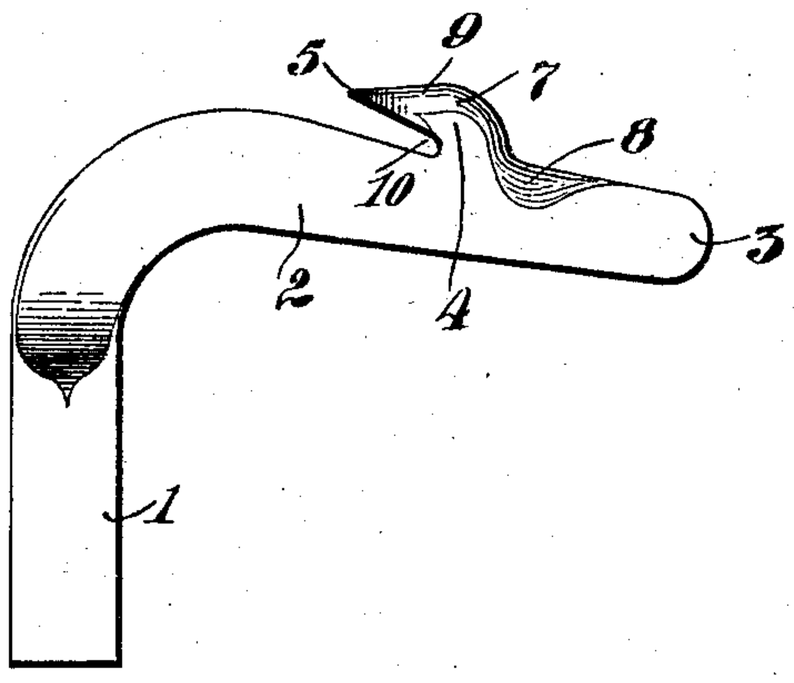
J. P. WEIS.

LOOPER FOR SEWING MACHINES.

APPLICATION FILED JAN. 30, 1903.

973,900. Patented Oct. 25, 1910.

Fig. 1.



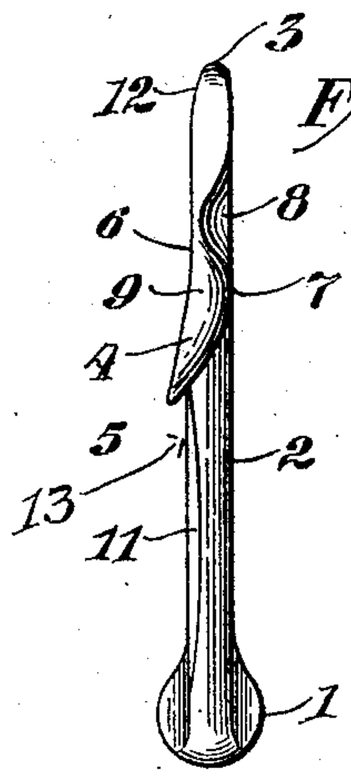


Fig. 2.

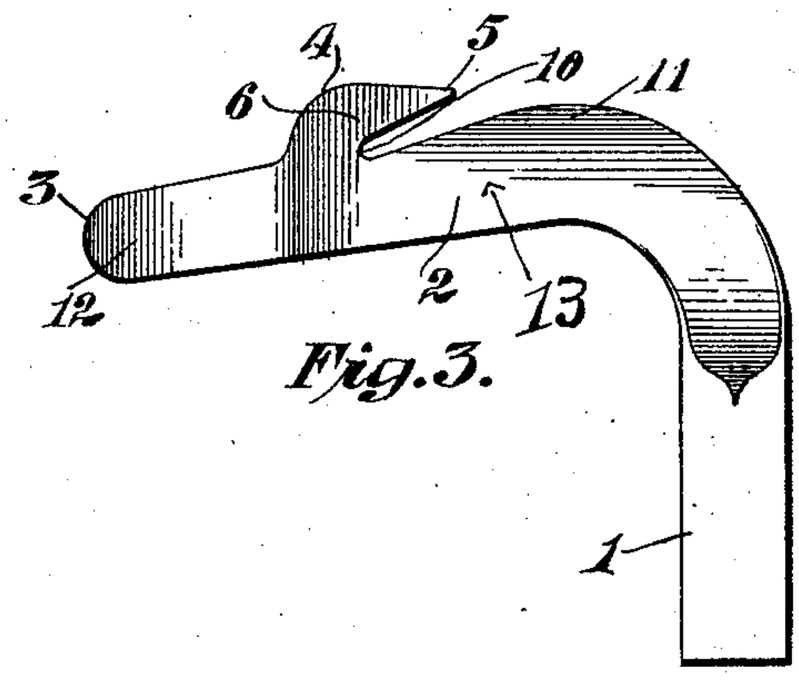


Fig. 3.

Witnesses
Comitowell,
W. B. Hoard.

John P. Weis.
Inventor.
By Chas. M. C. Chapman.
Attorney.

UNITED STATES PATENT OFFICE.

