

No. 630,339.

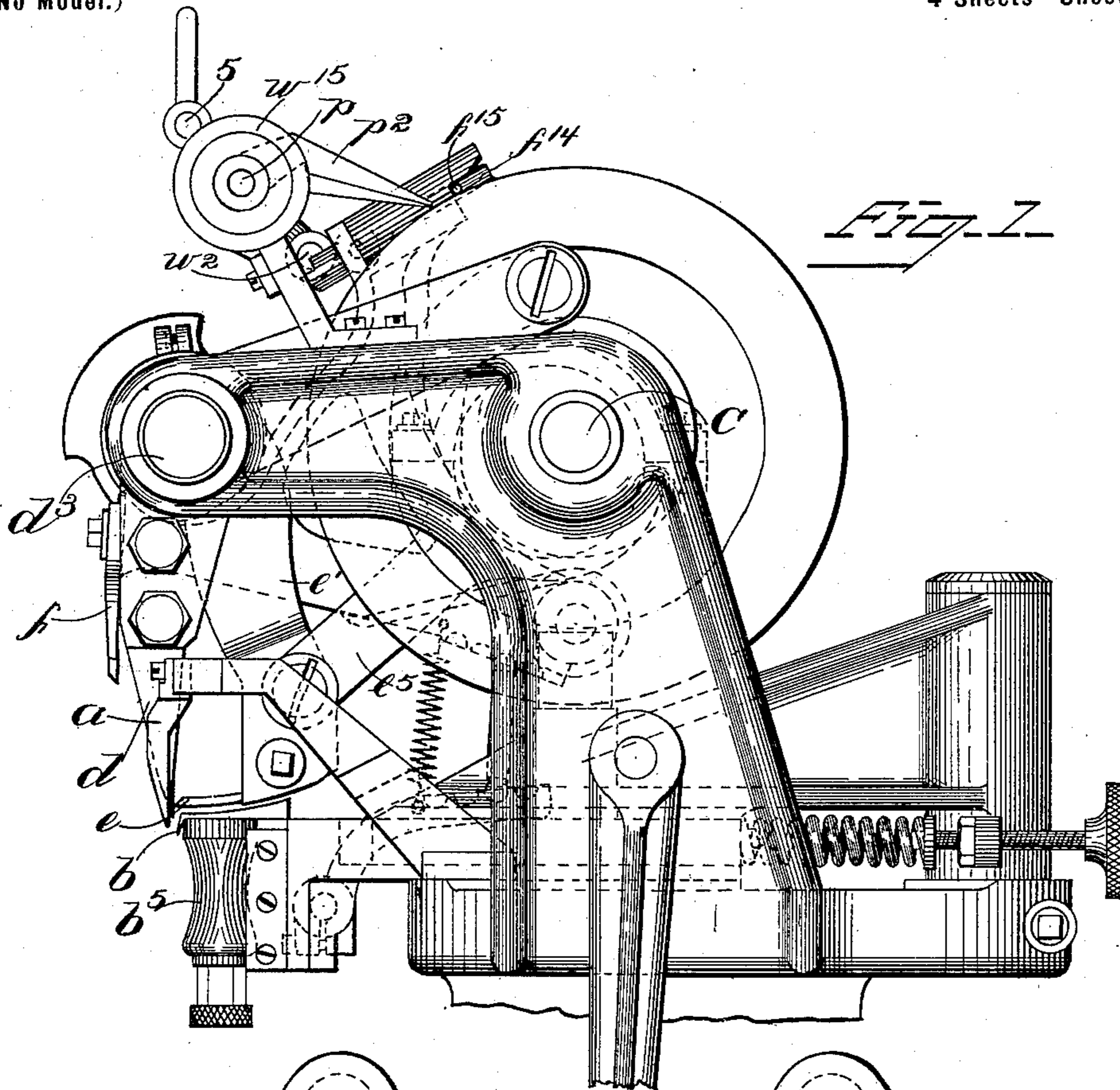
Patented Aug. 8, 1899.

Z. T. FRENCH & W. C. MEYER.  
SOLE TRIMMING AND CHANNELING MACHINE.

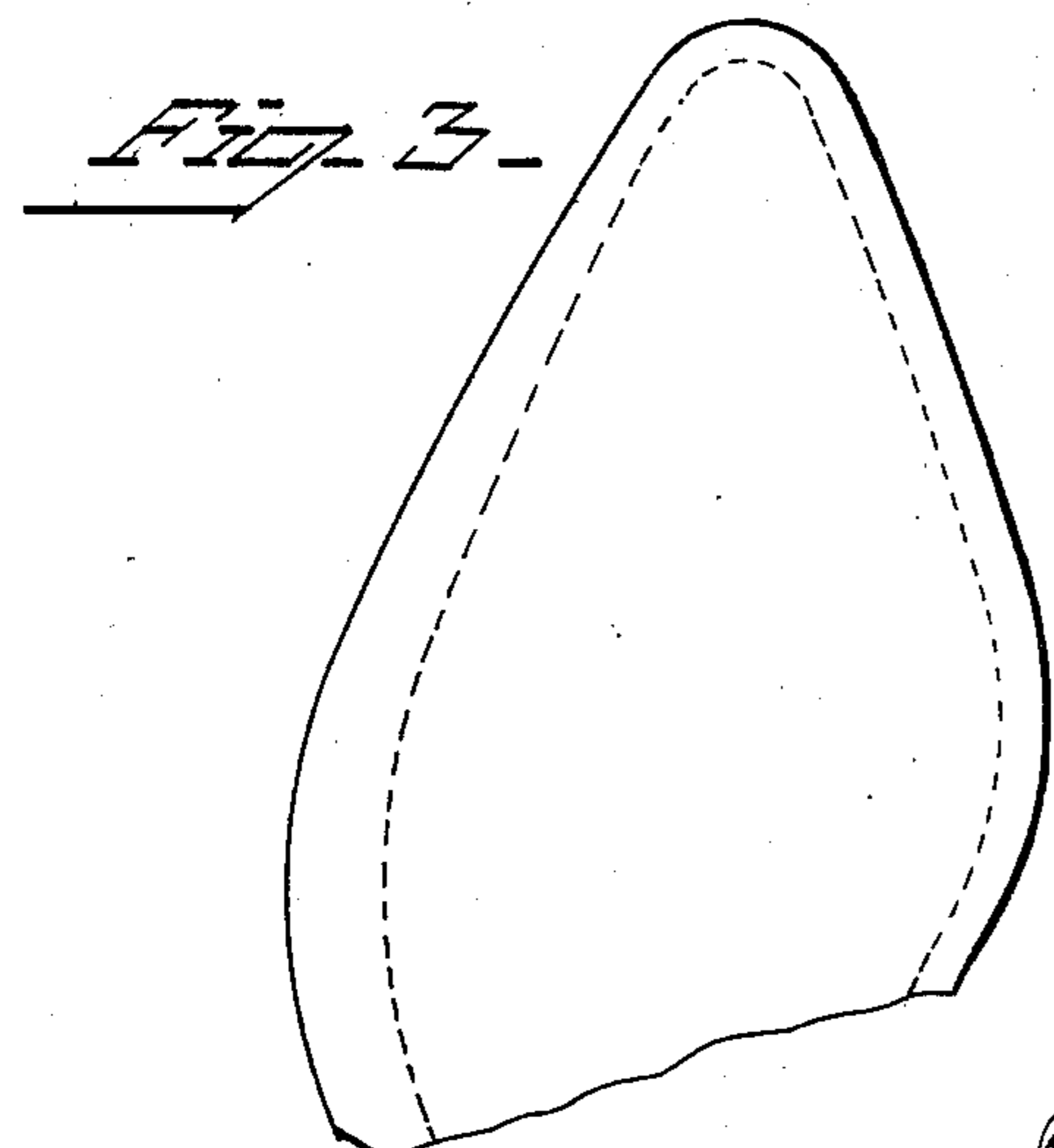
(Application filed Feb. 16, 1895. Renewed Apr. 7, 1897.)

(No Model.)

