

(No Model.)

2 Sheets—Sheet 1.

A. A. BOUTON.
FEEDING DEVICE FOR SEWING MACHINES.

No. 367,357.

Patented Aug. 2, 1887.

Fig. 1.

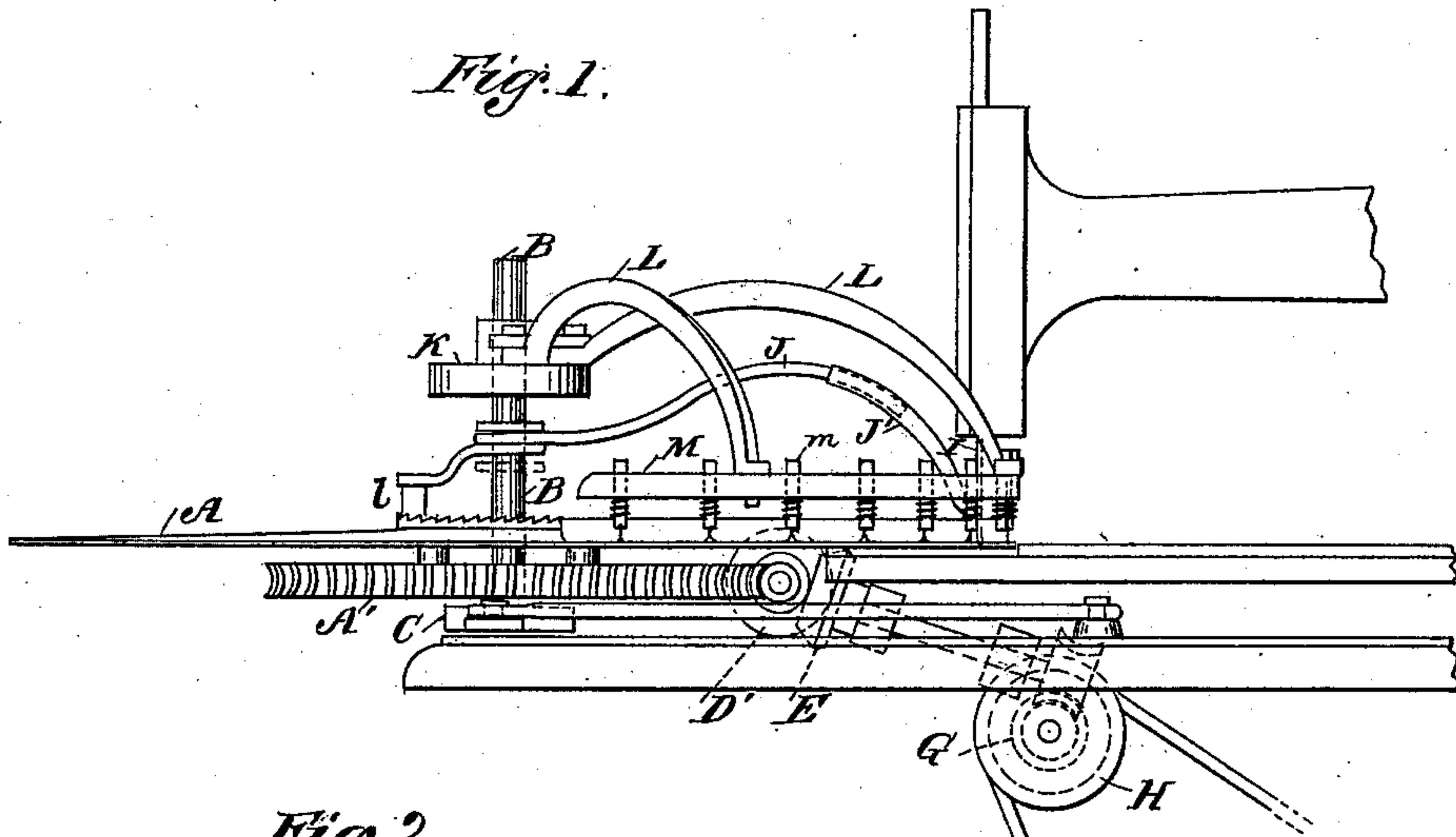
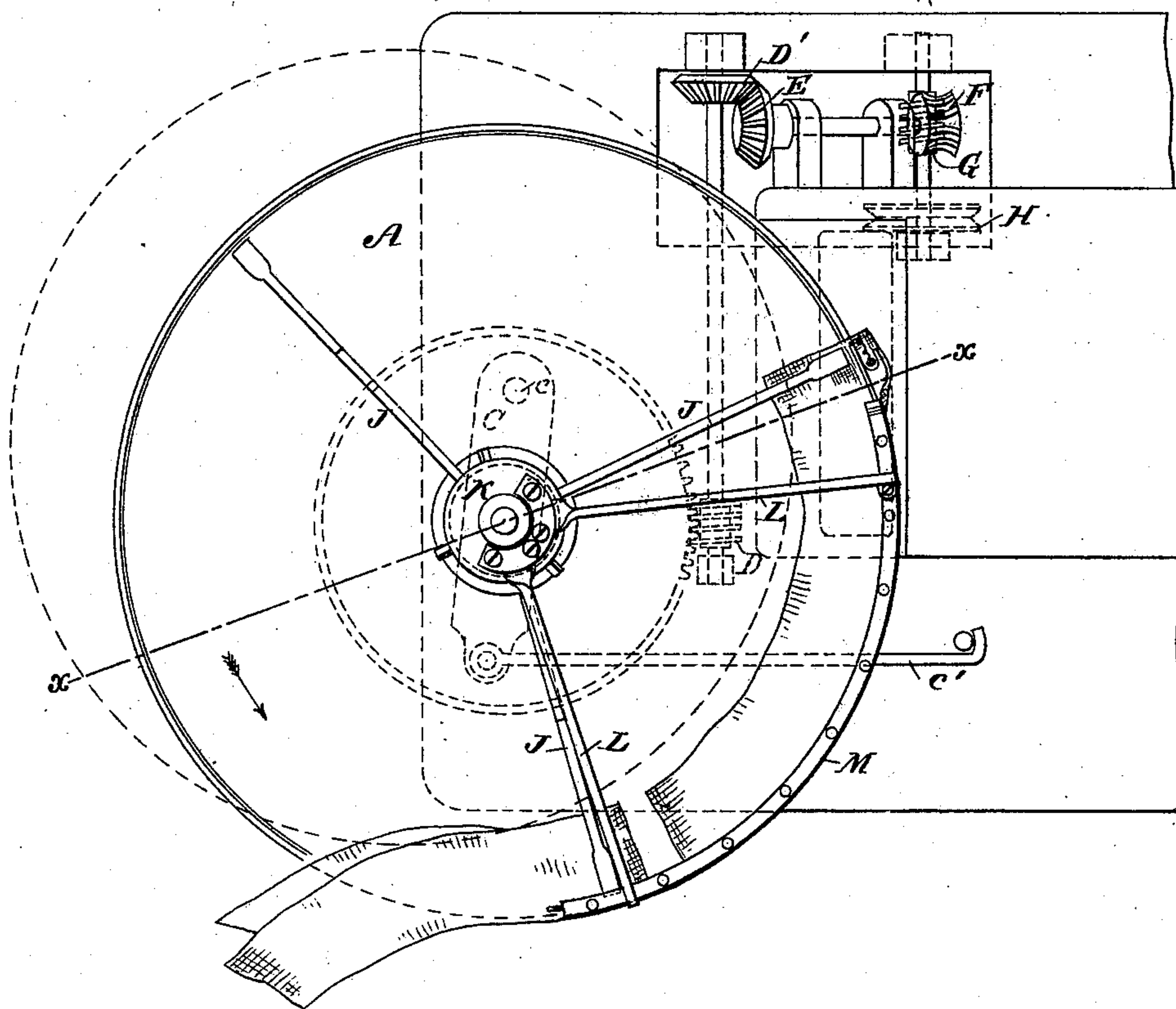


