

No. 897,263.

PATENTED SEPT. 1, 1908.

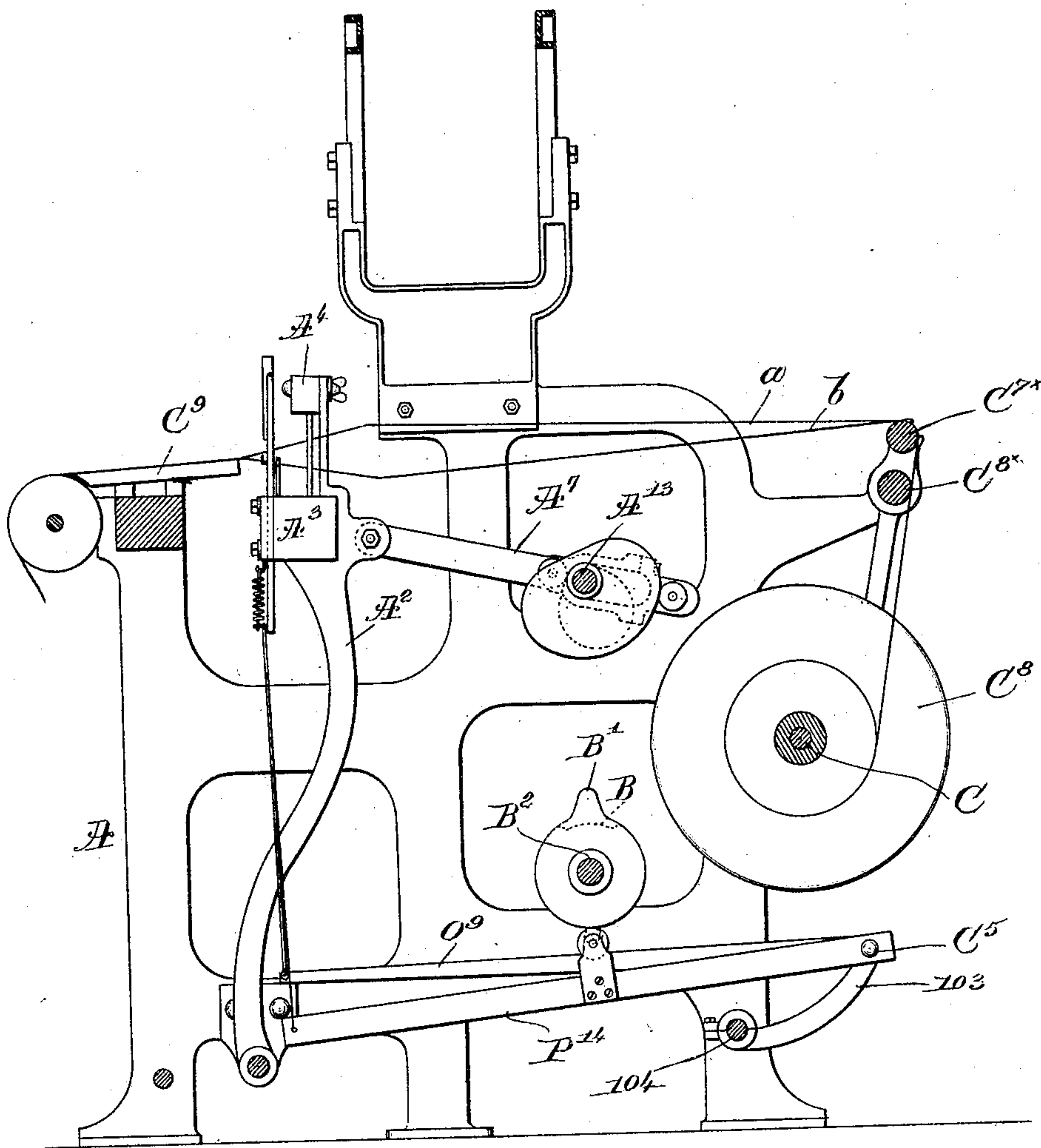
F. E. ARROUQUIER.

SELVAGE FORMING MECHANISM FOR SHORT WEFT LOOMS.

APPLICATION FILED OCT. 2, 1903.

4 SHEETS—SHEET 1.

*Fig. 1.*



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4 SHEETS—SHEET 2.

Fig. 2.