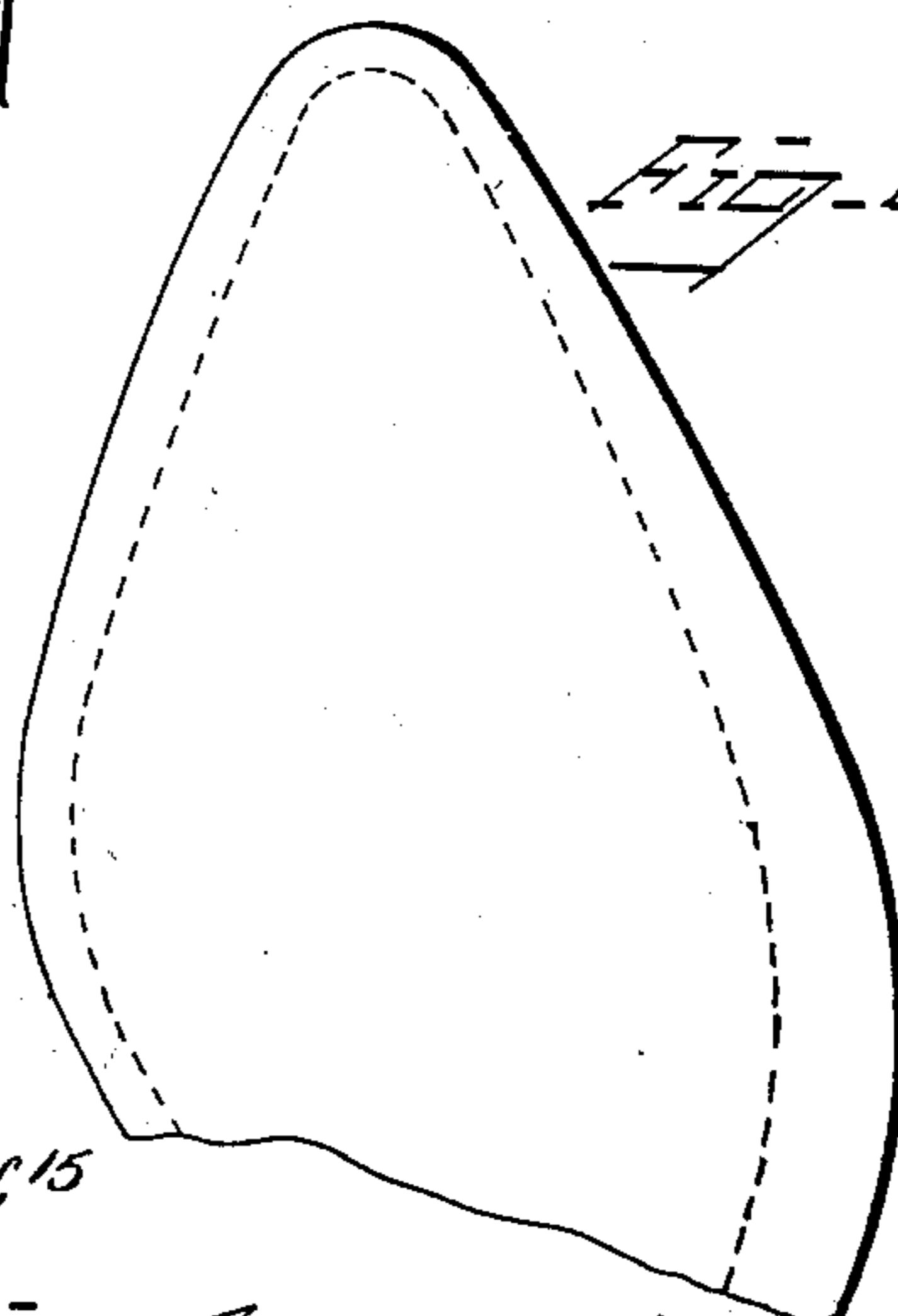
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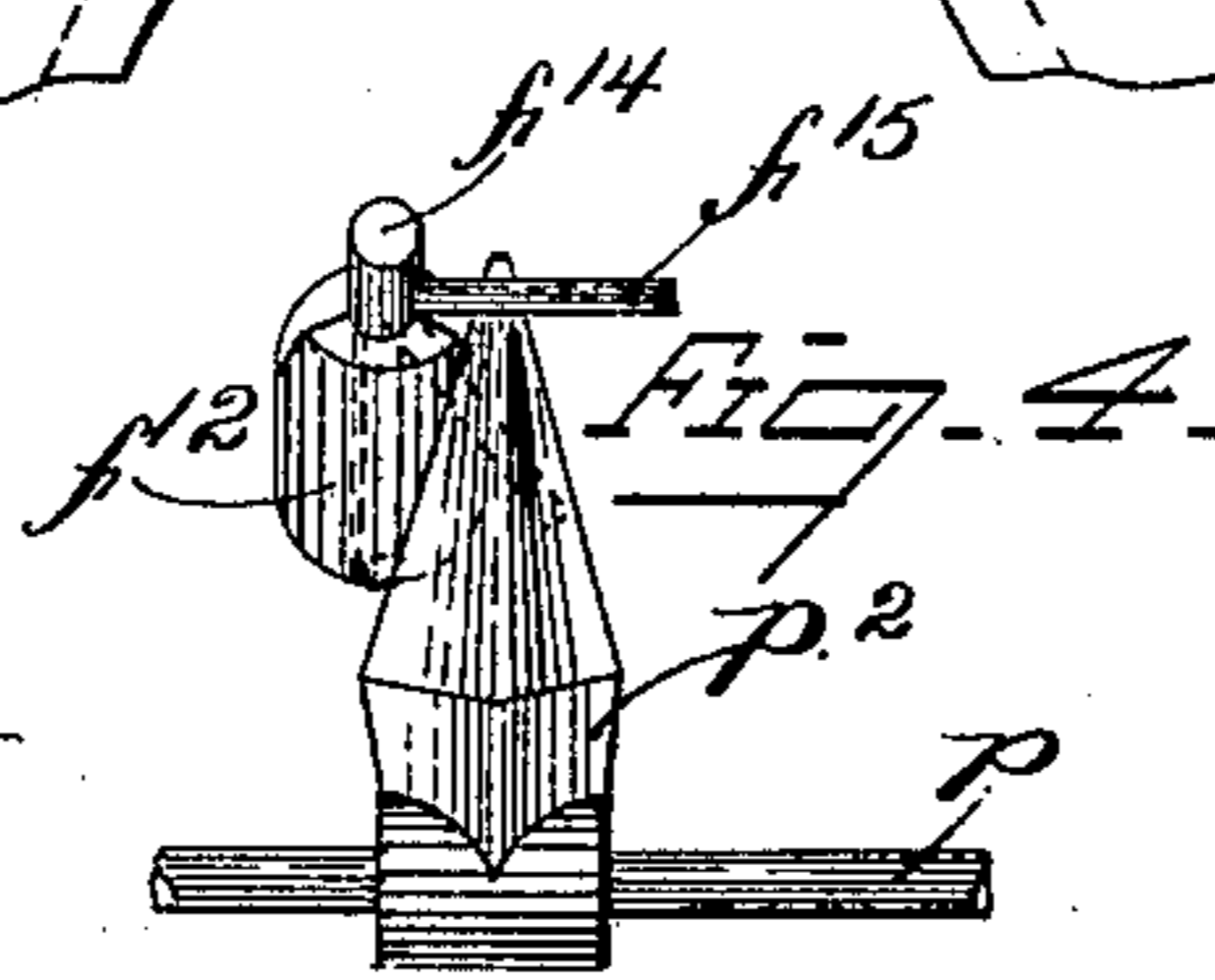
*Fig. 1*



