

(No Model.)

A. LEGG & F. H. TREACY.  
SEWING MACHINE.

No. 546,768.

Patented Sept. 24, 1895.

प्रश्न-1.

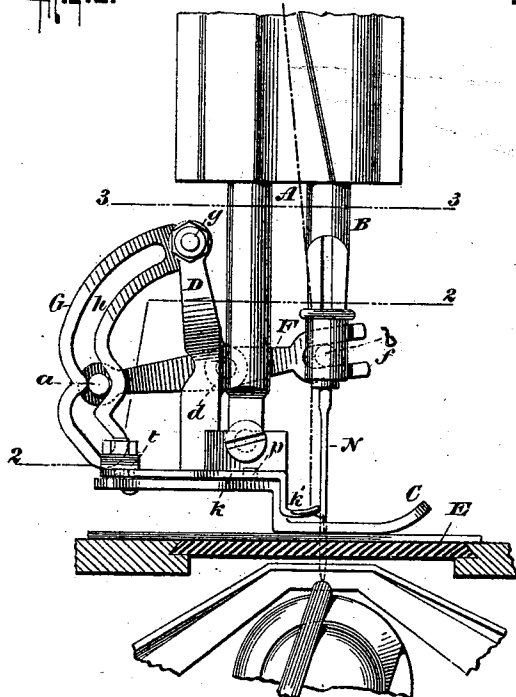


Fig. 4.

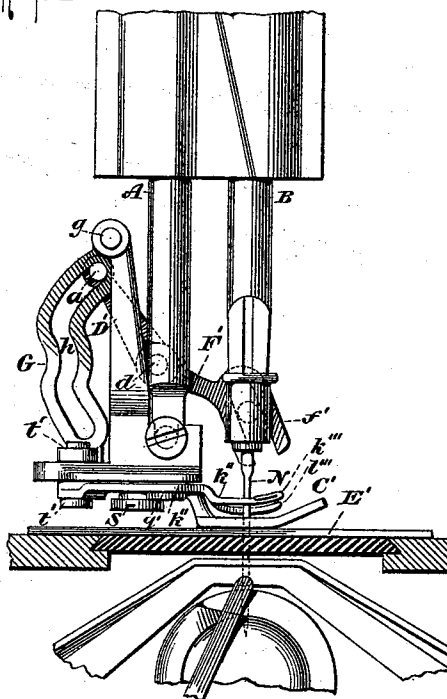


Fig. 2.

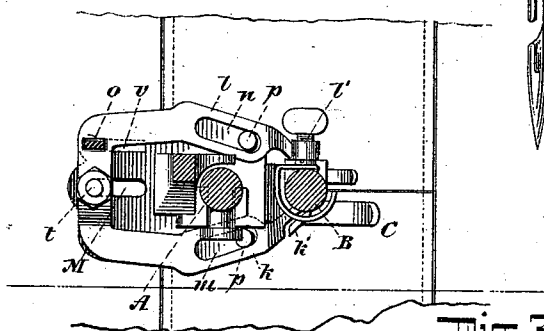


Fig. 6.



Fig. 5.

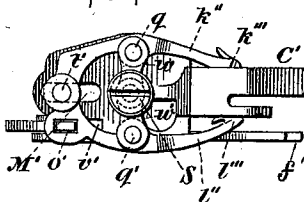
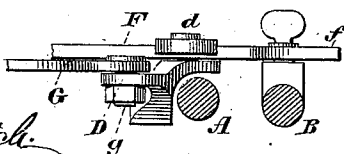


Fig. 3.



WITNESSES:

WITNESSES:  
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# UNITED STATES PATENT OFFICE.

ALBERT LEGG, OF ALLENDALE, NEW JERSEY, AND FRANK H. TREACY, OF  
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## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 546,768, dated September 24, 1895.

Application filed March 19, 1895. Serial No. 542,319. (No model.)

