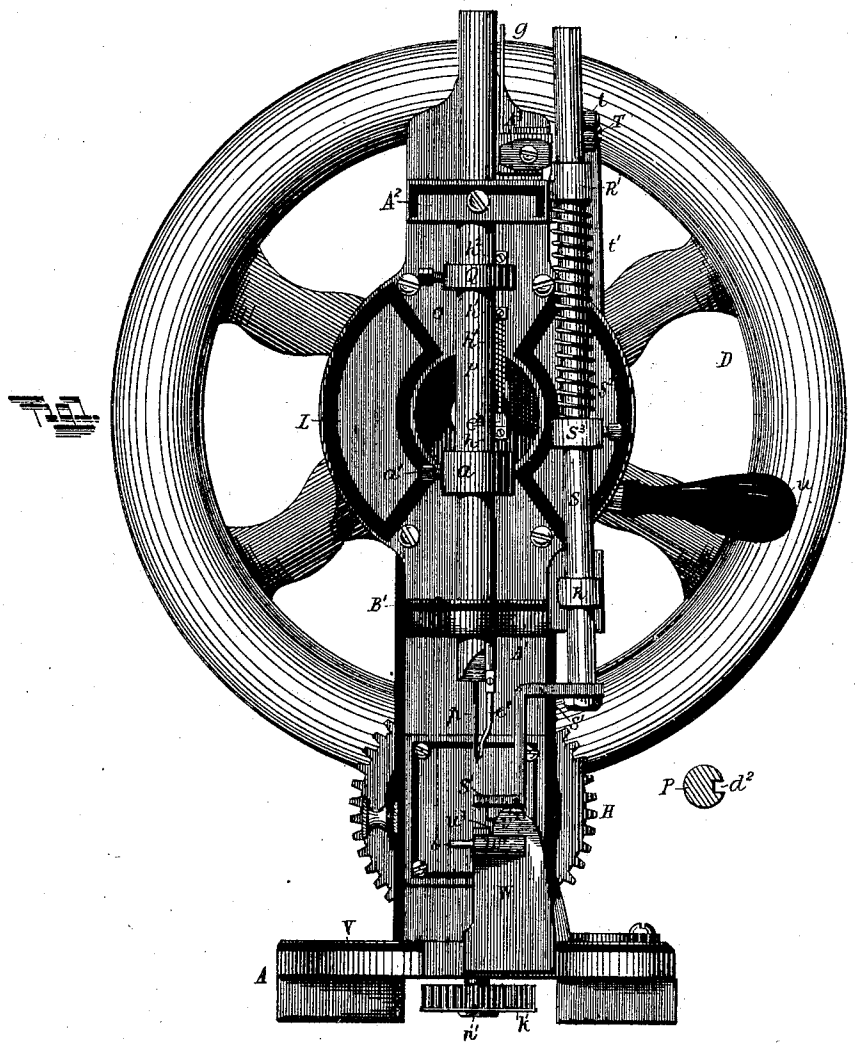
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J. BARTLETT & G. B. WIGGIN.

SEWING MACHINE.

No. 397,579. Patented Feb. 12, 1889.



Witnesses.
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Thos. Belt

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(No Model.) 4 Sheets—Sheet 2.

J. BARTLETT & G. B. WIGGIN.

SEWING MACHINE.

No. 397,579. Patented Feb. 12, 1889.

Fig. 2.

