hook C'. The front end of the shaft passes through and is journaled in the bed A. Between the hook and bed a portion of the shaft is made eccentric at  $c$ .

D is a push-bar with a hub, D', the bore of which fits over the eccentric  $c$ . The opposite

end of the bar D terminates at  $d$  in a knife-edge, and has a pin, lug, or equivalent device,  $d'$ , extending rearward into the slot  $e$  of the shifting-lever E. This lever E lies flat against the front face of the part A, and is fulcrumed at the central part on the shaft C, next back of the eccentric  $c$ . The outer end of the lever terminates in a handle, E', and near the handle the lever passes along the front side of the plate F, that is secured to the bed A. The shifting-lever has a wire or point,  $e'$ , that is bent around the edge of the plate F, and forms a pointer or index for the scale that is marked on the rear side of the plate, as shown in Fig. 6. The arrangement of parts is such that the number opposite the pointer will indicate the feed or number of stitches per inch.

G is the feed-bar, one end of which is slotted at  $g$  to embrace and slide on the stud H. The other end rests on the hub D', and is therefore actuated vertically directly from the eccentric  $c$ . The feed-bar has a longitudinal chamber,  $g^2$ , in which operates a coil-spring,  $h$ , that abuts against the stud H, and presses the feed-bar to the right hand. The lever I, actuated by the push-bar, moves the feed-bar to the left hand. The feed-bar next to the bed A and in the central part longitudinally is cut away, leaving room for the lever I, and has an adjustable shoulder,  $g'$ , for the lever to abut against. The lever is pivoted at I', and has notches,  $i$ , to engage the knife-edge of the push-bar D. As aforesaid, the feed-bar G is pressed to the right hand by the action of the spring  $h$ , and in turn presses the lever I in the same direction, so that the lever and push-bar are held in contact, and the knife-edge is kept in whichever notch it may have been adjusted, and when the knife-edge  $d$  is changed from one notch to another to regulate the feed the lever I is snubbed back. The upper end or hub part of the lever I abuts against the bed A, and is of such length that the lower part or free end of the lever stands out from the bed, so that the slotted end of the lever E passes between it and the bed, and by moving the handle E' up or down the opposite or slotted end is of course moved in the opposite direction, and by means of the



pin or lug  $d'$ , extending into the slot  $e$ , this end of the push-bar is carried along, and the knife-edge adjusted in the notch required. The lever I is curved, as shown, and a line drawn through the bottom of the notches I would form a segment whose radius would equal the length of the push-bar D from the knife-edge to the center of the bore in which the eccentric  $c$  operates, and the arrangement of parts is such that when the eccentric is turned to the right hand, or in a direction from the lever I, (and consequently the push-bar, lever, and feed-bar are all at the extreme of their throw to the right hand,) the push-bar will stand radially with the lever, regardless of the notch in which the knife-edge may be placed. When the eccentric is in this position, (to the right hand,) the push-bar may be turned so that the knife-edge will sweep from one notch to another throughout the series of notches  $i$  without changing the position of the lever, (except as it is snubbed back and returns to its place where the knife-edge enters a notch.) It will therefore be seen that the feed-bar starts from a fixed point on the right hand and moves a greater or less distance toward the left hand in feeding the work—a desirable but not, broadly, a novel feature.

The feed proper,  $G'$ , is secured to the feed-bar  $G$  and extends up through a slot in the cloth-plate, and is serrated on the upper face in the usual manner. The left-hand end of the feed-bar, as shown in Figs. 1 and 3, is held laterally between the head of the stud  $H$  and the part  $A$ .

