2 Sheets—Sheet 1.

J. S. HALL.

OVERSEAMING SEWING-MACHINE.

No. 187,006 Patented Feb. 6, 1877.

Fig. 1.

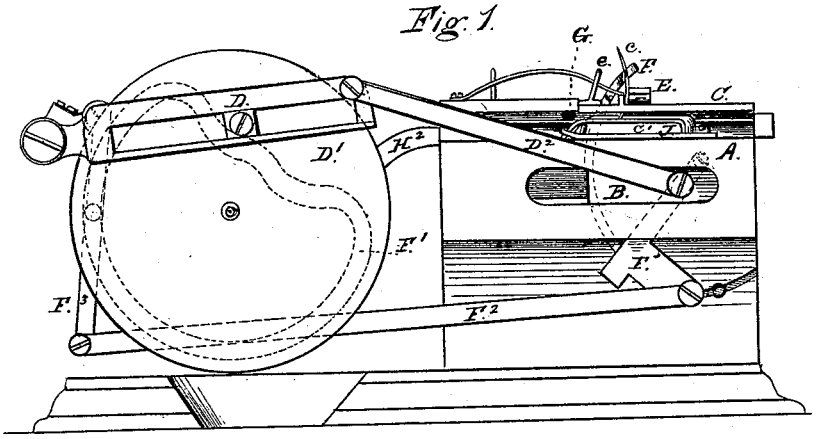


Fig. 2.

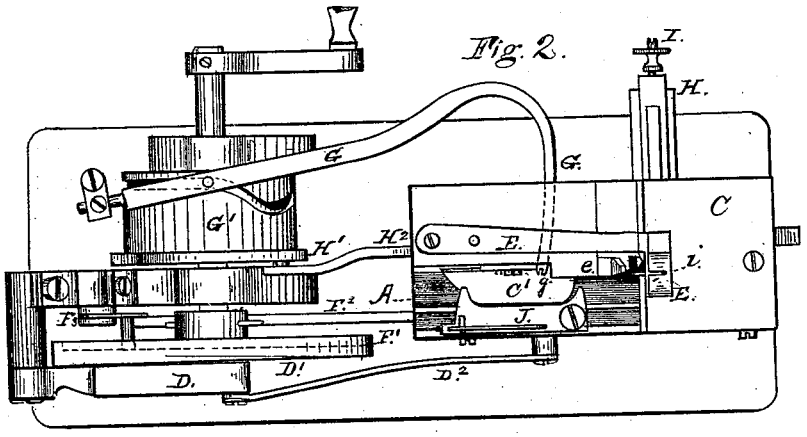
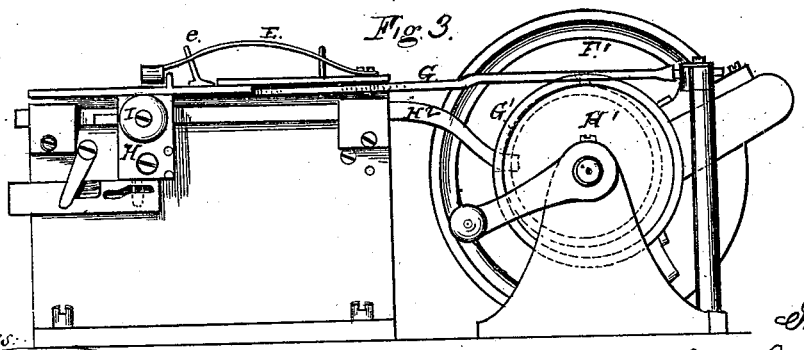


Fig. 3.



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Inventor

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By C. M. Smith Atty.

2 Sheets—Sheet 2.

J. S. HALL.

OVERSEAMING SEWING-MACHINE.

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Fig. 4

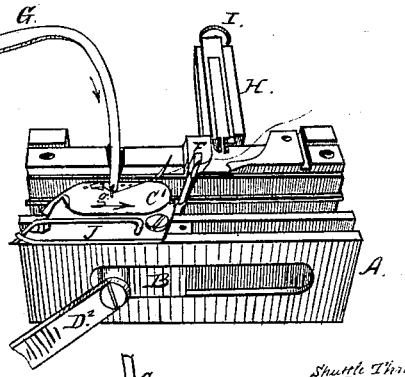


Fig 5.

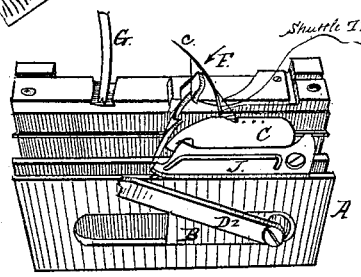


Fig. 6.

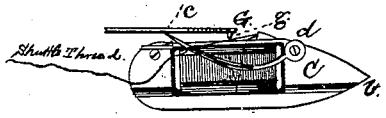
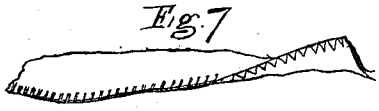


Fig. 7



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UNITED STATES PATENT OFFICE.

JOHN S. HALL, OF MONTEREY, CALIFORNIA.

IMPROVEMENT IN OVERSEAMING SEWING-MACHINES.

Specification forming part of Letters Patent No. **187,006**, dated February 6, 1877; application filed June 2, 1876.

To all whom it may concern:

Be it known that I, JOHN S. HALL, of Monterey, county of Monterey, and State of California, have invented an Improved Overseaming Sewing-Machine, of which the following is a specification:

This invention consists in a novel construction and combination together of a shuttle and needle in one instrument, so arranged with other necessary parts as to produce an over-hand stitch with a single thread, as will be more fully described hereinafter.