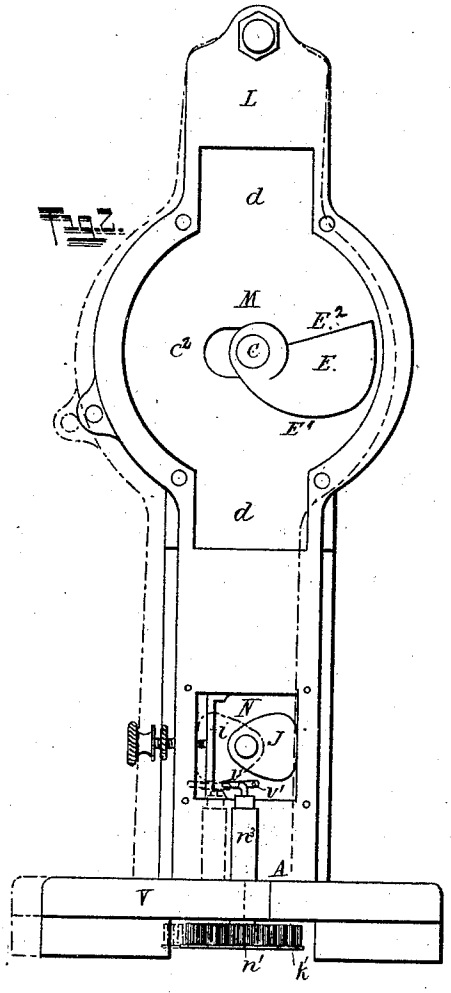


Fig. 5.

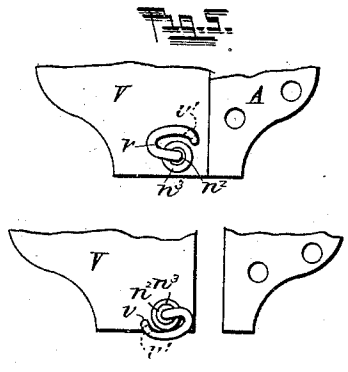


Fig. 6.

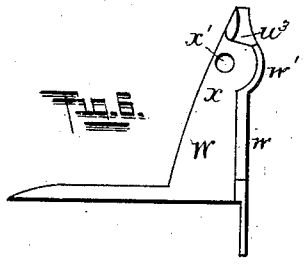


Fig. 8.

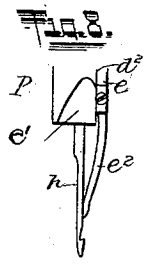


Fig. 9.

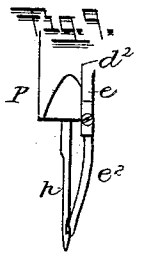
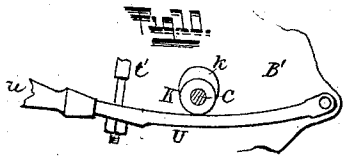


Fig. 10.



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J. BARTLETT & G. B. WIGGIN.

SEWING MACHINE.

No. 397,579. Patented Feb. 12, 1889.

Fig. 3.

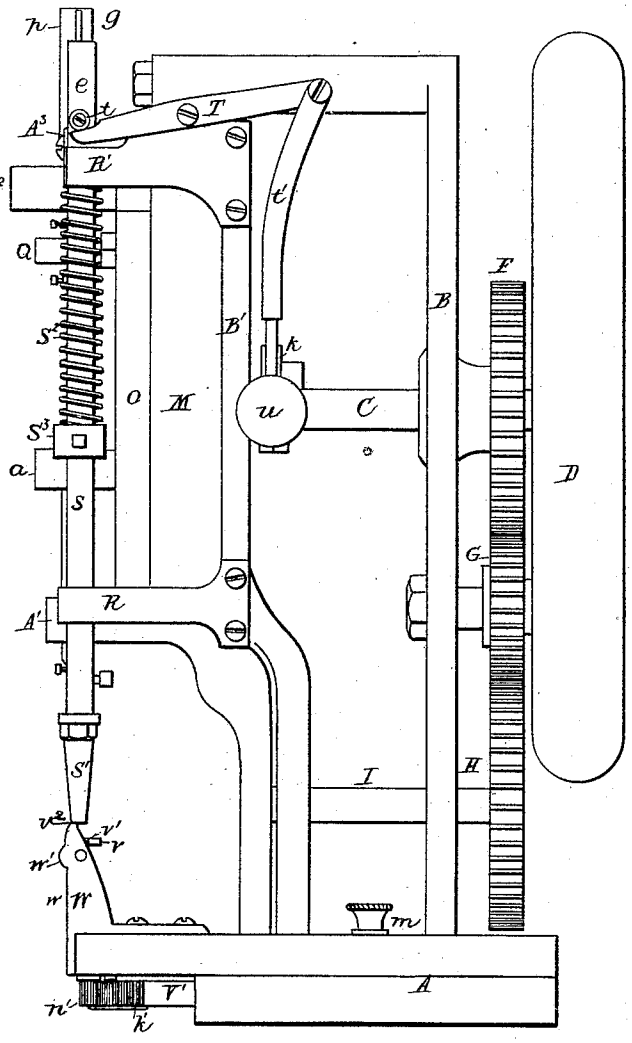
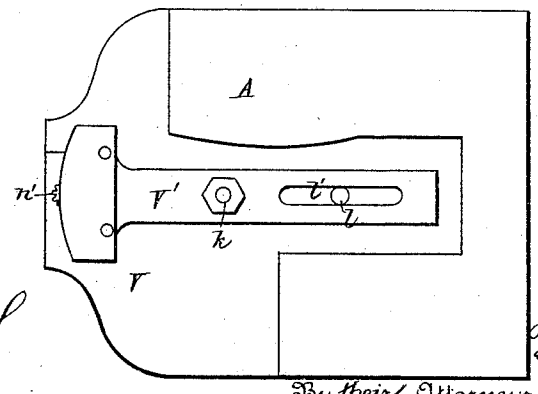


