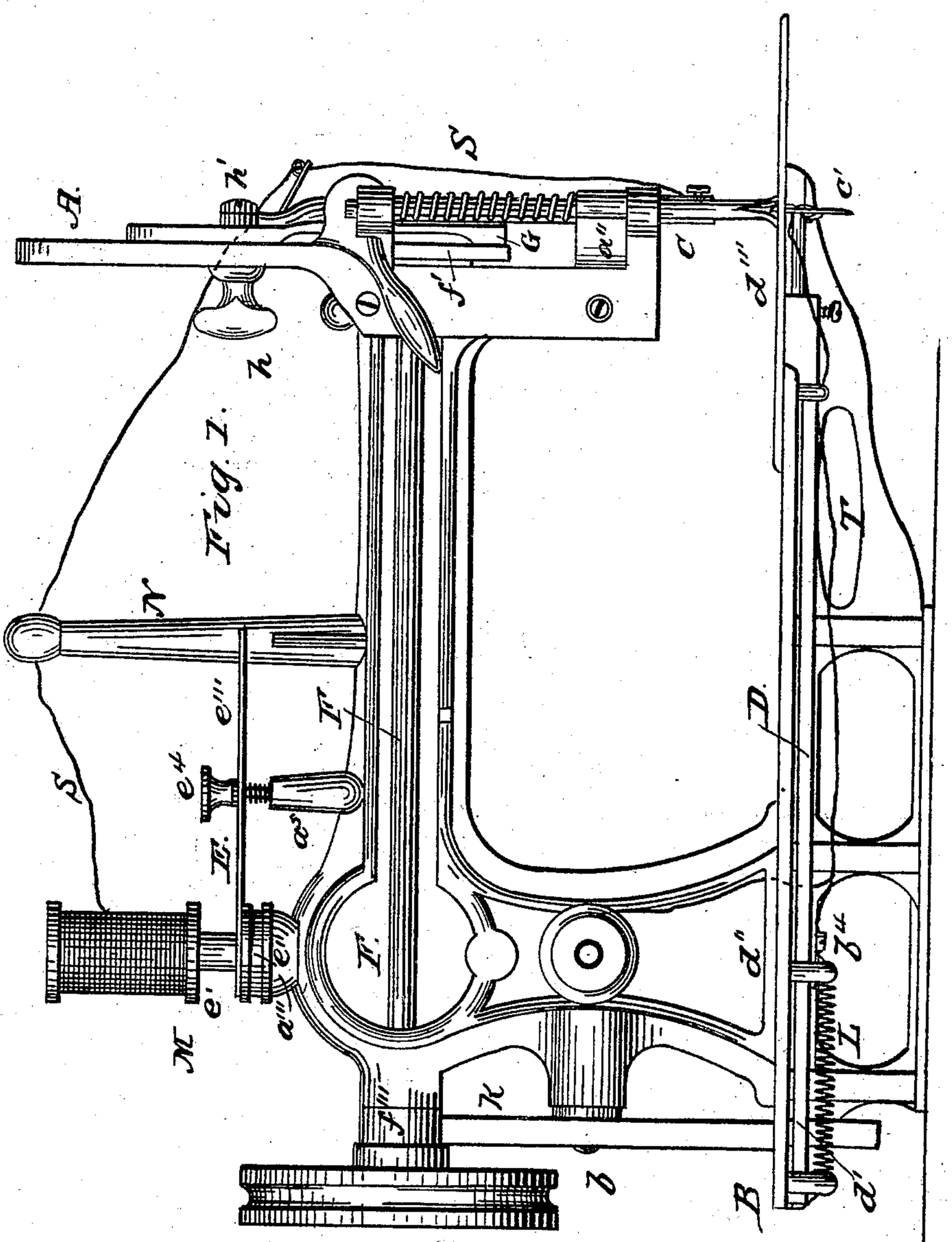
2 Sheets—Sheet. 1.

J. N. McLEAN.

Sewing Machine.

No. 88,499.

Patented March 30, 1869.



