

No. 687,206.

Patented Nov. 26, 1901.

P. DIEHL.

TAKE-UP FOR SEWING MACHINES.

(Application filed Jan. 10, 1901.)

(No Model.)

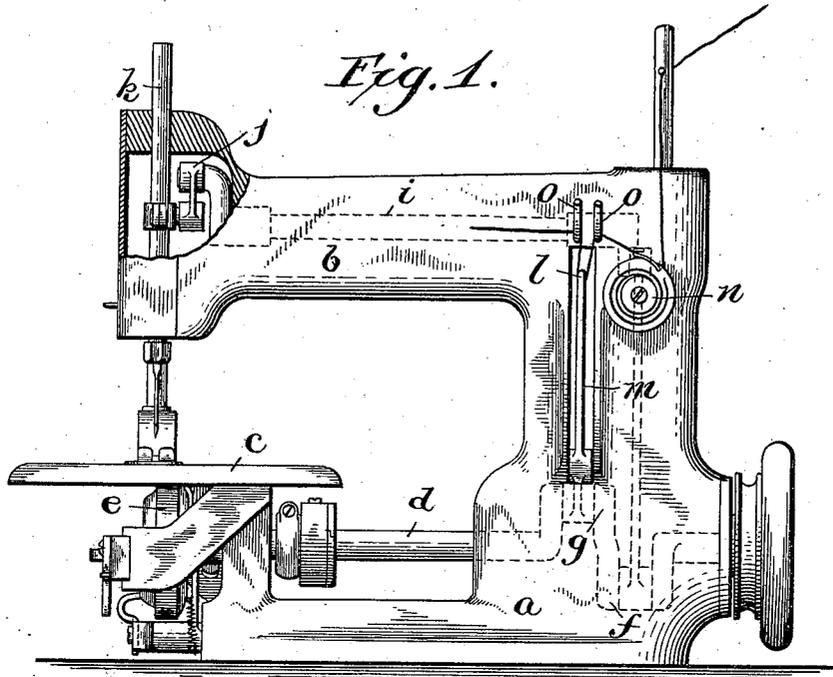
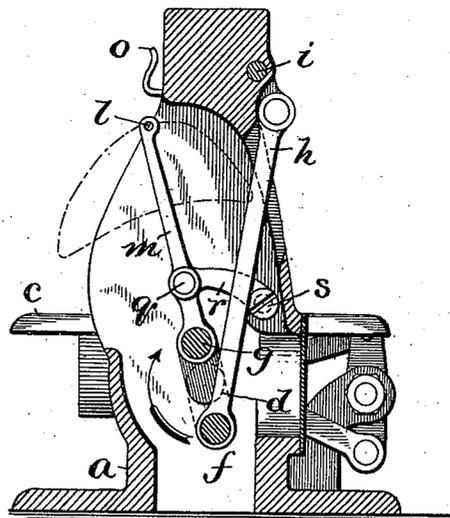
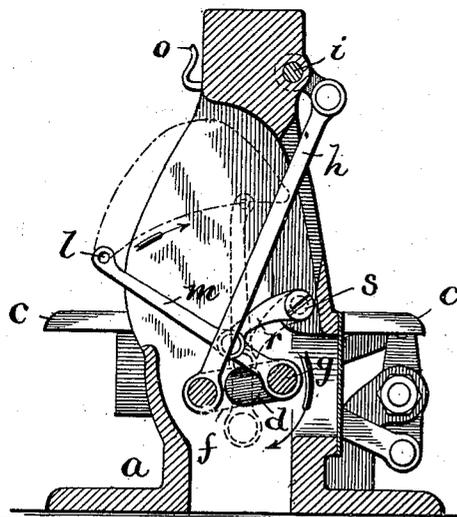


Fig. 2.

Fig. 3.



Witnesses:

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*att.*

# UNITED STATES PATENT OFFICE.

PHILIP DIEHL, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

## TAKE-UP FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 687,206, dated November 26, 1901.

Application filed January 10, 1901. Serial No. 42,765. (No model.)

To all whom it may concern:

Be it known that I, PHILIP DIEHL, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Take-Ups for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to that class of sewing-machine take-ups in which the take-up lever is connected at one end to a revolving crank and is fulcrumed between its ends to the free end of a swinging link pivotally attached at its other end to the frame of the machine, so that as the said crank rotates combined bodily translatory and vibrating movements are imparted to the said take-up lever; and the invention has for its object to adapt this class of take-ups to sewing-machines of different constructions from those in connection with which they have heretofore been used, and more particularly to adapt this class of take-ups to sewing-machines having rotating lower shafts.

