(No Model.)

L. HALL.

MACHINE FOR SEWING WITH WIRE.

No. 359,563. Patented Mar. 15, 1887.

Fig: 1.

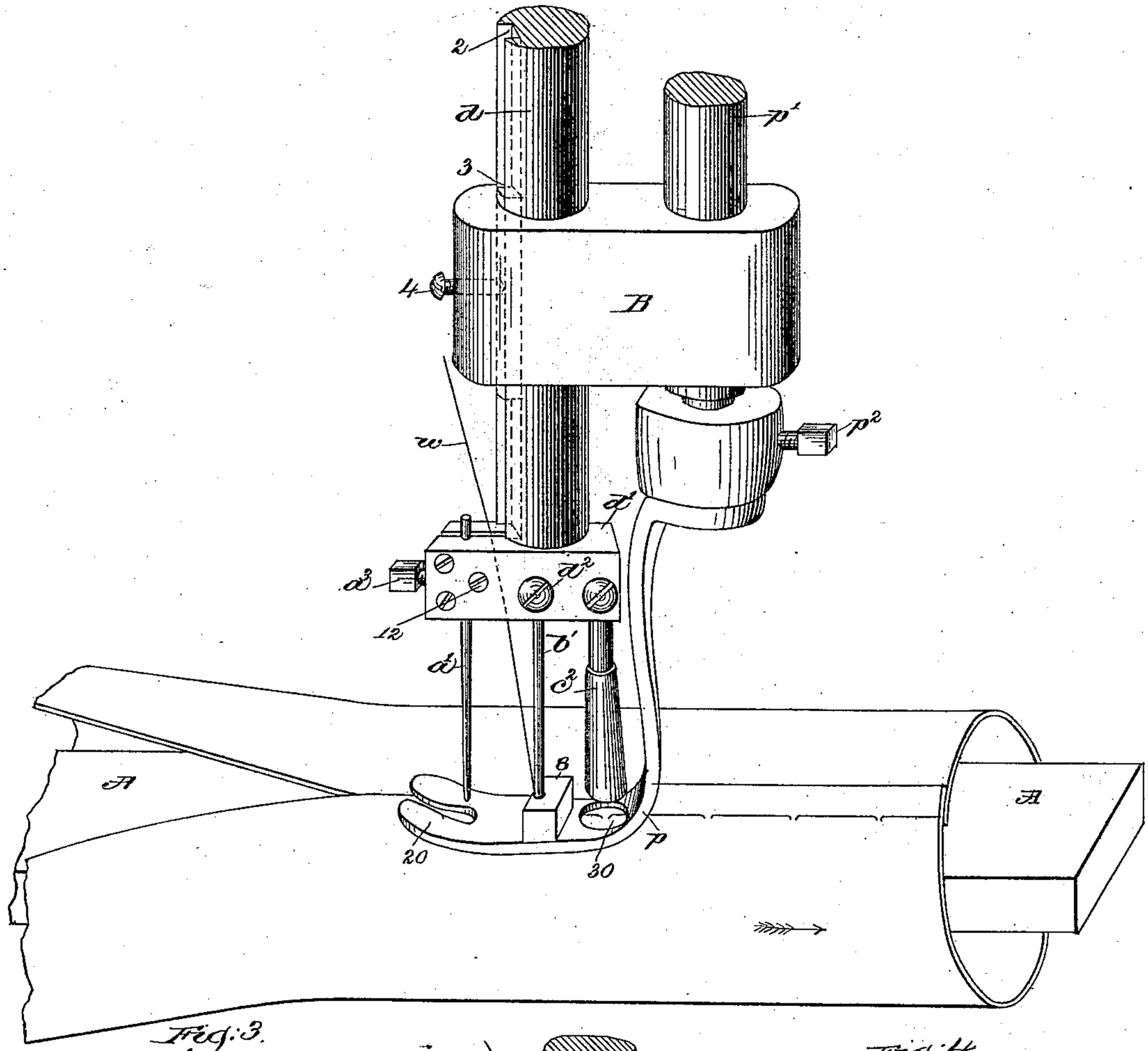


Fig: 3.

