

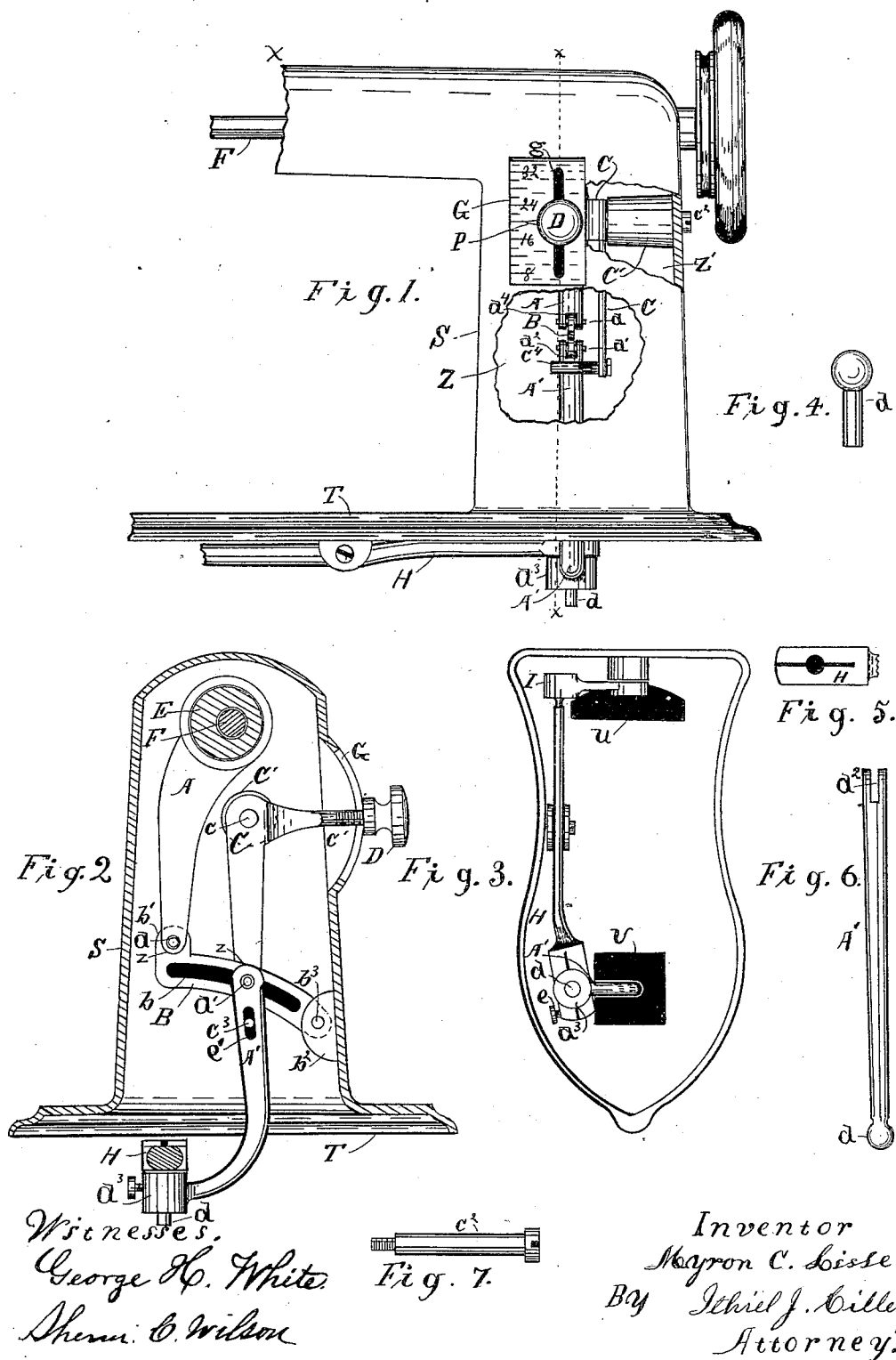
(Model.)

M. C. LISLE.

FEEDING MECHANISM FOR SEWING MACHINES.

No. 428,171.

Patented May 20, 1890.



UNITED STATES PATENT OFFICE.

MYRON C. LISLE, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR OF ONE-HALF
TO HENRI J. W. CAMPMAN, OF SAME PLACE.

FEEDING MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 428,171, dated May 20, 1890.

