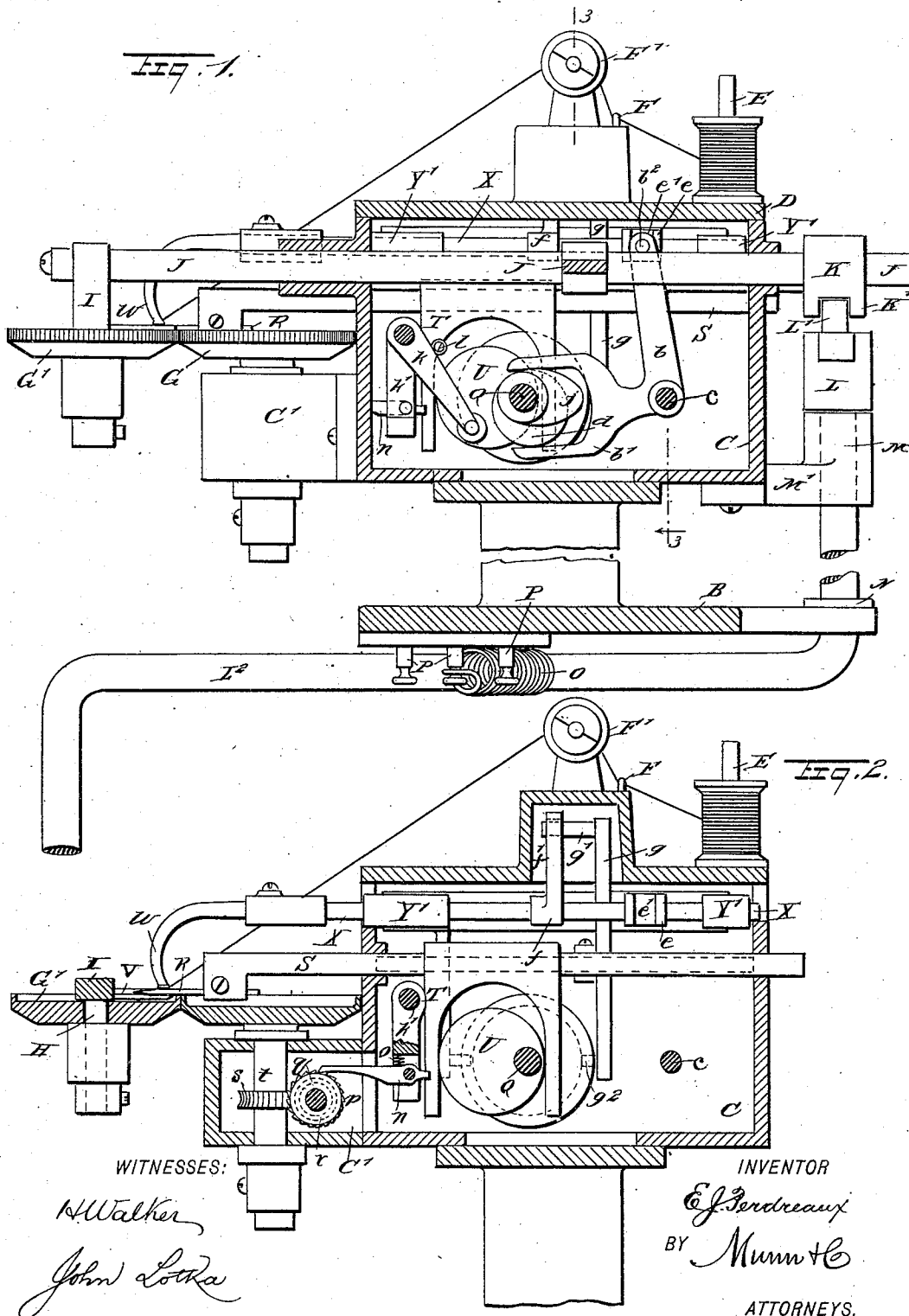


4 Sheets—Sheet 1.

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Patented Dec. 29, 1896.



