C. H. WARNER.

STOPPING-MECHANISM FOR SEWING-MACHINES.

No. 192,886. Patented July 10, 1877.

Fig. 1.

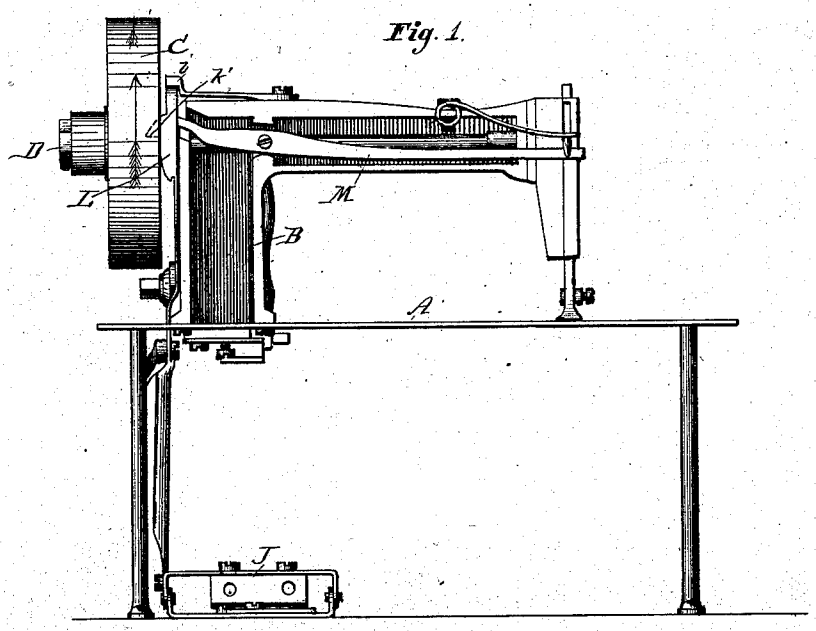


Fig. 2.

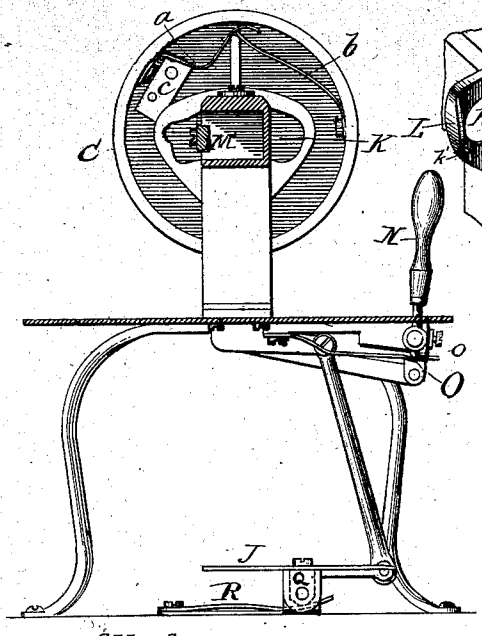


Fig. 4.

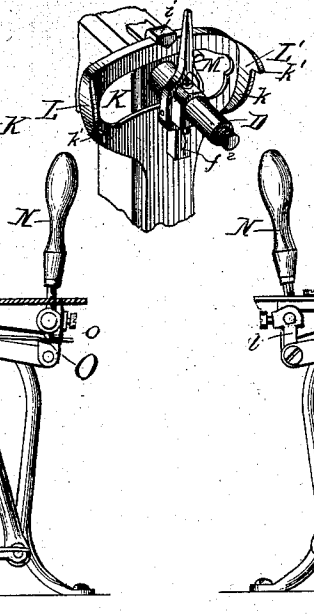
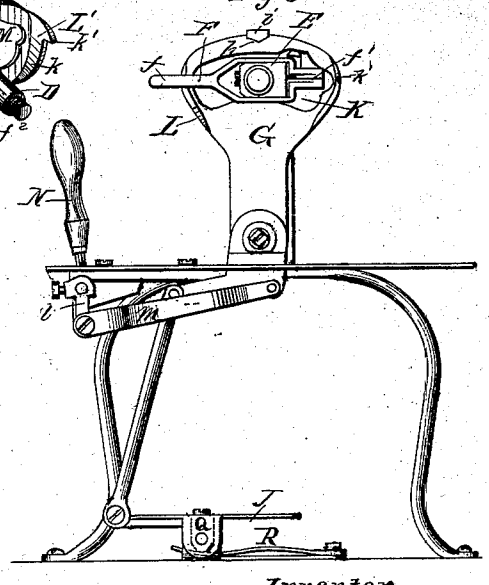


Fig. 3.