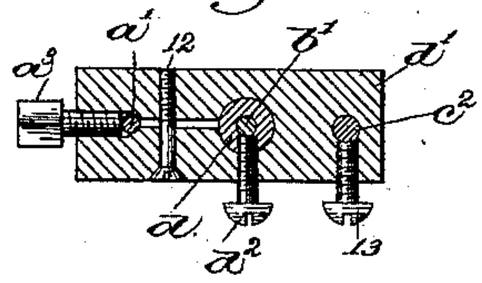


Fig: 2.

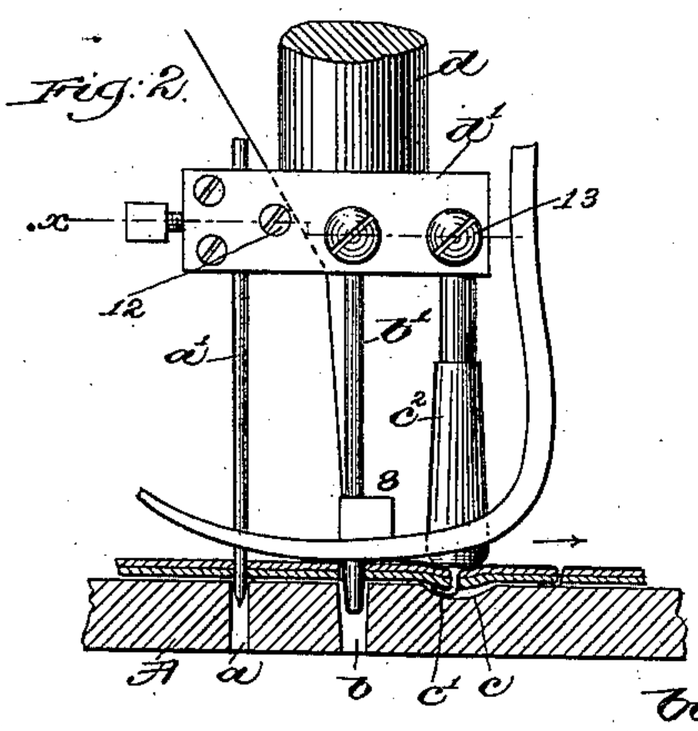
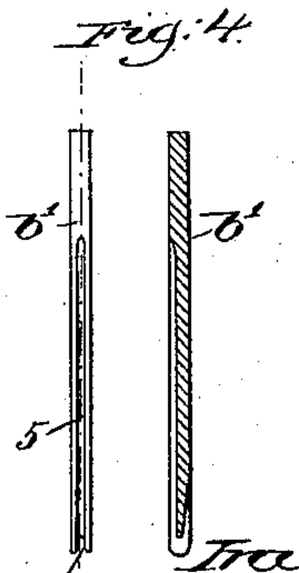


Fig: 4.



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UNITED STATES PATENT OFFICE.

LUTHER HALL, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE BOSTON WOVEN HOSE COMPANY, OF PORTLAND, MAINE.

MACHINE FOR SEWING WITH WIRE.

SPECIFICATION forming part of Letters Patent No. 359,563, dated March 15, 1887.

Application filed April 30, 1886. Serial No. 200,637. (No model.)

To all whom it may concern:

Be it known that I, LUTHER HALL, of Boston, county of Suffolk, and State of Massachusetts, have invented an Improvement in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the production of a sewing-machine employing wire instead of thread, the wire being inserted in loop form, the loop extended through the material being upset or clinched at one side of the said material.

As herein shown, I have illustrated my invention as adapted to the production of a tube or as uniting the edges of a strip of material to constitute a tube, the material united being either cloth, leather, or paper.

Figure 1 in elevation represents a sufficient portion of a sewing-machine for using wire to enable my invention to be understood. Fig. 2 is another view with the material and supporting-arm in section to show the stitch or fastening in process of manufacture and as clinched or upset; Fig. 3, a section of Fig. 2 on the line x x, and Fig. 4 an elevation and section of the needle.