(No Model.)

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E. J. PERDREAU.
OVEREDGE SEWING MACHINE.

No. 574,263.

Patented Dec. 29, 1896.

Fig. 3.

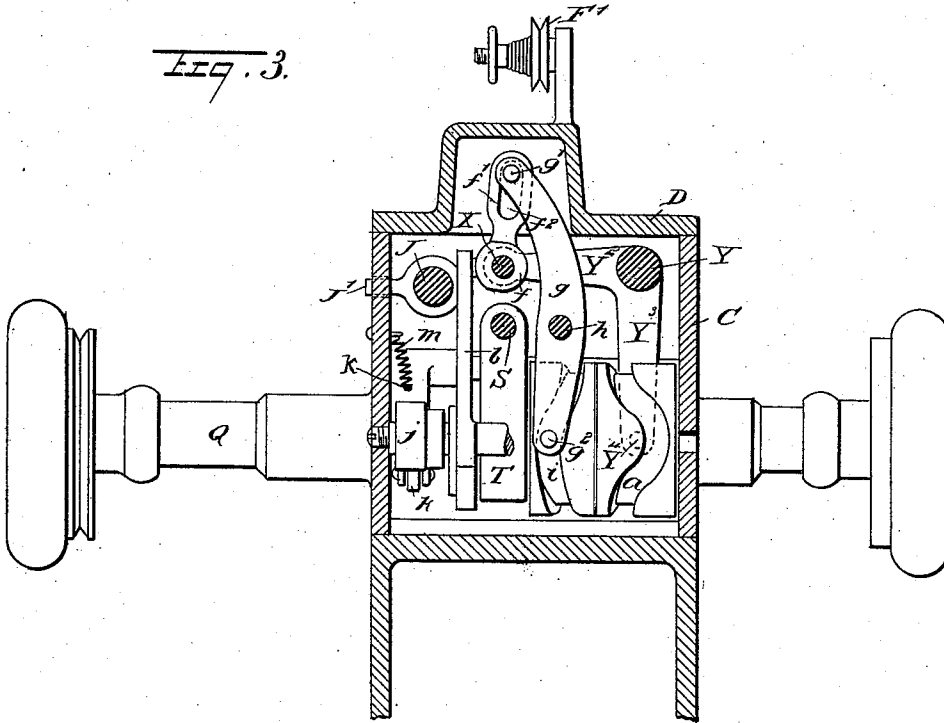
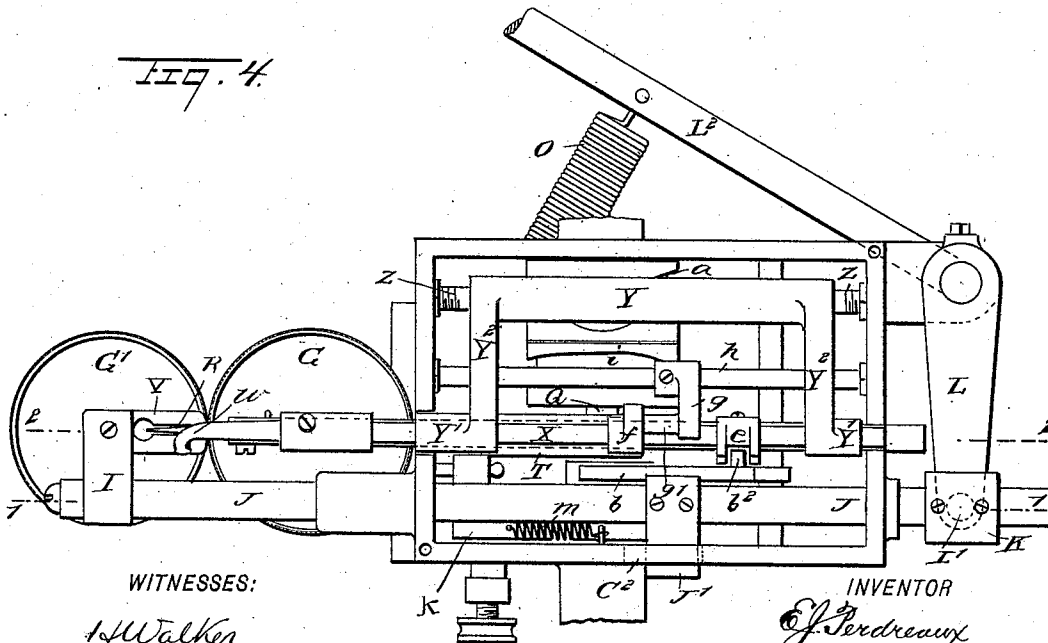


