

(No Model.)

2 Sheets—Sheet 1.

H. ESCHWEILER.
CARPET SEWING MACHINE.

No. 565,264.

Patented Aug. 4, 1896.

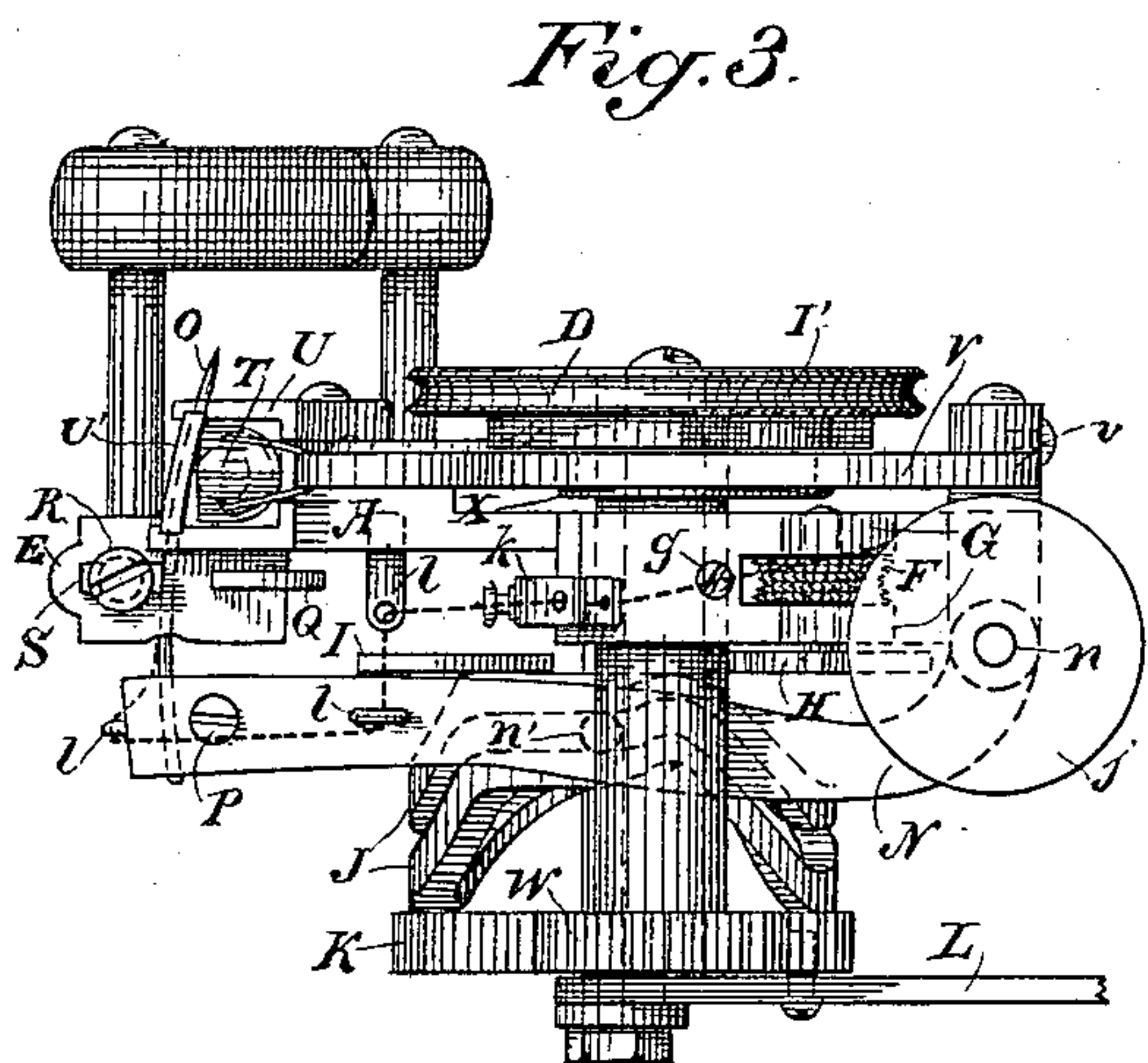
