

G. W. HUBBARD.

Sewing Machine.

No. 18,904.

Patented Dec. 22, 1857.

Fig. 1.

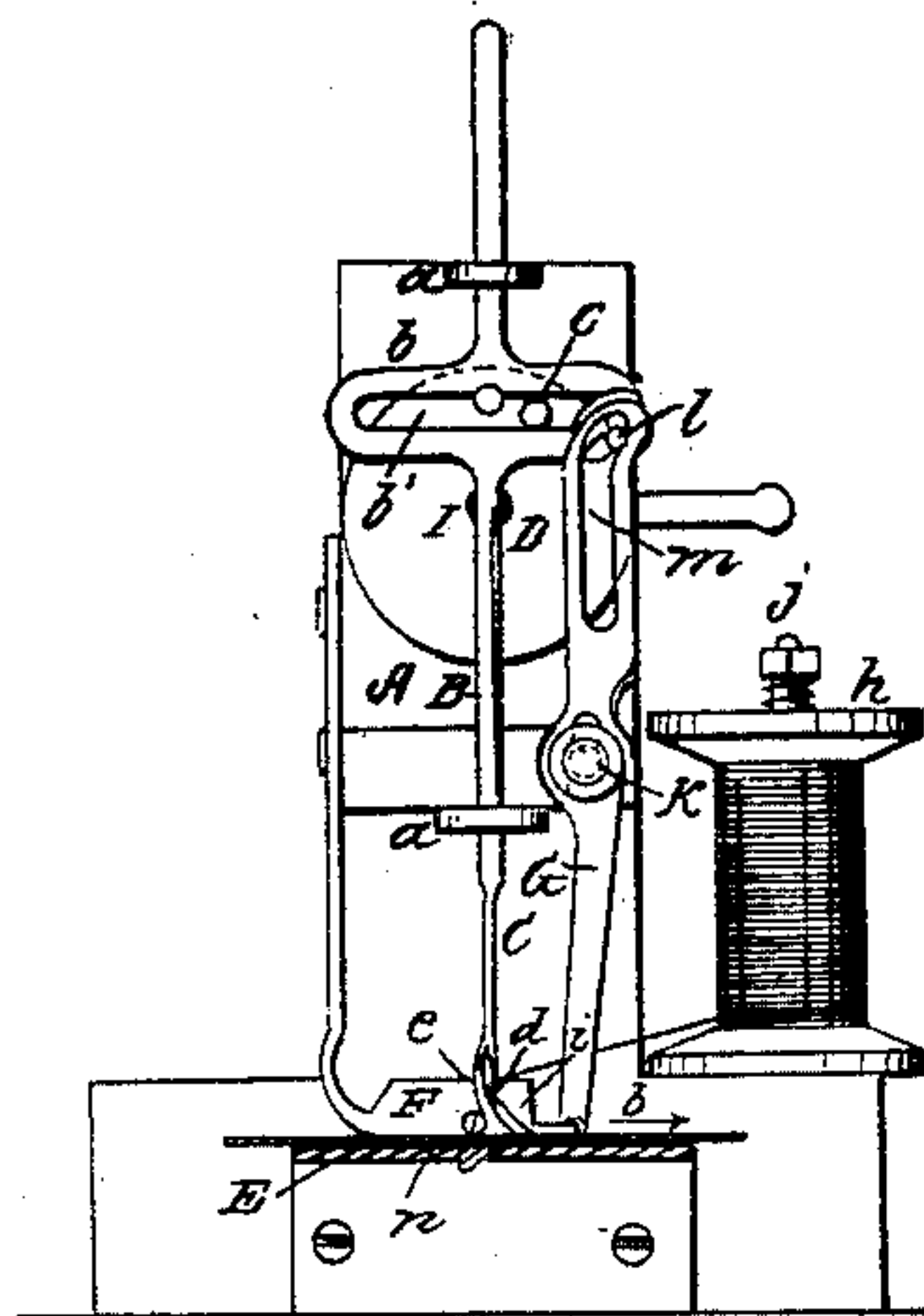


Fig. 2.

