

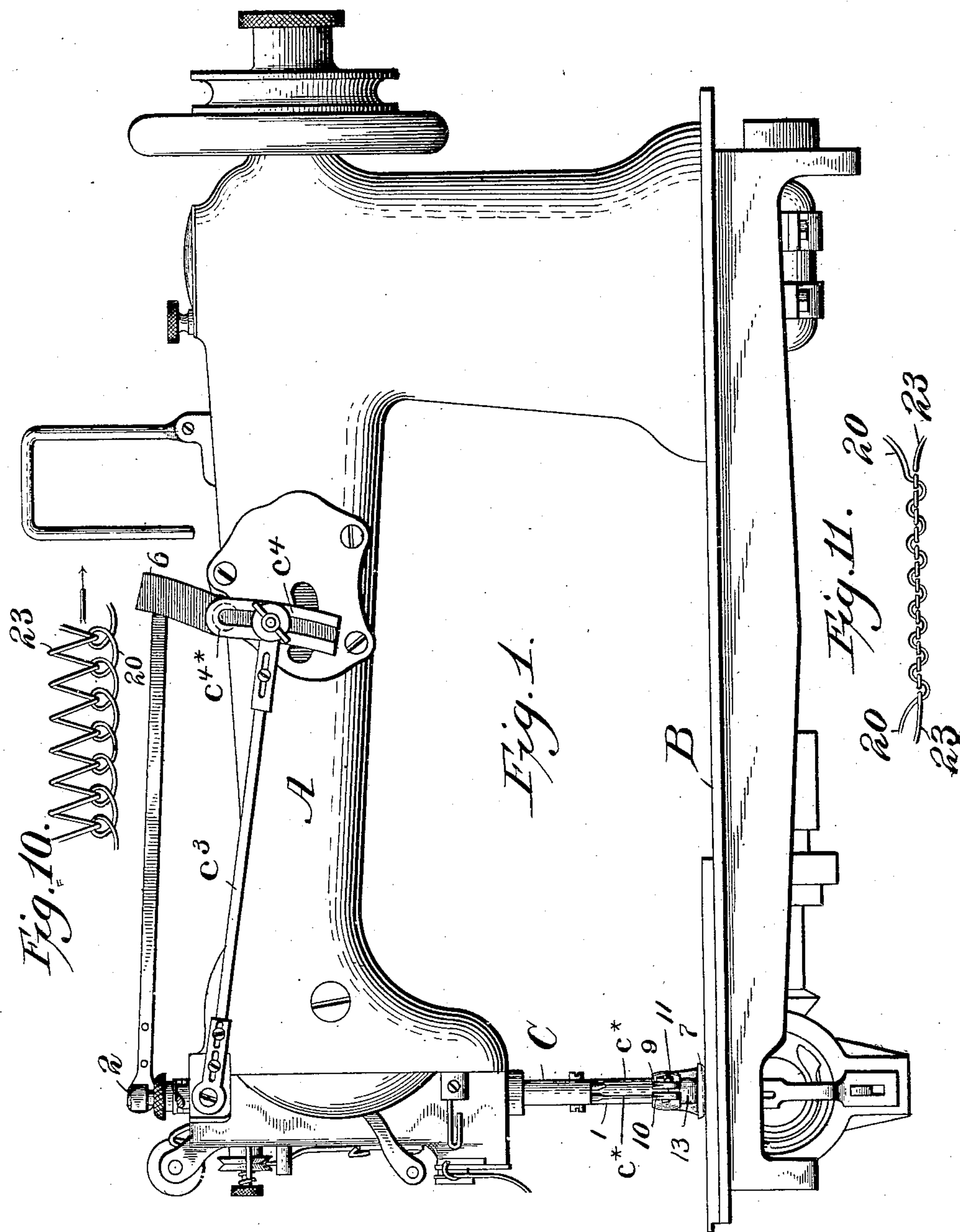
No. 875,601.

