

No. 705,230.

Patented July 22, 1902.

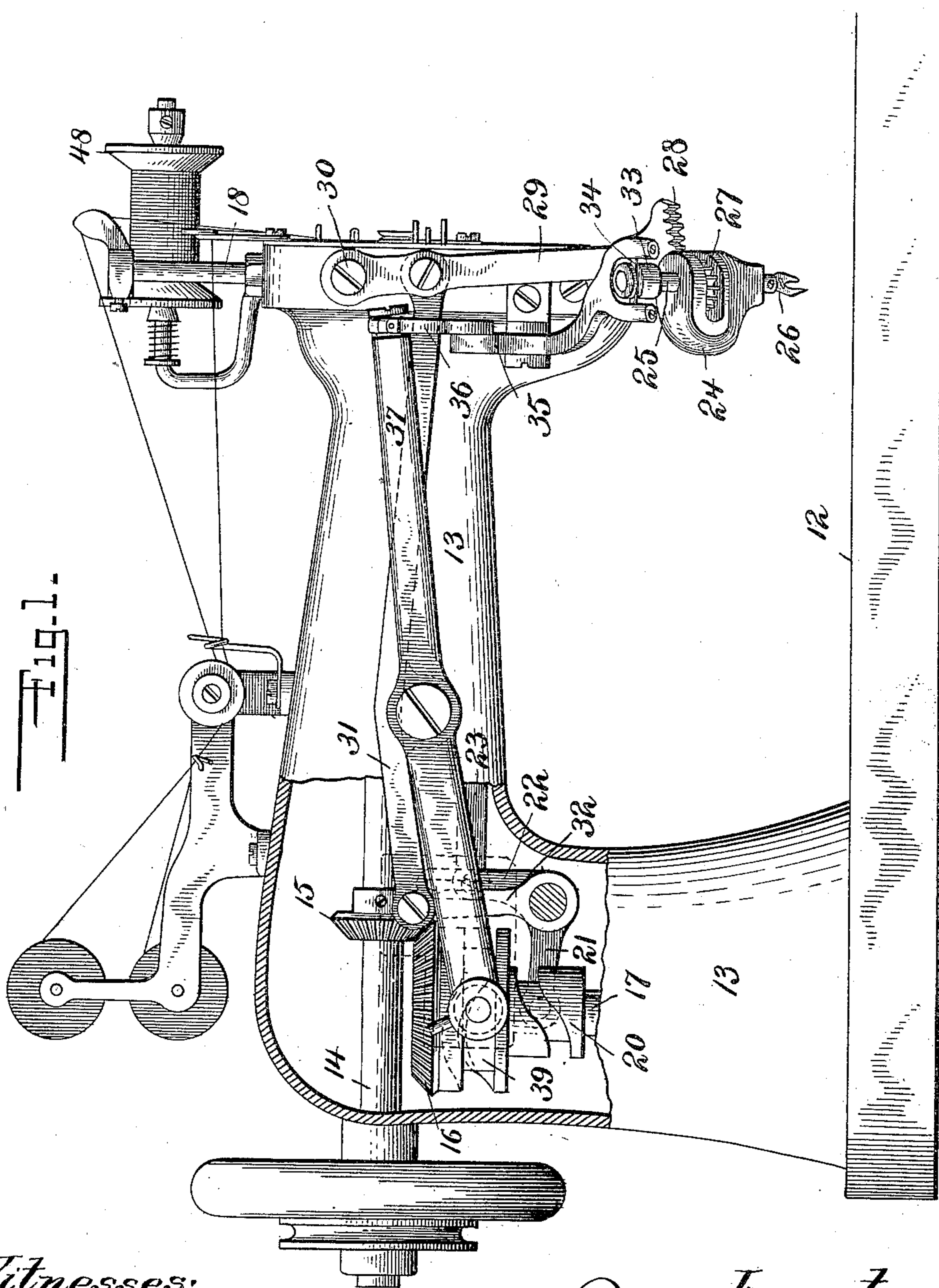
J. G. GREENE.

PURLING DEVICE FOR OVEREDGE SEWING MACHINES.