Referring to the drawings, let A represent a supporting arm or plate; B, a guide forming part of any usual head or overhanging arm, not shown, but common to sewing-machines.

The supporting arm or plate A has a hole, a, for the awl or perforator a', a second hole, b, for the loop former and inserter b', and a recess or cavity, c, for the reception of the doubled end of the loop or fastening, which is to be upset or clinched therein by the action of the hammer c^2. The slide-bar d is splined at one side, as at 2, to receive a gib, 3, held in place by a screw, 4, the said gib serving as a guide to prevent any rotation or twisting of the bar in its usual bearings. The lower end of the bar d, reduced in diameter, has fitted to it a block, d', which is herein shown as held in place by the screw d^2, extended partially through the said block (see Fig. 3) and into a slot in the reduced part of the bar d, the inner end of the said screw impinging against the shank of and holding the loop former or inserter b', having at one side a deep groove, 5, and notched at its lower end, as at 6. The block d' is shown as split for the passage of the wire w from a suitable spool or bobbin to the notched block 8, connected to or forming part of the presser-foot p.

The awl a' is held in place by the bolt a^3, one or more screws, 12, keeping the slitted part of the block d' partially closed.

The shank of the hammer c^2 is held in place by the screw 13.

The presser-foot p, slotted at 20 for the passage of the perforator or awl a', has an attached guide-block, 8, provided with a hole, through which the loop former and inserter passes, the said block being slotted at the front side for the embrasure of the wire w, and at the rear side of the guide-block the foot has a hole, 30, for the passage of the hammer c^2. This presser-foot is joined in usual manner to the presser-bar p' by the screw, as p^2, and bears upon the material, the bar p' in practice being provided, as customary in sewing-machines, with a spring to keep it down upon the work, the effective pressure of the spring being relieved, if desired, by any usual presser-foot-lifting mechanism prior to feeding the material.

I have not herein shown the feeding mechanism to move the material under the presser-foot, as I may use any well-known feeding mechanism commonly employed in sewing-machines for sewing tubular articles; but preferably I shall employ rollers as in United States Patent No. 146,948.

In operation the awl or perforator pricks a hole in the material, the bar d rises, and the feed takes place for a distance equal to the length of one stitch. Then the bar d again descends and the forked end of the loop former and inserter b' comes in contact with the wire w in the slot of the block 8 and pushes it down through the hole previously made in the material, forming a loop, as shown at the end of the loop former and inserter in Fig. 2. The bar d then rises, withdrawing the loop former and inserter from the material, the feed takes place, and immediately thereafter the bar again descends, the hammer c^2 passing through the hole 30 and striking the material at the spot where the loop of wire was previously formed,

causing the said loop, the end of which next the arm or support A rests in the recess *c*, to be upset or clinched, as shown in Fig. 2, and the bar *d* then rises and the feed takes place.

The three devices—the awl, the loop former and inserter, and the hammer—all perform their proper functions at each descent of the bar *d*.

The wire *w* will in practice be taken from a bobbin such as employed in loom-shuttles, so that the wire may be delivered without rotating the bobbin and without kinking the wire.

The supporting arm or plate A may be circular or semicircular, as in the patent referred to, or may be of other usual shape, and I may, if desired, employ with the said arm any usual guide for folding the material into tubular form and overlapping its edges, as fully illustrated in the said patent.

I claim—

1. The combination, with the arm or support for the material and the presser-foot having the guide 8 and hole 30, of the bar *d*, its block *d'*, the forked loop former and inserter, and the hammer, to operate substantially as described.

2. In a machine for sewing with wire, an arm or support having a clinching-recess, *c*, and a presser-foot having a guide-block, 8, and hole 30, combined with the bar *d*, its block *d'*, and the awl *a'*, the loop former or inserter grooved and forked, as shown, and the hammer, all operating as described.

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

LUTHER HALL.

Witnesses:
G. W. GREGORY,
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