

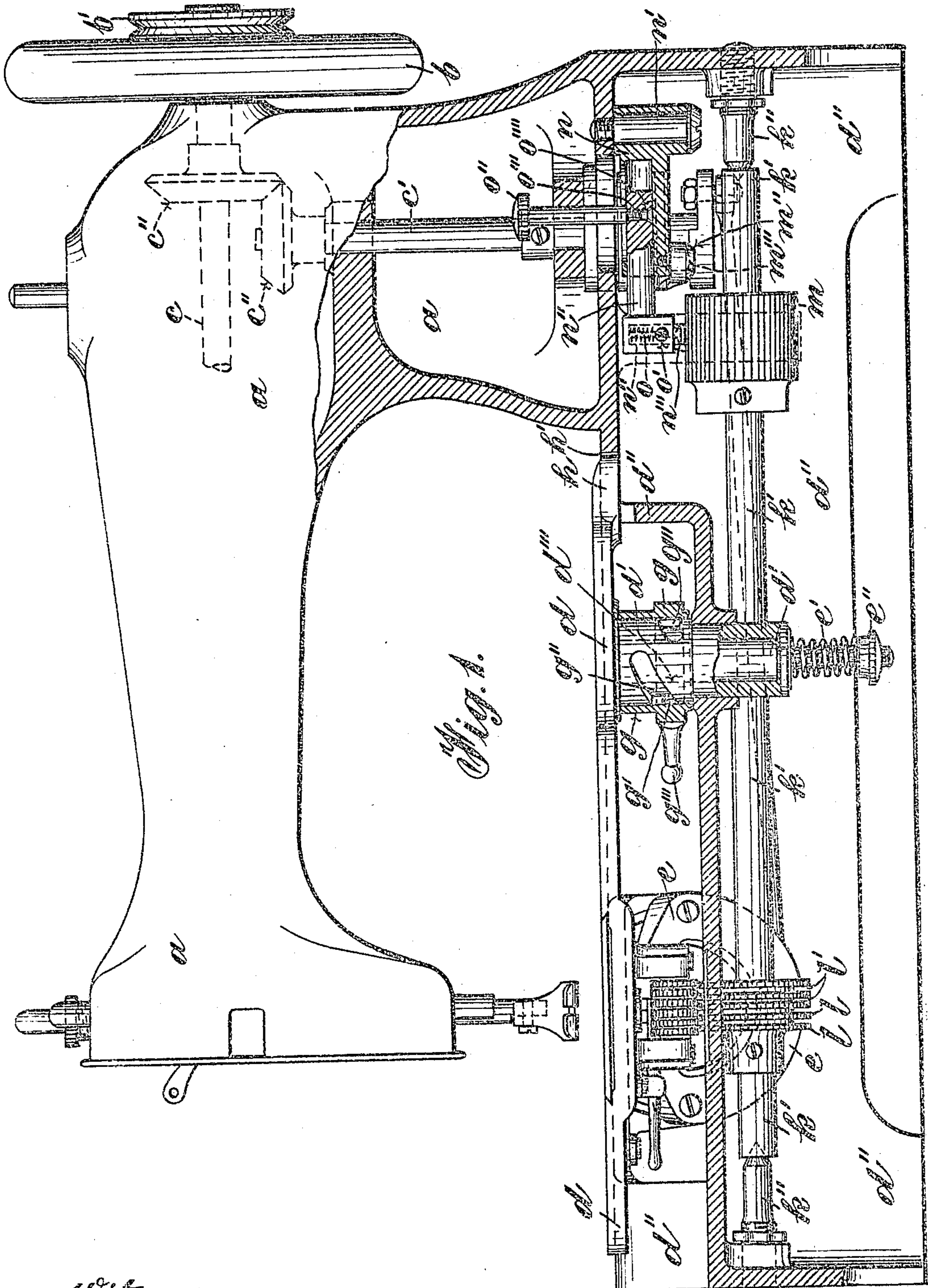
No. 819,642.

PATENTED MAY 1, 1906.

D. FLANAGAN.  
BLINDSTITCH SEWING MACHINE.

APPLICATION FILED JUNE 11, 1904.

