

S. M. JACOBY.
FOR SEWING MACHINE.

No. 562,538.

Patented June 23, 1896.

Fig. 2.

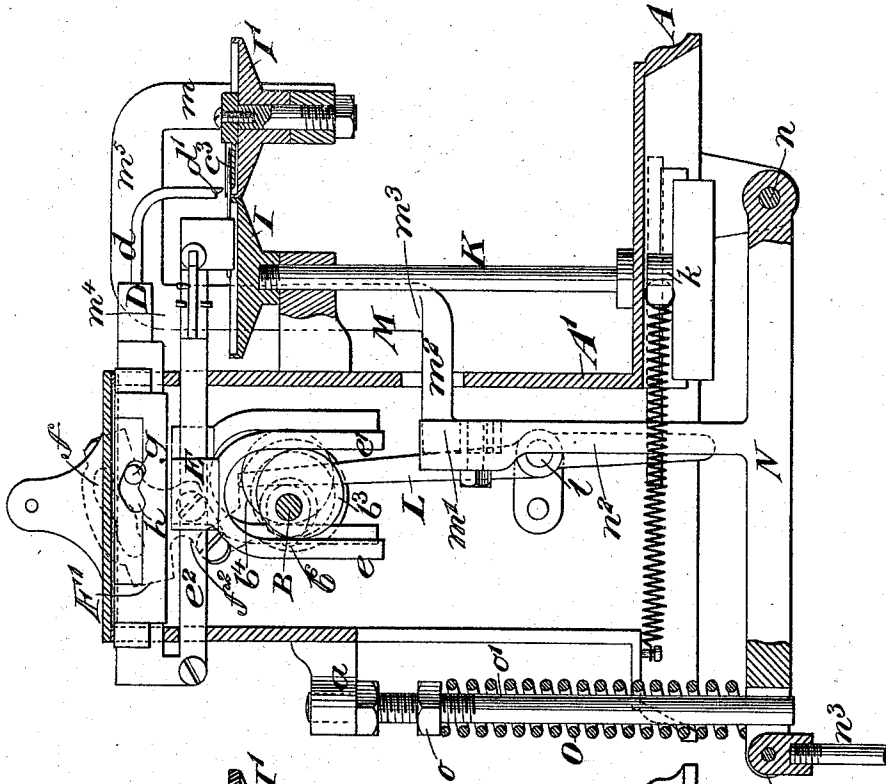
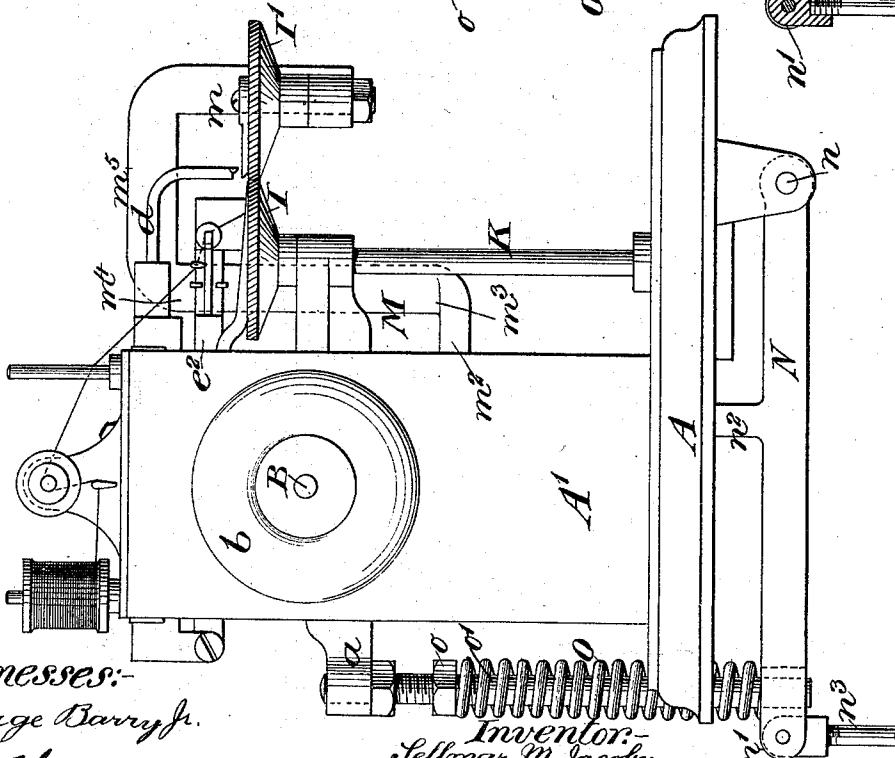


Fig. 1.



