

(No Model.)

2 Sheets—Sheet 1.

R. W. THOMSON.
SEWING MACHINE.

No. 521,301.

Patented June 12, 1894.

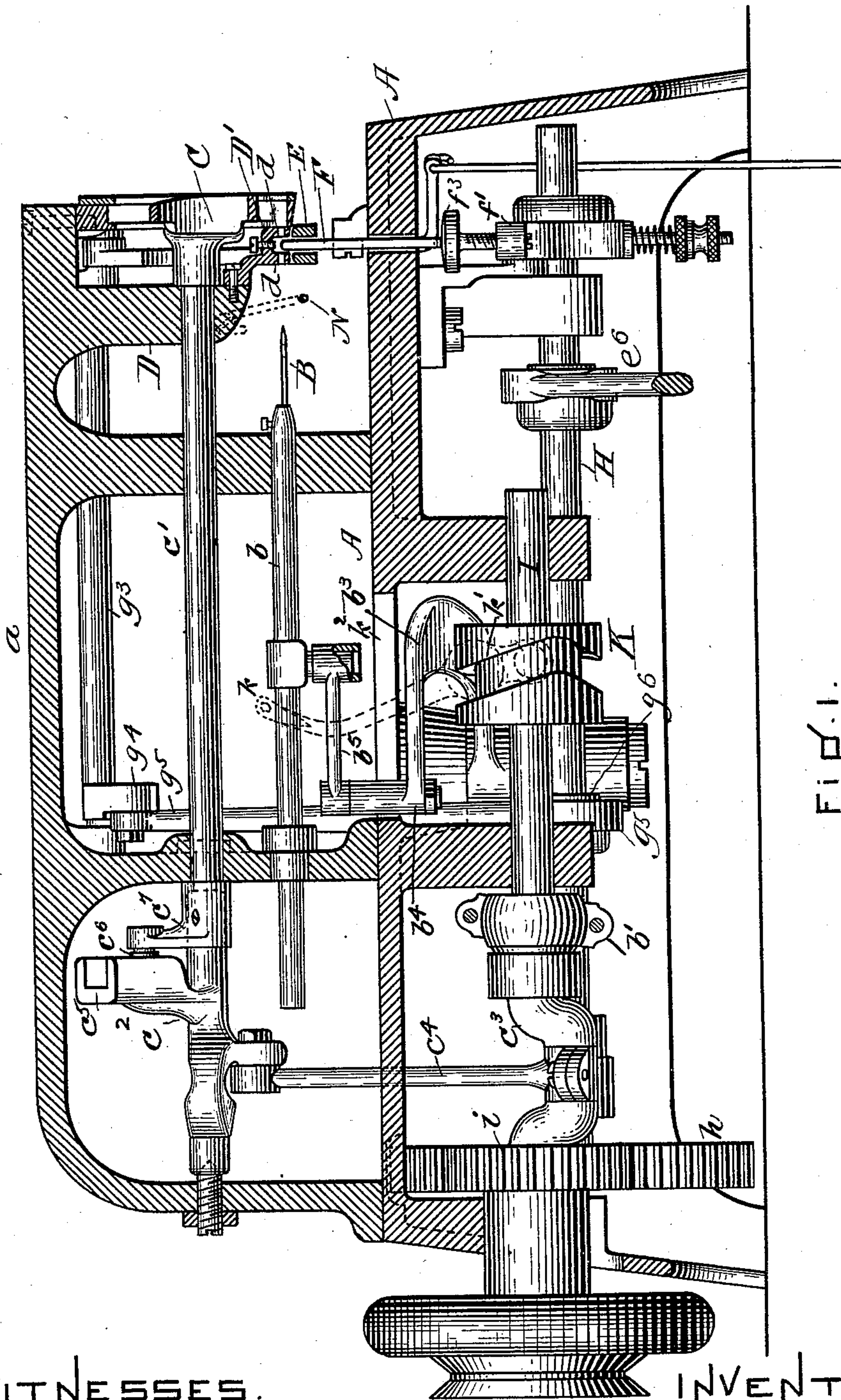


FIG. 1.