5 SHEETS—SHEET 1.



*Witnesses.*  
William D. Colebourn  
Mabel Lee

*Inventor*  
Denis Flanagan  
By Frank A. Thompson atty

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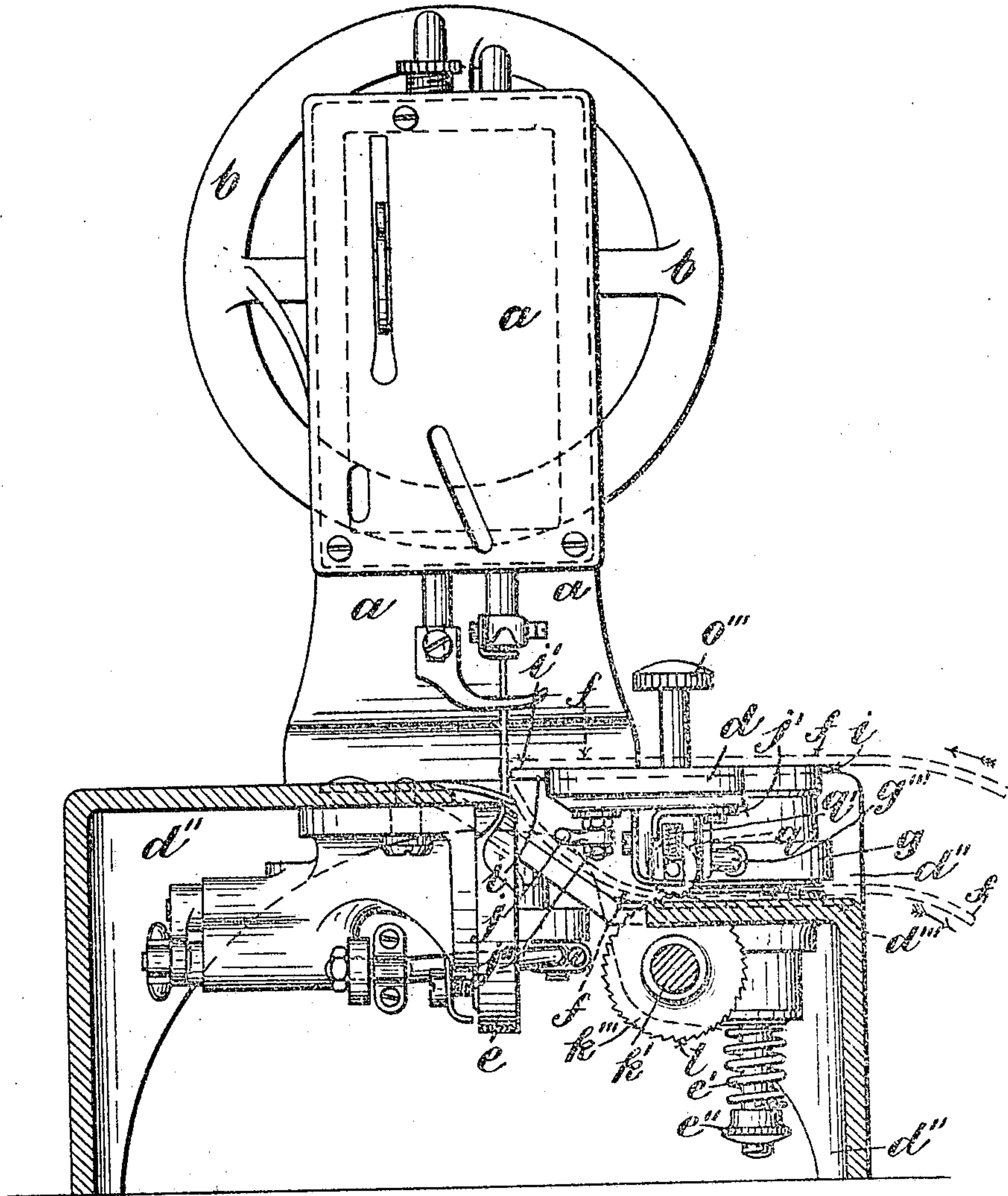


Fig. 2.

Witnesses.  
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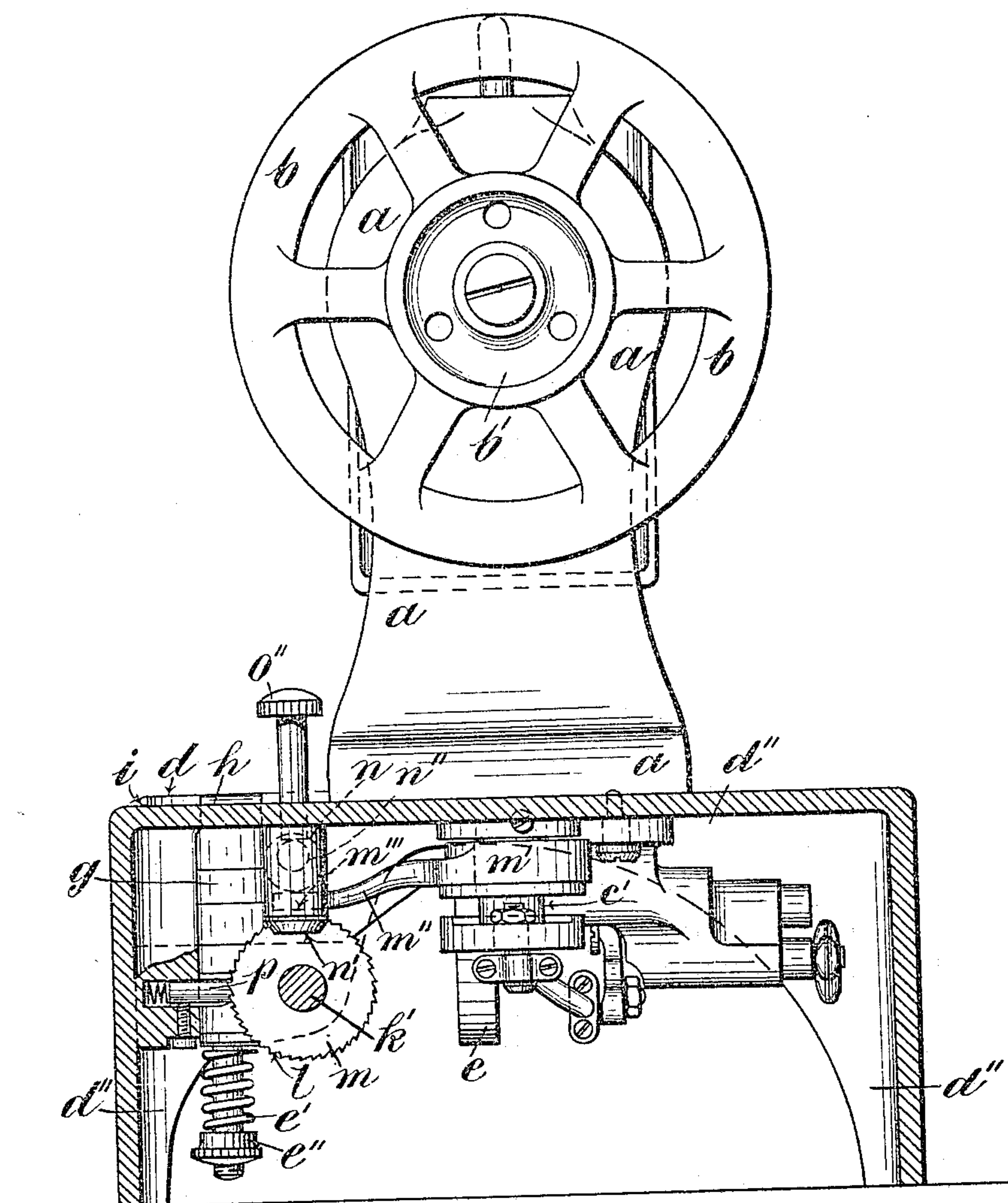


Fig. 3.