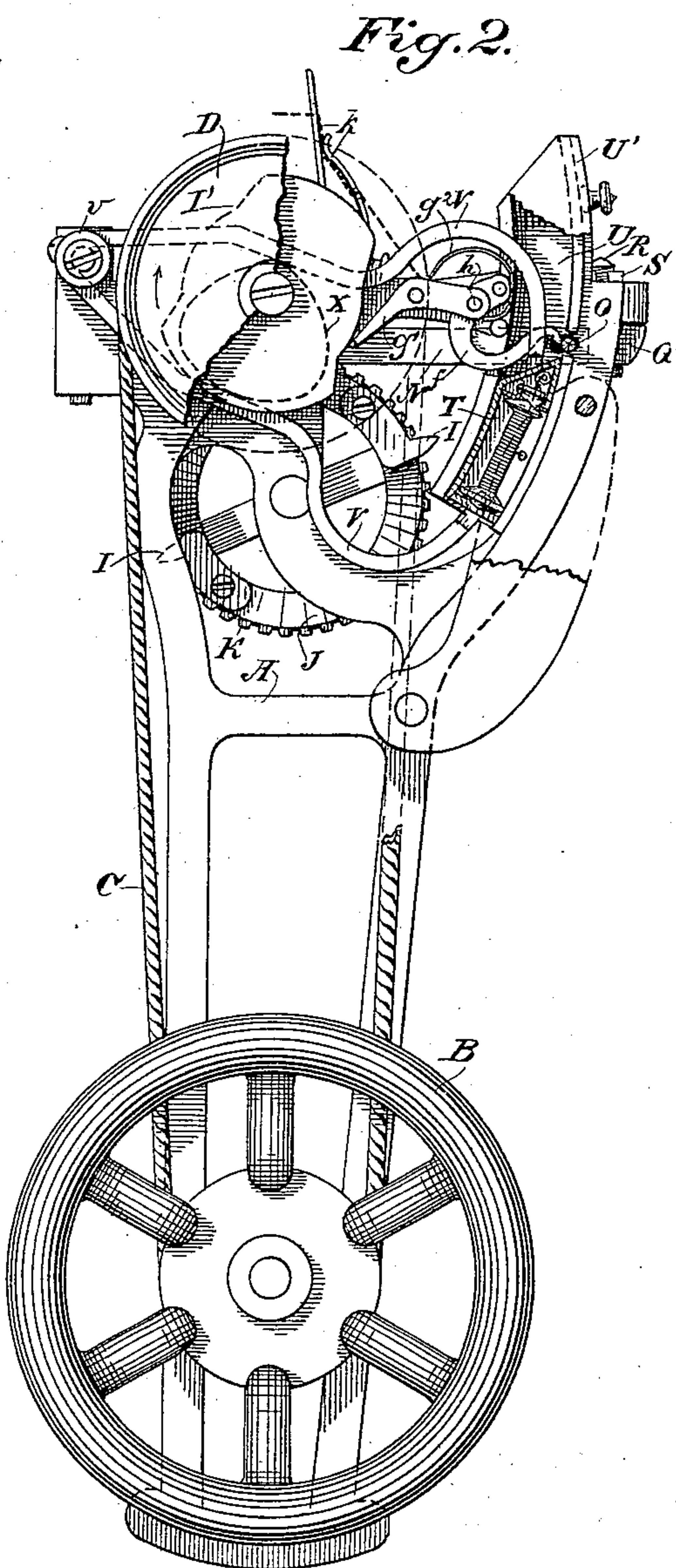
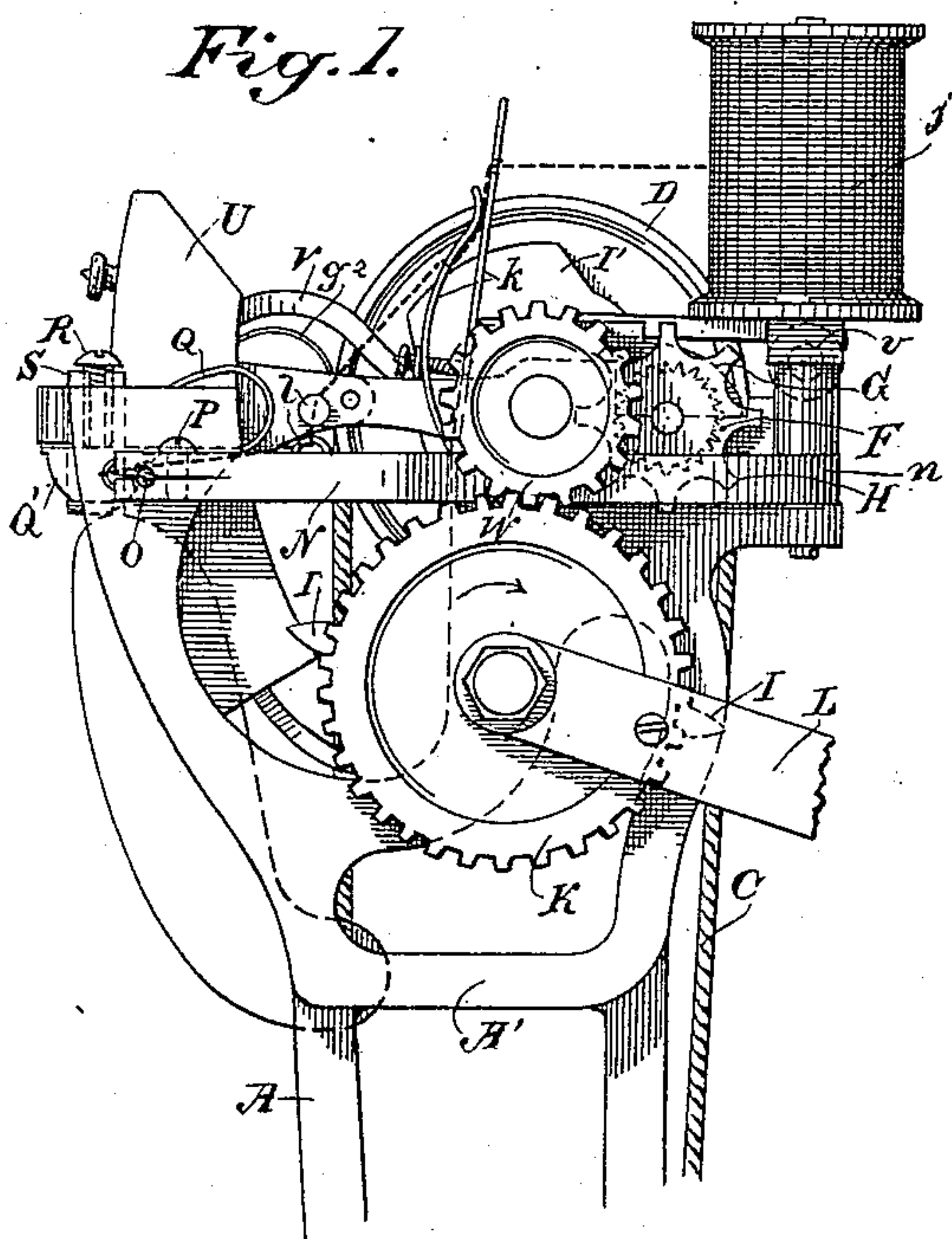
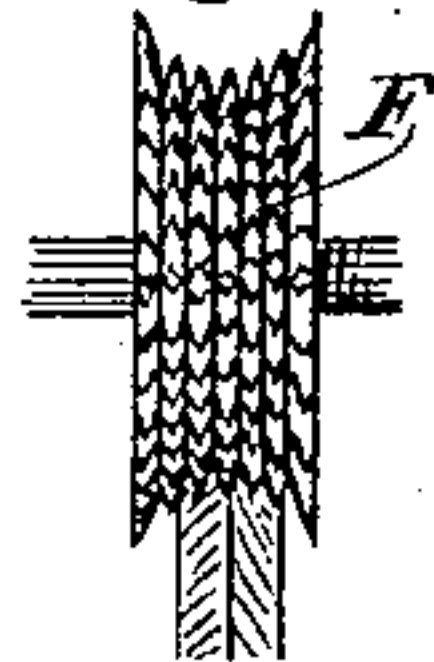