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UNITED STATES PATENT OFFICE.

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FUR-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 562,538, dated June 23, 1896.

Application filed April 15, 1896. Serial No. 587,600. (No model.)

To all whom it may concern:

Be it known that I, SELLMAR M. JACOBY, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Fur-Sewing Machines, of which the following is a specification.

My invention relates to an improvement in sewing-machines, and is more particularly adapted for use in sewing together pieces of fur.

The object of my invention is to provide a machine in which is utilized a minimum number of parts for producing a certain series of motions to the needle and the looper-hook, the machine as a whole being comparatively noiseless and easy-running.

A further object is to cause the looper-hook to describe a new path in forming the stitches, whereby any tendency on the part of the hook to clash or interfere with the needle, when the machine is running under high speed, is entirely obviated.

A still further object is to so construct the machine that a greater amount of room is afforded the operator in inserting the pieces of fur to be stitched into position.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a view of the machine in side elevation. Fig. 2 is a view in vertical section from front to rear. Fig. 3 is a transverse vertical section on the line 3-3 of Fig. 4. Fig. 4 is a top plan view of the machine with the cover of the casing removed. Fig. 5 is an enlarged detail view of the mechanism for causing the laterally-swinging movement of the looper-hook; and Figs. 6, 7, 8, and 9 are views in detail showing the position of the needle and looper-hook in four different positions during the formation of the stitch, the parts of the thread which form the stitch being shown an exaggerated distance apart to more clearly follow its formation.

The general operating parts of the machine, excepting the mechanism for causing the lateral swinging movement of the looper-hook and the presser-bar, are quite similar to those shown and described in my patent granted May 12, 1896, No. 559,978.

The bed of the machine is denoted by A and it is surmounted by a casing A' of gen-

erally oblong form, for the purpose of supporting and housing certain of the operating parts of the machine.

The main drive-shaft is denoted by B and it is mounted in suitable bearings in the opposite sides of the casing A', its opposite ends being provided with hand-wheels b b' , which also serve as balance-wheels. The opposite ends of the shaft B are further provided with drive-pulleys b^2 for receiving a suitable driving-band from a source of power. (Not shown.)

The shaft B carries three cams, denoted, respectively, by b^3 b^4 b^5 . The cams b^3 and b^5 are utilized to impart to the looper-hook, respectively, a longitudinally-reciprocating movement and a rocking movement, while the cam b^4 is utilized to impart to the needle its horizontally-reciprocating movement.

The needle-carrying bar is denoted by C and it has fixed thereon a depending bifurcated yoke or hanger, the branches of which are denoted by c c' , and are so arranged as to embrace the opposite sides of the needle-operating cam b^4 . The bar C, which carries the needle, is mounted in suitable bearings in the casing A'.

The needle is denoted by c^3 .

The bar which carries the looper-hook is denoted by D and is located in the present instance above the bar C, suitably supported to permit of receiving a rocking motion on its own axis, a longitudinal movement, and a rocking movement bodily in a direction transverse to its longitudinal axis. The longitudinal reciprocating movement of the bar D is imparted to it by means of a yoke or hanger E, provided with branches e e' , which embrace the opposite sides of the cam b^3 , the yoke or hanger E being itself fixed to a bar e^2 , in turn fixed to move with the looper-hook bar D.

The rocking movement is imparted to the looper-hook bar D in the following manner: The bar D is provided with a laterally-extended arm which is engaged at its end by a cam-groove f in a rocking plate F', secured to a lug f' on the casing A' at a point a short distance over the main drive-shaft B. This rocking plate F' is provided with a short arm f^2 , to which is secured a collar f^3 , which embraces an eccentric-cam b^5 upon the shaft B. It will

be seen that as the shaft B is rotated it will rock the plate F', and the shape of the cam-groove is such that it will rock the arm F on the looper-hook bar D. The rocking plate F' is preferably made in two sections, the upper section f^4 having part of the cam-groove f therein. This upper portion f^4 is screwed into position and may be renewed as the cam-groove is worn away by its contact with the head of the arm F.

The bodily movement of the bar D in the direction transverse to the longitudinal axis (in the present instance a swinging vertical movement) is imparted to it by means of a laterally-projected pin g , set in a bar G, fixed to move bodily with the looper-hook bar D, the said pin g being guided by an open V-shaped slot h in a bar H, fixed to the upper portion of the casing A'.

The looper-hook has its shank d fixed in the bar D and bends downwardly toward the path of the needle c^3 , terminating at its lower end in a foot or hook d' .