Fig. 4.



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E. J. PERDREAUX.
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Fig. 5.

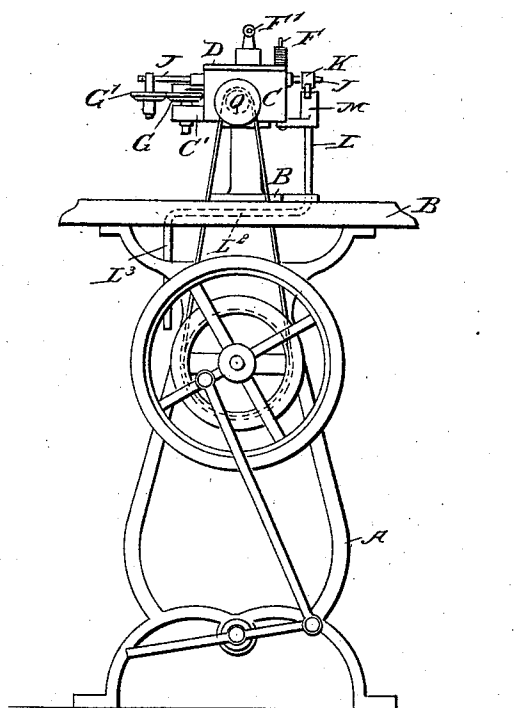
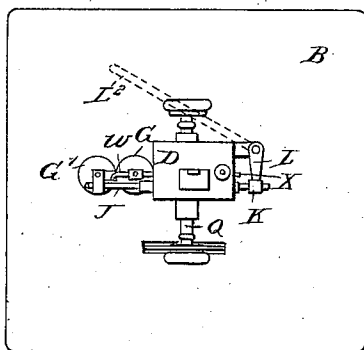


Fig. 6.



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(No Model.)

4 Sheets—Sheet 4.

E. J. PERDREAU.
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No. 574,263.

Patented Dec. 29, 1896.

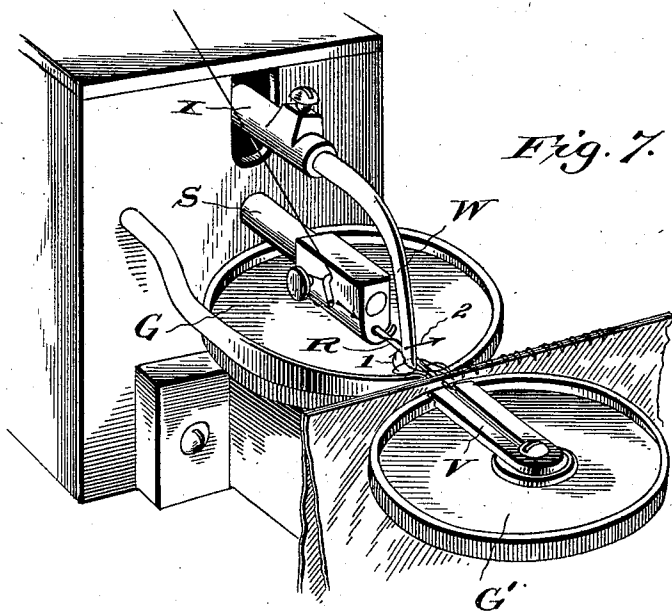


Fig. 7.