Witnesses.  
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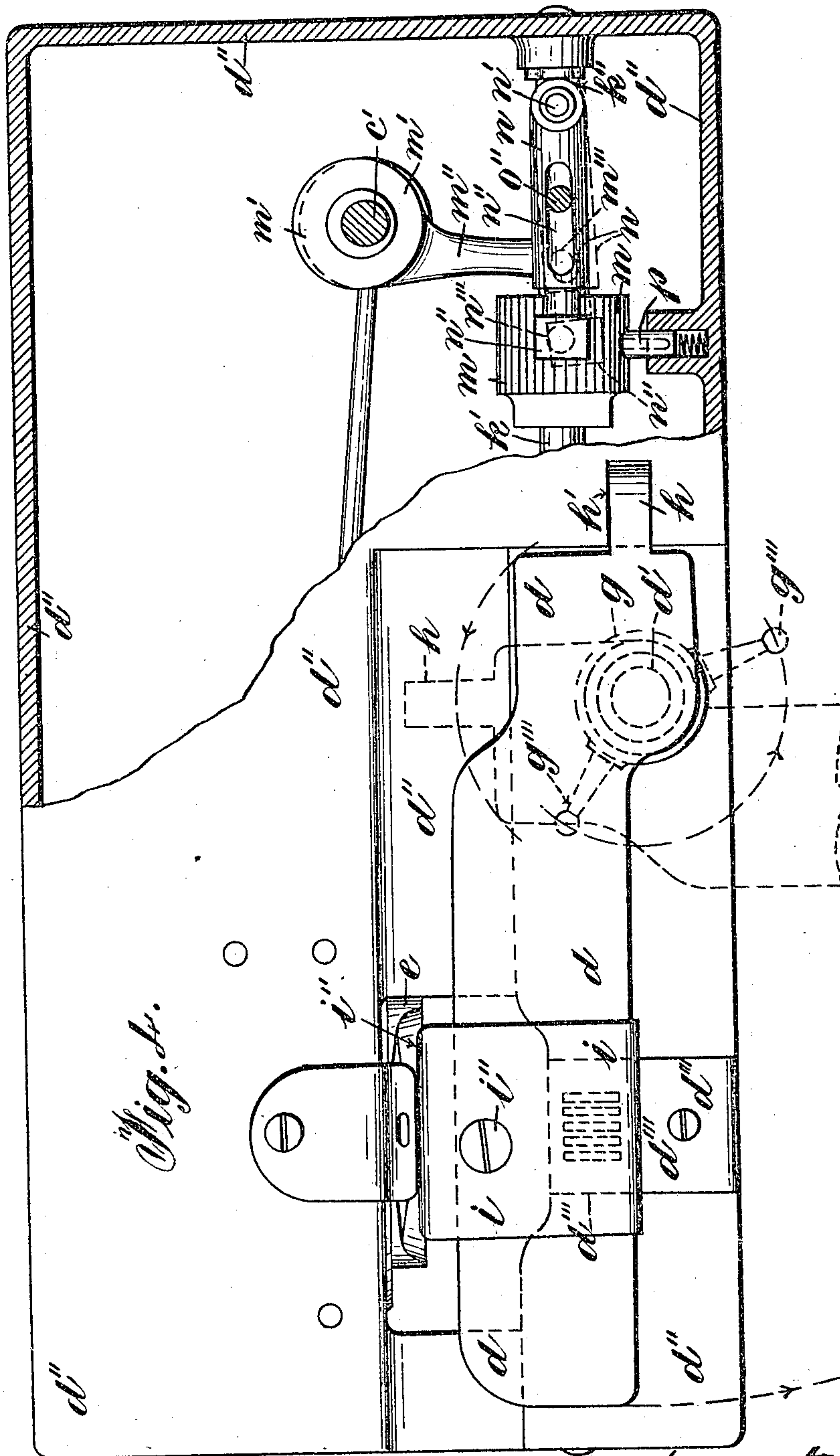