Fig. 11.



Witnesses,
J. H. Morse
J. F. Aschbeck

Inventor
Henry Eschweiler
By Dewey & Co.
attos

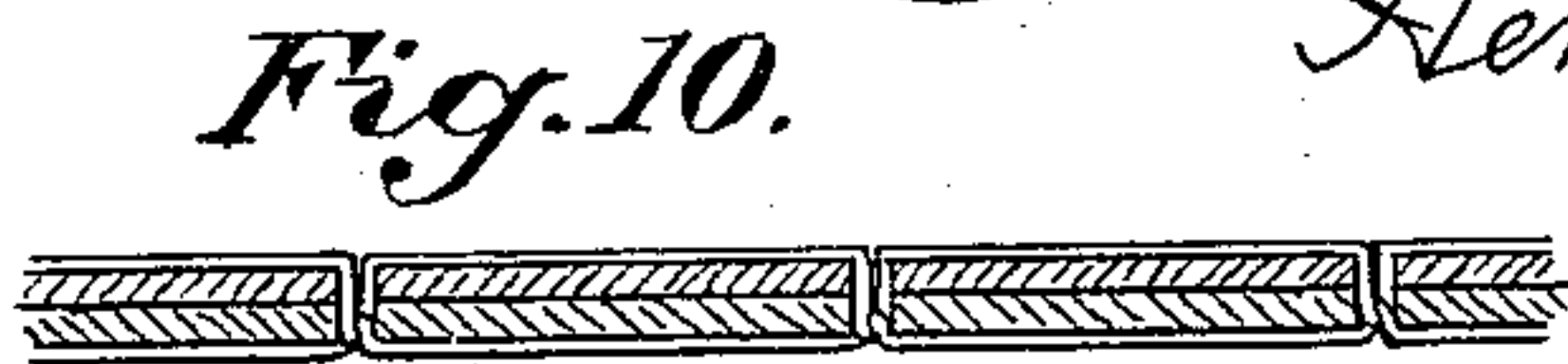