JOHN P. WEIS, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO METROPOLITAN SEWING MACHINE COMPANY, A CORPORATION OF NEW YORK.

LOOPER FOR SEWING-MACHINES.

973,900. Specification of Letters Patent. **Patented Oct. 25, 1910.**

Application filed January 30, 1903. Serial No. 141,100.

To all whom it may concern:

Be it known that I, JOHN P. WEIS, a citizen of the United States, residing in Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Loopers for Sewing-Machines, of which the following is a description.

This invention relates to sewing machines of the chain-stitch type, wherein is employed a looper which enters the loop of needle-thread, "cast", or "thrown-out", by the needle, and manipulates the same in a manner to produce or form a single chain-stitch.

Particularly, the invention relates to loopers for machines of the type noted, calculated to coöperate with the needle in a manner to form a chain-stitch; or coöperate with the needle and a supplemental device, such as a spreader, so as to form an over-edge stitch with a single thread.

The object of this invention is to provide a chain-stitch looper, which can operate close to the under side of the cloth-plate or throat-plate, and engage the thread on the downward movement of the needle, and much before the time when a loop is ordinarily "cast" or "thrown out" by the needle.

Another object of this invention is to provide a looper for a chain-stitch sewing machine which may coöperate with a spreader for making an over-edge stitch or form on the edge of the work a finish or binding.

Other objects of this invention will appear during the course of the following description, and upon them stress will be laid in order to prominently indicate the objects and purposes of the invention.

With the above objects in view, the invention consists in a looper having the features, characteristics, and coöperative elements hereinafter described and claimed.

In the drawings: Figure 1 shows the looper in rear elevation, particularly portraying the recess, depression, or groove provided for the coöperation of a spreader; Fig. 2 is a top plan view of the looper, particularly portraying the thread engaging hook, and showing the relation of the point thereof to the body of the looper; and Fig. 3 is a front elevation, particularly portraying those portions on the face of the looper which are important in coöperating with the needle and its thread.

Primarily, it should be understood that this looper is particularly useful in connection with over-edge stitching machines employing a single thread and having a spreader coöperating with the needle and looper to take the needle-thread engaged and retained by the looper and carry it in loop form into position for engagement, or entrance, by the needle on its descent through the work. Such a machine is illustrated in my companion application filed of even date herewith and bearing Serial No. 141,101, and therein the particular relation of this looper to the other stitch forming elements of a complete overedge machine is clearly illustrated.

The looper is provided with a stem or shank 1, adapted as usual, to be inserted in the socket of a looper-carrier and to be held therein by the usual binding screw. The body of the looper is indicated by 2, and in this connection it may be noted that the body is that portion which extends from the shank 1, to the tip 3. The body 2 is arranged at an angle, an acute-angle, to the shank 1, and is quite broad from top to bottom and narrow from front to back. The body-portion and shank are in the same plane which divides the shank along its longitudinal axis and also divides the body-portion longitudinally.

The thread-taking hook is indicated by 4, the same being shown as offset from the body 2, extending longitudinally thereof in the same plane which divides the shank and body, as above noted. The hook 4, extends, generally speaking, toward the shank or stem 1, and its point or nose 5, has the function of engaging the needle-thread just after the eye of the needle has descended below the same. As shown in the plan view Fig. 2, the thread-taking hook 4, though extending longitudinally in the plane of the body of the looper, has its point or nose 5 deflected laterally from the body of said hook, so that said point or nose 5 lies, or stands, in a plane extending parallel with the longitudinal axis of the body of the looper; or, considering the face of the said hook 4 as a standard, said nose or point 5 stands, or lies, in a plane intersecting the longitudinal axis of said looper. Furthermore, the face 6, of the hook 4, is substantially flat, although somewhat curved, or concaved, longitudinally, while the back of the hook is

quite prominently convexed, or curved at 7, from the point or nose 5, to the plane of the depression 8. Furthermore, as seen by Figs. 1 and 2, the hook 4, on its back, is curved, or convexed, transversely at 9, from its top to approximately its throat 10.

The depression 8, is made in the back of the body of the looper, at the top thereof and directly in rear, and at the base of the hook 4, this depression being for the reception of a spreader, the end of which normally lies or stands therein, or adjacent thereto, in position to engage the needle-thread, extending from the eye of the needle, held by the hook in its throat, and extending therefrom across the back of the looper to the work.

The body of the looper, on its face, and at its top, just in front of the point of the hook, is slightly beveled, slabbed, or rounded-off at 11, for the purpose of preventing the needle, in its descent, from engaging the body of the looper, which might result in turning the point of the needle or causing it to glance in rear of the point of the hook. Moreover, as the needle descends and its point passes the portion 11 of the looper, the body of the looper below and forward of the slabbed portion, at 13, deflects the needle laterally so as to prevent the point of the hook from striking the needle, which would result in rupturing or injuring the point of the hook and, possibly, bending or breaking the needle. At its tip 3, on its face, the looper is slightly rounded, or curved at 12, this form being given by preference and not from necessity, to afford a nice finish, and smooth engagement with the strand of needle-thread, and also to provide against any possiblity of the tip of the looper engaging, objectionably, the body of the needle. The tip of the looper is also rounded vertically at its end, by preference, for nice finish, and for avoiding angles which might objectionably engage the strand of thread.

