

2 Sheets—Sheet 1.

No. 571,125.

Patented Nov. 10, 1896.

Fig. 1.

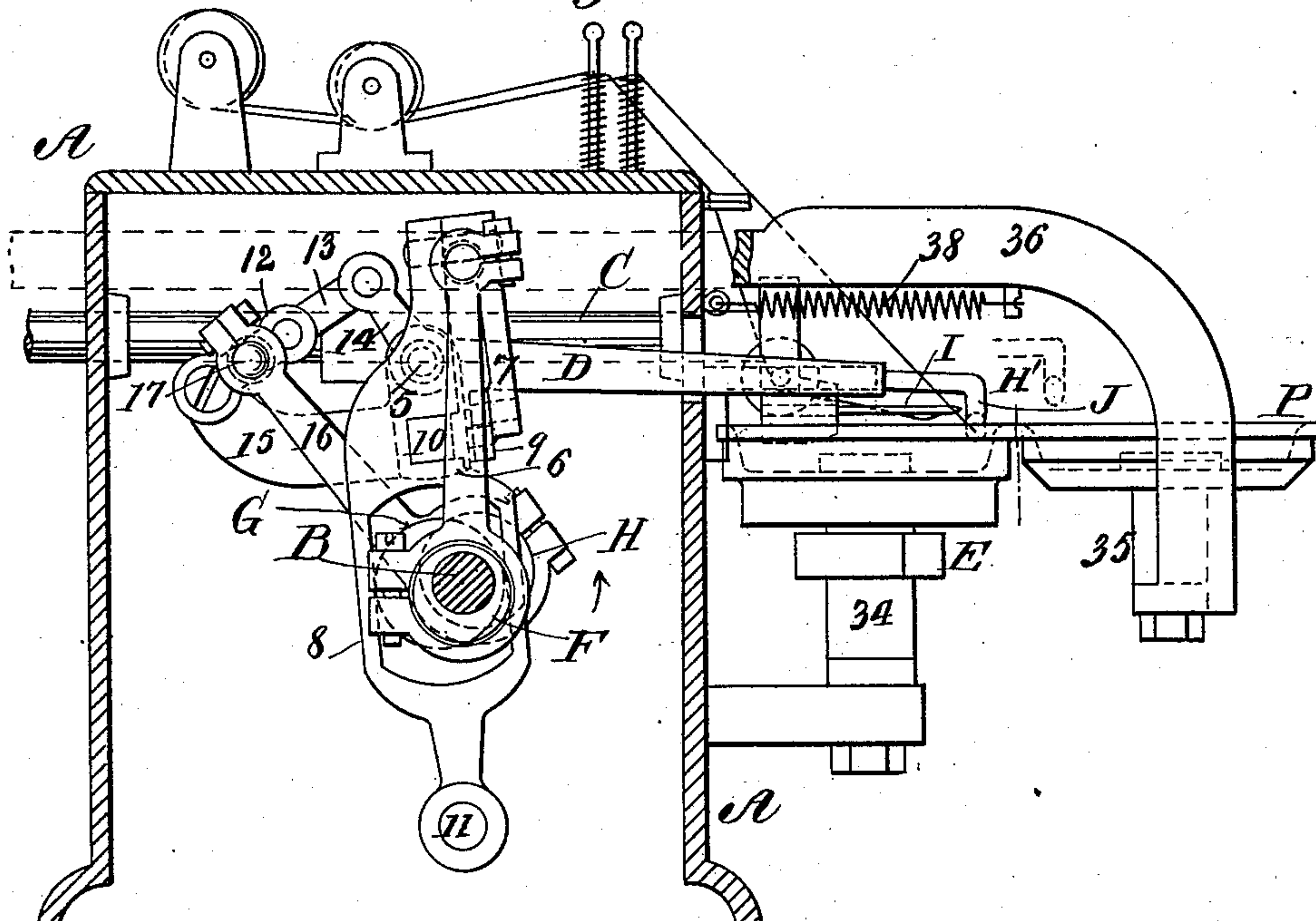


