(No Model.) 3 Sheets—Sheet 1.

A. LEGG & C. W. WESTON.

SEWING MACHINE.

No. 474,842. Patented May 17, 1892.

Fig. 1.

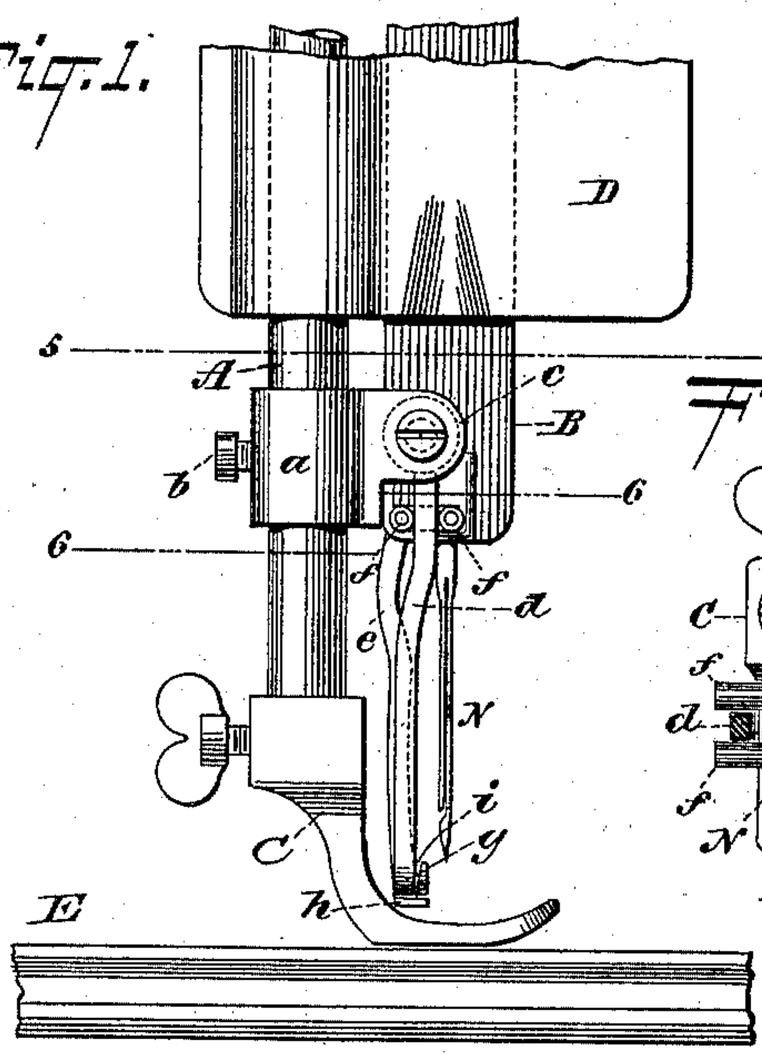


Fig. 5.

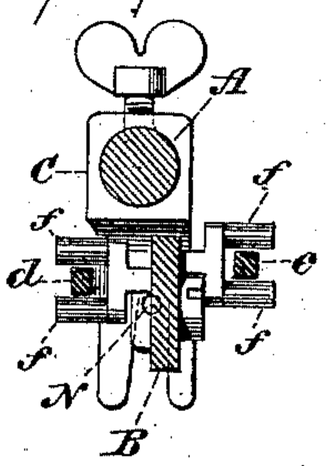


Fig. 2.