Attest.

L. L. Gardner
A. Scott

Inventor.

Chas. H. Warner

N. PETERS, PHOTO-LITHOGRAPHER, W... NGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES H. WARNER, OF STURBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN STOPPING MECHANISMS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. **192,886**, dated July 10, 1877; application filed May 4, 1877.

To all whom it may concern:

Be it known that I, CHARLES H. WARNER, of Sturbridge, in the county of Worcester and State of Massachusetts, have invented certain Improvements in Sewing-Machines, of which the following is a specification, that will enable those skilled in the art to which they relate to construct and use the same, reference being had to the accompanying drawings.

One object of my invention is to stop the movement of the needle at will, either when raised out of the work or when down in the work, while the driving-wheel continues its motion in the same direction.

Another object of my invention is to raise the presser-foot, if desired, when the needle is stopped in either position, by the same movement continued.

It is well understood by those familiar with sewing-machines that it is desirable to stop the needle when it is down in the work, and to raise the presser-foot to enable the work to be turned or examined; and that it is also desirable to stop the needle when it is raised out of the work, and to raise the presser-foot to enable the work to be removed.

In some machines, in order to accomplish these results, it is necessary either to stop the driving mechanism, and then to adjust the needle and presser-foot by hand, or else to disconnect the driving mechanism from its operative relations to the needle, and afterward to adjust the needle and presser-foot by hand.

By my invention I obviate these difficulties and stop the movement of the needle at will, in either of the desired positions of elevation or depression, instantly, and with certainty, and at the same time either raise or not raise the presser-foot, as desired, while the driving-wheel is in motion, no matter at what speed, and without necessarily checking or stopping it. I am also enabled to force the presser-foot down again and start the needle at will while the driving-wheel continues its motion. While all this may be done the machine may also be stopped and started, and the needle and presser-foot adjusted in the old way, if desired.

My invention consists in combining with the driving wheel and shaft a connecting and disconnecting mechanism, capable of being operated either by the hand or the foot, to instantly stop the needle in the elevated or depressed position, and, if desired, to also raise the presser-foot, and then, afterward, to as readily depress the presser-foot and set the needle in operation, in the meantime the driving-wheel continuing its motion in the same direction.

The details of my invention, as I have illustrated it in the drawings, are as follows:

A indicates the table of a sewing-machine, B the arm, and C the driving-wheel, which is loose on the driving-shaft D. On the inner face of the driving-wheel I place two springs, *a* and *b*, secured adjustably to the rim of the wheel by screws, the screw-slots in the springs being elongated for adjusting. The spring *a* bears against the end of the spring *b*, and is preferably bent so as also to normally bear on the end of an inclined piece, *c*, secured or cast on the inner face of the driving-wheel. These springs impinge against each other at such angles as to form a V-shaped notch.

Secured adjustably on the driving-shaft near the driving-wheel is a block, E, to which is pivoted a dog, F, with a projection, *f*, for engagement with the springs on the driving-wheel, and a shorter projection, f^1, for a purpose hereinafter explained. A spring, f^2, secured to the block E, tends to keep the projection *f* of the dog in contact with the inner face of the driving-wheel. The block E, however, might be dispensed with, and the dog F pivoted directly to the driving-shaft.

Pivoted to the upright portion of the arm B is a bell-crank lever, G, operated either by the hand-lever N or the treadle J; but this lever need not necessarily be bell-cranked. On the top of this bell-crank lever is a notch, *h*, into which a spring catch or stop, *i*, secured on the top of the arm B, takes and holds the bell-crank lever in its vertical position.

There is an opening, K, through the upper end of the bell-crank lever, which enables it to be tilted from side to side and to ride on the bearing of the driving-shaft. On the front of this lever, and on opposite sides and in reverse position to each other, are two lateral

projections, L L′, forming, respectively, a combined incline or cam and stop—*k* indicating the cams, and *k′* the shoulders or stops.

M indicates the presser-foot lever pivoted to the arm B, and projecting a short distance through the opening K in the bell-crank lever at a point where the latter is cut away for a short distance, as shown in Fig. 3, the sides of the notch or cut-away part being inclined.

The hand-lever N for operating the bell-crank lever is connected to the latter by the pieces *l m*, or in any other convenient manner, and has a projection, *o*, below, against which presses a notched spring, O, to hold the lever in place.

