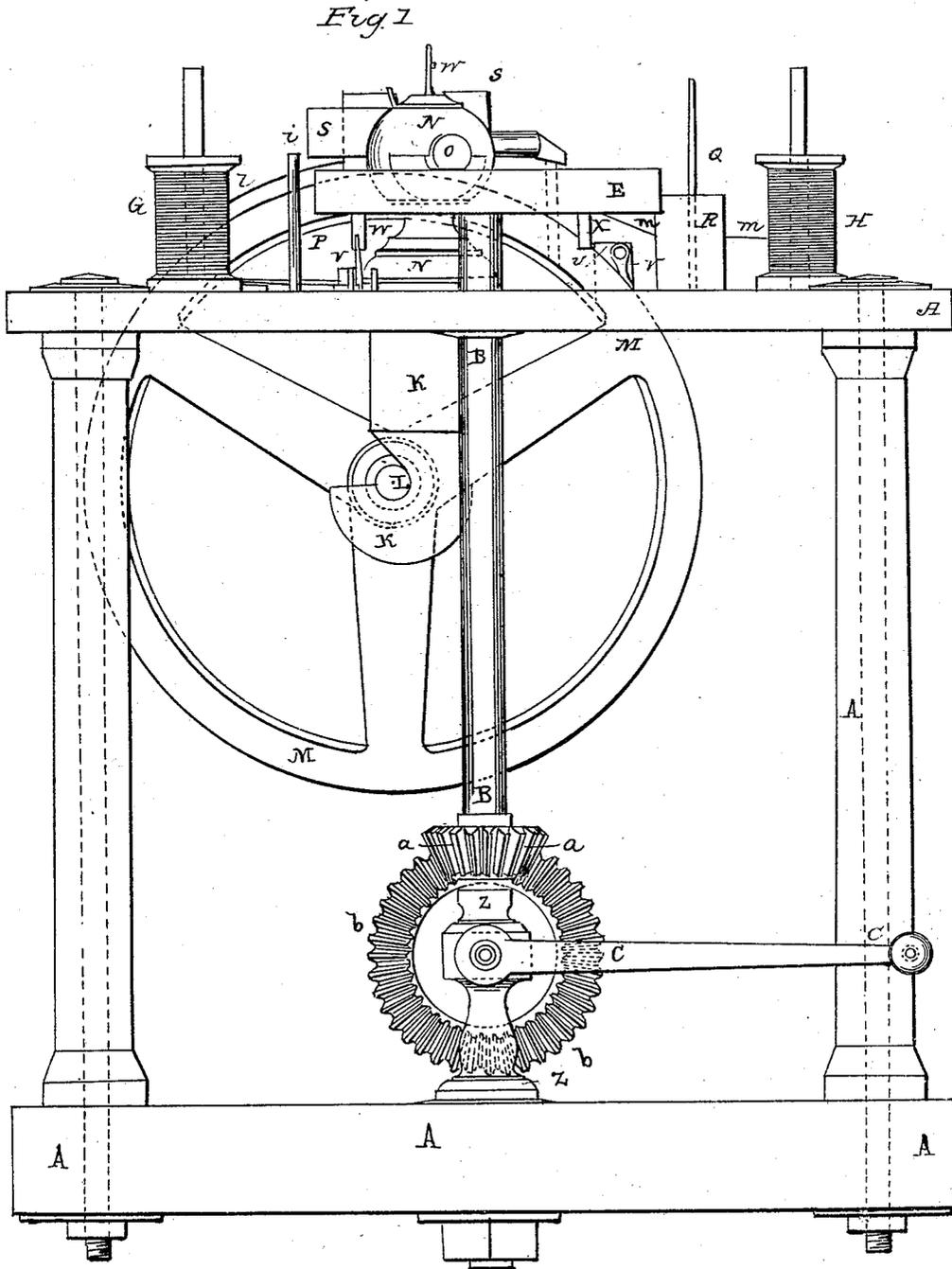


W. H. JOHNSON.
Sewing Machine.

4 Sheets—Sheet 1.

No. 9,592.