Fig. 4

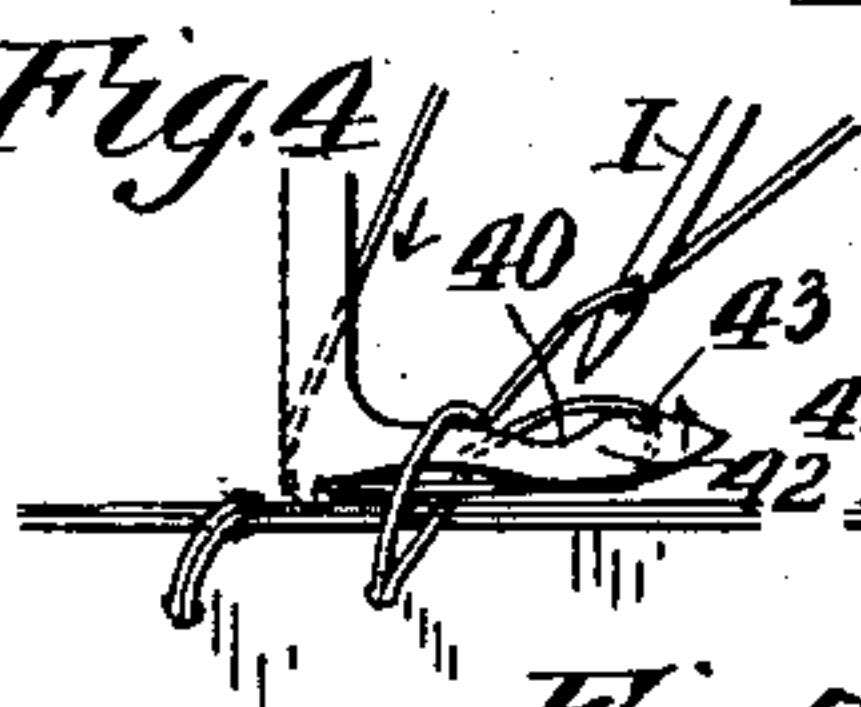


Fig. 5.

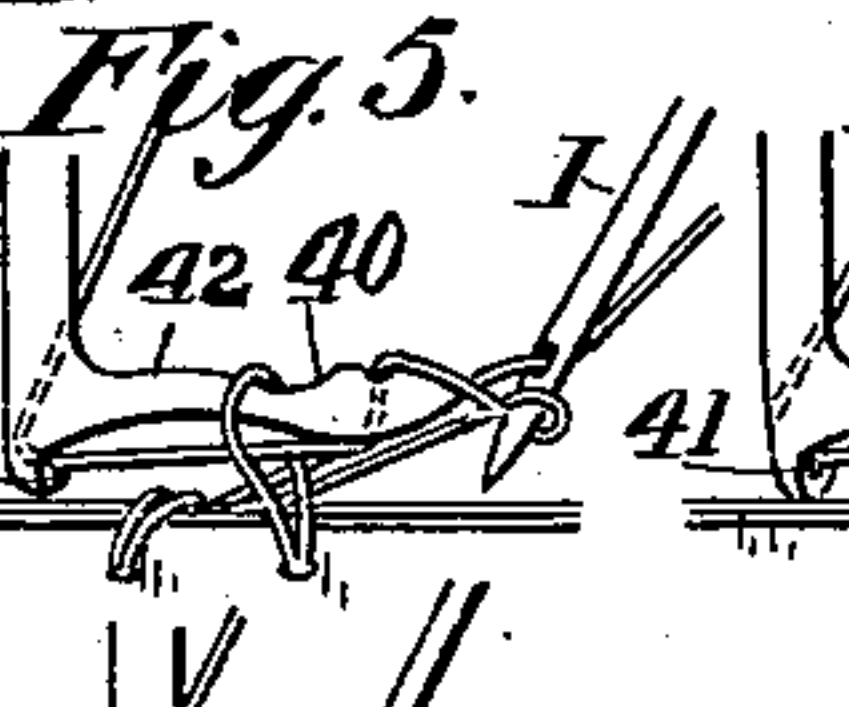


Fig. 6.