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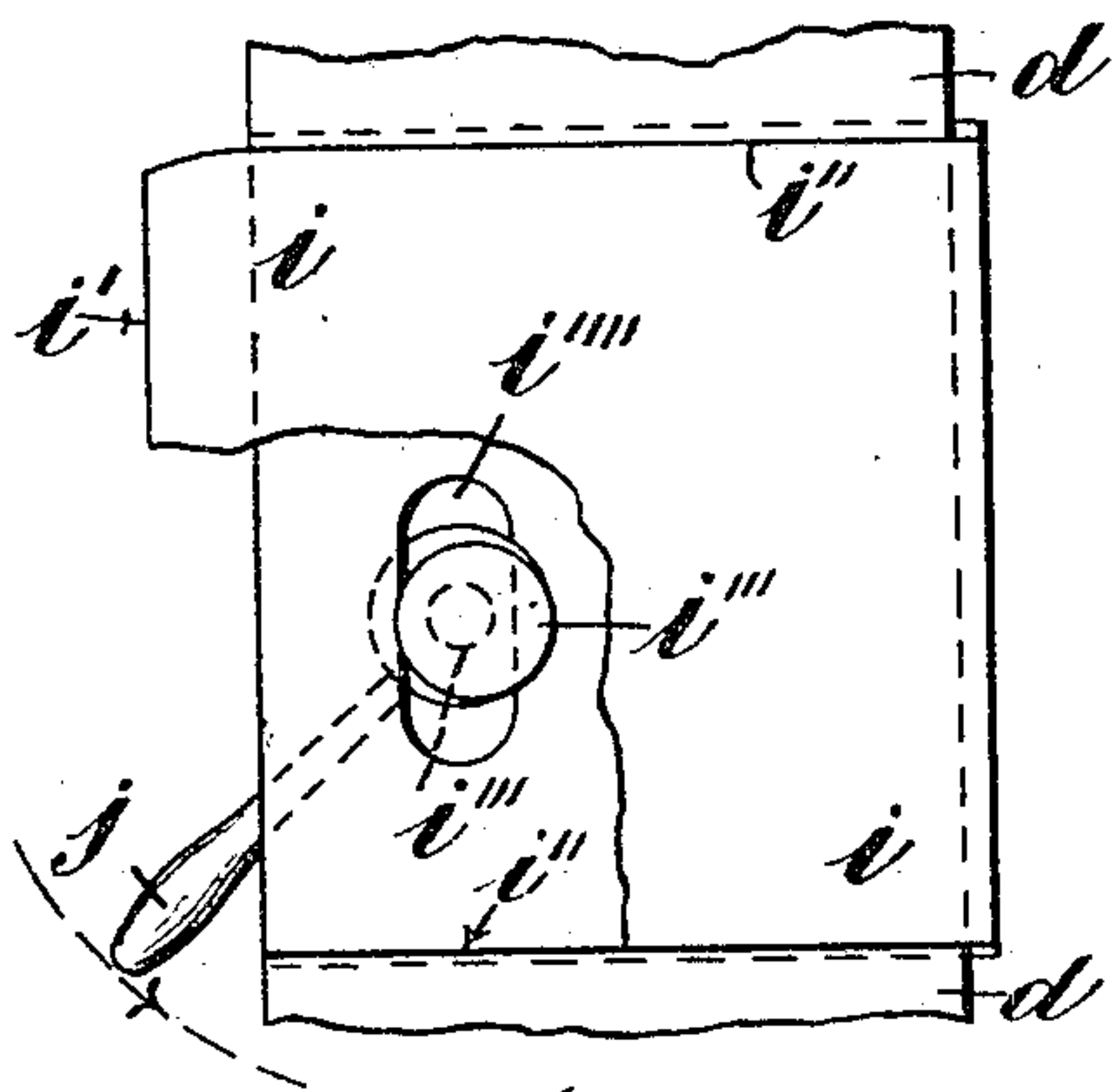
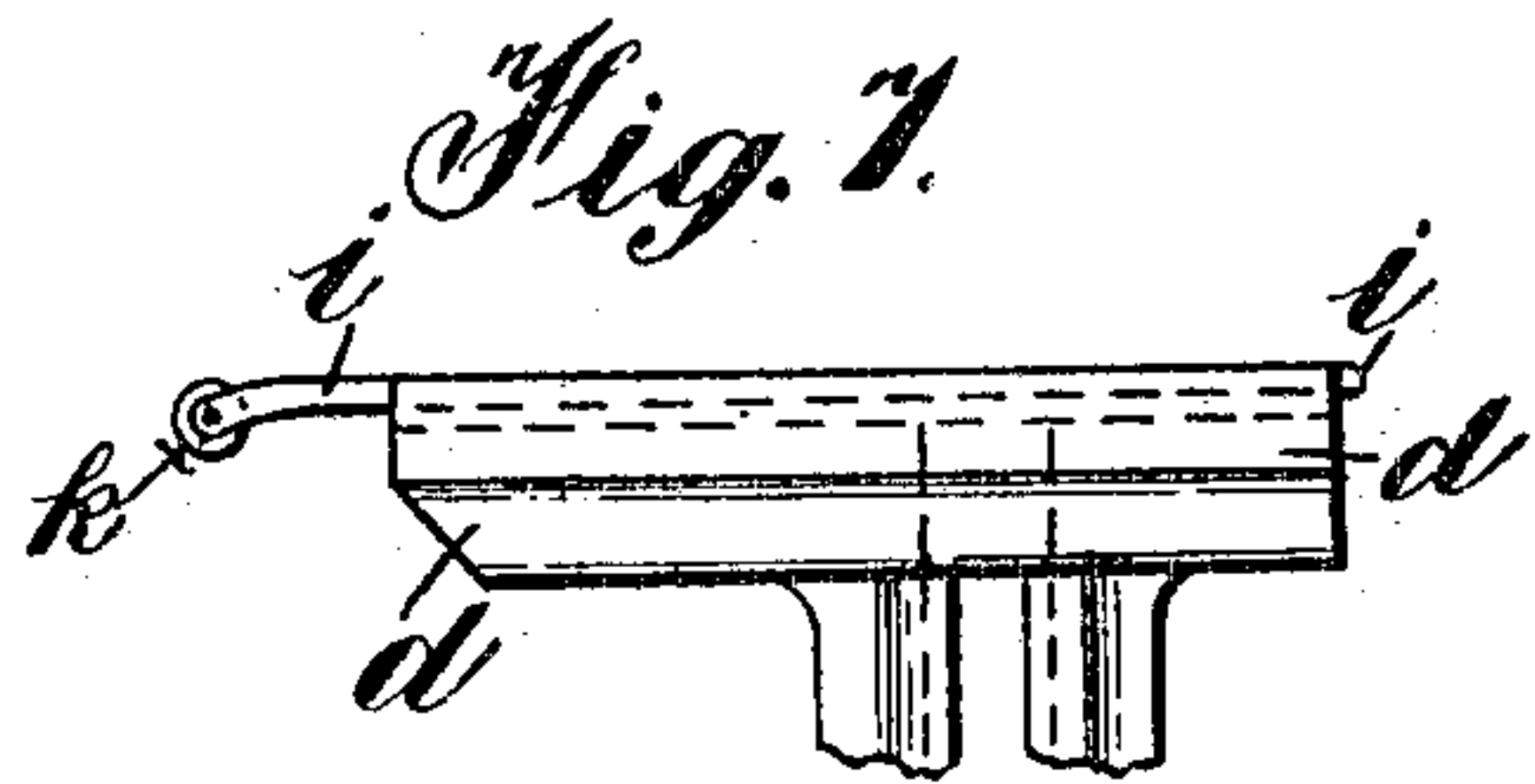
