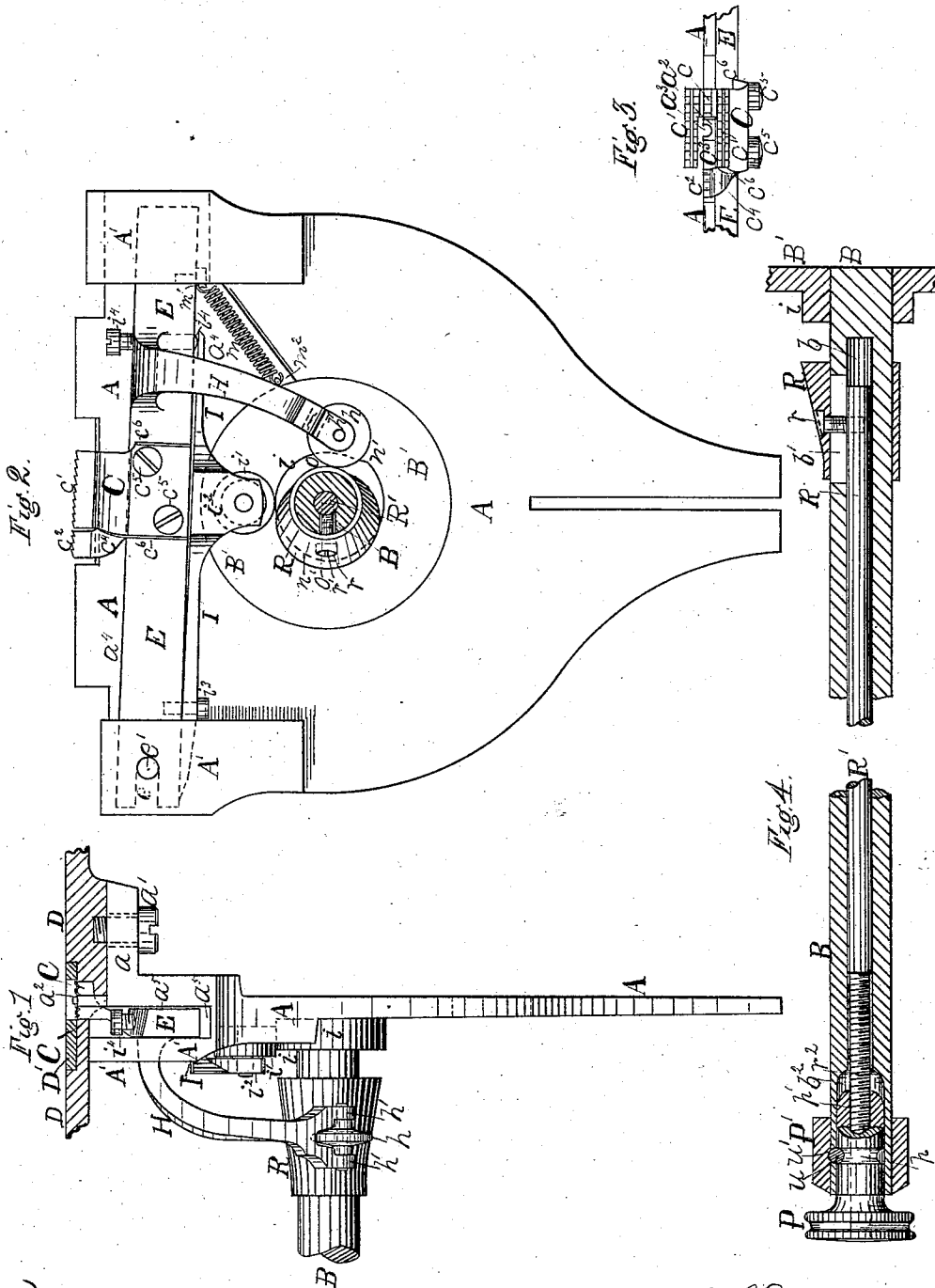


(No Model.)

S. R. SARGENT.
SEWING MACHINE.

No. 287,868.

Patented Nov. 6, 1883.



Witnesses
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UNITED STATES PATENT OFFICE.

SAMUEL R. SARGENT, OF TERRE HAUTE, INDIANA.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 287,868, dated November 6, 1883.