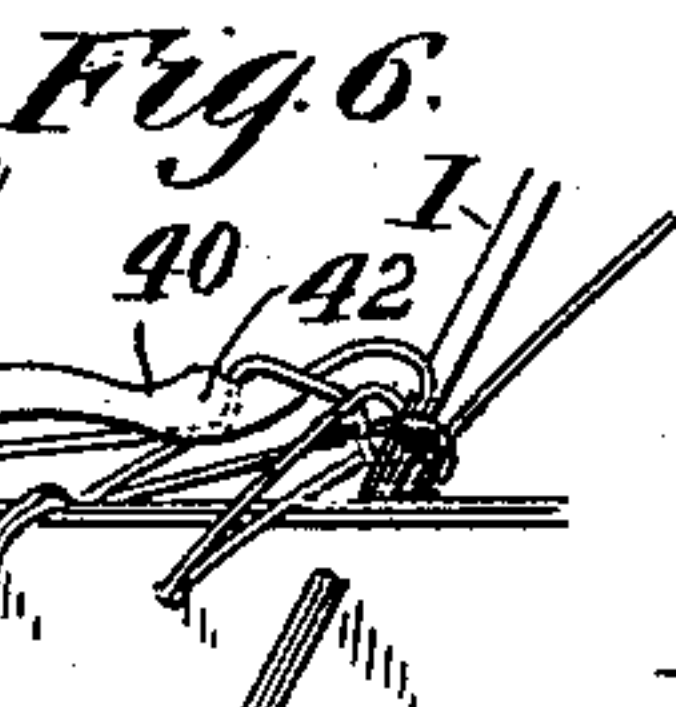


Fig. 3

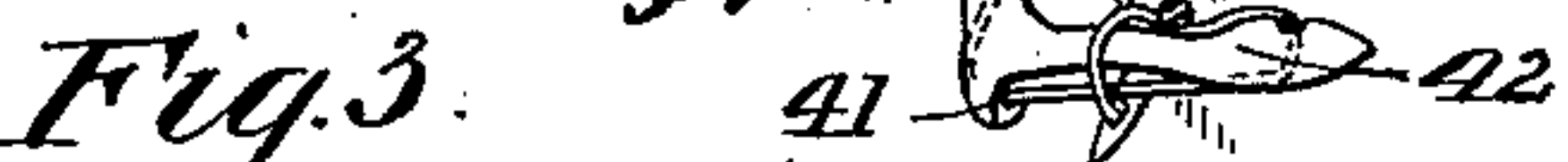
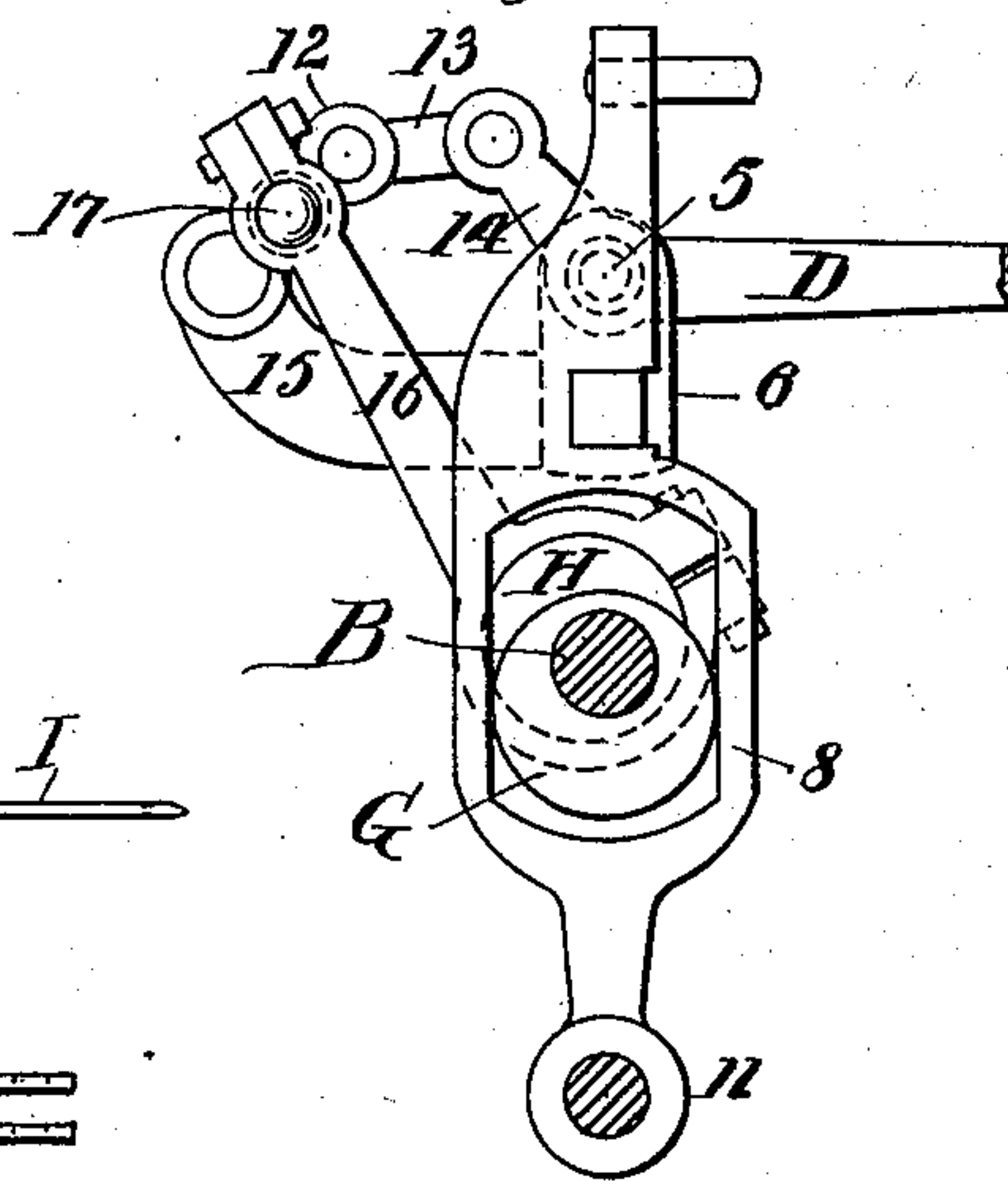


Fig. 2.



WITNESSES:

L. L. Smith

M. J. O'Brien.

B.

WITNESSES:
L. L. Smith
M. J. O'Brien.

INVENTOR.

Hermann Arthur Klemm,

BY *Henry F. Parker.*

ATTORNEY.