*To all whom it may concern:*

Be it known that we, ALBERT LEGG, residing at Allendale, in the county of Bergen, in the State of New Jersey, and FRANK H. TREACY, residing at Brooklyn, in the county of Kings, in the State of New York, citizens of the United States, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

Our invention relates to sewing-machine attachments of the class described in United States Letters Patent No. 474,842, granted May 17, 1892, to Legg and Weston.

The object of our invention is to provide a device for threading the needle upon its downward stroke at the beginning of each stitch, which shall be easily adjustable, and in that regard is similar to the invention described in the application of said Treacy and Charles E. Luke, filed of even date herewith, Serial No. 542,313, and another object is to provide a motion for the guide and finger which will occupy little space and be certain in operation.

To this end our invention consists of means of moving the guide and finger so as first to catch the thread, then pull or distend it, and then carry it to the needle, and also of certain details of construction. It must be understood, however, that it is not intended that the above-mentioned operation or motions of the guide and finger shall be separate from each other entirely in point of time, but that at certain periods certain of the motions shall be more pronounced than the others.

We attain these objects by the device illustrated in the accompanying drawings, in which similar letters of reference indicate similar parts throughout the various views.

Figure 1 is a front view of a portion of a sewing-machine, showing our device attached thereto. Fig. 2 is a sectional view on the line 2 2 of Fig. 1. Fig. 3 is a sectional view on the line 3 3 of Fig. 1. Fig. 4 is a front view of a portion of a sewing-machine, showing another form of our device attached thereto. Fig. 5 is a bottom view of the device shown in Fig. 4; and Fig. 6 is a view of the needle, showing the open eye.

A is the presser-bar, B the needle-bar, and

E the cloth-plate, of one of the ordinary styles of sewing-machines.

C is the presser-foot, which is adapted to form the frame of our device.

The needle-bar B carries an open-eyed needle N—such, for instance, as the one shown in United States Letters Patent No. 474,841, granted May 17, 1892, to Legg and Weston. The open eye or front of said needle is shown in Figs. 1 and 4 facing away from the presser-bar; but we do not limit ourselves to this position of the eye, it being readily understood that should the eye face in the opposite direction, for instance, then the threading device hereinafter described should be arranged to operate also in reverse direction.

Attached rigidly to or forming part of presser-foot C is the standard or post D. Fulcrumed at *d* on said post is a lever F, provided at one end with a fork *f*, adapted to engage with the needle-screw *b*, so as to swing said lever upon its fulcrum as said needle-bar reciprocates. Said lever F is provided at its other end with a pin *a*; also fulcrumed on said post at *g* is a cam-lever G, the cam *h* of which is operatively connected with lever F by means of pin *a*. The movement of cam-lever G depends, of course, upon the shape given to cam *h*. The lower end of said lever G is operatively connected with the arms *k* and *l*, so as to reciprocate the same as said lever is swung.

We will now proceed to describe the means whereby, upon the reciprocation of said arms *k* and *l*, as above described, the guide *k'* and finger *l'*, borne respectively by them, are given the motions desired. Said arms are formed so that when their ends *k'* and *l'* are together in front of the needle they may pass over the base of the presser-foot and their other ends meet and be pivotally united by a bolt *t*, as shown in Fig. 2. Said bolt *t* passes through a slot M in said presser-foot, which serves to guide the reciprocation of the rear ends of said arms in a straight line. Said arms *k* and *l* are also provided, respectively, with slots *m* and *n*, through which pins *p* on said presser-foot project. It will be understood that when said guide *k'* and finger *l'* are together in front