Application filed January 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL R. SARGENT, of Terre Haute, county of Vigo, and State of Indiana, have invented or discovered a new and useful Improvement in Sewing-Machines; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is an edge view, in elevation, of my improved feed mechanism for sewing-machines, showing also a portion of the counter-shaft employed for operating the same. Fig. 2 is a side view of the feed mechanism shown in Fig. 1, or a transverse sectional elevation described with reference to the position of the parts in a complete machine. Fig. 3 is a top plan view of the feed-bar and plate or bar which supports it; and Fig. 4 is a longitudinal sectional view of the shaft employed for operating the feed mechanism, the central part of the shaft being broken away.

My present invention relates to certain improvements in the mechanism employed for imparting feed in sewing-machines; and it consists, in general terms, of certain combinations of a feed-bar, a movable two-part frame for carrying such bar, cam and spring mechanism for moving the frame, means for adjusting the cams to vary the feed, and also in the construction of such parts or devices, as hereinafter more fully described and claimed.

In the drawings, A represents a metallic plate, which is secured by lugs *a* and screws *a'* to the under side or face of a sewing-machine bed-plate, D, depending therefrom in a vertical plane transverse to the machine and at right angles to the shaft B, which extends longitudinally under the table, and has an end bearing in the plate A by means of a circular head, B', secured on the shaft, which head rotates in a similarly-shaped opening in the plate, the faces of the plate and head being flush or in the same plane; also, additional bearings may be provided for the shaft at any desired points in its length by hangers depending from bed-plate D. A portion only of this bed-plate is shown, and this, as well as the mechanism usually mounted above it for manipulating the upper thread, also the shuttle mechanism for carrying the under thread, and

the driving mechanism, may be of any suitable or well-known form and construction; and therefore I do not deem it necessary to show the same herein, but have shown and described mechanism adapted for these several purposes in the subject-matter of other applications filed even date herewith, serial numbers 81,247 and 81,250.

In connection with my improved feed mechanism, I make use of a new and improved construction of feed-bar, C, having a serrated upper face, consisting of a front face or part, *c*, two side faces or parts, *c'*, extending backward on either side of the central needle-passage, *c''*, and a narrow serrated face or part, *c'''*, prolonged in the central line of the needle-opening beyond the termination of the side serrations. The faces *c c' c''* are formed on the upper end of the body part of the bar, and the face *c''* upon an arm, *c'''*, which branches from such body, but is integral with or rigidly secured to the body. Consequently all parts of the serrated face take feed motion from the bar in unison. They are all, by preference, in a common plane; but the narrow strip or face *c''*, extending beyond or in rear of the two side faces, *c' c'*, forms in effect a pivotal or turning point, on which the fabric to be sewed may be turned with equal ease in any and all directions, either at angles or in long or short curves, so that fancy scroll-sewing may be done with ease and facility. By providing serrated faces *c' c'* on both sides of the needle, puckering and drawing of the cloth are prevented; and in connection with this advantage I also secure, by means of the prolonged narrow part *c''*, all the advantages in turning the cloth heretofore secured when the feed-bar extends along one side only of the needle. This feature of construction—namely, combining with the two side parts, *c' c'*, a narrow part, *c''*, prolonged beyond the side parts in the central line—is an important and useful improvement. The needle is guarded in its passage below the fabric by a projection, *a''*, extending upward from the edge of the plate A, in which is a vertical hole or passage, *a'''*, leading downward by a groove in the back face or shuttle-face of plate A. The needle, in its downward movement, enters this hole *a'''*, and is thus protected.

The space *c'''* between the front and back

serrations, c^2 , is sufficient in length to receive the projection a^2 , and also to afford range of feed movement, as may be required in practice.

5 The feed-bar C is secured at its lower end, by screws c^3 , and by dovetail tongue-and-groove connection c^6 , to a bar, E, which is seated in a recess, a^1 , across the top of plate A, and this bar is held in place in such recess, with
10 provision for horizontal and vertical movement, by guide-lugs A', secured to plate A at or near its edges, between which is formed the guide-boxes a^7 .