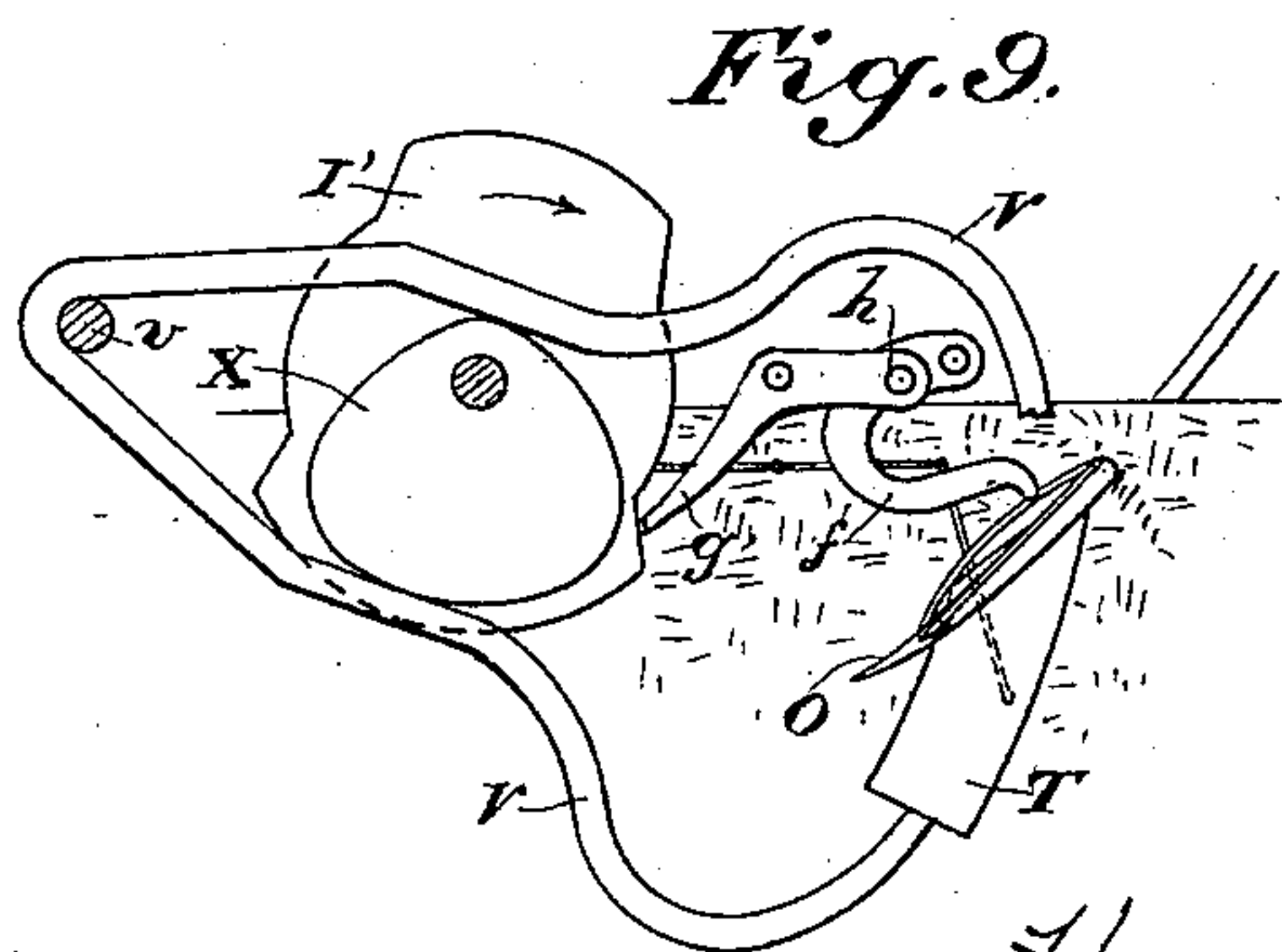
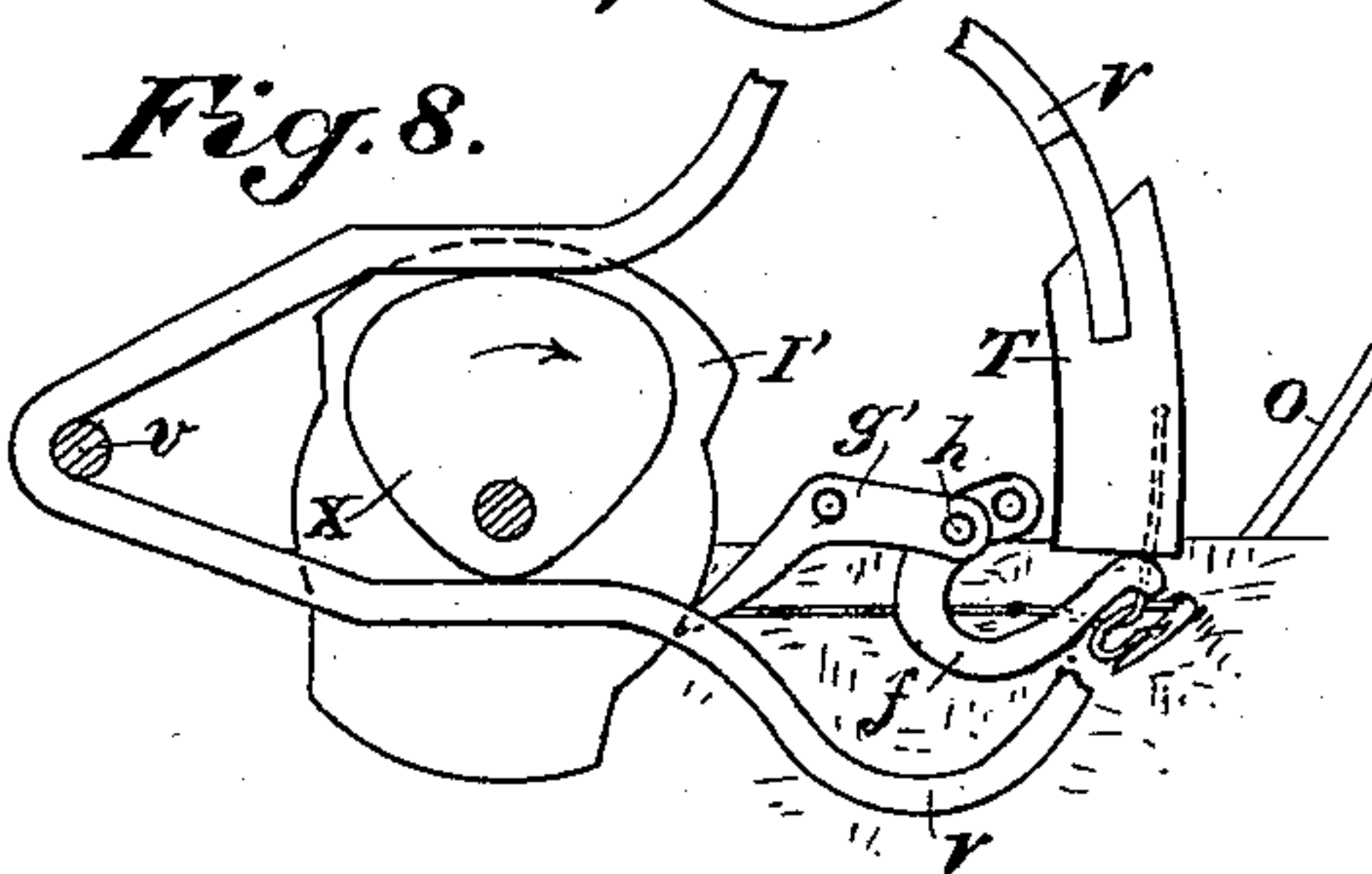
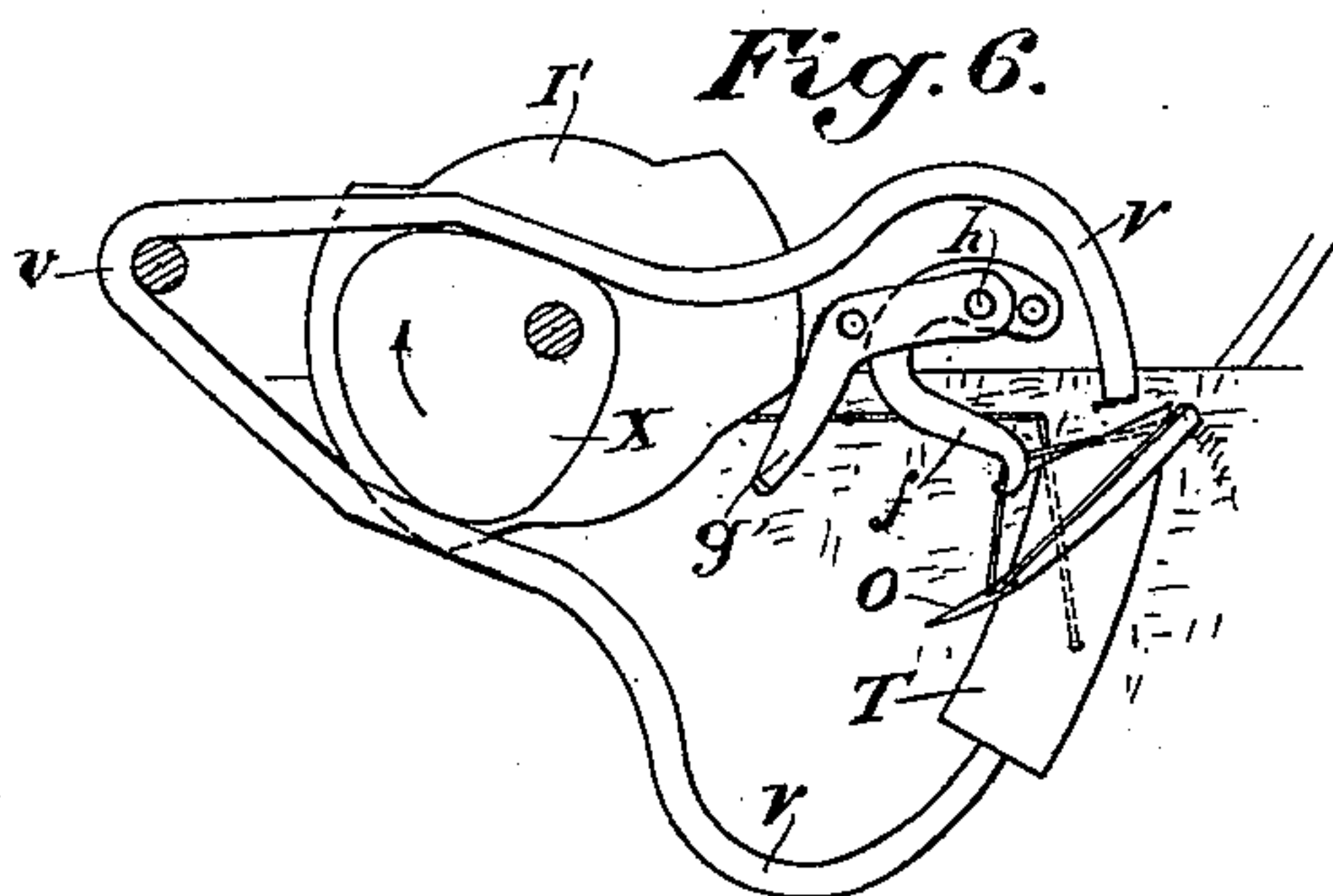