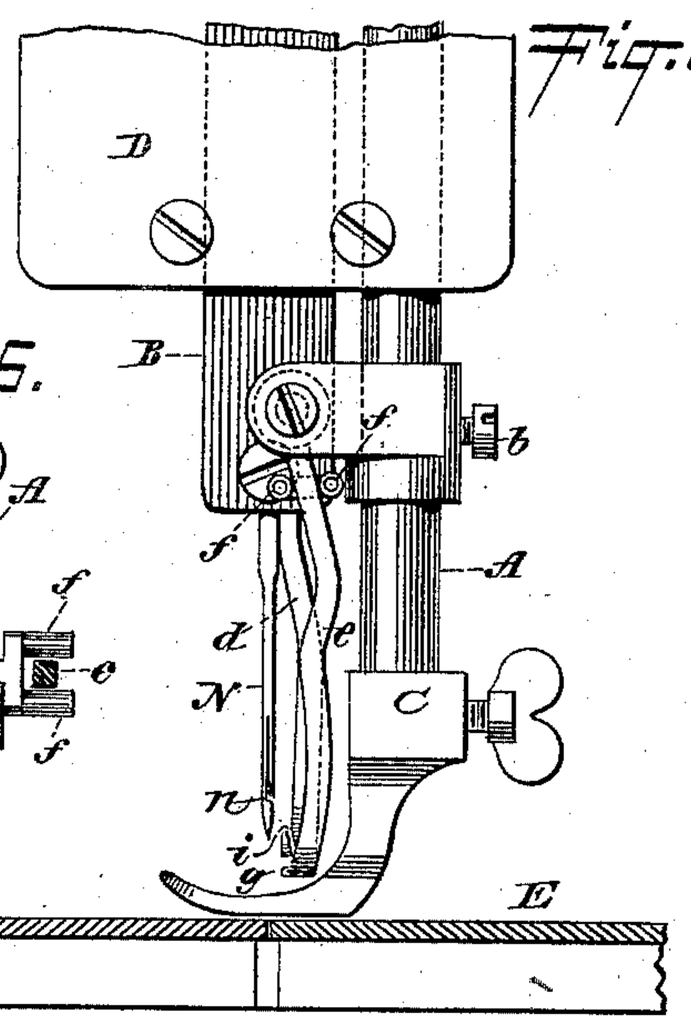


Fig. 3.

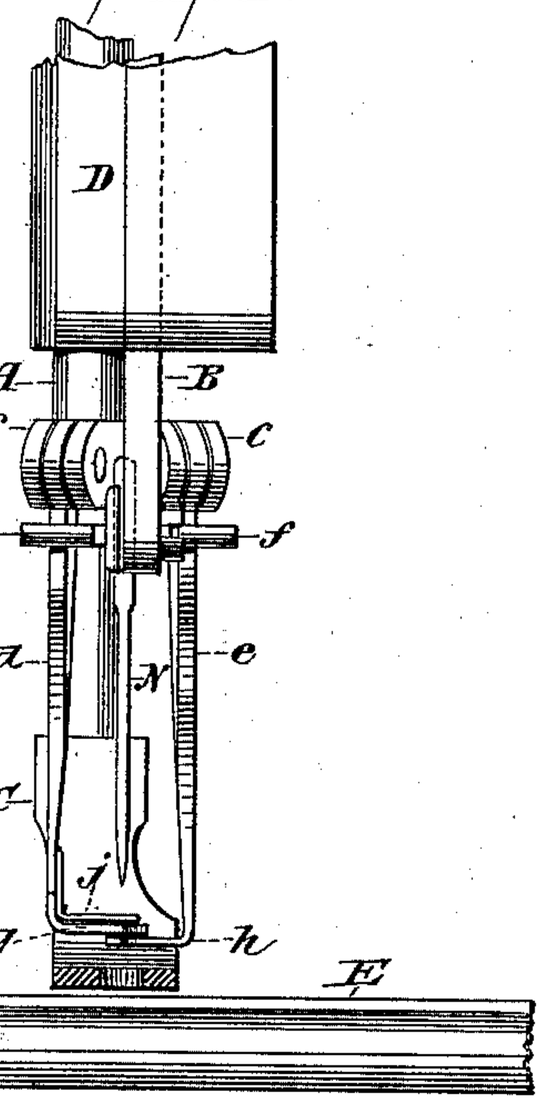
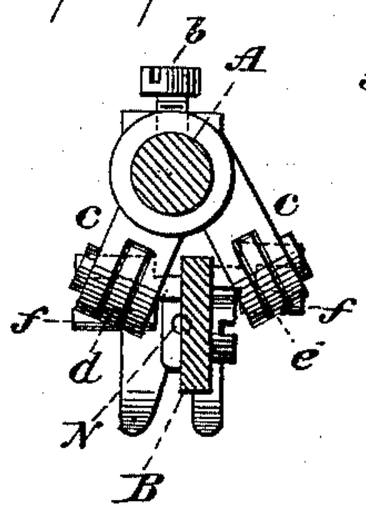


Fig. 4.



WITNESSES:

Gustave Dieterich.

H. G. N. Riley

INVENTORS.

Albert Legg

Charles W. Weston

BY

Betts, Atterbury, Hyde & Betts.

ATTORNEYS.

