

No. 615,263.

Patented Dec. 6, 1898.

E. DUPLESSIS.
SEWING MACHINE.

(Application filed Aug. 13, 1895. Renewed Apr. 11, 1898.)

(No Model.)

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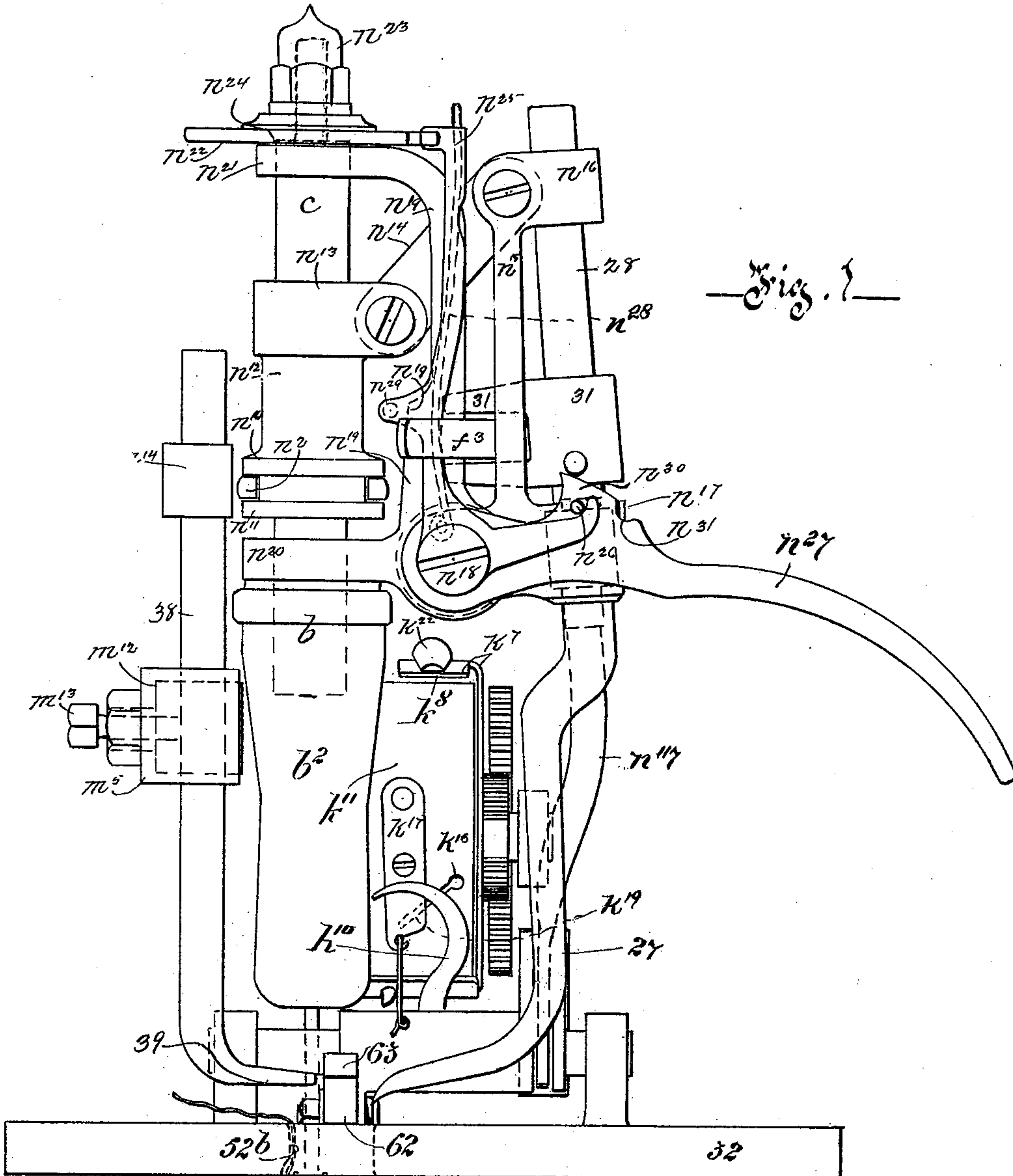


Fig. 1

Witnesses
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Fig. 3a
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No. 615,263.

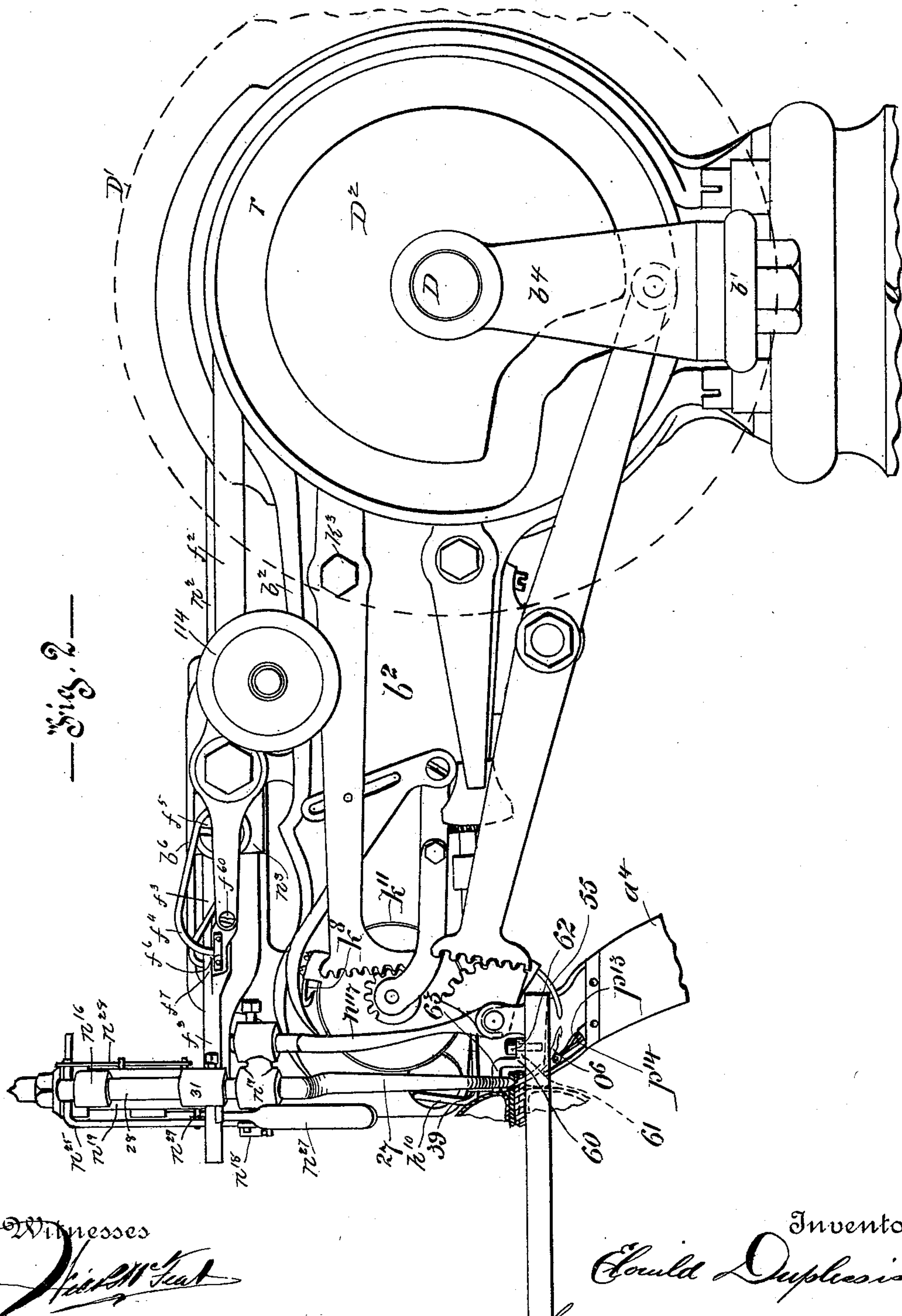
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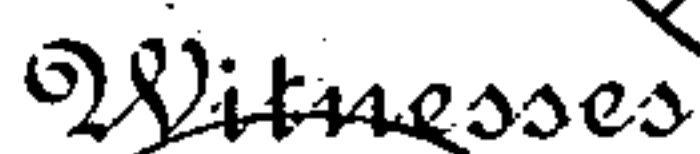
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5 Sheets—Sheet 4.