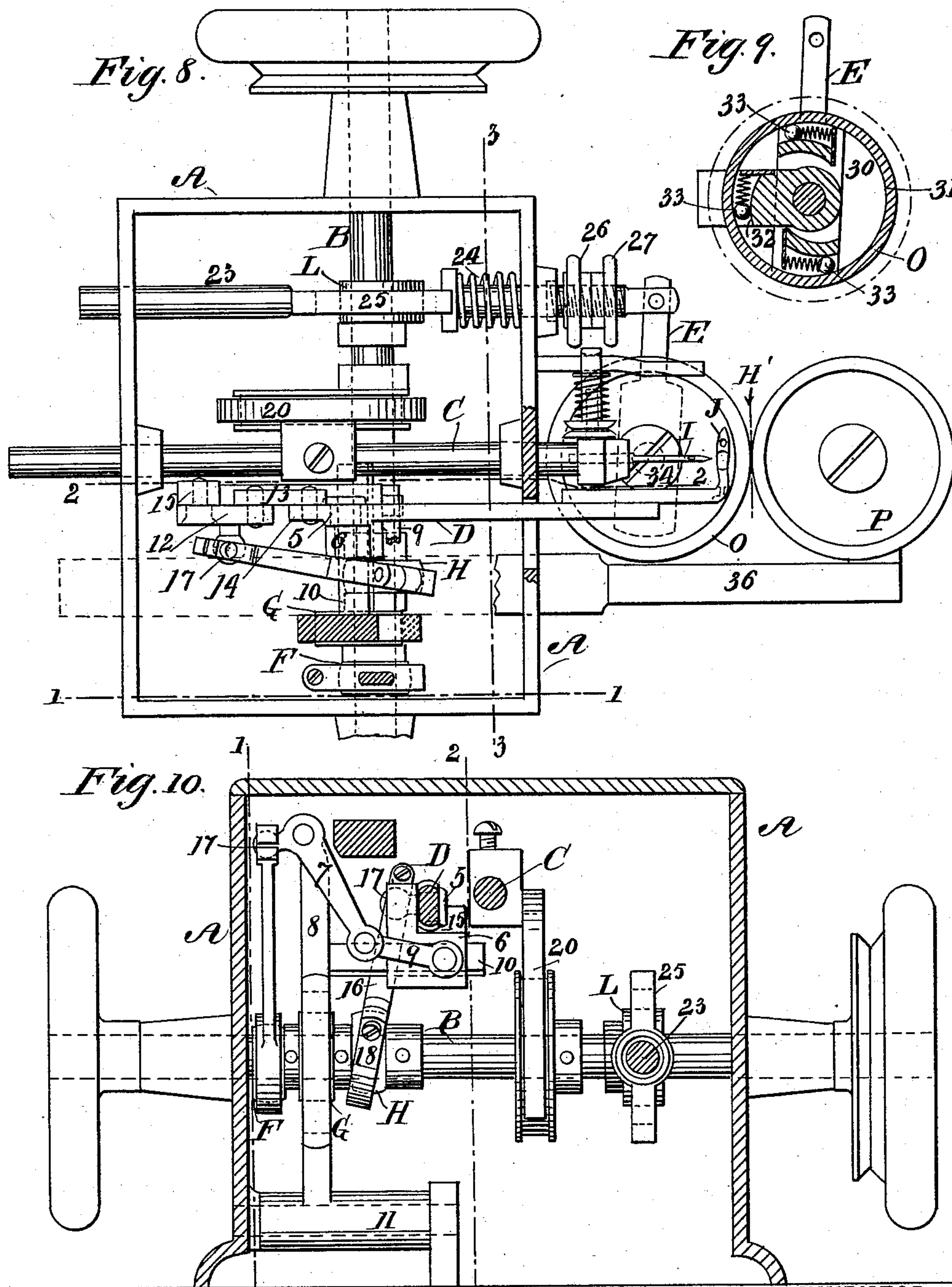
(No Model.)

2 Sheets—Sheet 2.

H. A. KLEMM.
OVEREDGE SEWING MACHINE.

No. 571,125.

Patented Nov. 10, 1896.



WITNESSES: 1

2

INVENTOR.

M. J. O'Brien.
L. L. Smith.

Hermann Arthur Klemm,
BY Henry F. Parker,
ATTORNEY.

UNITED STATES PATENT OFFICE.

HERMANN ARTHUR KLEMM, OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO CHRISTIAN ENGELHARDT, OF SAME PLACE.

OVEREDGE SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 571,125, dated November 10, 1896.

Application filed June 16, 1896. Serial No. 595,741. (No model.)

To all whom it may concern:

Be it known that I, HERMANN ARTHUR KLEMM, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Overedge Sewing-Machines, of which the following is a specification.

My invention relates to overedge sewing-machines.

The object of said invention is to generally improve the mechanism for actuating the looper, the needle, and the feed-disks, and also to form the stitch in an improved manner.