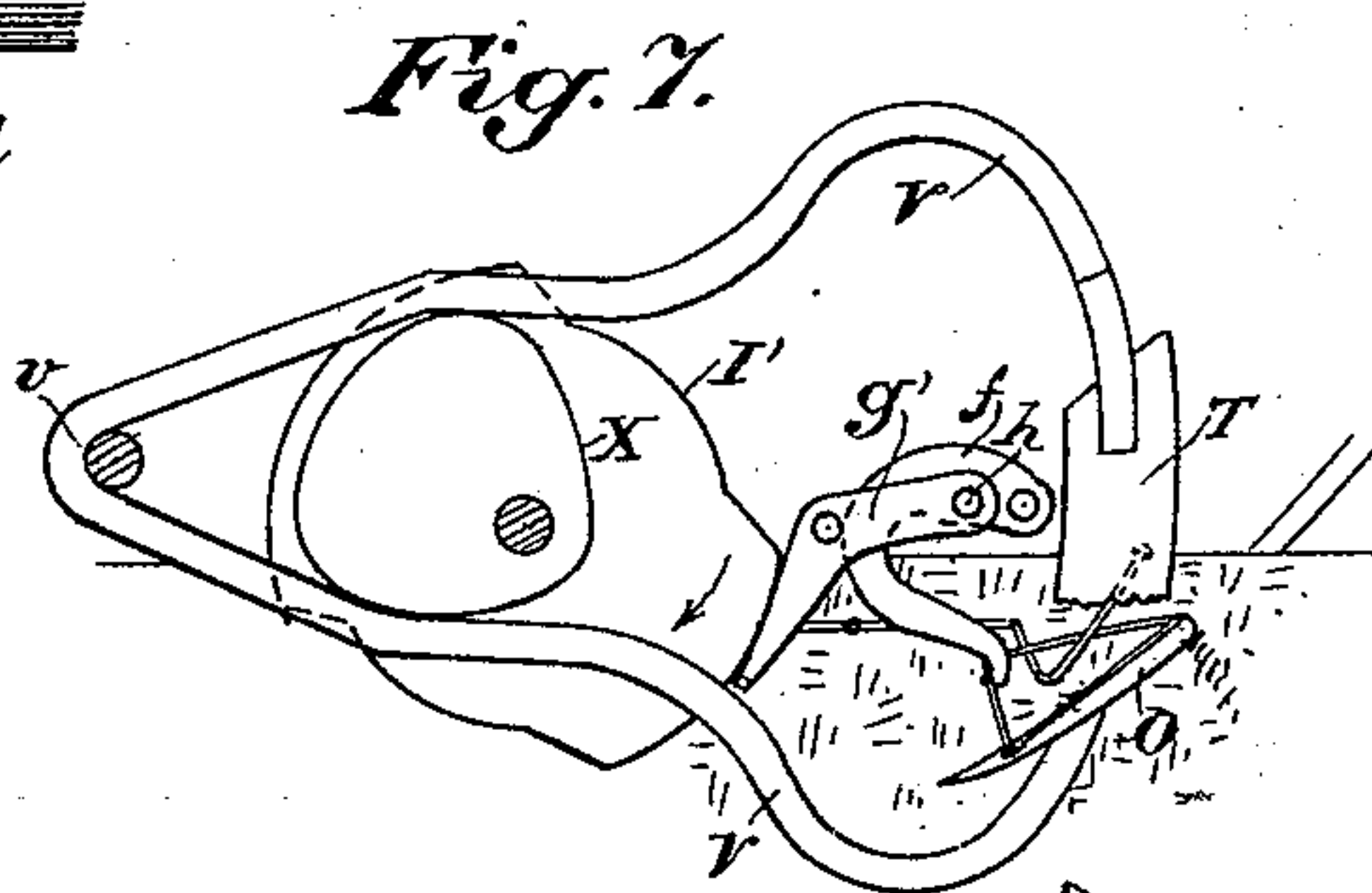
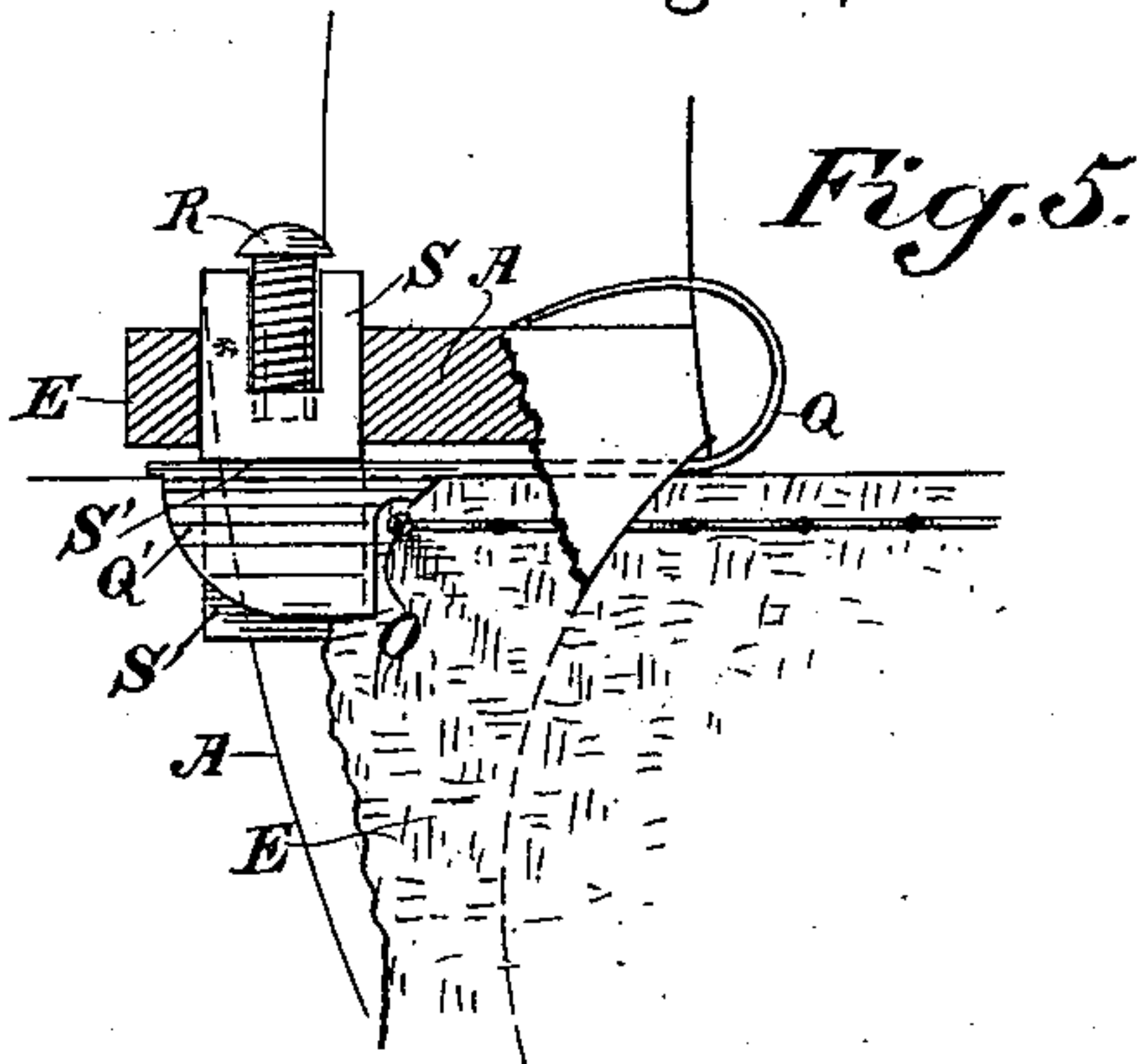
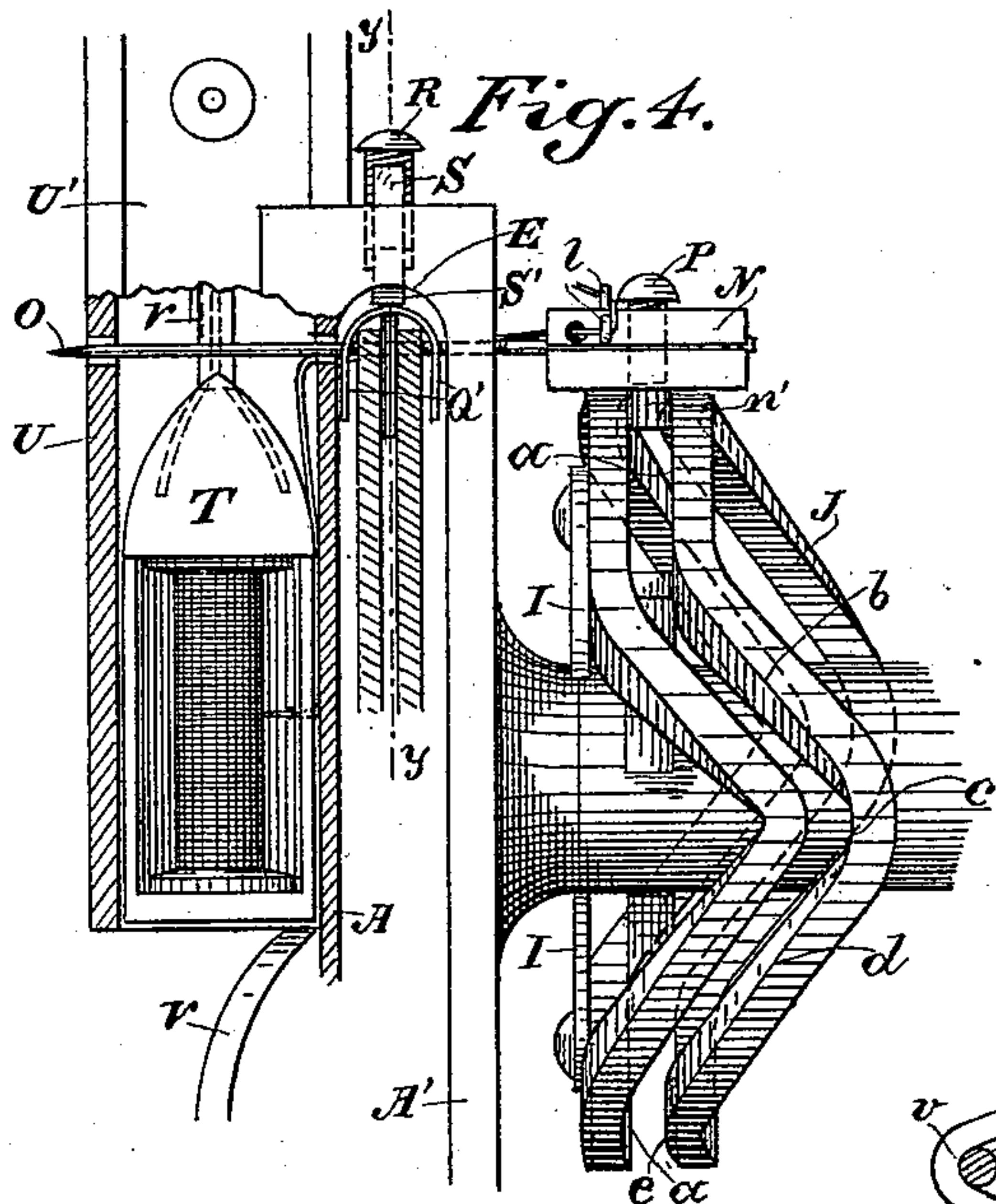
(No Model.)

