

No. 707,061.

Patented Aug. 12, 1902.

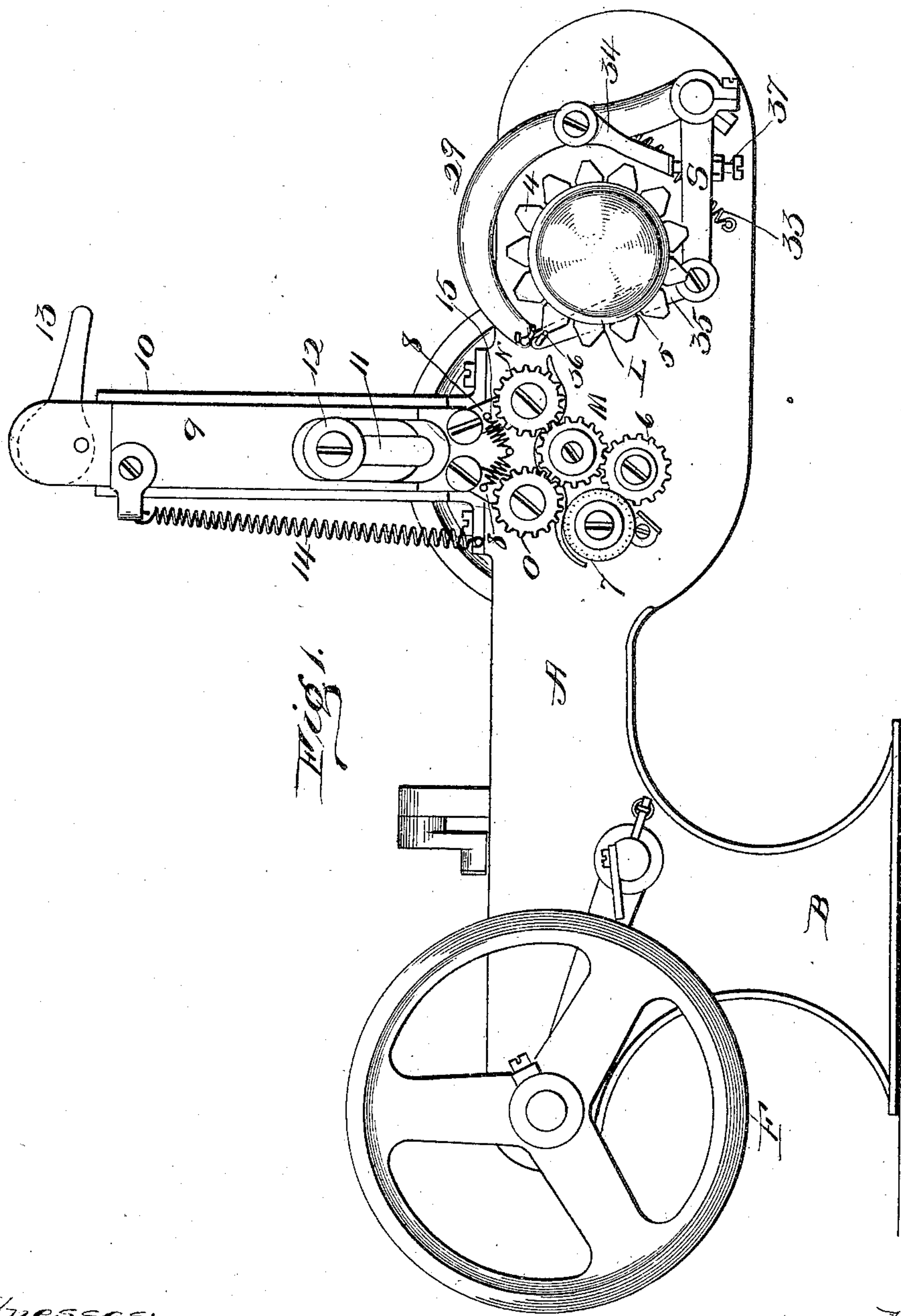
E. P. HATCH.

MACHINE FOR INSERTING TAPE INTO EDGING.

(Application filed Jan. 5, 1897. Renewed June 12, 1902.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:
J. M. Fowler Jr.
Grace Goodman.

Inventor:
Edward P. Hatch
By Chas. S. Sturtevant
Atty.