Referring to the accompanying drawings, in which similar characters of reference indicate corresponding parts, Figure 1 is a cross-sectional elevation taken at 1 1, Figs. 8 and 10. Fig. 2 is a detail view illustrating a different position of certain parts in Fig. 1. Fig. 3 is a cross-section at 2 2, Figs. 8 and 10. Figs. 4, 5, 6, and 7 are perspective views of the looper and needle in different positions, illustrating the formation of the stitch. Fig. 8 is a plan view, the cover of the case being removed. Fig. 9 is a detail sectional view showing the feed-disk-actuating mechanism. Fig. 10 is a longitudinal vertical section at 3 3, Fig. 8.

Figs. 1, 3, 8, 9, and 10 illustrate the same position of the parts of the machine—viz., preparatory to making a stitch before the needle has entered the goods.

A represents the frame, which is in box form, inclosing all of the actuating parts and excluding dust and protecting the goods from oil.

B represents the main shaft, and from this shaft all of the parts are operated and the mechanism is thereby organized in concentrated form.

C is the needle-bar, D is the looper-bar, and E is the feed-disk-actuating arm, and all of these parts are operated by means of eccentrics in lieu of irregular cams, as usual in machines of this class heretofore, thereby reducing cost of construction and lessening noise.

The eccentrics F G H are employed to give the three component motions to the looper-

bar D. The eccentric F gives the horizontal lateral motion; that is to say, in the direction of the line of feed of the goods H. The eccentric G gives the horizontal longitudinal motion to the looper-bar D; that is to say, across the goods. The eccentric H gives the vertical motions to the looper, and for every single stroke of the eccentric H the looper receives two vertical strokes, so as to clear the goods in passing over them in the forward and back stroke, the looper being depressed on each side of the goods to give and take loops with the needle.

I represents the needle, and J represents the looper.

The eccentric K actuates the needle I with reciprocating motion.

The eccentric L actuates the feed-disk arm E.

Any well-known or suitable hair dividing and guiding device may be used in connection with this machine, the same being omitted in the illustrations.

In matter of detail the parts are as follows: The looper-bar D is pivoted on a horizontal axis 5 on a laterally-reciprocating block 6, which is actuated by the eccentric F, bell-crank arm 7, pivoted on the movable yoke 8, and the link 9, said block 6 being supported and guided on the square bar 10, which is carried by the yoke 8. The yoke 8 receives the eccentric G, and said yoke is pivoted strongly at 11, so as to carry all the looper-actuating mechanism, and the end motion of the looper-bar D is derived from the eccentric G, swinging said yoke and the entire mechanism aforesaid. The two horizontal motions of the looper being thus obtained from the eccentrics F and G the double vertical motions are obtained from the eccentric H by means of a toggle-lever mechanism composed of arms 12 13, pivoted together and to the arm 14, fixed to the bar D and to the arm or bracket 15, projected rigidly from and carried by the movable block 6. The eccentric-rod 16 is ball-jointed at 17 to the toggle-arms, and the eccentric H is spherically turned, receiving a corresponding collar or strap 18, allowing the movement of the actuated parts on the block 6 along the guide-bar 10. When the eccentric H is at intermediate stroke, as

in Fig. 1, the toggles are straight, the looper-bar D being depressed at its outer end. When the eccentric H is at either extremity of its stroke, the toggles are bent the one way or the other, the upper position being indicated in Fig. 2 in full lines, and at said extremities of stroke the looper-bar D is thereby raised at its outer end. The toggles are so adjusted that the looper J shall receive a lower depression at the position shown in Fig. 1 than at its outer or advanced position over the outer feed-disk, thereby accommodating the requirements of the stitch action, as will hereinafter appear.

The needle-bar C is provided with a fork 20, embracing the eccentric K to receive its motion, and said bar is supported and guided in bearings 21 22 in the case A.