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

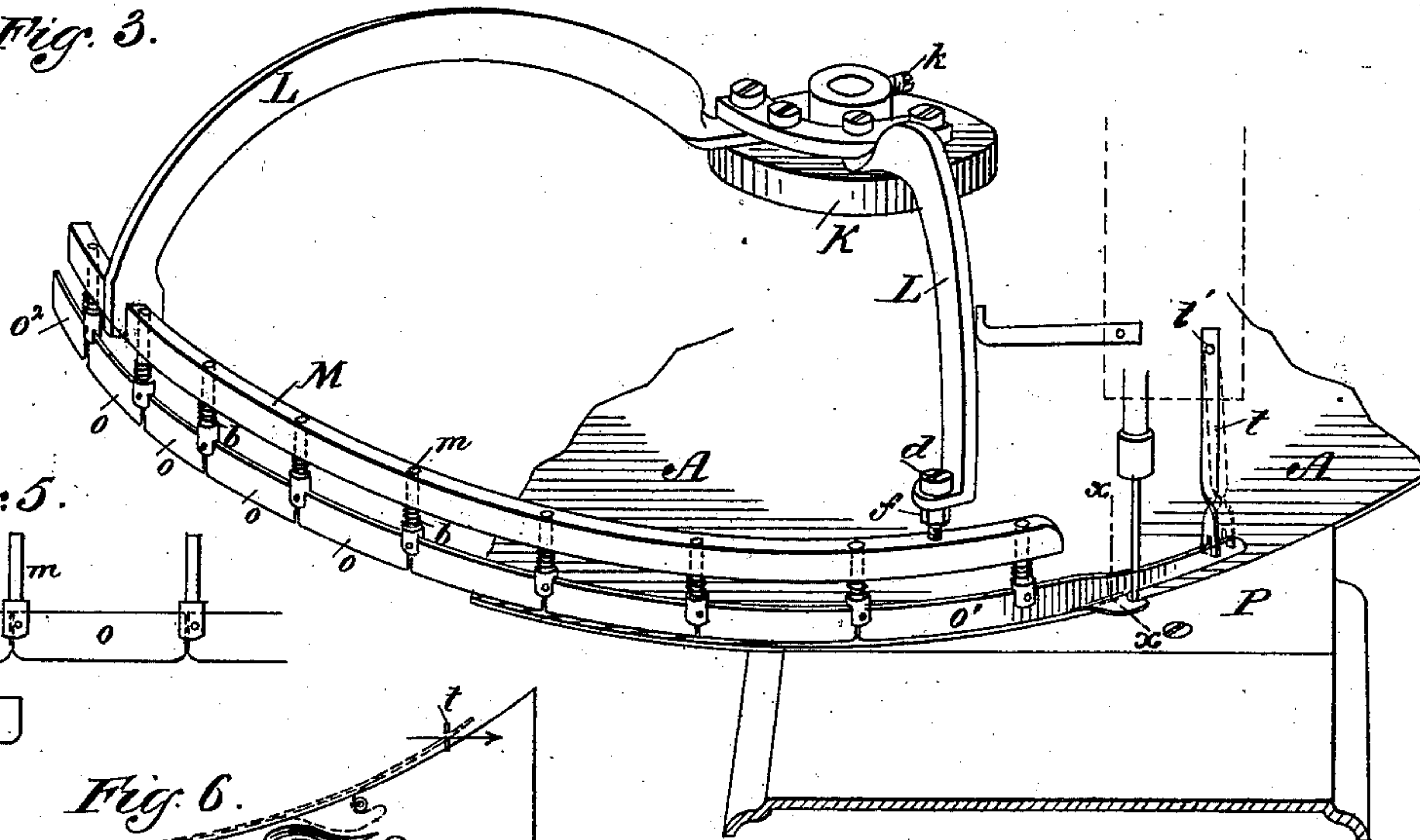


Fig. 5.

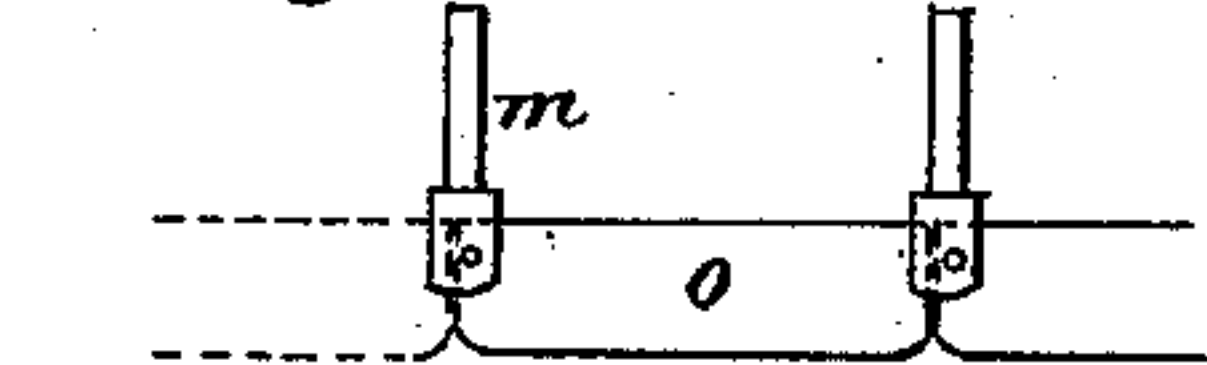


Fig. 6.



Fig. 4.