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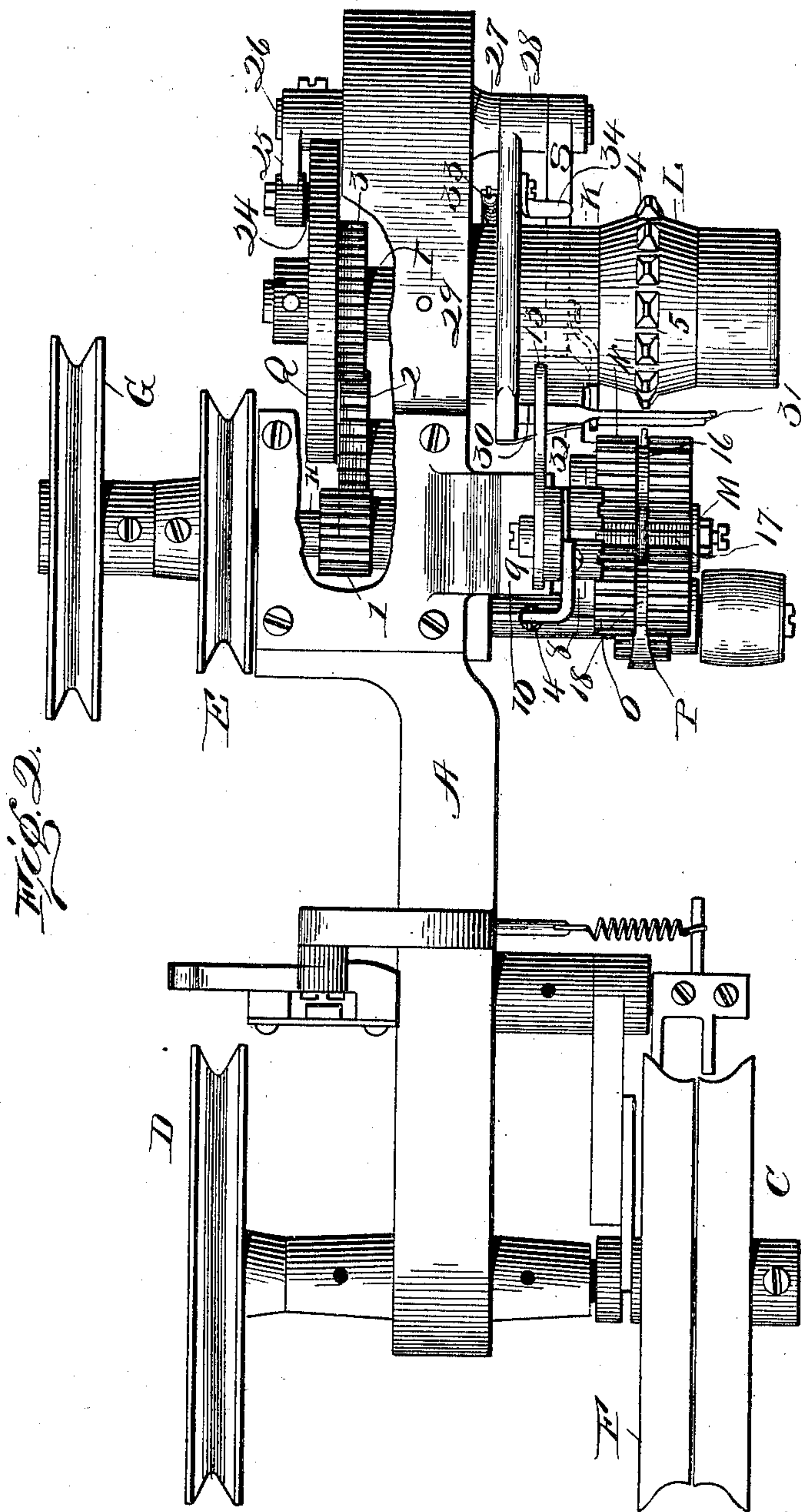
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Fig. 3.