2 Sheets—Sheet 2.

H. ESCHWEILER.
CARPET SEWING MACHINE.

No. 565,264.

Patented Aug. 4, 1896.



Witnesses,
J. H. Morse
J. F. Alscheck

Inventor,
Henry Eschweiler
By D. W. Co. atty

UNITED STATES PATENT OFFICE.

HENRY ESCHWEILER, OF SAN FRANCISCO, CALIFORNIA.

CARPET-SEWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 565,264, dated August 4, 1896.

Application filed January 18, 1895. Serial No. 535,382. (No model.)

To all whom it may concern:

Be it known that I, HENRY ESCHWEILER, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Carpet-Sewing Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a machine for sewing carpets.

It consists in certain details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the upper part of the machine, showing the gearing. Fig. 2 is a side elevation taken from the opposite side. Fig. 3 is a top or plan view. Fig. 4 is an enlarged edge view of a portion of the apparatus, showing the needle-actuating cam, the shuttle, and adjacent parts. Fig. 5 is a section on line *y y*, Fig. 4, showing the adjusting device by which the needle end of the machine is supported upon the edge of the carpet. Figs. 6, 7, 8, and 9 are views showing different positions of the needle and shuttle during the formation of the stitch. Fig. 10 is a section through the fabric, showing the complete stitches. Fig. 11 is a detail view of the feed-roller.

The object of my invention is especially to produce a carpet-sewing machine in which a lock-stitch is formed, mechanism by which the stitch is produced, and a novel feed mechanism by which the machine is advanced along the edge of the carpet as the sewing proceeds.

A is the frame of a machine, one side of which extends down alongside the carpet or fabric to be sewed when the apparatus is in position, the fabric being stretched with the edges together and in an approximately horizontal position, so that the machine may be supported upon the edges which are to be united.

At the lower end of the longer portion of the frame A is journaled a balance-wheel B, and a belt C passes around a pulley upon the balance-wheel shaft, and thence around a pulley D upon the pinion-shaft at the upper part of the machine.

