No. 618,747. Patented Jan. 31, 1899.

W. J. STEWART.

FEEDING MECHANISM FOR SEWING MACHINES.

(Application filed Nov. 12, 1897.)

(No Model.)

Fig. 1.

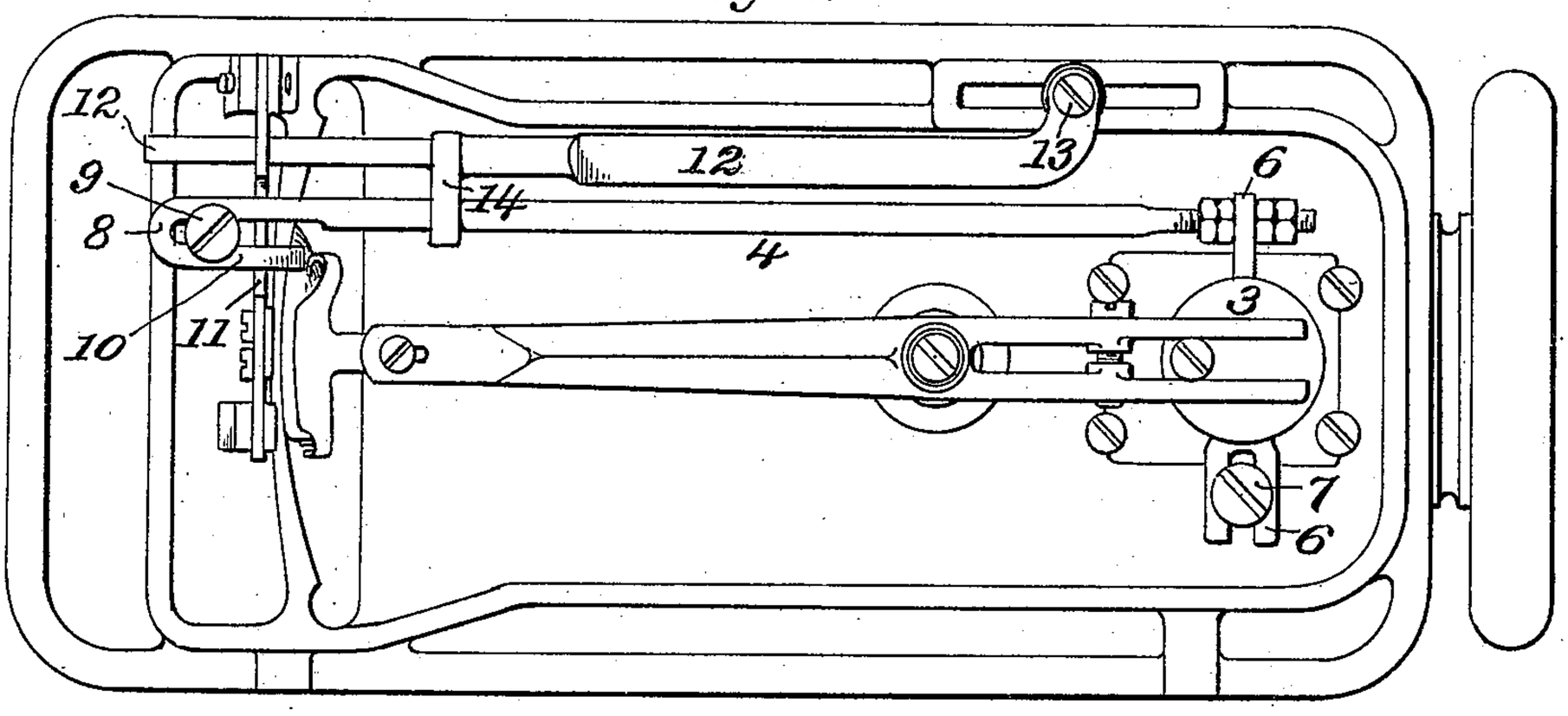
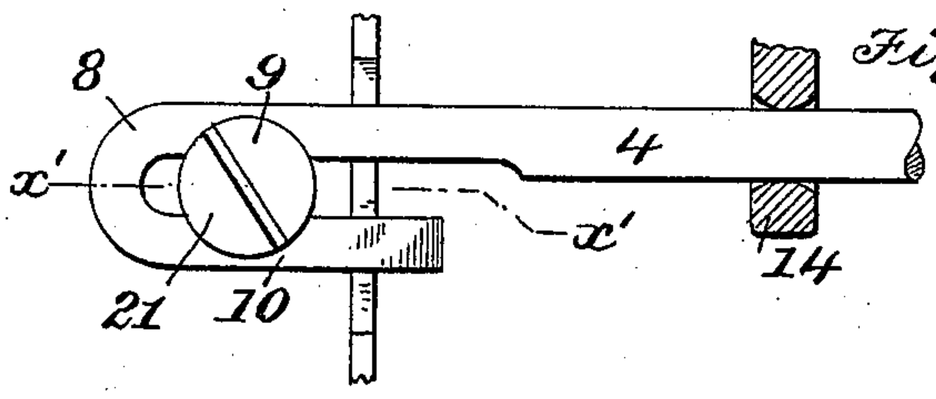