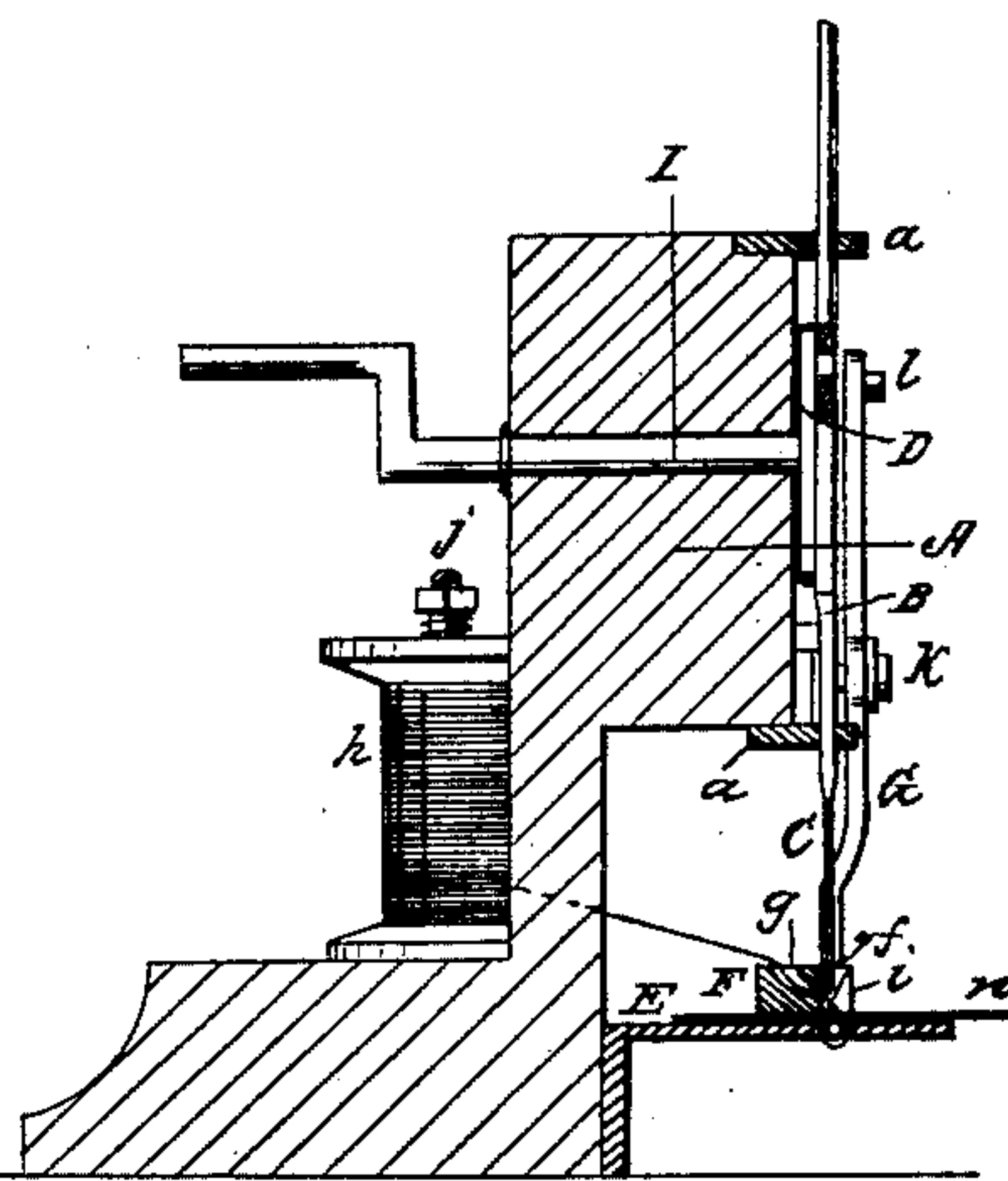


Fig. 3.

