

O. D. BARRETT.
Sewing Machine.

No. 25,785.

Patented Oct. 11, 1859.

Fig. 6,

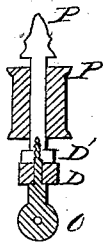


Fig. 1,

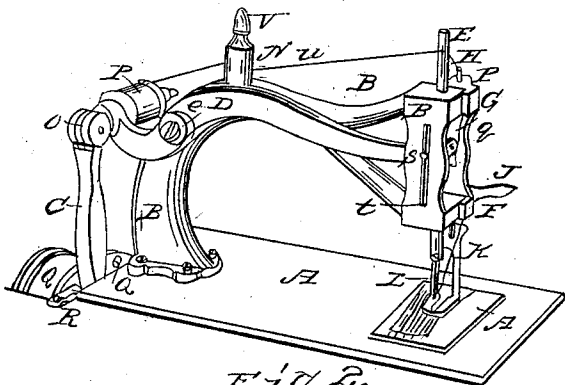


Fig. 3,

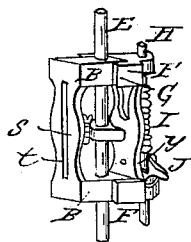


Fig. 2,

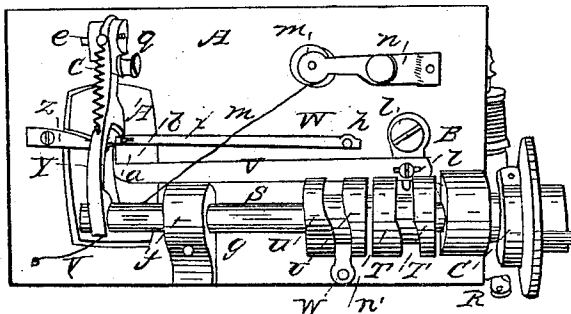


Fig. 4,

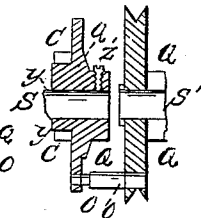


Fig. 7,

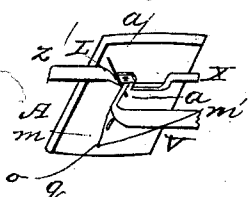


Fig. 8,

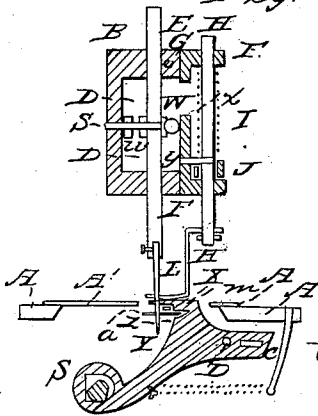


Fig. 10,

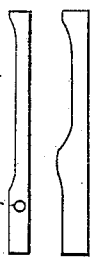
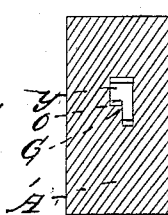


Fig. 11, Fig. 5,



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UNITED STATES PATENT OFFICE.

OLIVER D. BARRETT, OF CLEVELAND, OHIO, ASSIGNOR TO HIMSELF AND S. E. SMITH.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 25,785, dated October 11, 1859.

To all whom it may concern:

Be it known that I, OLIVER D. BARRETT, of Cleveland, in the county of Cuyahoga and State of Ohio, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, of which drawings—

Figure 1 is a perspective view of the sewing-machine placed on the table designed for it; Fig. 2, a perspective view of the same machine turned up on the table, so as to show the machinery on the under side of it; Fig. 3, a perspective view of the machinery about the needle-bar E; Fig. 4, a plan of the needle-plate A' and that part of the feeder Y that penetrates through it; Fig. 5, a sectional view of the disk Q, shaft S, eccentric *y'*, pitman C, and of the pulley used to drive the machine; Fig. 6, a section showing how the pitman C is connected to the lever D; Fig. 7, a perspective view of the machinery directly under the needle-plate A', the shaft S and feeder Y being removed; Fig. 8, a vertical section of the machine at right angles to the lever D through the needle-bar E; Fig. 9, a section through the cam U and lever W. Fig. 10 shows the shape of the cams U and T and their relative position. Fig. 11 is a section through the cam T and the lever B'.

In the following references and descriptions like letters represent the same part of the machine in the same and different figures.

