3 Sheets—Sheet 1.

J. A. & H. A. HOUSE.

Sewing Machine for Working Button Holes.

No. 87,338. Patented March 2, 1869.

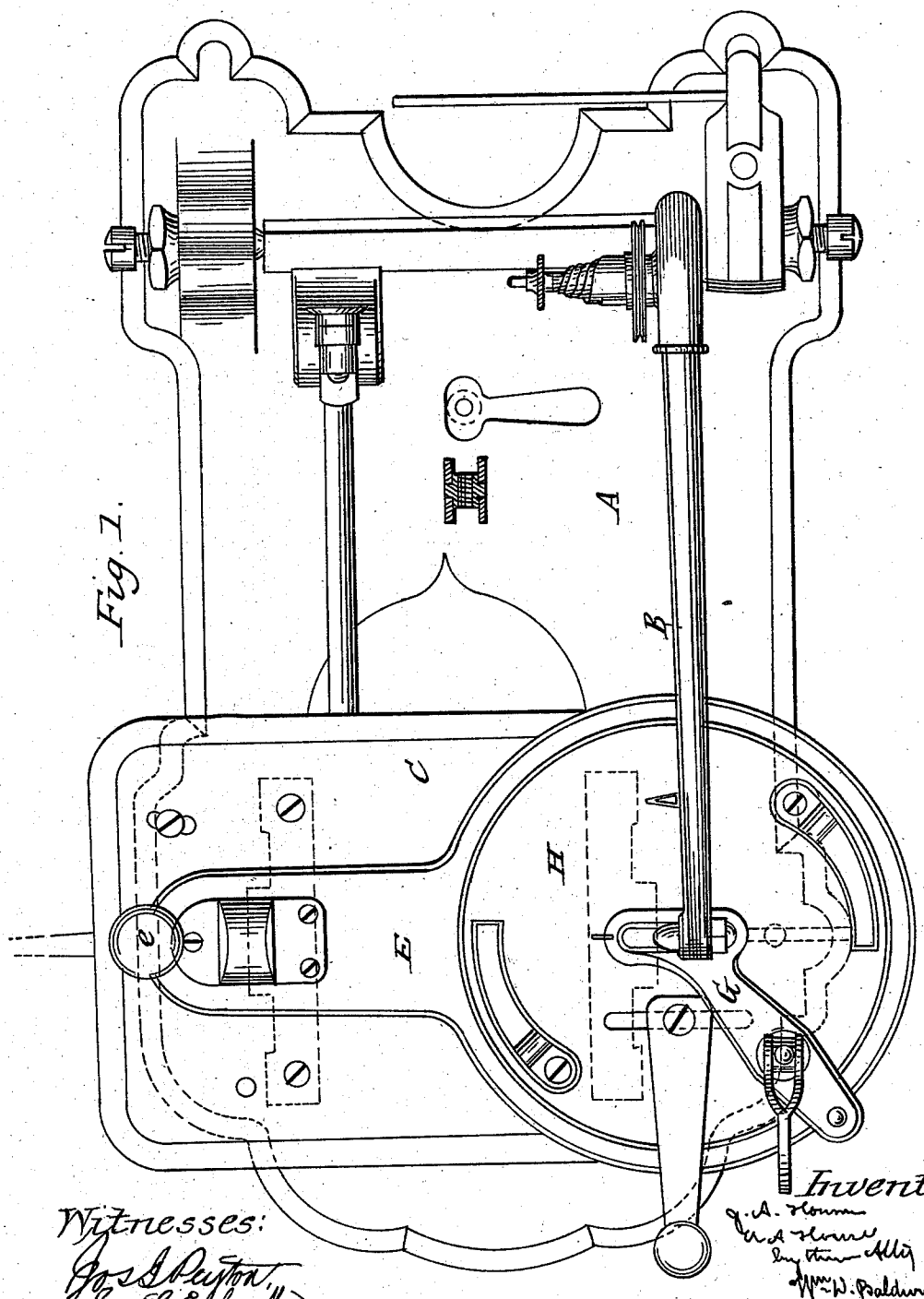

Fig. 1.

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3 Sheets—Sheet 2.

J. A. & H. A. HOUSE.

Sewing Machine for Working Button Holes.

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Fig. 2.

