

No. 658,585.

Patented Sept. 25, 1900.

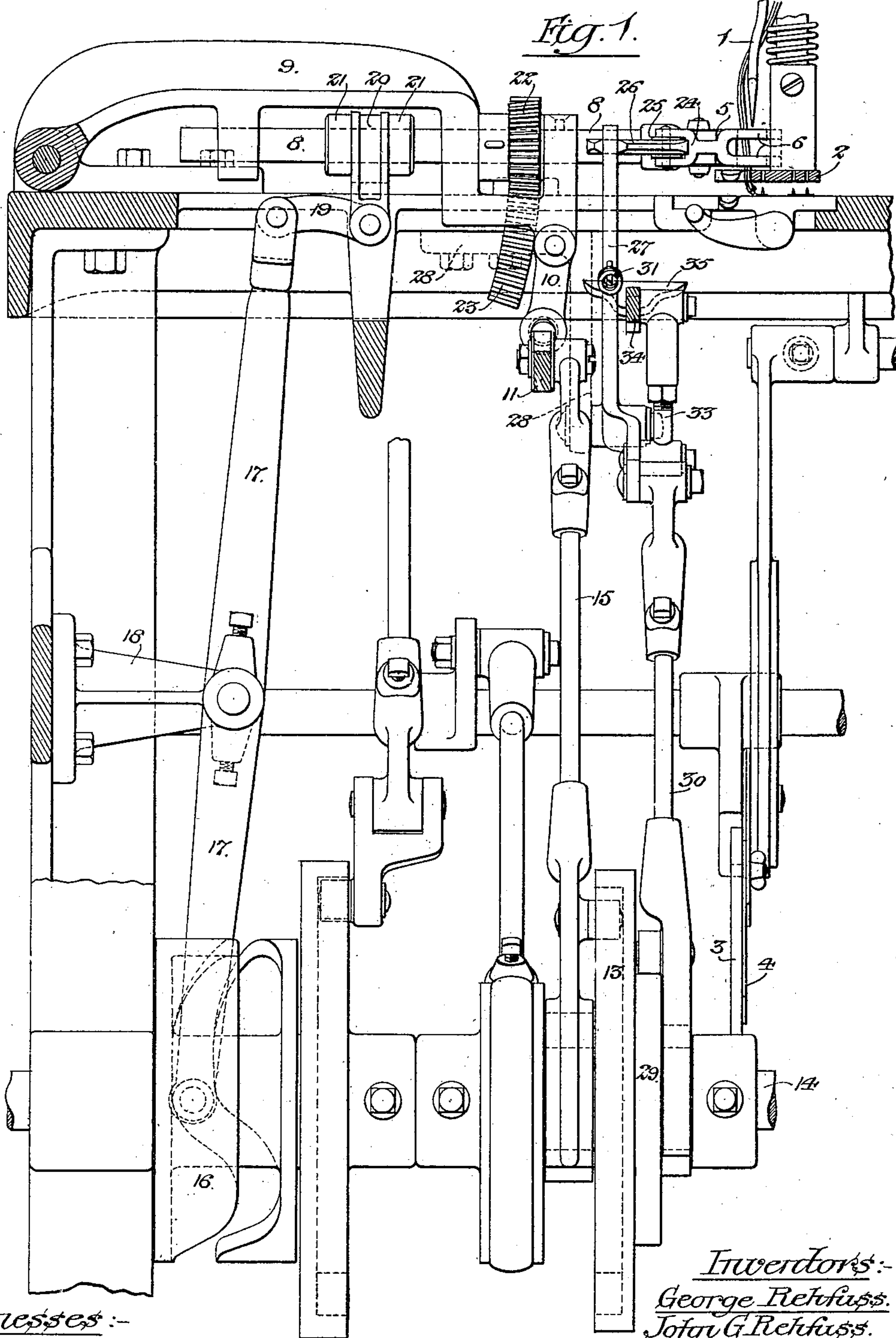
G., J. G. & M. O. REHFUSS.
SEWING MACHINE FOR MAKING FRINGE.