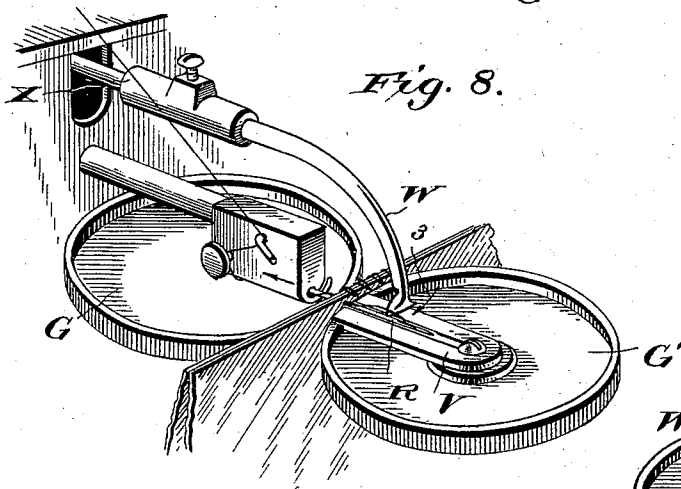


Fig. 8.

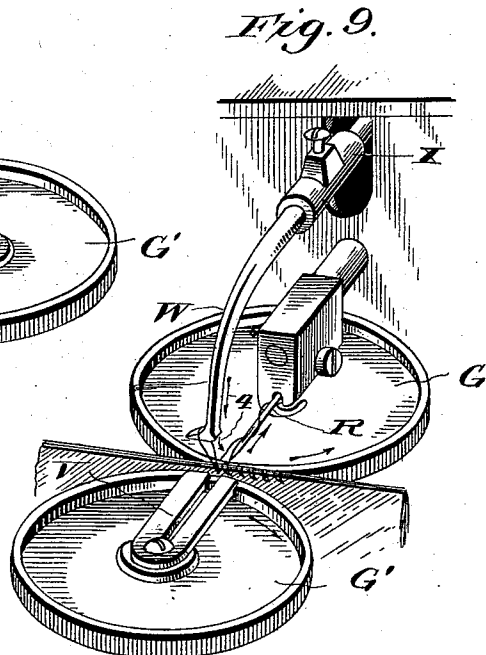


Fig. 9.

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UNITED STATES PATENT OFFICE.

EMILE J. PERDREAUX, OF NEW YORK, N. Y., ASSIGNOR TO HARRY S. STALLKNECHT, OF SAME PLACE.

OVEREDGE SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 574,263, dated December 29, 1896.

Application filed May 16, 1895. Serial No. 549,549. (No model.)

To all whom it may concern:

Be it known that I, EMILE J. PERDREAUX, of New York, county and State of New York, have invented a new and Improved Overedge Sewing-Machine, of which the following is a full, clear, and exact description.

My invention relates to that class of machines for sewing leather and the like, particularly gloves and furs, in which the doubled edge of the material is passed between two revolving feed-disks, and in which the sewing is accomplished by means of a reciprocating needle and a movable looper located adjacent to the needle.

The object of the present invention is to provide a new and useful motion for the looper and to so improve the means whereby the feed-disks are separated for the purpose of inserting the edge of the material between them that the operator will be enabled to simultaneously work the driving-treadle of the machine with both feet and also actuate the mechanism for separating the feed-disks from each other.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the machine with parts in section on line 1 1 of Fig. 4. Fig. 2 is a similar view, the section being taken on line 2 2 of Fig. 4. Fig. 3 is a cross-sectional elevation of the machine on line 3 3 of Fig. 1. Fig. 4 is a plan of the same with the cover removed from the casing containing the operating-shaft and the parts engaging it. Fig. 5 is an end view of the entire machine, and Fig. 6 is a plan thereof. Figs. 7, 8, and 9 are views, mainly diagrammatic, illustrative of the various positions assumed by the needle and looper relatively to each other during the formation of a stitch.