PATENTED DEC. 31, 1907.

W. N. PARKES.
ORNAMENTAL STITCH SEWING MACHINE.

APPLICATION FILED OCT. 4, 1900.

3 SHEETS—SHEET 1.



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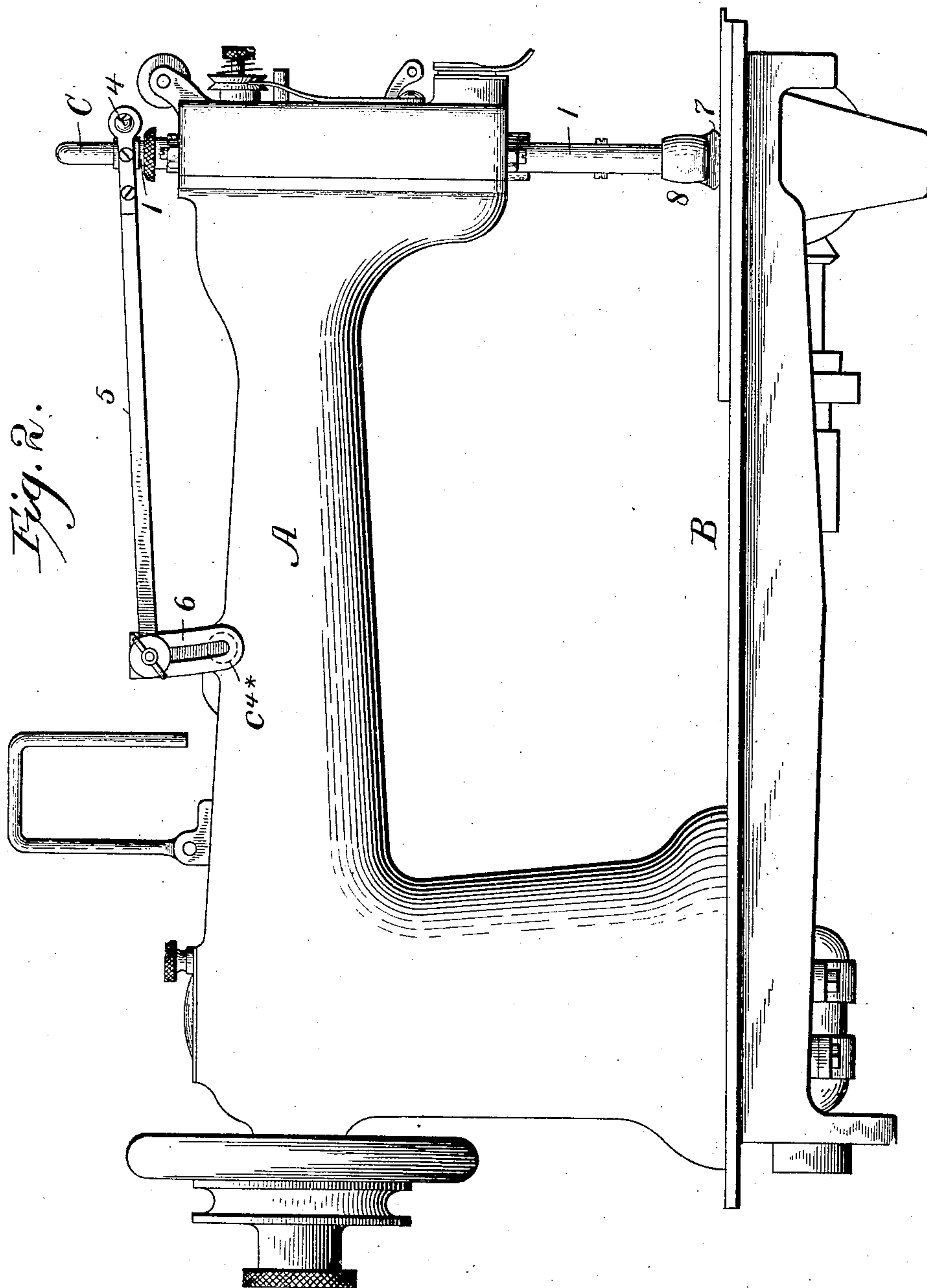