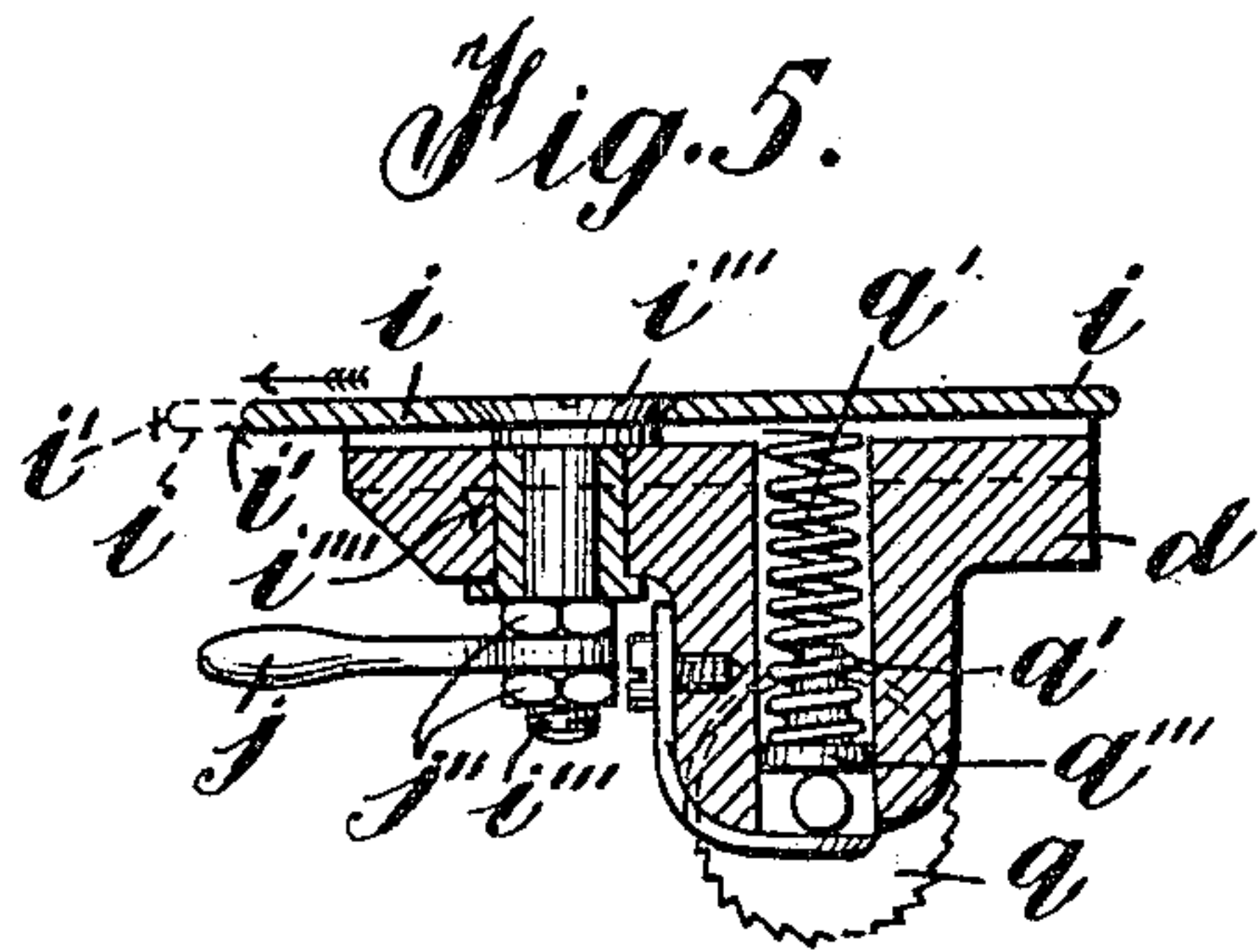
Inventor:  
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No. 819,642.