(Application filed Dec. 8, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:

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Inventor:

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by Henry K. Jones
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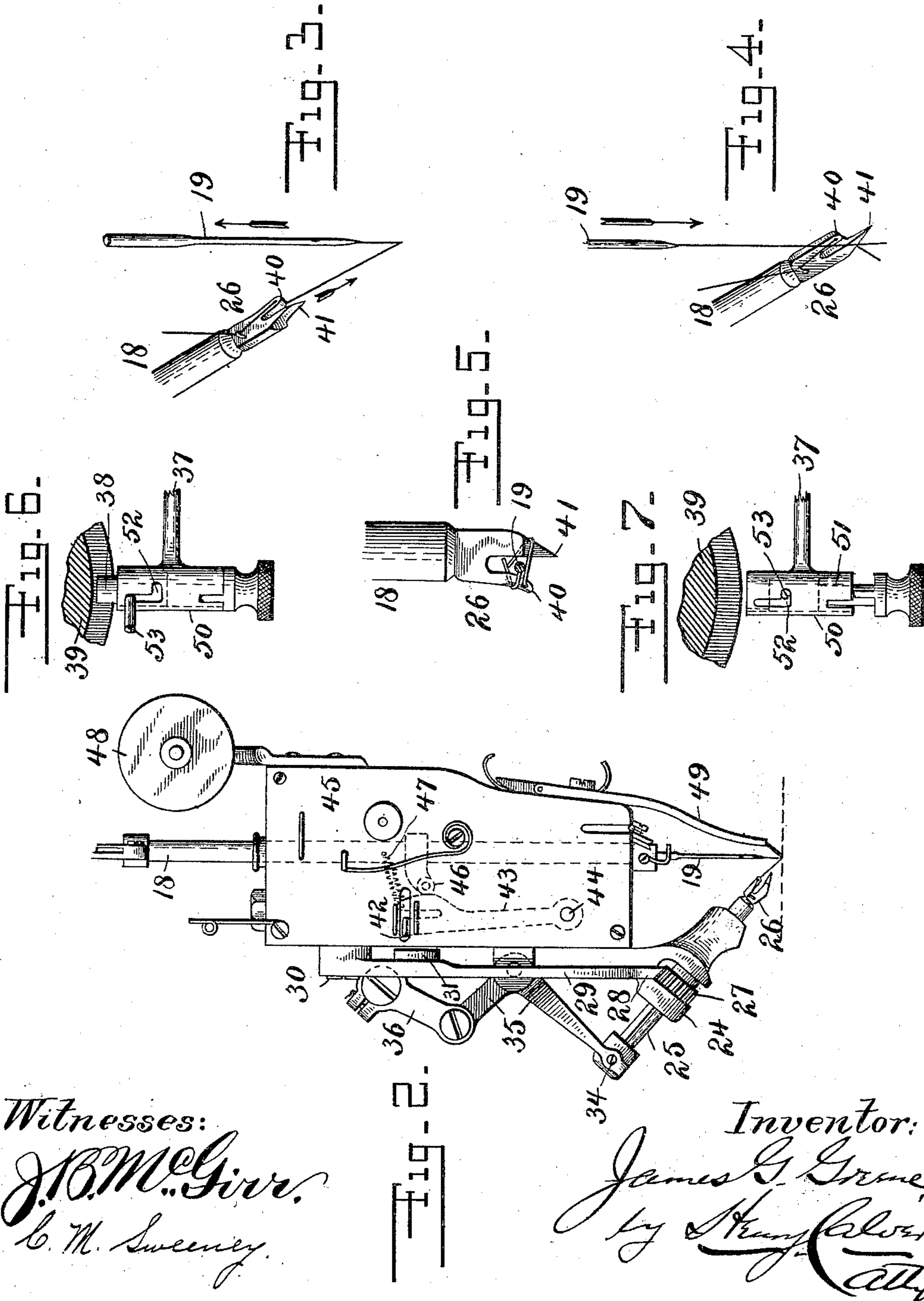
J. G. GREENE.

PURLING DEVICE FOR OVEREDGE SEWING MACHINES.

