

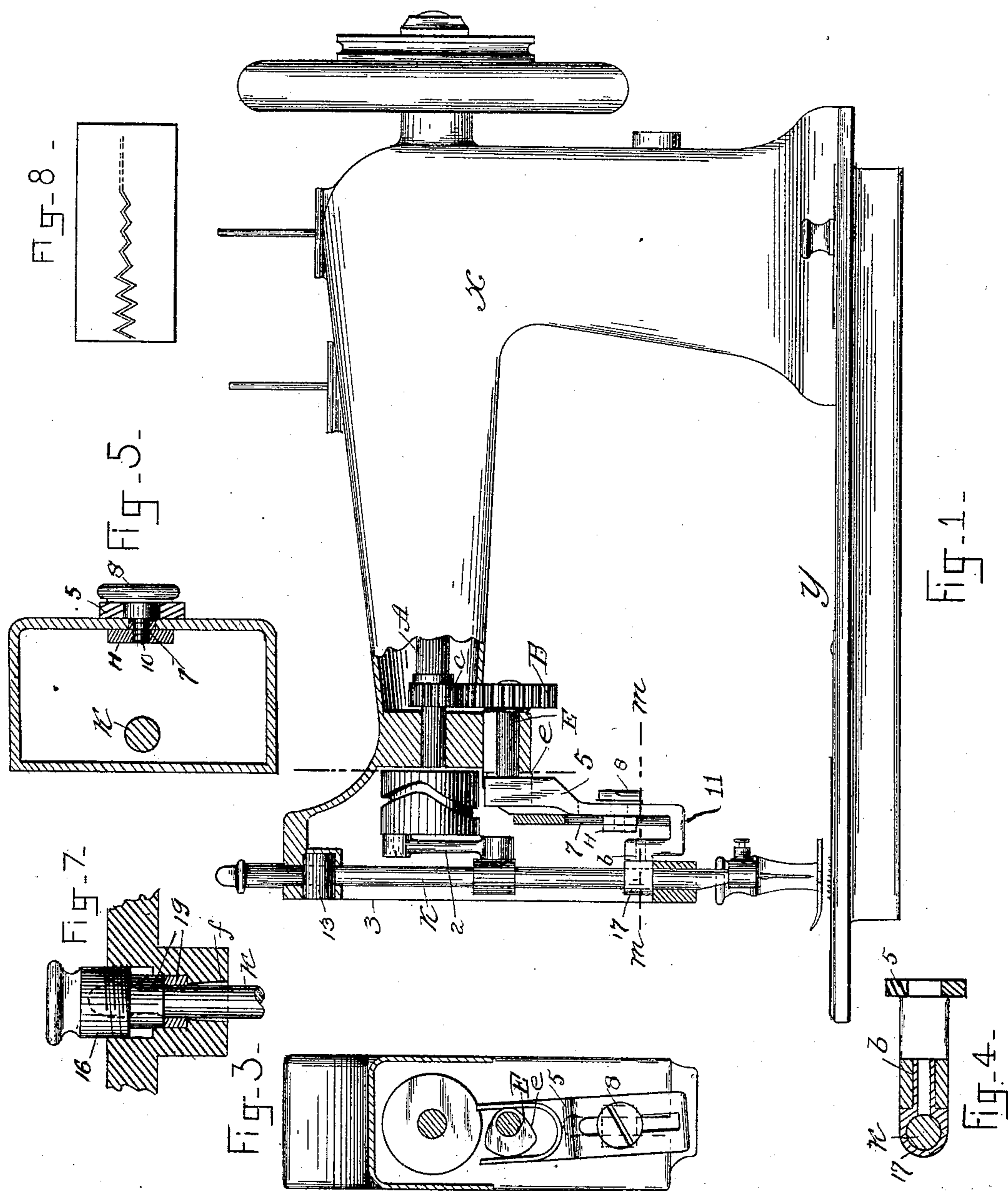
(No Model.)

2 Sheets—Sheet 1.

A. O. VERY.
SEWING MACHINE.

No. 434,851.

Patented Aug. 19, 1890.



WITNESSES:
Rodney L. Linnell
Charles F. Spear

INVENTOR:
Alfred O. Very

(No Model.)