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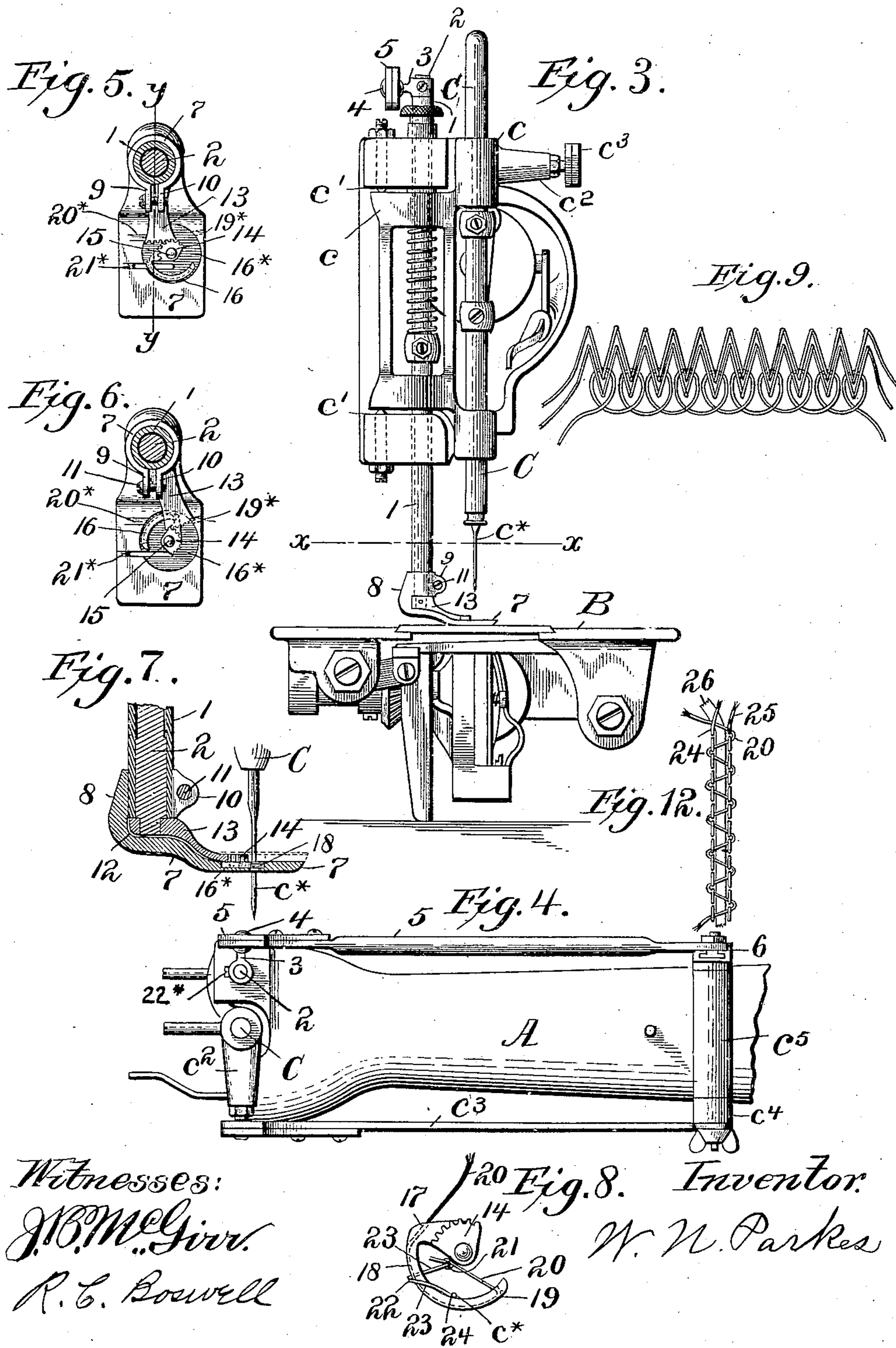
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3 SHEETS—SHEET 3.