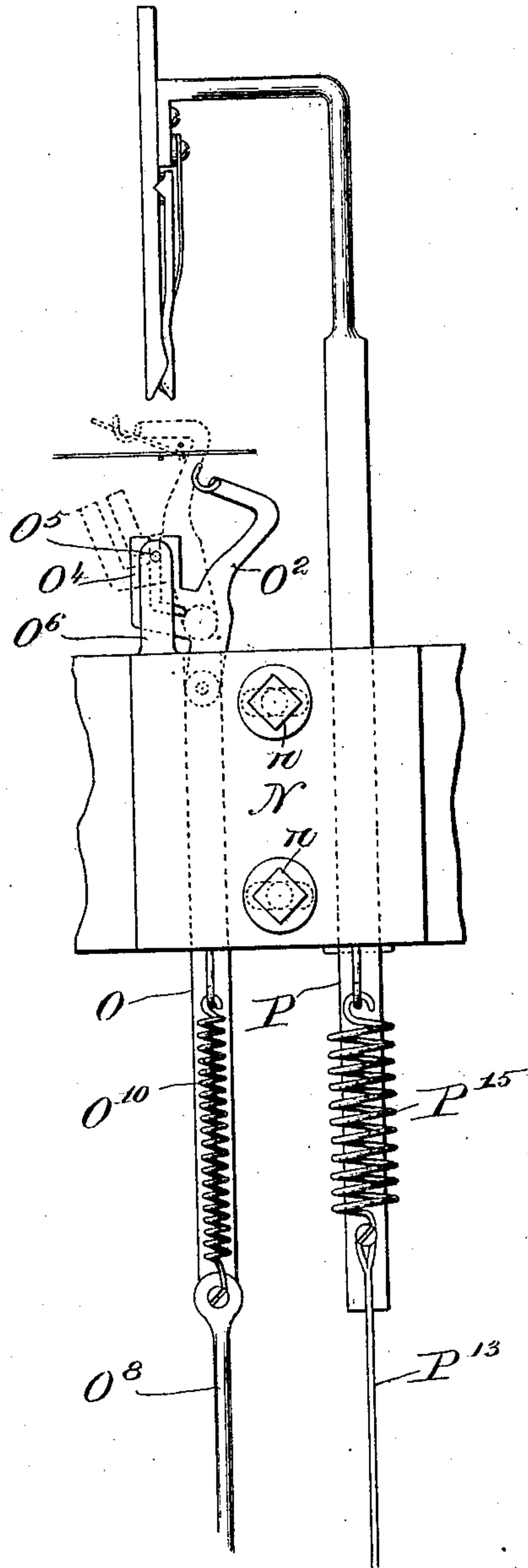
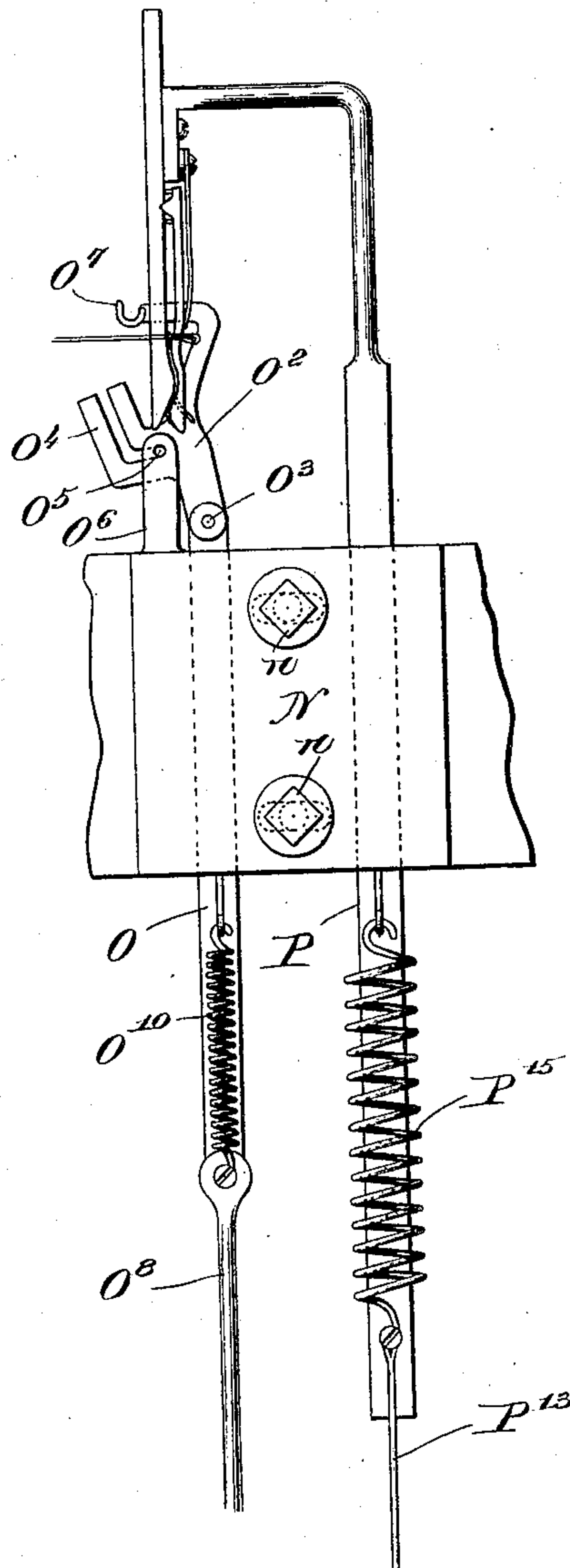


Fig. 3.