Fig. 7.



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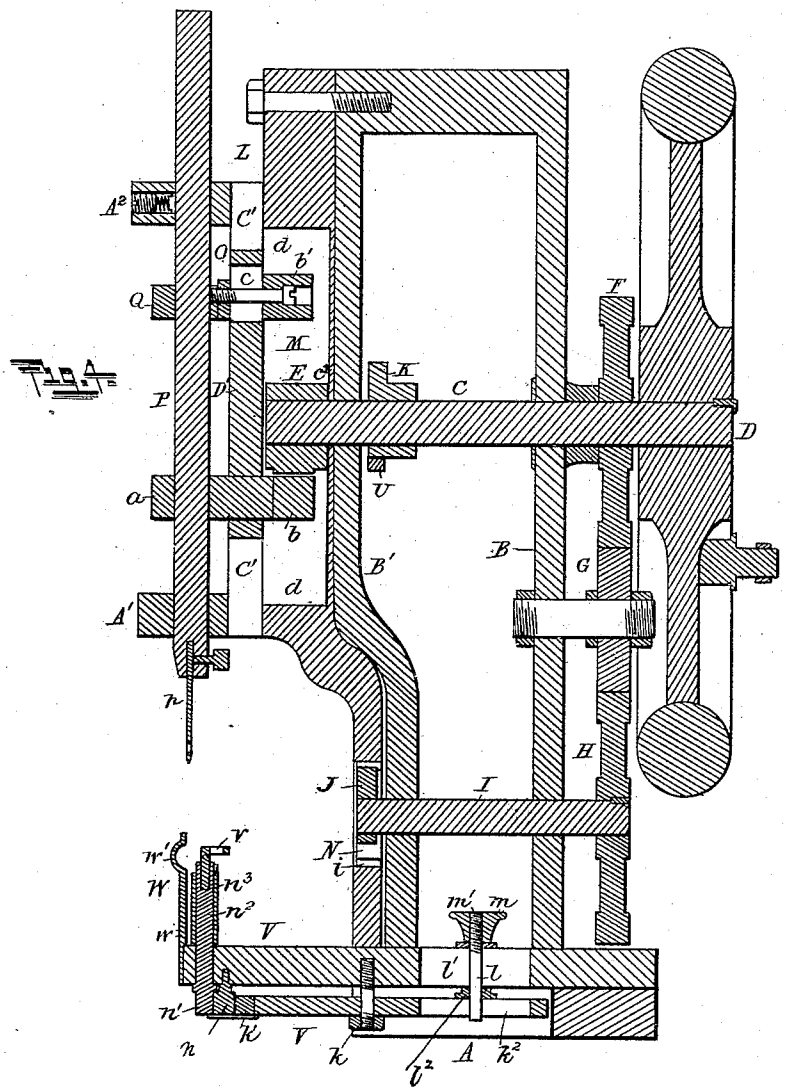
N. PETERS. Photo-Lithographer, Washington, D. C.

(No Model.) 4 Sheets—Sheet 4.

J. BARTLETT & G. B. WIGGIN.

SEWING MACHINE.

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UNITED STATES PATENT OFFICE.

JONATHAN BARTLETT, OF EPPING, AND GEORGE B. WIGGIN, OF SOUTH NEW MARKET, NEW HAMPSHIRE, ASSIGNORS OF ONE-HALF TO JOHN W. HOARD, OF PROVIDENCE, RHODE ISLAND.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 397,579, dated February 12, 1889.