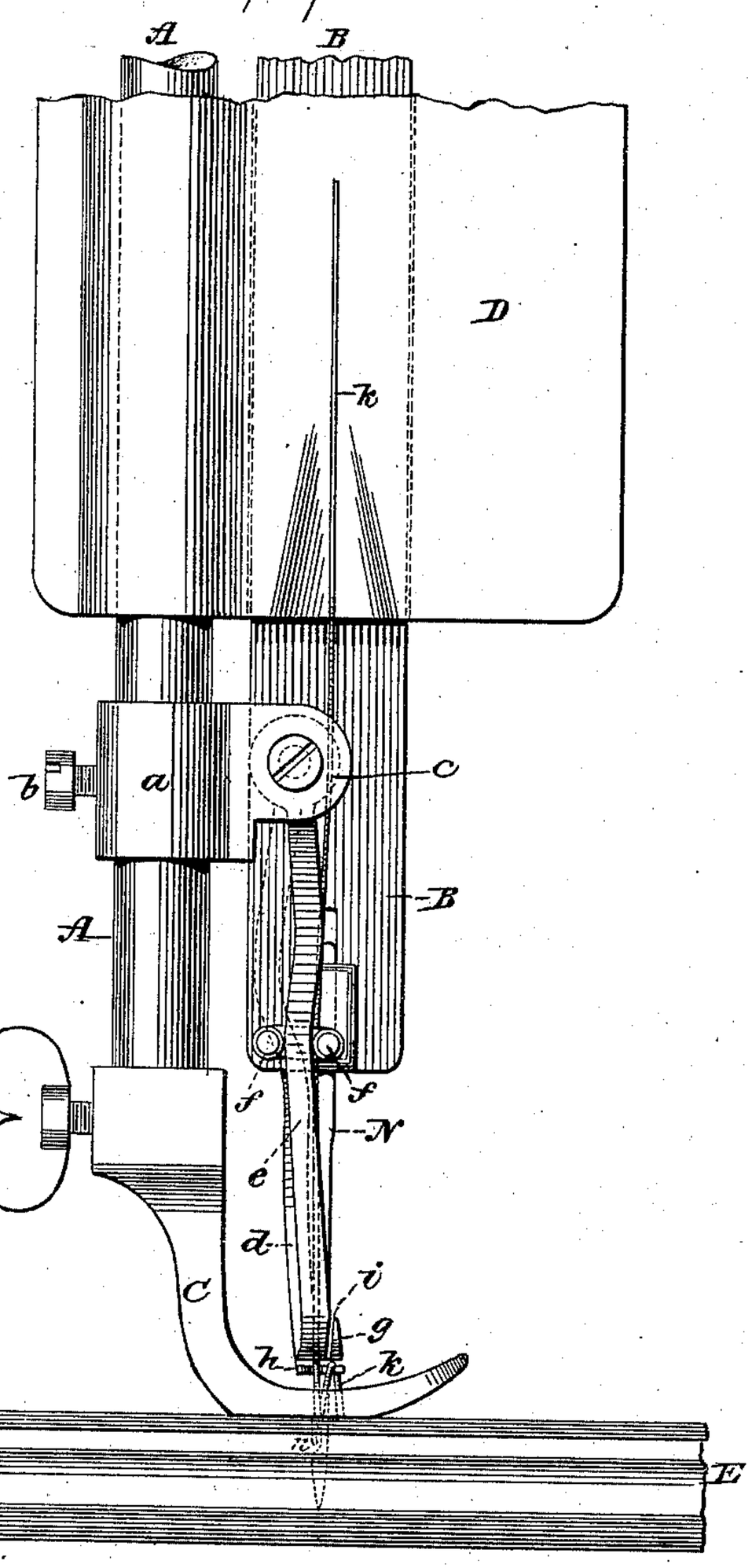
(No Model.) 3 Sheets—Sheet 2.

A. LEGG & C. W. WESTON.

SEWING MACHINE.

No. 474,842. Patented May 17, 1892.

Fig. 5.



WITNESSES:
Gustave Dietrich.
N. V. N. Philp

INVENTORS,
Albert Legg
& Charles W. Weston
BY
Burton, Atterbury, Hyde & Burton
ATTORNEYS.

(No Model.) 3 Sheets—Sheet 3.

A. LEGG & C. W. WESTON.

SEWING MACHINE.

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Fig. 6.