At the upper end the frame A is turned over,

so as to have a part A' extending downward a short distance parallel with the part A and forming a space or channel between the two, which rests astride the edge of the carpeting or fabric to be sewed, and which is represented at E, Figs. 4 and 5.

Near one end of the upper part of this channel is a concave-edged feed-roller F, which is formed with sharp teeth and is especially shaped in this concave form so as to rest upon the upper edges of the carpeting or fabric to be sewed, with the points projecting radially, so as to enter into and engage the upturned edges, thus forming a positive engagement with them, so that the feeding forward of the apparatus will be insured without slippage, a distinctive feature of this feed over that ordinarily used in such machines being its engagement with the upper edges instead of with the sides of the fabric. The journal-shaft of this feed-roller is supported in a suitable yoke or block G, Fig. 3, fixed to the frame and having a clamping-screw *g*, by which the shaft of the feed-roller is so tightly bound that the roller cannot be rotated to allow the machine to advance except by the action of the mechanism intended for that purpose. Upon the outer end of this feed-roller is a star-wheel H, the points of which are engaged by projecting arms or spurs I, Fig. 2, carried by the cam-wheel which actuates the needle-bar. The number of points upon the star-wheel determines the length of the feed, this is changed by substituting wheels of more or less points.

The cam-wheel J is fixed to the driving-gear K or mounted upon the same shaft therewith, this shaft being fixed in the frame A' and projecting so that the cam and gear-wheel may be turned upon it by means of a crank L, which is fixed to the gear-wheel, as shown.

N is a horizontal lever-arm, one end of which is fulcrumed near one end of the frame A at *n*, the arm extending across the frame and having a slot in the opposite end, within which the needle O is fixed by means of a clamping-screw P. This horizontal needle-bar N has a pin *n'*, projecting downwardly and entering the slot or channel formed between the two sides of the cam J, so that as the latter is rotated it will cause the pin to follow its irregular path and the arm N will

thus be reciprocated from side to side, the free end carrying the needle and moving it into and out of the goods to be sewed, the edge of the goods being in line with the needle. This cam is so formed as to produce two reproductions of the needle-bar for each revolution of the cam.

In order to regulate the distance of the stitch from the edge of the goods, I have shown an elastic spring-arm Q, fixed to the frame near the end where the needle operates and having saddle-shaped flaps Q', which are curved, so that the edges of the fabric pass between these flaps or wings.

R is a screw which fits into a slot in the plate S, and the outside threaded portion of the screw fits corresponding threads made on opposite sides in the frame, within which the screw is movable. A shoulder on the plate S' presses upon the top of the spring Q when the screw R is turned down and thus raises the frame and the needle, so that the stitch is brought nearer to the edge, and when the screw R is turned in the opposite direction the spring Q will act to depress the frame, thus bringing the needle and the stitch farther from the edge of the goods.

The shuttle T carries a spool-bobbin and thread in the manner usual for such shuttles. It is properly shaped to reciprocate in a shuttle-race U, and is caused to reciprocate by means of the arms V, which are adapted at one end to clasp or engage the shuttle and at the opposite end are fulcrumed, as shown at v.

U' is a guide and stop which fits into the top of the shuttle-race with tongues and grooves and is removable at will. When the cap is removed, the shuttle can be introduced or removed from the race.

That portion of the arms V between the fulcrum-point and the shuttle extends upon each side of a cam X, which is well shown in Figs. 7 to 9, inclusive. This cam is fixed to and adapted to revolve with the shaft of the pulley D, and as this shaft is rotated the cam is moved, so as to reciprocate the shuttle-carrying arms or frame V, and these alternately impel the shuttle from one end to the other of its range of travel in the shuttle-race. The shaft of pulley D carries a pinion W, which meshes with the gear K, by which the former receives its motion.

In conjunction with the shuttle and needle is the looper f, one end of which is suitably pivoted and the other has formed upon it a hook, which engages the needle-thread, as plainly shown in Figs. 7 to 9.

g' is a lever bent something like a bell-crank, having its angle fulcrumed and one end carrying a pin h, which engages the looper near the fulcrum-point, so that oscillations of the lever g' will act to move the looper f in one direction.

g², Fig. 2, is a spring which presses upon the looper and returns it after it is released from the action of the cam.

The opposite or free end of the lever g' is

acted upon by a cam I', this cam being fixed to the same shaft as the cam X and rotating simultaneously with it.

The two cams are so arranged with relation to each other that the movements of the looper and the shuttle are properly timed with relation to each other and to the movement of the needle itself.

The needle-thread is carried upon the spool j, the thread passing from it, as shown in Fig. 1, between elastic arms or plates k, which produces a certain amount of tension, thence through holes and leaders l, as shown in Fig. 3, and thence to the needle O.

The tension of the thread can be adjusted at any time by means of the spring-clamps k and leaders between which it passes.

The operation of the apparatus can best be understood by following the course of the needle and the shuttle and looper through the diagrammatic views, Figs. 6 to 9, inclusive, together with Fig. 2.

In the views 6 to 9 the needle is shown in an oblique position with relation to the shuttle instead of at right angles thereto, because it is easier to show its relative positions by placing it at such an angle.

In Fig. 6 the looper is shown as having formed the loop, and the shuttle has just started up with its point passing through the loop, the needle being at this time in a state of rest because the pin through which the cam J acts upon the needle-bar is at this time in that portion of the groove of the cam which is essentially in the plane of rotation, as shown at a in Fig. 4.

In Fig. 7 it will be seen that the shuttle has passed almost through the loop. The needle will commence to withdraw from the fabric as soon as the pin begins to be acted on by the inclined portion b of the cam-groove.

In Fig. 8 the shuttle is represented as having completed its upward movement, the looper has fully advanced again to free the loop, and the pin of the needle-bar having reached the deepest part of the cam-groove, as at c, the needle will be withdrawn from the fabric, so as to allow the feed to operate, which it does in the next instant by reason of the engagement of one of the points I with a point of the star-wheel H, and at the same time the loop is pulled tight.

In Fig. 9 the shuttle has just reached the end of its downward stroke, the needle has reentered the fabric by reason of the action of the inclined portion d of the cam-groove upon the pin of the needle-bar, and the needle has reached the end of its throw when this pin reaches the point e of the cam-groove. From this point the pin again enters the straight portion a upon the opposite side of the cam, making, however, before entering the straight portion a short return movement between e and a, which retracts the needle sufficiently to form a slight slack to the needle-thread, and this allows the end of the looper to enter. The looper has been retracted to

allow the shuttle to pass down, but has now advanced again to take the loop, and at the next movement the parts will again be in the position shown in Fig. 2. The stitch when thus completed resembles that shown in Fig. 10.