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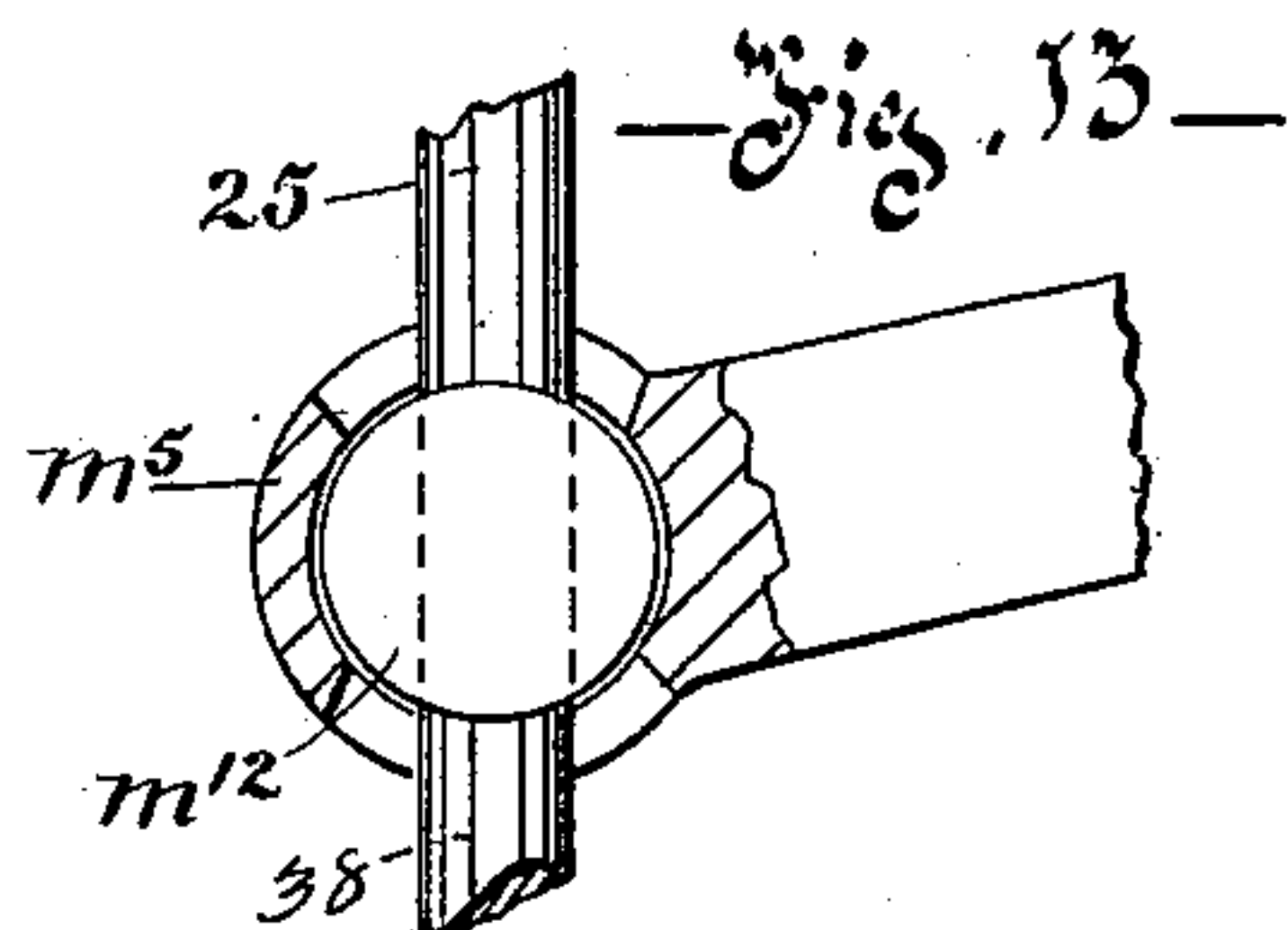
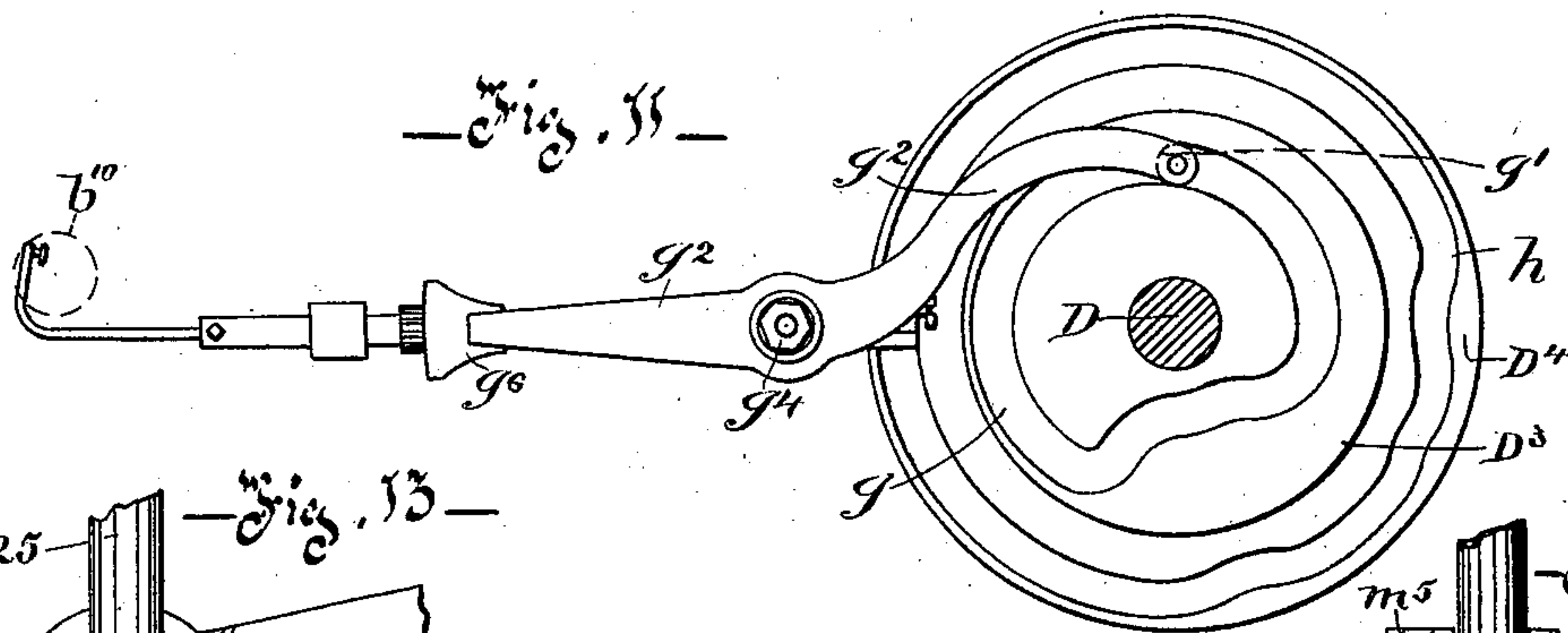
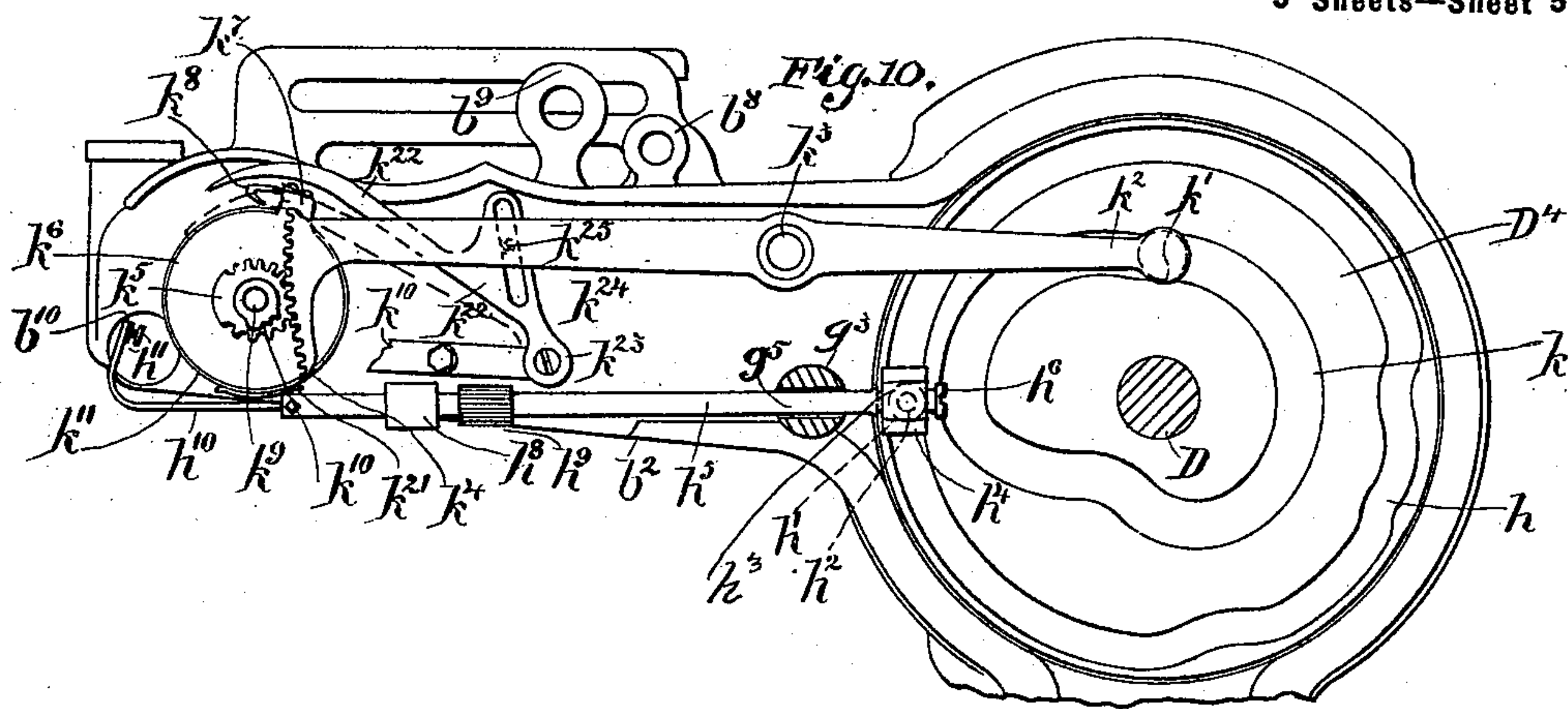