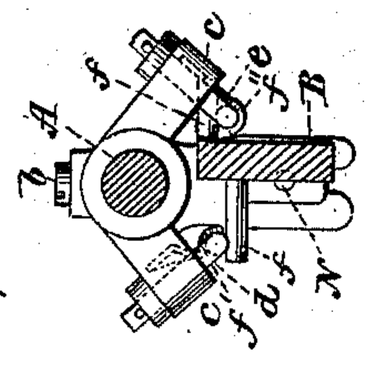


Fig. 8.

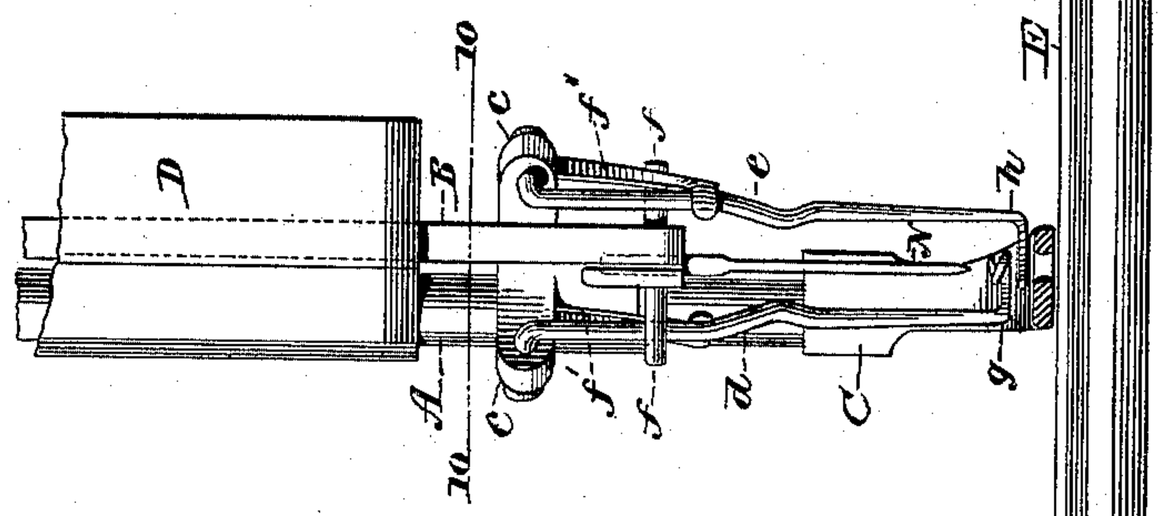
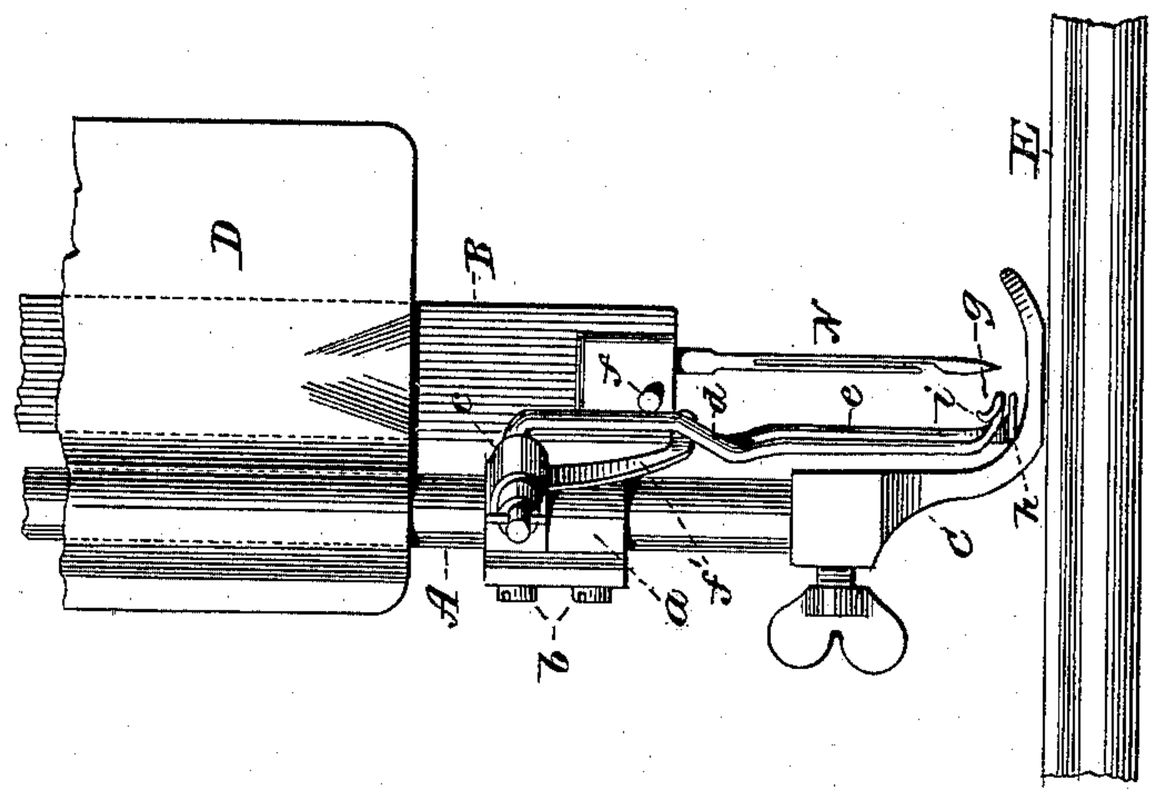