In carrying out my invention I construct the machine with the usual supporting-standard A, carrying the table B and the casing C, the latter being provided with a cover D, on which are located the spool-supports E and

the thread-guides F F'. The construction of these parts may be the usual one.

In an extension C' of the casing C is mounted to revolve (about a stationary axis) the main feed-disk G, which is positively operated by mechanism fully described hereinafter. With this main feed-disk coöperates the auxiliary feed-disk G', which is rotated by frictional contact with the material. The two feed-disks have serrated or milled peripheries. The auxiliary feed-disk G' is loosely mounted on a bolt H, secured to a bracket I, projecting from a sliding arm J, capable of a reciprocating movement in the casing C. The arm has a lug J', projecting through a slot C² of the casing to prevent the bar from turning.

To the rear end of the arm J, exteriorly of the casing C, is secured a sleeve K, having a transverse groove in its lower surface, whereby the lower part of the said sleeve substantially has the shape of a fork, as will be seen best at K' in Fig. 1. This fork is engaged by a pin L', formed upon one end of a lever L, which is fulcrumed in a sleeve M, secured to the casing C by means of a bracket M', the lever being further journaled in a collar N, secured to the table B.

That part of the lever which extends under the table comprises an essentially horizontal portion L² and an approximately vertical end portion L³. The portion L² is normally drawn inward, so as to press the auxiliary disk G' toward the main feed-disk G, by means of a coiled spring O, one end whereof is secured to the said horizontal portion L² of the lever L, while the other end of the spring is adapted for attachment to any one of a series of pins or projections P, secured to the under side of the table. This construction permits of adjusting the tension of the spring in the normal position of the lever L. The end portion L³ of the lever is located at the side of the machine at about the height of the operator's knee, so that he may throw the lever L outward and thereby move the auxiliary disk G' away from the main feed-disk G, by simply pressing with his knee on the lower end of said lever and without removing his feet from the driving-treadle of the machine. In machines of the same class as hitherto con-

structed a separate treadle is provided for operating the slide-arm, carrying the auxiliary feed-disk, and when the operator desires to actuate the said slide-arm he must remove one of his feet from the main or driving treadle and press with the said foot on the auxiliary treadle, whereas with my improved arrangement of parts the operator need not change his position to separate the feed-disks for the purpose of inserting the material between them.

In the casing C is journaled the main shaft Q, extending transversely therethrough and revolved by means of a treadle or other suitable device. The said shaft is provided with a series of cams or eccentrics for operating various mechanisms controlling the motion of the needle, the looper, and the main feed-disk. I will now proceed to separately describe each of these three mechanisms, the needle and the looper being of substantially the usual construction.

I. *The needle and the mechanism for giving it a reciprocating motion.*—The needle R is secured to the needle-bar S, mounted to slide in the casing C. A stirrup T is secured to the needle-bar within the casing, and the said stirrup straddles an eccentric U on the shaft Q. The point of the needle is adapted to enter a slotted guide V, secured to that end of the arm J which carries the auxiliary feed-disk G'.

II. *The looper and its operating mechanism.*—The looper W is secured to the outer end of the looper-bar X, so as to extend adjacent to the path of travel of the needle. The looper and looper-bar have a threefold movement, viz: first, an up-and-down movement, during which the looper-bar remains parallel to its original position; secondly, a reciprocating movement in the same direction as the needle, and, thirdly, a rocking or oscillating movement about the longitudinal axis of the looper-bar. It will be understood that during this complex motion the looper-bar remains parallel to its original position, that is, it remains horizontal.