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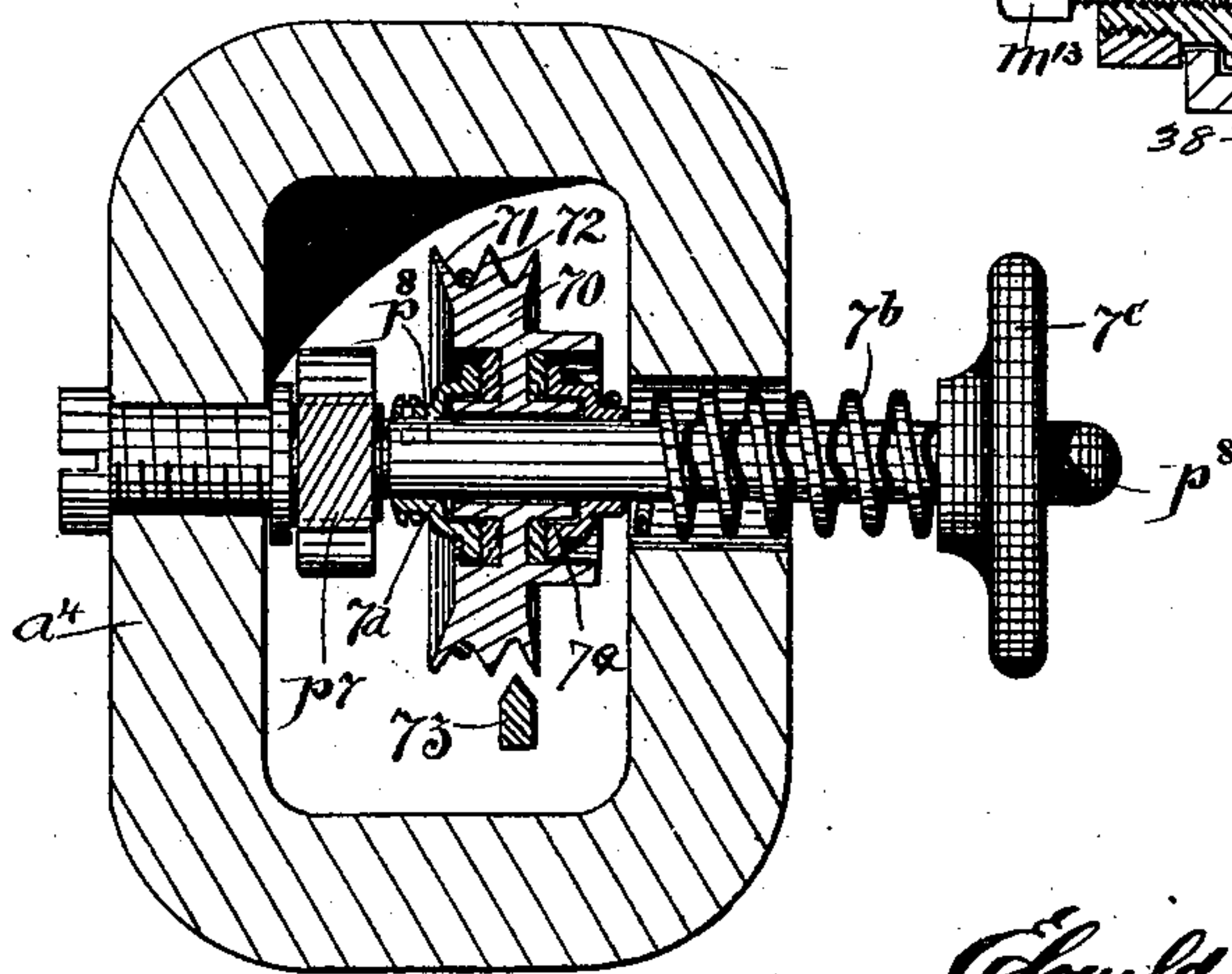
(Application filed Aug. 13, 1895. Renewed Apr. 11, 1898.)