2 Sheets—Sheet 2.

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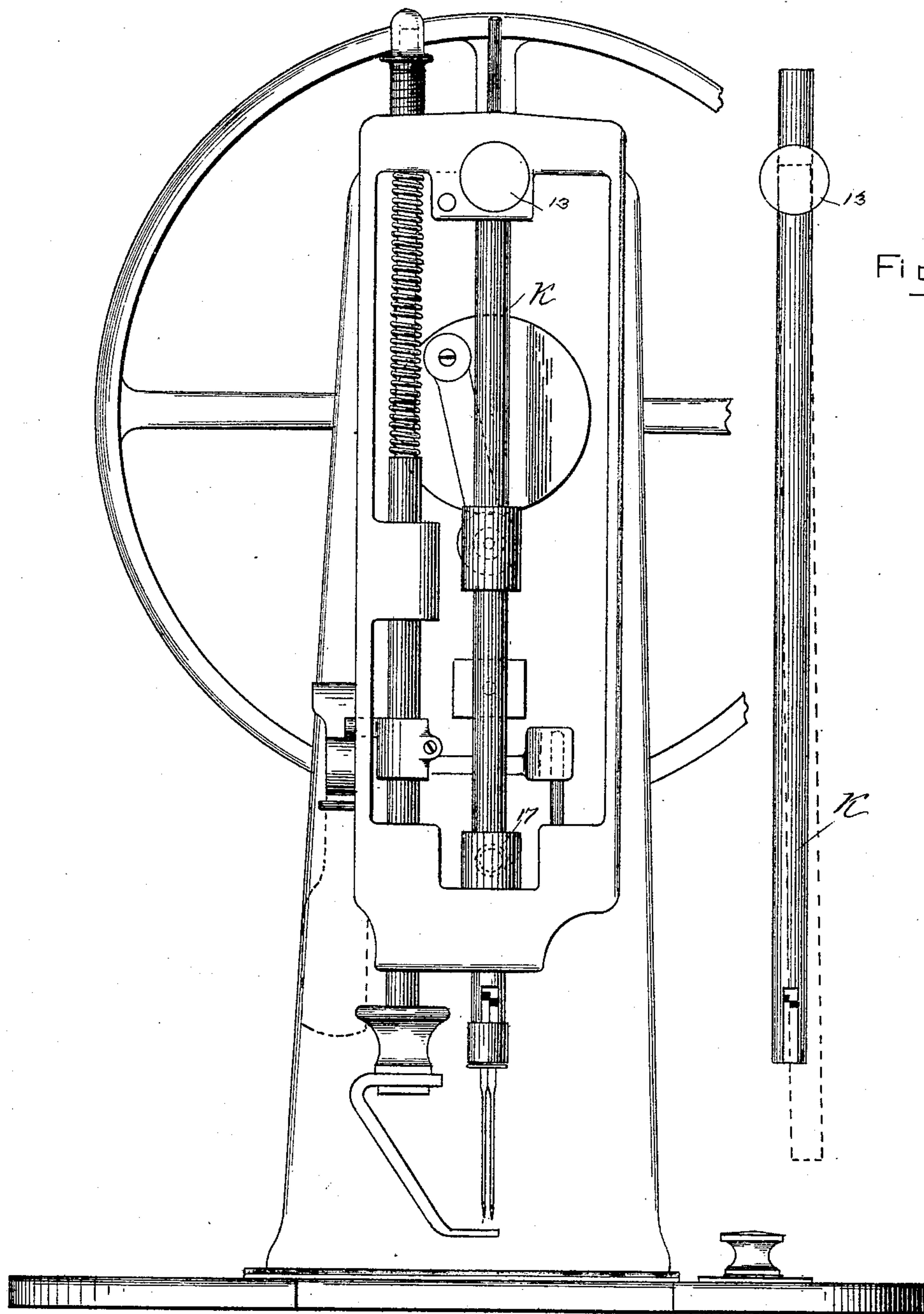


Fig. 6.

WITNESSES:
Robert L. Gurnel
Charles F. Spear

Fig. 2.

INVENTOR:
Alpha O. Very

UNITED STATES PATENT OFFICE.

ALPHA O. VERY, OF BOSTON, MASSACHUSETTS.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 434,851, dated August 19, 1890.

Application filed April 17, 1889. Serial No. 307,603. (No model.)

To all whom it may concern:

Be it known that I, ALPHA O. VERY, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to sewing-machines of that class in which lateral oscillation is given to the needle simultaneously with its vertical reciprocation, and my object is to provide means by which the needle-bar may have a pivotal connection at its upper end and be vibrated laterally by means in connection with its lower end.

A further object is to provide such an operating connection as to permit of more or less vibration laterally of the needle-bar and to allow for straight stitching, if desired.

The invention is shown as applied to a machine of the standard type and to a twin-needle machine, and as thus shown is adapted to sew a double-threaded zigzag seam; but I desire it to be understood that the invention may be applied to other styles of machines, and is not necessarily limited to a machine operated with two needles.

In the accompanying drawings, Figure 1 represents a machine in elevation with a portion of its front frame and arm in section to show the working parts. Fig. 2 is a front elevation of a machine with the front plate removed, illustrating the mechanism for vertically reciprocating the needle-bar. Figs. 3, 4, 5, and 6 represent details of construction. Fig. 7 is a modification of a means for supporting the needle-bar at its upper end, and Fig. 8 illustrates the variation in the forms of stitching which is possible in this machine as improved.

The base of the machine is shown at Y, and the standard at X, the frame 3 being supported, as usual, on the front end of the frame or standard. The needle-bar is shown at K, and this is reciprocated vertically by a pitman 2, connected to a collar on the needle-bar and operated from a face-wheel mounted on the main shaft A of the machine. The needle-bar has a pivotal connection at its upper end, which, however, as hereinafter described, is arranged so as not to interfere with its vertical reciprocation, and the lower part of the

frame 3 is slotted or formed with a channel to allow for the lateral movement of the needle-bar at its lower end.