(Application filed Aug. 3, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.



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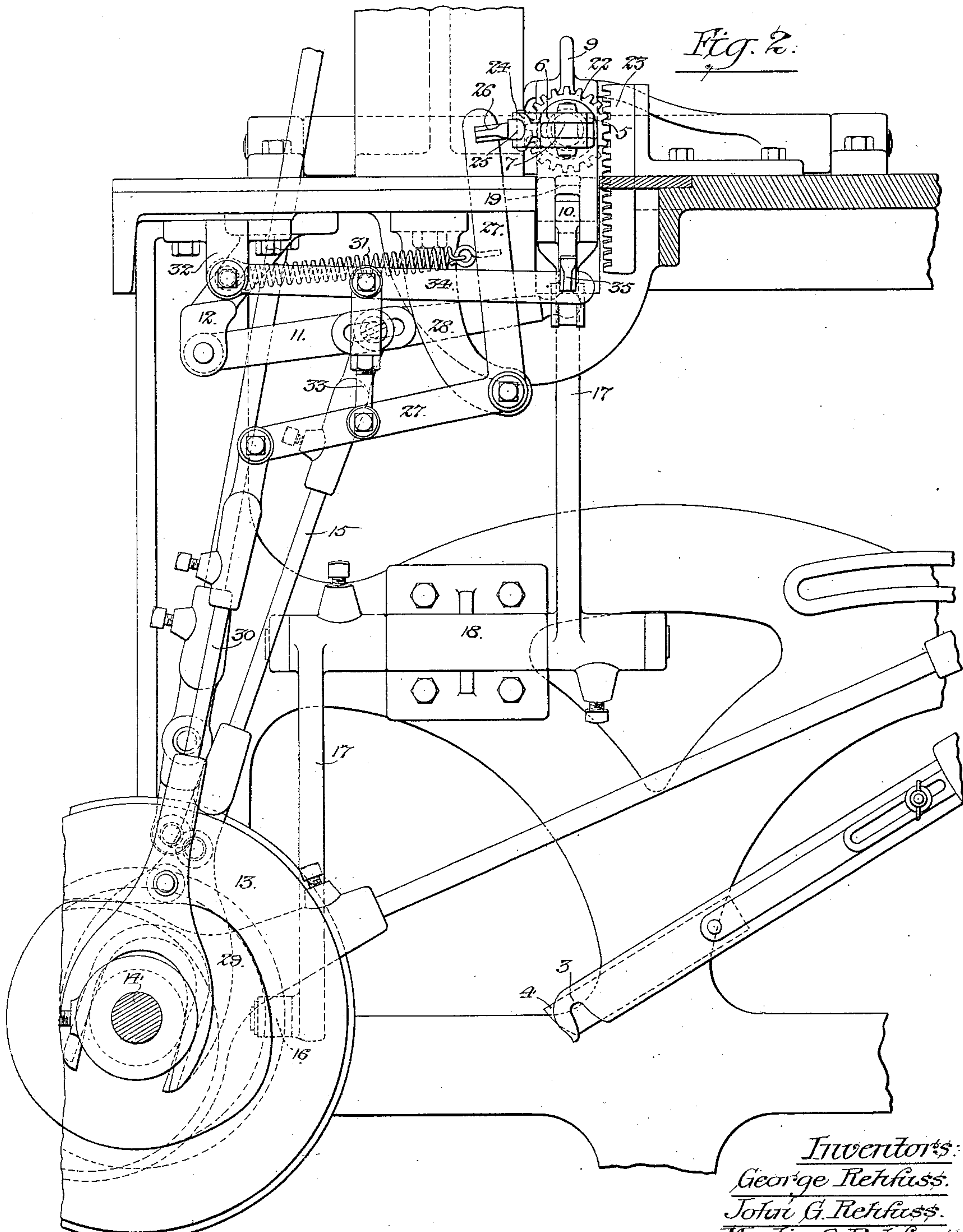
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3 Sheets—Sheet 3.