Fig. 7.



WITNESSES:

Gustave Dieterich.

H. C. V. Phillips

INVENTORS

Albert Legg

Charles W. Weston

BY

Bates, Allenburg, Hyde & Bates,

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ALBERT LEGG, OF MILTON, AND CHARLES W. WESTON, OF NEW YORK, N. Y.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 474,842, dated May 17, 1892.

Application filed October 15, 1891. Serial No. 408,816. (No model.)

To all whom it may concern:

Be it known that we, ALBERT LEGG, residing at Milton, in the county of Ulster, and CHARLES W. WESTON, residing at New York, in the county of New York, State of New York, have invented certain new and useful Improvements in Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

Our invention relates to an attachment for sewing-machines to be used when a needle having a recess for engaging the thread is used—such, for instance, as the needle described in our application, Serial No. 408,815, for Letters Patent for needles filed simultaneously herewith.

The object of our invention is to provide a mechanism for threading the needle upon its downward stroke at the beginning of each stitch, which shall be economical, simple, and easily attachable to the various styles of sewing-machines, and we attain this object by the device illustrated in the accompanying drawings, in which similar letters of reference refer to similar parts throughout the various views.

Figure 1 is a front view of a portion of machine, showing one form of our device attached thereto. Fig. 2 is a rear view of the same. Fig. 3 is a side view looking in the direction of feed of the machine. Figs. 4 and 5 are cross-sections looking down on 5 5 and 6 6, respectively, of Fig. 1. Fig. 6 is an enlarged view showing the parts just after the recess of the needle has engaged the thread. Figs. 7, 8, and 9 show another form of device, Fig. 7 being a front view thereof, Fig. 8 a side view looking in direction of feed of the machine, and Fig. 9 a sectional view on the line 10 10 of Fig. 8.

A is the presser-bar, B the needle-bar, E the cloth-plate, and C the presser-foot, of one of the ordinary styles of sewing-machines. The needle-bar B carries a needle N, having an open eye or recess *n* facing the presser-bar. Hereinafter we will refer to the side of the needle having this recess *n* as the "front" thereof. The band *a* is secured to the presser-bar A below the face-plate D by a screw *b* and carries lugs *c*, in which the guide-arm *d* and finger-arm *e* are journaled angularly with reference to each other and the path of the needle, as shown more clearly in Figs. 3 and 8. Said arms *e* and *d* are bent or cam-shaped and slide along pins or lugs *f* on needle-bar B as it reciprocates. The axes and cam shape of said arms determine the motions or the guide *g* and finger *h*, borne, respectively, on the lower ends of said arms. Springs *f'* *f²* (see Figs. 7, 8, and 9) work in opposition to the lugs or pins *f*. It is preferable that pins *f f* should operate on opposite sides of arms *d* and *e*, respectively. Another form of operating said arms is shown in Figs. 1 to 6, inclusive, in which said arms *e d* slide, each between two lugs or pins *f* on needle-bar B as it reciprocates. Guide *g* is an ordinary guide-eye—such, for instance, as the spiral or pig-tail shown in Figs. 7 and 8—through which the thread is fed to the needle; but a good construction is also shown in Fig. 3, consisting of a slot *i*, and spring *j*, fastened on one side of said slot *i* and projecting across it, so that the thread may be slipped in readily and retained. Finger *h* is substantially hook-shaped.