(Application filed Dec. 3, 1901.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES G. GREENE, OF ELIZABETH, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

PURLING DEVICE FOR OVEREDGE SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 705,230, dated July 22, 1902.

Application filed December 3, 1901. Serial No. 84,553. (No model.)

To all whom it may concern:

Be it known that I, JAMES G. GREENE, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Purling Devices for Overedge Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to an improved mechanism for carrying loops of a purling-thread around the bights or doubled portions of the overedge stitches of an overseam for the purpose of forming a purl along the edge of the
15 overseam on the upper side of the work, thereby producing in coöperation with an ordinary buttonhole or overseaming mechanism which forms a purl edge on the lower side of the work the double-purled overseam
20 covered by my United States Patent No. 598,338 of February 1, 1898.

The present invention is an improvement on the mechanism shown and described by my United States Patent No. 598,339 of February 1, 1898, in that it does the work performed by the mechanism of the said patent, but by a more simple mechanism which is entirely positive in operation.

30 In the accompanying drawings, Figure 1 is a rear side elevation of a well-known type of buttonhole-stitching mechanism embodying the present invention. Fig. 2 is a front end view of the same. Figs. 3, 4, and 5 are detail views to illustrate the operation of the
35 invention. Figs. 6 and 7 are detail views of the disconnecting device.

Referring to the drawings, 12 denotes the work-plate, and 13 the arm, of one type of "Singer" buttonhole-stitching machine,
40 which in practice will be provided with a suitable work-clamp and with a feeding mechanism therefor—such, for example, as that shown and described in my United States Patent No. 360,434 or any other equivalent
45 mechanism—and also with a suitable looping mechanism—such, for example, as that of my United States Patent No. 304,638—which produces in coöperation with the needle an overseam having a purl edge on the lower
50 side of the work.

Journalled in the upper part of the arm 13

is the driving-shaft 14, provided with a bevel-gear 15, meshing with a larger bevel-gear 16 on a vertical shaft 17, so that the said shaft 17 performs one rotation to each two revolutions of the said driving-shaft. The needle-bar 18, carrying the needle 19, is reciprocated by a crank connection with the forward end of the driving-shaft, as in the machine of my Patent No. 360,434, and is also reciprocated
55 horizontally to form overedge stitches, as in the machine of my said patent, from the cam 20 through a bell-crank rocker having an operating-arm 21 and a second arm 22, to which is adjustably attached one end of a link 23, 60 the forward end of which is connected with a swinging frame or head in which the needle-bar reciprocates vertically, substantially as shown and described in my said Patent No. 360,434. 70

To the forward depending portion of the arm 13 is attached a bracket 24, in which is mounted an inclined oscillating and endwise-reciprocating bar 25, which carries at its lower end a forked purling-thread-carrying
75 looper 26. Mounted in the bracket 24 is a pinion 27, with which said bar 25 has a splined connection, so as to rotate therewith and through which said bar slides. The pinion 27 is engaged by a sector-gear 28 at the lower
80 end of a swinging bar or lever 29, pivoted at 30 to the arm 13 and connected by a link 31 to an arm 32, with which the bell-crank rocker 21 22 is provided, so that oscillating or reciprocating rotary movements will be imparted
85 to the looper-carrying bar 25. The bar 25 is provided with a collar 33, having an annular groove entered by pins 34, carried by the forked lower end of a bell-crank lever 35, connected by a link 36 with the forward end of
90 a lever 37, having at its rear end a pin or stud 38, entering the groove of a cam 39 on the shaft 17. From the foregoing it will be apparent that when the machine is in operation oscillating and endwise-reciprocating
95 movements will be imparted to the looper-carrying bar 25.