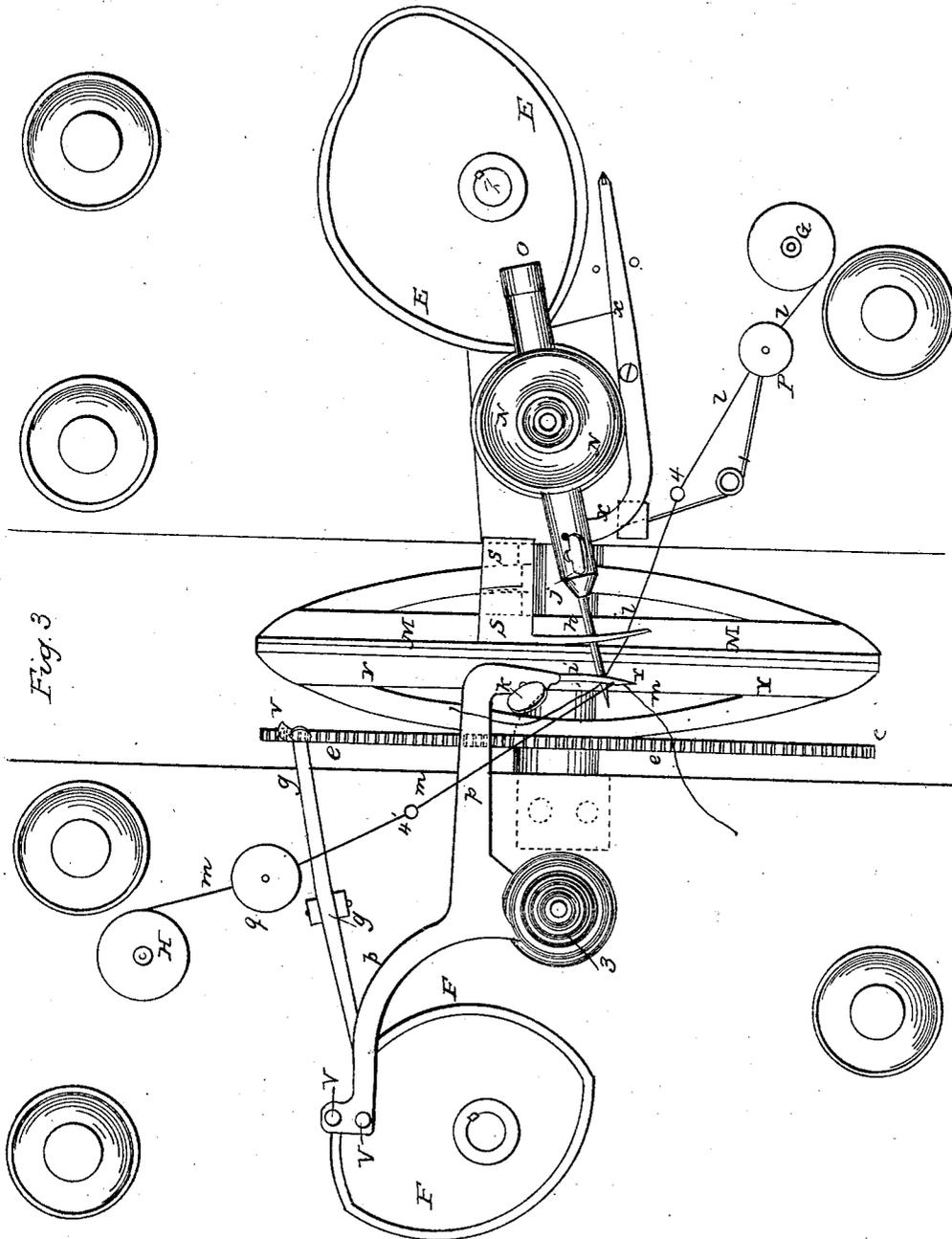
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