The spring  $h$  is located about on the dotted line  $xx$ , Fig. 3, and is consequently outside of the lever I, and the lever and spring, pressing on the bar from opposite directions at the different lateral points, keep the right hand end of the bar snug against the hub of the lever  $E$ ; also, the point of contact between the feed-bar and lever I at  $g$  is below the center of the spring  $h$ , and consequently the opposing forces of the spring and lever hold the free end of the feed-bar down on the hub  $D$ . As the knife-edge  $d$ , as aforesaid, is held by the action of the spring  $h$  in any notch  $i$  in which it may have been adjusted, the shifting-lever  $E$  remains idle except when used to change the feed, and at other times, having no work to perform and having no strain upon it, is subject to but nominal friction and wear.

The adjustable plate shown in Fig. 8, of which the abutment  $g'$  is a part, has a vertical slot,  $N$ , through which passes the screw  $n$ , that holds the plate against the shoulder of the bar  $G$ . When the plate is drawn up as far as the said slot and screw will permit, the range of feed is suitable for ordinary work and corresponds with the said scale, and for this range of feed alone the abutment  $g'$  might be made solid on the feed-bar. As the plate is slid down and engages the lever I nearer the free end thereof, it of course receives a longer stroke from the lever and a coarse feed is had.

The length of the slot  $N$  may be such that the plate can be depressed to give double, triple, or quadruple the feed indicated on the scale, as may be required, and the scale will be read accordingly. By means of this auxiliary feed-shifting device a range of feed may be had that heretofore was usually attained by having two or more machines.

What I claim is—

1. In sewing-machine feed mechanism, the combination, with a push-bar operated by an eccentric on the hook-shaft and provided with a knife-edge, of a depending curved lever with notches to receive the knife-edge of the push-bar, substantially as set forth.

2. In sewing-machine feed mechanism, the combination, with a push-bar actuated by an eccentric on the hook-shaft and provided with a knife-edge, of a pivoted depending lever for operating the feed-bar, provided with notches for engaging the knife-edge, said notches being in a radius equal to the length of the push, substantially as set forth.

3. In a sewing-machine feed mechanism, the combination, with a feed-bar and a spring for moving the feed-bar in one direction, of the curved lever pivoted to the bed of the machine and provided with notches, an eccentric, and a push-bar operated by said eccentric and engaging the curved lever, substantially as and for the purpose set forth.

4. In sewing-machine feed mechanism, a push-bar, devices for actuating the push-rod and depending pivoted lever, said rod and lever provided, respectively, with knife-edge and notches, and arranged to engage the feed-bar and move it in the direction that feeds the work, of a spring inclosed in the feed-bar and arranged to actuate the feed-bar on the return-stroke and press the free end thereof down toward the eccentric, substantially as set forth.

5. In a sewing-machine feed mechanism, the combination, with a feed-bar having a chambered end and a shoulder,  $g'$ , a spring located within said chambered end, and a bearing for one end of said spring, of a curved lever pivoted to the bed of the machine and provided with notches, an eccentric, and a push-bar operated by said eccentric and engaging the curved lever, substantially as set forth.

6. In sewing-machine feed mechanism, the combination, with a push-bar provided with a knife-edge, and a pivoted lever with notches, and a spring arranged to hold the lever and push-bar in contact, of a shifting-lever fulcrumed on the hook-shaft, the outer end provided with a handle and pointer, and the inner end arranged to engage and shift the push-bar, substantially as set forth.

7. In sewing-machine feed mechanism, the combination, with a hook-shaft, feeding mechanism, and a shifting lever journaled on said hook-shaft, and connected with the feeding mechanism, and provided with a pointer, of a plate depending from the bed of the machine and provided with a scale, substantially as set forth.



8. In sewing-machine feed mechanism, the combination, with a feed-bar provided with an adjustable abutment and a spring for moving the feed-bar in one direction, of a lever  
5 pivoted to the bed of the machine and bearing against the adjustable abutment of the feed-bar, and a push-bar engaging said lever and moving the feed-bar in the opposite direction.

In testimony whereof I sign this specification, in the presence of two witnesses, this 10th day of October, 1884.

RUEL W. WHITNEY.

Witnesses:

CHAS. H. DORER,  
ALBERT E. LYNCH.