Fig. 2.



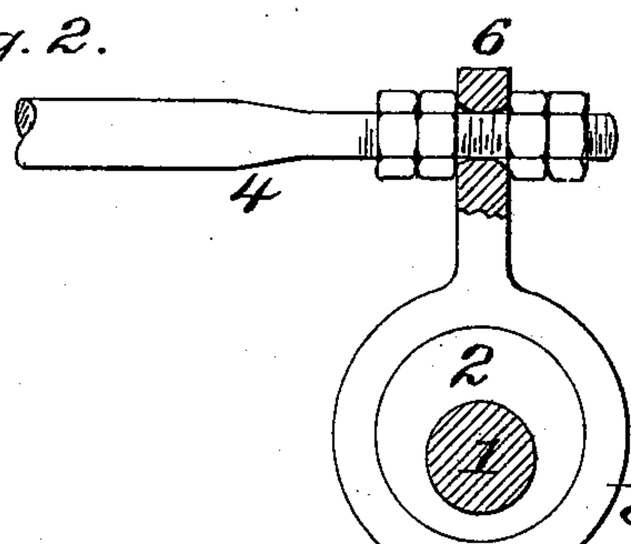


Fig. 3.

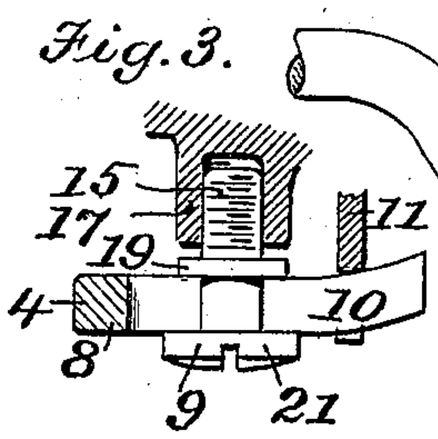
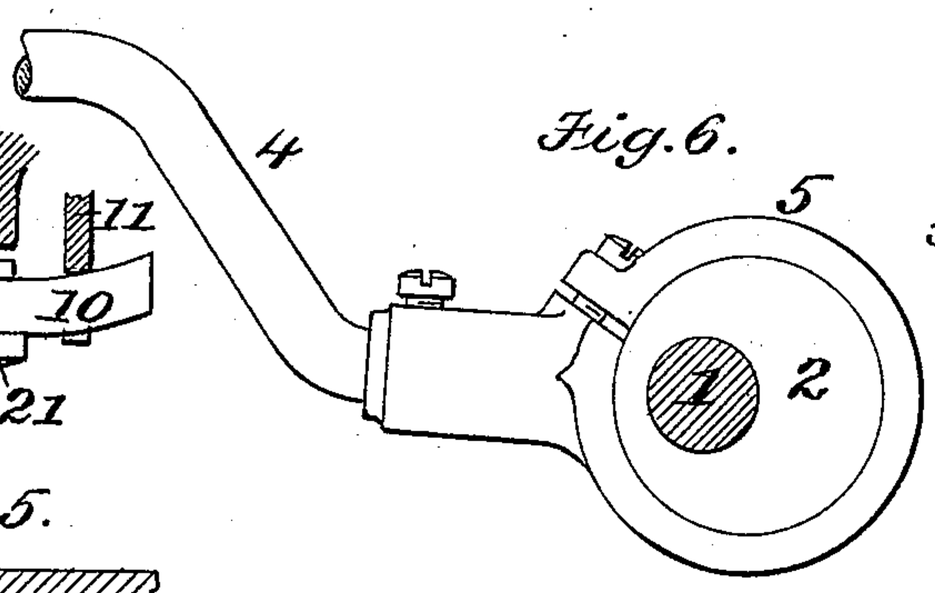