The feed-arm E is reciprocated from the eccentric L by means of the rod 23, guided in the case A, and provided with a spring 24. The yoke 25 surrounds the eccentric L, but has contact on one side only, leaving clearance on the other side, and said contact is maintained by the said spring 24. The stroke of the rod 23, and consequently the length of stitch, is regulated by the adjustable stop-nut 26, which can be clamped by a jam-nut 27, thus limiting the retractive movement of the rod 23 at any desired point. The ball-clutch mechanism in Fig. 9 engages with the advancing movement of the rod 23 to feed the goods. The said clutch mechanism consists in an intermittent rotary device having an oscillating member 30, Fig. 9, a rotary member 31, which is the feed-disk O in Fig. 8, having a circular surface concentric with the axis of rotation, and a fixed member or members 32 32, said oscillating and fixed members having inclined or non-concentric surfaces, and balls or rollers 33 being interposed to form an actuating-clutch and a retaining-clutch of great accuracy, as described and claimed in my separate application filed January 31, 1895, Serial No. 536,759.

The inner feed-disk O is mounted on a fixed pintle 34, and the outer feed-disk P is mounted on a movable pintle 35 on the movable arm 36, sliding in the case A and retained inward by a spring 38, so as to press the goods against the disk O.

Suitable spool-supporting devices and tension and take-up devices for the threads of the needle I and looper J are represented at the upper portion of Fig. 1.

The novel formation of the stitch and the improved construction of the looper J appear in Figs. 4 to 7, inclusive. It will be seen that the upper surface of the looper is concaved at 40 in lieu of concaving the lower surface as heretofore, and the needle I passes over the looper instead of under it when said needle advances. Furthermore, the looper is constructed with the back eye 41 below instead of above the spear 42, and the looper-thread is fed upward instead of downward through the eye 43 in the point of the spear. As a re-

sult, the needle-thread is drawn through a twist of the looper-thread at each stitch, thereby locking the same, so as to avoid ravel. This twist is formed by the passage of the needle through the loop above the concave 40 in Fig. 4 and the subsequent rising and retracting motion of the looper to the position shown in Fig. 5, by which means the said loop is crossed upon itself or twisted and so remains when bound off by the drawing of the stitch.

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

1. A looper for an overedge sewing-machine having a vertical eye near the point of the spear, an eye below the spear at the heel, and a concavity upon the upper side of the spear between the shank and said vertical eye, in combination with a reciprocating needle, and means for actuating the looper horizontally and vertically so that the same is depressed under the line of the needle on one side of the goods with said concavity in the path of the needle, and carried over and depressed above the line of the needle on the other side of the goods, to form the stitch described.

2. In an overedge sewing-machine, the combination of a reciprocating needle, and a looper having a concaved upper side, and means for actuating the looper horizontally and vertically so that the same is depressed under the line of the needle on one side of the goods, and carried over and depressed above the line of the needle on the other side of the goods to form the stitch described.

3. In an overedge sewing-machine, the combination of horizontal feed-disks, a horizontal needle reciprocating across the line in which the goods are fed by the disks, means for supplying thread to the needle under tension, a looper movable into positions adjacent to the path of the needle on both sides of the said line of feed of the goods, means for supplying thread to the looper under tension, and means of operating the looper in such relation to the needle that on one side of the goods the looper-thread is introduced by the point-eye of the looper through the loop formed in the needle-thread on the upper side of the needle by the retracting movement of said needle after it has punctured the goods, and on the other side of the goods the needle-thread is introduced by the point-eye of the needle through the loop carried by the eye of the looper when said looper is presented under the line of the needle and the looper is retracted and raised from the needle forming a twist in its loop when taken by the needle, adapted to lock the stitch when it is bound off.

4. In an overedge sewing-machine, the combination of a drive-shaft, an eccentric thereon and a yoke actuated thereby carrying the looper-bar-actuating mechanism consisting in a movable supporting-carrier and guide therefor parallel to the length of said shaft and actuated by an eccentric on said

shaft, the looper-bar being pivoted to said
carrier, and a toggle-lever mechanism sub-
stantially as shown pivoted to said carrier
and said looper-bar and having its members
5 centrally jointed together, and connected to
an eccentric on said shaft.

Signed at New York, in the county of New

York and State of New York, this 1st day of
June, A. D. 1896.

HERMANN ARTHUR KLEMM.

Witnesses:

J. KENNEDY,

HENRY F. PARKER.