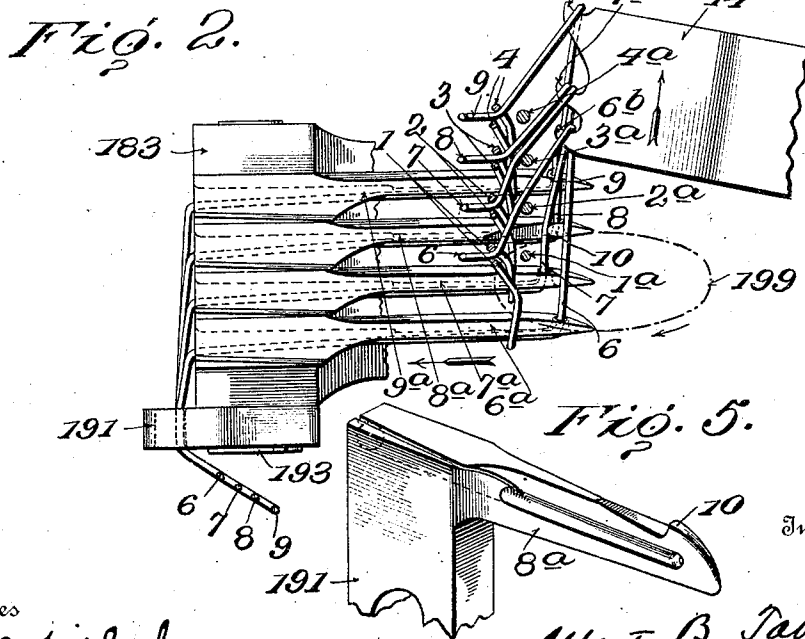
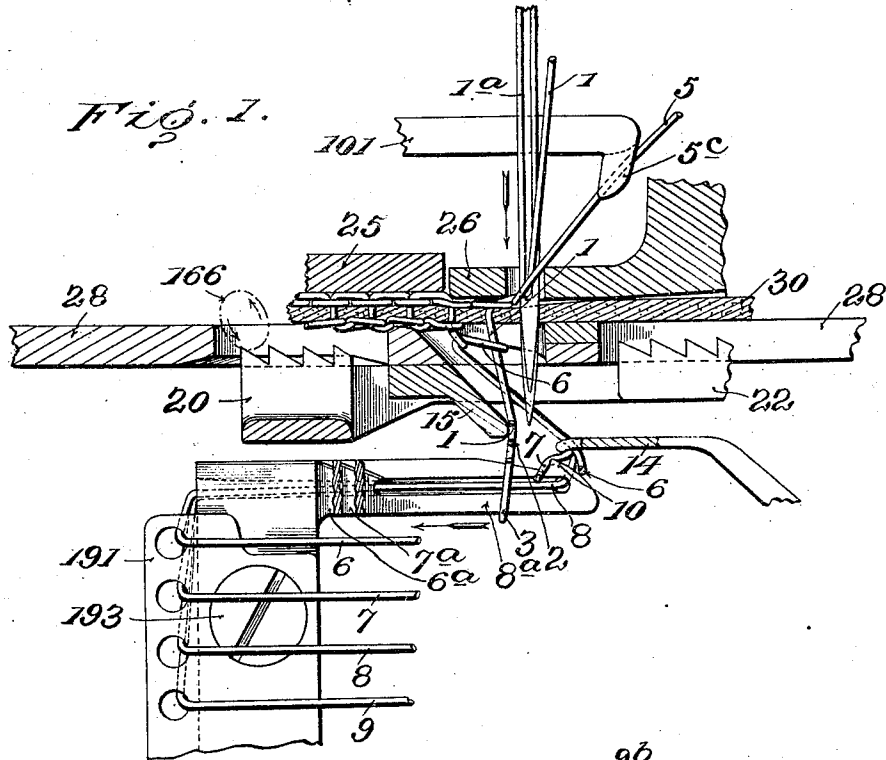


A. B. TABOR.
 LOOPER MECHANISM FOR SEWING MACHINES.
 APPLICATION FILED MAY 2, 1910. RENEWED AUG. 1, 1912.

1,041,698.

Patented Oct. 15, 1912.