(No Model.)

5 Sheets—Sheet 5.



—Fig. 12—



UNITED STATES PATENT OFFICE.

ELOUILD DUPLESSIS, OF ST. HYACINTHE, CANADA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF TWO-THIRDS TO EMILE ARTHUR MARCHILDON, OF SAME PLACE.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 615,263, dated December 6, 1898.

Application filed August 13, 1895. Renewed April 11, 1898. Serial No. 677,248. (No model.)

To all whom it may concern:

Be it known that I, ELOUILD DUPLESSIS, of the city of St. Hyacinthe, in the county of St. Hyacinthe and Province of Quebec, Canada, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates more particularly to the type of sewing-machine illustrated and described in pending applications filed by me April 11, 1898, Serial No. 677,246, and April 11, 1898, Serial No. 677,247; and the object of the invention is to provide certain new and useful instrumentalities or tools consisting of a presser-foot, a work-table, and perforating mechanism, to be hereinafter described and claimed, and to combine such instrumentalities with the stitch-forming instrumentalities and feed mechanism of the sewing-machine set forth in the first above-mentioned pending application in order that such machine (which is adapted in one application to do through-and-through sewing where a horn is required, as in what is known as the "McKay" style of work, and in the other application is adapted to do welted work) may be converted into a machine for doing edge-stitching, a third object of the invention being to provide a machine for doing edge-stitching that will be less expensive to construct, have less parts to operate, and that will be capable of running at a much higher rate of speed than the edge-stitching machines at present in use.

For full comprehension, however, of my invention reference must be had to the annexed drawings, forming a part of this specification, in which like symbols indicate corresponding parts, and wherein—

Figure 1 is a front elevation of the head of a machine constructed according to my invention and arranged to do edge-stitching. Fig. 2 is a right-hand side elevation of same. Fig. 3 is a left-hand side elevation of same, but with the awl perforating device removed. Fig. 3^a is a detail perspective view of a detached portion of the horn; Fig. 4, a detail perspective view of the readily-removable presser-foot; Fig. 5, a detail perspective view

of the readily-removable work-table; Fig. 6, a detail side elevation of the thread-case and reel carried therein; Fig. 7, a transverse vertical sectional view thereof taken on line *xx*, Fig. 6; Fig. 8, a right-hand side elevation of the upper portion of the machine, partly in section, and illustrating the threader and take-up. Fig. 9 is a detail side elevation of the needle-operating mechanism, with the actuating-cam thereof in section. Fig. 10 is a detail side elevation of the thread-case, thread-hook, retainer, thread-carrier, and the operating-cams and intermediate connections of the thread-hook and retainer and part of the operating means of the carrier. Fig. 11 is a detail side elevation of another part of the means for operating the thread-carrier; Fig. 12, an enlarged transverse vertical sectional view taken on line *ZZ*, Fig. 8. Fig. 13 is a detail side elevation, partly in section, of the carrying end of the presser-foot lever; and Fig. 14, a transverse vertical sectional view thereof.

The pedestal *a* of the machine is preferably of the type common to boot and shoe wax-thread sewing-machines, except that it has an upper adjustable portion or neck *a'* of less diameter than the pedestal-body and movable vertically through the openings in the top end of the latter. This movable neck *a'* carries the head portion of the machine, to be presently described, and also has bolted to it near its lower end a work-support, preferably in the form of a hollow horn *a⁴*, the front side of the pedestal-body *a* being slitted from its top end downward sufficiently to accommodate such horn, which projects through it, and as a means for securing the adjustment of these parts relatively to the pedestal a vertical screw *a⁵* is threaded through a bracket-arm *a⁶*, projecting from the face of the pedestal-body *a*, and has its upper end bearing beneath the base of the horn, while its lower end is provided with an aperture to receive the end of any suitable bar whereby it can be rotated.

The reason for making the machine-head and work-support adjustable is to accommodate operators who in some cases are incon-

venieniced one way or another by the fixed height of machines of this type.

The usual running-gear and attachments are, as heretofore, situated at the base of the pedestal; but as they form no part of my invention they need neither be shown nor further alluded to.

The framing of the head portion of the machine comprises a base-plate b , having openings down through the center to communicate with the interior of the pedestal, and lateral extensions b' , (only one of which is shown,) this base being screwed to the top of the neck portion a' .

b^2 is a vertical and forwardly-projecting web integral with the base-plate b and having an opening b^3 to accommodate the operating-cams and their shaft, and left and right hand standards b^4 are bolted to the lateral extensions b' . The web b^2 also has formed in one with it an upwardly-projecting ridge or extension b^6 , extending along its upper edge from its forward end rearward for about half the length of the web and slotted, as at b^7 , to accommodate an adjustable sliding block forming a part of the mechanism, to be presently described, for regulating the length of stitch. Projections b^8 b^9 are also formed on the upper edge of the web b^2 , the one, b^8 , forming a bearing for a spindle forming a part of said stitch-regulating mechanism and the latter, b^9 , serving as a part to which one of the feed-operating levers is pivoted. Near the lower forward end of the web b^2 a circular transverse opening b^{10} is formed to allow of the operation of the thread-carrier, as will be hereinafter described, and at right angles to such opening b^{10} a second opening b^{11} is formed, extending up from the lower edge of the web, and passing but connecting with the opening b^{10} , as shown in Fig. 9, to allow the operation of and accommodate the needle and needle-segment. The upper forward end of the web b^2 is also bored vertically to receive the lower end of a vertical standard c , by which various parts to be hereinafter described are carried.