A is the bed-plate; B, goose-neck; C, pitman; D, lever; E, needle-bar; F, foot-holder; G, joint; H, rod; I, spring; J, eccentric; K, foot; L, upper needle; M, cloth; N, tension; O, connecting-pin; P, spool; Q, disk; R, joint; S, shaft; T, cam; U, cam; V, needle-arm; W, lever; X, loop-spreader; Y, feeder; Z, guide; *a*, needle; *b*, set-screw; *c*, spring; *d*, thumb-screw; *e*, slot; *f*, bracket; *g*, set-screw; *h*, set-screw; *i*, set-screw; *j*, set-screw; *k*, set-screw; *l*, set-screw; *m*, spool; *n*, spring; *o*, crank-pin; *p*, set-screw; *q*, spring; *r*, set-screw; *s*, pin; *t*, slot; *u*, thread; *v*, cap; *w*, block; *x*, incline; *y*, pin; A', needle-plate; B', lever; C', pin; D', nut; O', pin; P', pin; Q', pulley; S', shaft;

a', hole; *j'*, nut; *m'*, thread; *n'*, set-screw; *o'*, pin; *q'*, spring; *v'*, pin; *w'*, friction-roller; *x'*, set-screw; *y'*, eccentric; *z'*, set-screw.

Motion is given to the shaft S, Fig. 2, from the disk Q, in which is the crank-pin *o*. This disk is fastened to the shaft S by a set-screw, *z'*, Fig. 5. One part of the disk Q, Fig. 5, designated *y' y'*, forms an eccentric which gives motion to the pitman C, Figs. 1, 2, and 5. Motion is best given to the disk Q, Fig. 2, by a pulley turning on a shaft lying in a line with shaft S when the machine is placed on the table ready for sewing, as represented in Fig. 1. In this pulley so placed should be a crank-pin, the same distance from the axis of its shaft as the pin *o* is from the axis of the shaft S, Figs. 2 and 5, and so placed as to hit it when the pulley is revolved. How this can be done is shown in Fig. 5, in which Q' Q' represent such pulley, S' the shaft in line with the shaft S, and *o'* a pin hitting the pin *o*. The pulley S' is driven by a band and wheel below.

The pitman C, Fig. 1, receiving its motion from the eccentric *y' y'*, Fig. 5, communicates it to the lever D, Fig. 1, by means of the connecting-pin O, Figs. 1 and 6. The set-screw *r*, Fig. 1, holds the lever D to the goose-neck B and serves as a fulcrum, on which it turns. The lever D connects with and gives motion to the needle-bar E by means of the pin *s*, screwed into the bar E, the other end running in the slot *t*, Figs. 3 and 8. A block, *w*, Figs. 3 and 8, is fastened to the needle-bar E by the pin *s*, and contains a friction-roller, *w'*, Fig. 8, which, as the needle-bar E descends, comes in contact with the incline *x* on the foot-holder F, Fig. 8.

The feeder Y, Figs. 2 and 8, has a slot in one end, through which a pin, *e*, passes, connecting it to the plate A, as represented in Fig. 2. Through a suitable opening in the other end of the feeder Y passes a cam on the shaft S. The surface of the feeder Y, that comes against the cloth through an orifice in the plate A', Fig. 4, is smooth. This part of the feeder Y has two reciprocating motions—one vertical and the other horizontal. The upward motion is given to it by the cam at S, Fig. 8, and the downward motion by its own weight and by

the spring I, Fig. 8. Its forward motion—that is, its motion toward the needle L—is also given to it by the cam at S and its backward motion by the spring c.

In the majority of sewing-machines the feeder is armed with teeth or has a roughened face for its feeding-surface, and operates by having this surface pressed against the cloth, on the other side of which is a stationary surface, as far as horizontal motion is concerned, or motion along with the cloth, and then pushing or pulling the cloth along. The friction of the cloth against the stationary surface causes the piece on that side, when two pieces are being sewed together that have not first been basted, to be retarded more than the piece of cloth coming in direct contact with the roughened surface, the result of which is the seam does not present an even appearance, the cloth being puckered, as one piece is carried along faster than the other. In my improvement the surface opposite the part of the feeder Y that comes in contact with the cloth has a horizontal motion, as will be seen from the following description, doing away completely with the necessity for the “roughened-surface feed,” as it is called.