*Fig. 3*



*Fig. 2*



*Fig. 4*

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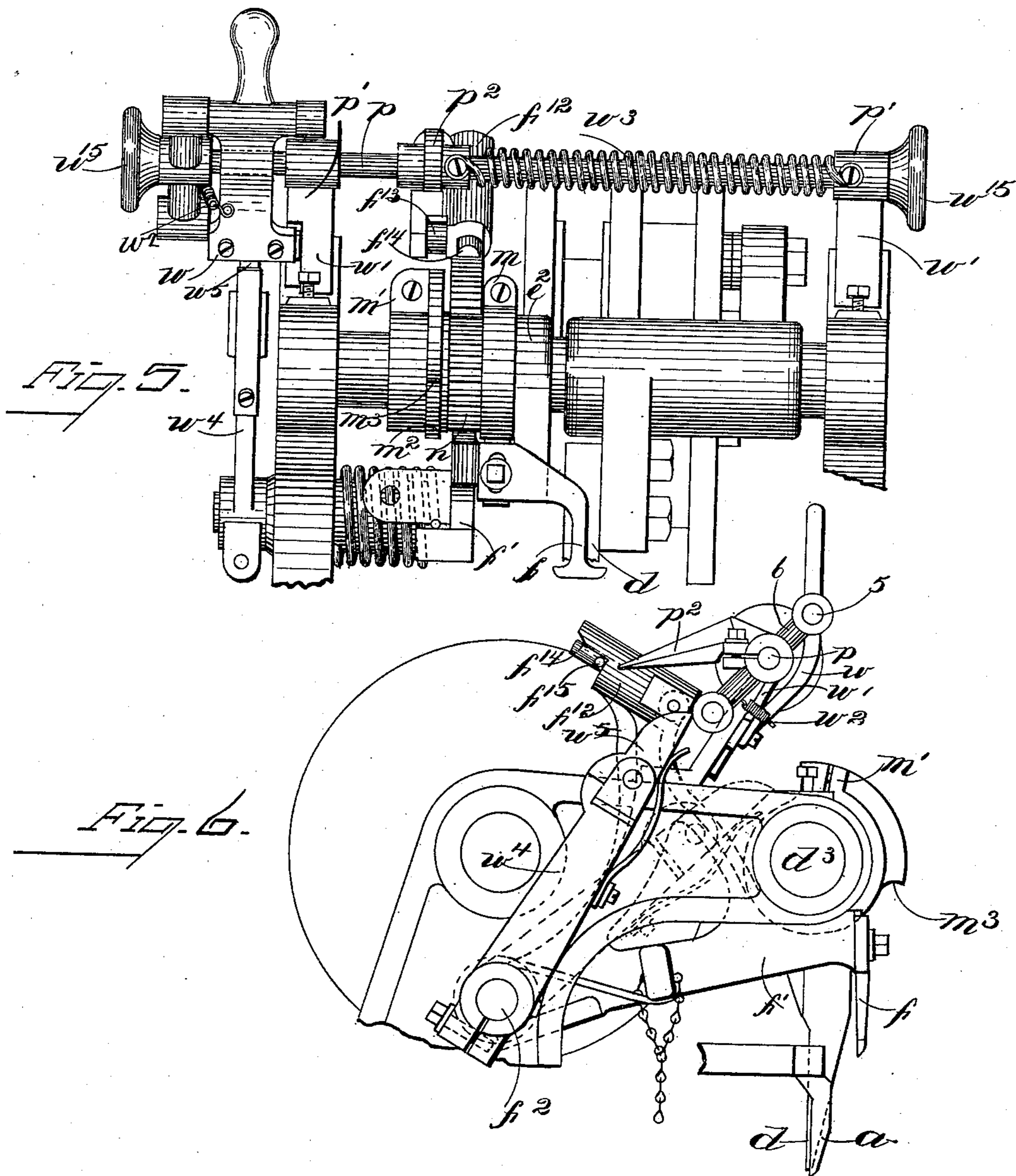
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(No Model.)

4 Sheets—Sheet 2.



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**No. 630,339.**

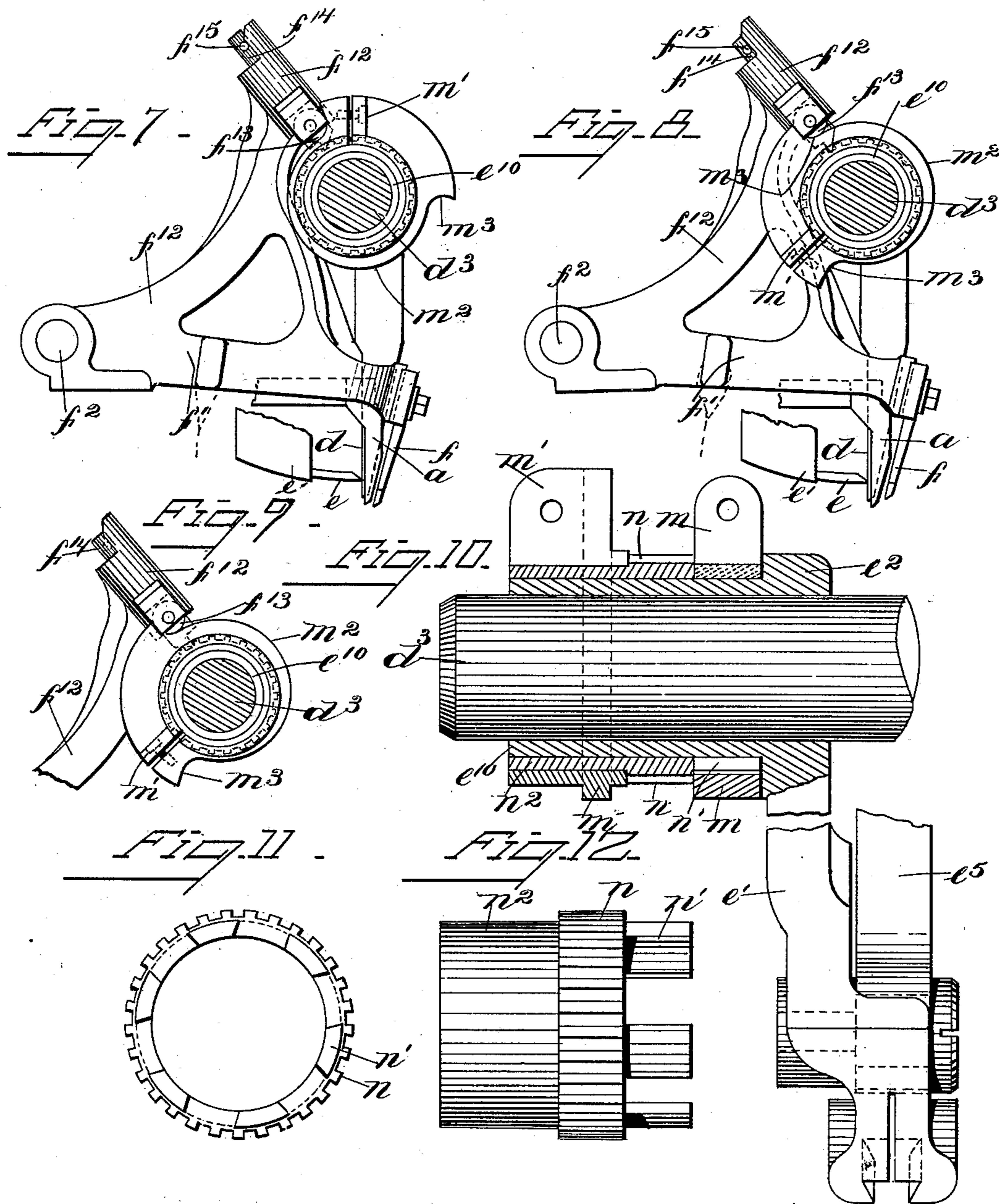
**Patented Aug. 8, 1899.**

**Z. T. FRENCH & W. C. MEYER.**  
**SOLE TRIMMING AND CHANNELING MACHINE.**

(Application filed Feb. 16, 1895. Renewed Apr. 7, 1897.)

(No Model.)

**4 Sheets—Sheet 3.**



No. 630,339.