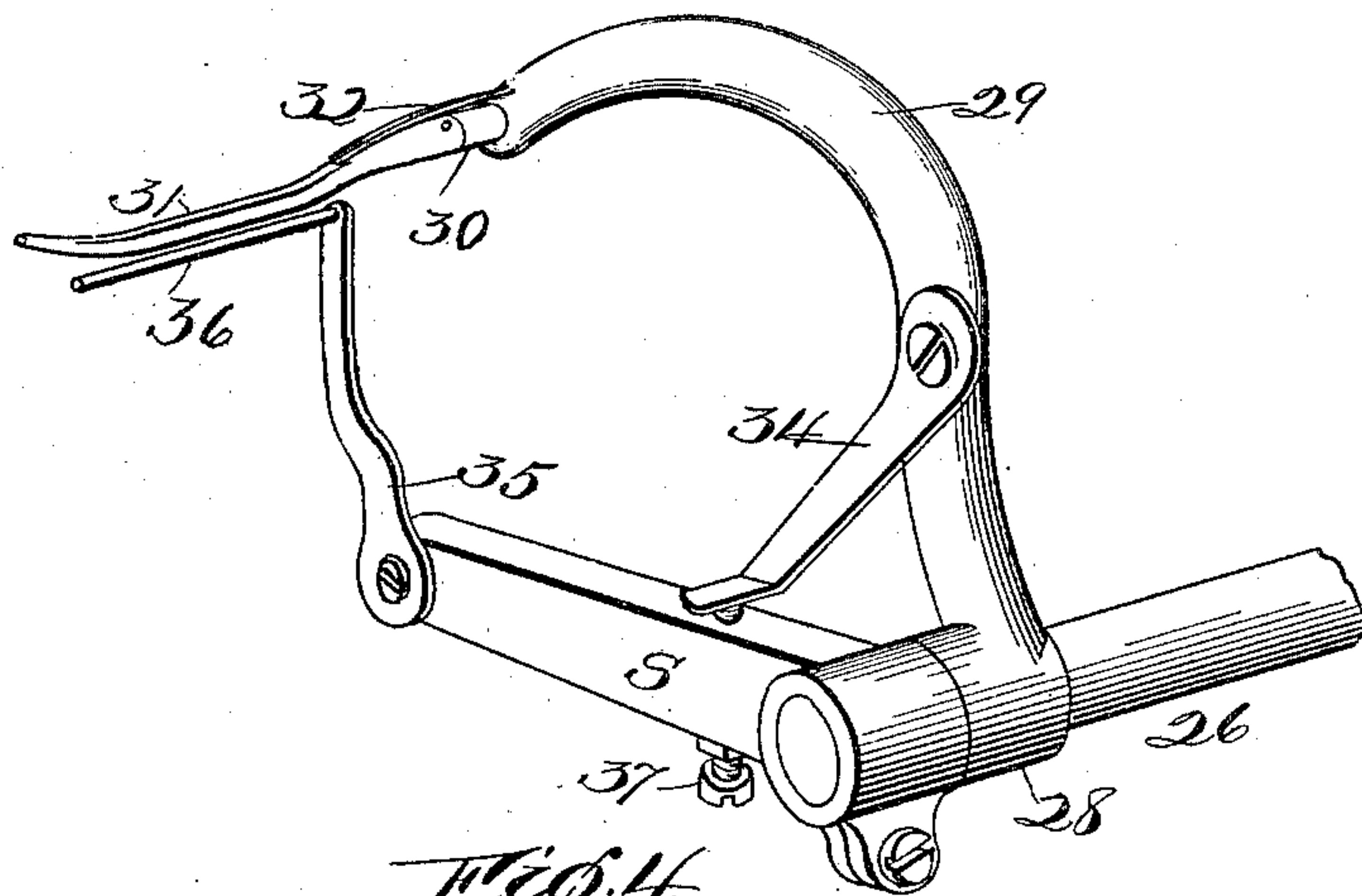


Fig. 4.