Application filed December 30, 1889. Serial No. 335,408. (Model.)

To all whom it may concern:

Be it known that I, MYRON C. LISLE, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented a new and useful Improvement in Sewing-Machines, of which the following is a specification.

My invention relates to an improvement in the feed mechanism of sewing-machines; and its objects are, first, to attach the stitch-regulating thumb-screw on a sewing-machine to the front of the arm-standard within easy reach of the operator; second, to enable me to so arrange the feed thumb-screw upon a sewing-machine that I can make use of an index for indicating the number of stitches produced to the inch by placing the thumb-screw at any given point, and, third, to produce a positive feed for a sewing-machine, and thus dispense with the use of springs for drawing the feed-lever back, and of bumpers for preventing the feed-levers from rattling. I attain these results by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a sewing-machine arm-standard with the arm broken off at x , the side cut away at Z to show the manner of attaching my improvement. Fig. 2 is a vertical section of an arm-standard on the line $x x$ of Fig. 1, with my device in position. Fig. 3 is a plan of the bottom of a machine. Fig. 4 shows a ball that may be applied to the ordinary feed connecting-rod for forming a flexible joint between it and the main feed-lever. Fig. 5 is the end of the main feed-lever, having a clamp for forming a flexible joint with the ball shown in Fig. 4. Fig. 6 shows the lower section of the feed connecting-rod straight, to connect directly to the feed-lever; and Fig. 7 is a screw for securing the stitch-regulator to the arm-standard.

Similar letters refer to similar parts throughout the several views.

A is the upper section of my feed connecting-rod. A' is the lower section of the same.

B is a link for connecting the two sections of the feed connecting-rod.

C is a bell-crank for regulating the length of the stitch.

D is the stitch thumb-screw.

E is the eccentric.

F is the main shaft.

G is an arc formed upon the face of the standard.

H is the main feed-lever.

I is the L feed-lever.

S is the arm-standard.

T is the bed of the machine.

U is the opening in the bed, and V is the opening to the standard or arm.

The arm S, base T, eccentric E, shaft F, feed-bar H, and a feed connecting-rod are old in sewing-machines. The divided connecting-rod, the actuating-link B, the bell-crank C, and the index G constitute the main features of my invention.

In constructing my feed mechanism I divide the feed connecting-rod at z and make use of an upper connecting-rod A, which is supported upon and actuated by the eccentric E in the usual manner. The lower end of this connecting-rod is provided with a slot a^4 , for the reception of the end of the link B, to which it is pivoted by means of a bolt or rivet a .

The link B is constructed with a wing or projection b' , which enters the slot a^4 in the lower end of the upper connecting-rod, to which it is pivoted by means of the rivet a , the opposite end of the link being pivoted to the lug b^2 on the inner surface of the arm-standard by means of the rivet b^3 in such a manner that the outer end may be actuated by the motion transmitted from the eccentric E through the connecting-rod A. This link is provided with a slot b , which extends nearly its entire length, the object of this slot being to receive the pin a' , located in the upper end of the lower connecting-rod A', and allow the upper end of the rod to be thrown from side to side for the purpose of regulating the stitch. The lower connecting-rod A' is simply the lower end of the feed connecting-rod now used upon the ordinary sewing-machine severed from the upper end at z , and provided at its upper end with a bifurcation a^2 , arranged to receive the link B, as shown in Figs. 1 and 2, to which it is secured by means of a bolt or pin a' , which passes through the

end of the said connecting-rod and through the slot *b* in the link, and is of a proper size to work freely in the slot and at the same time fill the width of the slot so snugly that there will be no lost motion at this point. The lower end of this connecting-rod is attached to the main feed-lever *H* by means of a flexible joint in the usual manner. This joint may be an ordinary ball-and-socket joint, or any other form of flexible joint with which the connection may be made close and yet allow of a free action in every direction, the connecting-rod and the feed-lever being actuated by the motion of the actuating-link *B*, transmitted to said link from the eccentric *E* through the upper connecting-rod *A*.

To use this device, I find it necessary to bend the end of the long feed-lever *H*, as shown in Fig. 3, and by bending it sufficiently I find that I can make use of a straight connecting-rod, as shown in Fig. 6; but I prefer the use of the bent rod, as with it I can retain the prominent mechanical features of the machine.