WITNESSES.

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INVENTOR.

Robt. W. Thomson
by his atty
Charles A. Raymond

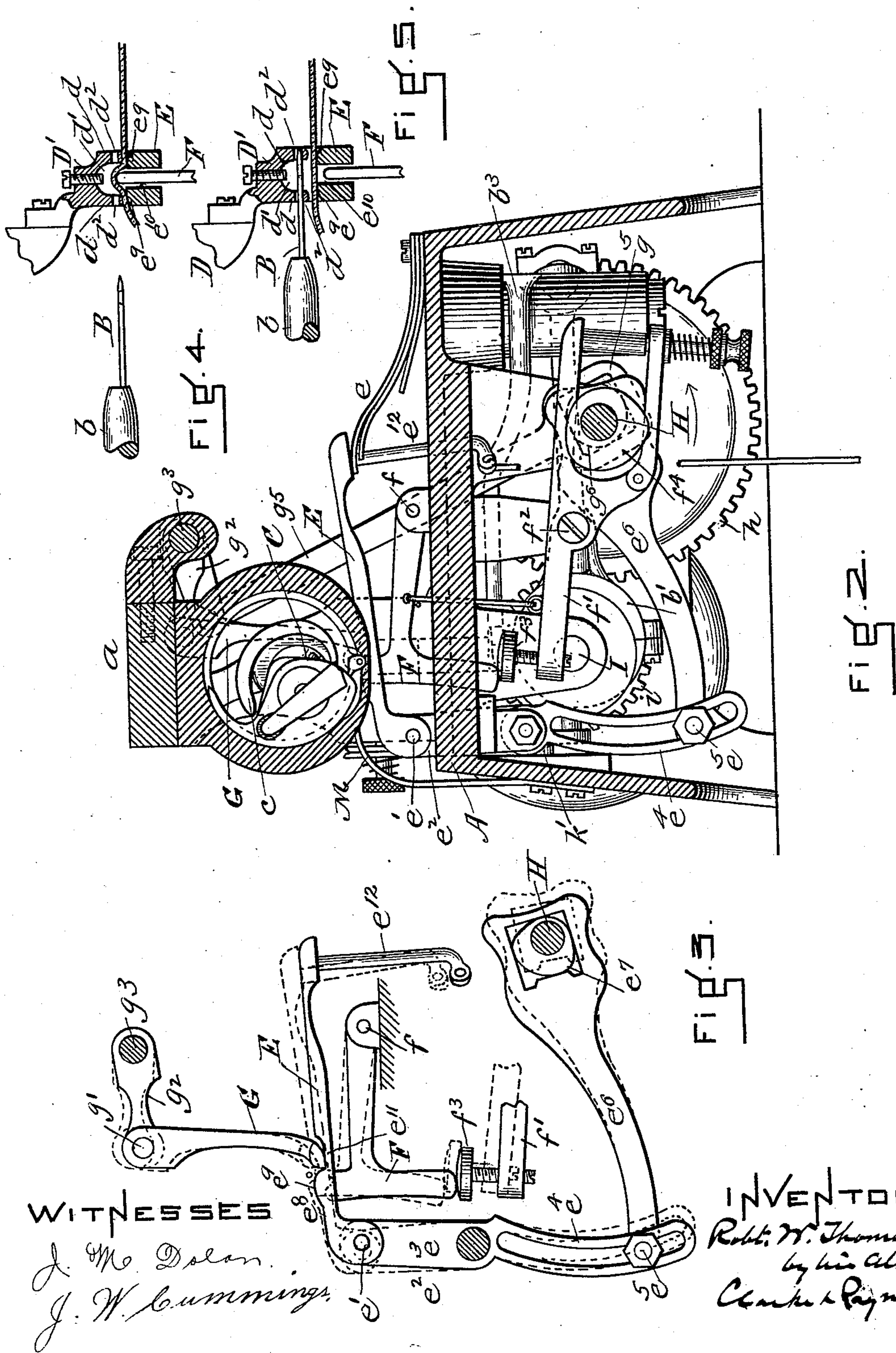
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UNITED STATES PATENT OFFICE.