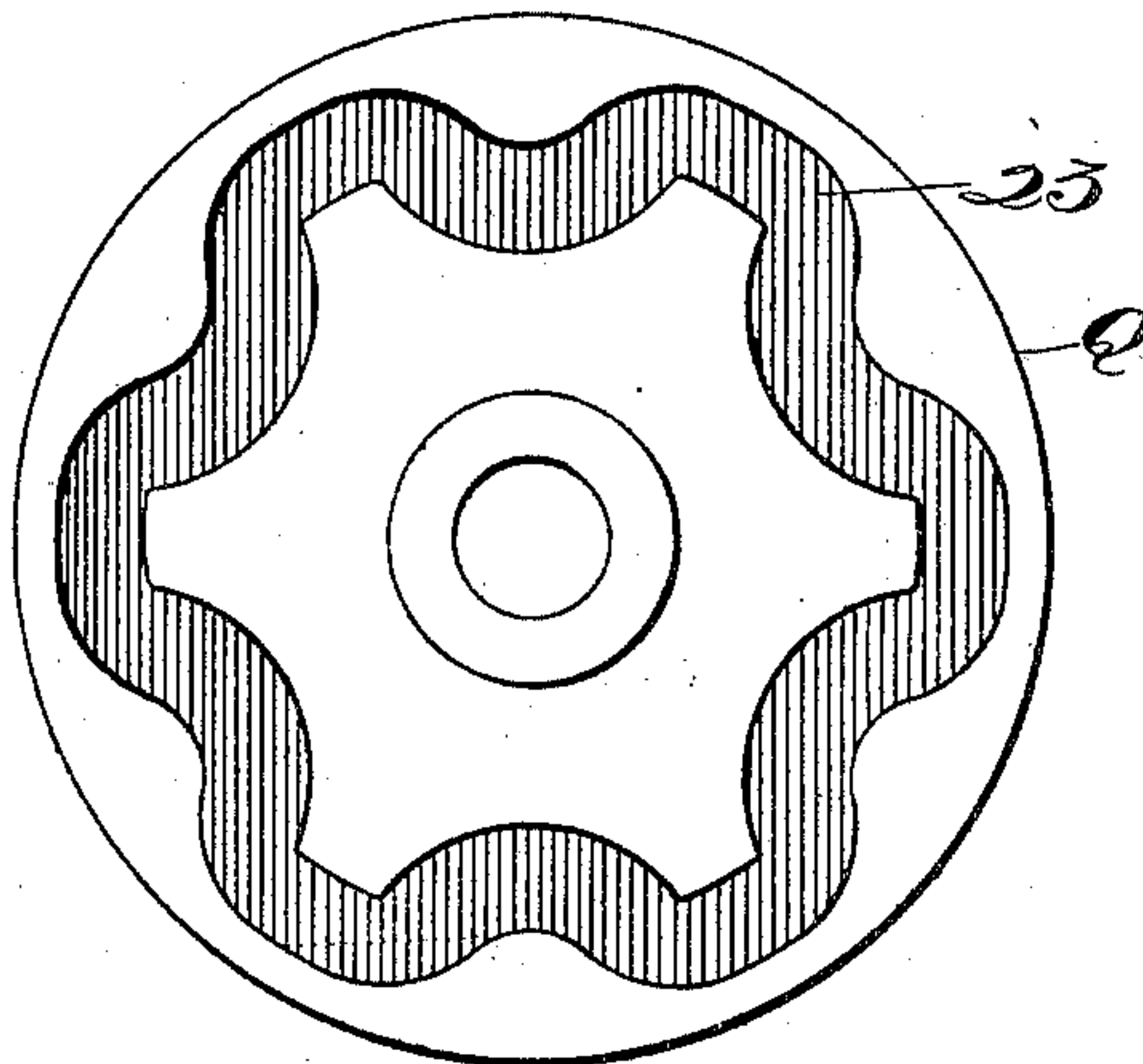


Fig. 5.