Fig. 6.



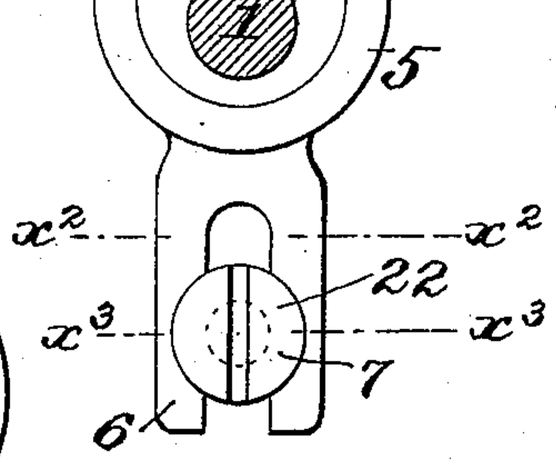


Fig. 5.

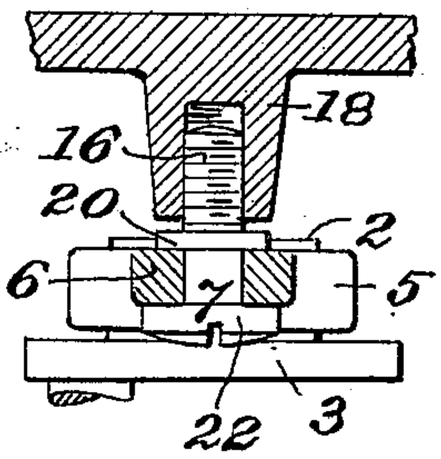
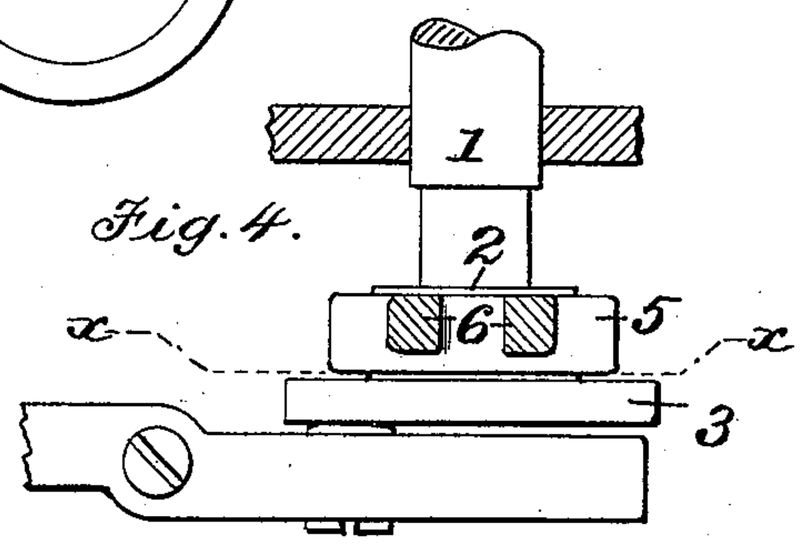


Fig. 4.