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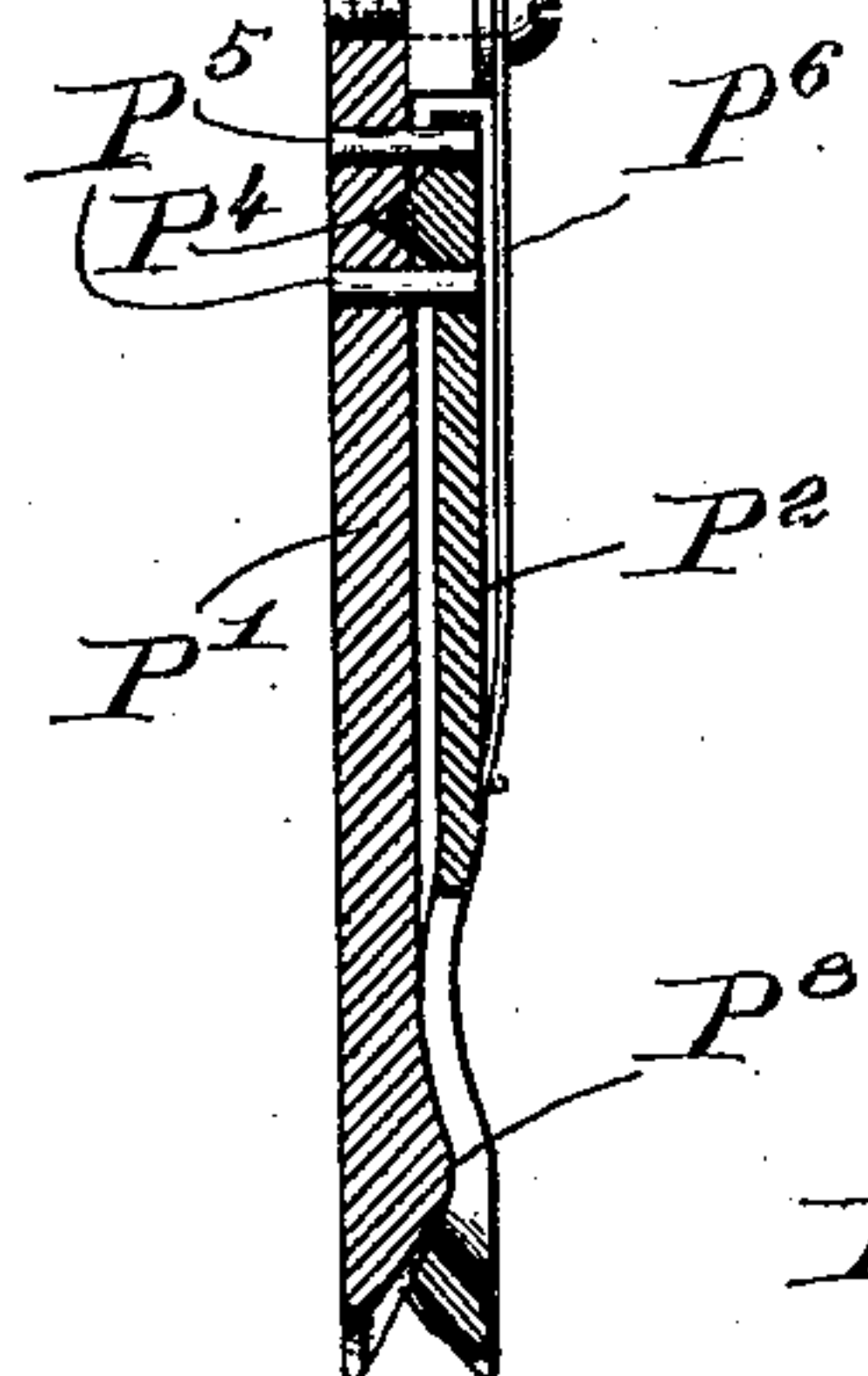
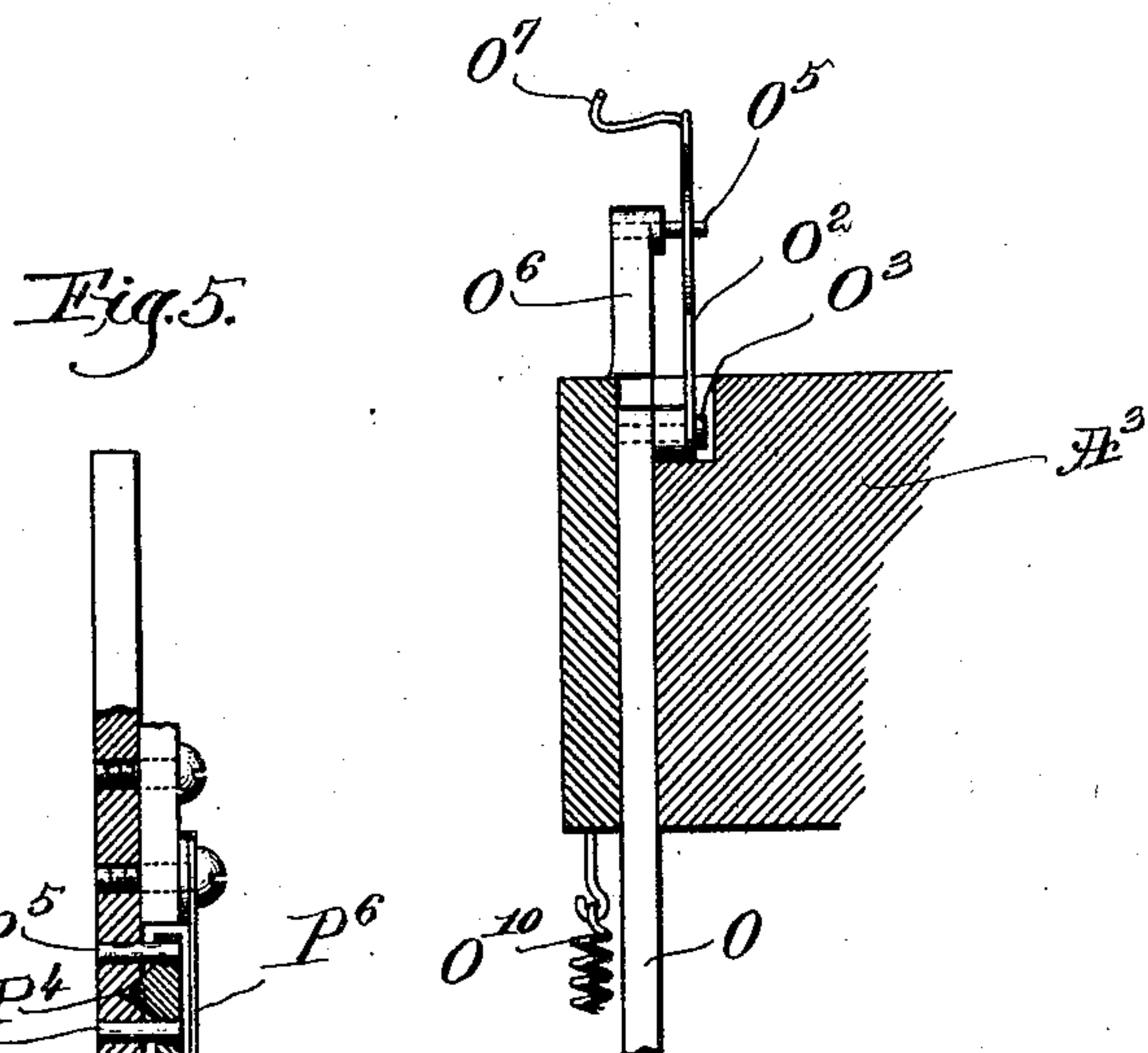