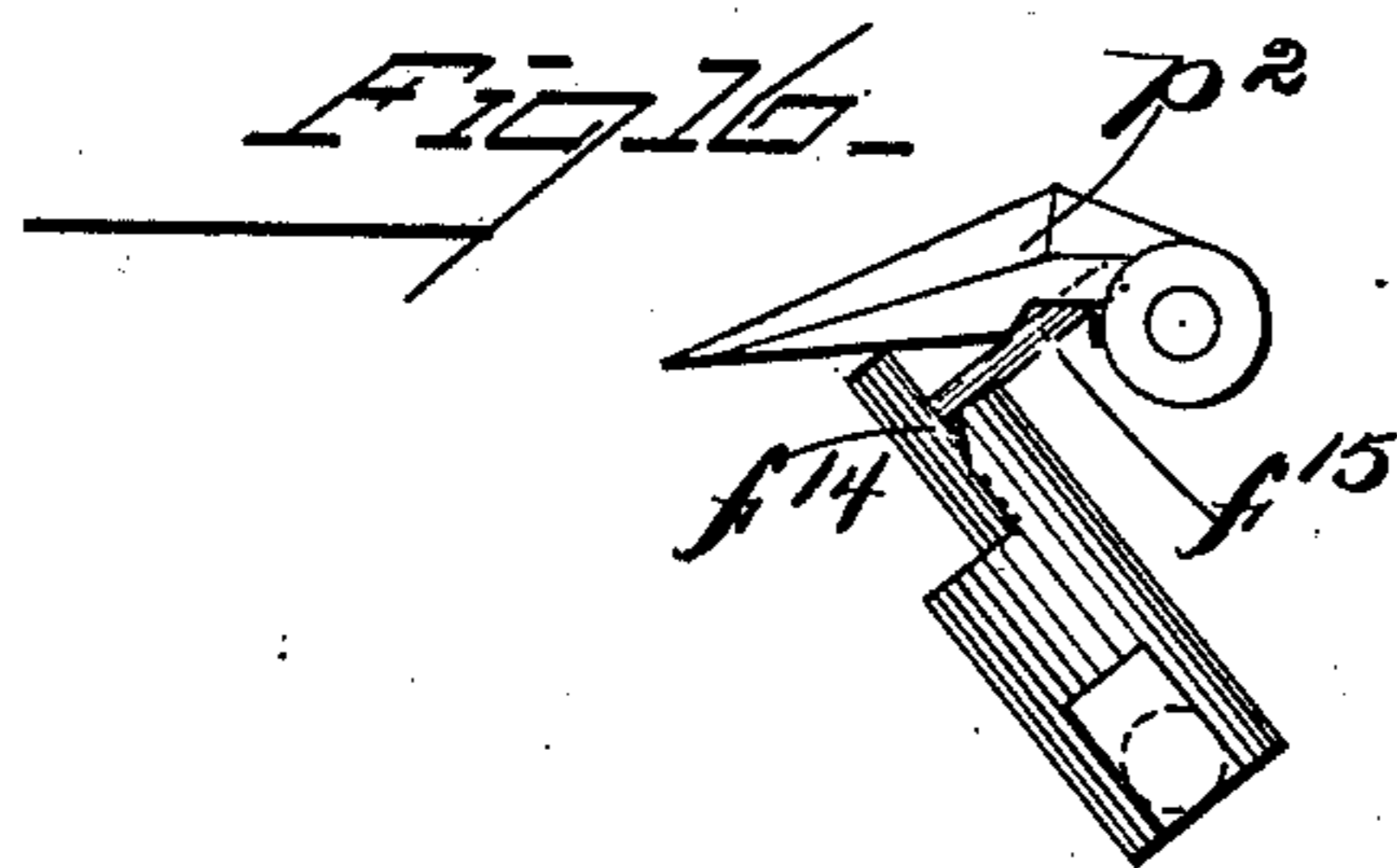
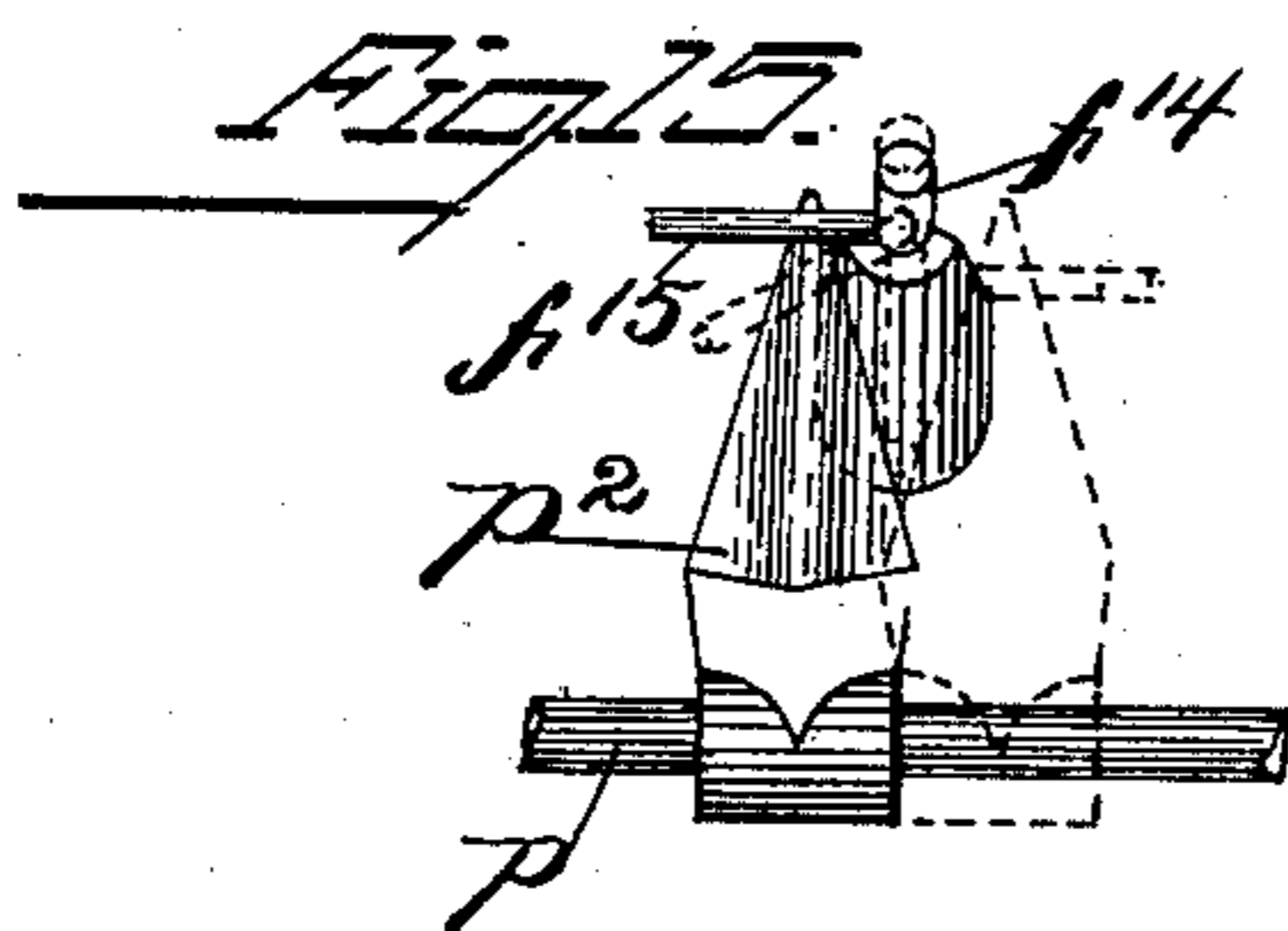
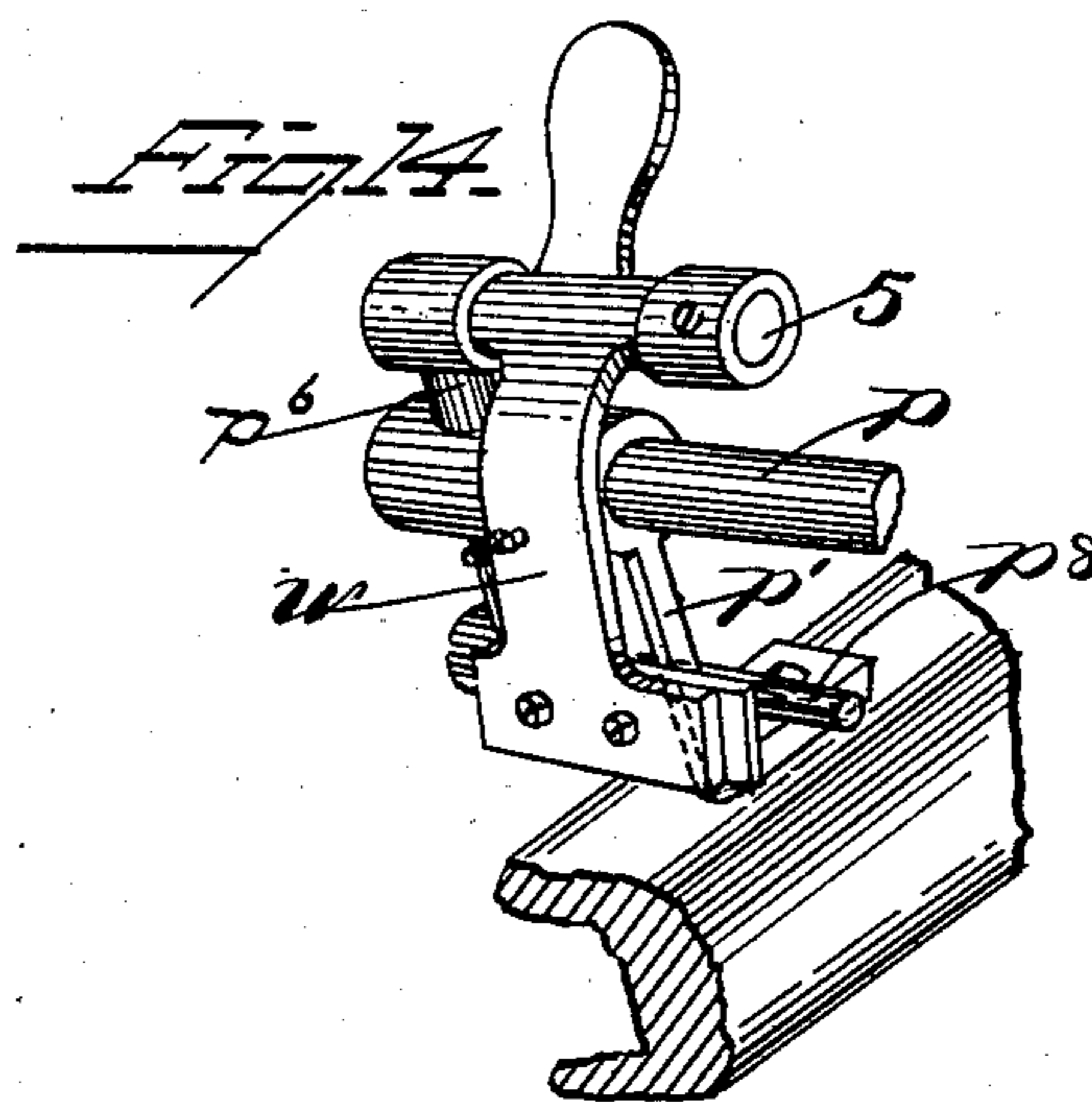