The channel or cam-groove in the cam J is of the same shape upon each side, and there are two of the feeding-points I used in connection with the cam. Therefore it will be seen that there will be two stitches made for each revolution of the cam-shaft.

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

1. In a carpet-sewing machine, a yoke-shaped frame to be supported upon the upper edge of the fabric to be sewed, when two pieces of fabric are placed side to side so that the upper edges of both pieces are presented outwardly, and exposed, a concaved-faced feed-roller at one end of the frame, above said edges, having radially-extending points adapted, by the weight of the machine, to be pressed into said exposed edges, a support near the opposite end of the upper part of the frame having wings or flaps between which the edges of the fabric pass, and a mechanism comprising a plate adjustably mounted in the frame and engaging the support to raise and lower this end of the frame with reference to the edge of the fabric, a needle-bar adapted to reciprocate in a horizontal plane and a needle fixed thereto and adapted to pass through the fabric contiguous to the support.

2. In a carpet-sewing machine, a yoke-shaped frame to be suspended upon the upturned edges of two pieces of fabric when placed side to side, with the edges of both pieces exposed, a feed-wheel mounted in one end of the upper part of the frame having a concaved face for receiving the fabric edgewise, said feed-wheel having radially-extending points adapted, by the weight of the machine, to be pressed into the exposed edges of the fabric, and mechanism by which said feed-wheel is rotated at intervals to cause the radial points to directly engage the exposed edges of the fabric and advance the machine along said edges while supported thereon.

3. In a carpet-sewing machine, a yoke-shaped frame to be supported upon the vertical upturned edge of the fabric to be sewed, a feed-wheel near the upper part of one end of the frame, having a concaved face to receive the fabric edgewise, and having radially-extending points adapted, by the weight of the machine, to be pressed into the exposed edge of the fabric, a support near the upper part of the opposite end of the frame consisting of an elastic spring-arm having flaps or wings between which the edge of the fabric passes, a plate adjustably mounted on the frame and engaging said support to raise and lower this end of the frame with relation to the edge of the fabric, a horizontally-reciprocating needle-bar journaled at the feed-wheel

end of the machine and carrying a needle at its free end contiguous to said support, a shaft fixed in the frame and having a cam journaled thereon, a pin fixed in the needle-bar and engaging the cam, and means for rotating the cam to reciprocate the needle-bar.

4. In a carpet-sewing machine, a yoke-shaped frame to fit over and be supported upon the edge of the fabric to be sewed, a feed-roller journaled near one end of the upper part of the frame, having a star-wheel fixed upon the projecting end of its shaft, said feed-roller having a concaved face adapted to receive the fabric edgewise, and provided with radially-extending points adapted, by the weight of the machine, to be forced into the exposed edges of the fabric, a horizontally-reciprocating needle-bar fulcrumed near the feed-roll end of the machine and having its opposite free end provided with a needle, a shaft fixed in the frame and a cam journaled thereon with means by which it is rotated, a pin fixed to the needle-bar and engaging the cam whereby the needle-bar is reciprocated in a horizontal plane, projections carried by the cam and adapted to engage and intermittently rotate the star-wheel and the feed-roller, whereby the machine is advanced along the exposed upturned edge of the fabric after the completion of each stitch and the withdrawal of the needle from the fabric.

5. In a carpet-sewing machine, a yoke-shaped frame to be suspended on the upturned edge of the fabric having a feed-roller at the upper part of one end of the machine, provided with radially-extending points adapted, by the weight of the machine, to be pressed into said edge, said roller having a concave face to receive the fabric edgewise, a star-wheel on the feed-roller shaft, a needle-bar fulcrumed near the feed-roller and extending horizontally to near the opposite end of the frame, and provided with a needle, a cam on a shaft below and parallel with the feed-roller shaft, and adapted to engage the needle-bar between its fulcrum and outer end, to reciprocate said bar, a second shaft parallel with and contiguous to the feed-roller shaft, a pinion on said second shaft and an engaged gear on the cam-shaft, a cam fixed upon said second shaft and the arms fulcrumed at one end near one end of the frame, and extending upon each side of the cam, a curved shuttle-race upon the frame and a thread-carrying shuttle movable in said race and having the free ends of the curved arms connected with its opposite ends.

6. In a carpet-sewing machine, a frame adapted to be supported upon the upper edge of the fabric to be sewed, a concaved-faced radially-toothed feed-wheel and mechanism by which it is advanced at intervals after the completion of each stitch, a horizontally-reciprocating needle-bar fulcrumed at one end of the upper part of said frame carrying a needle at its free end which is reciprocated to

pass in and out of the fabric, a cam, mechanism by which it is rotated and connections between the cam and needle-shaft whereby the needle-shaft is reciprocated, a second
5 shaft journaled above the cam-shaft, a gear and pinion by which motion is communicated from the cam-shaft to the pinion-shaft, a shuttle movable in a curved race upon the frame, arms engaging the shuttle, and a cam fixed
10 upon the pinion-shaft and engaging the shuttle-carrying arms so that the rotation of the pinion-shaft reciprocates the shuttle in its race, a vibrating looper having a point adapted to engage the needle-thread and a ful-
15 crumed arm connected with the looper and a second cam fixed upon the pinion-shaft and engaging said arm when the shaft is rotated, whereby the looper is vibrated so as to engage the needle-thread, draw it back for the
20 passage of the shuttle, and then caused to release the thread.

7. In a carpet-sewing machine, a yoke-shaped frame adapted to be suspended upon the upper edge of the fabric to be sewed, a
25 radially-toothed concave feed-roller fixed to a shaft and adapted to ride upon and receive the fabric edgewise, and a star-wheel fixed to

said shaft, a needle-bar fulcrumed to the frame, a cam with cam-surfaces alike on both sides of its center by which two reciprocations
30 of the needle are produced by each revolution of the cam, and arms fixed to rotate with the cam and engage the star-wheel, whereby the wheel and roller are advanced at each semi-revolution of the cam.

8. In a carpet-sewing machine, a yoke-shaped frame adapted to be supported upon the upper edge of the fabric to be sewed, a concave-faced radially-pointed feed-roller, a mechanism for intermittently rotating said
35 feed-roller, a horizontally-reciprocating needle-bar and actuating mechanism, a shuttle and mechanism for reciprocating it, a looper movable with relation to the needle and shuttle, an arm connected therewith, a cam by
40 which it and the looper are moved in one direction, and a spring by which they are returned when released from the cam.

In witness whereof I have hereunto set my hand.

HENRY ESCHWEILER.

Witnesses:

S. H. NOURSE,
H. F. ASCHECK.