2 SHEETS—SHEET 1.



Witnesses

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 Chas. B. Kennedy

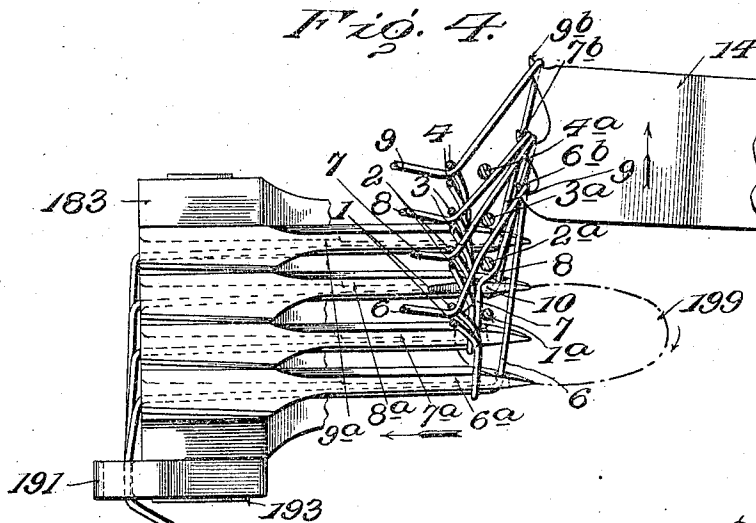
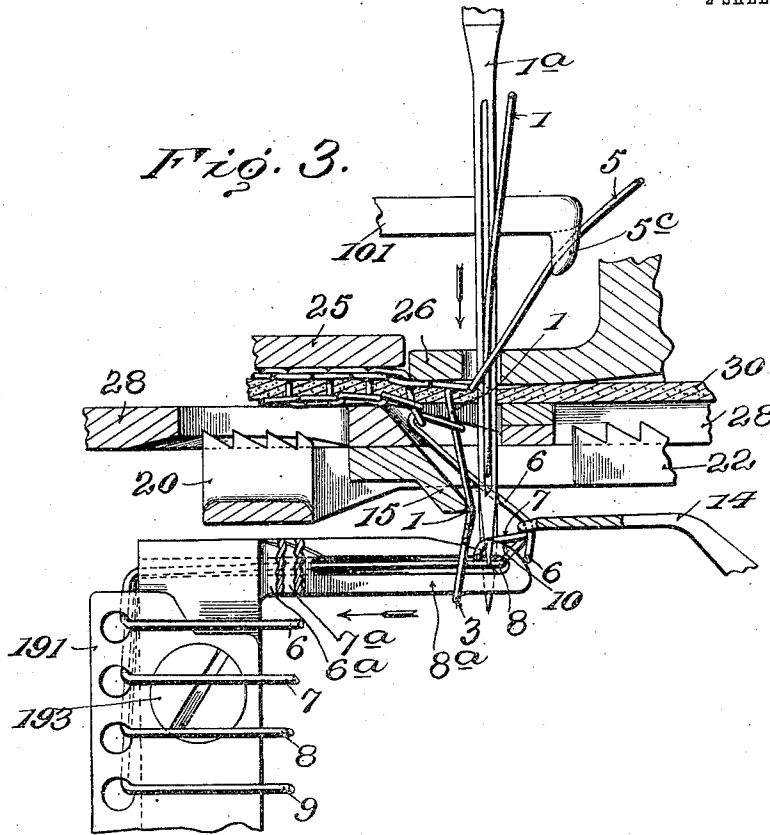
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Inventor

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UNITED STATES PATENT OFFICE.

ALBERT B. TABOR, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO WILLCOX & GIBBS SEWING MACHINE CO., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

LOOPER MECHANISM FOR SEWING-MACHINES.

1,041,698.

Specification of Letters Patent.

Patented Oct. 15, 1912.

Application filed May 2, 1910, Serial No. 558,847. Renewed August 1, 1912. Serial No. 712,779.

To all whom it may concern:

Be it known that I, ALBERT B. TABOR, of Providence, Rhode Island, have invented a new and useful Improvements in Looper Mechanism for Sewing-Machines, which invention is fully set forth in the following specification.