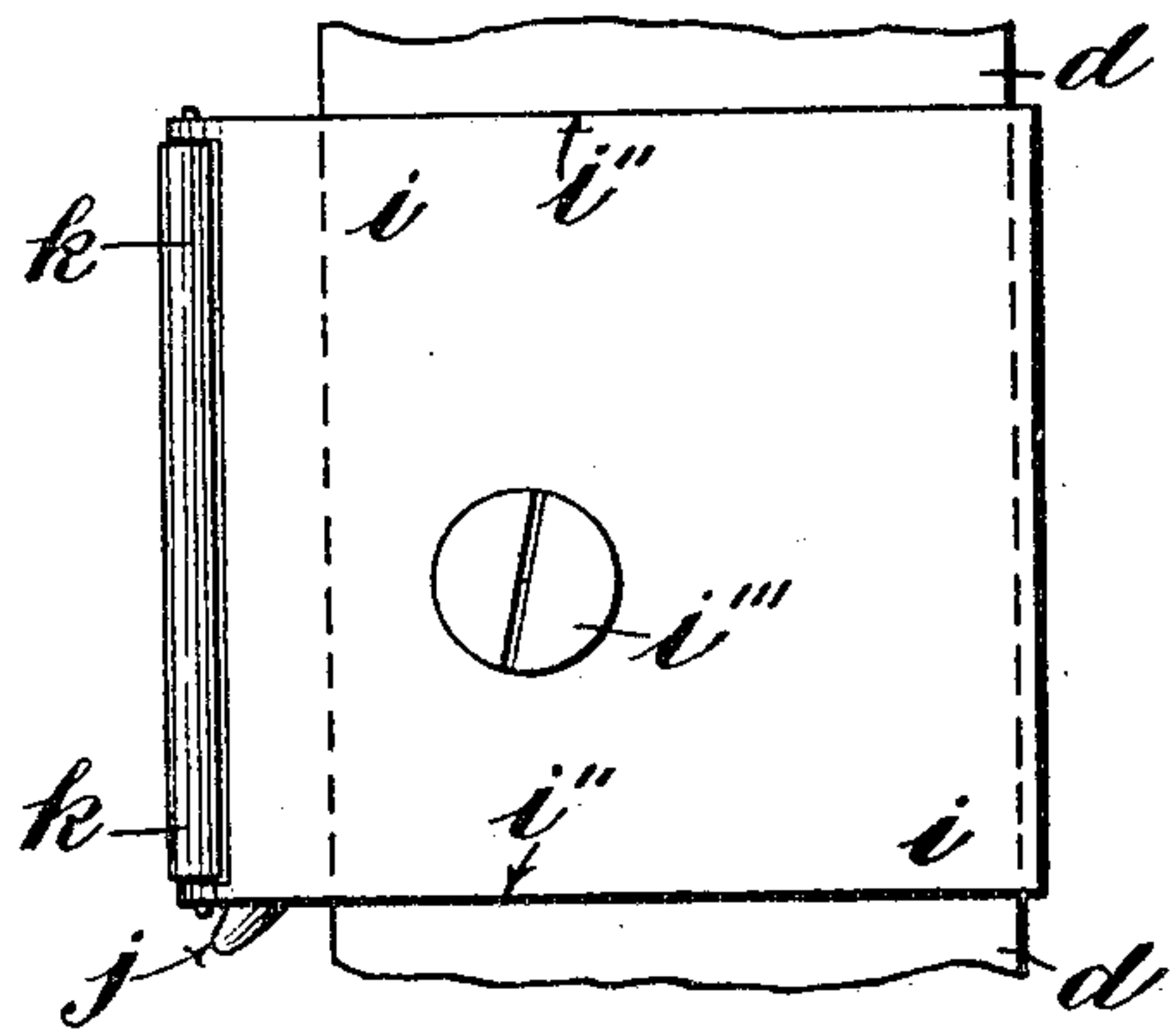
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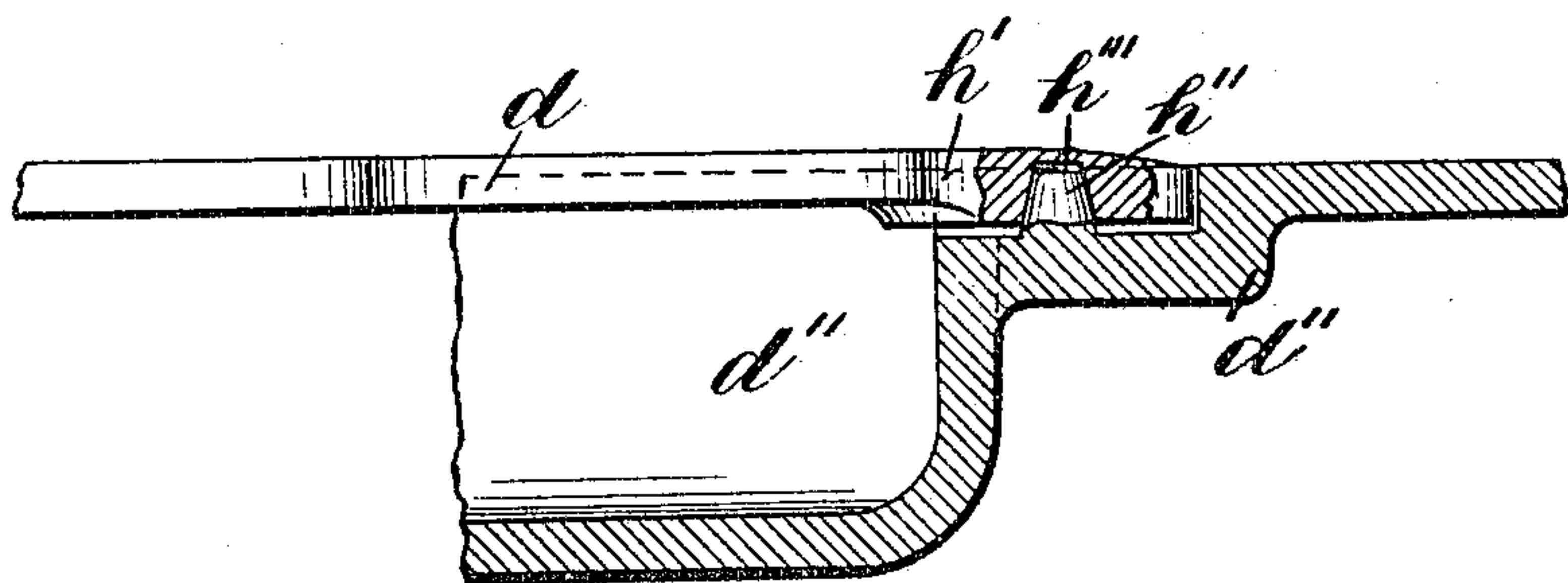
5 SHEETS—SHEET 5.