The lever which oscillates the lower end of the needle-bar laterally is shown at 5 in Figs. 1 and 3, and this lever is adjustably held in a slot in the lower end of the inner wall of the frame 3, so that by the adjustment of this lever the amount of lateral reciprocation of the needle-bar may be accurately regulated and more or less zigzag movement imparted thereto, or this movement entirely eliminated when found necessary or desirable. The slot in the frame is shown at 7 and is directly behind the needle-bar when the latter is in vertical position. The vibrating lever 5 is pivoted to the frame by means of a thumb-screw 8, Fig. 5, which has an enlarged bearing 9 for the lever and a reduced threaded end 10, which passes through the slot 7, being held by a nut H on the inside. The shoulder formed by the reduced end of the screw bears upon one side of the wall of the frame 3 and the nut upon the other, thus holding the pivot of the lever in any desired position, according to the amount of vibration required. The lower end of the vibrating lever 5 has a bent neck 11, and the upper end of this neck is provided with a horizontal opening, in which is swiveled the tubular shank *b* of a collar 17, through which the lower end of the needle-bar passes. This swiveling connection allows a very easy movement of the needle-bar, and in order to provide lubrication of the bar at this point I may fill the tubular shank *b* with tallow or other lubricant, and in the heating of the bar the lubricant will run out upon the bar and prevent any undue friction. The upper end of the lever 5 is forked, as shown in Fig. 3, to embrace a cam *e* on the end of a shaft E, the said shaft having its bearings in the frame of the machine. On the rear of the shaft is a pinion B, which is in gear, through an opening formed in the under part of the arm of the machine, with a gear *c* on the main shaft A. The pinion *c* has one-half the number of teeth of B, so that the needle-bar will be on the right during one stroke and on the left during the next stroke, and so on.

It will be observed that the amount of reciprocation laterally of the needle-bar will depend altogether upon the position of the

pivot of the lever 5. If this pivot be raised so as to make the lower end of the lever longer, it is obvious that the lateral throw will be greater, and by lowering the pivot this throw will be correspondingly lessened. When the pivot is brought down to the line *m m*, it is apparent that there will be no lateral movement whatever, and the needles will sew in straight lines.

In Figs. 1, 2, and 6 I have shown one way of pivoting the upper end of the needle-bar. I form a pivot 13 in a recess made in the upper part of the frame 3 with an opening passing directly through this pivot in line with its shorter axis, and through this opening the needle-bar passes. The frame above and below this pivot is cut away on each side, so as not to interfere with the lateral movement of the needle-bar at this point. It will thus be seen that the bar swings laterally upon its pivot 13 and at the same time is free to have the ordinary vertical reciprocation.

In Fig. 7 I have shown a modification, in which a cavity is formed in the upper part of the frame, and the needle-bar is of less diameter, so as to work freely, packing 19 being provided around the bar, and the frame is cut away on either side, as at *f*, so as to permit the bar to swing in its lateral movement. A screw-cap 16 closes the opening in the top of the frame and bears on the packing, and this is made hollow to allow for the movement of the bar.

In Fig. 8 I have indicated the forms of stitching of which the machine as improved is capable of making.

I have shown a machine with the feeding device in line with the standard of the machine; but I make no claim for this in the present application, as this feature is included in an application now pending in the Patent Office, having been filed October 19, 1888, Serial No. 289,256.

I am aware that prior to my invention it has been suggested to provide a needle-bar with means for giving it vertical reciprocation and lateral oscillation; but in one case the former movement was given to the needle-bar

through the casing or boxing in which the needle-bar was pivoted, and in another case the lateral movement was imparted through an interposed guide-plate, while in the present case I have dispensed with these additional parts, thus simplifying the mechanism and cheapening the construction and at the same time lessening the weight by forming a bearing in the frame of the machine for the upper end of the needle-bar and connecting the operating devices directly to said bar without the use of the interposed means, as in the cases referred to.

I claim as my invention—

1. In combination with the standard of a sewing-machine and the frame 3, depending therefrom, a needle-bar having a bearing in the upper part of said frame, and the devices connected directly to said bar for imparting thereto vertical reciprocation and lateral oscillation, substantially as described.

2. In combination with a vertically-reciprocating needle-bar and means for giving it such reciprocation, a lever 5 for oscillating the lower end of said bar, means for operating said lever, a collar surrounding the needle-bar, and a swivel-connection between said lever and the said collar, substantially as described.

3. In combination with the needle-bar, the oscillating lever, a collar 17, and the tubular shank *b*, forming the connection between the collar and the lever and adapted to contain lubricating material, substantially as described.

4. In combination with the needle-bar, a pivot for its upper end seated in the frame, an opening through the same for the vertical reciprocation of the needle-bar, and means for oscillating the lower end of said bar, substantially as described.

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

ALPHA O. VERY.

Witnesses:

C. H. WELCH,
F. L. MIDDLETON.