

D. WEAVER.
Sewing Machine.

No. 80,789.

Patented Aug. 4, 1868.

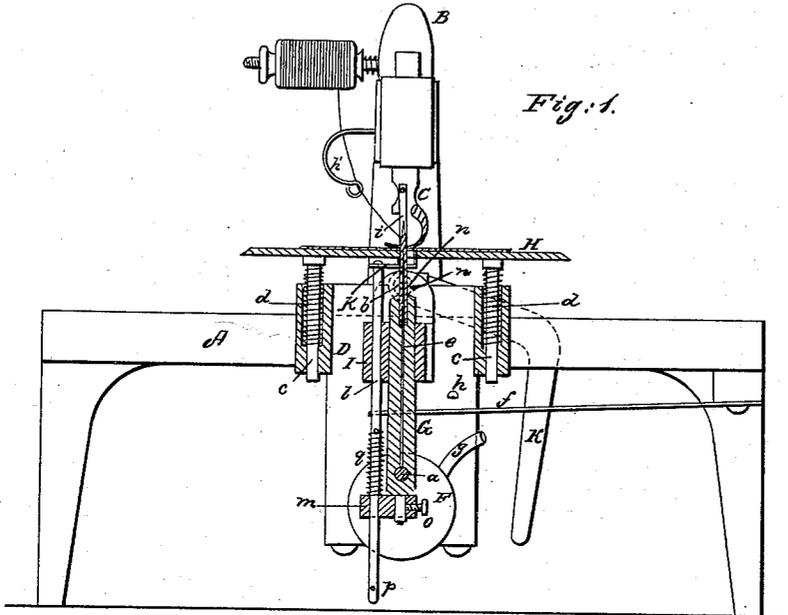


Fig. 1.

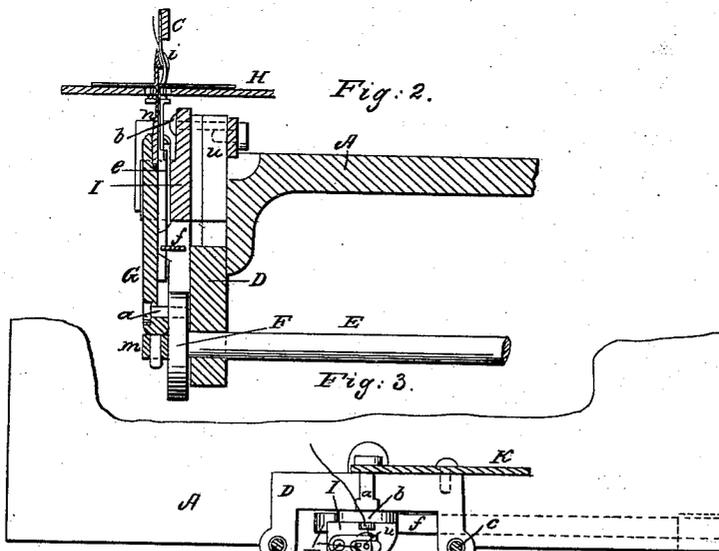


Fig. 2.

Fig. 3.

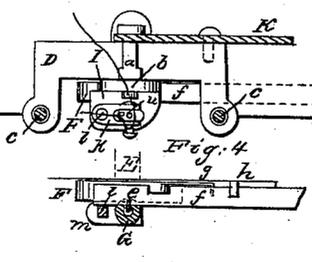


Fig. 4.

Witnesses:
E. F. Hastenhuber
Chas. Wahlers.

Inventor:
Daniel Weaver
for
Van Hartvoord, Haaff
Atty.

UNITED STATES PATENT OFFICE.

DANIEL WEAVER, OF GUILDERLAND, NEW YORK.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 80,789, dated August 4, 1868.

To all whom it may concern:

Be it known that I, DANIEL WEAVER, of Guilderland, in the county of Albany and State of New York, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which drawings—

Figure 1 represents a transverse vertical section of this invention. Fig. 2 is a longitudinal section thereof. Fig. 3 is a sectional plan thereof. Fig. 4 is a detached section of the needle-bar and its immediate attachments.

Similar letters indicate corresponding parts.

This invention relates to a sewing-machine of that class in which the stitching mechanism consists of a crochet or hook needle passing through the cloth-plate and the material to be sewed from below. The material to be sewed is clamped between a stationary foot and the cloth-plate, which is forced upward by springs, and said material receives its feed motion by the action of the needle itself. The hook-needle is provided with a latch, which recedes as the needle rises, so that the hook will catch the thread presented to it and, forming a loop, carry it down through the material, the loop of the thread being retained in the hook by a latch, which also prevents the hook in its descent from catching in the material. As the needle rises again the loop is released from the hook of the needle and retained under the cloth-plate in such a position that the succeeding loop carried down by the needle will be sure to pass through the same when it is drawn up tight by the needle.