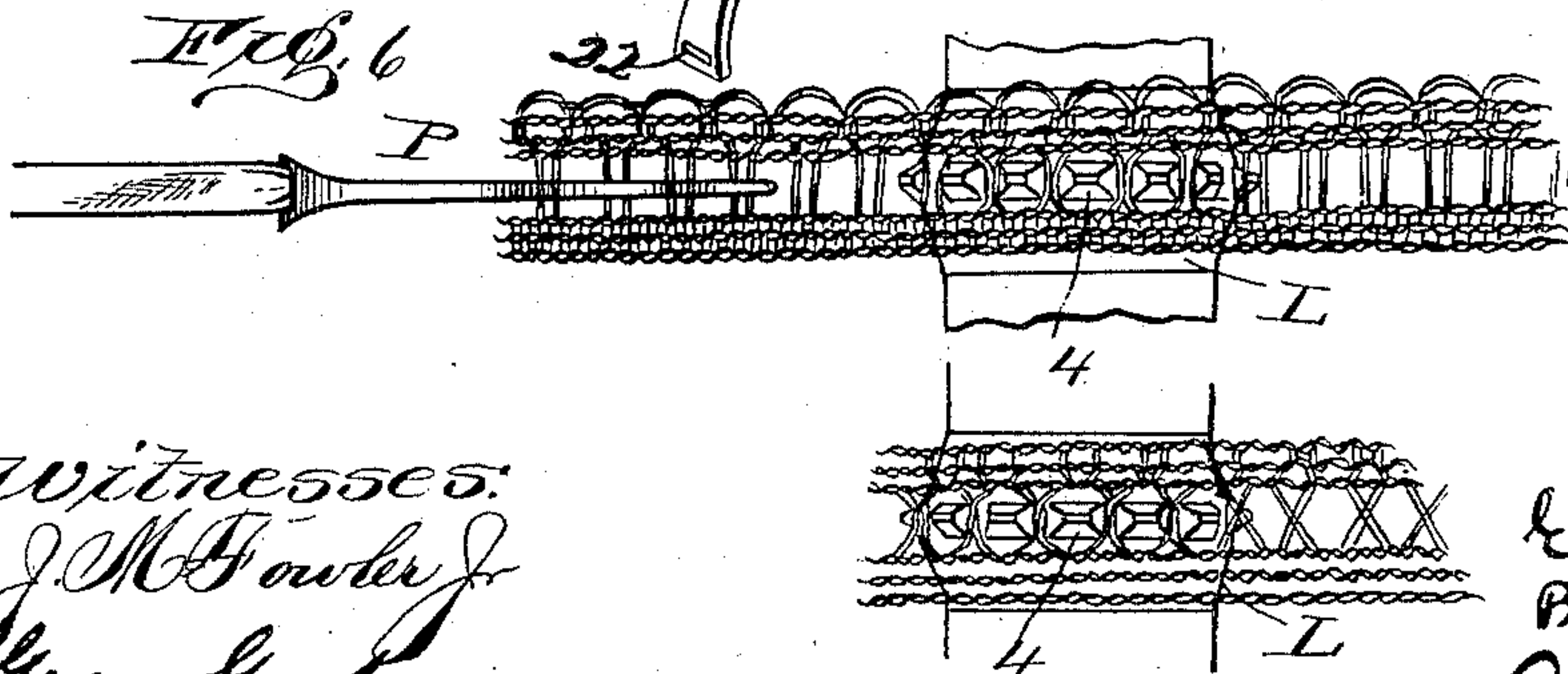


Fig. 6.

Fig. 7.

Witnesses:
J. M. Fowler
Grace Goodman.

Inventor:
Edward P. Hatch
By
Chas. S. Sturtevant
Atty.

UNITED STATES PATENT OFFICE.

EDWARD P. HATCH, OF LAGRANGE, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO HIMSELF, UNION SPECIAL SEWING MACHINE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS, AND MYRON H. POWELL, OF MUSKEGON, MICHIGAN.

MACHINE FOR INSERTING TAPE INTO EDGING.

SPECIFICATION forming part of Letters Patent No. 707,061, dated August 12, 1902.

Application filed January 5, 1897. Renewed June 12, 1902. Serial No. 111,313. (No model.)

To all whom it may concern:

Be it known that I, EDWARD P. HATCH, a citizen of the United States, residing at Lagrange, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Machines for Preparing Edging for the Insertion of Tape, of which the following is a description, reference being had to the accompanying drawing and to the letters and figures of reference marked thereon.

My invention relates to a machine for automatically inserting tape into edging—such, for instance, as that used upon the necks and shoulders of ladies' underwear. This edging is of two kinds—"cross-bar" and "pillar-bar"—and the tape is woven in and out alternately above and below the cross or pillar bars for purposes of ornamentation and also to provide, by leaving a bow at the ends, for drawing up the neck or armholes of the garment when they become stretched. This work of taping meshed edging has heretofore been done by hand, the operator using a bodkin; but even with the most skilful operator the work is necessarily slow, and of course as so much handwork is necessary it adds to the cost of the garment.

