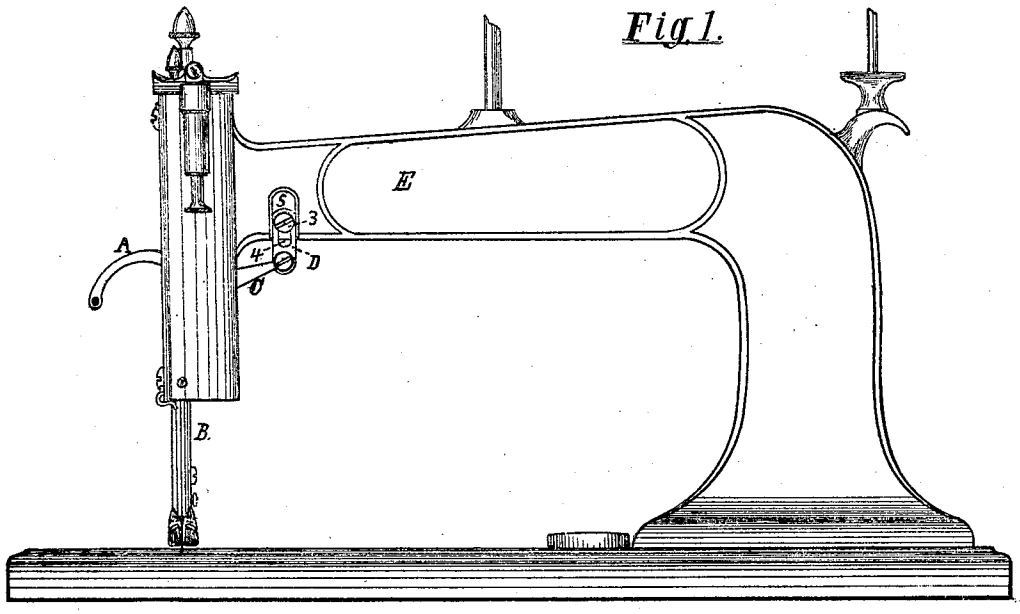
2 Sheets--Sheet 1.

G. A. FAIRFIELD.

Sewing-Machine.

No. 130,288. Patented Aug. 6, 1872.

Fig 1.



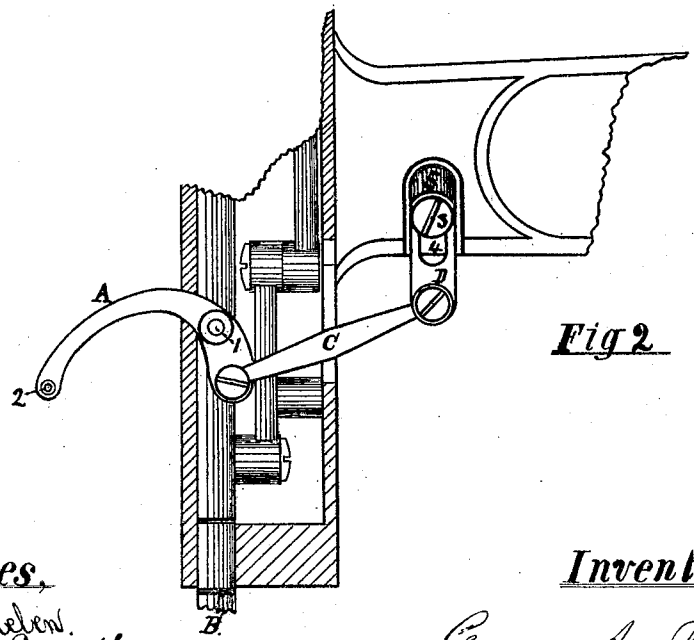


Fig 2

Witnesses,

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Inventor.

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by John J. Halsted
his atty.

2 Sheets--Sheet 2.

G. A. FAIRFIELD.

Sewing-Machine.

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Fig 3.