ROBERT W. THOMSON, OF LYNN, MASSACHUSETTS, ASSIGNOR TO THE GLOBE
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SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 521,301, dated June 12, 1894.

Application filed July 14, 1893. Serial No. 480,546. (No model.)

To all whom it may concern:

Be it known that I, ROBERT W. THOMSON, a subject of Victoria, Queen of England, now residing in Lynn, in the county of Essex and State of Massachusetts, have invented a new and useful Improvement in Sewing-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to a sewing machine especially adapted to overstitch, and it comprises various features of construction and organization, all of which will hereinafter be fully described.

In the drawings,—Figure 1 is a view in longitudinal vertical section of a machine having the features of my invention. Fig. 2 is a view in cross vertical section to further illustrate its construction and operation. Fig. 3 is a detail view of portions of the mechanism to which reference will hereinafter be made. Figs. 4 and 5 are also detail views illustrating different positions of portions of the feeding mechanism.

A is the base of the machine, and it and the bracket *a* support the various operative devices.

B is a horizontally reciprocating, eye pointed needle which plies across the line of the feed of the material to present its thread to the oscillating shuttle C, which oscillates in a vertical plane on a horizontal axis across the line of movement of the needle.

The feeding and work presenting devices are so organized that the work is first presented to the needle to permit a stitch to be taken through it, and is then lowered and fed while a second stitch is being formed over it and is again lifted to permit the next stitch in order to be taken through the material, the operation of the machine continuing in this manner. These devices comprise, first, a stationary plate secured to an arm D depending from the bracket *a* and preferably having upon its under surface two downward extending lips or sections *d* forming a recess *d'*, and each having a hole *d''* through which the needle B reciprocates.

The work when receiving a stitch is held

against the under surface of this plate or piece by means of a yielding combined rest and feed E and a lifter F, the lifter being independent of the rest and feed. The rest and feed E is moved upward by springs *e* and moved downward by mechanism hereinafter specified. To feed the material, it works in conjunction with the independent presser G. Before describing the mechanism for operating these parts, I will briefly state the order of their movements.

The work having been placed upon the rest and feed and the machine started, the rest and feed lifts the material against the under surface of the plate D', and the lifter F is also elevated to press it against the plate and into the recess between the lips *d*, if desired. The needle then penetrates the work passing the needle thread through it to a position to be engaged by the shuttle. Meanwhile, the rest and feed E is being moved horizontally in a direction the opposite to that required for feeding, and after the loop has been taken and slipped, the lifter F falls, the presser G is moved downward upon the rest and feed clamping the work upon it, and depressing the rest and feed to a position which removes the work from the line of reciprocation of the needle and permits the needle to be moved over it to again engage the shuttle, and while the needle is over the work, presenting the needle thread to the shuttle, the rest and feed E and the presser G move together to feed the work; and after the feeding action, the presser G lifts as it is also raised and fed to the lifter F, and the machine operates as before.

The rest and feed E is represented in the form of a long bar which is pivoted at *e'* to a rock lever *e''*, the arm *e'''* of which extends upward through a slot in the bed plate of the machine. Its arm *e''''* has a long slot through which a stud or screw *e'''''* connecting it with the lever *e''''''* passes, the connection between the two being such as to provide variation in the throw of the rock shaft, and consequently, in the extent of the feed movement of the bar or feed E. The lever is operated by a cam *e''''''''* on the shaft H. The upper surface *e'''''''''* of the rest and feed is in the main flat,

although it may have the slightly raised sections e^9 on each side of the slot e^{10} through which the lifter F extends, and it also may have beyond the rounded sections a slight depression e^{11} for receiving the lower end of the presser G, in order that it may better hold the work upon the bar during the feeding operation. The spring e acts against the end of the rest or feed opposite its pivotal point.

To limit the upward extent of the yielding movement by the spring, there may extend from the free end of the rest and feed downward a stop rod e^{12} , the lower end of which is bent to come into contact with the under surface of the bed when the rest is in its highest position.