Fig. 3.

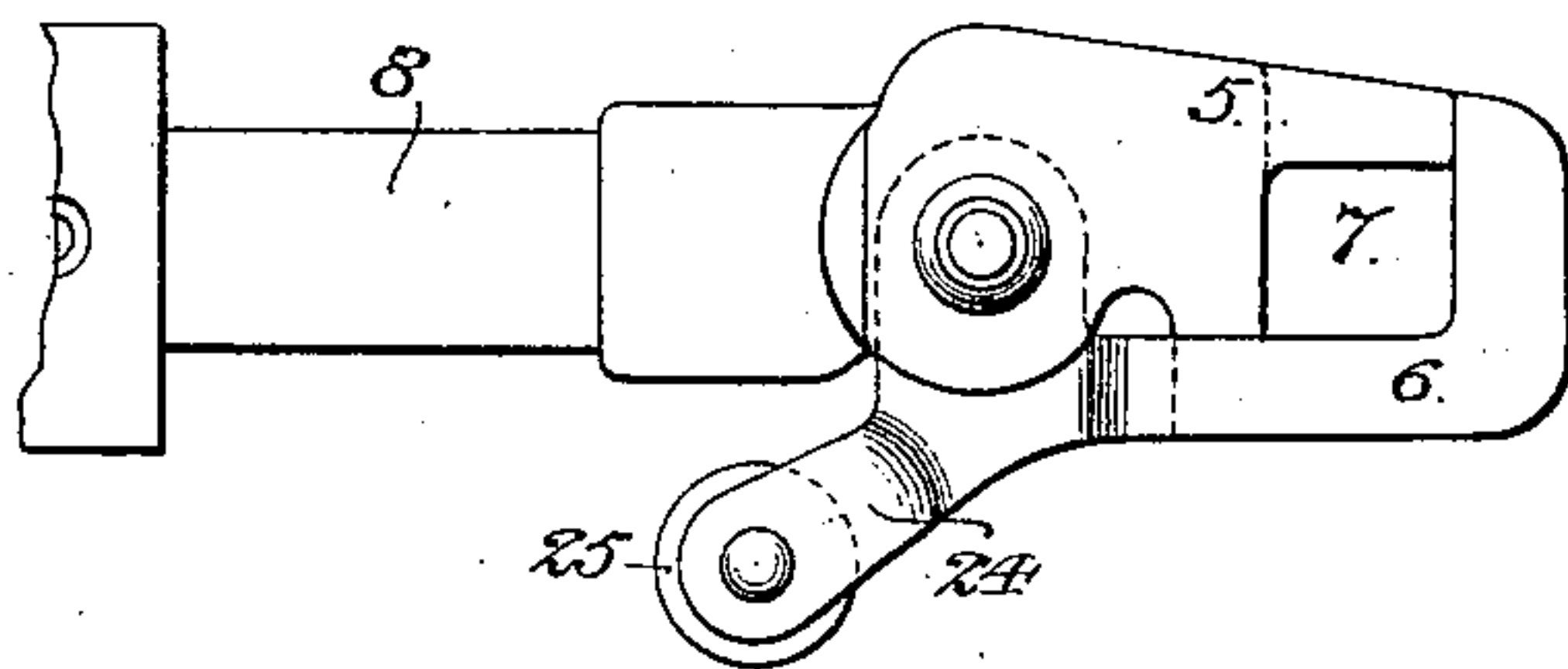