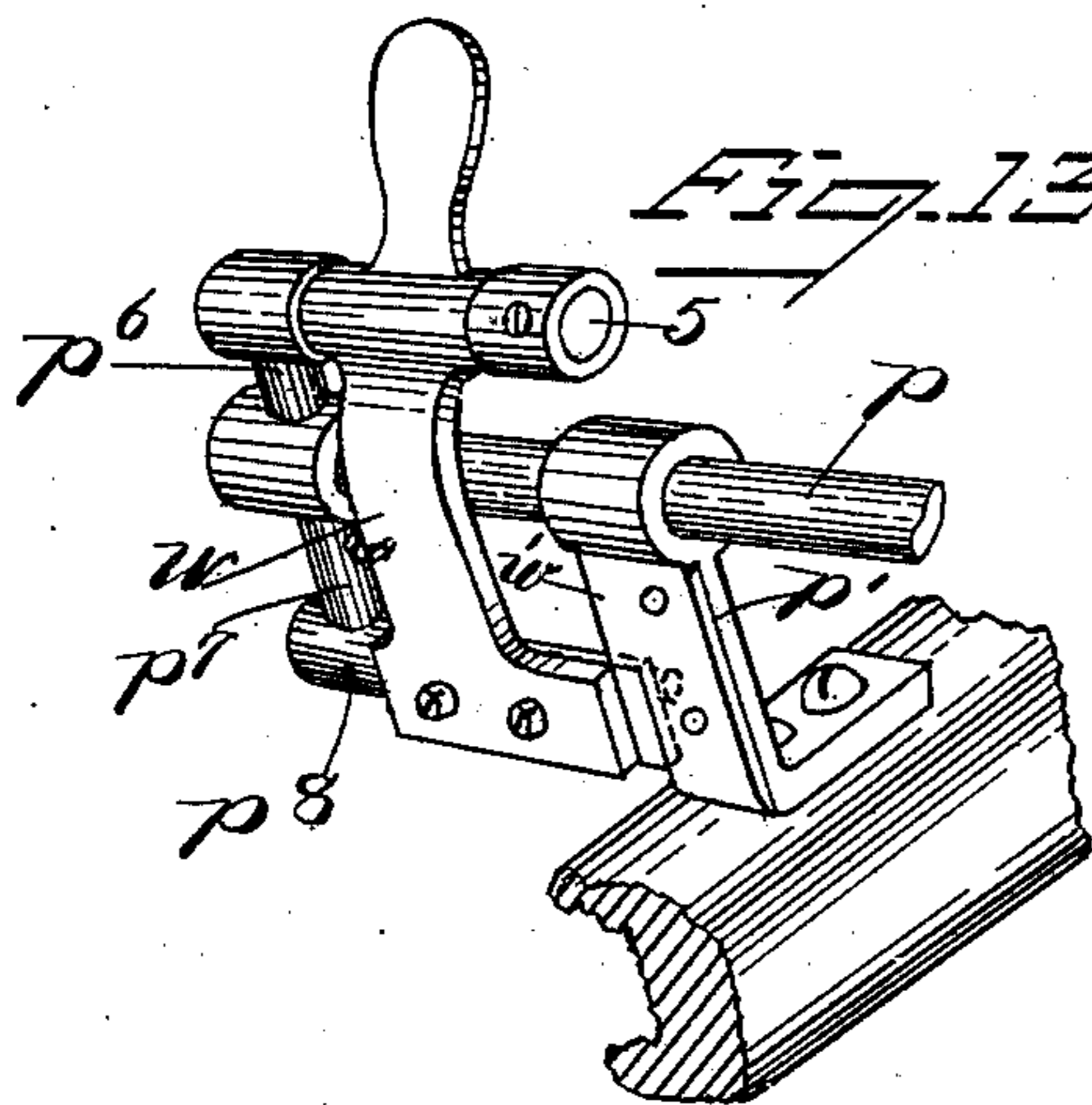
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SOLE TRIMMING AND CHANNELING MACHINE.