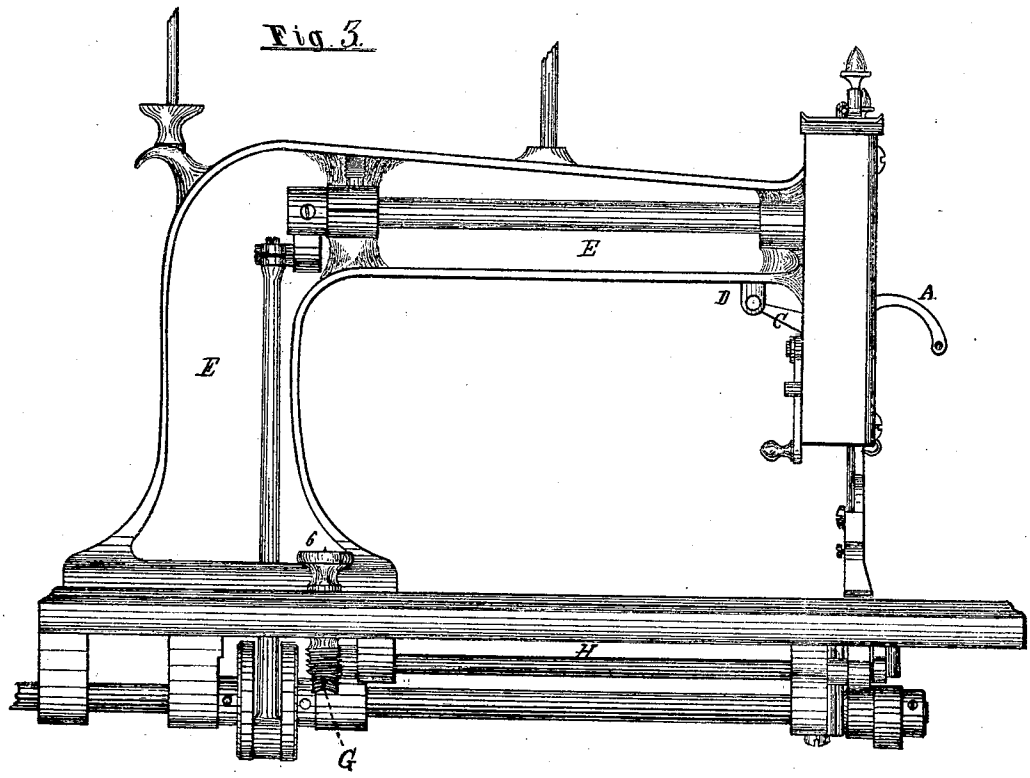


Fig 4

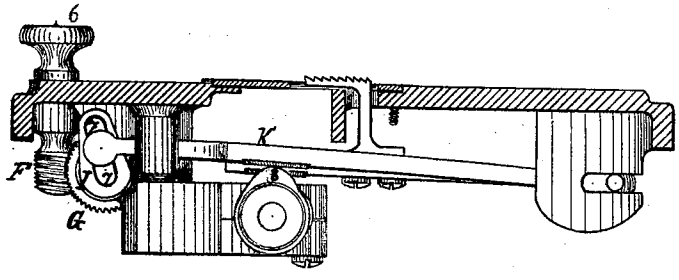
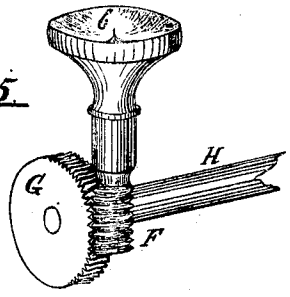


Fig 5.



Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE A. FAIRFIELD, OF HARTFORD, CONNECTICUT, ASSIGNOR TO WEED SEWING-MACHINE COMPANY, OF SAME PLACE.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **130,288**, dated August 6, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, GEORGE A. FAIRFIELD, of Hartford, in the State of Connecticut, have invented certain Improvements in Sewing-Machines; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My improvements relate to the take-up or tension for controlling the needle-thread, and to the means for regulating the feed of the cloth.

In the patent granted to me July 30, 1867, numbered 67,179, I employed a linked lever actuated by the movements of the needle-bar, and which have peculiar, varying, and very efficient motions, whereby the thread was slackened, tightened, and held tight at the proper periods with relation to the movements of the needle and the shuttle. In the construction shown in that patent, however, the lever was not made adjustable upon the needle-bar or otherwise, and consequently there could not be any variation given to the times or character of its throw, either while the machine was at rest or in motion, in order to adapt the device to the varying conditions and demands incident to the sewing of goods of different thicknesses.