D is the shaft mounted in the standards b^4 and carrying a driving-pulley D' , a disk D^2 , having cam-grooves e and f cut in its left-hand face and a cam-groove r in its right-hand face, a second disk D^3 , having a cam-groove g cut in its face, a third disk D^4 , having cam-groove h k cut in its face, a fourth disk D^5 , with cam-grooves m n cut in its face, a fifth disk D^6 , with cam-groove o also cut in its face, and a sixth disk D^7 , also having a cam-groove p cut in its face.

Looking at the front of the machine and beginning at the right-hand end disk D^2 , I will proceed throughout the series of disks and describe the several parts operated by the respective cam-grooves cut in the faces of such disks, starting with cam-groove e for operating the take-up. The form of this groove e is shown in Fig. 8, and it receives a roller e' , which is axially mounted on the side of a ver-

ically-reciprocating rod preferably formed in two parts or lengths e^2 e^3 and adapted to project laterally into said groove. The parts e^2 e^3 of this rod are connected together through a collar-and-pin connection, such as e^4 , and the upper part e^2 , which carries the roller e' , is forked at its opposite end to bear on either side of a ring carried by the shaft D to steady and keep the rod always in a true vertical position. The lower part e^3 of the rod passes down through an opening in the top of the movable neck portion of the pedestal and at its lower end is formed with an eye e^6 to allow of its being pivotally connected with the take-up lever e^7 in any preferable manner that will allow of ready adjustment.

The take-up lever is of bell-crank form and fulcrumed within the movable neck portion of the pedestal upon a pivot pin or bolt e^{14} , secured in the neck portion a' .

The long arm of the take-up lever is curved to allow of its working within the horn a^4 and carries a sheave e^{15} on its outer end, and near its inner end, in close proximity to its fulcrum-point, is cast a projection in the form of a rod e^{17} , which projects downward to engage with and operate the tension-lever.

The cam-groove f in the disk D^2 acts in conjunction with the cam-groove n in the disk D^5 to operate the feed mechanism. I will first describe the parts actuated by the groove f . This groove f is of the form shown in Fig. 4 and receives a roller f' , carried by the inner end of a lever f^2 , fulcrumed on the projection b^9 and having its outer end bent inward beneath and flexibly connected with a secondary lever f^3 , which is in the form of a straight arm having its inner end pivotally connected with the fulcrum-pin of the lever f^2 and its outer end curved concentric with the spindle c , (see Fig. 1,) carried in the front end of the web or frame b^2 , and the flexible connection between it and the lever f^2 is preferably effected by means of a coiled spring f^4 , taken around a stud f^5 , projecting from the side of the lever f^3 and having one end connected to such lever and the other to the lever f^2 , preferably by means of a clamping-plate f^6 , holding the end of the spring securely in a groove cut in the face of the lever f^2 .

The forward end of the lever f^2 , as before mentioned, is bent in beneath the lever f^3 , and a lug f^7 is preferably formed on the side of the lever f^3 , up against the under side of which the lever f^2 is pressed by the action of the spring f^4 , and such lever f^2 operates to impart a vertically-reciprocating movement to a feed device which I will describe subsequently to describing the cam-groove n and parts operated by it, which latter I will now describe.

The cam-groove n is of the form shown in Fig. 3 and acts in conjunction with cam-groove f , as before mentioned, for operating the feed, and its particular function is to im-

part the necessary horizontal or lateral reciprocating motion to the feed-dog, which motion in one direction is the feed movement proper thereof.

5 The groove n receives a roller n' on the inner end of lever n^2 , which is fulcrumed to a movable block n^3 , adapted to be adjusted along the slot b^7 in the upwardly-projecting ridge b^6 of the web b^2 by means of a rack 112
10 and pinion 113, the pinion being operated by hand-wheel 114 to impart a sliding movement to the rack, which is rigidly connected to fulcrum-block n^3 , thereby securing a diminished or lengthened movement of the outer end of
15 lever n^2 , according as the fulcrum-block n^3 is moved from or to the cam n .

The outer end of the lever n^2 is forked to enter between two annular shoulders n^{10} n^{11} , formed on the lower end of a sleeve n^{12} , which
20 has a laterally-projecting lug n^{13} at its upper end and is fitted loosely on the vertical standard c at the upper forward end of the web b^2 .

A link n^{14} has one end loosely pivoted to the lug n^{13} and its opposite end to the upper
25 end of a vertical carrier-frame n^{15} for the feed device, such frame having sleeves n^{16} n^{17} at its ends to receive the shank of the feed device and being pivotally connected at its lower end at n^{18} to a horizontally-swinging
30 frame n^{19} , pivotally connected with the standard c through arms n^{20} n^{21} , formed with openings to encircle such standard. This horizontally-swinging frame is to allow of the adjustment or rotation of the feed device to
35 different positions about the nose of the horn in order to secure feed in various directions, as this is sometimes necessary in view of the horn being stationary.

To set the frame n^{19} and feed in the required
40 position, a notched disk n^{22} is located above the arm n^{21} and held rigidly upon the standard c by means of a screw cap or nut n^{23} , forcing it against a shoulder n^{24} on such standard. A spring-operated latch is used to en-
45 gage the notches in the disk n^{22} , and such latch being in the form of a lever n^{25} , fulcrumed at n^{18} and having a vertical arm adapted to engage the notches in the disk n^{22} and a horizontal arm adapted to be engaged by a
50 pin projection n^{26} on a hand-lever n^{27} , also fulcrumed at n^{18} , the spring n^{28} for operating such latch being shown in dotted lines in Fig. 1. The vertical arm of the lever n^{25} is pro-
55 vided with a pin projection n^{29} , adapted to come in contact with the frame n^{19} and so limit the outward movement of the lever. The hand-lever n^{27} is also used for elevating the feed device and is formed with a beveled projection n^{30} and a notch n^{31} on its upper
60 side to bear upon and engage a pin projection on the side of sleeve 31, secured to the shank of the feed device.

The cam-groove g in disk D^3 is of the form shown in Fig. 11 and acts in conjunction with
65 the cam-groove h in disk D^4 to operate the thread-carrier, the groove g receiving a roller g' , carried by the inner end of a lever g^2 , ful-

crumed on the diminished outer end of a block g^3 and held in place thereon by means
70 of a nut g^4 . The inner end of this block, which is perforated, as at g^5 , is also diminished and screw-threaded to take into a similarly screw-threaded boring in the web b^2 , as is shown in Fig. 10, and lever g^2 carries at
75 its outer end a segmental toothed rack g^6 . The cam-groove h is of the form shown in Fig. 10 and receives a roller h' , carried on a stud-bearing h^2 on the side of a sleeve h^3 , having wing-plates h^4 cast in one with it and bearing upon the sides of groove h to steady
80 the sleeve and keep roller h' from being displaced by the rotation of a sliding rod h^5 , the diminished or inner end of which carries such sleeve loosely retained thereon by means of
85 screw h^6 . This sliding rod passes through and is carried in the perforation g^5 in the block g^3 on the side of web or frame b^2 , to which the lever g^2 is fulcrumed, and through bearing h^8 , also on the side of the web, and is
90 adapted to receive a reciprocating movement from groove h and a rotary movement from groove g through pinion h^9 , carried rigidly on the rod h^5 , segmental toothed rack g^6 , and lever g^2 , on which such segmental toothed rack
95 is carried.