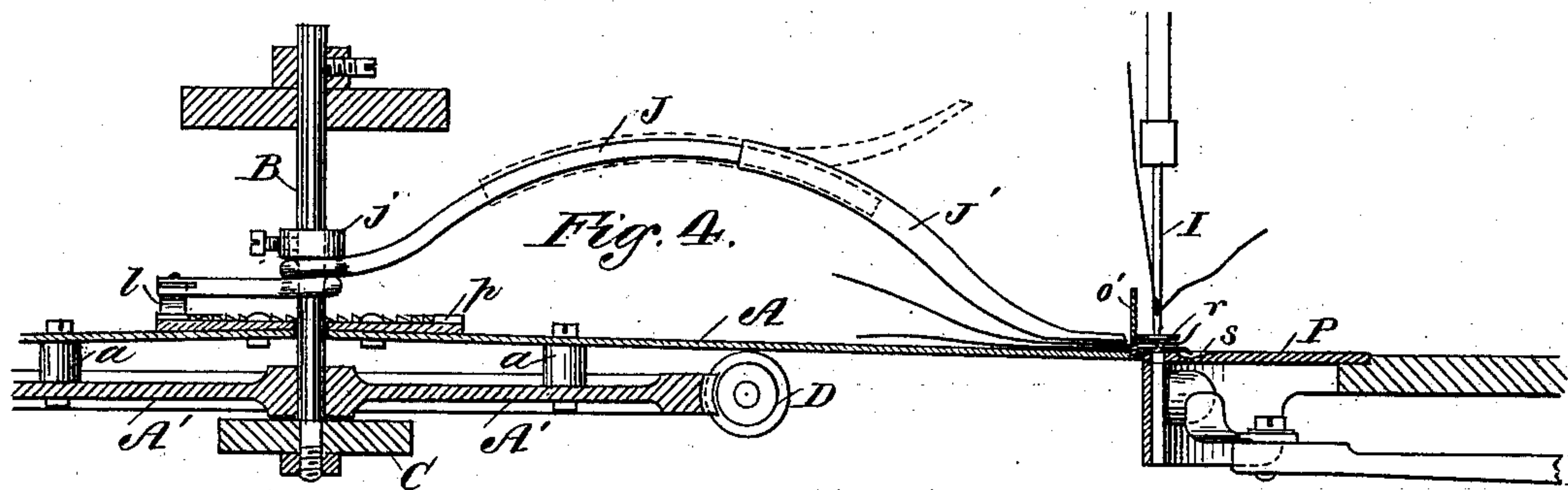


Fig. 7.

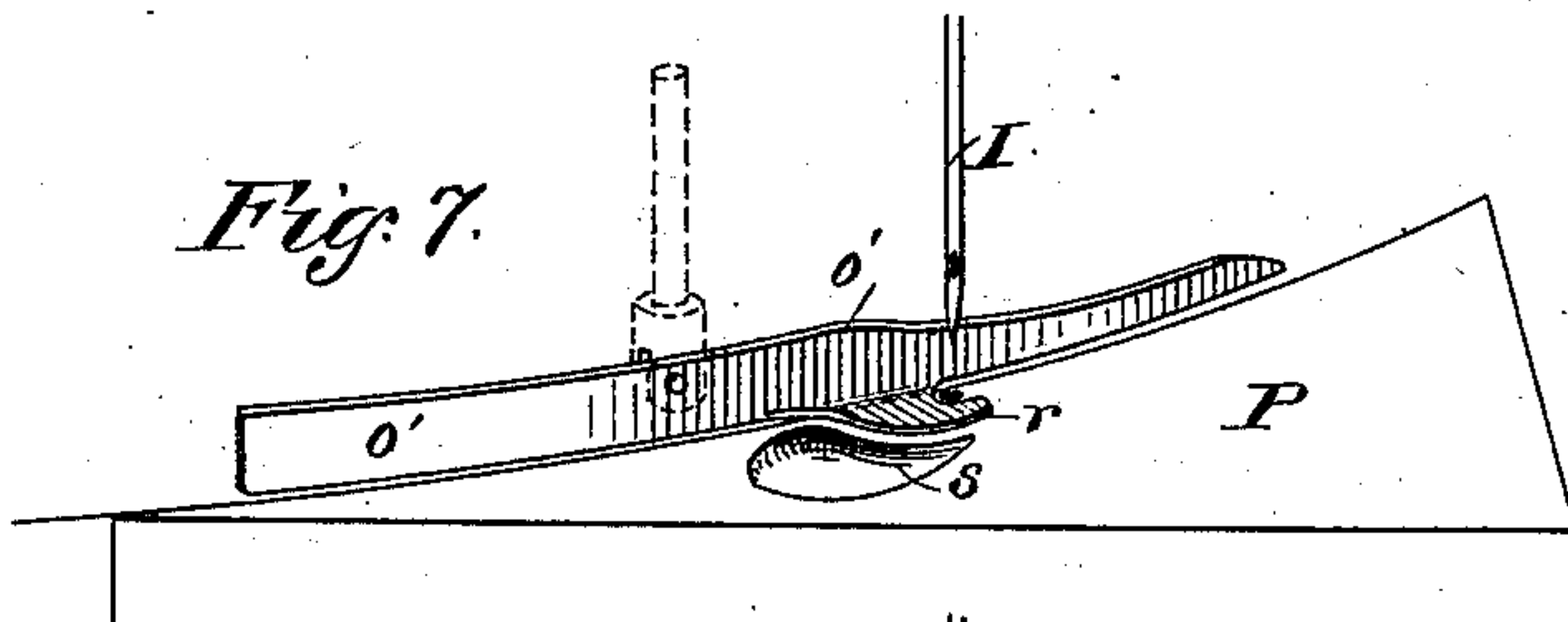


Fig. 8.