The lifter F is in the form of a flat bar lever having a short upward extension at its moving end. It is pivoted at f , and it is moved in both directions by means of a lever f' pivoted at f^2 connected with the moving end f of the lifter by a connection f^3 and which may be adjustable as to length. The lever f' is operated by a cam or crank f^4 on the shaft H; the presser G is pivoted at its upper end g' to the arm g^2 extending from the rock shaft g^3 . The rock shaft is supported by the bracket a , and is oscillated by means of the arm g^4 and link g^5 which extends to and is operated by the cam g^6 on the shaft H. The shaft H has one full revolution for every two revolutions of the power shaft I, and is connected by the gear h with the pinion i on the power shaft.

The shuttle carrier c is oscillated in a vertical plane to provide oscillating movement to the shuttle C by means of the horizontal shaft c' which is supported by the bracket a above the needle bar and is turned forward and backward by means of the oscillating device or shaft c^2 which is oscillated by means of a crank c^3 on the main shaft and a connecting pitman c^4 , this oscillating shaft having an arm c^5 provided with a groove or recess which receives a roll c^6 upon the end of a crank arm c^7 at the rear end of the shaft c' . This form of device for oscillating the shuttle is not new, although its arrangement to operate the shuttle, carrier shaft, and shuttle carrier in a vertical plane is new, so far as I am aware.

The needle B is carried by the horizontal needle bar b , and this is reciprocated from an eccentric b' on the main shaft I, by means of a pitman or link, the lever b^3 pivoted at b^4 with one end of which the pitman or link engages, and the other end of which is connected with the needle bar by a link b^5 .

A cam K on the main shaft I communicates through a cam roll movement to the takeup k , the takeup arm or lever being pivoted at k' and extending upward through the slot k^2 in the bed of the machine.

A yielding work support M is arranged to extend over the pivoted end of the rest and

feed and assist in supporting the work, and a curved wire guard N upon the inner side of the plate D' serves to hold the work from lifting into a position to be injured by the movement of the needle or needle bar. See Fig. 1.

The operation of the machine has been described in connection with the description of its construction. By arranging the shuttle carrier to revolve in a vertical plane, the work can be readily presented and fed to the stitching devices.

It will be observed that the presser G not only serves to clamp or hold the work upon the rest and feed E, during the feeding movement of the material, but that it also moves the rest downward, when it is desired to remove the material from stitching position.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In an over stitching machine, in combination with a horizontally reciprocating eye pointed needle and a shuttle oscillating in a vertical plane, a stationary plate D' having a working surface upon its under side, a combined yielding rest and feed E, a lifter F, and a presser G, as and for the purposes described.

2. In an over stitching machine, in combination with a horizontally reciprocating eye pointed needle and its co-operating shuttle, the rest and feed E comprising a bar pivoted at one end to an intermittently oscillating fulcrum, and having its other end moved upward by spring pressure, as and for the purposes described.

3. In a machine of the character specified in combination with a horizontally reciprocating eye pointed needle, its co-operating shuttle and the plate D', the rest and feed E pivoted at one end to an oscillating fulcrum, its upwardly moving spring e , and the presser G, all as and for the purposes described.

4. In a machine of the character specified, in combination with a horizontally reciprocating eye pointed needle, its co-operating shuttle and the plate D', the vertically yielding and horizontally movable rest and feed E, having a slot or hole e^{10} , and the independent lifter F movable vertically in said slot or recess, as and for the purposes described.

5. In a machine of the character specified, the combination of the horizontally reciprocating eye pointed needle, its co-operating shuttle, the plate D' with the horizontally movable downwardly yielding rest and feed E having the notch or depression e^{11} in its upper surface, the presser G having a downward movement and an oscillating movement and the lifter F, substantially as described.

6. In a machine of the character specified, in combination with the horizontally movable, vertically yielding, rest and feed E, and the downwardly moving oscillating presser G, the

supplemental yielding work support M, as and for the purposes described.

7. The combination of the horizontally reciprocating eye-pointed needle, its co-operating shuttle and the rest and feed E, with the presser G operated from above the work to have a downward movement, and an oscillat-

ing movement, as and for the purposes described.

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Witnesses:

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