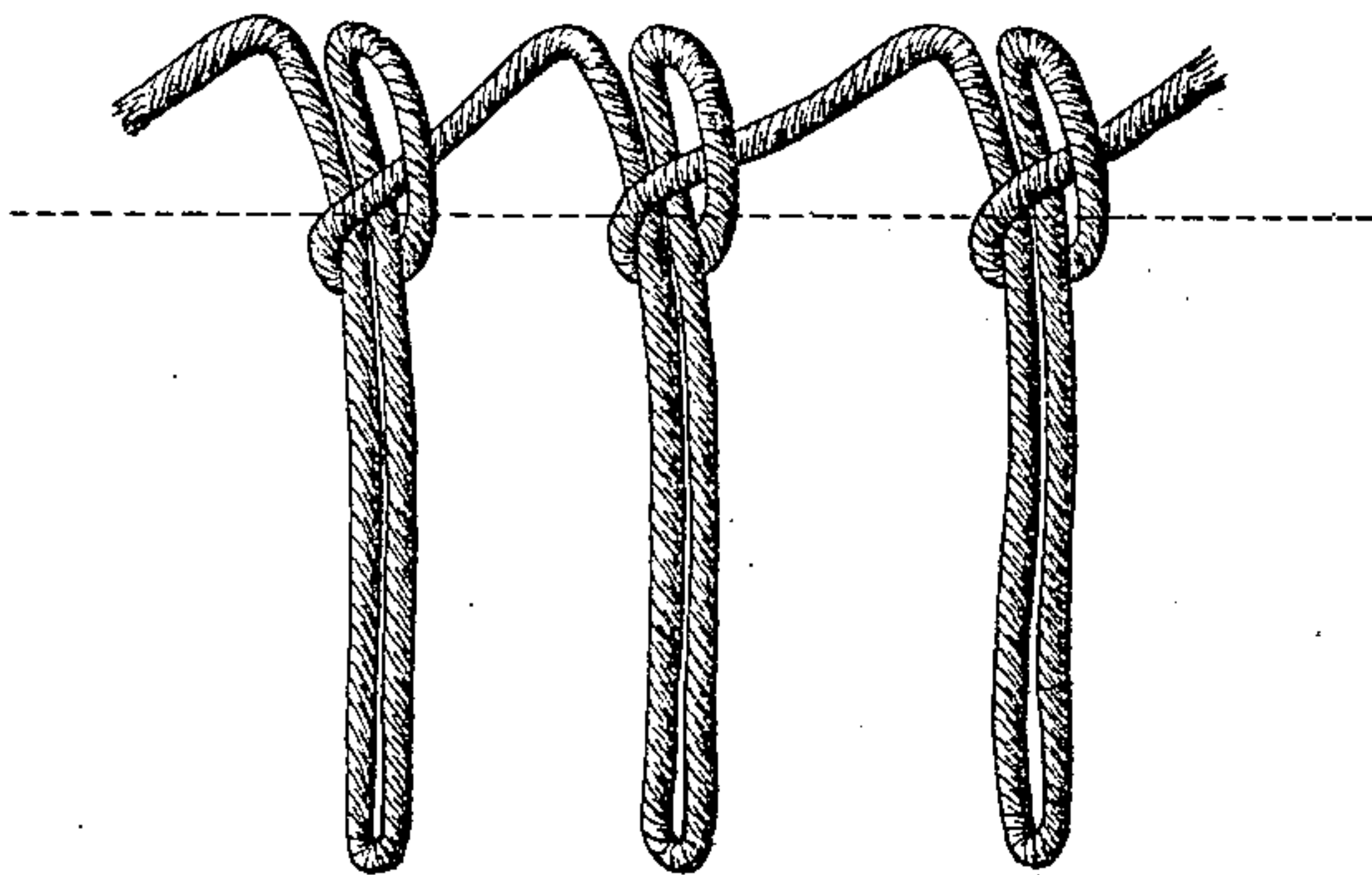