The forward end of the rod h^5 is bored longitudinally and receives the rear end of the thread-carrier proper in the form of a finger
100 h^{10} , bent, as shown particularly in Figs. 1 and 11, so that its free end will project in front of the thread-case and carry the thread in a hook h^{11} at its extreme end from the needle to the thread-case.

The cam-groove k in the disk D^4 is of the form shown in Fig. 10 and operates the oscil-
105 lating thread-hook and a device for preventing any accidental displacement of the thread-case when the oscillating hook is thrown back to release the thread after it has taken it around the case. The groove k receives a
110 roller k' , carried on the inner end of a lever k^2 , which is fulcrumed at k^3 to the web or frame b^2 and has its outer end terminating in a segmental toothed rack k^4 . This rack k^4 intermeshes with a pinion k^5 , which is formed
115 in one with and centrally of the side of a circular plate k^6 , which has a peripheral projection k^7 , to which is secured the oscillating thread-hook k^8 , the plate and pinion being centrally bored and mounted upon a stud-
120 bearing k^9 in one end of a bracket-arm k^{10} , which is secured at the other end to the web or frame b^2 and bent outward and parallel with such web, so as to leave sufficient space between it and the web for the pinion and
125 plate just mentioned and the thread-case, now to be described.

The case inclosing the upper thread is shown in detail in Figs. 6 and 7, and consists of a shallow cylindrical box k^{11} , one side
130 or end of which is open and the other and closed side of which has a central boss or pin k^{12} , which is preferably passed through a central opening in such closed side to project

into the case and carries in grooves formed along its periphery and end a spring-clip k^{13} , parts of which project beyond the periphery, but are compressible. The head of this pin k^{12} provides a projection necessary to establish a space between the periphery of the case and the frame of the machine to enable the thread to pass freely around same.

The thread reel or bobbin is formed with two circular side plates k^{14} , which are connected by a centrally-tubular core k^{15} , adapted to fit over the pin k^{12} in the thread-case and be held in place thereon by frictional contact with the projecting parts of the spring-clip k^{13} , which are compressed by it.

The periphery of the thread-case k^{11} is perforated, as at k^{19} , to allow of the passage of the thread therethrough, and adjacent to such perforation a tension-plate k^{17} is arranged, one end of which is riveted to the case and the other end of which is bent inward to bear upon the periphery of the case and formed with a hook k^{18} . A slot (not shown) in the periphery of the case extends from the perforation k^{19} to a point beneath the tension-plate near the hook thereof, and an adjusting-screw k^{20} , passing through an aperture in the tension-plate and screwed into the periphery of the case, is used to regulate the pressure of such plate.

The cam-groove m in the disk D^5 is of the form shown in Fig. 3 and used to operate the parts for raising and lowering the presser-foot. The groove receives a roller m' , carried on the end of a lever m^2 , fulcrumed at m^3 to the web b^2 and having a lateral projection m^4 on one side. This lever has a flexible connection with a secondary lever m^5 , which I will now describe. The secondary lever m^5 is curved somewhat and fulcrumed centrally of its length at the same point m^3 on the web as the lever m^2 , its inner or rear end carrying a screw m^6 , with which one end of a retractile coiled spring m^7 (which is shown partly broken away) is connected, its other end being connected by means of a screw m^8 to a device for adjusting the tension of such spring, consisting of a screw-bolt m^9 , taking in a screw-threaded boring in the web b^2 , such bolt carrying loosely thereon block m^{10} , which also carries a guide-rod m^{11} , sliding vertically through a second bearing in the web. The purpose of this flexible connection between the two levers m^2 and m^5 is to allow the lever m^5 a certain amount of independent play or automatic adjustment, as is required by the variations in the elevation of the presser-foot caused by the varying thickness of the stock being operated upon. The lateral projection m^4 on lever m^2 serves to maintain levers m^2 m^5 in their proper relative position. The presser-foot 38 is carried adjustably with relation to the work by a swiveling block m^{12} in the outer end of such lever m^5 and held in place in such block by set-screw m^{13} .

m^{14} is an adjustable guide for the upper

end or shank portion of the presser-foot, and is in the form of a curved arm slotted and held to the web b^2 by a set-screw m^{15} .

The cam-groove o in the disk D^6 is of the form shown in Fig. 9 and used to operate the needle. The groove receives a roller o' on the inner end of a connecting-rod o^2 , having its outer end pivotally connected at o^3 with the needle-segment o^4 , which is held in place in its guideway by suitable retaining-plates o^5 , as shown in Fig. 9, and carries the curved needle o^6 .

The cam-groove p in the disk D^7 is of the form shown in dotted lines in Fig. 8 and receives a roller adapted to project into said groove and axially mounted on the side of the upper end of a vertically-reciprocating rod p^3 . This rod may be made in two parts, and such parts may be connected together in a similar manner to the parts e^2 e^3 of the take-up rod, and the upper part, which carries the roller, (like the part e^2 ,) may be forked at its upper end. The lower part p^3 of the rod passes down through the top of the movable neck portion of the pedestal and at its lower end is formed with an elongated eye p^6 to allow of its being adjustably and pivotally connected with one arm of a lever p^7 , fulcrumed on a rod p^8 , which is shown in detail in Fig. 12, and carries the tension-wheel and its operating-spring, as will be hereinafter described. The other arm of this lever p^7 is pivotally connected to the lower end of a reciprocating bar or section p^9 , slotted, as at p^{10} , to receive a block p^{11} , pivotally carried upon a pin p^{12} within the horn and with which block said bar or section through slot p^{10} has a sliding connection. The upper end of this section p^9 carries the threader portion proper. This threader portion proper, as will be seen by reference to Fig. 8, consists of a pair of spring-fingers p^{13} p^{14} , carried in the upper end of the bar p^9 and secured therein by set-screws p^{20} , by the loosening of which the fingers can be adjusted higher or lower, as may be desired, with relation to the needle. The upper free end of each finger is formed one (13) with an eye p^{16} and the other with a hook p^{17} , the eye and hook being for the purpose of placing the thread in the barb of the needle, the chock p^{17} allowing of the withdrawal of the thread by the needle. As a means for adjusting or locating the threader relatively to the needle, adjusting-screws p^{18} are carried by the sides of the horn, as shown in dotted lines in Fig. 8, and adapted to bear loosely upon either side of the bar p^9 without in any way interfering with its motion.