The material to be sewed is fed between the adjacent edges of a pair of feed-disks, denoted, respectively, by I I', located with their upper faces in proximity to the path in which the needle c^3 reciprocates. The disk I is fixed to a spindle K, which is rotated by means of a clutch mechanism, commonly known in the art as a "Howe clutch," located in the present instance at the foot of the spindle K, as, for example, at k , and operated by the vibrating lever L, fulcrumed at l and operated by a fourth cam b^6 on the main drive-shaft B. The companion feed-disk I' is free to rotate by a friction imparted to it through the material being operated upon from the positively-driven feed-disk I. This feed-disk I' is mounted upon a depending arm of the presser-bar M, which presser-bar is connected to a vibrating lever N in the following manner: The vibrating lever N has uprising therefrom, between its pivot n and its free end n' , a post n^2 . To the top of this post is adjustably secured the downwardly-extended arm m' of the presser-bar M. From this downwardly-extended arm m' the presser-bar extends outwardly, as shown at m^2 , through an opening in the casing A', then extends laterally, as shown at m^3 , then upwardly, as shown at m^4 , to a point a short distance above the disks I I', then forwardly, as shown at m^5 . The portion which extends downwardly, denoted by m , and which supports the disk I', has been hereinbefore mentioned.

The lever N is connected at its free end by a rod n^3 with a foot-treadle of any well-known or approved form, (not shown,) which, when pressure is exerted to lift the lever, will force the disk I' away from the disk I. When pressure is released from the lever, the disk I' is thrown back into yielding engagement with the disk I, or with the material between the two disks, by means of a spring O bearing at its lower end on the free end of the lever N and held at its upper end by a nut o on the

screw-threaded end of a rod o' , fixed at its upper end to the bracket a , projecting rearwardly from the casing A'. By screwing the nut o up and down along the rod o' , the tension which presses the disk I' toward the disk I may be loosened or increased to the greatest degree of accuracy, as may be desired.

The thread, as it is led from the supply, (see Fig. 1,) passes through a suitable tension device carried by the needle-bar, whereby the thread is alternately clamped and released as it is fed to the needle for tightening the stitches.

In operation, supposing the parts to be in the position shown in Figs. 1 to 4 and Fig. 6, the needle is started on its rearward movement, thereby slackening the thread, the looper-hook is caused a movement transverse to the path of the needle, thereby taking up the loop formed by the rearward movement of the needle. The looper-hook is then caused to pass upwardly, then rearwardly, then downwardly, slightly toward the path of the needle. When the looper-hook has arrived at this position, the needle has been fully withdrawn and now starts its advance movement through the loop and the material being sewed. The looper-hook then swings laterally away from the path of the needle, then back diagonally across the path of the needle, at which time it sheds the loop, thence forwardly and downwardly to the point of starting. In Fig. 6 the looper-hook and needle are shown in their first-described position. In Fig. 7 the needle is shown as part way in its rearward movement and the looper-hook as having passed across the path of the needle and engaged with the loop. In Fig. 8 the needle is shown in its position just after it has advanced a short distance to pass through the loop, the looper-hook being in its rearward and downward position. In Fig. 9 the needle is shown as partially advanced through the material and the looper-hook shown in the position which it assumes farthest away from the path of the needle on that side of the needle about to pass diagonally across the path of the needle to shed the loop.

One of the benefits derived from the new arrangement here described for causing the rocking movement of the looper-hook bar is that the hook may be caused to swing quite a distance away from the path of the needle when the hook starts on its return movement from its lowermost and rearmost position. This will effectually prevent any tendency, when the parts are running at high speed, on the part of the looper-hook to interfere or clash with the rapidly-reciprocating needle. Furthermore, it absolutely insures the forming of a stitch, thereby obviating the tendency to skip a stitch, which is now prevalent when the machine is driven at a high speed.

It is evident that slight changes might be resorted to in the construction and operation of the several parts herein-described without

departing from the spirit of my invention.
Hence I do not wish to limit myself strictly
to the structure herein set forth; but

What I claim is—

5 A needle mounted to reciprocate, means for
presenting the material to be sewed across
the path of the needle, a looper-hook, means
for causing the looper-hook to describe the
outlines of an irregular figure in space, in-
10 cluding a movement across the path of the
needle to take the loop, an upward, a back-
ward and then a downward and slightly-in-
ward movement along one side of the needle-

path while carrying the loop, an outward and
upward movement away from the needle, a 15
diagonal movement across the needle's path
to shed the loop and a forward and then a
downward movement along the opposite side
of the needle's path to the point of starting,
and means for actuating the needle, substan- 20
tially as set forth.

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Witnesses:

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