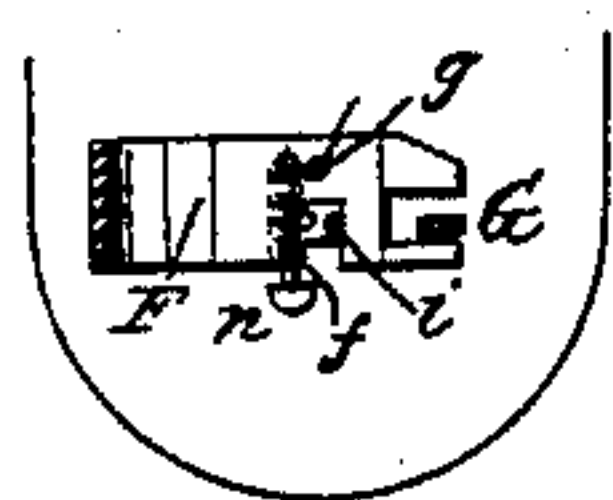
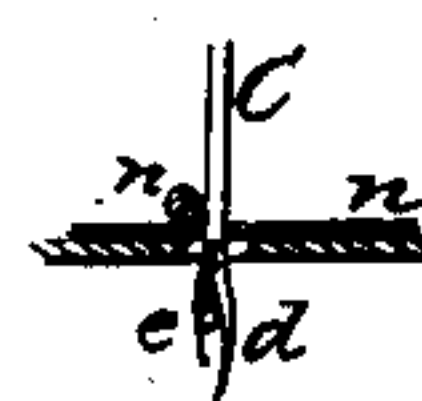


Fig. 4.



Fig. 5.



UNITED STATES PATENT OFFICE.

GEORGE W. HUBBARD, OF WEST MERIDEN, CONNECTICUT.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 18,904, dated December 22, 1857.

To all whom it may concern:

Be it known that I, G. W. HUBBARD, of West Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front view of a machine with my improvements, with the table on which the material to be sewed is supported, in section. Fig. 2 is a central vertical section at right angles to Fig. 1. Fig. 3 is a plan view of the table, the needle, and the looper. Figs. 4 and 5 are front views, illustrating the construction and operation of the needle.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in a forked needle, constructed and operating as hereinafter described, with a single thread, to produce what is known as a "chain-stitch" seam.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A is a stand, to which all the working parts of the machine are attached.

E is the table, on which the material *p* to be sewed (shown in grey outlines) is supported during the operation.

F is the spring-pressure pad, for confining the material to the table E, secured to the stand.

B is the needle-bar, to the lower end of which is attached the needle C, the said bar being fitted to slide vertically in guides *a a*, attached to the stand, and having a cross-head, *b*, containing a transverse straight slot, *b'*, to receive a pin, *c*, which is arranged eccentrically upon a disk, D, that is attached to the front end of the horizontal main shaft I. The rotary motion of the pin *c* in the slot *b* produces a reciprocating motion of the needle-bar. The forked needle C has one prong, *d*, longer than the other one, *e*, the longer prong, *d*, being a straight continuation of the stem of the needle, and terminating in a sharp point, and the shorter prong, *e*, being slightly curved outward and pointed at its extremity, which inclines toward the prong *d*, but does not touch

the latter prong until pressed against it, and springs away from it again as soon as left free. The normal condition of the needle is represented in Figs. 1 and 5, and Fig. 4 shows it with the fork closed by pressure against the prong *e*.

The spring-pressure pad F, which is made with its foot-piece much thicker than those generally used in other machines, has an opening, *f*, in the front, through which and through an opening, *g*, in the table E below, the needle works, and on one side of this opening *f*, there is arranged a stationary presser, *n*, with which the prong *e* comes in contact in its descent before the point of the said prong arrives at the material, and by which the point of the said prong *e* is forced into contact with the prong *d*, to enable the said prong to pass through the hole which has been made in the material by the prong *d*.

The presser *n* consists of a screw with a long taper head screwed horizontally into the pressure-pad so far as to bring opposite the needle such portion of the taper head as is of the proper size to cause the prong *e* to close. On that side of the opening *f* in the pressure-pad next which the long prong *d* of the needle works there is a slight recess for the needle to work in, said recess serving not only as a guide to the needle, but to enable it to pass behind the thread, as will be presently explained, and the front and lower portion of the same side of the said opening *f* is beveled, as shown at *i* in Figs. 1 and 2, and indicated by a dotted line in Fig. 3. At the back of the opening *f* in the foot-piece there is an eye, *g*, through which the thread is conducted to the needle from a spool, *h*, which is arranged to rotate on a stationary axle, *j*, attached to the stand A.