In one end of the bar E, corresponding to the side c' of the feed-bar, is made a slot, c , through which is passed a pivot-pin, c' , thus preventing vertical movement of this end of the bar, but providing for horizontal or endwise movement. The other end of bar E is free to move both vertically and endwise in its guide a^8 . This vertical movement is effective in pressing and releasing the fabric by the serrated feed-bar; and it is imparted by a cam, i , secured on rotary shaft B, which cam bears against a roller, i' , mounted on an ear or lug, i^2 , which latter extends downward from the yielding spring-bar I. This spring-bar is secured to the lower edge of bar E at or near one end by a screw, i^3 . At the opposite end
30 an adjusting-screw, i^4 , passes downward through the bar E and presses against the upper face of spring I. By turning this adjusting-screw the two bars E and I may be separated at pleasure, and as the bearing of roller i' upon cam i prevents downward movement
35 of the spring-bar, the bar E and feed C will be raised by such adjustment, thereby determining the distance that the feed-bar shall be raised above the face-plate under the movement imparted by the cam. The adjusting-screw i^4 is located under the sliding face-plate D', so that by moving such plate the screw may be reached easily by the operator. The periphery of cam i is formed by preference
45 with a gradial lift, as at n , and from this lift, in the direction of rotation, the periphery is circular in form, or nearly so, the length of such circular arc corresponding with that part of the rotation of the shaft employed in effecting the forward movement of the feed-bar, as presently described. At or about the termination of such forward movement the radius of the cam is reduced, as at n' , permitting the feed-bar to fall preliminary to being moved
50 backward. In order, however, to insure prompt downward movement of the feed-bar, a contractile spring, m , is secured at one end to the lower edge of bar E, as at m' , and at the other end to the plate A, as at m^2 . Forward feed movement of the bars E and C is imparted by sleeve-cam R, which is secured on shaft B, and bears against a roller, h , pivoted between the forked arms h' h'' of the bent arm H, which latter is rigidly secured
65 to and extends downward from the bar E. Forward motion is given by this cam R as the roller h travels from the lowest to the high-

est part on the surface, (say from o to o' ;) or, more properly speaking, the forward movement is given by this part of the cam pressing its rotation upon the roller which is held in or near the horizontal plane of the cam. In order that this throw may occur in proper relation to the vertical lift imparted by cam i , the two cams are set on the shaft in such relation that the arc from o to o' presses upon roller h at the same time that the raised arc n n' presses roller i' . As the cam R turns away from roller h , the bar E is drawn backward by the spring m , which, owing to its inclined position, is effective in drawing the bar both downward and backward. The extent of throw of cam R determines the length of stitch, and in order to provide for regulating this at pleasure, the cam is made tapering or conoidal in form, with sufficient length to permit of longitudinal movement on the shaft, and thereby vary the extent of throw which will be given by it to the roller-arm. This longitudinal movement of the cam is effected by means of a spindle or rod, R', which extends from the outer or left-hand end of shaft B, (see Fig. 4,) through the tubular passage b in the shaft, to a point under or within the cam, the two being connected by a screw, r , passed through an elongated opening or slot, b' . This screw r has the outer face of its head conforming to the shape of the surrounding cam-surface with reference to securing smooth, continuous cam-face when the screw is home. To the same end the nick r' in the screw-head is so made as to lie lengthwise on the cam-face when home, thereby preventing possibility of the roller h catching in the nick or wearing it out of form.

In a chamber, b^2 , in the outer end of shaft B is seated a tubular thumb-screw, P, which is secured in place by a pin, u , which is passed through holes u' in an outer collar, P', and in shaft B, and through the groove p , formed circumferentially in the outer surface of the barrel of the thumb-screw. The thumb-screw may thus be rotated without endwise motion. The inner tube-surface of thumb-screw is threaded, as at p' , and is screwed upon the threaded end r^2 of rod R', so that rotation of the thumb-screw will move the rod and its attached cam R longitudinally, thereby effecting the desired adjustment of stitch.

All the parts of this feed mechanism are plain in form, can be constructed cheaply, are easily put in place and adjusted, and when in place will be durable and efficient.

I claim herein as my invention—

1. The feed-bar C, having in combination a serrated face, c , in front, and two serrated faces, c' c'' , one on either side of its needle-opening c^3 , and a narrow serrated face, c^2 , in the rear, prolonged in the central line of the needle-opening beyond the termination of the side faces, substantially as and for the purposes set forth.

2. The combination of feed-bar C, horizontally-movable supporting-bar E, carrying roller-arm H, conoidal cam R, hollow shaft B,

rod R', and thumb-screw P, substantially as and for the purposes set forth.

3. The shaft B, having tubular passage *b*, in combination with rod R', cam R, secured to the rod, thumb-screw P, having an inner thread, *p'*, adapted to run on the threaded end *r*² of the rod, and a circumferential groove, *p*, on its outer surface, and a pin, *u*, passed through the shaft and groove, substantially as set forth.

4. The combination of feed-bar C, horizon-

tally-movable supporting-bar E, carrying roller-arm H, spring *m*, shaft B, having tubular passage *b*, adjusting-screw P, rod R', conoidal cam R, and screw *r*, for connecting the rod and cam, substantially as set forth.

In testimony whereof I have hereunto set my hand.

SAMUEL R. SARGENT.

Witnesses:

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R. H. WHITTLESEY.