(Application filed Feb. 16, 1895. Renewed Apr. 7, 1897.)

No Model.)

4 Sheets—Sheet 4.



WITNESSES.  
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# UNITED STATES PATENT OFFICE.

ZACHARY T. FRENCH AND WILLIAM C. MEYER, OF BOSTON, MASSACHUSETTS.

## SOLE TRIMMING AND CHANNELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 630,339, dated August 8, 1899.

Application filed February 16, 1895. Renewed April 7, 1897. Serial No. 631,164. (No model.)

*To all whom it may concern:*

Be it known that we, ZACHARY T. FRENCH and WILLIAM C. MEYER, of Boston, county of Suffolk, and State of Massachusetts, have  
5 invented an Improvement in Sole Trimming and Channeling Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

In the manufacture of boots and shoes it is sometimes desirable to so cut or shape the sole that along the outside of the ball portion of each shoe the sole projects a greater distance  
15 beyond the upper than around the toe or along the inside of the ball portion, and prior to this invention, so far as we are aware, such soles have always been cut or trimmed by hand and the channel cut by hand or by the  
20 ordinary channeling-machine, wherein the channel-knife is guided by a gage bearing against the edge of the sole.

This invention has for its object to so improve the construction of sole-trimming or  
25 sole trimming and channeling machines that this work may be done mechanically, and as a result the boots or shoes which are trimmed or trimmed and channeled are all alike.

Sole-trimming or trimming and channeling  
30 machines to which our invention is applicable are those wherein the sole is trimmed or trimmed and channeled after it has been secured to and while upon the last, the guide or gage at such time bearing against the upper drawn over the last or entering the in-  
35 seam or crease at the welt side of the sole, and in carrying out our invention the relative positions of the guide or gage and the sole trimming and channeling knives are  
40 changed during the trimming and channeling operation—as, for instance, said parts occupy a certain relative position when trimming and channeling the sole along the inside ball portion and end of the toe, but are caused to  
45 occupy different relative positions when trimming or channeling along the outside ball portion—and by such change in the relative positions of the parts the edge of the sole may be trimmed off so as to project a greater  
50 distance beyond the upper along the outside

ball portion than along the end of the toe and inside ball portion.

Our present invention therefore consists in the combination of a trimming-knife, a guide or gage, and means for automatically vary-  
55 ing the relative positions of said knife and guide during the trimming operation to vary the distance from the last that the shoe shall be trimmed, and means for throwing said automatic means into action during the trimming  
60 operation; also, in the combination, with sole trimming and channeling knives, of a guide at the welt side of the sole, a support therefor, and means for automatically varying the rela-  
65 tive position of said guide and the trimming and channeling knives during the trimming and channeling operation; also, in the combination, with sole trimming and channeling knives, of a guide at the welt side of the sole,  
70 means for automatically varying the relative position of said guide and the trimming and channeling knives during the trimming and channeling operation, and means for throw-  
75 ing said automatic means into action during the trimming and channeling operation.

Herein we have represented our improvements as applied to the sole trimming and channeling machine shown in Letters Patent  
No. 600,883, granted to us March 22, 1898, to  
80 which reference may be had.

Figure 1 shows in side elevation the sole trimming and channeling machine represented in application for Letters Patent Serial No. 530,849, provided with mechanism embody-  
85 ing this invention for varying the relative position of the guide and knives, whereby the outside ball portion of the sole is made to project a greater distance beyond the upper than the remaining portion of the sole; Figs. 2 and 3, views of the right and left soles; Fig. 4, a  
90 detail of a lifting device for the latch or pawl, which engages a notched collar or hub on a sleeve carrying the cam; Fig. 5, a front view of a portion of the machine shown in Fig. 1; Fig. 6, a left-hand side view of the machine  
95 shown in Fig. 1, the base and some of the adjacent parts being broken away; Fig. 7, a detail showing the relative positions of the knife and guide at the junction of the shank and  
100 outside ball portion of the left shoe, together

with the mechanism for varying their relative positions; Fig. 8, a similar detail showing the relative positions of the knife and guide at the forward end of the outside ball portion of a left shoe; Fig. 9, a similar detail showing particularly the reversed position of the latch or pawl which engages the notched collar or hub, the cam being in the position it will occupy when at the forward end of the outside ball portion of a right shoe; Fig. 10, a sectional detail showing the cam and notched collar or hub and rotary reciprocating knife-carrying arm; Figs. 11 and 12, details of the notched collar or hub; Figs. 13, 14, 15, and 16, details of the latch-controlling mechanism to be referred to.

The machine herein shown and to which our invention is applied comprises, essentially, a trimming-knife  $e$ , attached to the lower end of an arm  $e'$ , projecting from a hub  $e^2$ , mounted upon the shaft  $d^3$ , said arm  $e'$  being connected by a link  $e^5$  with an eccentric-strap which embraces an eccentric disk secured to the main shaft  $C$ , so that as the shaft  $C$  rotates the knife will be oscillated toward and from the operator acting upon the bottom of the sole. The machine has also a stationary work-support  $a$ , made tapering at its lower end to enter the inseam or crease at the welt side of the sole, and also intermittent feeding mechanism consisting of a yielding vibrating sole-support  $b^5$ , acting against the bottom of the sole, and a four-motion plate  $d$ , acting against the welt side of the sole. The plate  $d$  also serves as a cutting-block, against which the oscillating knife  $e$  operates, and the sole-support  $b^5$  is constructed and arranged to carry the channeling-knife  $b$ .

The work-support  $a$  serves as a rest against the welt side of the sole while the four-motion feeding-plate  $d$  is moving and also as a guide to enter the inseam or crease; but its function as a crease-guide ceases when trimming and channeling around the fore part, another guide  $f$ , attached to an arm  $f'$ , pivoted at  $f^2$ , being brought into engagement with the shoe during the performance of this part of the work, said guide  $f$  bearing against the upper drawn over the last, and therefore may be termed the "last-guide." The guide-arm  $f'$  is connected by a chain or otherwise with a treadle, so that it may be brought into operative position whenever desired, and whenever brought into operative position the part  $a$  serves only as a work-support.

As before stated, in order to carry out this invention we vary the relative positions of the guide and the trimming and channeling knives, and we have herein selected the last-guide  $f$  as the guide to be moved during the act of trimming and channeling the sole, so as to vary its position relative to the trimming and channeling knives, because as the machine is herein constructed and arranged this is the guide which is brought into operation at that part of the shoe where it is desired to vary the width of the projecting

portion of the sole. In other trimming or trimming and channeling machines wherein but one guide is employed, which acts around both the shank and fore part of the boot or shoe, our improvements, to be described, are made to act upon or work in conjunction with such guide, whether the guide acts in the crease or against the upper drawn over the last.

The guide-arm  $f'$  has an upward extension  $f^{12}$ , bearing a cam-roll  $f^{13}$ , and has also at its upper end a latch  $f^{14}$ , movable obliquely in suitable bearings provided for it. This latch is herein shown as a pin having a beveled lower end and a cross-piece or pin  $f^{15}$  at its upper end, and inside the bearing a spring encircles the pin, the tendency of which is to depress it. The upper end of the extension  $f^{12}$  is shouldered or cut away, as shown in Figs. 1 and 16, so that when the pin  $f^{14}$  is depressed the cross-piece  $f^{15}$  enters said cut-away portion; but when raised or withdrawn and given a quarter-turn the cross-piece  $f^{15}$  will rest upon the upper end of the extension, holding the pin in its elevated position, and when the pin is turned a further quarter of a revolution in either direction the cross-piece  $f^{15}$  again enters the cut-away portion as the pin descends.

The oscillating knife-carrying hub or sleeve  $e^2$  is extended, as at  $e^{10}$ , along the shaft  $d^3$ , (see Fig. 10,) and upon said sleeve-like extension a notched collar or rim  $n$  (see Figs. 10, 11, and 12) is placed, which is herein shown as formed with several lateral projections  $n'$  upon one side and a smooth reduced portion  $n^2$  upon the other side of its notched part. Pieces of leather may be inserted between the projections  $n'$  on the notched collar  $n$  and a clamping-ring  $m$  provided which embraces said projections, and the interposed pieces of leather acting to frictionally bind the notched collar to the oscillating sleeve  $e^{10}$ . Another clamping-ring  $m'$  embraces the smooth portion  $n^2$  of the notched collar, which has formed on it a cam  $m^2$ . The notched part  $n$  of the collar is located beneath the latch  $f^{14}$  and the cam  $m^2$  beneath the cam-roll  $f^{13}$ . The arm  $f'$ , carrying the guide  $f$ , is normally in its elevated position, as represented in Figs. 1 and 6, and when it is brought into operative position to be used as the fore-part or last guide the cam-roll  $f^{13}$  will bear upon the cam  $m^2$ , as represented in Figs. 7 to 9. While the latch  $f^{14}$  remains in its elevated position the notched collar  $n$  is not engaged and the cam-roll  $f^{13}$  will rest idly upon the cam, and the relative position of the guide  $f$  and trimming and channeling knives will remain the same; but as soon as the latch is operated its lower beveled end enters the notches cut in the part  $n$ , as shown in Fig. 7, and as the sleeve  $e^{10}$  oscillates the cam is intermittently rotated until the stop  $m^3$  is brought up against the cam-roll, as represented in Fig. 8. During the travel or progress of the cam  $m^2$  the guide  $f$  is automatic-

ally gradually raised relatively to the trimming and channeling knives, so that the projecting edge of the sole is gradually narrowed. The shoe thus introduced and referred to is a left shoe, and the edge of the sole along the outside of the ball portion is thus trimmed off and left wider than around the toe and inside ball portion.

