(No Model.)

W. J. STEWART.

SEWING MACHINE FEED MECHANISM.

No. 562,160. Patented June 16, 1896.

FIG. 3.

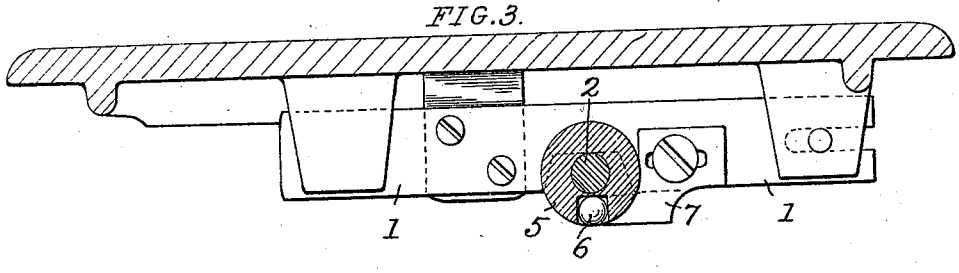


FIG. 1.

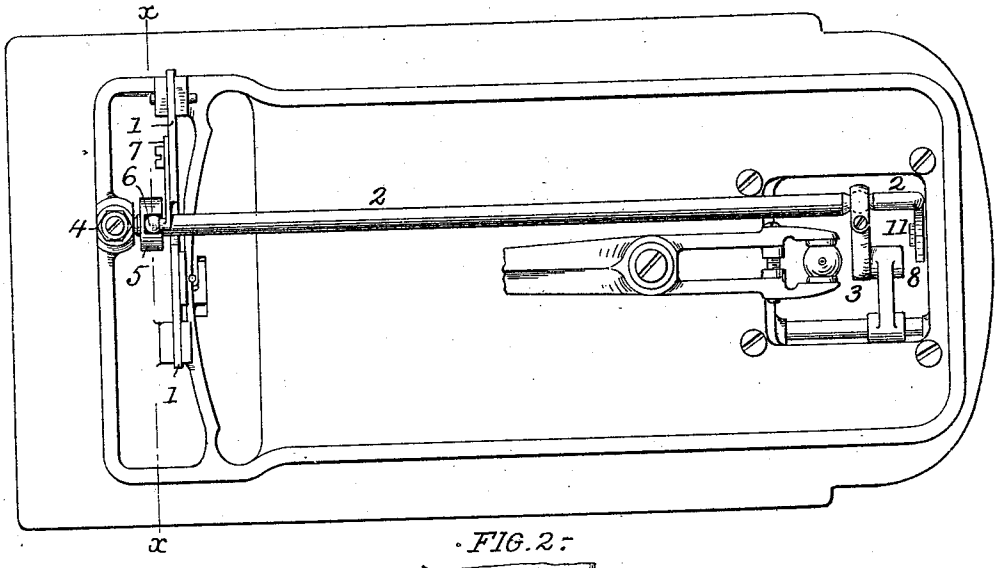


FIG. 2.

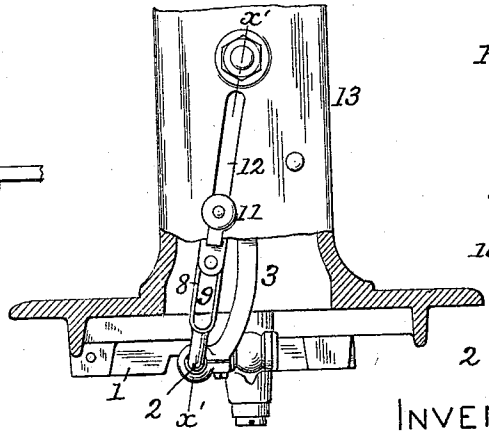


FIG. 4.

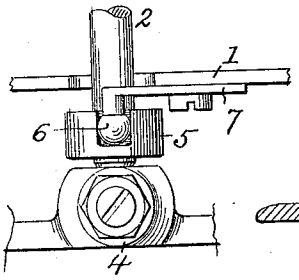
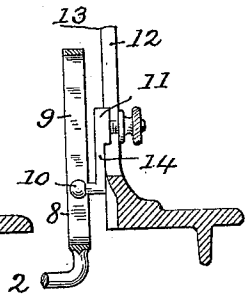


FIG. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM J. STEWART, OF CHICAGO, ILLINOIS.

SEWING-MACHINE FEED MECHANISM.

SPECIFICATION forming part of Letters Patent No. 562,160, dated June 16, 1896.