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE REHFUSS, JOHN GEORGE REHFUSS, AND MARTIN O. REHFUSS, OF
PHILADELPHIA, PENNSYLVANIA.

SEWING-MACHINE FOR MAKING FRINGE.

SPECIFICATION forming part of Letters Patent No. 658,585, dated September 25, 1900.

Application filed August 3, 1898. Serial No. 687,631. (No model.)

To all whom it may concern:

Be it known that we, GEORGE REHFUSS, JOHN GEORGE REHFUSS, and MARTIN O. REHFUSS, citizens of the United States, and residents of Philadelphia, Pennsylvania, have invented certain Improvements in Machines for Making Fringes, of which the following is a specification.

Our invention consists of certain improvements in machines for making fringes, our present improvements being based upon the mechanism illustrated and described in Letters Patent of the United States No. 469,452, dated February 23, 1892, the object of our present invention being to construct a machine which will form a finished and secure fringe upon the edge of a fabric instead of forming a loop, as in the former machine. This object we attain in the manner herein-after set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a front view, partly in section, of sufficient of a fringe-forming machine to illustrate our present improvements. Fig. 2 is a transverse section of the same, mainly in elevation. Fig. 3 is a view of the twister, and Fig. 4 is a diagram showing the course of the yarn or thread whereby the finished fringe is produced.

1 represents the needle, 2 the presser-foot, 3 the under looper, and 4 the loop-severing knife, of the machine, all of which are constructed and operated in a manner similar to that of the patented machine, and hence will need no further description.

Our present improvement consists of mechanism whereby the needle thread or strand is caught at a point above the work-table while the needle is elevated, is then drawn out laterally in the form of a loop, twisted quarter-way around, and then moved inwardly beneath the work-table to the work upon it, so that the needle in its next descent will pass through the loop thus formed and the under looper will catch the needle-thread and draw down the fringing loop in the same manner as before, the course of the fringing thread or strand being that indicated in Fig. 4, with the exception that as there shown the fringe-loops are not cut.

The twister consists of a pair of jaws 5 and

6, bent or raised, as shown in Fig. 3, so as to form an opening 7 for the reception of the needle thread or yarn, and both forked, as shown in Figs. 1 and 2, so that the needle can pass through them when they are turned quarter-way around. The fixed jaw 5 is secured to or forms part of a rod 8, which can slide freely to and fro in bearings in a frame 9, pivoted at one side of the machine and connected by a link 10 to a lever 11, which is hung to a stud 12, depending from the table of the machine, and is vibrated by a cam 13 on the driving-shaft 14 of the machine through the medium of a connecting-rod 15, the joint between the free end of the lever 11 and the lower end of the link 10 being a ball-and-socket or other universal joint, owing to the fact that said link has to swing in a direction at right angles to the movement of the lever.

Reciprocating movement of the rod 8 in the frame 9 is effected by means of a grooved cam 16 on the shaft 14, said grooved cam acting upon a lever 17, which is hung to a bracket 18 and is connected by a link 19 to a sleeve 20, confined longitudinally between collars 21 on the rod 8. Splined upon the rod 8, if the latter is round, or fitting to it, if it is square or of other polygonal form, is the hub of a spur-wheel 22, which is confined longitudinally between suitable bearings on the swinging frame 9 and which meshes with a fixed segmental rack 23, secured to the table or bed of the machine, so that as the forward end of the frame 9 is raised and lowered the rod 8 will be caused to rock in its bearings.

The movable jaw 6 of the twisting device has an arm 24, with antifriction-roller 25, and when the twister is in position above the work-table, as shown in Figs. 1 and 2, the movable jaw of the twister can be opened by the action upon said antifriction-roller of a shaft 26, carried by one arm of a bell-crank lever 27, which is hung to a bracket 28, depending from the work-table of the machine, and is moved in one direction by a cam 29 on the shaft 14, said cam acting through the medium of a connecting-rod 30, as shown in Fig. 2, and retraction of the lever being effected by means of a spring 31, connected at one end to the lever and at the other end to a lug 32, depending from the table.

Connected to the lever 27 by means of a rod 33 is an arm 34 pivoted to the lug 32 and carrying at its free end a shoe 35, which is adapted to act upon the antifriction-roller 5 25 of the movable jaw of the twister when the same has been turned quarter-way around and moved to a position beneath the work-table.