The thread-tension device which I prefer to use is shown in Fig. 8 and in detail in Fig. 12, and consists of a sheave 70, mounted loosely on the fulcrum-rod p^8 of the threader-lever before mentioned and having two peripheral V-shaped grooves 71 72, the former of which receives the thread and the latter of which presents two friction-faces for a friction-lever 73, presently to be described, to

bear upon. Acting upon this sheave 70 is a flanged sleeve 7^a, loosely mounted on said rod p^8 and forced against one side of the web of such sheave by means of a coiled spring 7^b, encircling the rod and having one end bearing against the sleeve 7^a and the other end against the hub of an adjusting hand-wheel 7^c, screw-threaded on the outer end of such rod, the pressure of the sleeve 7^a upon the sheave 70 serving to force it in turn against a sleeve 7^d similar to the one 7^a but rigidly mounted on the rod p^8 .

The lever 73 has one end fulcrumed at 74 in the base of the work support or horn at a point below the sheave 70 and its opposite end flexibly connected with the pedestal by a coiled spring 75. 76 is a lateral shoe projecting from its upper side, with its edge shaped to conform to the groove 72 in the sheave 70.

The lever 73 requires to be furnished with a rise or projection of some sort to be acted upon by the downwardly-projecting oscillating finger e^{17} , and in order that the action of the lever 73 can be varied and the extent to which the thread from the thread-case is drawn through the work regulated I prefer to make such rise or projection in the form of an adjustable block-nut 77, fitting over and having a screw-threaded connection with the lever and formed with a lateral extension 78, such nut or block being movable along the lever in either direction.

Thus far I have described all the parts of the machine which are common to and which operate the immediate parts, tools, or instrumentalities that act directly upon the work and being interchangeable, as may be desired, for various kinds or characters of work—such as the McKay stitch “turned-shoe” sewing, the stitching of welted work, edge-stitching, and plain straight sewing—and I will proceed to describe the particular instrumentalities necessary to do edge-stitching or plain straight sewing.

The novel instrumentalities or tools comprised in the present invention and to be combined with the common parts just mentioned are adapted to be readily removable and are preferably constructed as follows:

The presser-foot (shown in detail in Fig. 4) consists of a shank or bar 38, having a narrowed and flattened foot portion 39; notched, as at 39^a, to allow of portions of such foot portion being situated in close proximity to the needle and on opposite sides of same, while a groove 48 is formed along its under side to accommodate the stitching beneath it, and so avoid any chance of flattening such stitching. The foot portion 39 is tapered in order that it may bear over the stitches and at the same time be raised and lowered while the sole is being stitched without interfering with either the upper or the stitches.

The work-table (shown in detail in Fig. 5) consists of a plate 32, the dimensions of which will depend upon the manner in which the

work is held while being stitched—as, for instance, if the boot or shoe to be operated upon is held with the tread of the shoe thereof uppermost the forwardly-projecting portion 32^a of the table will have to be shortened, so as to accommodate the upper of the boot or shoe, and at the same time act as a work-guide, as shown in dotted lines in Figs. 2 and 5. I prefer, however, to hold the boot or shoe to be stitched with the tread of the sole thereof downward, as shown in full lines in Fig. 2, in which case either the side of the foot portion 39 of the presser-foot will act as a work-guide, or a readily-removable work-guide, to be hereinafter described, can be provided, and the work-table 32 can be considerably enlarged, as shown in Fig. 5, for a purpose to be hereinafter set forth. The work-table is preferably secured over the open nose of the horn a^4 by means of a web 52, extending downwardly over the left-hand side of the nose of the horn, to be attached thereto by screws 52^a. An opening 52^b is cut through the plate 32 to accommodate the needle o^6 and the perforating-awl 55.

The adjustable readily-removable stationary work-guide that I prefer to use, if it is desirable to keep the work from touching the presser-foot, consists of a plate 60, slotted, as at 61, to receive a retaining-screw 62, which takes into the work-table 32, the bearing edge of this guide being offset or bent upward and outward, as at 63, to provide a space to accommodate the edge of the sole and allow the forwardly-projecting portion of the guide to bear upon the upper of the boot or shoe.

The awl is operated by groove r in the opposite side of disk D^2 to that in which grooves g and f are cut. This awl 55 when edge-stitching is being done must project out of its segment a sufficient distance to allow it to pass through the work, which is readily done by loosening the retaining-plate and drawing the awl out the required distance.

The operation of the present embodiment of my invention is briefly as follows: The feed-dog 27 is first raised by handle n^{27} and the boot or shoe placed upon the work-table with the upper bearing preferably against the forwardly-projecting portion 63 of work-guide 60. The feed-dog 27 is then lowered by handle n^{27} and holds the work against displacement until the presser-foot relieves it. Upon the machine being started the awl or perforator 55 will be passed through the work a sufficient distance to project upward a short distance in front of the end of feed-dog 27 to allow such feed-dog to bear against the end of such awl or perforator in order that the work can be fed by such feed-dog without the necessity of its being inserted into the work, thereby besides affording a firm hold upon the work to be fed will at the same time not disfigure the surface of such work. The work is then fed by such feed-dog 27, the awl at the same time being caused to ac-

company it. The rest of the operation is precisely the same as that described in my allowed application, Serial No. 677,246, in that the presser-foot is lowered, the awl withdrawn, the needle inserted, the threader threads the needle, the needle draws the thread through the work, and the thread-carrier engages the thread and conveys it to a position to be taken by the oscillating hook partially around the thread-case, after which it is acted upon by the take-up and tension devices to tighten and complete the stitch, the presser-foot being then raised, and the operation either repeated or, if the stitching of the edge of the boot or shoe is completed, to allow it to be removed, to do which the feed-dog 27 will have to be first raised by handle *n*²⁷.

As will be seen from the foregoing, a machine for doing edge-stitching constructed according to my present invention, besides having the advantage of a comparatively small number of operating parts to make a two-thread lock-stitch, will allow an operator to stitch the edge of the sole of a boot or shoe with either side uppermost, and, further, it is only because I illustrate and describe this form of machine as converted from a machine for doing "McKay" style of work that an unnecessary space is shown between the stitch-forming instrumentalities and the pedestal; but this unnecessary space can be readily diminished by any one skilled in the manufacture of sewing-machines by shortening the levers and rods, thus strengthening such levers and rods and increasing the speed of the machine without departing from the spirit of my invention.

It is also obvious that by using the work-table of extended width and length herein described and illustrated and shown in detail in Fig. 5 plain straight sewing—such as sewing belting, harness, or the like—can be done as readily as edge-stitching. Finer work, such as the stitching of uppers, can be done equally well by simply dispensing with the awl or perforator and preferably the adjustable work-guide, which are readily removable, or the forked rod *n*¹¹⁷ can be removed by loosening its retaining-screw and the feed-dog 27 lowered to engage the work, in which case the awl will simply be inserted and withdrawn from the work and will not assist in operation of feeding, which will then be done entirely by the feed-dog 27. I find the swinging feed desirable in instances where the work cannot readily be turned, although in most instances it will not be required.

What I claim is as follows:

1. In a machine for doing edge-stitching or the like, the combination with a frame and stitch-forming instrumentalities, of a presser-foot having a narrowed and flattened foot portion having its lower end horizontally offset and tapered, feed mechanism and a perforat-

ing device and means for operating such presser-foot, feed mechanism and perforating device, for the purpose set forth.