Witnesses

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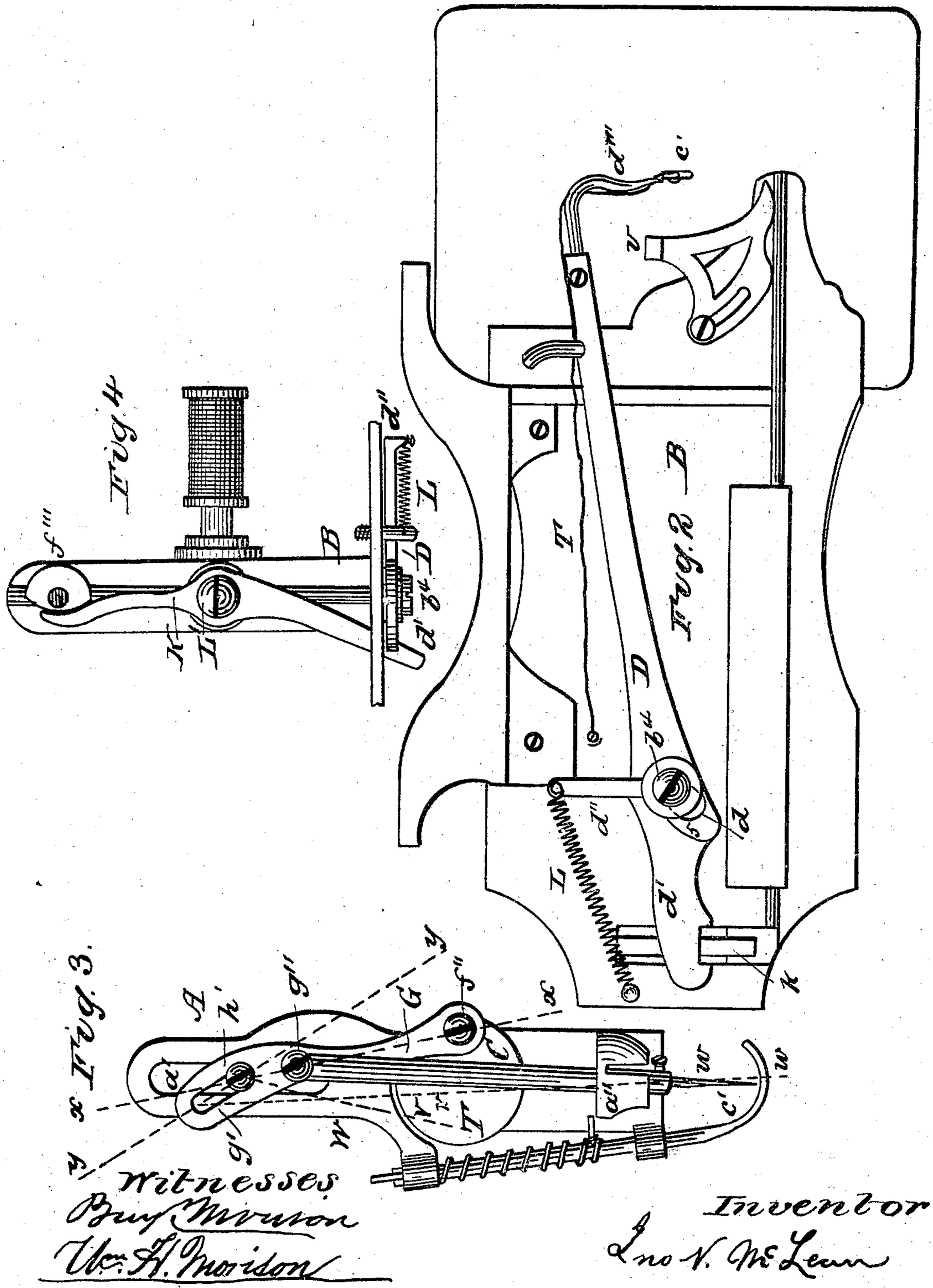

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JOHN N. McLEAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF AND B. W LACY, OF SAME PLACE.

Letters Patent No. 88,499, *dated March* 30, 1869.

IMPROVEMENT IN SEWING-MACHINE.