UNITED STATES PATENT OFFICE.

WILLIAM N. PARKES, OF BROOKLYN, NEW YORK.

ORNAMENTAL-STITCH SEWING-MACHINE.

No. 875,601.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed October 4, 1900. Serial No. 32,041.

To all whom it may concern:

Be it known that I, WILLIAM N. PARKES, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Ornamental-Stitch Sewing-Machines, of which the following is a specification.

My invention belongs to the class of machines known as sewing machines.

It has for its main object improved means for winding or looping an additional or auxiliary thread or cord around the thread of a vertically reciprocating and laterally vibrating needle, in such a manner as to form a purl along the edge of the zigzag stitches, or along the edge of the edge stitches when edge and depth stitches are made.

The invention also has for its object the adaptation of said improved means to intertwine or concatenate said additional thread or cord with the thread of a needle which reciprocated vertically only, or with the threads of a plurality of needles which reciprocate vertically only.

A further object of the invention is the adaptation of said improved means to concatenate or loop said additional thread with the threads of a plurality of reciprocating and laterally moving needles.

Referring to the drawings, Figure 1 is a front elevation of a machine embodying my invention, and Fig. 2 is a rear view of the same. Fig. 3 is a face view with the face plate removed, Fig. 4 is a top plan view of the forward end of the overhanging arm of the machine. Fig. 5 is a top plan view of the presser foot on lines $x-x$, Fig. 3, with the thread finger in its forward position, and Fig. 6 is a view of the same with the thread finger in its initial position. Fig. 7 is a vertical section on line $y-y$ Fig. 5. Fig. 8 is a view showing the thread finger in engagement with the needle thread. Fig. 9 is a diagrammatic view illustrating the stitching with the auxiliary thread looped around it when two vertical reciprocating and laterally vibrating needles are used. Fig. 10 is a diagrammatic view of a stitch above the work, when one needle is used. Fig. 11 is a view of a stitch made when there is no lateral movement to the needle. Fig. 12 is a stitch made when two needles are used, no lateral movement of the same being made, and the thread finger being oscillated alter-

nately with respect to the reciprocations of the needles.

In the drawings A designates the overhanging arm and B the bed plate.

C is a needle bar in the lower end of which are thread carrying needles c^* . The needle bar C is mounted in a gate c , which is pivoted at c^1 on bearings in the arm of the machine. To the arm c^2 extending from the gate c is attached one end of a link c^3 . The other end of the link c^3 is adjustably attached to a segment lever c^4 , which in turn is attached to a shaft c^5 which is mounted to turn in a bearing c^6 on the arm A of the machine and arranged transversely to the same. The lower end of the lever c^4 is in engagement with a switch cam (not shown) mounted on the upper shaft of the machine. The needle bar C is reciprocated vertically by a usual connection between it and the said upper shaft and is moved laterally by the movement of the segment lever c^4 . In the operation of the machine thus far described, the needle bar is moved laterally in one direction by the action of the switch cam which operates the lever c^4 , after which the needle bar descends and the needle coöperates with any suitable complementary stitch forming mechanism, shown in Figs. 1 and 3, but not specifically designated. Then the needle bar rises, is moved in the opposite direction laterally, through the action of the segment lever c^4 , and again descends, the needle again coöperating with the complementary stitch forming mechanism and thus forming the overseaming stitch.