The foot K, Fig. 8, is connected to the rod H, which passes through two brackets on the foot-holder or frame F—one at the top and the other at the bottom. As the feeder Y rises, pressing the cloth against the foot K, this rod H slides in those brackets above mentioned, the spring I keeping the foot K constantly against the cloth. Now, as the feeder Y is drawn toward the needle L, it carries the cloth and the foot K along with it. The foot-holder or frame F permits this by being hinged at G, Figs. 8 and 3, directly over the feeding-surface of Y. It is essential that it be hinged directly over this feeding-surface, or at least in a plane perpendicular to the feeding-surface of Y, and parallel to the lever D, Fig. 1. Were it hinged at any other place, the pressure on the cloth would change while it was being fed along; and, again, the upward motion of the feeder Y before its horizontal motion commences would tend to move the foot K in a horizontal direction one way or the other, as it might be hinged to the one side or the other from the position above described.

Having explained how the foot K is moved toward the needle L, I will now explain how it is moved back again.

In the sectional view of the foot-holder F, Fig. 8, is seen an incline, *x*. (More clearly shown in perspective in Fig. 3.) As the needle-bar E descends the friction-roller *w'*, described above, strikes this incline *x*, and pushes the foot-holder F with the foot K back from the needle L or needle-bar E, the needle L at the same time being through the cloth, and the feeder at the time this motion is made not touching the cloth, it is evident the cloth cannot slip back with the foot K. The length of the stitch is regulated by the thumb-screw

d, Fig. 2. A small slot in the foot-holder F receives a pin, *y*, inserted in the rod H, (seen in Fig. 1,) which keeps the rod H from rotating. A cam-lever, J, operating against this pin, raises the foot K from the cloth.

N, Fig. 1, is a common rubber tension, through which the thread *u* passes from the spool P to an eye in the upper end of the needle-bar E, and thence to the eye of the needle L.

The cam T, Fig. 2, whose shape is seen in Fig. 10, adjustable by the set-screw *k*, gives motion to the lever B' by operating against the pin O', as represented in Fig. 11. B' turns on the screw *i* as a center, and has fastened to it the needle-arm V, adjustable by a slot in it, and one in the lever B, through both of which the screw *j* passes to the nut *j'*, Fig. 11. This enables the needle *a* to be adjusted to the needle L, Fig. 7. The needle-arm V moves in a guide between the bracket *f* and the bed-plate A. The cam U, Fig. 2, whose shape is also represented in Fig. 10, and its position in relation to it, also adjustable by the set-screw *l*, gives motion to the lever W, turning on the set-screw *n'*, as represented in Fig. 9. To this lever W is attached the loop-spreader X, Figs. 2 and 9, by a screw, *h*. The other end is guided by a screw, X', passing through a slot into the needle-plate A', Fig. 7. This loop-spreader passes between the needle *a*, Figs. 7 and 8, and, having a small notch in its end catches the thread *m'* and pushes it from the side of the needle *a*, so that the needle L in descending cannot fail to pass between this thread and the needle *a*. The guide Z, Fig. 7, adjusted by a slot and screw, prevents the loop from forming on the wrong side of the needle L as it ascends.

The machine is hinged to the table by one pin, (seen at R, Fig. 2,) so that it can be turned up to get at the under side without unbanding it, the peculiar arrangement represented in Fig. 5 permitting it to be thrown into and out of gear at will.

It will be perceived that no roughened surfaces are used to feed the cloth along. Nearly all sewing-machines made at present use such a surface for feeding the cloth along, striking one side and pressing the other against a smooth surface, and then forcing it along. The result is one part of the cloth will move faster than the other, the friction against the smooth surface retarding the latter. This difficulty is completely overcome by the arrangement for feeding above described. The cloth is clasped between two smooth surfaces, and is then pulled along as if between the thumb and fingers of the hand.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The crank, consisting of the disk Q and pin *o*, in combination with the pin *o'* in the pulley Q', and hinge R, whereby I am enabled to turn the machine up from the table designed for it to stand on, in order to adjust or thread

the under needle without unbanding the machine, substantially in the manner and for the purpose herein described.

2. Hinging the foot-holder F to the head of the goose-neck B in a position vertical to the feeding-surface of the feeder Y, substantially in the manner and for the purpose herein described.

3. The foot-holder F, constructed and hinged as set forth, in combination with the rod H, spring I, foot K, and feeder Y, substantially in the manner and for the purpose set forth.

OLIVER D. BARRETT.

Witnesses:

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J. L. WHITE.