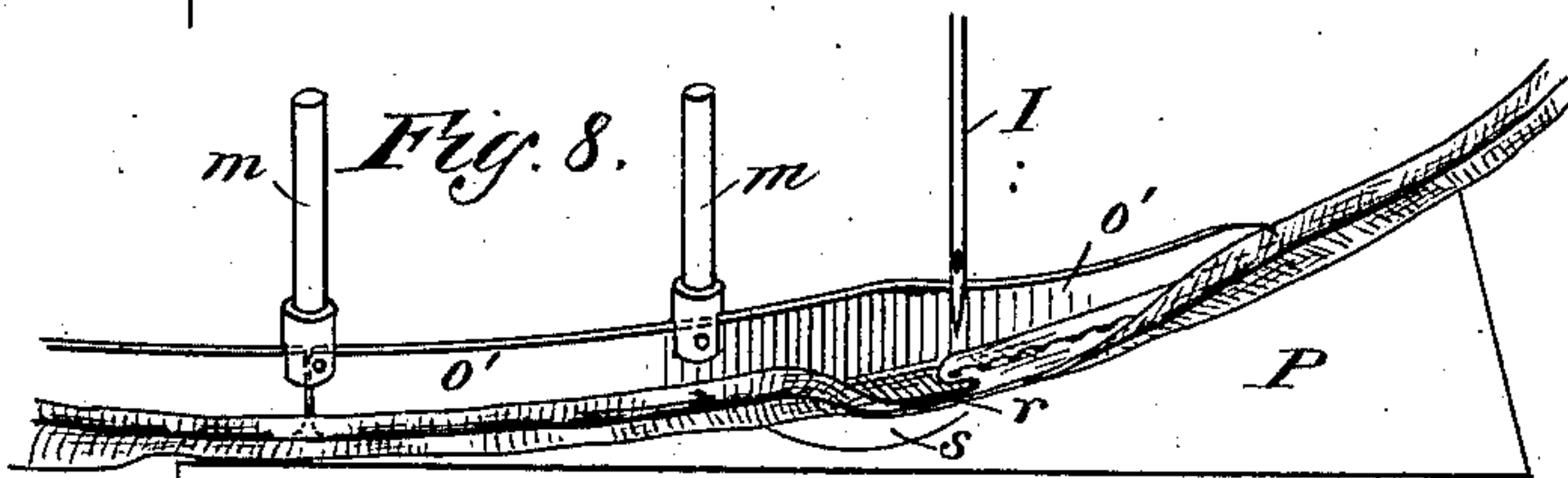
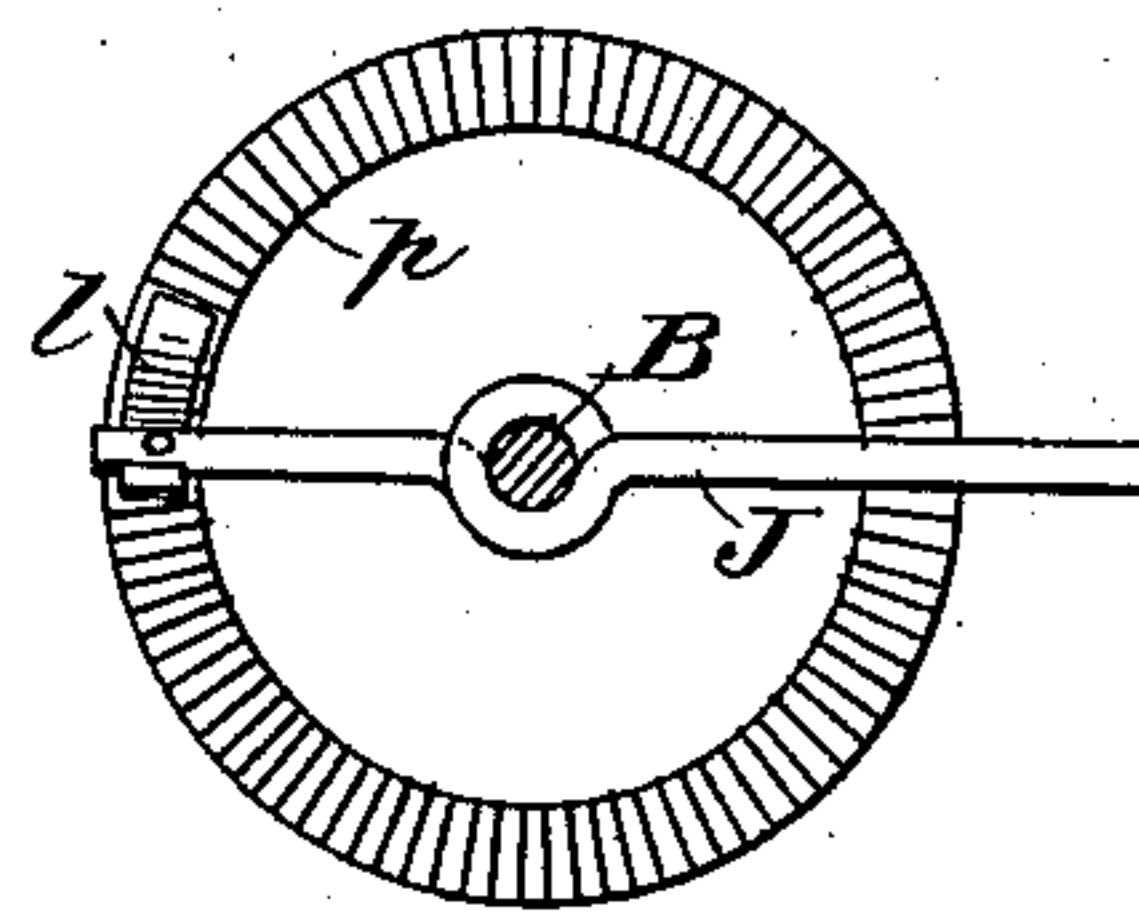