2. In a machine for doing edge-stitching or the like, the combination with a frame and stitch-forming instrumentalities, of a presser-foot having a narrowed and flattened foot portion, feed mechanism comprising a carrier-frame pivotally connected with the frame of the machine, the feed device being located in said carrier-frame, and a perforating device, means for operating such presser-foot, means for operating said perforating device and means for imparting a rocking motion to such carrier-frame and means for imparting an independently-reciprocating movement to the feed device therein, for the purpose set forth.

3. In a machine for doing edge-stitching or the like, the combination with a frame and stitch-forming instrumentalities, of a presser-foot, feed mechanism comprising a carrier-frame pivotally connected with the frame of the machine, the feed device being located in said carrier-frame, and a perforating device consisting of an oscillating and horizontally-reciprocating awl adjustable relatively to the needle, means for operating such presser-foot, means for operating said perforating device, means for imparting a rocking motion to such carrier-frame, and means for imparting an independently-reciprocating movement to the feed device therein, for the purpose set forth.

4. In a machine for doing edge-stitching or the like the combination with a frame and stitch-forming instrumentalities, of a presser-foot having a narrowed and flattened foot portion, feed mechanism comprising a carrier-frame pivotally connected with the frame of the machine, the feed device being located in said carrier-frame, and a perforating device consisting of an oscillating and horizontally-reciprocating awl, means for operating such presser-foot, means for operating said perforating device, means for imparting a rocking motion to such carrier-frame and means for imparting an independent reciprocating movement in the feed device carried by said carrier-frame, for the purpose set forth.

5. In a wax-thread sewing-machine, the combination with the frame, and stitch-forming instrumentalities, consisting of a needle, a thread-carrier, a thread-case, a thread-hook, a needle-threader, a tension device, a clamping device, a take-up, of a presser-foot having a narrowed and flattened foot portion, feed mechanism comprising a carrier-frame pivotally connected with the frame of the machine, the feed device being located in said carrier-frame, and a perforating device, and means for operating such presser-foot, and perforating device, and for imparting a rocking motion to such carrier-frame and a reciprocating movement to the feed device therein, for the purpose set forth.

6. In a wax-thread sewing-machine, the combination with the frame, and stitch-form-

ing instrumentalities, consisting of a needle, a thread-carrier, a thread-case, a thread-hook, a needle-threader, a tension device, a clamping device, a take-up, of a presser-foot, feed mechanism comprising a carrier-frame pivotally connected with the frame of the machine, the feed device being located in said carrier-frame, and a perforating device consisting of an oscillating and horizontally-reciprocating awl and means for operating such presser-foot, and perforating device, and for imparting a rocking motion to such carrier-frame and a reciprocating movement to the feed device therein, for the purpose set forth.

7. In a wax-thread sewing-machine, the combination with the frame, and stitch-forming instrumentalities, consisting of a needle, a thread-carrier, a thread-case, a thread-hook, a needle-threader, a tension device, a clamping device, a take-up, of a presser-foot having a narrowed and flattened foot portion, feed mechanism comprising a carrier-frame pivotally connected with the frame of the machine, the feed device being located in said carrier-frame, and a perforating device consisting of an oscillating and horizontally-reciprocating awl, and means for operating such presser-foot, and perforating device, and for imparting a rocking motion to such carrier-frame and a reciprocating movement to the feed device therein, for the purpose set forth.

8. In a machine for doing edge-stitching or the like the combination with a frame, of a presser-foot having a narrowed and flattened foot portion, feed mechanism comprising a standard upon the frame of the machine an extension or frame projecting laterally from said standard and being without motion during the feeding operation and a carrier-frame pivotally connected with such laterally-projecting frame, the feed device being located in said carrier-frame, and a perforating device, and means for operating such presser-foot, and perforating device, and for imparting a rocking motion to such carrier-frame and a reciprocating movement to the feed device therein, for the purpose set forth.

9. In a machine for doing edge-stitching or the like, the combination with a frame, of a presser-foot, feed mechanism comprising a standard upon the frame of the machine, an extension or frame projecting laterally from said standard and being without motion during the feeding operation and a carrier-frame pivotally connected with such laterally-projecting frame, the feed device being located in said carrier-frame, and a perforating device consisting of an oscillating and horizontally-reciprocating awl and means for operating such presser-foot, and perforating device, and for imparting a rocking motion to such carrier-frame and a reciprocating movement to the feed device therein, for the purpose set forth.

10. In a wax-thread sewing-machine, the combination with the frame, and stitch-form-

ing instrumentalities, consisting of a needle, a thread-carrier, a thread-case, a thread-hook, a needle-threader, a tension device, a clamping device, a take-up, of a presser-foot, feed mechanism comprising a standard upon the frame of the machine, an extension or frame projecting laterally from said standard and being without motion during the feeding operation and a carrier-frame pivotally connected with such laterally-projecting frame, the feed device being located in said carrier-frame, and a perforating device, and means for operating such presser-foot, and perforating device, and for imparting a rocking motion to such carrier-frame and a reciprocating movement to the feed device therein, for the purpose set forth.

11. In a wax-thread sewing-machine, the combination with the frame, and stitch-forming instrumentalities, consisting of a needle, a thread-carrier, a thread-case, a thread-hook, a needle-threader, a tension device, a clamping device, a take-up, of a presser-foot, feed mechanism comprising a standard upon the frame of the machine, an extension or frame projecting laterally from said standard and being without motion during the feeding operation and a carrier-frame pivotally connected with such laterally-projecting frame, the feed device being located in said carrier-frame, and a perforating device consisting of an oscillating and horizontally-reciprocating awl and means for operating such presser-foot, and perforating device, and for imparting a rocking motion to such carrier-frame and a reciprocating movement to the feed device therein, for the purpose set forth.

12. In a wax-thread sewing-machine, the combination with the frame, and stitch-forming instrumentalities, consisting of a needle, a thread-carrier, a thread-case, a thread-hook, a needle-threader, a tension device a clamping device, a take-up, of a presser-foot having a narrowed and flattened foot portion provided with a groove along its under side, feed mechanism comprising a standard upon the frame of the machine, an extension or frame projecting laterally from said standard and being without motion during the feeding operation and a carrier-frame pivotally connected with such laterally-projecting frame, the feed device being located in said carrier-frame, and a perforating device, and means for operating such presser-foot, and perforating device, and for imparting a rocking motion to such carrier-frame and a reciprocating movement to the feed device therein, for the purpose set forth.

13. In a machine for doing edge-stitching or the like, the combination with a frame and stitch-forming instrumentalities, of a readily-removable presser-foot having a narrowed and flattened foot portion provided with a groove along its under side, feed mechanism comprising a carrier-frame pivotally connected with the frame of the machine and a

feed device located in said carrier-frame, a
perforating device consisting of an oscillat-
ing and horizontally-reciprocating adjustable
awl, and a readily-removable work-table hav-
5 ing an adjustable readily-removable work-
guide with offset bearing-surface and means
for operating such presser-foot and perforat-
ing device and for imparting a rocking mo-

tion to such carrier-frame and a reciprocating
movement to the feed device therein, for the
purpose set forth.

ELOUILD DUPLESSIS.

Witnesses:

WILL. P. McFEAT,
FRED. J. SEARS.