The present invention relates to an improved construction of looper mechanism, designed particularly for use in a sewing machine such as disclosed in an application for patent filed by Stockton Borton, on December 13th, 1906, Sr. No. 347,649, in the production of a seam such as covered by patent to said Stockton Borton, No. 883,614, dated March 31, 1908; but obviously the looper mechanism of this invention is capable of use in other machines for the production of other seams.

The invention may be readily explained and understood by reference to the accompanying drawings illustrating what is now believed to be the preferred embodiment thereof as applied to a machine of the character disclosed in the aforesaid Borton application.

In said drawings:—Figure 1 is a vertical sectional view showing stitch-forming elements of the machine in their relative positions when the points of the needles have passed through the throat-plate and are about to enter the spread loops in the looper-threads; Fig. 2 is a view looking down upon the elements below the throat-plate—also showing the lower ends of the needles in section—when the parts are in the position shown in Fig. 1; Figs. 3 and 4 are views similar to Figs. 1 and 2 respectively, with the needles farther down and their points in the loops in the looper-threads; and Fig. 5 is a detail perspective view of the toothed or hooked looper.

In the several views, the directions of movement of the moving parts are indicated by arrows.

1^a, 2^a, 3^a and 4^a, are a gang of four parallel needles for the four needle-threads 1, 2, 3, and 4 respectively. These needles are secured to a common needle bar and reciprocate together, the needle 1^a being slightly shorter than the others, as shown, and for reasons hereinafter explained. In addition to the four needles, the hook 101 having a depending horn 5^a, and a thread-carrier (not shown) work above the throat-

plate, these parts coöperating with the needles to incorporate in the upper face of the seam, in its proper position, a cross-thread 5. A part of the presser-foot is shown at 26, and a part of an auxiliary foot, yieldingly carried by the main presser-foot and designated a "chaining" foot, is shown at 25. 28 is the throat-plate and 30 a piece of fabric on which the mechanism is operating.

Below the throat-plate there is a feed-surface, portions of which are shown at 20 and 22, operating upward through openings in the throat-plate to advance the work, the movement of the feed-surface being approximated by the ellipse 166 in dotted lines Fig. 1. 14 is an oscillatory loop-spreader having thread engaging hook-points or teeth 6^b, 7^b and 9^b. 15 is a loop-shedder fixed rigidly to the underside of the throat-plate 28 and acting to prevent movement of the loops in the needle-threads as the loopers are withdrawn from said loops. 6^a, 7^a, 8^a and 9^a, are four loopers, each having a depending right-angled shank, shown in Fig. 5, through which screws, only one of which is shown at 193, pass to bind the four loopers together and secure them to the looper-carrier, a part only of which is shown at 183. The screws mentioned also secure a plate 191 to the looper-carrier. In coöperation with the other parts of the mechanism the loopers are moved in an elliptical path in a substantially horizontal plane, such elliptical movement being approximately illustrated by the dotted line ellipse 199 for the point of looper 6^a. As clearly shown, the loopers 6^a and 7^a are broken away in both Figs. 1 and 3, in order to show the third looper 8^a in side elevation.

As shown in each of Figs. 1 to 4 inclusive, the forward ends of the loopers are engaged through loops in the four needle-threads, which needle-thread loops depend from the underside of the work. The looper-thread 6 passes through a thread-eye in plate 191, thence in a groove along the left hand side of looper 6^a, through the eye at the forward end of said looper, thence around the hook-point or tooth 6^b of the spreader 14, and thence upward through a loop in the needle-thread 1 (held by looper 6^a) to the work. Looper-thread 7 similarly passes through an eye in plate 191, thence along a groove

in the left hand side of looper 7^a, through an eye near the point of said looper, thence around hook-point 7^b of spreader 14, and upward through a loop in needle-thread 2 (held by looper 7^a) to the work. Similarly, the looper-thread 8 passes through an eye in the plate 191 along a groove in the left hand side of looper 8^a, through an eye near the point of said looper, thence around hook-point 7^b of spreader 14, and thence upward through a loop in needle-thread 3 (held by looper 8^a) to the work. And in like manner the looper-thread 9 passes through an eye in plate 191 along a groove in the left hand side of looper 9^a, through an eye near the point of said looper, around the hook-point 9^b of spreader 14, and thence upward through a loop in needle-thread 4 (held by looper 9^a) to the work.