Fig. 9.



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ARTHUR A. BOUTON, OF BROOKLYN, ASSIGNOR TO JULIUS KAYSER, OF
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FEEDING DEVICE FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 367,357, dated August 2, 1887.

Application filed November 16, 1886. Serial No. 218,993. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR A. BOUTON, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Feeding Devices for Sewing-Machines, of which the following is a specification.

This invention relates to improvements in attachable devices applicable to sewing-machines of any ordinary construction, and has for its object to facilitate the handling and stitching of work of a special character—namely, in the present instance, mitts and other articles of similar light and elastic textile fabric which require to be sewed with accuracy and evenness in the line of stitches, and which are liable, owing to their elastic nature, to curl up at the edges.

To that end the invention consists of a horizontal revolving plate or disk of considerable size, preferably not less than a foot and a half in diameter, which is placed on a level with the feed-plate of the machine, and is so located that its periphery shall pass during its revolution closely by the point of descent of the needle, the said disk, together with certain novel devices connected thereon, being substituted in place of the ordinary feed of a sewing-machine, and serving similar functions, together with other functions hereinafter explained.

The invention further consists in an elongated sectional presser-foot, having in the present instance a curvature which corresponds with the periphery of the revolving disk herein described, in place of the ordinary presser-foot of a sewing-machine, and serves corresponding functions of pressing the edges of the work to be sewed upon the feed mechanism. It also guides the work in a uniform direction and holds it in proper position while in transit upon the feed-plate, and prevents its rising out of place upon the feed-plate when the needle ascends. The presser-foot may be one continuous piece; but I prefer the sectional construction, because the uniform pressure is applied upon the goods at all points irrespective of irregularities in the feed-plate or in the thickness of the goods being sewed.

The invention also consists in certain other novel devices, hereinafter described, which are auxiliary in their functions to the parts heretofore specified; and in order that others skilled in the art to which my invention appertains may use and understand my invention I will proceed to describe the details of its construction, explain its operation, and set forth in the appended claims its novel characteristics, having reference to the accompanying drawings, in which like letters of reference indicate like parts throughout the several views.

Figure 1 is a front elevation of the invention and a portion of a sewing-machine to which it is attached. Fig. 2 is a plan view of the parts shown in Fig. 1; Fig. 3, an enlarged perspective view of the elongated presser-foot and adjacent parts; Fig. 4, a longitudinal section of the machine, enlarged, on the line *x x*, Fig. 2; and Figs. 5 to 9, inclusive, detail views of various parts.

The disk A is of sheet metal, preferably made slightly concave, so as to promote stiffness with lightness. It is supported by and turns loose on a vertical stud, B, projecting upward from an arm, C, which is pivoted at *c* to the sewing-machine table, and by means of the rod *c'* may be fastened in place or moved from its normal position, so as to convey the disk A to the position shown by dotted lines in Fig. 2 when it is desired to have access to the working parts of the machine.