It will be noted that the thread-engaging hook of my looper is pointed, substantially, longitudinally of the looper-body and in the general direction of the shank thereof, this being one of the many peculiarities of the looper and constituting one of its leading features, inasmuch as such disposition enables the looper to coöperate with the needle during the backward movement of the looper and immediately the eye of the needle descends below the cloth-plate, or throat-plate, of the machine, and enables the hook thereof to engage the thread while the needle is moving downwardly and long before it reaches its lower extreme. Moreover, it will be noted that the hook of my looper is projected or off-set, from the top of the looper-body, in the plane of the latter, thus enabling the looper to operate nearer the throat-plate, or cloth-plate, and render it possible for the point of the hook to take the needle-thread instantly the eye of the needle is below the said throat- or cloth-plate. This is a leading and important feature of my invention. Again, it will be noted that the looper body, in advance of the point of the hook, is much broadened where the slabbed portion 11, occurs, this being a feature coöperative with the point of the hook and essential on account of the off-set disposition of the hook. Hence, it will be observed that, though this looper is placed in the carrier and is reciprocated in precisely the manner that loopers are in conventional chain-stitch machines and that the timing of the needle and looper is not changed, the thread-engaging movement of the looper is its rearward movement, or what would ordinarily be the rearward movement of the looper in the ordinary machine. Thus, the looper engages the needle-thread on its backward, instead of its forward, movement and obviates the necessity of awaiting the usual slow retrogade movement on the part of the needle to throw out a loop. To aid this action of the looper, the needle is provided with a slight projection, or elevation, a short distance above the eye thereof, and over which the needle-thread extends into the eye of the needle, as clearly shown in my companion application above referred to.

Another important feature of this looper is the relation of the nose or point 5, of the hook 4, to the body thereof, which relation is such as to insure the proper and accurate coöperation of the point with the needle-thread the instant the eye passes below the upper edge of the looper body or the under side of the throat plate.

Still another important feature of this looper is the forward extension, including the tip 3, which constantly guides the needle while it is below the throat-plate and prevents it at any time from springing into the path of or behind the looper, during the stitch-forming operation, the same being at all times, after the hook has engaged the needle-thread, in engagement with said needle. This extension also prevents the strand of the needle-thread loop, on the forward movement of the looper, which causes said thread to become slack, from twisting or springing in front of the looper in any manner. This extension also prevents the hook from catching the thread in any other manner than as is intended, viz., on the backward movement of the looper and the downward movement of the needle. Again, the slabbed, or beveled, portion 11, in front of the hook of the looper, prevents the point of the needle from striking the looper-body and has the additional function of properly and surely deflecting the needle into the proper position

for enabling the hook to engage the needle thread.

One of the principal differences between this looper and loopers heretofore employed, in any of the chain-stitch machines, is that the hook of the looper, or the point or nose of the hook, is so disposed that it takes the strand of needle-thread, above the eye of the needle, while it extends practically taut from said eye to the work; and another important difference over the prior art is that the hook of the looper, or the point or nose of the hook, takes the needle-thread on the downward movement of the needle, in contradistinction to engaging a loop of the needle thread thrown out by the needle in any manner and at any time during the period that the eye of the needle is below the work.

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

1. A looper having its body of substantially uniform width from shank to tip and a thread-engaging hook offset from said body in a plane cutting the longitudinal axis of said body, and a depression in said body at the base of said hook.

2. A looper having its body of substantially uniform width from shank to tip and a thread-engaging hook, a supporting shank at one end of said body, and a needle-guard on said body in rear of said hook and at the other end of the looper.

3. A looper having its body of substantially uniform width from shank to tip and a thread-engaging offset hook, a supporting shank at one end of its body, and a needle-deflecting portion on its body in advance of the hook.

4. A looper having a thread-engaging hook offset from its body, a guard extension in rear of said hook, and a depression in its body in rear of said hook.

5. A looper having its body of substantially uniform width from shank to tip and a hook offset from said body and pointing in the direction of its shank, and a depression in its body at the base of said hook.

6. A looper having an elongated body-portion with a shank at one end at an angle thereto, and also having a thread-engaging hook offset from its body-portion, and the latter being slabbed in front of the point of the hook and having a needle-deflecting portion below and forward of the slabbed portion.

7. A looper having a long flat body, a supporting shank at one end, an offset thread-engaging hook on said body, and a needle-guard in rear of said hook and in the plane of the body.

8. A looper having a flat body, a supporting shank at one end, a thread-engaging hook between its ends, a needle-deflecting portion on said body in advance of said hook, and a guard-extension in rear of the latter.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN P. WEIS.

Witnesses:
CHAS. McC. CHAPMAN,
MABEL B. HOARE.