It has been found in practice so important to be able to adjust, and to adjust promptly, the take-up lever, that it may accord with the variations required in changing the work from thick to thin goods, and vice versa, and also so desirable that this should be done without the risk of soiling with oil or dirt the fingers of the operator and thus damaging the goods, that I have devised the present improvement upon my afore-named device.

Figure 1 shows the frame of a machine with my take-up improvement applied thereto, and Fig. 2 is a full-sized view of my improvements with a part of the machine removed or broken away.

A is the take-up lever or thread-controller, pivoted, but not adjustably, to the needle-bar B at 1, and having the usual thread-eye 2. The other end of the lever is connected by link C to the adjustable slotted piece D, which is fitted to be adjusted by means of a set-screw, 3, and the slot 4 in the groove or rabbet 5, made in or upon the outside of the arm E of the machine.

It will be seen from this construction that the operator has but to loosen the set-screw 3, slide the piece D up or down, as desired, and tighten the screw again, to effect all the change required in the throw and periods of throw of the lever, and that no stoppage or delay is required to do this, and no oiled or soiled parts of the machine need to be touched, and that it can be done quickly with one hand.

For the thickest goods the adjustment should be such that the greatest tightness of the thread shall be when the needle is at or near its highest point. It may then be varied downward, as occasion may require, according as the goods being sewed shall decrease in thickness.

It will be understood by sewing-machine operators that the object of thus having the take-up device pull the thread tight at the period above named is to prevent the twisting or kinking of the thread, and its getting under the point of the needle, or upon its wrong side, and thereby making defective stitching.

As a modification the lever may be pivoted to an adjustable slide, the latter being arranged to be moved up or down upon the needle-bar, and secured in the desired position by means of set-screw or pin; or the lever may be provided with several pivot-holes, and thus be shifted so as to use either as its fulcrum-hole, by which it is hung to the needle-bar.

The construction first above described, however, and illustrated in the drawing, I deem the best, as the adjustment may be made in the readiest, easiest, and quickest manner, and without the need of removing any face-plate or other part in order to effect the adjustment. It is also the cleanest and simplest.

The feed-regulating devices, being the second part of my invention, are shown in Figs. 3, 4, and 5.

F is a worm, having its thumb-piece or head 6 projecting above the surface of the table in a convenient position so as to be readily turned by the operator, and so applied to the table that it shall not advance or retreat when

so turned. This worm gears with the worm-gear G on the end of shaft H, at whose opposite end is rigidly affixed a short slotted arm, I, in the slot 7 of which rides a pin projecting from the feeding-bar K, this bar being so hung as to be capable of moving endwise more or less when lifted by its cam 8, the degree of such endwise movement being determined by the degree of inclination from a vertical line which has been given to the slot 7, this variation of its inclination being effected in the most positive and simple manner by the turning of shaft H on its axis through the agency of the worm F, the latter also positively locking the shaft and its arm I to the desired position without possibility of accidental derangement.

This mode and means of turning the shaft and holding it secure when turned have other advantages over the spring locking-lever employed for that purpose in my patent No. 107,019, dated September 6, 1870—namely, there is no liability of accidentally deranging the adjustment of the feed, as nothing which may strike or catch the thumb-piece 6 can change its position, as was liable to be the case with the spring-lever alluded to. Moreover, the extent of adjustment (as compared with the use of such spring-lever, which could lock itself only in the holes provided for that purpose) is under absolute control to the most delicate degree, for there is no positive point within the whole range of its feeding movement at which it must stop in order to be locked, the operator having the option to turn the piece 6 and its worm to any degree required. Another advantage is, that while with the lever the extent of the variation of the feed was limited to the sweep or swing of such spring-locking lever, yet with the present invention the thumb-piece is not in any way limited as to the extent to which it may be turned in either direction, so that it of itself offers no impediment to the range of feed, and the slot 7 may be made of any length requisite for the longest feed attainable.

I claim—

1. In combination with the thread-controller A and its link C, the adjustable plate or piece D, substantially as and for the purpose set forth.

2. I also claim, in combination with the shaft H and its slotted arm I, the worm-gear G upon said shaft and the non-advancing worm F, the combination operating substantially as described.

GEORGE A. FAIRFIELD.

Witnesses:

C. N. SHIPMAN,

C. W. JOHNSON.