Beneath the disk A, and secured to it by sleeves and screws *a*, is a worm-wheel, A', which likewise turns loosely on the stud B. The disk A and worm-wheel A' are revolved by the engagement of the worm-wheel with the worm D, having its shaft extended laterally and bearing the beveled gear D'. The beveled gear D' is rotated by the beveled gear E, worm-gear F, and worm G, which latter may be driven by any suitable connection with the driving mechanism of the machine—in the present instance by the pulley H, carrying a belt which receives motion from the driving-wheel of the machine. This rotating mechanism may be substituted by various other devices, provided that the feed-disk A' is rotated at its periphery the desired length of one stitch at each stroke of the needle I of the machine.

The mechanism which I above describe is applicable to the so called "Grover & Baker" machine.

Upon the stud B there is also supported a hub, K, which is held in place by a set-screw, k, and which bears the arms L, which arms support at their outer ends a stationary frame or curved bar, M. The bar M has downwardly-projecting pins m, placed at suitable intervals apart and capable of sliding vertically therein through holes in the bar. The pins m carry upon their lower ends the several sections o of the presser-foot, which are composed of thin pieces of steel set edgewise, the lower edges of which impinge in a coinciding groove, n, Figs. 2 and 4, in the upper surface of the disk A, near its edge. The several sections o of the elongated presser-foot are held down upon the work, which travels beneath them during the revolution of the disk A, by means of small spiral springs b on the pins m. The tension of the springs b may be regulated by a set-screw, d, on the arm L, the set-screw having a jam-nut, f. A set-screw and jam-nut may be placed on both arms L, if desired. I show it on one only. Moreover, the adjustment may be made, if preferred, at the hub end of the arm L.

Fig. 5 shows in detail the construction of the sections o of the presser-foot, each being pivoted at one end in the slot at the lower end of one of the pins m.

Upon the stud B are also placed several spring clamping-arms, J, one of which is shown enlarged in Fig. 4. The arm J is composed of a spring-rod coiled about the stud B, and held in place by a collar, j, having a set-screw. The shorter end of the rod J is provided with a pawl, l, which engages with a ratchet, p. (More fully shown in Fig. 9.) The longer end of the rod J is curved in form and provided with an extension-sleeve, J', which is preferably flattened and roughened on the under side at its outer end, so as to bear on the goods and hold them in place upon the disk when properly adjusted. I prefer a spring-pawl, as shown; but, if preferred, it may be pivoted, and then, when desiring to adjust the spring-clamps J, the pawl may be turned up and disengaged from the rack, and then the clamp may be moved in either direction for its adjustment.

The ratchet or rack p, which revolves with the disk, acting through the pawl l, prevents the clamp-arms J from remaining stationary, because of the pressure of the presser-foot upon the goods, and secures a positive forward motion of the clamps J with the feed-plate.

The horizontally-projecting toe r of the section o' of the presser-foot, which flattens down the edge of the upper piece of goods to be sewed, has beneath it a corresponding curved edge for flattening upwardly the lower piece of the goods, said curved edge being formed by a recess cut in the face of the feed-plate P. The relations of the said parts is more clearly illustrated in Figs. 6, 7, and 8.

The breadth of the hem is regulated to a cer-

tain extent by the adjustment of the narrowed flexible outer end of the section o' of the presser-foot, which is moved in a direction radially to the disk A by the forked arm t, Fig. 3, which is clamped at its pivot t' to the needle-bar frame of the sewing-machine, (indicated by dotted lines,) and is capable of movement in the direction of the arrow in Fig. 6, by which movement it is obvious that the section o' will approach or retreat from the line of stitches, carrying the goods with it.

The operation of the invention is as follows: The pieces of fabric to be sewed are fed upon the disk A during its revolution in the direction of the arrow, Fig. 2, so as to enter beneath the first section, o', of the presser-foot, the edges of the fabric being properly adjusted by the operator. One of the disengaged spring-clamps J, having its toe slid up to the position shown by dotted lines, Fig. 4, is now brought up to a position opposite the section o', and by having its sleeve J' slid down so as to firmly press upon the goods the sleeve is compelled to move around with the disk A, because of the engagement of the pawl l with the rack p. The pieces of goods thus started will be thence carried by the automatic rotation of the disk A around and beneath all the sections o of the presser-foot, the operator properly adjusting the edges to be stitched as they are drawn around and under the presser-foot by the rotation of the disk and spring-clamp. As soon as one article to be stitched or seamed up—as, for instance, a "mitt"—has been entered under the presser-foot it takes care of itself, being automatically carried around to the needle and automatically stitched. Thus the operator is disengaged and at once prepares another mitt, which he in turn introduces under the front end of the presser-foot as soon as the rear end of the preceding mitt has passed under it, using a second spring-clamp as he previously used the first one. Thus a succession of mitts or other articles are continuously fed and automatically stitched. I show three clamping-rods J. There may be only one, or there may be as many used as desired, depending on the size of the feed-table and the length of the goods to be seamed. Thus by reason of the automatic action of the machine the goods need not be held or guided by the operator during the stitching operation, and I thereby secure a great saving in time.