*Fig. 6.*



*Fig. 8.*



*Fig. 9.*

Witnesses.  
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Mabel Lee

Inventor.  
Denis Flanagan  
By Francis Appleman, atty.



# UNITED STATES PATENT OFFICE.

DENIS FLANAGAN, OF CLAYTON-LE-MOORS, ENGLAND.

## BLINDSTITCH SEWING-MACHINE.

No. 819,642.

Specification of Letters Patent.

Patented May 1, 1906.

Application filed June 11, 1904. Serial No. 212,136.

*To all whom it may concern:*

Be it known that I, DENIS FLANAGAN, a subject of the King of Great Britain and Ireland, residing at 26 Oswald street, Clayton-le-Moors, in the county of Lancaster, England, have invented certain new and useful Improvements in Blindstitch Sewing-Machines, of which the following is a specification.

This invention relates to improvements in blindstitch sewing-machines, or to such machines in which the needle instead of passing at right angles through the cloth passes, on the other hand, in a direction more or less parallel with the plane of the cloth and only through a portion of the thickness, so that the stitches do not show on the face of the cloth.

The invention relates to improvements in the means for holding the fabric to be stitched, for feeding the fabric, for adjusting part of the holding means with relation to the needle, and to other details which will be fully pointed out in the following description and claims.

The invention will be fully described with reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the machine with my improvements attached, partly in section; Fig. 2, end elevation of same, partly in section; Fig. 3, elevation, partly in section, from opposite end; Fig. 4, plan partly in section; Fig. 5, transverse section of cloth-plate to enlarged scale, showing means of operating a slidable plate carried by the former; Fig. 6, plan of same; Figs. 7 and 8, end elevation and plan, respectively, to enlarged scale of modified arrangement of slidable plate; and Fig. 9 part-longitudinal section of cloth-plate to enlarged scale, showing modified means of locking the plate in working position.

My invention particularly relates to that class of blindstitch sewing-machine in which a substantially flat arm overhangs its point of support, so that its free end lies in proximity to the needle and is adapted to have folded round it the material to be stitched.

In the drawings like parts are indicated by the same reference-letters, and it should be said that the whole of the mechanism above the table is of the ordinary character used in these machines and, as it forms no part of my invention, is not illustrated beyond indicating the main carrying-arm  $a$ , the fly-

wheel  $b$  with its grooved pulley  $b'$ , the horizontal shaft  $c$ , and the vertical shaft  $c'$ , to which motion is given by the beveled wheels  $c''$ .

My invention comprises an arm  $d$ , arranged longitudinally of the machine. It is formed in one with or connected to a vertical pivot  $d'$ , passing through a stationary pivot-bearing  $d''$ , fixed in the bed  $d'''$  of the sewing-machine. This pivot is to enable the plate to be lifted vertically and to be turned about it away from the machine in the direction of the arrow in Fig. 4 to the position indicated by broken lines in the same figure or out of its normal working position to enable the shuttle to be readily placed into or taken from its carrier  $e$  without turning the whole body of the machine over. It should here be said that the shuttle and its operating mechanism form no part of my invention and may be of any ordinary type. A further object in the arrangement of the cloth-plate is to enable it to be raised while the material to be stitched is being placed in position and afterward to be easily dropped down on the material prior to commencing sewing. By means of a spring  $e'$  the cloth-plate is pressed in a downward direction, the spring being adjusted by means of a nut  $e''$ . When in the lowermost position, the cloth-plate is held absolutely rigid both with relation to the needle and with respect to any thickness of cloth of other material which may be passed round it to be operated upon.  $f$ , Fig. 2, indicates the position of the cloth. The plate may be readily lifted to enable the fabric to be put under by simple means, preferably by a rotatable collar  $g$ , surrounding the vertical stationary pivot-bearing  $d'$ , such collar having one or more studs  $g'$  engaging with one or more screw-grooves  $g''$  in the bearings  $d'$ , so that as the collar is rotated it will also rise against the under side of the plate and lift it up against the pressure of the spring  $e'$ . The collar may be rotated by a knob or handle  $g'''$ , and the extent of its rotary movement determines the vertical rise, so that the cloth may be passed between the feed-wheels without altering the position of the cloth-plate longitudinally. A greater rotary movement of the collar lifts the cloth-plate still farther vertically, so that it may be turned about its pivot to a position more or less at right angles to the bed of the machine, as indicated in Fig. 4, in which position it is en-



tirely out of the way of the needle and shuttle mechanism, enabling the latter to be easily available for changing shuttles.

To lock the cloth-plate in position rigidly during the normal working of the machine, a projecting portion of it,  $h$ , near to the pivot  $d'$  is adapted to engage with a vertical groove  $h'$  in the bed of the machine, in which it fits tightly, or in place of this groove I may employ in the bed  $d''$  a pin or stud  $h'''$ , preferably tapered, and have a corresponding hole  $h''''$  in the under side of the cloth-plate  $d$ , so that as the latter is pulled downward by the spring  $e'$  the parts will be locked together and the inward longitudinal side of the cloth-plate will be held perfectly rigid and within a defined distance from the flat face of the needle employed in this class of machinery.

Instead of moving the whole of the cloth-plate bodily to adjust it to and from the flat face of the needle to determine the depth such needle shall penetrate into the cloth, I employ a separate adjustable plate  $i$ , arranged transversely of the cloth-plate  $d$  on its upper surface. This plate has a rounded edge  $i'$  at the side nearest to the needle. The plate is adjusted by arranging it in transverse grooves  $i''$  in the cloth-plate and by the employment of an eccentric stud  $i'''$ , passing through the plate, a cylindrical portion of the stud passing through a hole  $i''''$  in the cloth-plate  $d$ . The eccentric-stud can be turned about its center by a lever  $j$ , preferably below the cloth-plate, the movement of this lever causing the adjustable plate to be readily moved nearer to or farther from the needle. A stop  $j'$  is used to prevent the adjustable plate being moved against the needle, and, further, the lever may be locked in any suitable position required by simple means, if necessary. The lever is held in position on the stud by nuts  $j''$ .

The rounded edge of the adjustable plate  $i$  may be hardened to prevent wear, or instead of rounding it I may employ a small roller  $k$ , mounted in its front edge, as indicated in Figs. 7 and 8.