When trimming and channeling the "right" shoe, the work is begun at the right-hand side, as in the left shoe, and while the latch  $f^{14}$  remains in its elevated position the cam-roll  $f^{13}$  rests idly upon the cam  $m^2$  at its highest part, (see Fig. 9;) but just after passing around the toe the latch  $f^{14}$  is turned in the opposite way to that previously described, entering the notched collar with its beveled end turned in the opposite way, so that as the sleeve  $e^{10}$  continues to oscillate the cam is intermittingly moved in the opposite way, the cam-roll following along the gradually-reduced portion of the cam, and the guide  $f$  automatically gradually lowering relatively to the trimming and channeling knives along the outside of the ball portion of the shoe until the stop  $m^3$  is brought up against the cam-roll and the edge of the sole will at such time project widest from the upper. At the beginning of the shank portion this fore-part or last guide is removed from its engagement with the shoe and the trimming and channeling operation continued, the shoe being guided by the work-support or crease-guide  $a$ . Thus the intermittent motion of the cam  $m^2$  is reversed for right and left shoes, so that by employing a single cam both shoes may be trimmed or trimmed and channeled in the peculiar style desired, leaving the wider projecting edge of the sole along the outside of the ball portion in each shoe.

As a simple and efficient means of operating the latch  $f^{14}$  we may employ the following mechanism, (see Figs. 1, 4, 5, 6, and 13 to 16:) A rod  $p$  is arranged horizontally in bearings  $p'$ , secured to the framework, and to said rod is affixed a finger  $p^2$ , the upper side or face of which is beveled in opposite ways, and this finger projects toward the latch, but located beneath the cross piece or pin  $f^{15}$  when the latch is in its elevated position, and is arranged to act upon said pin  $f^{15}$ , as will be described. The rod  $p$  is movable longitudinally in its bearings in order that the finger  $p^2$  may occupy a position with one or the other beveled face directly beneath the pin  $f^{15}$  on the latch  $f^{14}$ , and said rod is also free to be turned or rocked that the finger  $p^2$  may be lifted to permit the return of the pin. A detent  $w$  is pivoted to a stud 5, projecting from a part  $p^6$  on the rod  $p$ , but connected and movable longitudinally with said rod, said detent engaging a cut-away plate  $w'$  on the frame when the rod is in its extreme left-hand position, a spring  $w^2$  being connected to said detent to draw it in. A spring  $w^3$  encircles the rod  $p$  and is connected at one end to the frame and at the other end to the finger  $p^2$ , or it may be

the rod, the action of which is to move the rod and its attached finger  $p^2$  toward the right whenever the detent  $w$  disengages the plate  $w'$ . An arm  $w^4$  is secured to the shaft of the guide-arm  $f'$ , which has a spring-pressed latch  $w^5$  at its upper end, which as the guide-arm is depressed strikes and disengages the detent  $w$  to thereby allow the rod  $p$  to move toward the right. The rod  $p$  and its attached parts are afterward moved toward the left or restored to their normal position by the operator pressing upon the knob  $w^{15}$ .

Assuming the parts are in the position shown in Figs. 5, 13, and 15 and the operator desires to vary the width of the sole, he depresses the arm  $f'$  by means of a treadle connected thereto, and in doing so the pin  $f^{15}$  strikes the right beveled face of the finger  $p^2$ , and moving along said face is lifted and also turned substantially a quarter of a revolution, as shown in Fig. 16, and the latch  $w^5$  then strikes the detent  $w$ , disengaging it from the plate  $w'$ , and the spring-pressed rod  $p$  thus released is moved toward the right, carrying with it the finger  $p^2$ , which is fixed to it, and the latter during its passage strikes the pin  $f^{15}$  and turns it farther to the right, so that it will fall into the cut-away portion, and at such time the latch  $f^{14}$  is thrown into engagement with the notched collar. The guide-actuating cam is then intermittingly turned. It will be seen that the latch  $f^{14}$  is thus automatically turned one way by the act of depressing the guide-arm. The guide-arm is then elevated upon releasing the treadle, returning to the position shown in Fig. 1, the finger  $p^2$  rising to allow the passage of the pin  $f^{15}$ . When operating on the next shoe of the pair, the guide-arm is again depressed at the desired time and the pin  $f^{15}$  turned a quarter of a revolution by striking and moving along upon the left beveled face of the finger  $p^2$ , and then the rod  $p$  is pushed toward the left by the operator striking upon the knob  $w^{15}$ , and during such movement the finger  $p^2$  bearing against the pin moves it sufficiently for the latch  $f^{14}$  to again drop into engagement with the notched collar and the detent  $w$  will at such time be moved into engagement with the cut-away plate  $w'$ . Thus it will be seen that the latch  $f^{14}$  is reversed each time it is depressed or caused to engage the notched collar. We do not desire, however, to limit our invention to this means of operating the latch  $f^{14}$ .

It will be observed that a cam constructed and arranged to be reversed, as herein described, acts both to raise and lower the guide with relation to the knife; but we intend to include within the spirit and scope of our invention any equivalent device or devices by which the guide and knives may be moved one with relation to the other while trimming or trimming and channeling a sole, that the width of the projecting edge of the sole may be varied, and particularly any device or devices acting upon or in conjunc-

tion with the guide to raise or lower it with relation to the knives to accomplish the results specified. The rod  $p$  is capable of being turned in its bearings and has secured to 5 and projecting from it two short arms  $p^6 p^7$ , the arm  $p^6$  bearing the pin 5 and the arm  $p^7$  bearing a pin  $p^8$ , and when the rod  $p$  is in proper position for the finger  $p^2$  to cooperate with the latch  $f^{14}$  the pin  $p^8$  bears against the support 10  $p'$ ; but whenever desired the rod  $p$  may be oscillated, the finger  $p^2$  moved out of cooperative relation with the latch  $f^{14}$ , and at such time the pin 5 will bear against the support  $p'$ . Whenever it is desired to use the machine 15 without the cam or its equivalent device, whereby the width of the projecting edge of the sole may be varied along the fore part and yet so trim the sole that it will project a greater distance beyond the last or in seam 20 around the fore part than along the shank portion, the bevel-faced finger will be moved its full distance toward the right, and then the first time the last-guide is depressed the pin on the latch  $f^{14}$  will strike the left 25 beveled face of the finger and be thereby turned a quarter of a revolution, at such time resting upon the upper end of the bearing or frame, and it will remain in such position until the rod  $p$  is positively moved by the operator striking the knob on the end of the 30 rod, and hence whenever it is so desired to use the machine the operator permits the latch to continuously remain in this position.

The last-guide  $f$  is or may be made adjustable—as, for instance, it may be connected 35 to the arm  $f'$  by a set-screw passing through a slot cut in the part  $f$ , so that said part  $f$  may be raised or lowered, as desired, in order that the width of the projecting edge of the 40 sole around the fore part may be more or less, as desired, although in such case such width is the same all around the fore part, yet greater than along the shank portion, and this adjustability of the last-guide also forms a part 45 of our present invention.