The operation of our attachment is as follows, to wit: Needle-bar B is at its upper limit of stroke. Cam-shaped arms *d* and *e*, respectively, hold guide *g* and fingers *h* in front of the path of the needle, or on that side of the needle in which is the recess *n*. Arm *e* is a little longer than arm *d*, so that finger *h* is below guide *g* and the hook thereof behind the thread passing down through said guide. This position of the parts is shown in Figs. 1 to 5, inclusive, and in Figs. 7 to 10, inclusive. As needle-bar B descends, pins or lugs *f* and springs *f'* and *f²*, operating in opposition to each other upon cam-shaped arms *d* and *e*, swing them upon their axes on presser-bar A forward toward and one to either side of the path of the needle. As finger *h* is thus advanced it catches thread *k* below guide *g*, and said thread as both guide *g* and finger *h* are advanced to opposite sides of the needle-path is carried forward and distended partially around the descending needle, so as to be engaged by the recess *n* thereof, as shown in Fig. 6. Of course it is understood that when the form of our device shown in Figs. 1 to 6, inclusive, is used, said pins or lugs *f* operate said arms both ways without the assist-

ance of any springs. As needle-bar B descends finger *h* returns to its former position and guide *g* remains in its advanced position to feed the thread to the long groove of the needle until the needle has risen sufficiently to render this necessary, when this also returns to its former position. This operation is repeated with each stitch. Of course we do not limit ourselves to the particular motions described of said guide and finger. They may be varied considerably—for instance, the arm *d* may be adapted to return the guide *g* to its normal position as soon as the needle has engaged the thread. In this case the long groove of the needle may be turned around to the front thereof, as shown in our said application filed simultaneously herewith. This motion of the guide is illustrated in Figs. 7 and 8; but the long groove is shown straight, as whether or not it should be turned depends upon the nature of the complemental stitch-forming mechanism below the cloth-plate.

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 for operating said needle, means for feeding thread to the same, which consists of a guide and finger movable simultaneously in straight divergent lines from in front of the path of said needle toward and to opposite sides of said path, whereby the thread is carried and distended partially around the needle as it descends, means for operating said guide and finger, and with complemental stitch-forming mechanism below the cloth-plate, substantially as described.

2. In a sewing-machine, the combination of a needle having a recess or open eye for engaging the thread, with means for operating said needle, means for feeding thread to the same, which consists of a guide and finger movable simultaneously in straight divergent lines from in front of the path of said needle toward and to opposite sides of said path, said guide being adapted to remain in its advanced position during a part of the time of each stitch, whereby the thread is carried and distended partially around the needle as it descends and is fed to the long groove thereof, means for operating said guide and finger, and with complemental stitch-forming mechanism below the cloth-plate, substantially as described.

3. In a sewing-machine having a needle with a recess or open eye for engaging the thread, the device for operating the thread-feeding mechanism of said needle, which consists of the combination of lugs on the presser-bar, cam-shaped arms journaled in said lugs, and means for swinging said arms on their axes as said needle-bar reciprocates, substantially as described.

4. In a sewing-machine having a needle with a recess or open eye for engaging the thread, the device for operating the thread-feeding mechanism of said needle, which consists of the combination of lugs on the presser-bar, cam-shaped arms journaled in said lugs, pins on the needle-bar adapted to swing said arms in one direction on their axes as said needle-bar reciprocates, and springs adapted to swing said arms in opposition to said pins, substantially as described.

In testimony whereof we affix our signatures, in presence of two witnesses, this 14th day of October, 1891.

ALBERT LEGG.
CHAS. W. WESTON.

Witnesses:
WM. B. WHITNEY,
H. V. N. PHILIP.

Correction in Letters Patent No. 474,842.

It is hereby certified that in Letters Patent No. 474,842, granted May 17, 1892, upon the application of Albert Legg, of Milton, and Charles W. Weston, of New York, N. Y., for an improvement in "Sewing-Machines," an error appears in the printed specification requiring the following correction, viz.: In line 6, page 2, the word "necessary" should read *unnecessary;* and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 7th day of June, A. D. 1892.

[SEAL.]

CYRUS BUSSEY,
Assistant Secretary of the Interior.

Countersigned:

W. E. SIMONDS,
Commissioner of Patents.