The operation of the device is as follows:
 10 When the needle is raised, as shown in Fig. 1, the twister moves forward and the movable jaw of the same is opened by the action of the lever 27, so that the thread or strand can enter the opening 7, whereupon the movable jaw is closed, as shown in Fig. 3. The 15 twister is now drawn back, so as to pull out a loop of needle-thread beyond the edge of the work, and the free end of the swinging frame 9 is then drawn down, so as to carry the twister beneath the work and at the same 20 time turn it quarter-way around, so as to twist the loop which it has drawn. The twister is then projected again beneath the work-table to such a position that the needle 25 in its descent can pass through the twisted loop, the needle-thread being then caught by the looper and drawn down to form a long fringing loop. In the meantime the lever 34 is operated so as to again open the movable 30 jaw 6 of the twister, and the latter can therefore be withdrawn, leaving the loop in engagement with the needle, the frame 9 then rising, so as to turn the twister back again to its normal position prior to a repetition of the operation, when the needle again ascends. 35 By this means a twisted and separately-attached fringe can be rapidly formed upon the edge of the fabric, and the necessity of knotting the fringe by hand is rendered wholly 40 unnecessary.

The term "finished fringe" as used herein is therefore intended to mean a fringe which is knotted or twisted as it is being applied to the fabric instead of being knotted or twisted 45 afterward by hand, and the term "separately attached" means a fringe attached to the completed fabric and not one formed during the weaving of the fabric or fringe heading.

50 Having thus described our invention, we claim and desire to secure by Letters Patent—

1. The combination in a machine for forming finished fringe, of a needle and looper, 55 with a twister for engaging with and drawing a loop of the needle-thread, and means for imparting to said twister a back-and-forth movement, a rising-and-falling movement, and a partial twisting movement, substantially 60 as specified.

2. The combination in a machine for forming finished fringe, of a needle and looper, with a twister consisting of a pair of jaws for engaging the needle-thread, means for im- 65 parting to said pair of jaws a back-and-forth movement, a rising-and-falling movement

and a partial twisting movement, and means for opening and closing the jaws, substantially as specified.

3. The combination in a machine for forming finished fringe, of a needle and looper, a twister consisting of a pair of jaws adapted to engage the needle-thread and draw a loop of the same, means for imparting back-and-forth movement, rising-and-falling movement 75 and partial twisting movement to said pair of jaws and for opening and closing the latter, said jaws being forked so as to provide for the passage of the needle when they are turned part way around, substantially as 80 specified.

4. The combination in a machine for forming finished fringe, of a needle and looper, a twister consisting of a pair of jaws adapted to engage with the needle-thread and draw a 85 loop of the same, means for moving said jaws back and forth, for raising and lowering the same, and for imparting a partial twist to the jaws as they rise and fall, with devices for acting upon the movable jaw both above and 90 below the work-table so as to open the same when the twister is at both extremes of its movement, substantially as specified.

5. The combination in a machine for making finished fringe, of a needle and looper, a 95 twister adapted to engage the needle-thread and draw a loop of the same, means for moving said twister back and forth, and raising and lowering the same, and a rack engaging with a pinion on the stem of the looper as the 100 same rises and falls so as to impart a partial turn thereto, substantially as specified.

6. The combination in a machine for forming finished fringe, of a needle and looper, with a twister adapted to engage the needle- 105 thread and draw a loop of the same, a rod carrying said twister, a pivoted frame in which said rod is guided so as to slide, mechanism for reciprocating said rod and vibrating the frame, and means for partially rotating the 110 twister about the axis of said reciprocated rod, substantially as specified.

7. The combination in a machine for forming finished fringe, of a needle and looper, with a twister consisting of a pair of jaws, 115 mechanism for moving the same to and fro, for raising and lowering them, and for imparting a partial turn to the jaws, with a pair of connected levers operating at right angles to each other and adapted to act upon the 120 movable jaw of the twister, when the same is in its extreme position, substantially as specified.

In testimony whereof we have signed our names to this specification in the presence of 125 two subscribing witnesses.

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JOHN GEORGE REHFUSS.

MARTIN O. REHFUSS.

Witnesses:

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