The machine herein shown contains trimming and channeling knives and feeding mechanism for the work and a guiding device for the work movable freely toward and 50 from the trimming and channeling knives during the trimming and channeling operation to vary the position of the boot or shoe with relation to said knives, and thereby vary the width of the projecting edge of the sole; 55 but such feature is not herein claimed, as it forms the subject-matter of our application Serial No. 572,258.

We claim—

1. In a machine for trimming the soles of 60 lasted boots and shoes while upon the last, the combination of feeding mechanism, a trimming-knife, a guide against which the work is pressed, and automatic means for automatically varying the relative positions of 65 said knife and guide during the trimming operation, to vary the distance from the last that the sole shall be trimmed, and means for

throwing said automatic means into action during the trimming operation, substantially as described. 70

2. In a sole-trimming machine, a trimming-knife, a guide, support therefor, and a reversible cam for automatically varying the relative positions of the guide and trimming-knife during the trimming operation. 75

3. In a sole-trimming machine, a trimming-knife, a guide, a guide-support, and a guide-actuating cam for automatically moving the guide relatively to the knife during the trimming operation. 80

4. In a sole-trimming machine, a trimming-knife, a guide, support therefor, and an intermittently-operated cam for automatically varying the relative positions of the guide and trimming-knife during the trimming operation. 85

5. In a sole-trimming machine, a trimming-knife, a guide, support therefor, and an intermittently-operated reversible cam for automatically varying the relative positions of 90 the guide and trimming-knife during the trimming operation.

6. In a sole-trimming machine, a trimming-knife, the work-support and guide  $a$ , the guide  $f$ , movable into and out of operative position, 95 and mechanism for automatically varying the relative positions of said guide  $f$  and knife during the trimming operation.

7. In a sole-trimming machine, a trimming-knife, the guide  $f$ , its support, and guide-actuating cam  $m^2$ , for automatically moving the guide  $f$  relatively to the trimming-knife, and means for throwing said cam into action during the trimming operation. 100

8. In a sole-trimming machine, the guide, 105 its support, and reversible guide-actuating cam  $m^2$ .

9. In a sole trimming and channeling machine, sole trimming and channeling knives, a guide at the welt side of the sole, support 110 therefor, and automatic means, for automatically varying the relative positions of the guide and the trimming and channeling knives, during the trimming and channeling operation. 115

10. In a sole trimming and channeling machine, a trimming-knife, a channeling-knife, a guide at the welt side of the sole, support 120 therefor, and a reversible guide-actuating cam acting to vary the relative positions of the guide and trimming and channeling knives during the trimming and channeling operation.

11. In a sole-trimming machine, a trimming-knife and guide, support therefor, and 125 means for automatically varying their relative positions, consisting of the reversible guide-actuating cam  $m^2$ , latch  $f^{14}$ , bevel-faced finger  $p^2$ , and longitudinally-movable rod  $p$ .

12. In a sole-trimming machine, a knife and 130 guide, support therefor, a reversible guide-actuating cam acting automatically to vary the relative positions of the guide and knife, means for rotating said cam intermittently,

thrown into action automatically when turning the cam one way, and manually when turning it the other, substantially as described.

5 13. In a sole-trimming machine, a knife and guide, support therefor, a reversible guide-actuating cam acting to vary the relative positions of the guide and knife, notched collar  $n$ , latch  $f^{14}$ , and means for reversing said  
10 latch each time it is thrown into engagement with the notched collar, substantially as described.

14. In a sole-trimming machine, a trimming-knife, a guide, means for moving one  
15 of said parts toward the other during the trimming operation to increase the distance from the last that the sole shall be trimmed, and automatic means for separating said parts while the knife is trimming the sole, to  
20 gradually diminish the distance from the last that the sole shall be trimmed, substantially as described.

15. In a sole-trimming machine, a trimming-knife, a guide, and automatic means for  
25 moving one of said parts toward the other while the knife is trimming the sole to gradually increase the distance from the last that the sole shall be trimmed, and means for separating said parts during the trimming operation to diminish the distance from the last  
30 that the sole shall be trimmed, substantially as described.

16. In a sole-trimming machine, a trimming-knife, a guide, means for moving said  
35 guide toward the trimming-knife during the trimming operation to increase the distance from the last that the sole shall be trimmed, and automatic means for moving said guide in the opposite direction to gradually diminish the distance from the last that the sole  
40 shall be trimmed, substantially as described.

17. In a sole-trimming machine, a trimming-knife, a guide, automatic means for moving said guide toward said trimming-knife  
45 while the knife is trimming the sole to gradually increase the distance from the last that the sole shall be trimmed, and means for moving said guide in the opposite direction during the trimming operation, to diminish the  
50 distance from the last that the sole shall be trimmed, substantially as described.

18. In a sole trimming and channeling machine, trimming and channeling knives, a  
55 guide, means for moving said guide toward said knives during the trimming and channeling operation to increase the distance from the last that the sole shall be trimmed, and automatic means for moving said guide in the opposite direction while the knives are trimming and channeling the sole to gradually diminish the distance from the last that the sole  
60 shall be trimmed, substantially as described.

19. In a sole trimming and channeling machine, trimming and channeling knives, a  
65 guide, automatic means for moving said guide toward said knives during the trimming and channeling operation to gradually increase

the distance from the last that the sole shall be trimmed, and means for moving said guide in the opposite direction during the trimming  
70 and channeling operation to diminish the distance from the last that the sole shall be trimmed, substantially as described.

20. In a sole-trimming machine, a knife and guide, and movable support therefor, the  
75 guide-actuating cam  $m^2$  and latch, the finger  $p^2$ , and the rotatable rod  $p$ , having stops to hold it in one or its other position.

21. In a sole-trimming machine, a trimming-knife, a guide, support therefor, and  
80 means, as a treadle, connected with the guide, for moving it into and out of operative position, and a guide-actuating cam for automatically moving the guide relatively to the knife, while held in its operative position, substantially  
85 as described.

22. In a sole-trimming machine, a trimming-knife, a guide, support therefor, and  
90 means, as a treadle, connected with the guide, for moving it into and out of operative position, and automatic means, for automatically varying the relative positions of the knife and guide during the trimming operation, substantially as described.

23. In a sole-trimming machine, a trimming-knife, a guide, support therefor, and  
95 means, as a treadle connected with the guide, for moving it into and out of operative position, and a reversible cam, for automatically varying the relative positions of the guide  
100 and trimming-knife during the trimming operation, substantially as described.

24. In a sole-trimming machine, a trimming-knife, a guide, a support therefor, and  
105 means, as a treadle, connected with said guide for moving it into and out of engagement with the shoe, and when in such engagement for moving it toward the trimming-knife, and automatic means for thereafter moving said  
110 guides in the opposite direction while still in engagement with the shoe, substantially as described.

25. In a sole-trimming machine, a trimming-knife, a guide, a support therefor, and  
115 means, as a treadle, connected with said guide for moving it into and out of engagement with the shoe, and automatic means for moving said guide toward the trimming-knife when brought into such engagement by the treadle,  
120 substantially as described.

26. In a sole trimming and channeling machine, sole trimming and channeling knives, a guide at the welt side of the sole, automatic  
125 means for automatically varying the relative positions of the guide and the trimming and channeling knives during the trimming and channeling operation, and means for throwing said automatic means into action during said trimming and channeling operation, substantially as described.  
130

27. The combination of a channeling-knife, crease-guide  $a$ , last-guide  $f$ , movable into and out of operative position, and mechanism for automatically varying the relative positions

of the last-guide and channeling-knife during the channeling operation and means for throwing said automatic mechanism into action during the operation of the machine, substantially as described.

28. In a channeling-machine, the combination of a work-holder, a feed mechanism, a channeling-knife, a work-guide and means for automatically moving the guide during the operation of the machine to cause the knife to cut at a constantly-varying position

from the edge of the sole, and means for throwing said automatic means into action during the operation of the machine.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ZACHARY T. FRENCH.  
WILLIAM C. MEYER.

Witnesses:

BERNICE J. NOYES,  
FLORENCE H. DAVIS.