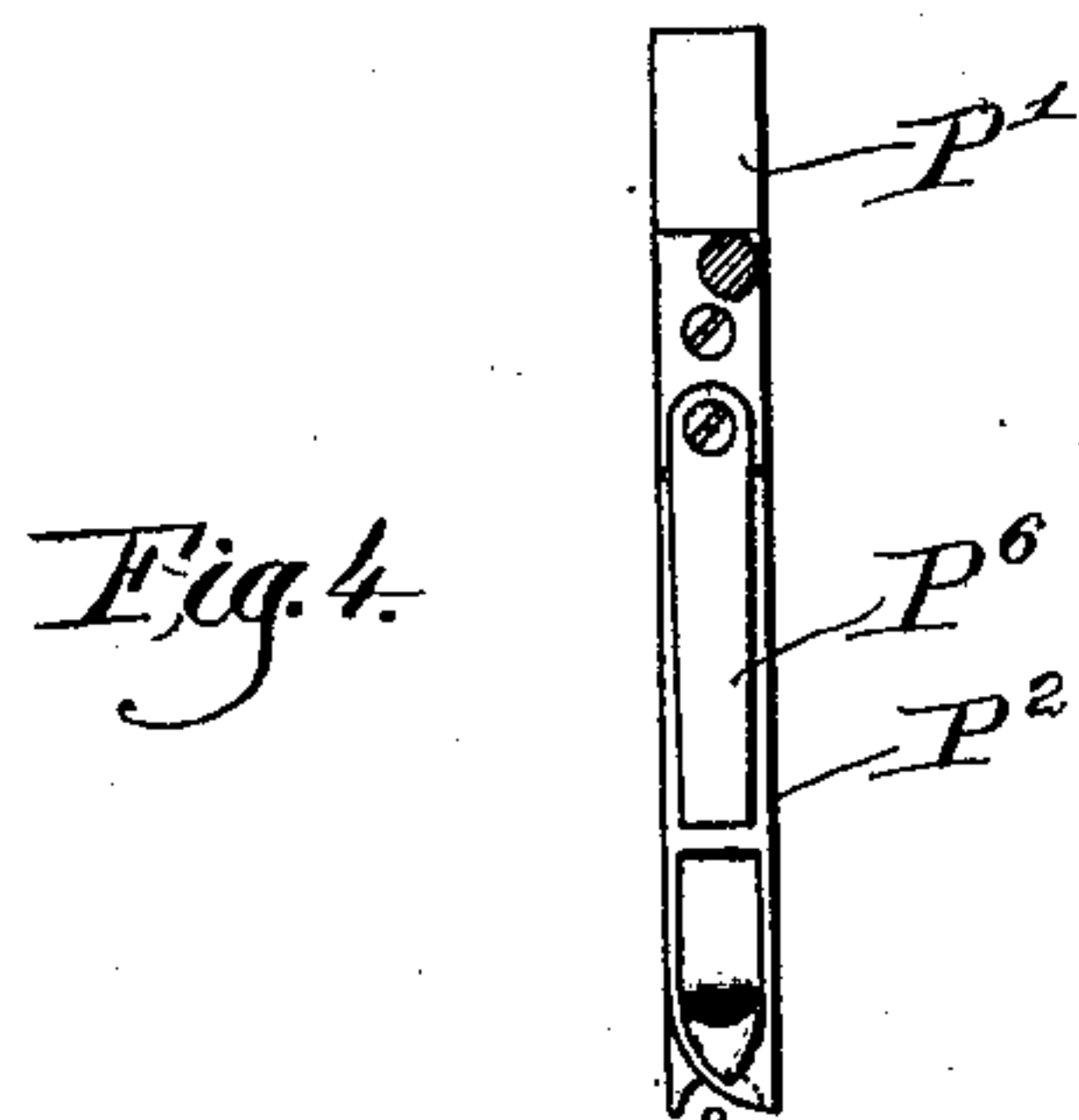
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