My invention in its present form is disclosed in connection with a usual and well known type of zigzag machines, and the foregoing brief description of the needle operating mechanism and complementary stitch forming mechanism is the same as is used in said machines. The usual machines, as is well known are provided with needle clamps for carrying a single needle or with needle clamps for carrying a plurality of needles. The hook revolves in a vertical plane at right angles to the direction in which the work moves, and the needle or needles reciprocate vertically, and are moved laterally at right angles to the direction in which the work moves so a plurality of needles may be used in combination with a single revolving hook. The segment c^4 and the switch cam used for operating it, are the same as those used in

said well known zigzag machines, and as in said machines, when the end of the needle-bar gate connection c^3 is adjusted over the axis of the pivot of the segment lever c^4 the needle-bar is not moved laterally, and consequently the needle reciprocates vertically only as in an ordinary plain stitch machine. I found in reducing my invention to practice in said machine that no modification at all was necessary in connection with the feeding mechanism, so it is to be understood that the feeding mechanism in the machine disclosed is the same as the usual feeding mechanism used in said zigzag machines. As will be seen, my invention in its present form is combined with the needle or needles of a zigzag machine, and any suitable complemental stitch forming mechanism may cooperate with said needles. Any suitable feed mechanism or means for moving the work may be used in combination with my invention. Such for example as is used in said well known zigzag machines in which a usual feed dog engages the work, or any well known work carrier may be used for moving the work such for example as is shown in my Patent No. 693,666, dated February 18, 1902.

I will now describe one form of mechanism embodying my invention:—

1 is a hollow presser-bar or tube mounted in the usual presser-bar bearings in the head of the machine. This presser-bar or tube may be depressed and lifted in a manner usual as in ordinary sewing machines. Extending longitudinally through the presser-bar 1 is a rod, or rock shaft 2, to the upper end of which is attached an arm 3, having the ball 4 at its outer end, and to which is connected one end of a link 5. The rear end of the link 5 is adjustably connected to an upwardly extending segment lever 6, which is attached to the shaft c^4 . To the lower end of the presser-bar 1 is attached a presser-foot 7, having an upwardly extending shank 8, which surrounds the lower end of the bar, is split, and has lips 9 and 10 extending forward as shown in Figs. 1, 5 and 6. Through the lip 9 freely passes a screw 11, which has a seat in lip 10. This construction serves as a means for clamping the foot to the presser-bar. A way 12 is milled in the clamp of the presser-foot as shown in Fig. 7. To the lower end of the rod 2, and in the way 12, is attached a segment 13, on the forward end of which teeth are formed. Segment 14, having teeth formed on its periphery adapted to engage the teeth formed on the segment 13, is mounted to turn on a stud 15, extending upwardly from the presser-foot 7, as shown in Figs. 5, 6 and 7. The thread finger 16, at its heel, is attached to the toothed segment 14, a depression 16* being formed in the top of the presser-foot 7, to permit the thread finger to be located and operated close to the

surface of the work. A way 17, runs through the heel of the thread finger and into a channel 18, Fig. 8, which extends along the outer periphery of the thread finger 16, to near its nose and there runs into an eye 19, which passes through the nose of the thread finger. A looper thread 20, passes through the way 17, the channel 18 and the eye 19 as shown in Fig. 8. An eye 19* passes through the presser-foot 7, and serves as a means for leading the thread into the way 17 of the thread finger 16, and the way 20* serves as a means for permitting the thread to pass upwardly and out from the way 17. A way 21* serves as a means for guiding the thread into the eye 19 of the thread finger 16.

The rod 2 and its connections are all carried by the presser-bar 1, as is also the presser-foot and the parts carried by it, but it is to be noted that the manner in which these parts are constructed and mounted avoids any interference with the lifting of the presser-bar, and that the same may be lifted as in an ordinary machine without in any way disconnecting the parts. The way in the segment lever 6, as shown in Fig. 2 permits of the adjustment of the end of the connection 5 over the axis of said lever, and this serves as means for adjusting the thread finger and its connecting parts out of action.