A. represents a table, made of wood or any other suitable material in any desirable form or shape. From the upper surface of this table rises the arm or goose-neck B, to the front end of which is secured the foot C. The arm B is rigidly connected to or cast solid with the frame D, which is firmly attached to the under surface of the table A, and forms the bearings of the driving-shaft E of the sewing mechanism. To one end of this shaft is secured a pulley or other device whereby a revolving motion can be imparted to it, and on its opposite end is mounted a disk, F, from the face of which projects an eccentric wrist-pin, a, that

carries the needle-bar G. This needle-bar is situated under the cloth-plate H, and it is guided in its reciprocating motion by a bracket, I, which is secured by a pivot, b, to a slide, u, which can be adjusted up and down in suitable guideways in the frame, said bracket being arranged in such a manner that it can adapt itself to the motion of the needle-bar, the bottom end of which is carried round in a circle by the wrist-pin a. In the upper end of the needle-bar is secured the crochet or hook needle n, and as the shaft E revolves the point of this needle is carried up through a slot or throat in the cloth-plate H. Said cloth-plate is provided with guide-rods c, which fit into suitable sockets in the frame D, and it is pressed up against the foot C by springs d, surrounding the guide-rod c. By the action of these springs the material to be sewed is clamped between the cloth-plate and the foot.

The needle n is provided with a latch or slide, e, which is embedded in a groove in the needle-bar and subjected to the action of a spring, f, which has a tendency to keep the point of the latch in contact with the barb of the hook, so that said hook is closed. As the needle rises, and just before its point reaches the level of the under surface of the cloth-plate, a tappet-arm, g, which is attached to the disk F, and the hook at the end of which forms a section of a cycloid, comes in contact with the spring f and depresses the same, together with the latch, so as to open the hook and to cast off the loop. After the tappet-arm g releases the spring f the latch closes again until the needle-bar arrives in such a position that the spring is thrown in contact with a stop, h, projecting from the frame D, and the latch is prevented from rising any farther with the needle, leaving the hook open and free to catch the thread. The thread is taken from a spool or bobbin, J, which is placed on a pin projecting from the arm B. It is passed through a take-up spring, h', and through a thread-guide, i, its end being held by hand at the beginning of the operation until the hook of the needle has caught the same and drawn it down through the material. As the needle descends the barb of its hook strikes the latch and the hook is closed before said barb comes in contact with the material to be sewed, so that the needle descends and carries the loop down without catching in the material. When the needle ascends

again the loop previously drawn down is discharged from the hook by the action of the tappet-arm *g*, which depresses the latch just before the point of the needle penetrates the material to be sewed, and the loop just cast off remains at the under surface of the cloth-plate.

With the needle-bar is connected a rod, *l*, which is guided in the bracket *I* of the needle-bar, and moves freely in the bracket *m*, its motion being confined and controlled by a pin, *p*, and a spring, *q*. This spring has a tendency to force the rod *l*, with its fork *k*, upward, and when the needle has cast off its loop the points of the fork are pressed up through slots in the cloth-plate against the material resting on the cloth-plate, and by the combined action of the needle and of the fork the feed of the material to be sewed is produced, as will be hereinafter more fully explained. On its subsequent descent the needle draws down a second loop through the loop previously formed and lying under the cloth-plate, and as the downward motion of the needle proceeds the first loop is released by the fork and drawn up tight by the action of the needle.

By these means a chain-stitch is formed and a sewing mechanism is obtained which is very simple in its construction and sure in its operation. The feed of the material to be sewed is effected by the needle itself and the fork, said needle and fork being so arranged that they receive a compound motion—viz., a reciprocating and an oscillating motion, this latter motion taking place after the needle has passed up through the material to be sewed and the points of the fork have come in con-

tact with the material, this contact being insured by the spring *q*, which is compressed by its bracket *m*, so that the points of the fork will at that stage of the motion take a firm hold of the material and feed the same forward without fail.

The feed-motion is adjusted by means of the lever *K*, which is connected to the slide *u*, that carries the bracket *I* of the needle-bar. By varying the distance of this bracket from the center of the shaft *E* the feed-motion can be changed to suit the nature of the work to be accomplished.

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

1. The spring *f* and tappet-arm *g*, in combination with the latch *e* and hook-needle *n*, substantially as and for the purpose set forth.

2. The stop *h*, in combination with the spring *f*, latch *e*, and hook-needle *n*, which is secured in a bar attached to the wrist-pin *a*, substantially as and for the purpose described.

3. The spring *q* and bracket *m*, sliding on the shank of the fork-feeder and compressing the spring as the needle rises, in combination with said fork-feeder and needle, constructed and operating substantially as and for the purpose set forth.

4. The slide *u* and hinged bracket *I*, in combination with the needle-bar *G*, feed-fork *k*, and lever *K*, or its equivalent, substantially as and for the purpose described.

DANIEL WEAVER.

Witnesses:

I. J. VEEDER,
J. M. BATTEMAN.