(a) The mechanism for moving the looper up and down is as follows: The looper-bar is journaled in bearings Y' at the ends of arms Y², secured to a sleeve Y, mounted to turn on screws Z or otherwise pivotally secured to the casing C. From one of the arms Y² a bell-crank member Y³ extends downward, (see Fig. 3,) said member being provided with a pin Y⁴, engaging a cam-groove *a* on the main shaft Q. It will be obvious that the revolution of the shaft will cause the member Y³ to oscillate back and forth, thereby raising and lowering the looper-bar X bodily.

(b) The looper-bar receives a reciprocating motion parallel to that of the needle by means of a bell-crank lever *b*, (see Fig. 1,) pivoted at *c* upon the casing C and provided with a forked arm *b'*, which engages an eccentric *d* upon the shaft Q. The other arm of the bell-crank lever carries a pin *b*², engaging a sub-

stantially vertical groove *e'* on a sleeve *e*, rigidly secured to the looper-bar. By this construction the looper-bar is permitted to move up and down without disengaging the pin *b*² from the groove *e'*.

(c) In addition to the above-described movements an oscillating movement is imparted to the looper, the looper-bar rocking about its longitudinal axis. To this end a sleeve *f* is rigidly secured to the looper-bar, Fig. 3, said sleeve carrying an extension or arm *f'*, provided with an elongated radial slot *f*². In this slot is adapted to move a pin *g'*, secured to one end of a lever *g*, fulcrumed at *h* upon the casing C, the other end of the lever carrying a pin *g*², engaging a cam-groove *i* on the main shaft Q. The pin *g'*, as illustrated in Figs. 2 and 4, is of sufficient length to allow the looper-bar to reciprocate without bringing the arm *f'* out of engagement with the pin, while the elongated slot *f*² permits the looper-bar to move up and down independently of the lever *g* and maintaining an operative contact between the pin *g'* and the arm *f'* in either the raised or the depressed position of the looper-bar.

III. The feed mechanism is operated from a cam *j* upon the main shaft Q, said cam being arranged to periodically engage one end of a lever *k*, (see Fig. 1,) which is normally held against a stop *l* by means of a spring *m*, Fig. 4. The lever *k* has another arm *k'*, within which is pivoted a pawl *n*, actuated by a spring *o*, to engage the teeth of a ratchet-wheel *p*, mounted on a shaft *q* within the extension C' of the casing C. On the same shaft *q* is also mounted to revolve in unison with the ratchet-wheel *p* a worm *r*, meshing with a worm-wheel *s*, which is rigidly mounted upon the shaft *t*, carrying the main feed-disk G. It will be readily understood that by this mechanism the feed-disk G is intermittently rotated at regular intervals. The mechanism is so timed that the intermittent rotation of the feed-disk G takes place when the needle is in its inner position and therefore out of engagement with the material.

The mode of operation in forming the stitch is as follows: In Fig. 7 the looper is shown in the position it occupies when it has bent back and laid a loop over the edges of the goods in position to be entered by the needle as it moves forward to enter the goods. In this position the needle is retracted. The looper-bar has bodily descended to its lowest position (the looper being upon the left of the needle) and at the same time has turned upon its longitudinal axis far enough toward the needle to cause it to bring the loop on the looper in the path of the needle. The needle now advances, and after it has passed through the loop the looper swings a little outwardly to the left, so as to clear the needle, and moves upwardly, taking the path indicated by the curved arrow *l* in Fig. 7, and it thence swings to the right across to the other side of the needle, in the direction indicated by ar-

row 2, sheds the loop, advances, and at the same time descends, so that by the time the needle has completed its outward stroke and has begun its return movement just enough to give slack to the thread the toe of the looper is in position to enter between the needle and the slack thread thus thrown up, as seen in Fig. 8, where it is shown as just entering the new loop. As the needle recedes the looper with the new loop upon it swings across the needle from right to left in the direction of arrow 3, at the same time rising and receding, so as to draw the new loop across the edges of the goods, as seen in Fig.