In Fig. 8, 21 indicates the finishing of an edge stitch when the parts are adjusted to make a purl along the edge of the over-seam stitches. To adjust the parts for this purpose the screw 22* is loosened and the rod 2 adjusted around so that the working position of the thread finger 16 is such that at the end of its stroke, as shown in said Fig. 8, the auxiliary thread 20 is drawn taut. And when the parts are so adjusted, the said thread finger is in its initial position when in the position shown in Fig. 6, and when in this position the auxiliary thread 20 is not taut. It is thus to be understood that when the parts are adjusted so as to loop the auxiliary thread tightly around the edge stitches the auxiliary thread is alternately loose and taut.

Any ordinary tension device may be used for producing tension on the auxiliary thread, and of course said tension is adjusted to produce the proper tautness on said auxiliary thread to draw the same tight around the edge stitches. When the parts are adjusted as above described the supply of auxiliary thread is drawn as the thread finger finishes its stroke as shown in Fig. 8, and this of course draws the auxiliary thread taut around the stitches along this side of the embroidered path.

In Fig. 10, the auxiliary thread 20, is shown looped loosely around the edge stitches for the purpose of clearness, in practice however when a purl is being formed this auxiliary thread is drawn tightly around said stitches. Of course the tension on the aux-

iliary thread may be made strong enough, relative to the tension on the needle thread, to draw the said auxiliary thread out in a straight line and under this kind of an adjustment the needle thread would be twisted around the auxiliary thread along the edge stitches. In looping the auxiliary thread around the edge stitches, or in drawing the auxiliary thread so that the needle thread is twisted around said auxiliary thread, a very desirable ornamental finish may be made along the edge of a piece of fabric.

In Fig. 9 I have illustrated the manner in which the auxiliary thread is wound or looped around the needle threads when two reciprocating and laterally moving needles are used. Of course the auxiliary thread may be made taut enough to draw the threads of both of the needles together along the edge stitches, or various other variations may be made by changing the degree of tension on the needle threads, or on the auxiliary thread or on both. Also the ornamental effect may of course be varied by changing the lateral working position of the finger 16. If for example the said finger be adjusted so that its eye 19 moves an equal distance each side of the depth and edge stitches the auxiliary thread will obviously not be drawn to the edge of the edge stitches.

In Fig. 11, the manner in which the auxiliary thread is interwoven with the thread of a single needle that reciprocates vertically only is shown, and in Fig. 12, the manner in which it is interwoven with the threads of two reciprocating needles, that are not moved laterally, is illustrated. In the last mentioned figure the manner in which a braid, or ribbon, may be run or inserted under the auxiliary thread is indicated. In this figure, 20 represents the auxiliary thread and 26 the ribbon or braid running under the auxiliary thread. The segment lever 6, being operated from the movement of the shaft c*, and the latter being operated by the ordinary switch cam as before mentioned, and the thread finger 16, being operated from the movement of said segment lever 6, it is of course understood that said finger moves laterally in unison with the needle or needles when they are moved laterally, and as said needles are moved laterally as in any ordinary zigzag machine it is of course clear that the thread finger reciprocates horizontally once to two vertical reciprocations of the needle or needles. While I prefer to operate the thread finger mechanism from the movement of a moving part of the means that moves the needle or needles laterally, it is obvious that it is not essential to operate it from this source.

It will be understood that while I call the auxiliary thread carrier a finger, it is not an ordinary finger and might well be called a

looper. The ordinary finger in sewing machines simply passes an auxiliary thread back and forth under the needles, and by this means the auxiliary thread is stitched to the material, but the finger in my invention not only passes an auxiliary thread back and forth under the needle, but it loops the auxiliary thread completely around the needle thread as is clearly shown in Figs. 8 and 10.

It is obvious that changes may be made in the construction of my device without departing from the spirit of my invention, and it is therefore to be understood that I do not wish to be limited to the exact means as herein disclosed.