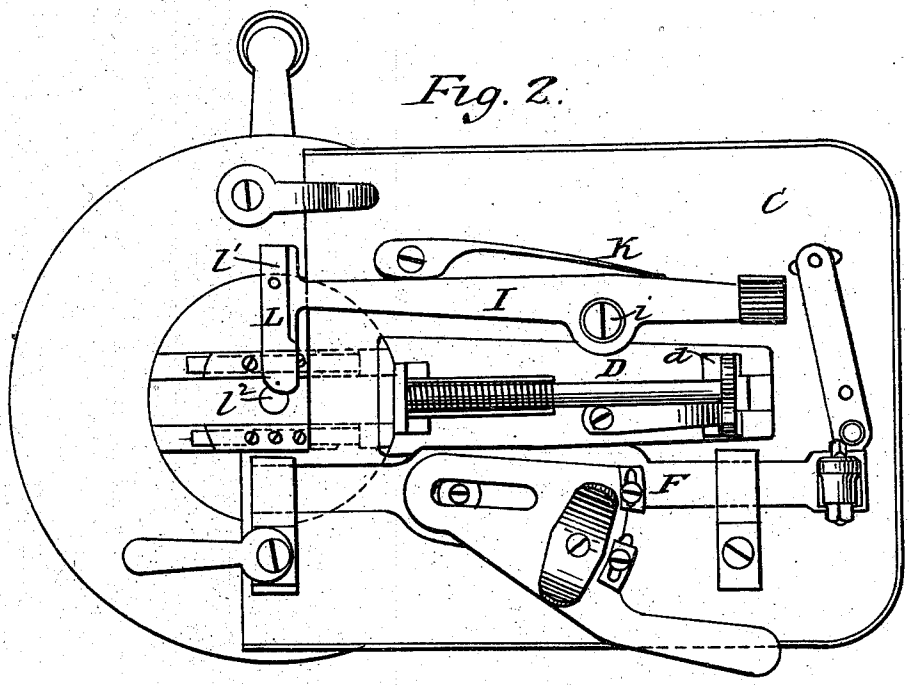

Fig. 4.

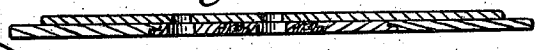

Fig. 3.

Fig. 5.

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3 Sheets—Sheet 3.

J. A. & H. A. HOUSE.

Sewing Machine for Working Button Holes.

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Fig. 6.

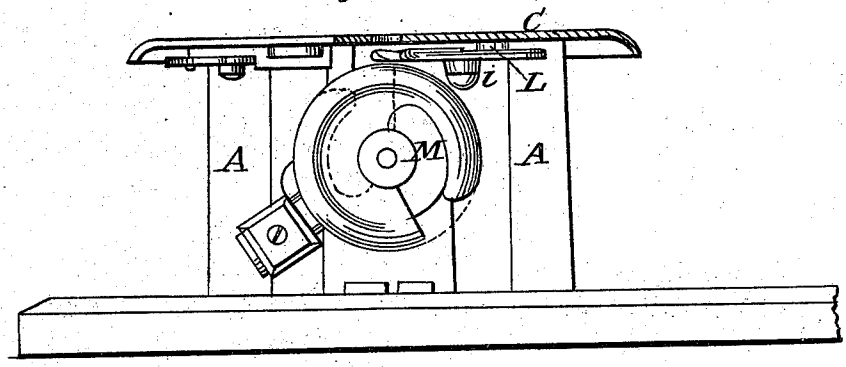


Fig. 8.

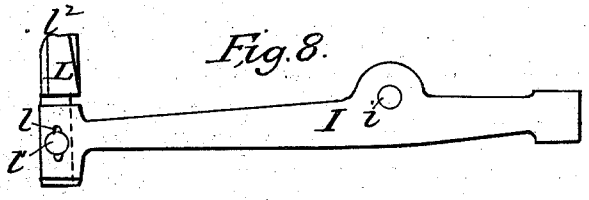
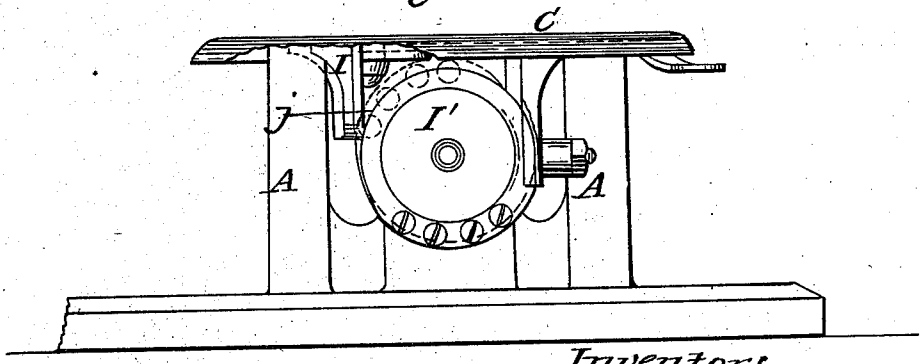


Fig. 7



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United States Patent Office.

JAMES A. HOUSE AND HENRY A. HOUSE, OF BRIDGEPORT, CONNECTICUT, ASSIGNORS TO THE WHEELER & WILSON MANUFACTURING COMPANY, OF NEW YORK CITY.

Letters Patent No. 87,338, *dated March* 2, 1869.

IMPROVEMENT IN SEWING-MACHINE FOR WORKING BUTTON-HOLES.

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

To all whom it may concern:

Be it known that we, JAMES A. HOUSE and HENRY A. HOUSE, both of Bridgeport, in the county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a full, clear, and exact description.

Our invention relates to that class of sewing-machines in which a zigzag stitch is formed by imparting to the material being sewed, a lateral reciprocating movement in addition to its usual feed-movement.

