

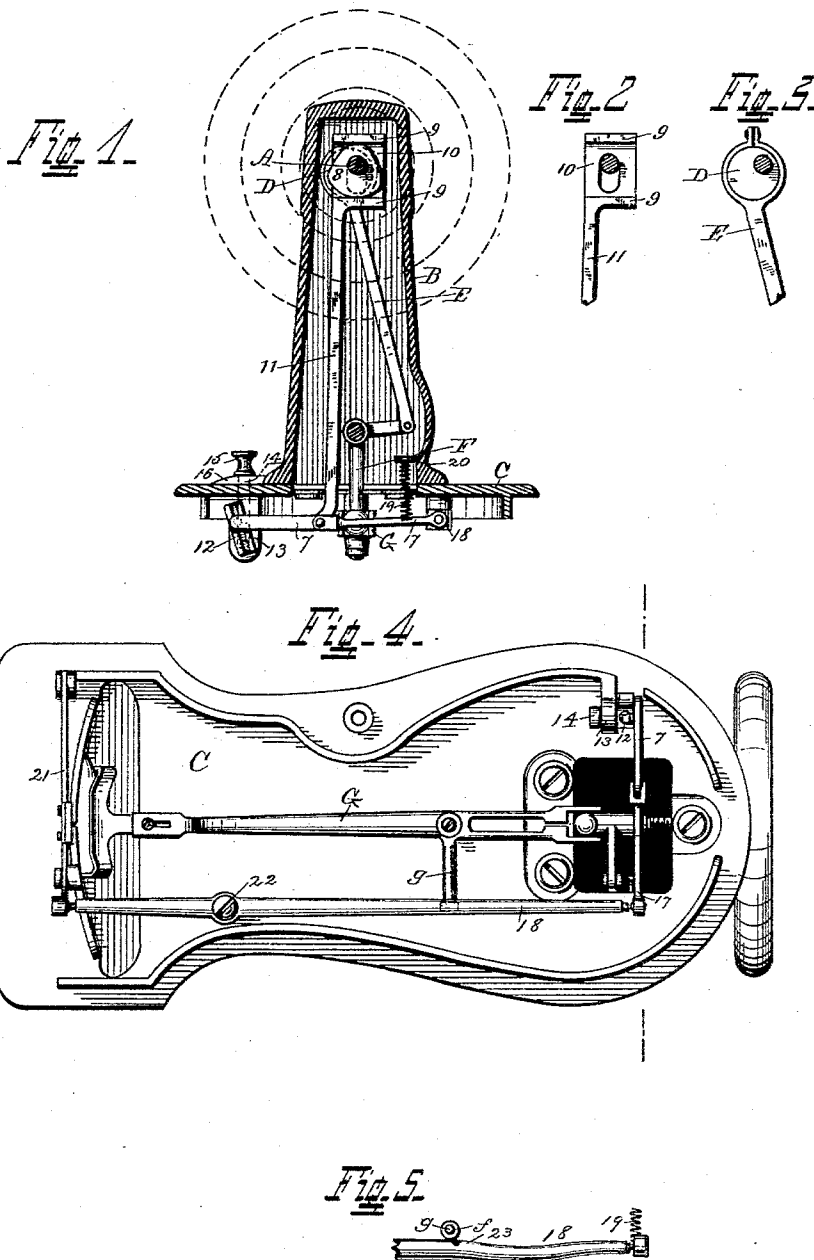
(No Model.)

J. W. COREY.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 325,396.

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UNITED STATES PATENT OFFICE.

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FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 325,396, dated September 1, 1885.

Application filed June 18, 1885. (No model.)

To all whom it may concern:

Be it known that I, JASPER W. COREY, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Feeding Mechanism for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to that class of sewing-machine feeding mechanisms in which the feed-bar is operated by a feed-lever receiving its vertical movements from a projection on the shuttle-lever, and a co-operating spring, said lever being vibrated horizontally to feed the work by means of a cam on the driving-shaft, connected by a rod or bar with the rear end of the feed-lever, said rod or bar having a pin engaging an inclined block, and the feeding movements of the said lever being varied by adjusting said block to different positions.

The object of my invention is to produce a feeding mechanism of the class above referred to which will be simple in construction, efficient in operation, and easily regulated, and in which the horizontal or feeding movements will be positive in both directions.

In the drawings, Figure 1 is a section through the vertical portion of the bracket-arm of a sewing-machine embodying my invention. Fig. 2 is a detail view of the upper end of the bar which connects the feed-cam with the feed-lever. Fig. 3 is a detail view of the shuttle-operating eccentric and a portion of its connecting-rod. Fig. 4 is a bottom view of my sewing-machine. Fig. 5 is a detail view of the rear portion of the feed-lever and adjacent parts.