Application filed July 28, 1887. Serial No. 245,561. (No model.)

To all whom it may concern:

Be it known that we, JONATHAN BARTLETT and GEORGE B. WIGGIN, of Epping and South New Market, respectively, in the county of Rockingham and State of New Hampshire, have invented certain new and useful Improvements in Sewing-Machines; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention relates to sewing-machines generally, but more particularly to the class of waxed-thread machines adapted for sewing shoes or other articles made from leather or other kindred material, and has special reference to the means for feeding the material by the agency of the needle.

In the accompanying drawings, Figure 1 is a front elevation of a machine embodying our invention. Fig. 2 is an elevation with the covers of the two cam-boxes and their attachments removed. Fig. 3 is a side elevation. Fig. 4 is a vertical section from front to rear. Fig. 5 illustrates two plan views showing different positions of the curved hook or whirl; Fig. 6, a detail of the horn; Fig. 7, a view of the under side of the machine. Figs. 8 and 9 illustrate details of different positions of the needle and in relation to the cast-off. Fig. 10 is a detail view of the lever for operating the presser-foot and its connections.

Similar letters represent like parts in all the figures.

A is the base of the machine, and B B′ are the two vertical standards for supporting the mechanism.

C is the driving-shaft, which passes through the standards B B′, having the driving-wheel D at one end and the cam E at the other. Secured to the driving-shaft C between the standard B and wheel D is a gear, F. A small gear or pinion, G, is journaled on the standard B under the gear F and engages with said gear, while a third gear, H, engages with the gear G, and is secured under said gear upon a shaft, I, which passes through the standards B B′. To the opposite end of said shaft from the gear H is a cam, J, for a purpose hereinafter to be described.

Keyed to the shaft C between the standards B and B′ is another cam, K, also for a purpose hereinafter to be described.

L is an oscillating frame or standard, which is pivoted to the top of the standard B′ and rests against the same. This frame L has a box or casing, M, in which the cam E and other parts of the machine are adapted to work; and N is an opening in the frame L, in which revolves the cam J.

The cover O of the casing M is adapted to be screwed or otherwise secured to the same, and it supports the needle-bar P and adjacent mechanism. The needle-bar P is adapted to be held and to slide through holes in the brackets A′ A^2, which form a part of the cover O.

C′ is a longitudinal vertical slot extending through the cover O, and in which the bar D′ is adapted to slide.

Secured near the lower end of the slide D′ is a sleeve, *a*, which extends outward from the slide, and through which the needle-bar passes and is secured by a thumb-screw, *a*′. Near the lower end of the slide D′, and extending inwardly from the same, is a block or projection, *b*, and attached to said slide, near its upper end, is another block or projection, *b*′. This is vertically adjustable in said slide by means of a slot, *c*, in the same and a thumb-screw passing through said slot and block D′.

The two blocks *b* and *b*′ enter into the upper and lower space-extensions, *d d*, of the casing M, and are adapted to be operated upon by the cam E, which revolves in the middle circular part, *c*′, of the casing. This cam E is curved on one side, E′, and straight on the other side, E^2, so that when the cam revolves in one direction the curved surface will ride over and operate the blocks *b b*′, while any turning to the opposite direction will bring the shoulder which is formed by the straight side D^2 in contact with the blocks

and prevent any further turning in that direction. The block b' is adjustable, so as to regulate the length of the loop of the thread. When it is near to the block b, it will be operated upon by the cam E for a longer period than if it were far away from the block b, and the needle-bar and needle, and consequently the loop z, would be raised higher and the loop z lengthened.

Q is a sleeve, which is adjustably attached to the needle-bar P between the upper bracket, A^2, and the sleeve a. The needle-bar P has a longitudinal groove, or slot, d^2, in its side, in which the cast-off bar e rests, and which allows the needle-bar and said cast-off bar to slide longitudinally relatively to each other. The groove extends down said bar to within a short distance of the lower end, and at the point at which said groove terminates the rod is cut away for a short distance, so as to form a shoulder, e', against which a projection or a shoulder near the lower end of the cast-off bar is adapted to strike. The needle p and cast-off e^2 are attached to the needle-bar and cast-off bar, respectively. Secured to the upper end of the cast-off bar is a small sleeve, e^3, which projects out beyond the slot d^2.