The forked purling-thread looper 26 comprises a blunt thread-carrying finger 40 and a pointed non-thread-carrying finger 41, the
100 coaction of which and the needle is as follows: When the needle is rising after having pene-

trated the work back from its edge in the formation of a depth-stitch, the looper 26 moves downward from the position shown in Fig. 3, so that the pointed finger 41 passes close to but inside of the needle-thread, and as said finger passes the needle-thread the looper commences to turn, as denoted by Fig. 4, and continues this turning movement until it has performed a half-rotation to the position shown by Fig. 5, so as to cause the looper-thread to cross the space between the forks of the looper and to be partly wound about the finger 41, this turning movement of the looper causing the section of needle-thread extending from the work to the eye of the needle to be displaced sidewise by and to extend around the outside of the thread-carrying finger 40 of the looper. As the needle now descends to form an overedge stitch its point passes down between the forks of the looper and inside of the section of looper-thread crossing the space between the said forks, as denoted by Fig. 5, and as the needle continues its downward movement the looper rises, casting off its thread from the fork 41 and leaving a loop of purling-thread around the needle, and when the needle next rises the loop of purling looper-thread is tightened around the edge-stitch bight of needle-thread by the purling-thread take-up 42 at the upper end of the lever 43, pivoted at 44 to the face-plate 45 and operated by the stud or projection 46, attached to a bracket on the needle-bar and the cooperating spring 47. If it be desired to form a corded double-purled buttonhole, a cord will be led to the work from the cord-spool 48 through the cord-guiding finger 49.

It is sometimes desirable to throw the purling device out of operation without removing the same from the machine, and to this end the stud or pin 38 is slidably mounted in a socket piece or sleeve 58 at the rear end of the lever 37 and is held in its operative position by a spring 51, against the stress of which the said pin can be withdrawn from its cam-groove, and by a slight turning movement permitted by the bayonet-joint slot 52 in the sleeve 50 the said pin 38 will be held out of engagement with its operating-cam. The long latch-pin 53, movable with the pin 38, extends within the arm 13 and prevents said pin 38 from being withdrawn from its cam excepting when the looper-bar 25 is in a raised position, and the purling-looper is lifted out of the way.

Having thus described my invention, I claim and desire to secure by Letters Patent—

1. In a sewing-machine, the combination with an overseaming stitch-forming mechanism, of a purling device for producing a purl edge on the upper side of the work and consisting of a forked thread-carrying looper, and means for imparting longitudinal reciprocating and oscillating movements to said looper.

2. In a sewing-machine, the combination

with an overseaming stitch-forming mechanism, of a purling device for producing a purl edge on the upper side of the work and consisting of a forked thread-carrying looper, means for imparting longitudinal reciprocating and oscillating movements to said looper, and a take-up device for the purling-thread.

3. In a sewing-machine, the combination with an overseaming stitch-forming mechanism, of a purling device for producing a purl edge on the upper side of the work and consisting of a forked thread-carrying looper, means for imparting longitudinal reciprocating and oscillating movements to said looper, and a detachable connection whereby the operating mechanism for said looper may be disconnected to render said looper inoperative, without requiring its removal from the sewing-machine.

4. In a sewing-machine, the combination with an overseaming stitch-forming mechanism, of a thread-carrying purling-looper above the work-plate of the machine, means for imparting longitudinal reciprocating and oscillating movements to said looper and means for disconnecting the operating mechanism so that the said looper may be rendered inoperative without requiring its removal from the sewing-machine.

5. In a sewing-machine, the combination with an overseaming stitch-forming mechanism, of a purling device consisting of a forked thread-carrying looper arranged above the work-plate of the machine, an inclined bar by which said looper is carried and means for imparting oscillating and longitudinally-reciprocating movements to said bar and to the looper mounted thereon.

6. In a sewing-machine, the combination with an overseaming stitch-forming mechanism, of a purling device consisting of a forked thread-carrying looper arranged above the work-plate of the machine, an inclined bar by which said looper is carried, means for imparting oscillating and longitudinally-reciprocating movements to said bar and to the looper mounted thereon, and a take-up device cooperating with said looper and serving to tighten the purling-loops.

7. In a sewing-machine, the combination with an overseaming stitch-forming mechanism, of an inclined bar located above the work-plate of the machine and provided at its lower end with a forked thread-carrying looper for laying loops of purling-thread around the overedge-bights of needle-thread, a pinion having a splined connection with said bar, a sector-gear engaging said pinion, means for vibrating said sector-gear and means for reciprocating said bar lengthwise through said pinion.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES G. GREENE.

Witnesses:

HENRY J. MILLER,

HENRY A. KORNEMANN.