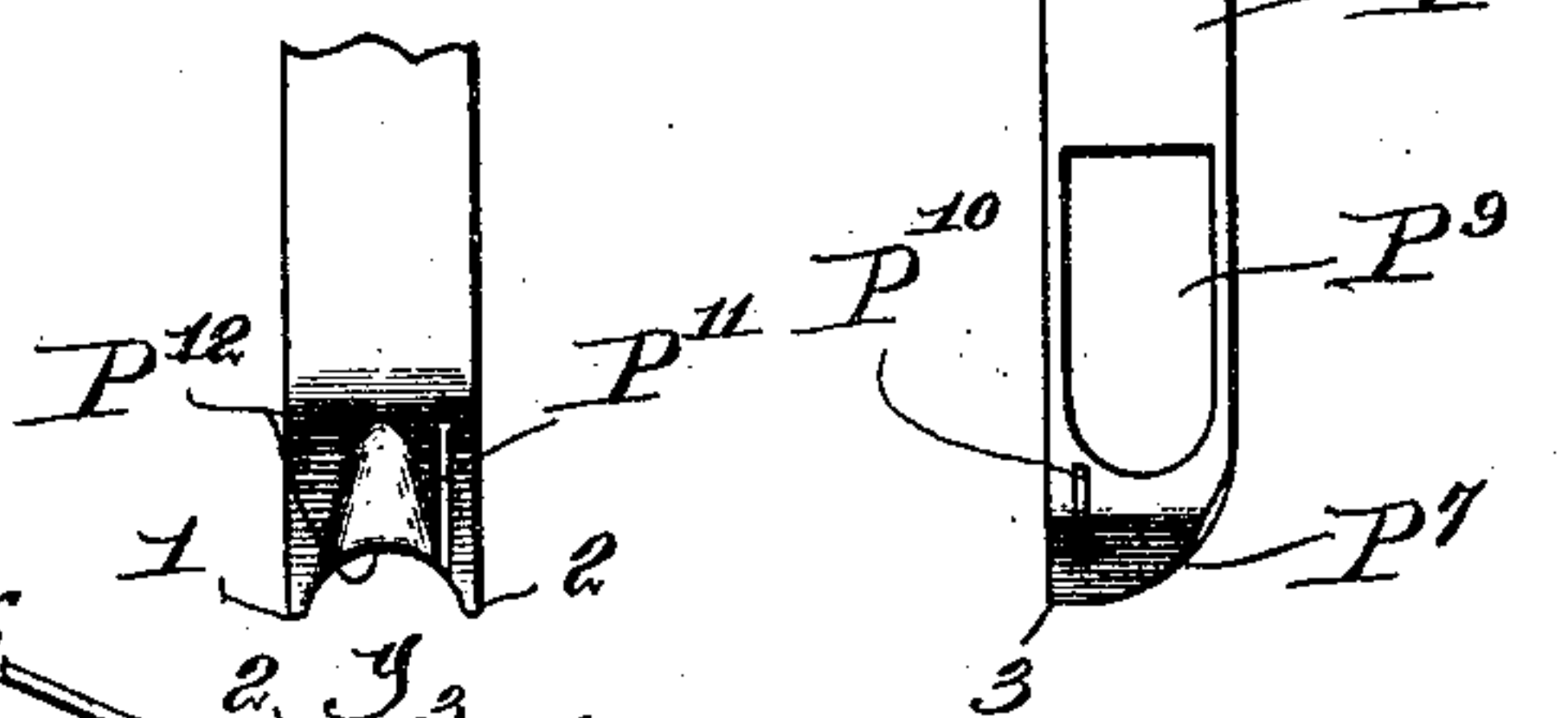
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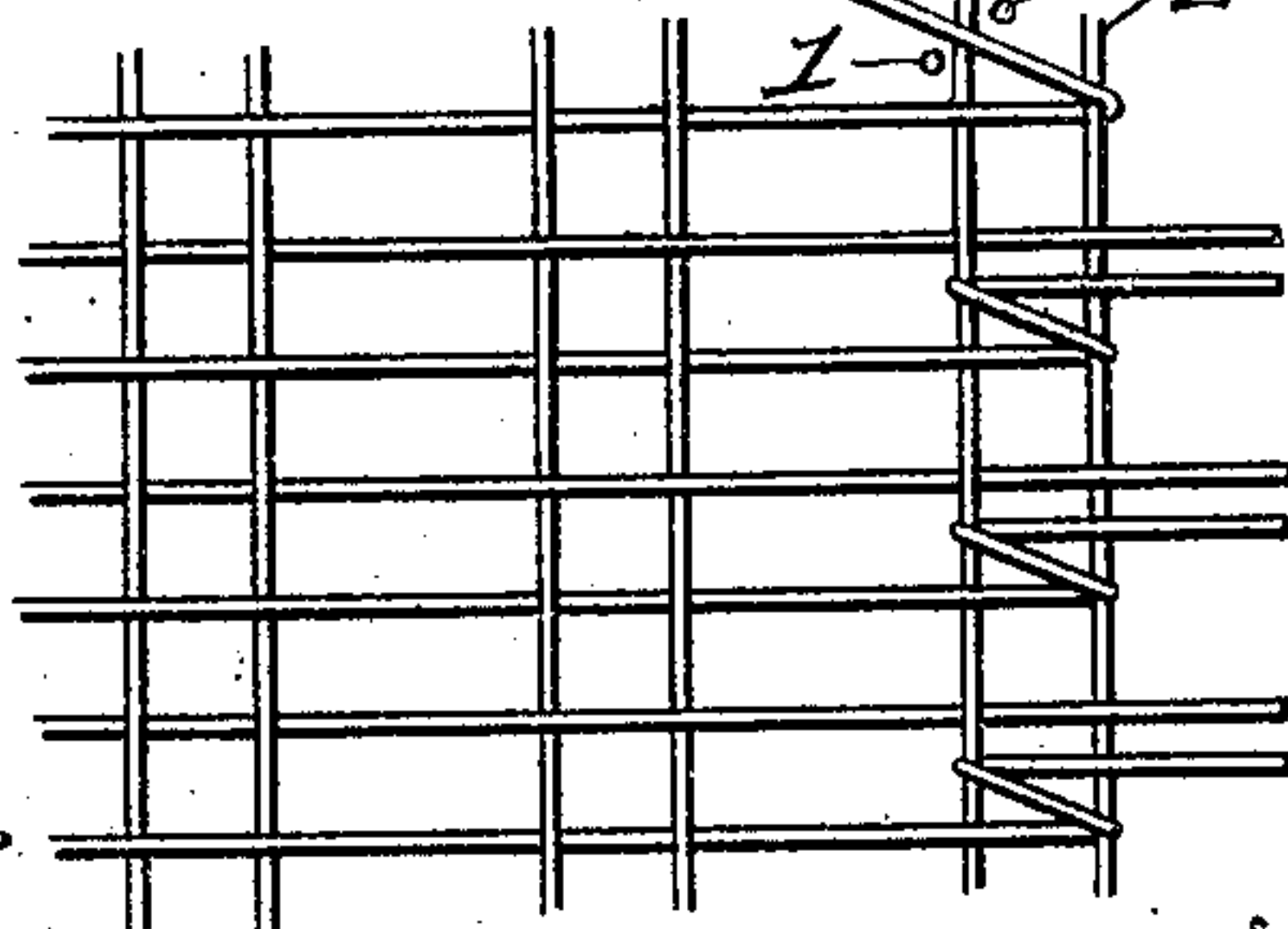