As thus far described, the construction is substantially the same as that disclosed in the aforesaid Borton application, except that in the latter the thread-eye of the second looper 7^a, with relation to the eyes in the other loopers, is farther back from the looper points. By this previous relative arrangement of the eyes the loop-spreader 14 was enabled to so position the triangular-like spread-loops in the four looper-threads that each of said loops would be penetrated only by its proper two needles, this being essential to the formation of the underside of the particular seam which the mechanism is designed to make. This proper positioning of the triangular loop in looper-thread 7, so that only the needles 2^a and 3^a—and not the needle 1^a—pass into said loop, is accomplished in the machine of said Borton application by making the needle 1^a slightly shorter than the other needles, and by placing the eye in looper 7^a farther back from the point of said looper than the eyes in the other loopers 6^a, 8^a and 9^a. It has been found, however, that in this previous construction the loop-spreader 14—particularly its hook point 7^b—sometimes fails to catch the looper-thread 7 with resulting defect in the seam.

The particular object of the present invention is to overcome the defect above mentioned. To this end the third looper 8^a is notched on its upper edge near its point to form a tooth, projection, shoulder, or hook 10 (Fig. 5) adapted by the movement of the loopers to be engaged with that portion of looper-thread 7 extending from the eye of looper 7^a to hook-point 7^b and pull the same rearward so that the needle 1^a does not pass down into the loop in said thread 7. In the position of the parts shown in Fig. 2 the tooth 10 has engaged thread 7 from looper 7^a, and is beginning to pull it rearward to carry it under the shorter needle 1^a. As shown in Fig. 4, the tooth has pulled thread 7 farther to the rear, said thread at

the right-hand side of looper 8^a being drawn against the forward side of needle 2^a which, with the needle 3^a, has descended into the loop of said thread 7. At the left of looper 8^a said looper thread 7 has been drawn by the tooth or hook 10 to the rear or back side of the slightly shorter needle 1^a. By the provision of this tooth or hook on looper 8^a, it is possible to move the eye of looper 7^a farther forward than in the previous construction, whereby when at one stage of the operation the thread 7 passes from said eye upward directly to the work it will be in such position that the loop-spreader 14 will not fail to catch said thread at the proper time to spread its loop.

What I claim is:—

1. In a sewing machine, the combination of a needle, two thread-carrying loopers one having thereon a hook or tooth adapted in the movement of the loopers to engage the thread extending from the other looper to deflect its loop out of the path of said needle.

2. In a sewing machine, the combination of a needle, two loopers relatively fixed but movable together, one of said loopers having thereon a hook or tooth adapted in the movement of the loopers to engage and position, with relation to the needle, the thread extending from the other looper which latter is a thread carrying looper.

3. The combination of a plurality of needles and a plurality of loopers movable together for coöperating with said needles, one of said loopers having thereon a hook or tooth adapted in the movement of the loopers to engage and position the thread extending from another looper with relation to the needles.

4. The combination of two loopers, and a coöperating loop-spreader, one of said loopers having thereon a hook or tooth adapted in the movement of the loopers to engage and position the thread extending from the other looper to the loop-spreader.

5. The combination of a plurality of needles, a plurality of loopers and a loop-spreader, one of said loopers having thereon a hook or tooth adapted in the movement of the loopers to engage the thread extending from the other looper to the loop-spreader and position said thread with relation to the needles.

6. The combination of two relatively fixed loopers arranged side by side and movable together in similar paths, one of said loopers having thereon a hook or tooth adapted in the movement of the loopers to engage and position the thread extending from the other looper which latter is a thread-carrying looper.

7. The combination of a plurality of needles and a plurality of thread-carrying loopers movable together and coöperating

with said needles to project loops of their
threads through loops of thread projected
by the needles from one side of the seam,
and means for spreading said loops of
5 looper threads into position to be entered
by the needles, one of said loopers having
thereon a hook or tooth adapted in the
movement of the loopers to engage the loop
of thread extending from another looper

and deflect said loop, thereby preventing one 10
of the needles from entering the same.

In testimony whereof I have signed this
specification in the presence of two sub-
scribing witnesses.

ALBERT B. TABOR.

Witnesses:

H. A. W. HAYWARD,
W. T. SIDDALL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."