The object of the present invention is to provide a machine which shall automatically insert the tape in the meshed edging, this being done either after the edging has been sewed to the garment or else applied to the edging while it is on a long roll or spool, and when so applied the taped edging is wound on a roll and proper lengths cut for sewing on the garments.

The present machine, as will be noticed from the arrangement of driving-wheels, &c., was designed especially for the insertion of tape into the edging after the latter had been sewed to the garment; but so far as the operating features are concerned the machine may be used to insert long lengths of tape in edging before it has been attached to the garment.

Prior to my invention, so far as I am aware, it has never been proposed to automatically insert tape in edging, and therefore the in-

vention includes, broadly, a machine for automatically inserting tape into meshed edging, comprising means for supporting said edging, a bodkin to which the tape is attached, feeding devices, and means for positioning the cross or connecting bars of the edging alternately at opposite sides of the plane of the bodkin-point.

Secondly, the invention consists in a machine for taping meshed edging comprising a supporting-wheel for the edging having projecting teeth extending upwardly between the cross-bars of said edging, a stationary bodkin carrying a tape, means for feeding the edging toward the bodkin, and means for positioning the cross-bars of the edging alternately above and below the plane of the bodkin-point.

Thirdly, the invention consists of a machine for automatically inserting tape into edging, comprising a supporting-wheel having teeth fitting between the cross-bars of the edging, a stationary bodkin carrying a tape, and feeding-rolls centrally grooved for the reception of the bodkin and toothed to grasp the sides of the meshed edging and feed it onto the bodkin.

Further, the invention consists in the special construction and arrangement of feeding-rolls and curved bodkin cooperating therewith, the means for supporting said curved bodkin, special means for causing the positioning of the cross-bars alternately upon opposite sides of the plane of the bodkin-point, and in various details of construction and arrangement of parts, all as hereinafter described, and referred to in the appended claims.

In the accompanying drawings, which illustrate my invention, Figure 1 represents a side elevation of the machine. Fig. 2 is a top plan view, a portion of the top plate being removed to show the operating-gear. Fig. 3 is a perspective view of the means for positioning the cross-bars of the edging. Fig. 4 is a face view of the cam which operates the device shown in Fig. 3. Fig. 5 is a detail view of the bodkin or, as I prefer to call it if made of great length, an "edging-holder." Fig. 6 is

a plan view showing both cross-bar and pillar-bar edging, and Fig. 7 shows the position taken by the cross-bars when the edging is placed on the supporting-wheel.

5 In the drawings, A represents the framework of the machine, comprising a suitable base, as B, which is adapted to be screwed to the machine-table. The wheels C D E and
10 be applied to the machine in any suitable manner, while G represents a hand-wheel which may be used to turn the parts. These parts just mentioned are not features of special importance, and no further reference is
15 made to them.

H represents what may be called an "actuating-shaft" proper of the machine, and this is provided with a gear-wheel 1, meshing into a gear-wheel 2 on the counter-shaft, which in
20 turn meshes with a gear 3 on the shaft I. This shaft I is journaled in the frame of the machine in the bearing K and carries on its outer end a roller or hub L, provided with vertically-projecting beveled teeth 4, preferably
25 ably of width sufficient at the base so that when cross or pillar bar edging is placed over said teeth the latter will fit between the pairs of cross-bars and perhaps even spread slightly, or, if desired, the teeth at their base
30 may be provided with a perfectly vertical or even slightly-undercut portion 5, so that the two cross-bars, as shown, will fit snugly therein. The shaft H is extended through the machine-frame and provided on its outer end
35 with a corrugated or raked roller M, which meshes into a gear or roller 6, in turn meshing with a roller 7. The roller 7, as well as the roller 6, is either attached to a counter-shaft or, as herein shown, journaled on a
40 screw-stud to the machine-frame. The roller M is preferably above the plane of the other two rollers mentioned, and above the same, mounted on a sliding head, are two raked or corrugated rollers N O, journaled on screw-
45 studs mounted on the downwardly-projecting inclined arms 8, which in turn are attached to the vertical part 9, moving in ways on the upright part 10 of the machine-frame and having the slot-and-bolt connection 11 12
50 with said part 10 and being elevated by a pivoted cam-lever 13, attached to the part 9 and bearing against the part 10, but being retracted by a spring 14. When these rollers
55 N O are lowered, they mesh with the roller M and the three form a triangularly-shaped figure, as shown. In the rotation of the roller M the others are of course also rotated. Springs 15 may be provided to draw the rollers
60 N O down to their work in case it is not desired to screw the angle-arms 8 tightly to the sliding part 9.