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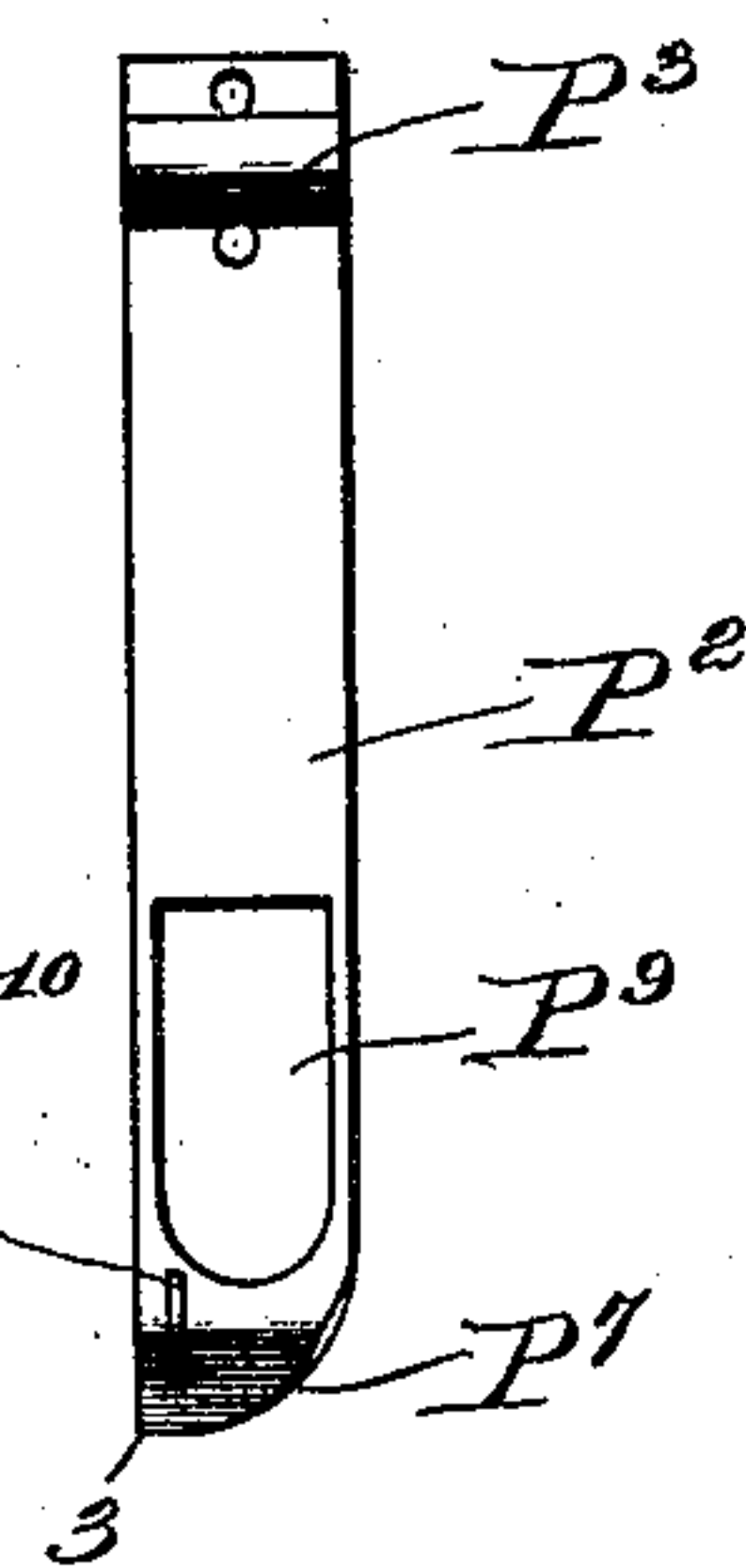
*Fig. 6.*