The accompanying drawing shows, in Figure 1, a side elevation of my machine; Fig. 2, a top view; Fig. 3, a side elevation, taken from the side opposite to that shown in Fig. 1; Figs. 4, 5, and 6, views, in detail, of the shuttle and needle and loop-spreader; Fig. 7, a view of the stitch.

The shuttle-race A has a carrier, B, whose motions back and forth beneath the cloth-plate C are produced by the slotted lever D, the cam D^1, and the link D^2. The shuttle C′ is of the ordinary shape, except that it has combined with it a curved needle, *c*, with an eye at its point. The needle is so arranged that it lies against the side or face of the shuttle, when in its lowest position, with its point projecting above the line of the shuttle at its rear end, the other end of the needle being pivoted, at *d*, to the toe of the shuttle. Thus, as the shuttle reciprocates in one direction, the point of the needle, striking against the edge of the needle-slot in the cloth-plate, is raised and forced through the material to be sewed, as it lies upon the plate beneath the presser-foot E. When the shuttle is reciprocated in the opposite direction, the needle is withdrawn from the cloth, and is caused, by such action, and by coming in contact with the cloth-plate, to assume the same position which it occupied previous to perforating the cloth.

F is the looper, that reciprocates up and down through an opening in the cloth-plate. Its motion is given by the cam F^1, through the agency of the lever F^2 F^3. The office of this looper F is to seize the loop of needle-thread above the material, and draw it down and over the edge of the cloth, and hold it in the path of the shuttle, so that upon the return movement of the shuttle it and the needle *c* pass through the loop.

G is a curved take-up lever, operated from the grooved cam G^1. It moves through a slot beneath the cloth-plate over the shuttle, and its point is provided with a horn or finger, *g*, to engage with the thread as it moves over the top of the shuttle.

The motions of the take-up lever are so timed with respect to the movements of the shuttle that its point is in contact with the thread at the time the shuttle has reached its farthest point forward, and as it begins to travel toward the cloth-plate to make another stitch, the lever G is thrown out over the shuttle, drawing with it the thread *c;* but as the needle arrives at the slot in the cloth-plate on its back stroke, and is about to enter the material, the take-up lever is moved backward, to allow the thread to slacken as it is carried through the material by the needle. Thus at each movement of this looper enough thread is drawn from the shuttle-bobbin to form the stitch, and all the strain is taken from the needle.

Fig. 1 shows the position of the shuttle after the needle has passed through the cloth, and its loop is about to be seized by the looper F. When this movement takes place, and the looper is drawing down the loop of thread over the edge of the cloth, a slight return motion is given to the shuttle and its needle, that the looper may pass down in front of the point of the shuttle, this motion being necessary to allow the looper to clear the point of the shuttle, that it may pass through the loop without fail.

The first position of the shuttle and the take-up lever G as the shuttle is moving toward the material is shown in Fig. 2.

The feed-motion H is produced by means of the face-cam H^1 and the lever H^2. The length of stitch is regulated by means of the thumb-screw I. The shuttle is held down within the race by means of the hinged cradle J upon the carrier, and also by the spline upon the face of the shuttle-race that moves in a slot, *b*, in the side of the shuttle C′. Thus the pull or strain upon the thread in the process of

forming the stitch cannot throw the shuttle out of place or its needle out of line with the looper.

Fig. 4 shows the arrangement of the shuttle and needle; also, the combination, with these parts, of the looper. The first position of the shuttle shows the needle as it is about to pass up through the cloth, and also the position of the looper. The second position shows the looper as it has engaged with the loop of thread and is drawing it down in front of the shuttle-point. While this step in the process of forming a stitch is taking place the point of the needle rests upon the projecting ledge or nose *e* upon the cloth-plate, as shown in Fig. 1, whereby the pull or strain of the thread upon the needle is prevented from bending it or drawing it out of line. These several parts, as combined in the manner above described and illustrated, operate to produce an overhand or button-hole stitch with a single thread, the shuttle-thread being carried up through the cloth by the needle, and the loop being drawn over the edge of the cloth and down in front of the point of the shuttle, that it may pass through its loop upon the return movement.

The needle is pivoted to the side of the shuttle at the toe *d*, so as to turn freely, and its shape is made of such a curve that as the two motions of it and the shuttle take place in carrying the thread through the cloth the needle may pass into and out of it with the least possible friction and strain upon the needle.

The stitch formed by the operation of the needle and shuttle, as above constructed, is shown in detail in Fig. 7 of the drawing, the thread, being drawn over the edges of the material and laid in a loop or doubled manner on the top of the cloth, while the lower thread loops on the under side, and, from the action of the feed in spacing the stitches, is laid singly or separately, the loops of both the upper and lower parts of each stitch being united with each other on the edge of the material.

The advantage possessed by this stitch is, that when the two parts of the material are pulled apart the strain upon the stitch tends to force the edges together the more tightly.

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

1. In a sewing-machine, the combination, with the needle and shuttle, of the looper F, constructed, as shown and described, to carry the loop of the shuttle-thread down below the point of the shuttle.

2. In combination with the shuttle and needle, the take-up lever G, constructed and operated in the manner shown and described, for the purpose specified.

3. The combination, with the combined shuttle and needle, of the cloth-plate C, the projecting ledge *e*, to support the needle, and the slot *i*, to hold and strip the cloth from the said needle, substantially as described and shown.

In testimony that I claim the foregoing I have hereunto set my hand this 27th day of March, 1876.

JOHN S. HALL.

Witnesses:

C. W. M. SMITH,

F. E. MONTEVERDE.