9. By about this time the needle in its rearward movement has withdrawn from the goods. The feed then takes place, as indicated by the arrows on the feed-disks, and simultaneously the looper descends and at the same time swings inwardly toward the needle, (moving in the direction indicated by arrows 4,) so as to reassume the position shown in Fig. 7. The slack of the old loop is taken up during the movement of the several parts and the new loop is laid in position to be taken by the needle, as already described by reference to Fig. 7. During all these varied movements of the looper the looper-bar in approaching and receding from the needle-bar has a bodily movement by which at all times its substantial parallelism with the needle-bar is maintained. This feature I believe to be broadly new with me beyond its special embodiment herein illustrated.

I desire it to be understood that various modifications from the construction shown in the drawings may be made without departing from the nature of my invention as defined in the claims.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. In a sewing-machine, the combination with the main feed-disk, of the auxiliary feed-disk, the sliding arm carrying the auxiliary feed-disk toward and from the main feed-disk, and the operating-lever fulcrumed on an approximately vertical axis at the rear of the casing and operatively connected with the sliding arm, the said lever having an approximately horizontal portion extending under the table and an approximately vertical end portion, the latter portion being located at the side of the machine, substantially as described.

2. In a sewing-machine, the combination with the main feed-disk, of the auxiliary feed-disk, the slide-arm carrying the auxiliary feed-disk toward and from the main feed-disk, a sleeve secured to the rear end of the said arm and having a transverse groove in its lower surface, and a lever pivoted about an approximately vertical axis and having one end engaging the said groove and the other end extending under the table at the side of the machine, substantially as described.

3. In a sewing-machine, the combination

with the main feed-disk, of the auxiliary feed-disk, the slide-arm for carrying the auxiliary feed-disk toward and from the main feed-disk, a sleeve secured to the rear end of the said slide-arm, and having a transverse groove in its lower surface, an operating-lever pivoted about an approximately vertical axis and engaging the said groove in the slide-arm, the said lever extending under the table of the machine and having an approximately horizontal portion and an approximately vertical end portion, and a spring having one end connected with the horizontal portion of the lever, and the other end connected with the frame of the machine, the vertical end portion of the said lever being located at the side of the machine, substantially as described.

4. In a sewing-machine, longitudinally-alined bearings, a looper and a looper-bar supported to rock in said bearings and to reciprocate longitudinally therein, means for reciprocating the looper-bar, means for moving the alined bearings so that the longitudinal axis thereof shall constantly remain parallel to its original position, a radially-slotted arm rigidly secured to the looper-bar and extending upwardly therefrom, and a lever provided with a pin engaging the slot of the arm and operated to impart an oscillating motion to the looper-bar, said pin being of sufficient length to permanently engage the slotted arm during the reciprocating movement of the looper-bar, substantially as described.

5. In a sewing-machine, and in combination with a reciprocating needle-bar, a looper-bar longitudinally reciprocatory in a path substantially parallel with that of the needle and also bodily movable to and from the needle-bar in parallelism therewith, and means for imparting said movements to the looper-bar, substantially as and for the purposes hereinbefore set forth.

6. In a sewing-machine, and in combination with a reciprocating needle, a looper-bar longitudinally reciprocatory in a path substantially parallel with that of the needle, and also bodily movable to and from the needle-bar in parallelism therewith, as well as capable of a movement of partial rotation about its longitudinal axis, and means for imparting these several movements to the looper-bar at the times and in the manner, substantially as hereinbefore set forth.

7. In a sewing-machine, and in combination with a reciprocating needle-bar, a looper-bar, longitudinally reciprocatory in a path substantially parallel with that of the needle-supporting bearings in which said looper-bar is mounted and moves, and means for moving said bearings to and from the needle-bar in parallelism therewith, substantially as and for the purposes hereinbefore set forth.

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