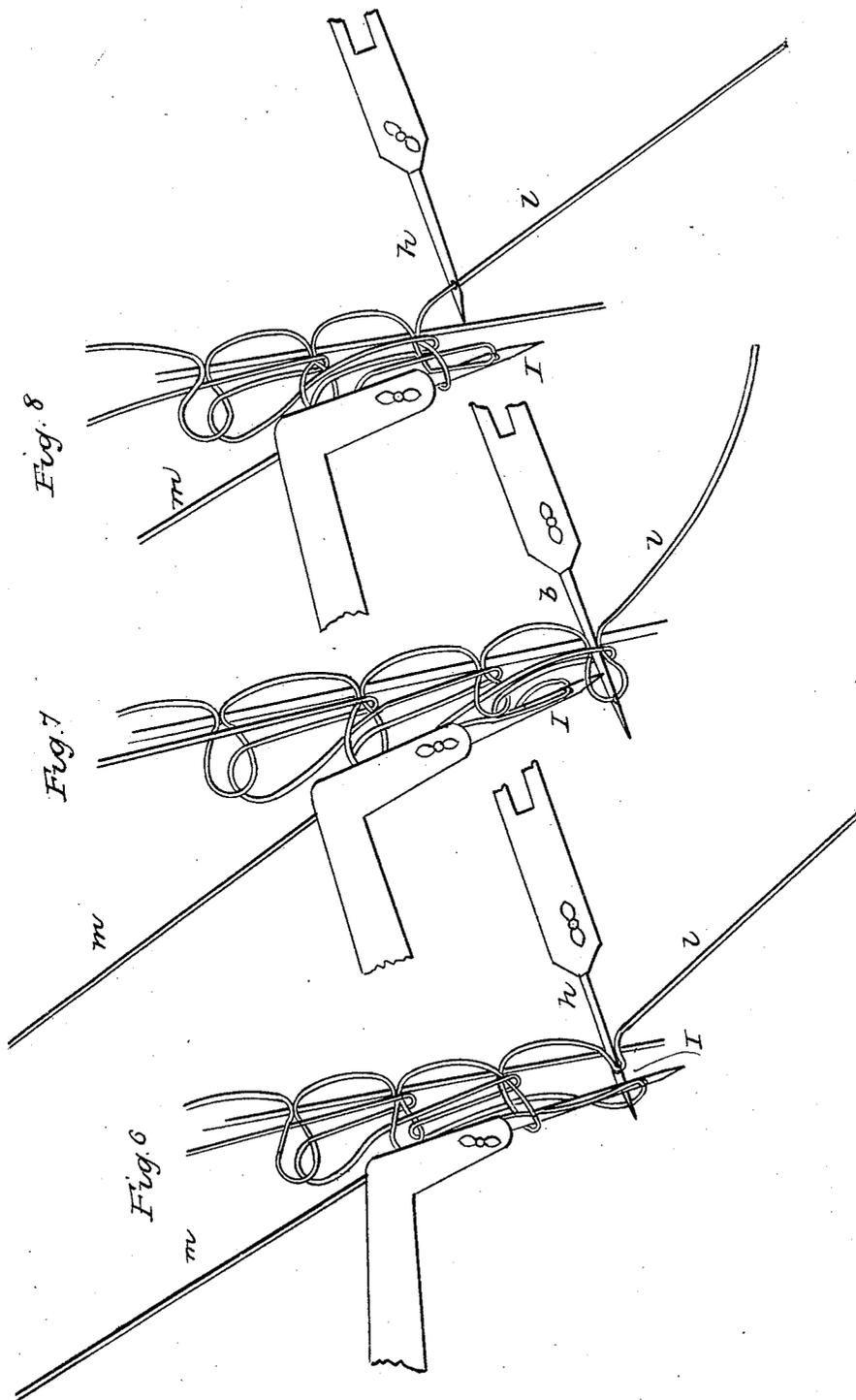