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

To all whom it may concern:

Be it known that I, JOHN N. McLEAN, of the city of Philadelphia, in the State of Pennsylvania, 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 construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation of one of the said improved machines, the near supporting-foot being removed therefrom;

Figure 2, a plan view of the under side of the machine;

Figure 3, a view of the vertical portion of the front end; and,

Figure 4, a view of the rear end of the same, without the driving-pulley and the feet.

Like letters of reference indicate the same parts when in the different figures.

My invention relates to that class of sewing-machines in which two separate threads are used, in connection with a vibrating vertical needle-bar, which effects the feeding of the cloth, as well as the motions of the needle, and a horizontally-vibrating looper-lever, and has for its objects, greater simplicity and cheapness of construction, and accuracy of operation of those parts for producing the stitches, and feeding the cloth, and of the tension-device, for producing the required uniformity of strain in the needle-thread, while the machine is in operation.

Referring to the drawings—

A B is the supporting-frame of the machine;

C, the needle-bar;

D, the looper-lever; and

E, the tension-device.

The front end of the usual shaft F, which operates the needle-bar C, passes through the front upright part, A, of the frame of the machine, and has a disk, *f'*, fixed concentrically thereon; and near the edge of this disk, the lower end of a bar, G, is articulated by means of a wrist-pin, or screw *f''*. (See fig. 3.)

The upper end of the bar G has a slot *g'*, and the upper part of the front end A, of the frame of the machine, has a vertical slot, *a'*, and the two parts A and G are adjustably connected together by means of a thumb-block, *h*, and screw *h'*, so that the bar G can be vibrated on the screw *h'*, as a centre, whilst the thumb-block *h* (carrying the screw *h'*) will be free to slide up and down in the slot *a'*.

The upper end of the needle-bar C is articulated to the bar G by means of a screw *g''*, whilst its lower end passes, accurately and smoothly, through a swivelling block, *a''*, which is attached to the lower part of A, and thus allows an easy up-and-down movement of the needle-bar C.

It will therefore be seen, that when rotary motion is given to the shaft F, the lower end of the bar G will be carried around by the disk *f'*, and wrist-pin *f''*, as by a crank; whilst its slotted end will be guided up and down by the thumb-block *h*, and its screw *h'*, sliding in the slot *a'*, the said bar G, at the same time, vibrating upon the said screw *h'* as a centre; (see also the dotted lines, *v v*, in fig. 3;) and that, as the upper end of the needle-bar C is articulated to the said bar G, at a point between the screw *h'* and the wrist-pin *f''*, whilst its lower end slides, longitudinally, in the stationary swivel-block *a''*, the needle-bar C will be vibrated (see also dotted lines *w w*) so as to cause the needle *c'* to feed the fabric, and co-operate with the looper *d'''* in forming the stitch, with their respective threads S and T; the parts described being, of course, arranged and adjusted, in relation to each other, for the purposes stated, substantially as represented in the drawings.

It will also be seen, that the length of the stitch can be readily increased or diminished, as the sort or thicknesses of the fabric may require, by simply raising or lowering, accordingly, the centre of vibration of the bar G, by means of the slot *g'* and screw *h'*.

It will be observed that the direction of the length of the slot *g'* is oblique to a straight line passing through the centre of the wrist-pin *f'''*, and of the screw *g''*, as indicated by the faint lines *x* and *y*, fig. 3.

This obliquity of the slot *g'* is such, that it will be parallel to the slot *a'* when the needle-bar has reached half the length of its downward motion, and is for the purpose of causing the point of the needle to pass across the looper *d'''*, at precisely the same place in the latter, in making both the longer and shorter stitches in the cloth.

The looper-lever D has two arms, *d'* and *d''*, at its power-end, and is caused to vibrate horizontally under the platform, or base B, of the frame, by means of an upright lever, K, which vibrates on a fulcrum-pin, *b'*, and is operated by means of a cam *f''''*, on the shaft, which bears against the edge of the upper end of K, while the edge of the lower end of the latter bears against the side of the end of the short arm *d'* of the looper-lever D, and gives the forward movement of the pointed end of the looper *d'''*, which is adjustably fixed in the front end of the long arm of the looper-lever D, (see fig. 2,) whilst the return-motion of the looper *d'''* is caused by a spring-coil, L, which connects the other short arm *d''*, of the looper-lever D, with the platform of the frame; the said looper-lever D vibrating upon a stationary fulcrum-pin b^4, in the platform.