Attest:

James Lavelle

M. H. Holmes.

Inventor:

William J. Stewart,

by Robert Burns Atty.

UNITED STATES PATENT OFFICE.

WILLIAM J. STEWART, OF CHICAGO, ILLINOIS.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 618,747, dated January 31, 1899.

Application filed November 12, 1897. Serial No. 658,300. (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 a certain new and useful Improvement in Feeding Mechanism for Sewing-Machines; 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 a part of this specification.

This invention relates to that type of sewing-machine known as the "gear-machine," and in which the feed-bar derives its motion from an eccentric through an intermediate cam bar or lever that has a combined longitudinally-reciprocating and oscillating movement, the end of said cam bar or lever that engages the feed-bar being of a cam formation to impart the proper up-and-down movements of the feed-bar in the operation of the mechanism, while the oscillation of the cam-bar imparts the proper forward-and-backward movements to the feed-bar, motion being imparted to the eccentric by a vertical shaft miter-geared to the driving or needle-bar shaft.

The present improvement has for its object to provide a simple, durable, and effective arrangement and construction of parts whereby the adjustment and coaction of the parts can be readily and accurately effected, the effects of wear readily compensated for, and the perfect alinement of the parts preserved, all as will hereinafter more fully appear and be more particularly pointed out in the claims. I attain such object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an inverted plan view of the bed of the sewing-machine, illustrating the present improvements; Fig. 2, an enlarged detail sectional plan view at line $x\ x$, Fig. 4, of the cam-bar and its connections; Fig. 3, an enlarged detail sectional elevation at line $x'\ x'$, Fig. 2; Fig. 4, an enlarged detail sectional elevation at line $x^2\ x^2$, Fig. 2, of the operating mechanism of the cam-bar and the shuttle-lever; Fig. 5, an enlarged detail sectional elevation at line $x^3\ x^3$, Fig. 2; Fig. 6, a detail sectional plan view of a modification.

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

Referring to the drawings, 1 represents the lower portion of the usual vertical countershaft of a gear-machine, the upper end of which (not shown) has the usual miter-gear connection with the horizontal driving or needle-bar shaft, while its lower end beneath the cloth-plate or bed of the machine carries the operating-eccentric 2 of the cloth-feeding mechanism and the crank-disk 3 of the shuttle-operating mechanism, the last-mentioned mechanism being of the usual type, as shown in the drawings, and common to this as well as other types of sewing-machines.

4 is the main feed-operating bar or lever, which may in some cases be connected directly to operating-eccentric 2, as shown in detail Fig. 6, by the usual eccentric yoke 5 at the rear end of such main bar or lever 4, which is a usual construction in the present type of sewing-machines. Preference is, however, given, for reasons hereinafter set forth, to the arrangement shown in Figs. 1 and 2, in which the rear end of said main feed-operating bar 4 is adjustably connected to one end of a yoke-bar 6, the yoke portion of which engages the operating-eccentric 2, while its other end has pivotal attachment by means of a headed pivotal and supporting stud 7 on the under side of the cloth-plate or bed of the machine. Such arrangement is preferable to the ordinary arrangement, as illustrated in Fig. 6, in that an eccentric with much less throw may be employed to attain the required movement of the cloth-feeding bar, and in consequence the parts can be more compactly arranged and the amount of frictional wear of the parts reduced.

