



# United States Patent Office.

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Letters Patent No. 73,709, dated January 28, 1868.

## IMPROVEMENT IN SEWING-MACHINE.

The Schedule referred to in these Letters Patent and making part of the same.

Be it known that I, EDWIN WASHBURN FRENCH, of South Scituate, in the county of Plymouth, and State of Massachusetts, have invented a new and useful Improvement in Machine for Sewing Hose or other Tubular Work; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an elevation (front) of the machine, with two posts removed.

Figure 2 is a longitudinal section.

Figure 3 is a cross-section.

The object of my invention is to produce a machine for sewing tubular work of any desired length, it being designed more especially to the manufacture of hydraulic hose; and the invention consists in the combination, with a sewing-mechanism, of a tube containing a looper, which is actuated by a reciprocating bar in such a manner that one or more rows of stitches may be successively sewed through the double thickness of the hose, from the inside to the outside, in parallel lines with the edges of the same, and also that the ends of the pieces of which hose is composed may be placed one within the other, and sewed together in diagonal or cross-rows of stitches, all in one continuous operation.

Referring to the drawings, A represents the framework or bed which supports the sewing-mechanism and tube, upon which the material to be sewed is placed. C represents a tube of metal, or other suitable material, and of any desired or suitable length or size. It is supported at one end in a standard, B, and near the other end upon a concave roller, supported in a frame, D, the opening of which is sufficiently large to admit of the free passage of the material being operated upon, through the same, over and around the tube. The frame or folder D is so arranged as to be capable of being easily shifted and secured to the frame or bed A at either side of the needle. The tube C need not be as large as the stock to be sewed, and there can be placed upon it a sliding sleeve or tube, to accommodate hose of larger size than that made upon the tube itself. Within the tube, at a point under the needle, and where it is perforated for the entrance of the needle, is a whirl or looper, *b*, as shown in figs. 2 and 3, the same having a hole passing through it at one side longitudinally, through which hole the thread passes from the spool, to be acted upon by the needle. A reciprocating rotary motion is imparted to the looper *b* by means of a rack on a reciprocating rod, *c*, the said rod extending to the end of the tube C, where it is attached to a lever, *d*, which is operated through a system of levers and rods, and an eccentric, by the motive-power. On one end of the frame or bed A is an upright open frame, composed of standards H, circular supports H' H', and within the openings in the said supports are fitted, so as to rotate freely, the flanged plates G G'. By this construction the needle-bar and attachments are enabled to be readily rotated, and free access to be had to all the working parts of the mechanism for repairs and adjustment. Upon the frame H H is mounted an upright, H', which supports a walking-beam, F, to the front end of which latter is attached the needle-bar P. The said needle-bar passes down through the plates G G', and is made to control the movements of the presser, feed, and guide or "cast-off," and the whole may be made to change their positions relatively to the looper, so as to admit of the stitch being sewed in a direction at any desired angle with the longitudinal row of stitches, by which means the edges of the hose, and the ends of the pieces of which the hose is composed, may be sewed at one continuous operation. The presser-bar J passes through the plates G G', and is pressed downwards by means of a spring, *k*. It is raised by the direct action of the needle-bar acting upon a pawl or dog, *m*, which latter is slotted, and moves on a pin in the plate G, and engages with a ratchet on the presser-bar. The said pawl is disengaged from the ratchet by means of a cam on the pawl, operated by a projection on the needle-bar as the latter descends. This device is made adjustable so as to regulate the amount of lift to any variation in the thickness of the stock. In the lower portion of the presser-bar is arranged the feed, which is made in two parts, *n* and *p*, the part *n* being attached to the presser, and allowed a certain motion, by means of grooves or slots working over pins, as shown in fig. 2. The part *p* is pivoted to the lower end of the part *n*, and provided with points at its lower end. The feed is operated by a system of levers, *t*, *s*, and *r*, the latter being bent, and made to catch on a projection, *q*, on the needle-bar, as the latter rises. When the needle-bar descends, the feed is returned to the presser by means of the spring *u*. The projection *q* may be adjusted up or down on the bar, to vary the feed. The guide or cast-off bar *x* is raised and

lowered by means of a projection from the needle-bar, in connection with a slot in the guide-bar, and is held, when not engaged by the said projection, by means of a spring, or by friction. Underneath the work-supporting tube C, near the point at which the needle enters, is arranged a roller, *w*, formed with a concave surface to correspond with the convex surface of the tube, for the purpose of allowing the work to be easily moved along while being sewed. The said roller is supported in standards on the frame of the machine.

The material to be sewed is placed around the tube, the edges being lapped and passed through the frame or folder to the needle. On setting the machine in motion, the material will be fed through the frame or folder, the needle passing into and out of the whirl, receiving the thread, and sewing in the usual manner. By turning around the needle and accompanying devices, the material may be fed back through the frame or folder, the position of the latter being shifted, thus adding another row of stitches parallel with the first. It may thus be fed back and forth until the desired amount of stitching is accomplished, without breaking the continuity of the thread. In turning the needle and accompanying devices to make the cross-stitch, it is not necessary to change the position of the whirl, as the latter makes one revolution and a half at every stitch, engaging the loop every time. To make the cross-stitch, the needle and frame are turned a little less than one-quarter of an entire revolution, when the loop will be caught equally as well as in the first position. It will thus be seen that I am enabled to feed the work forwards or backwards along the tube, or at any angle around the same, so that the stitching may all be performed at one continuous operation.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with a tube, a looper, and a folding-mechanism, of a sewing and feeding-mechanism, substantially such as described, so that the material being operated upon may be fed and sewed successively forward and backward, and around the tube, so as to connect the edges of the material, and the ends of portions of the same, all in one continuous operation, substantially as described.

2. I claim the feed formed of the parts *n* and *p*, in connection with the presser-bar, and operated through a system of levers by the action of the needle-bar, as set forth.

3. I claim the combination, with a presser-bar, of a pawl and ratchet, substantially as and for the purpose set forth.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

Witnesses:

THOMAS TOLMAN,  
SUSAN A. TOLMAN.

EDWIN W. FRENCH.