The fulcrum-pin b^4 passes through a slot, d^5, which is made in an oblique direction, in relation to the arms of the looper-lever D, and is of such a length and direction as will allow the said lever D to be moved longitudinally forward (whilst its longer arm is in contact with an adjustable stop, U,) and backward, by the alternate action of the lever K upon the arm *d'*, and the spring L upon the arm *d''*, whilst the said looper-lever

D is being operated by the same actuating-devices, and thus cause the looper *d‴* to co-operate with the needle *c'* in forming the stitches required.

It will therefore be seen that the pointed end of the lever *d‴*, carrying its thread with it, will be caused to move horizontally across, between the needle and its thread S, and then forward beneath the point of the rising needle, which latter then, immediately afterward, deseends between the now-retreating looper *d‴* and its thread T, and, retaining the latter as the looper *d‴* moves horizontally backward to its first position, the needle rises and completes the stitch in the cloth, after which the descending motion of the needle moves the cloth the length required for the next stitch, as produced for the previous one.

The device E, for producing the required tension of the needle-thread S, consists of a conical thimble, *e'*, which has a flat flange, *e''*, projecting around from its lower end, and fits loosely over a conical stationary post, which is fixed vertically on the frame of the machine at *a‴*, and receives the thread-spool, M, tightly over the upper portion of the conical part of the thimble *e'*, the flange *e''* resting upon a flat support, *a‴*, with a soft packing of baize or cloth between, and a flat, straight spring-plate, *e‴*, one end of which is recessed, so as to rest upon two side projections on the usual needle-thread-supporting post N, whilst its other end has a hole which allows it to be slipped down over the conical part of the thimble *e'*, and rest upon the flange *e''*, with a packing of baize or cloth between, the required tension being produced upon the thread *s*, by means of a thumb-screw, *e⁴*, the stem of which passes through the middle of the spring-plate *e‴*, and screws into a boss, *a⁵*, on the top of the frame A B. (See fig. 1.)

The described relative arrangement of the different parts of the tension-device E enables the operator to regulate the tension of the needle-thread with facility and accuracy, and it being very simple of construction and operation, is not liable to get out of proper order in use.

Having thus fully described my improvement,

What I claim as new, of my invention, and desire to secure by Letters Patent, is confined to the following, viz:

1. I claim the swivelling block *a''*, in combination with a needle-bar, C, which is articulated to and actuated in its vibratory motion, by a vibrating bar, G, operated substantially as and for the purpose described.

2. The vibrating bar G, in combination with a needle-bar, C, articulated thereto as described, when the said bar G has its centre of vibration made adjustable therein for the purpose of varying the length of the stitches in the cloth as occasion may require, substantially as described.

3. The vibrating bar G, in combination with a needle-bar, C, articulated thereto as described, when the centre of vibration of the said bar G is made adjustable for varying the length of the stitch by means of the slot *g'* and screw *h'*, substantially as set forth and described.

4. The vibrating bar G, in combination with a needle-bar, C, articulated thereto substantially as described, when the slot *g'* is made in the bar so as to come parallel, in the direction of its length, with the direction of the length of the slot *a'*, in which the thumb-block *h* slides, when the said needle-bar C has reached half the length of its downward motion, substantially as described, for the purpose specified.

5. The slotted vibrating bar G, in combination with the needle-bar C, the disk *f'*, and wrist-pin *f''*, or their equivalents, the sliding thumb-block *h*, and screw *h'*, or their equivalents, and slotted upright A, the said parts being arranged to operate substantially as and for the purposes described.

6. The obliquely-slotted looper-lever D, in combination with the stationary fulcrum-pin *b⁴*, for the purpose of allowing the said looper-lever to be moved longitudinally forward and backward on its said fulcrum-pin, substantially as and for the purposes described.

7. The obliquely-slotted looper-lever D, the stationary fulcrum-pin *b⁴*, and the actuating-lever K, or its equivalent, operating together in combination with the adjustable stop U, or its equivalent, for the purpose of compelling the said looper-lever to move longitudinally forward at the proper time, substantially as and for the purpose described.

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Witnesses:

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