My appliance for regulating the feed consists of a bell-crank *C*, pivoted at *c* to a stand-ard *C'*, which projects from the wall of the machine-arm, the lower arm of the bell-crank projecting downward beyond the link, and being provided with an outwardly-projecting lug or bearing *c*³, of a proper length and size to project through and work freely in a slot *c'* through the upper end of the connecting-rod *A'*, (or it may be made in the form of a fork to work on both sides of the rod, as shown in Fig. 1 at *c'*.) The opposite arm of the bell-crank projects outward from the point *c* at a right angle with the lower arm, and is provided with a screw-thread *c'* at its outer end, which projects through the wall of the arm and is fitted to receive a thumb screw or nut *D*. I form an arc *G* upon the front wall of the arm, and provide it with a slot *g* for the passage of the bell-crank arm, and with an index *S* 16 24 32, &c., for denoting the number of stitches the machine will make with the lever standing at any given point, and for the purpose of completing the index I place a point *P* upon the arm of the bell-crank back of the thumb-screw. I make the arc *G* upon a radius from the pivot *c*, so that its outer surface will be at all points equidistant from this center and present a uniform bearing for the thumb-screw, so as to facilitate its adjustment at any point upon the surface of the arc. It will be seen from this description that by adjusting the thumb-screw toward the lower part of the arc-slot *g* the opposite end of the bell-crank lever will be thrown out and carry the upper end of the lower connecting-rod toward the point *b'* and increase the length of the stitch, while the raising of the thumb-screw toward the upper end of said slot will throw the upper end of the lower connecting-lever toward the point *b*³ and shorten the stitch, and by securing the thumb-screw at any point in the arc the

bell-crank will be firmly held in place and insure a uniform stitch.

With the use of this feeding device I can secure the lower connecting-rod to the main feed-lever with a ball-and-socket joint and connect the opposite end of the said feed-lever with the *L* feed-lever by a similar joint, both joints being set close, so that the entire motion of the connecting-rod will be transmitted to the *L* feed-lever, and thus produce a positive feed and enable me to dispense with both feed-springs and "bumpers" now used upon this machine.

While my improvement may with slight modifications be used on other forms of sewing-machines, I design it principally for use upon the "Domestic" machine.

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

1. The combination, with the hollow arm of a sewing-machine having an arc-slot therein, of the main shaft having an eccentric thereon, an upper connecting-rod actuated by said eccentric and pivoted at its lower end to a slotted link, said link being pivoted at its opposite end to the arm, a lower connecting-rod having at its upper end a pin engaging with the said slotted link and having a flexible connection at its lower end with the main feed-lever, and a bell-crank lever pivoted within the hollow arm, one arm of said bell-crank projecting through the said arc-slot therein, the other end having a loose connection with the upper end of the lower connecting-rod, substantially as set forth.
2. The combination, with the hollow arm of a sewing-machine having an arc-slot therein and a main shaft having an eccentric thereon, of an upper connecting-rod supported upon and actuated by said eccentric and pivoted at its lower end to a slotted link, said link being pivoted at its opposite end to the arm, a lower connecting-rod having at its upper end a pin engaging with said slotted link and flexibly connected at its lower end with the main feed-lever, a bell-crank lever pivoted within the hollow arm, one arm of said bell-crank lever having a flexible connection with the upper end of the lower connecting-rod, and the other arm projecting through the arc-slot in the wall of the machine-arm and provided with a thumb-screw and an indicator-point, and an index upon the face of the arc, substantially as set forth.
3. The combination, with the hollow arm of a sewing-machine having an arc-slot therein, a main shaft, and an eccentric, of a feed mechanism consisting of an upper connecting-rod actuated by said eccentric and pivoted at its lower end to a slotted link, said link being pivoted at its opposite end to the arm, a lower connecting-rod engaging at its upper end with and actuated by said slotted link and flexibly connected at its lower end with the main feed-lever, a detachable ball-pivot for making said connection, a bell-

crank lever pivoted within the arm, one arm of said crank being loosely connected with the upper end of the lower connecting-rod, and the other end projecting out through the arc-slot in the wall of the arm and provided with a thumb-screw and an index-point, and an arc formed upon the arm, having a slot

and an index, substantially as and for the purpose set forth.

MYRON C. LISLE.

In presence of—

I. J. CILLEY,

H. J. W. CAMPMAN.