I wish it distinctly understood that I do not limit myself to the seaming of mitts. The machine is applicable to a great variety both of fabrics and of articles.

It will be obvious to those skilled in this art that many alterations may be made in details of construction of my apparatus and still my invention be employed. I do not, therefore, limit myself to the precise construction of parts which I have illustrated and described.

I am aware that rotary feed-plates, both vertical and horizontal and provided with

various sorts of clamping devices whereby the fabric is confined upon the surface of the feed-plate, have been used, and I do not claim the same, broadly.

5 Having explained my invention and its operation, I claim—

1. The combination, in a sewing-machine, of a rotary feed-plate, a presser-foot conforming in shape to the curve of the edge of the feed-plate and separated therefrom sufficiently to allow the goods to pass between the presser-foot and the feed-plate, and a clamp arranged to move with the feed-plate and to hold the goods thereto during its revolution, and mechanism to rotate the feed-plate, substantially as
15 and for the purposes set forth.

2. The combination, in a sewing-machine, of a rotary feed-plate, a presser-foot conforming to the curve of the edge of the feed-plate and separated therefrom sufficiently to allow the goods to pass between them, and a series of movable clamps placed one behind the other and arranged to move with the feed-plate and to clamp the goods to the feed-plate and compel them to move therewith, and mechanism to rotate the feed-plate, substantially as set forth.

3. The combination of a circular rotary feed-plate provided with circumferentially-adjustable clamps to hold the fabric to the feed-plate, a presser-foot curved to conform to the edge of the feed-plate and having spring-controlled vertical movement, whereby the goods will be properly held and guided irrespective of the thickness of the goods, and mechanism to rotate the feed-plate, substantially as set forth.

4. The combination, in a sewing-machine, of a rotary feed-plate provided with a clamp to hold the goods to the feed-plate, and a sectional presser-foot the several sections whereof are spring-controlled, whereby the presser-foot will automatically regulate itself to the irregularities in the surface of the feed-plate and to differences in the thickness of the goods, substantially as set forth.

5. The combination, in a sewing-machine, of a horizontal rotary feed-plate and a clamp which confines the goods on the feed-plate, said clamp being provided with a pawl which engages with a rack attached to the feed plate, whereby, the pawl being disengaged from the rack, the clamp may be turned in either direction, but when the pawl is engaged with the rack the clamp will be rotated with the feed-plate, and mechanism to rotate the feed-plate, substantially as set forth.

6. The combination, in a sewing-machine, of a circular rotary feed-plate having a groove

near its outer edge, a spring-controlled presser-foot coincident with the groove in the feed-plate, whereby the goods will be bent by the presser-foot into the groove and prevented from lateral movement, and mechanism to rotate the feed-plate, substantially as set forth. 65

7. The combination, in a sewing-machine, of a rotary feed-plate, a presser-foot which conforms to the curve of the edge of the feed-plate, the end whereof adjacent to the needle is adjustable toward and away from the needle, and mechanism to rotate the feed-plate, substantially as set forth. 70

8. The combination, in a sewing-machine-feeding attachment, of a rotary feed-plate, A, circumferentially-adjustable clamps J, a presser-foot to prevent the goods from rising with the needle, and mechanism to rotate the feed-plate, substantially as set forth. 75

9. The combination, in a presser-foot for a sewing-machine, of a series of independent spring-controlled sections, o, pins m, and bar or frame M, substantially as set forth. 80

10. The combination, in a rotary feed for sewing-machines, of feed-plate A, stud B, extensible spring-clamps J, the parts whereof slide upon each other, whereby they may be lengthened or shortened to clamp the goods at different places, and means to rotate the feed-plate, substantially as set forth. 85

11. The combination, in a sewing-machine, of a circular horizontally-rotating feed-plate and a presser-foot conforming to the curve of the edge of the feed-plate and separated therefrom sufficiently to allow the goods to pass between the presser-foot and the feed-plate. 95

12. The combination, in a sewing-machine, of a circular horizontally-rotating feed-plate and a presser-foot which conforms to the curve of the edge of the feed-plate, provided with springs, whereby the pressure on the goods is adjusted irrespective of the thickness thereof, substantially as set forth. 100

13. The combination, in a sewing-machine, of a circular horizontally-rotating feed-plate and a sectional spring-controlled presser-foot which conforms to the curve of the edge of the feed-plate, whereby the presser-foot will adjust itself to irregularities in the feed-plate or in the thickness of the goods, substantially as set forth. 105

Signed at New York, in the county of New York and State of New York, this 15th day of November, A. D. 1886. 110

ARTHUR A. BOUTON.

Witnesses:

F. HAMMATT NORTON,
GEORGE A. VOSS.