g is a small rod, which is parallel with the needle-bar, and which passes through said sleeve e^3, the sleeve Q, the bracket A^2, and a tension-bracket, A^3.

h h' h^2 are three sleeves adjustably attached to the rod g, the sleeve h being attached to the lower end of said rod below the sleeve e^3, h' and h^2 being attached to said rod—one on each side of the sleeve Q—at a sufficient distance to allow a small play of the sleeve Q between the sleeves h and h^2. A coil-spring, h^4, encircles the rod between the sleeve e^3 and the sleeve h', so as to keep the sleeves e^3 and h in contact, and consequently to keep the rod g firmly in place.

R R′ are brackets extending out beyond the front of the machine, and through vertical holes in the ends of these brackets the presser-foot bar S is adapted to slide. The presser-foot S′ is attached to the presser-foot bar in any appropriate way. A coil-spring, S^2, encircles the bar S and between the bracket R′ and an adjustable sleeve, S^3, on said bar. The function of this spring is to press the presser-foot down upon the horn, upon which the goods are placed.

Pivoted to the bracket R′ is a lever, T, one end of which has a concave recess upon its upper side, which is adapted to press against the under side of a roller, t, journaled to the bar S above the bracket R′. To the other end of the lever T is loosely pivoted a vertical rod, t'.

U is a lever which is pivoted to the standard B′ on the other side of the shaft C from the rod t', and this lever has a hole through which the lower end of the rod t' passes and which is large enough to allow of a free movement of the rod in said hole. The lower end of the rod t is screw-threaded and has a nut below the lever U to keep the rod and lever together and to adjust them relatively to each other. The lever U passes under the cam K and is adapted to be held against the said cam by the nut on the end of the rod t'. A handle, u, is attached to the free end of the lever U to allow the presser-foot to be raised by hand.

The opening N in frame L is substantially square, and in one side of this opening is a three-sided rectangular-shaped piece of metal, i, with its longitudinal side parallel with the vertical sides of the box. The cam or eccentric J is adapted to oscillate the frame L by striking against the metal piece i and the opposite side of the opening alternately. The length of the oscillation of this frame L is regulated by a thumb-screw, l', which passes through the standard and bears against the metal piece i. A horizontal projection or base, V, extends from the lower end of the frame L, in front of the same and swings with it. This frame supports the thread-loop and the looper mechanism. This projection or base V constitutes, as will be seen, a portion of the horizontal part or bed or table of the machine, the remaining portion of the bed being fixed.

V′ is a long lever pivoted at k to the bottom of the base V, and having a segmental rack, k', at its forward end. Near that end of the lever V′, which is opposite the rack k' and extending toward the center of the lever, is a longitudinal slot, k^2. A pin, l, passes through said slot and through a slot, i', in the base A, said slot extending in a line from the front to the back of the machine. A collar, l^2, on the pin l rests against the under side of the base A, and a nut, m, passing over the upper screw-thread portion, m', of the pin l, serves to adjust said pin anywhere along the slot l'. A pinion, n, engages with the rack k', and another pinion, n', engages with the pinion n. Both of these pinions are journaled upon the base V, and the journal of the pinion n' consists of a rod, n^2, which extends up through the base V and through a tube or sleeve, n^3, attached to said base. In the upper end of the pivotal rod n^2 is removably attached, in any appropriate manner, a curved thread-carrier or whirl, v, having an eye, v', near its free end or outer extremity. The adjusting mechanism l, l', l^2, m, and m' of the lever V′ serves to regulate the extent of the oscillation of the hook or whirl v, and thus regulate the length of stitch. It also assists in regulating the distance of oscillation of the frame L.

W is the horn or support on which the goods are to be placed, and it is attached to the base A by screws or otherwise. It has a small horizontal portion, v^3, on its top, on which the goods and the presser-foot S′ are adapted to rest, and a small part of this top of and front of the horn are cut away at w^3, so as to allow room for the needle p' and cast-off e^2 to descend and for the loop of the thread. The front wall, w, is also slightly

swelled out, as at w', to allow enough space for the oscillation of the hook v. The side wall x of the horn has a hole, x', in which the thread is adapted to pass before it enters the eye of the hook n^4.