What I claim as new is:—

1. A sewing machine comprising a plurality of vertically reciprocating and laterally vibrating thread carrying needles, a thread finger adapted to loop an auxiliary thread around the threads of said needles, and means for operating said thread finger.

2. A sewing machine comprising stitch-forming mechanism including a plurality of vertically reciprocating and laterally vibrating needles, in combination with an oscillating thread-finger and means for actuating said needles and finger so as to impart to the former two complete reciprocations to one oscillation of the latter.

3. A sewing machine comprising two vertically reciprocating needles adapted to be moved laterally, mechanism for moving said needles laterally, a thread finger adapted to loop an auxiliary thread around the threads of said needles, and means for operating said thread finger from a part of the mechanism that moves the needles laterally.

4. A sewing machine comprising stitch-forming mechanism including a plurality of vertically reciprocating and laterally vibrating needles, in combination with an oscillating thread-finger, and means for actuating said needles and finger so as to impart to the former two complete reciprocations and a single vibration to one oscillation of the finger.

5. A sewing machine comprising stitch-forming mechanism, in combination with a thread-finger, and mechanism for actuating said finger including means whereby the latter may be put out of action without disturbing its operative position or affecting the operation of the stitch-forming mechanism.

6. A sewing machine comprising stitch-forming mechanism, in combination with a vibrating thread-finger and a hollow presser-bar, and means for actuating said finger including a rock-shaft located in said bar.

7. A sewing machine comprising stitch-forming mechanism, in combination with a thread-finger and a tubular presser-bar carrying a foot, said finger being supported by

the presser-foot, and means for actuating said finger, a portion of said means being surrounded by said bar.

5 8. A sewing machine comprising stitch-forming mechanism, in combination with a thread-finger and a presser-bar, said finger being pivoted upon the foot of said bar, and means for actuating said finger, including a rock-shaft extending through said bar.

10 9. A sewing machine comprising stitch-forming mechanism, in combination with a presser-bar and foot, a depression in the foot, a thread-finger pivoted in said depression, and means for actuating said finger, includ-

15 ing a rock-shaft extending through said bar.
10. A sewing machine comprising stitch-forming mechanism, in combination with a thread-finger and a tubular presser-bar carrying a foot, said finger being pivoted upon
20 the foot, and means for actuating said finger including a bar extending the length of and within said bar, and being thus braced and carried by the presser-bar, and a connection between the bar and finger.

25 11. A sewing machine comprising stitch-forming mechanism, in combination with an oscillating thread-finger and a hollow presser-bar, means for actuating said finger including a vertically disposed rock-shaft extending
30 through said bar, and gear connections between said shaft and finger.

12. A sewing machine comprising stitch-forming mechanism, in combination with an oscillating thread-finger and a hollow presser-

bar, means for actuating said finger includ- 35
ing a vertically disposed rock shaft extending through said bar, a crank-arm connected to said shaft, and means connecting said arm and finger.

13. A sewing machine comprising stitch- 40
forming mechanism, in combination with an oscillating thread-finger and a hollow presser-bar, means for actuating said finger including a vertically disposed rock-shaft extending
45 through said bar, a segmental gear connected to said shaft, and a gear connected to said finger and cooperating with the gear of said shaft.

14. A sewing machine having a vertically reciprocating thread carrying needle adapted 50
to be moved laterally, a cam and means for operating it means whereby said needle is moved laterally from the action of said cam, a presser-bar, a rod located longitudinally in said presser-bar, a thread finger operated by
55 said rod adapted to oscillate and thereby loop an auxiliary thread around the needle thread, and means intermediate the afore-said cam and said rod whereby the rod is oscillated by the action of the cam. 60

Signed at New York in the county of New York and State of New York this third day of October A. D. 1900.

WILLIAM N. PARKES.

Witnesses:

R. C. BOSWELL,
J. B. MCGIRR.