The rollers M, N, and O are formed with a central peripheral groove, or, rather, with an uncorrugated central peripheral portion, and
65 the two upper rollers N O, with the lower roller M, embrace between them the bodkin P, which is adapted to fit within the grooves

16, 17, and 18 on the rollers M, N, and O, said bodkin being curved, as shown, to conform to the periphery of said rollers and being held securely in place by the rollers N
70 and O, which bear down upon the parts 19 20 of the bodkin, and thus hold the part 21 from all danger of getting out of place. The tail of the bodkin is curved to conform to the
75 periphery of the roller 7 and fits down over the same and is provided with an eye 22 to receive the end of the tape. The point of the bodkin is held adjacent the outer portion of the teeth 4, and I will now proceed to describe
80 the construction herein shown for positioning the cross-bars of the edging alternately upon one side or the other of the bodkin-point. It will be understood, however, that so far as
85 the broad claims of this application are concerned I do not wish to be limited to any special construction for so positioning the cross-bars. Secured upon the shaft I is the wheel
90 Q, having on its inner face a cam-groove 23 of the shape shown, in which fits an anti-friction-roller 24, secured in the end of an arm 25, which at its opposite end is secured to a rock-shaft 26, journaled on the machine-frame
95 in the bearing 27. Adjacent the outer end of the bearing 27 upon the rock-shaft 26 is placed a split sleeve 28, having an upwardly-extending curved arm 29, which preferably
100 extends over the bearing K to a point somewhere near alinement with the end of the bodkin. This arm 29 has attached at its outer end a lug 30, to which is pivoted the arm 31, normally held by the spring 32 in the position
105 shown in Fig. 3. This arm 29 by means of the sleeve 28 is loose on the rock-shaft, but is normally held down in operative position by means of the spring 33, by which the lug or
110 arm 34, secured to the arm 29, is held in engagement with the horizontal arm S, having the sleeve at its inner end clamped to the rock-shaft. This arm S has at its outer end an
115 upwardly-extending arm 35, which carries at its upper end, parallel with the arm 31, a finger or arm 36. Instead of having the arm 34 bear directly on the arm S, I provide a screw
37, which passes through the arm S and acts
120 as a stop for the lug or arm 34, thus holding the arm 29 against the action of its spring 33 and regulating the distance between the fingers 31 and 36.

It will be seen that in the rotation of the
120 shaft H the rock-shaft 26 will be oscillated and the fingers 31 and 36 alternately raised and lowered, thus as the edging passes between them automatically positioning the cross-bars of the edging alternately upon op-
125 posite sides of the plane in which the forward end of the bodkin lies, and as the roller L and rollers M, N, and O are rotating the edging will be fed upon the bodkin, which, if very
130 long, acts as a holder for long lengths of edging, or if it is short and carries a tape the edging will be forced past the bodkin onto the tape, the latter being thus automatically threaded through said edging, or if the bod-

kin carries a tape and is simply filled with the edging the tape may be easily drawn through the latter.

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

1. A machine for automatically inserting tape into meshed edging comprising a rotatable support for the edging having teeth registering with the spaces between the bars of said edging, a bodkin to which the tape is attached, feeding devices, and means for positioning the cross or connecting bars of the edging alternately at opposite sides of the forward end of the bodkin; substantially as described.

2. A machine for automatically inserting tape into meshed edging comprising a supporting-wheel for the edging having projecting teeth extending upwardly between the cross-bars of said edging, a stationary bodkin carrying a tape, means for feeding the edging toward the bodkin, and means for positioning the cross-bars of the edging alternately above and below the forward end of the bodkin; substantially as described.

3. A machine for automatically inserting tape into meshed edging comprising a supporting-wheel having teeth extending through the meshes and fitting between the cross-bars of the edging, a stationary bodkin carrying a tape and means for positioning the cross-bars of the edging alternately above and below the forward end of the bodkin, and feeding-rolls centrally grooved for the reception of the bodkin and toothed to grasp the sides of the meshed edging and feed it onto the bodkin; substantially as described.