In the present improvement the forward end of the main feed-operating bar 4 is formed with a return-bend 8, that engages a headed supporting-stud 9 on the under side of the cloth-plate or bed of the machine, so as to form a guide for such bar 4 in its longitudinal reciprocation. The free end or member 10 of the return-bend 8 of the bar 4 is bent upward, as shown in Fig. 3, to form an operating-incline that engages beneath the feed-bar 11 and is adapted to impart the necessary up-and-down movement to the same.

The present improved arrangement of the feed-bar-operating incline upon the free end or the member 10 affords a very ready and convenient means for correcting and modifying the up-and-down movements of said feed-bar, it being only necessary with a few slight blows of a hammer to change the amount of inclination of said member to suit the particular requirements of the case, and in consequence the assemblage and adjustment of the parts is thus greatly expedited. The feed-bar 11 will be of the usual sliding type, guided in the usual guide-lugs on the under side of the cloth-plate of the machine.

The forward-and-back movement is imparted to the feed-bar 11 by the following means: 12 is a supplementary bar or lever pivoted at one end by means of an adjustable pivot 13, by means of which its throw is adjusted, the other end of said bar or lever being made cylindrical and having engagement in a circular orifice in the feed-bar 11, such construction being adapted to permit the endwise adjustment of the bar or lever 12 in changing or adjusting the amount of feed of the feeding mechanism. Intermediate of the point of engagement of bar or lever 12 with feed-bar 8 and the pivotal point 13 the said bar is provided with a lateral extension 14, the outer end of which is formed with an eye that embraces the main lever or bar 4 and connects the two bars or levers together, so that they will operate in unison.

In the present improvement the supporting and pivotal studs 7 and 9, heretofore mentioned, will have an adjustable nature in a vertical direction, so as to permit of an adjustment of the parts during assemblage, as well as subsequently, to compensate for wear, and to this end such studs will have a threaded shank 15 or 16, that screws into the screw-threaded bosses 17 or 18 on the under side of the cloth-plate of the machine, and upper collars 19 or 20 and lower heads 21 or 22, in the recess between which are housed and guided the ends of the main bar 4 and the pivotal end of the yoke-bar 6, respectively. Such improved construction, in addition to affording means for ready adjustment, also preserves proper alinement of the parts, as well as prevents irregular rocking and lateral movement of the parts.

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

1. In a sewing-machine, the combination, with the upright shaft, carrying on its lower end the feed-operating eccentric, a longitudinally-arranged feed-bar-operating lever, one end of which has operative engagement with said eccentric, and the other end with the feed-bar, by means of an inclined return-bend, a stud upon the bed-plate engaged in said return-bend, to support the forward end of said lever, a feed-bar, and means for imparting a forward-and-backward movement to the feed-bar, substantially as set forth.

2. In a sewing-machine, the combination, with the upright shaft carrying on its lower end the feed-operating eccentric, a longitudinally-arranged feed-bar-operating lever one end of which has operative engagement with the said eccentric by a yoke-arm, the yoke of which engages the eccentric, said yoke-arm being pivoted at one end to the bed of the machine and at the other end adjustably connected to the said lever, a feed-bar having operative connection with the lever by means of an inclined return-bend on the forward end of said lever, a stud upon the bed-plate engaged in said return-bend, to support the forward end of said lever, a feed-bar, and means for imparting a forward-and-backward movement to the feed-bar, substantially as set forth.

3. In a sewing-machine, the combination, with the upright shaft carrying on its lower end the feed-operating eccentric, a longitudinally-arranged feed-bar-operating lever one end of which has operative engagement with said eccentric and the other end with the feed-bar by means of an inclined return-bend, a stud upon the bed-plate engaged in said return-bend, to support the forward end of said lever, a feed-bar, and a supplementary lever, having at one end an adjustable pivot, at the other end a cylindrical portion engaging the feed-bar, and intermediate its length, a lateral extension, engaging the main lever, substantially as set forth.

In testimony whereof witness my hand this 16th day of October, 1897.

WILLIAM J. STEWART.

In presence of—

ROBERT BURNS,

JAMES LAVALLIN.