of the needle the bolt *l* will be at that end of said slot M nearest the presser-bar, and that as said arms are reciprocated to the other end of said slot the guide *k'* and finger *l'* will have at the first portion of such reciprocation a greater movement away from each other than at the latter portion of such reciprocation, when they will move in nearly straight lines toward or past the needle. The advantage of this result over that attained by the device described in the above mentioned Letters Patent No. 474,842 is that less space is occupied by the arms in their movement, less thread is required to be drawn, and the strain upon the needle and the thread is less than when the guide and finger are separating and pulling down the thread at the time the same is being put into the eye of the needle. The motions of guide *k'* and finger *l'* may be varied somewhat by making slots *m* and *n* cam-shaped. The connection of lever G with arms *k* and *l* may be made at any convenient point, but we prefer to make it on arm *l* by means of slot *o*, as shown. This construction insures the finger *l'* starting promptly so as to catch the thread, it having been found that the finger will sometimes fail to catch the thread, and therefore a stitch be skipped, if provision be not made whereby the finger is given some acceleration or greater positiveness of motion over that of the guide upon their initial movement.

We now proceed to describe another form of our invention. (Shown in Figs. 4 and 5.) Instead of the slots *m* and *n* and pins *p* on the top of presser-foot C, as shown in Figs. 1 and 2, we arrange the arms *k''* and *l''* on the shank of the presser-foot C' and provide two links *w* and *w'*, pivoted, respectively, at *q* and *q'* on arms *k''* and *l''*, and at their other ends pivoted at a common fixed center S on the presser-foot. The operation is substantially similar to that last described, except that the described motions of guide *k'''* and finger *l'''* are more pronounced in the desired directions than when the slots *m* and *n*, Fig. 2, are straight, as shown. Another advantage of this form of construction is that the mechanism is fixedly supported at S, whereby much greater rapidity and certainty of action can be attained. We therefore prefer this form of construction.

Another modification is shown in Fig. 4. The fork *f'* on bar F' is formed at an angle to the longitudinal axis of said lever. This construction enables the needle-bar at the beginning of its downward stroke to swing said lever more quickly; but we do not claim this feature as part of our invention.

What we claim, and desire to secure by Letters Patent, is—

1. In a sewing machine the combination of a needle having a recess or open eye for engaging the thread, with means of operating

said needle, means for feeding thread to the same, which consists of a guide and finger and means to cause said guide and finger to move simultaneously from in front of the path of said needle first so as to distend the thread and then so as to carry the same into the open eye of said needle as it descends, and with complementary stitch forming mechanism below the cloth plate, substantially as described.

2. In a sewing-machine having a presser-foot and a needle with a recess or open eye for engaging the thread, the thread feeding mechanism for said needle, which consists of arms journaled on a vertical axis movable horizontally on the presser-foot, means of swinging said arms on said axis as the same is reciprocated, and means of reciprocating said axis as the needle-bar reciprocates, substantially as described.

3. The combination of a plate having a slot therein with two arms journaled on a common axis, said axis being operatively connected with said slot; two links each journaled at one end on one of said arms, and at the other end on a common fixed journal, and with means of reciprocating said first named axis in said slot, whereby said arms are swung upon said axis as the same is reciprocated, substantially as described.

4. In a sewing-machine having a presser-foot and a needle with a recess or open eye for engaging the thread, the thread feeding mechanism for said needle, which consists of arms journaled on a vertical axis movable horizontally on the presser-foot, means of swinging said arms on said axis as the same is reciprocated, which consists of two links, each journaled at one end on one of said arms and at the other end on a journal fixed on said presser-foot, and means of reciprocating said movable axis, substantially as described.

5. In a sewing machine having a needle with a recess or open eye for engaging the thread, the thread feeding mechanism for said needle, which consists of two connected arms bearing respectively a guide and finger and concurrently and interdependently movable and so as to carry said guide and finger from a point in front of the path of said needle toward and to opposite sides of said path, means of moving said arms connected only with said finger-bearing arm, substantially as and for the purposes described.

In testimony whereof we affix our signatures hereto, in presence of two witnesses, this 16th day of March, 1895.

ALBERT LEGG.  
FRANK H. TREACY.

Witnesses:

CHAS. W. WESTON,  
H. V. N. PHILIP.