The operation of the machine is as follows: The thread v having been passed through the hole x', around the vertical part of the hook v from back to front, and through the hole v' in the end of the hook, is then passed over to the front of the horn W, resting against the top of the cut-away portion u^3. The presser-foot S′ is then raised by the handle of the lever U, and the material to be sewed is placed between the presser-foot and the horn W, when the former is allowed to drop upon the material and hold it in place. The position of the parts will then be as shown in Fig. 1. The crank or driving wheel D is then turned from left to right when facing the front of the machine. The revolution of the shaft C by its wheel D will revolve the cam E, and this will press against the block b and drive the needle-bar P down so that the hook of the needle p will pass into the horn W and below the line of the thread. The descent of the needle-bar will also cause the cast-off e^2 to descend, by reason of the sleeve Q pressing against the sleeve or stop h'. A little farther revolution of the shaft C will cause the cam K to operate the lever U, and thus raise the presser-foot S′, so as to allow the material or work to be fed onward. The revolution of the shaft C will also cause the shaft I to revolve through the instrumentality of the gears F G H, and just after the cam K has begun to operate the lever U to raise the presser-foot the cam J will come in contact with the rectangular piece i and cause the frame L to oscillate to the left. The needle-bar P, being hung on this standard, will also be carried to the left, and the needle, being through the material, will carry the same with it to the end of the stroke. The oscillation of the frame L to the left will cause the front end of the lever V′ and its rack k' to move in the same direction, and will cause the pinion n', its shaft n^2, and hook v to move in the direction of the arrows in Fig. 5. The thread at the end of the oscillation to the left will be taut from the vertical part of the hook v to its eye v' and be pressed against the hook of the needle p. A further revolution of the shaft will release the cam K from the lever U, so the presser-foot will descend, the cam E will strike against the upper block, b', and thus raise the needle-bar P and needle p, which will carry the loop of the thread with it, as shown in Fig. 8. As the needle-bar ascends, it will slide on the cast-off bar e until the sleeve Q strikes against the stop h^2, when the cast-off e^2 will close the hook of the needle and retain the thread on the same, as shown in Fig. 9, and the needle p and cast-off will rise together. A little further revolution of the shaft C will cause the cam J to strike against the right-hand side of the box N, and thus cause the frame L to oscillate to the right. The hook or whirl v will then turn in the opposite direction from that in which it turned before and carry the thread back for the next stitch. The cam E will then strike against the block b and force the needle down below the cast-off e^2, and so relieve the loop z of the thread. The operation is then repeated.

The distance of the oscillation of the frame L determines the length of the feed of the material to be sewed and also of the stitch. The distance is regulated by the lever V′ and screw-pin l, before named. By adjusting the pin l in the slide k^2 nearer to the fulcrum k a longer feed and stitch are obtained.

Our machine can be used for sewing almost any material; but it is more particularly adapted for sewing shoes, either turned or welted, the narrow edge afforded by the horizontal top v^2 of the horn W being particularly adapted for welted goods.

This application having been divided into four applications, we do not herein claim anything claimed in either of the other three of the division applications numbered, respectively, 272,745, 272,746, and 272,747, all filed May 3, 1888.

We claim—

1. The vibratory frame L, pivoted at its upper end, and the projecting base V, which supports the thread-looping mechanism carried by and vibrating with said frame, combined with the needle-bar arranged to move in right lines vertically lengthwise of such frame and also to vibrate with it and said base, substantially as shown and described.

2. In combination, the vibratory frame L, pivoted at its top and having a projecting base, V, as described, the looping mechanism supported on such vibrating bed or base, cover O, brackets A′ A^2 on said cover, needle-bar P, needle, and a cam for vibrating the frame L, substantially as shown and described.

3. In combination, the vibratory frame L, having a casing, M, and opening N, shafts C and I and their respective cams or eccentrics, removable cover O, needle-bar P, supported on frame L, brackets A′ A^2, and blocks b b', substantially as shown and described.

4. In combination, the vibratory frame L, having a casing, M, and opening N, and cam E, the cam or eccentric J, adjustable three-sided piece i, and its adjusting-screw l', substantially as shown and described.

In testimony whereof we affix our signatures in the presence of two witnesses.

JONATHAN BARTLETT.
GEORGE B. WIGGIN.

Witnesses:
CHARLES E. ATWOOD,
WILLIAM B. MORRILL.