The treadle J also, for operating the bell-crank lever, is connected to the latter by the rod *p*.

Cast or fastened on the bottom of the treadle or foot-plate is a block, Q, with three faces on its lower side, as indicated in dotted lines, Figs. 2 and 3, against which, respectively, as the block is moved by the treadle, the spring R presses to hold it in position. The two springs, connected, respectively, with the hand-lever and treadle, operate in conjunction with the spring-stop *i*, and for a like purpose, but are not indispensable, although I prefer to employ them.

The operation of my invention is as follows: The block E being properly adjusted on the driving-shaft, the bell-crank lever being held in the vertical position by the spring-stop *i*, or otherwise, and the projection *f* of the dog F being in engagement with the V-shaped notch formed by the springs on the driving-wheel, when motion is imparted to the latter in the direction indicated by the arrow, Fig. 1, the driving-shaft will be revolved, the presser-foot will be down on the work, and the needle will be operated in the usual manner. In this condition of things the hand-lever N and treadle J will remain dormant, and substantially in position as shown in Figs. 2 and 3.

If it be desired to stop the motion of the needle in the elevated position, either the hand-lever or the treadle may be employed to throw the bell-crank lever away from the operator to such a distance that the spring-stop *i* will ride up out of its notch. The effect of this will be to move the combined cam and stop L within the radius of the projection *f′* of the dog F, when the said projection will strike the cam *k*, and move the projection *f* laterally out of the V-shaped notch formed by the springs on the driving-wheel, and unclutch the driving-wheel and its shaft at the instant before the projections *f* and *f′* of the dog strike the shoulders or stops *k′*.

If it be desired to raise the presser-foot also, it is only necessary to throw the bell-crank lever a short distance farther in the same direction, when the inclined side of the notch or cut-away part of the opening K will strike the projecting end of the presser-foot lever M, and raise the presser-foot.

If it be desired to stop the needle in the depressed position, and to raise the presser-foot, the operation is the reverse of that just described.

To again bring down the presser-foot and start the needle from either of these positions of rest, it is only necessary to bring the bell-crank lever to the vertical position as in the beginning, when the dog F will engage with the moving driving-wheel, the projection *f* striking the spring *b*, which yields to permit it to again enter the V-shaped notch.

Should the driving-wheel happen to be turned in the wrong direction the projection *f*, through the yielding of the spring *b*, will be released, and as the wheel revolves will ride up over the inclined piece *c* and the springs, and thus remain disengaged.

I do not intend to confine myself to the precise details of construction herein specified, as they may be varied in numerous ways without departing from the principle of my invention; but

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

1. The combination, with the driving-shaft of a sewing-machine, and a driving-wheel mounted loosely thereon, of a clutch and operating mechanism, substantially as described, whereby the said driving-wheel may be disconnected from the shaft when the needle is in either an elevated or depressed position, but in no other, as and for the purpose set forth.

2. The combination, with the driving-shaft of a sewing-machine, and a driving-wheel mounted loosely thereon, of a clutch and mechanism, substantially as described, whereby the said wheel may be disconnected from the shaft when the needle is in either an elevated or depressed position, but in no other, and the presser-foot be either raised or not, as may be desired, as and for the purpose set forth.

3. The combination, with the shaft D, and the driving-wheel C, provided with the springs *a* and *b*, and the inclined piece *c*, of the lever F, pivoted to said shaft, whereby, when the driving-wheel is reversed, the same will be automatically unclutched from its shaft, as and for the purpose set forth.

4. The combination, with the goose-neck or arm of a sewing-machine, and the bell-crank lever G, provided with a notch, *h*, of a spring-projection, *i*, for locking the said bell-crank lever in position, as set forth.

5. The combination, with the bed of a sewing-machine, and the bell-crank lever G, of the lever N, rock-shaft provided with a projection, *o*, spring O, arm *e*, and connecting-rod *m*, as and for the purpose set forth.

6. The combination, with the shaft D, and

block E, of the lever or dog F, pivoted thereto, as and for the purpose set forth.

7. The bell-crank lever G, constructed as described, and provided with the projections L L′ on its opposite sides in reverse position with respect to each other, as and for the purposes described.

8. The combination, with the bell-crank lever G, provided with a notch or projection, and the presser-foot of a sewing-machine, of a lever, *m*, as and for the purposes set forth.

In testimony whereof I hereunto subscribe my name.

CHAS. H. WARNER.

Witnesses:

HENRY T. EARNEST,

E. C. DAVIDSON.