W. H. JOHNSON.

Sewing Machine.

No. 9,592.

Patented Feb. 22, 1853.



UNITED STATES PATENT OFFICE.

WILLIAM H. JOHNSON, OF GREENVILLE, MASSACHUSETTS, ASSIGNOR TO
WILLIAM G. BATES.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 9,592, dated February 22, 1853.

To all whom it may concern:

Be it known that I, WILLIAM H. JOHNSON, of Greenville, in the county of Hampden and State of Massachusetts, have invented a certain new and useful mode of sewing or forming a seam, and certain new and useful machinery for sewing or forming said seam; and I do hereby declare that the following description, taken in connection with the accompanying drawings, forms a full and exact specification of the same, wherein I have set forth the nature and principles of said invention by which it may be distinguished from others of a similar class, together with such parts as I claim and desire to have secured, by Letters Patent.

The figures of the accompanying drawings represent my invention.

Figure 1 is an end elevation of my machine. Fig. 2 is a front or side elevation of the same. Fig. 3 is a top view of said machine. Figs. 4, 5, 6, 7, and 8 represent the peculiar stitch formed by this machine, and the different positions of the needles used in forming said stitch and seam.

My invention consists in making a seam, or uniting two pieces of cloth by means of the peculiar double-loop stitch hereinafter described, the loops of said stitch being made upon one side of the cloth, formed from two continuous threads by the use of two needles, with eyes near their points, one of said needles carrying its thread through the cloth and the other working entirely on one side, the needles passing alternately into loops formed in their threads, thus forming said double-loop stitch on one side of the cloth. The needles and feeding arrangement being moved by cams driven by suitable mechanical devices, the power applied being hand, or any other that may be required, the whole apparatus and gearing being supported by a suitable frame.

In the drawings, A represents the frame.

B C represent the two vertical shafts, moved by the beveled cog-wheels *a a'*, working into the beveled cog-wheels *b' b* upon the horizontal shaft D, which is driven by means of the crank *e*, to which the power is applied.

Upon the upper extremities of the vertical shafts B C are the cams E F, having the flanges *d d'*, as shown in Fig. 2, upon their upper sides.

Connected with the cam E by means of the pin 2 and the shoulder 2', which embrace the flange *d*, is the bar O, which works in the guide N, securely fastened to the frame A.

On the top of the guide N is the pin W, which passes downward through the bar O, which has a proper slot in it, so as to allow said bar O to slide backward and forward and prevent said bar O from turning in said guide N. To the extremity of the bar O the needle *h* is fastened by means of the screw *j*. When the machine is in motion, the cam E, by reason of its form, the shoulder 2' pressing against its perimeter, and the pin 2 working against the inside of the flange *d*, as shown in Fig. 2, cause the bar O to have a reciprocating motion in the guide N, which pushes the needle *h* through the cloth a sufficient distance and withdraws it again at the proper time. This motion forms part of the stitch, which I shall presently describe.

Connected with the cam F by means of a shoulder and pin, *b'* and *a*, as shown in Fig. 3, similar to 2 2', embracing its flange *d'*, is the lever *p p*, which has its fulcrum in the axis of the support 3. The other arm of this lever is bent, as shown in Fig. 3, and in its extremity is fastened the needle *i* by means of the screw *k*.

In Fig. 3, G H represent the spools upon which the thread is wound which supplies the respective needles. Said spools turn upon upright pins which stand in the frame A, to which spools a suitable degree of friction is applied to prevent the thread from unwinding too freely. P *q* represent two rolls of cloth or other suitable substance, through which the threads *l m* are passed in their course from said spools to the thread-guides 4 4' and the eyes of the respective needles. Said rolls are allowed to rise and fall upon two upright pins set in the frame A, and by their weight and the degree of friction which is by them applied to the several threads said rolls prevent the threads from passing too freely to the needles, and take up any slack which may be caused in the threads by the operation of the machine.

When the machine is in motion, the cam F, by reason of its form and its before-men-

tioned connection with the lever *p p*, causes said lever to vibrate on its fulcrum, and thus moves the needle *i* alternately backward and forward in a curved line at each vibration of the cam, to which the needle is attached.