G is the feeder, consisting of a lever attached to the front of the stand A by a stationary fulcrum-pin, *k*, and having its lower extremity serrated in such a way as to take hold of the material upon the table and move it along when a vibratory movement is given to the lever. The lever is fitted to its fulcrum-pin with a slot, which allows it to move up and down thereon, as well as vibrate, and in the upper arm of the lever there is a slot, *m*, which receives a pin, *l*, that is attached to the cross-head, the said slot being a little shorter than

the stroke of the cross-head produced by the revolution of the pin *c*, and being straight for the whole of its length, except a portion at and near its upper end, which is curved. The action of the pin *l* in the slot *m* of the lever has the effect of giving the lever a longitudinal or vertical motion as well as a vibrating motion. As the pin *l* descends it strikes the bottom of the slot and pushes the lever down longitudinally far enough to bring the serrated end into contact with the material on the table *E*, and as it rises it produces no movement of the lever till it reaches the curved upper portion of the slot, when it moves it in the direction of the arrow 6, (shown near the lower end in Fig. 1,) and causes the serrated lower end of the lever to move the material, and as the pin *l* strikes the upper end of the slot it lifts up the lever longitudinally and removes it from contact with the material. As the pin *l* descends again, in moving down the curved part of the slot *m* it moves the lever in the opposite direction to that indicated by the arrow 6; but as at this time the lever is out of contact with the material the latter remains stationary. After the pin *l* has moved beyond the curved part of the slot the lever remains stationary till the pin strikes the lower end of the slot and brings the serrated lower end into contact with the cloth again, as above described, and the lever remains stationary in this latter condition until the pin ascends to the curved part of the slot, when it operates, as before described, to move the cloth again.

The operation of the needle to make the stitches is as follows: The end of the thread from the spool *h*, which is shown in red color, is conducted through the eye *g* from the back of the pressure-pad and led by the fingers of the operator round that side of the opening *f* of the pressure-pad against which the long prong of the needle works. The shaft *I* is then set in motion to operate the needle, and as the needle descends the point of the prong *d* passes between the thread and the adjacent side of the opening *f*, as shown in Figs. 1 and 3, followed by the prong *e*, which passes on the opposite side of the thread, which is thus brought

within the fork of the needle. The prong *e*, after passing the thread, comes into contact with the presser *n*, by which, before its point reaches the material *p*, it is closed, as shown in Fig. 4, so that it passes through the material *p* without difficulty. The needle descends far enough to carry the top or crotch of its fork a short distance through the material *p*, (as shown in Fig. 5, which represents the needle at its point of lowest descent,) and by that means the thread is taken through the cloth in the form of a loop, and is left in that form when the needle ascends, as the fork of the needle, being open till the prong *e* strikes the presser *n*, has no tendency to draw back the loop. The feed takes place as the needle completes its ascent, though not till the latter has been withdrawn from the material *p*, and the loop, which up to that time has hung vertically below the material in the position in which the needle left it, is drawn by the feed movement over the edge of the opening *q*, and thus caused to be thrown up to a position nearly parallel with the face of the material *p*, as shown in Fig. 4, so that the needle in its next descent may pass through it and carry through it the new loop. The feed movement of the material *p* draws the thread which is between the upper surface of the cloth and the eye *g* against the beveled corner *i* of the opening *f* in the pressure-pad, and the form of this corner tends to throw it forward, so as to leave more room for the prong *d* of the needle to pass behind it on its next descent, and thus insure the operation of forming the loop. The repetition of the above operation produces the seam, which may be continued to an indefinite length.

Having thus described my invention, I will proceed to state what I claim and desire to secure by Letters Patent:

The forked needle, constructed and operating, substantially as described, to enchain the loops on the opposite side of the cloth or other material to that on which it enters.

GEORGE W. HUBBARD.

Witnesses:

MICH. HUGHES,
W. TUSCH.