*Fig. 8.*



*Fig. 7.*



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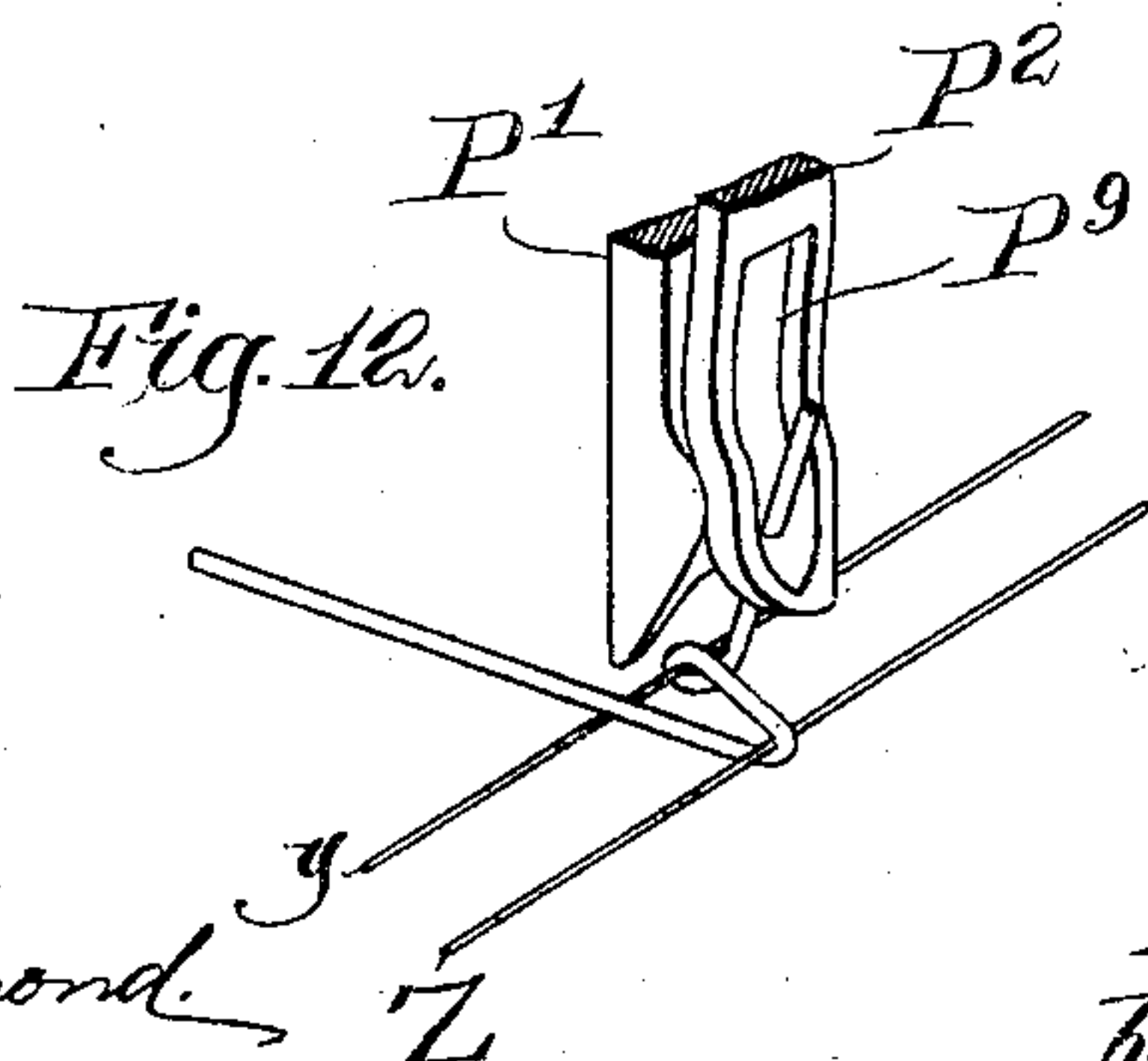