Having described the mode in which the needles are separately operated, I will now describe the manner in which they work together to form the stitch.

The needles being supplied with thread from said spools, as before described, by the revolution of the cam *E*, the needle *h* is moved forward and passed through the cloth with its thread. As the cam *E* continues its revolution, the needle *h* is again moved backward, and in its backward motion a small loop is formed in its thread on the upper side of said needle *h*, and as the needle *h* commences its retrograde movement the needle *i* is moved forward by the revolution of the cam *F*, and, with its thread, enters this loop, as shown in Fig. 7. The needle *i* having passed thus with its thread its full distance into the loop of the thread of needle *h*, and needle *h* being withdrawn from the cloth, leaving the loop of its thread around needle *i*, with its thread, as shown in Fig. 8, the needle *i* is then retracted, and its retrograde movement forms a loop in its thread on the under side of said needle *i*. The needle *h* then again advances with its thread through the cloth and passes into and through the last-formed loop of the thread of needle *i*, as shown in Fig. 6. Needle *i* again moves backward, leaving its last-formed loop of its thread around needle *h* and its thread, and in its backward movement allows the thread of needle *h*, which at the previous stitch was left around needle *i*, to slip off its point, and needle *h*, by its continued movement forward, tightens up this stitch thus allowed to slip off. In this way the needles continue operating, each one, as it moves forward, passing into the loop of the other, which, after being tightened by the needle upon which it was formed moving back, is by the backward movement of its own needle slipped off to tighten the new loop caught by the other needle on its return. Thus is formed the stitch, consisting of a plain stitch of single thread on one side and on the other of a continuous chain formed of the succession of double loops made upon the needles.

This machine is fed by means of clamps operated as follows: *M r* represent a pair of circular clamps, consisting of two concave disks, *M r*, upon the axle *L*, these disks being in close contact along their perimeters. The disk *r* is fastened to the axle, and the disk *M* is held in its place and pressed against disk

r by means of a key or wedge, *t*, on removing which the disks can be separated for the purpose of arranging the material along the edges of the clamp for sewing. The axle of said clamp rests in the bearings *f f'*. Attached to said clamp is the ratchet-wheel *e*, to which motion is communicated in the following manner: *g g* is a lever, attached to one end of which is the dog *V*, which works into the notches of said ratchet-wheel *e*. Said lever turns upon a fulcrum. Said lever is operated by means of an eccentric, *n n*, upon the shaft *C* under the cam *F*, which eccentric is clasped by means of two pins projecting from the other end of said lever. When the machine is in motion, the lever *S S* alternately rises and falls as it presses against the eccentric *u u*. As the lever rises and falls, it will be seen that the dog *V* is pressed downward upon the notches of said wheel and lifted from said notches, causing said ratcheted wheel and clamps to turn forward one notch at each revolution of the cam *F*, and thus the clamps are turned forward one notch at each stitch so long as the machine continues in motion. *T S* represent two supports attached to the frame *A*, which are intended to hold the cloth in its place while it is being sewed.

Having described in detail the different elements of the machine and their manner of operating, I will now briefly describe the mode of operating the whole.

After having secured the cloth in the proper place in the clamp and adjusted it for sewing, turn the crank *c*, the vertical shafts move the cams, causing the needles to work as before described and the clamp to move forward, bringing the proper part of the seam in front of the needles at the right time.

Having thus described my invention, what I claim as my invention, and desire to have secured to me by Letters Patent, is—

1. The making of the double-loop stitch having the loops upon one side of the cloth by means of two needles, combined and operating substantially as herein fully described.

2. The making a seam or uniting two pieces of cloth by means of the double-loop stitch, herein fully described, consisting of a plain stitch from a single thread on one side and on the other of a continuous chain formed of a succession of double loops from two threads.

In testimony whereof I have hereunto subscribed my name before two subscribing witnesses.

WM. H. JOHNSON.

Witnesses:

PATRICK BOISE,
GEORGE LAFLIN.