Application filed July 18, 1892. Serial No. 440,411. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. STEWART, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sewing-Machine Feed Mechanisms; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

The present invention relates to certain improvements upon the subject-matter of Letters Patent No. 460,730, issued to me October 6, 1891, for feeding mechanism for sewing-machines, the object of the present improvement being to provide a novel and simple arrangement and combination of parts, combining the features of cheapness of construction, and durability in use, combined with lightness and ease in running, and convenience of adjustment to effect any required stitch. I attain such object by the construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a bottom view of a sewing-machine to which my present improved construction is applied; Fig. 2, a sectional rear end elevation of the same; Fig. 3, an enlarged transverse section at line $x\,x$, Fig. 1; Fig. 4, an enlarged detail bottom plan illustrating the front portion of the gyrating rod or shaft and its connections for operating the feed-bar of the machine; and Fig. 5, a detail longitudinal section at line $x'\,x'$, Fig. 4, illustrating the rear portion of the gyrating rod or shaft and its connections for adjusting the "feed" of the feed-bar of the machine.

Similar numerals of reference indicate like parts in the several views.

As represented in the drawings, the four-motion feed-bar 1 will have the same arrangement as in my former patented construction, being fulcrumed at its forward end upon a cross-pin of the forwardly-arranged pendent guide-post, upon which the feed-bar has a horizontal reciprocating movement, by means of a horizontal slit at its forward end. The rear end of the feed-bar is guided by a groove in the rearwardly-arranged pendent guide-post and is free to move back and forth, as well as up and down, in said guide-groove, as illustrated in Fig. 3 of the drawings.

The gyratory shaft 2, as in my former patented construction, will be pivoted forward of the feed-bar, in a pendent post 4, on the bottom of the base-plate of machine. The rear end of this shaft is left free to gyrate upon the pivotal socket of its forward end in the post 4, and such motion is imparted to the shaft by a fulcrumed link connection 3, similar to that shown in my former patent, No. 460,730, dated October 6, 1891, and which, as in said patented construction, has one end formed into a yoke to embrace an operating-eccentric, on the driving-shaft of the machine, and the other end connected to the gyratory shaft, by a spherical bearing, as shown in Figs. 1 and 2.

As in my former patented construction, the feed-bar 1 rests upon gyratory shaft 2, so as to receive its regular up-and-down motion from the gyration of such shaft.

In the present improved construction the gyratory shaft 2 is also employed to impart the forward-and-back motions to the four-motion feed-bar 1, and to this end is provided at a point adjacent to the feed-bar with a lateral extension 5, that may be in the form of a collar, as shown, and which is formed with a side recess or radial slot, as shown in Figs. 3 and 4, that receives the spherical head or projection 6, on a bracket-piece 7, that is fixedly attached to the four-motion feed-bar 1. Such bracket-piece being of an offset formation, so as to bring its spherical head or projection 6 in proper relation with the receiving-slot, therefor, in the lateral collar, or extension 5, of the operating-shaft 2.

The rear end of the gyratory shaft 2 is formed with a lateral arm 8, preferably arranged in an upright oblique position and formed with an elongated slot 9, in which engages the spherical head 10 of the adjustable block 11, that has adjustment in an elongated guide-slot 12, in the arm 13, or other suitable portion of the machine.

In the construction illustrated in Fig. 5, the spherical head 10 is arranged on a pend-

ent portion 14 of the block 11, so that when such block is at its lowest adjustment, the head 10 will be adjacent to the main or horizontal portion of the lever or shaft 2.

With my improved construction as above described, the block 11, engaging by its head 10 the lateral arm 8 of the gyratory shaft 2, to detain said arm against a gyratory movement in along with the main lever 2, and thus create a rocking movement of the main lever 2 on its axis, the amount of said rocking movement, and in consequence the movement of the feed-bar 1 and the length of stitch, being regulated by the position or adjustment of the head 10, in the elongated slot 9 of the lateral arm of the gyratory shaft 2.

With the present construction a combined gyratory and rocking motion is imparted to the shaft 2, the gyratory motion being employed to effect the up-and-down movement, and the rocking motion being employed to effect the forward-and-back movement of the same, and thus attain the usual four-motion cloth-feed for the sewing-machine.

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

In a sewing-machine of the type herein described, the combination, of the transversely-arranged feed-bar 1, fulcrumed at its forward end, an offset bracket-piece 7, secured to the side of the feed-bar, a longitudinally-extending operating-shaft 2, journaled at a point forward of the feed-bar, and adapted to support said feed-bar and impart the up-and-down movements to the same, in a direct manner, a lateral extension or collar 5, fixedly secured on the operating-shaft 2, and having engagement with the offset end of the bracket-piece 7, so as to impart the forward-and-back movements to the feed-bar 1, and means for imparting a combined rocking and gyratory motion to the operating-shaft, substantially as set forth.

In testimony whereof witness my hand this 7th day of July, 1892.

WILLIAM J. STEWART.

In presence of—

ROBERT BURNS,

GEO. H. ARTHUR.