For feeding the cloth round the cloth-plate arm  $d$  I employ a shaft  $k'$ , mounted in adjustable bearings  $k''$  beneath the bed-plate of the machine and having mounted thereon at one point a rotary feed disk or roller  $k'''$ , provided with serrations or serrated rings of teeth  $l$ , between which are grooves  $l'$ . The serrated rings pass through the bed-plate  $d''$ , and a suitably-slotted plate  $d'''$  is attached to the latter, the portions of the plate between the slots preventing the cloth being drawn down between the feed-disk and bed-plate. At another point on the shaft is mounted a second disk or wheel  $m$ , provided with fine ratchet-teeth, such disk being fairly wide. The shaft carrying the two disks is intermittently rotated, so as to feed the cloth in front of the needle in the direction of the arrows

indicated in the transverse sections by means of an adjustable feed mechanism consisting of an eccentric or crank  $m'$ , attached to, preferably, the vertical shaft  $c'$ , the eccentric being surrounded by a strap or lever provided with an extended arm  $m''$ , which in turn engages with a stud  $m'''$ , carried by the free end of a lever or tubular sleeve  $n$ , pivoted on the stud  $n'$ , secured to the bed-plate  $d''$ . Carried in the tubular sleeve  $n$  is an arm  $n''$ , the outer end of which has mounted in it a pin  $n'''$ , whose lower end is serrated to conform to the serrated teeth on the disk  $m$ . The pin  $n'''$  is pressed toward the disk  $m$  by a spring  $o$ , while a screw  $o'$  allows the pin to rise and fall, but limits its rotary movement to a slight degree. The arm  $n''$  can be moved in and out of the tubular sleeve as required and locked in any suitable position by means of the headed pin  $o''$ , whose lower end  $o'''$  is screwed into the arm  $n'$  through a slot in the tubular sleeve  $n$ , such lower end pressing against a loose block  $o''''$  for locking purposes. The headed pin  $o''$  passes through a slot in the bed-plate  $d''$ , so that the adjustment can be carried out above the bed of the machine. By moving the pin  $n'''$  nearer to or farther from the center or stud  $n'$ , on which the tubular sleeve  $n$  is mounted, it is caused to move through a greater or less angular distance, and consequently the cloth is fed in front of the needle accordingly, so that the number of stitches in a given length of cloth may be varied as desired. It will be readily seen that the feed mechanism obtains its movement from the vertical shaft  $c'$  through the eccentric  $m'$  during the ordinary working of the machine. The backward movement of the shaft  $k'$  and the serrated disks mounted upon it is prevented by a spring-controlled safety catch or pawl  $p$ , mounted in the bed of the machine and which permits of easy movement of the feed mechanism forward, but prevents it running backward.

In conjunction with the serrated feeding-disks  $l$ , previously described, I employ a serrated and loosely-mounted roller  $q$ , carried at the under side of the cloth-plate  $d$  and immediately over the feeding-disks. This roller has its bearings controlled by springs  $q'$ , surrounding pins  $q''$ , so that an elastic connection is obtained between it and the rotary feed-disk  $k'''$ , the arrangement allowing of any thickness of cloth being fed between the two rotary portions without in the slightest degree affecting the vertical position of the cloth-plate arm  $d$ , previously described.

From the foregoing description it will be seen that the whole of the parts are simple in construction, positive in operation, and efficiently arranged for their purpose.

What I claim as my invention, and desire to protect by Letters Patent, is—

1. In a blindstitch sewing-machine a longitudinal shaft capable of intermittent rotary



movement and a feed-disk mounted thereon consisting of a ratchet-wheel mounted on the shaft, a reciprocating pawl pivoted to the bed of the machine, a spring-controlled pin in the free end of the reciprocating pawl having teeth to engage with the ratchet-wheel, a lever coupled to the pawl, the opposite end of which engages with an eccentric, an eccentric mounted on one of the power-shafts of the sewing-machine and engaging with the lever coupled to the pawl-lever and a spring-controlled pawl-lever and a spring-controlled pawl carried in the bed of the sewing-machine adapted to engage with the ratchet-wheel and prevent backward movement substantially as described.

2. In a blindstitch sewing-machine a longitudinal shaft capable of intermittent rotary movement, a ratchet-wheel mounted on the feed-shaft, a tubular arm pivoted to the bed of the machine, a pawl-rod slidable in said tubular arm, means for fixing the rod in the arm in a desired position and a spring-controlled pin engaging with the ratchet-wheel on the feed-shaft substantially as described.

3. In a blindstitch sewing-machine a longitudinal shaft capable of intermittent rotary movement, a ratchet-wheel mounted on the feed-shaft, a tubular arm pivoted to the bed of the machine, a pawl-rod slidable in said tubular arm, a milled-headed setting-screw passing through the bed of the sewing-machine

chine from the top and through a slot in the tubular arm, into the slidable rod and a loose block in the screw-hole of the slidable rod adapted to be forced against the interior of the tubular arm substantially as and for the purposes described.

4. In a blindstitch sewing-machine a longitudinal shaft capable of intermittent rotary movement, a ratchet-wheel mounted on the feed-shaft, a tubular arm pivoted to the bed of the machine, a pawl-rod slidable in said tubular arm, a milled-headed setting-screw passing through the bed of the sewing-machine from the top and through a slot in the tubular arm into the slidable rod, a loose block in the screw-hole of the slidable rod, a lever coupled to the tubular arm the opposite end of which engages with an eccentric, an eccentric mounted on one of the power-shafts of the sewing-machine and engaging with a lever coupled to the tubular arm and a spring-controlled pawl carried in the bed of the sewing-machine adapted to engage with the ratchet-wheel and to prevent backward movement substantially as described.

In witness whereof I have hereunto set my hand in the presence of two witnesses.

DENIS FLANAGAN.

Witnesses:

WILLIAM HENRY TAYLOR,  
H. WILLSON.