Its object is so to regulate the length of the loop of the needle-thread as, alternately, to slacken and tighten the thread, to prevent the needle from being deflected by the vibration of the cloth; to which ends,

The invention herein claimed, consists in a novel method of combining, with a sewing-machine, mechanism, arranged below the cloth-plate, to draw off a sufficient quantity of needle-thread to allow for the vibrations of the cloth, and, as the needle is about to enter the cloth, to slacken the thread, to prevent it from drawing the needle aside.

The accompanying drawings make part of this specification, and show our invention as adapted to a Wheeler & Wilson machine, and also to a machine for making button-holes, for which Letters Patent of the United States were granted to us, June 26, 1866, No. 55,865, and July 10, 1866, No. 56,224.

Figure 1 represents a plan or top view of our improved machine;

Figure 2 represents a view of the mechanism, as seen from below;

Figure 3 represents a plan of the vibrating cloth-plate detached;

Figure 4 represents a vertical transverse section through the same, at the line *x x* of fig. 3;

Figure 5 represents a vertical longitudinal section at the line *y y* of fig. 3;

Figure 6 represents a view, partly in section, of the machine, as seen from one end;

Figure 7 represents a similar view from the opposite end; and

Figure 8 represents a rear view of the vibrating take-up detached.

The construction and operation of our machine, with the exception of the take-up, which forms the subject of the present claim, are so clearly shown and described in our aforesaid patent, No. 55,865, of June 26, 1866, that we deem it unnecessary here to do more than refer to the several parts.

The mechanism is mounted in a cast-iron frame, A, of the well-known Wheeler & Wilson form and construction.

The needle-arm B is vibrated vertically, in the arc of a circle, by well-known devices.

The table C is secured rigidly to the frame, and slotted longitudinally, to receive the feed-screw D, fig. 2, which is secured to a plate, E, vibrated on a fulcrum, *e*, by a jog-bar, F, fig. 2, operated by a switch-cam on the spooling-pin, as fully explained in our patent aforesaid.

As this machine is more especially designed to work button-holes, the cloth is held, by a spring-clamp, G, fig. 1, upon a revolvable bed-plate, H, which vibrates with the table, and is turned, at proper intervals, by well-known means.

The take-up is mounted on a lever, I, pivoted, at *i*, to the under side of the frame, and vibrated, at proper intervals, by means of a cam, J, on the spooling-pin. (See fig. 7.)

This cam is, by preference, formed on the disk I', which carries the pins which move the star-wheel *d*, on the feed-screw D, as described in our former patent. (See fig. 2.)

A spring, K, fig. 2, under the bed-plate, keeps the take-up L out of the way when not acted upon by the cam J.

The take-up, in this instance, consists of a bar, L, figs. 2 and 8, arranged transversely to the lever I, which has a slotted T-head, *l*, on its forward end.

A set-screw, l^1, passes through this slot, into the take-up, which can thus be adjusted laterally, and firmly held in any desired position.

The front inner end of this take-up is rounded, and provided with a hook, l^2, to catch the needle-thread at the proper moment.

The bobbin or hook M, fig. 6, used, being the same as that shown in our former patents, needs no description here.

The operation of the machine will readily be understood.

The cloth is held by the button-hole-shaped clamp, within which the needle works; is fed forward, at proper intervals, by the screw, and vibrated laterally, at proper intervals, relatively to the needle, by the jog-bar.

In this machine, the place in which the button-hole is to be formed, is first stitched around, and the opening for the button afterward cut out by a proper instrument. The needle enters the cloth at a point where the inner edge of the button-hole is to be formed. As the needle rises, the looper catches its loop, the cloth-plate moves laterally, so as to bring the needle in a position to enter the fabric, at its next descent, outside, or back of that part of the fabric in which the hole is to be formed. During this lateral movement, the take-up moves in the same direction as does the cloth.

The needle next enters the fabric outside of the button-hole. As it rises, the looper takes its loop, the cloth again moves laterally, in the opposite direction to that in which it first moved, so that the needle, on its next descent, shall again penetrate the fabric inside the button-hole, and, during this lateral movement, the

take-up moves in a direction opposite to the movement of the cloth. By this means, at each upward movement of the needle, the take-up draws off more thread than is required to form the stitch, which surplus thread is given off by the take-up as the needle is about to enter the cloth again, and thus compensates for the vibration of the cloth, and prevents the needle from being deflected from its proper path by the strain on its thread.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination, substantially as set forth, of the vibrating cloth-plate with the vibrating take-up L.

2. The combination, in a sewing-machine, of the following instrumentalities, viz, an eye-pointed needle, a rotating hook, a take-up L, and a laterally vibrating cloth-plate, all substantially as and for the purpose set forth.

3. The combination, in a sewing-machine, of an eye-pointed needle, a rotating hook, a take-up, L, a vibrating cloth-plate, and a revolvable stitching-plate, all substantially as and for the purpose set forth.

In testimony whereof, we have hereunto subscribed our names.

JAMES A. HOUSE.
HENRY A. HOUSE.

Witnesses:
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A. R. LACEY.