To this end the improved take-up comprises a take-up lever which is formed straight or substantially so instead of being a bell-crank or angular lever, as heretofore, and in being applied to a sewing-machine having a lower rotating shaft this straight take-up lever is connected at its lower end to a crank on said shaft and is extended up toward the upper portion of the arm of the machine, so that the eye of the said lever will be conveniently proximate to the desired path of the thread running to the needle and also to the thread-guides at the upper part of said arm.

In the accompanying drawings, Figure 1 is a side view of a sewing-machine embodying the invention, and Figs. 2 and 3 are sectional views of the same through the vertical portion of the arm and with the parts in different positions in the two views.

Referring to the drawings, *a* denotes the base, and *b* the arm, of the machine, these parts constituting the frame of the machine and being preferably formed of an integral casting. Journaled in the lower portion or base of this frame and beneath the work-plate *c* is a rotating driving-shaft *d*, which may (and

preferably will) be provided with a revolving hook *e*, operating in connection with a stationary thread-case peripherally supported by said hook either as set forth in United States Patent No. 663,808, granted December 11, 1900, or otherwise. The shaft *d* is provided near its rear end with two adjacent cranks *f* and *g*, the former of which is connected by a pitman *h* to the rear arm of a rock-shaft *i*, journaled in the upper portion of the arm *b* and having at its forward end a second arm connected by a pitman *j* to the needle-bar *k* to operate the latter. The crank *g* is for operating the take-up, and to this end the lower end of the take-up lever *m* is jointed to said crank, said lever being preferably formed straight, or approximately so, and being extended upward for a proper distance to bring its thread-eye *l* conveniently near to the path of the thread running from the tension device *n* through the thread-guides *o* forward to the needle. The take-up lever *m* is fulcrumed between its ends at *q* to the free end of a swinging link *r*, pivotally attached at *s* to the frame of the machine, and said lever is so mounted or arranged as to swing when in operation in a plane transverse to the longitudinal axes of both of the shafts *d* and *i*.

With the parts constructed and arranged as shown and described the rotating crank *g* will carry the take-up lever *m* around with it bodily and will also cause said lever to vibrate on its fulcrum at the free end of the swinging link *r*, so that the thread-eye at the upper end of said lever will describe an irregular path, substantially as indicated by dotted lines in Figs. 2 and 3, thereby securing such timing of the take-up and thread-slackening actions as will properly cooperate with the needle operated from the upper rock-shaft *i* and the revolving hook *e*, a timing which could not be secured by the use of a bell-crank or angular take-up lever such as has heretofore been in use in "link" take-ups or take-ups in which the take-up levers operated from rotating cranks are fulcrumed to the free ends of swinging links. The present invention is, however, not to be understood as being limited to sewing-machines of the particular kind herein shown and described, as it may also be used in other styles

of machines or in machines having different needle-bar-operating mechanisms from that of the machine herein illustrated.

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

1. In a sewing-machine, the combination with the stitch-forming devices thereof, of a rotating shaft located in the lower part of the machine and provided near its rear end with a crank, a straight, or substantially straight, take-up lever connected at its lower end to said crank and arranged to swing in a plane transverse to the longitudinal axis of said shaft, and a swinging link to the free end of which said take-up lever is fulcrumed between its ends.

2. In a sewing-machine, the combination with a rotating shaft located in the lower part of the machine and provided with two cranks, of a rock-shaft located in the upper part of the machine and operatively connected with one of said cranks, a needle-bar operatively connected with said rock-shaft, a take-up lever connected at its lower end to the other of said cranks and so mounted as to swing in a plane transverse to the longitudinal axes of both of said shafts, a swinging link to which said take-up lever is fulcrumed between its ends, and a loop-taking device cooperating with the needle carried by said needle-bar.

3. In a sewing-machine, the combination with a rotating shaft located in the lower

part of the machine and provided with two cranks, of a rock-shaft located in the upper part of the machine and operatively connected with one of said cranks, a needle-bar operatively connected with said rock-shaft, a straight, or substantially straight, take-up lever connected at its lower end to the other of said cranks and arranged to swing in a plane transverse to the longitudinal axes of both of said shafts, a swinging link to which said take-up lever is fulcrumed between its ends, and a loop-taking device cooperating with the needle carried by said needle-bar.

4. In a sewing-machine, the combination with a rotating shaft located in the lower part of the machine and provided with two cranks, of a rock-shaft located in the upper part of the machine and operatively connected with one of said cranks, a needle-bar operatively connected with said rock-shaft, a straight, or substantially straight, take-up lever connected at its lower end to the other of said cranks and arranged to swing in a plane transverse to the longitudinal axes of both of said shafts, a swinging link to which said take-up lever is fulcrumed between its ends, and a rotating hook cooperating with the needle carried by said needle-bar.

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

PHILIP DIEHL.

Witnesses:

HENRY CALVER,  
HENRY J. MILLER.