4. A machine for automatically inserting tape or the like into edging or other material comprising a supporting-wheel, a stationary bodkin arranged with its point adjacent the supporting-wheel, feeding-rolls for grasping the material after it is on the bodkin, and means located between the bodkin-point and the supporting-wheel for positioning the cross-bars of the edging alternately above and below the bodkin-point; substantially as described.

5. The combination with a stationary bodkin, a wheel having teeth adapted to enter the meshes of edging, vibrating fingers for positioning cross or connecting bars forming the meshes of the edging alternately at opposite sides of the forward end of the bodkin, said vibrating fingers being located between the wheel and the forward end of the bodkin, means for feeding edging upon the bodkin comprising rollers located back of the point of the bodkin and adapted to grasp the material; substantially as described.

6. In an apparatus for inserting tape into meshed edging, a bodkin carrying a tape, a rotatory support for the edging, having teeth registering with the meshes in the edging and a vibrating member between the support for the edging and the bodkin-point whereby the

cross-bars of the edging are alternately positioned above and below the bodkin-point; substantially as described.

7. In combination, a bodkin, a support therefor, and a rotatory support for meshed edging having teeth registering with the meshes in said edging, means for alternately positioning the cross-bars of the edging above and below the bodkin-point, and means for feeding the meshed edging onto the bodkin; substantially as described.

8. An apparatus for inserting tape into meshed edging comprising a stationary bodkin carrying a tape, a supporting device for delivering the edging to the bodkin which supporting device has means for engaging the meshes of the edging, and a vibrating member arranged between the support for the edging and the bodkin-point, which vibrating member alternately positions the cross-bars of the edging above and below the bodkin-point; substantially as described.

9. In a machine for inserting tape or the like into edging or other material, means for feeding the material, a bodkin carrying the tape, fingers located adjacent the point of the bodkin between which the edging or other material passes, a rock-shaft with means for oscillating it, an arm rigidly attached to said rock-shaft to which arm one of said fingers is secured, and a second arm to which the other finger is secured sleeved on the rock-shaft and held normally in engagement with the first arm, whereby it is operated with said first arm, the fingers being thereby raised and lowered; substantially as and for the purpose specified.

10. In a machine for inserting tape or the like into edging or other material, means for feeding the material, a bodkin carrying the tape, fingers located adjacent the point of the bodkin between which the edging or other material passes, a rock-shaft with means for oscillating it, an arm rigidly attached to said rock-shaft to which arm one of said fingers is secured, and a second arm to which the other finger is secured sleeved on the rock-shaft, a spring normally holding said second arm in position to be positively raised by the upward movement of the lower arm and for lowering it as the lower arm is dropped, whereby the fingers carried by the arms are raised and lowered; substantially as and for the purpose specified.

11. In a machine for inserting tape or the like into edging or other material, means for feeding the material, a bodkin carrying the tape, fingers located adjacent the point of the bodkin between which the edging or other material passes, a rock-shaft with means for oscillating it, an arm rigidly attached to said rock-shaft to which arm one of said fingers is secured, and a second arm to which the other finger is secured sleeved on the rock-shaft, and having a projection or arm 34, a spring normally holding the projection 34 against the first arm whereby the arms and the fingers

carried thereby are raised and lowered in unison; substantially as described.

12. In a machine of the character described, a bodkin, a supporting-wheel for meshed edging having vertically-projecting beveled teeth passing through the meshes of the edging and fitting between the cross-bars thereof, means for positioning the material alternately upon opposite sides of the forward end of the bodkin and feeding-rollers arranged above and below the bodkin and grooved to receive the same and adapted to feed the material onto the bodkin; substantially as described.

13. In a machine of the character described,

a bodkin, a supporting-wheel for the meshed edging having projecting tapered teeth to fit between the bars of said edging, said teeth at their base being of width sufficient to snugly fit, or even slightly spread the cross-bars and means for positioning the material above and below the bodkin-point; substantially as described.

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

EDWARD P. HATCH. [L. S.]

Witnesses:

CHESTER MCNEIL,
JAMES R. TROWBRIDGE.