The main or driving shaft A (having the usual fly-wheel and pulley) is journaled in the upper portion of the bracket-arm B, and the latter is attached to the bed-plate C in any suitable manner.

To the main shaft A is secured an eccentric, D, connected by a strap and rod, E, with an angular or bell-crank lever, F, the lower arm of which is provided with a ball working in a fork on the rear end of the shuttle-lever G, the latter having a laterally-extending stud or arm, g, which is preferably provided at its outer end with an anti-friction roller, f.

To the main shaft is also attached the feed-cam 8, which works between two offset projections or ribs, 9, forming part of the yoke 10 on the upper end of a vertical connecting-bar, 11, the latter having at its lower end a rigid horizontal arm, 7, the outer end of which is provided with a pin or roller working in a slot in an inclined regulating-block, 12.

The block 12 is attached to or formed integral with a short shaft or stud pivoted in a lug, 13, depending from the bed-plate C, and to the said stud, on the side of said lug opposite to said block, is rigidly secured a regulating-arm, 14, (indicated by dotted lines in Fig. 1,) passing upward through the bed-plate, and having at its upper end a set-nut, 15, impinging against a curved projection, 16, on the said bed-plate. When the set-nut 15 is loosened, the arm 14 may be moved to vary the inclination of the block 12, after which the said set-nut may be screwed against the curved projection 16 to hold the said arm and the block 12, which is rigid therewith, in place.

To the horizontal arm 7 of the connecting-bar 11 is attached one end of a link, 17, and the feed-lever 18 is loosely connected with the opposite end of said link, this connection being preferably made by a ball-and-socket joint. A spring, 19, is connected with the link 17, and with a pin, 20, on the inside of the bracket-arm, said spring thus serving to lift the said link and the rear end of the feed-lever, the forward end of the said lever having a ball-and-socket or other similar loose connection with the feed-bar 21. The fulcrum-screw 22 of the feed-lever is so formed as to afford a universal joint, as is common with this class of universally-movable feed-levers; and between the said fulcrum-screw and the rear end of the said feed-lever is formed a bend or incline, 23, against which the outer end of the stud or arm g or the roller thereon impinges, these parts being kept in constant contact by the stress of the spring 19.

The operation of the above-described mechanism is as follows: When the main shaft is rotated, the eccentric thereon, acting through the connecting-rod E and bell-crank lever F, will impart the usual vibratory movements to the shuttle-lever G, and the arm g of the latter, riding up the bend or incline on the feed-

lever, will raise the forward end of said lever and thus lift the feed-bar at the proper intervals. The downward movements of the feed-bar will be effected by the spring 19, which lifts the rear end of the feed-lever as the arm *g* moves backward during the vibrations of the shuttle-lever. The feed-cam 8, working only against the parallel horizontal ribs 9 of the yoke 10, will impart an intermittent up-and-down movement to the connecting-bar 11, and the inclined slot of the block 12, in which the stud at the end of said bar works, will cause the lower end of the latter to vibrate horizontally, and thus, through the link 15 17 and feed-lever, the proper horizontal movements at intervals will be imparted to the feed-bar, these movements being positive in both directions, and their extent and the resulting length of the stitches being determined by the angle of inclination of the feed-regulating block 12.

It will be understood that after the forward end of the feed-lever has been lifted the arm *g* will work for a short interval against a straight portion of said lever to keep the forward end thereof raised while the feed-bar is being moved forward to feed the work along.

I claim as my invention—

1. In a sewing-machine, the combination, with the driving-shaft and its cam, of a connecting-bar having at its upper end a yoke and at its lower end a rigid horizontal arm provided with a pin, a regulating-block on one side of the machine, having a slot in which said pin works, a feed-bar, a feed-lever on the

side of the machine opposite to the said block, and a link connecting said lever with the said connecting-bar, substantially as set forth.

2. In a sewing-machine, the combination, with a shuttle-lever having a laterally-projecting arm, and mechanism for vibrating said lever, of a feed-bar, a feed-lever having a bend or incline, an intermittingly-reciprocated connecting-bar, having at its lower end a horizontal arm provided with a pin, a regulating-block having a slot in which said pin works, a link connecting said bar with the said feed-lever, and a spring for lifting the rear end of the feed-lever, substantially as set forth.

3. In a sewing-machine, the combination, with a feed-bar and an intermittingly-moving operating-bar, having a rigid horizontal arm provided with a pin, of a feed-lever on one side of the machine, a link connecting said feed-lever with said operating-bar, a slotted regulating-block on the side of the machine opposite to said feed-lever, in which said pin works, an adjusting-arm rigidly connected with said block and provided with a set-nut, and a bed-plate having a curved projection against which said nut impinges, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JASPER W. COREY.

Witnesses:

J. A. STOEHR,

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