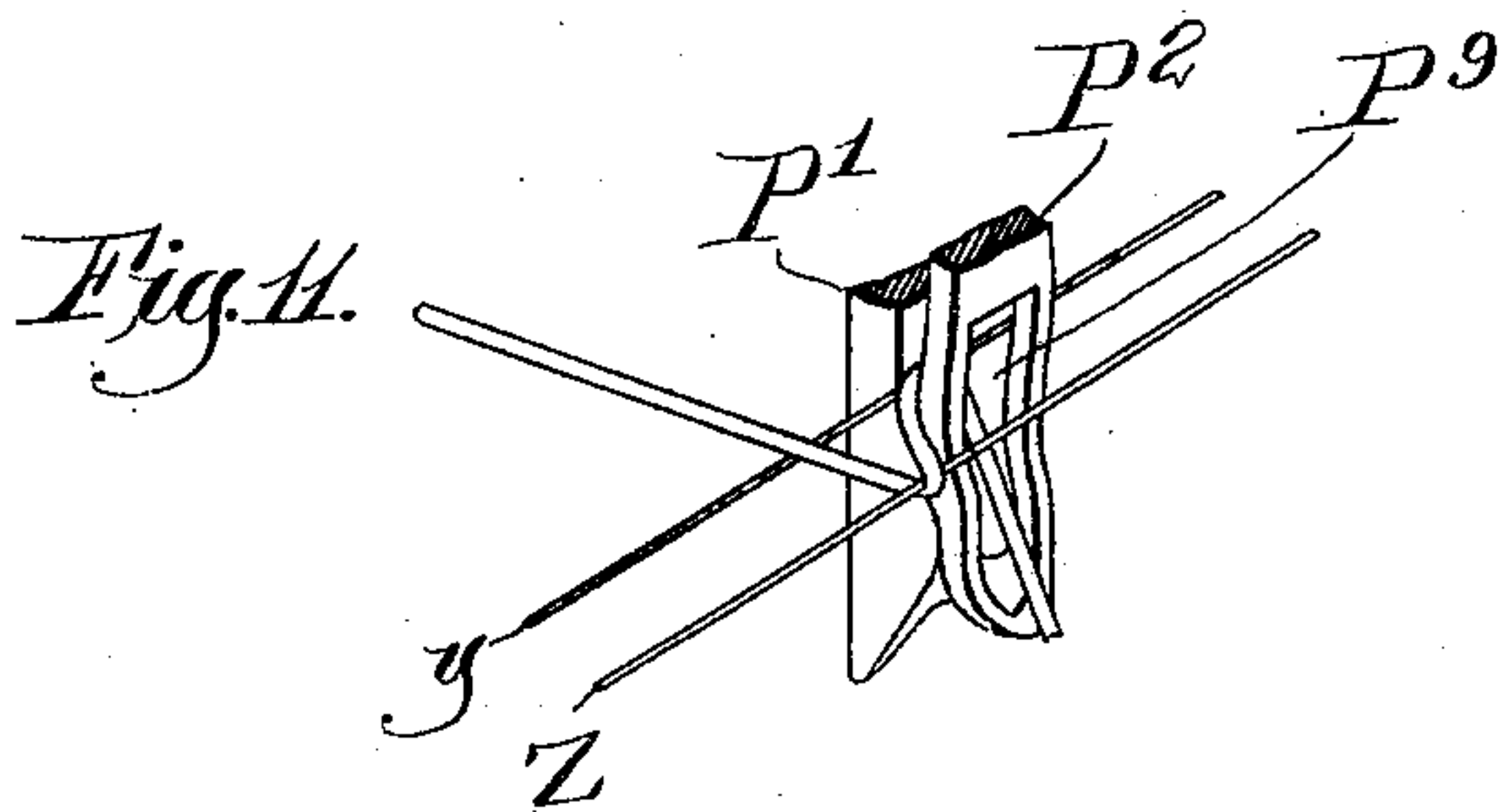
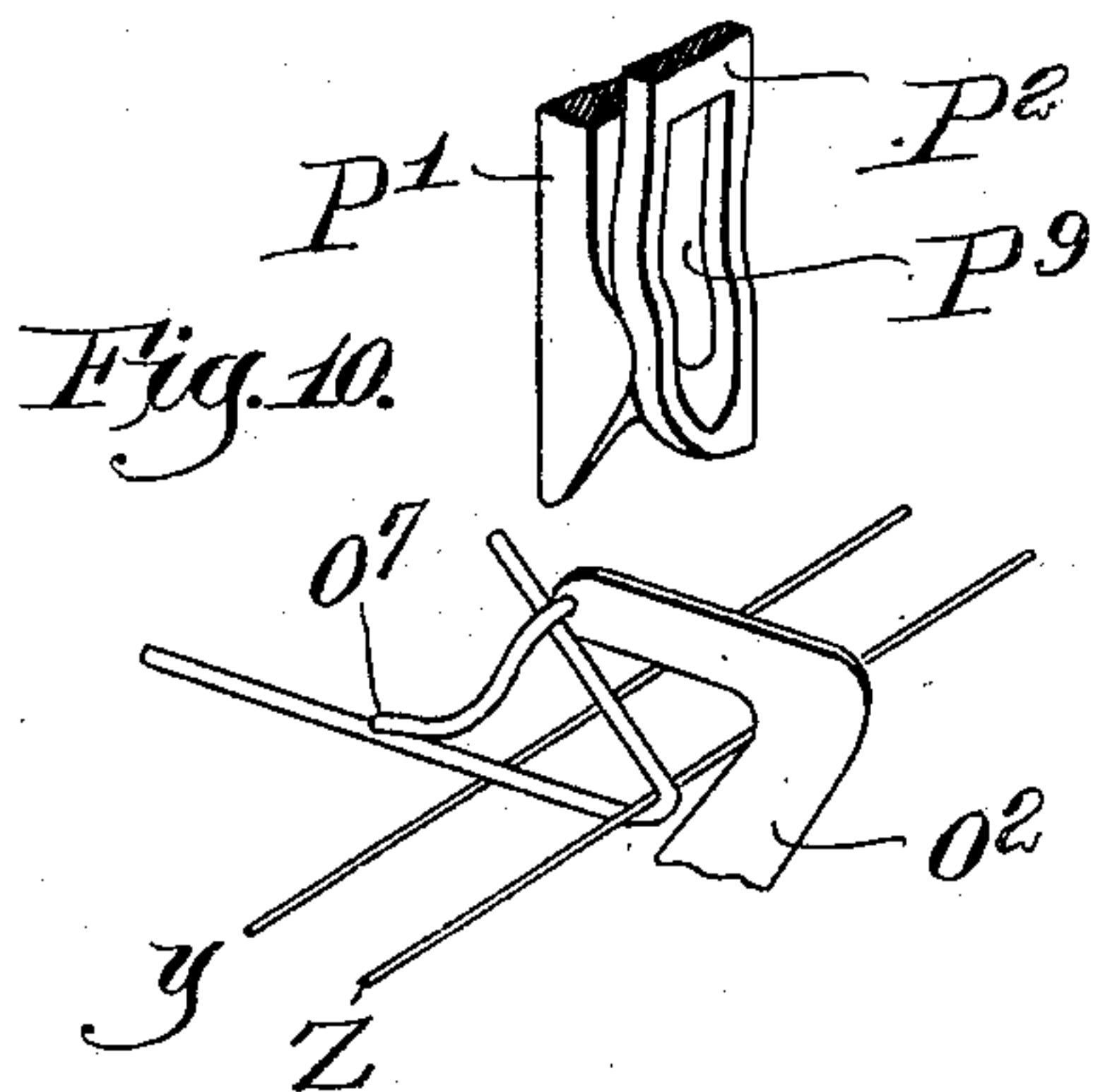
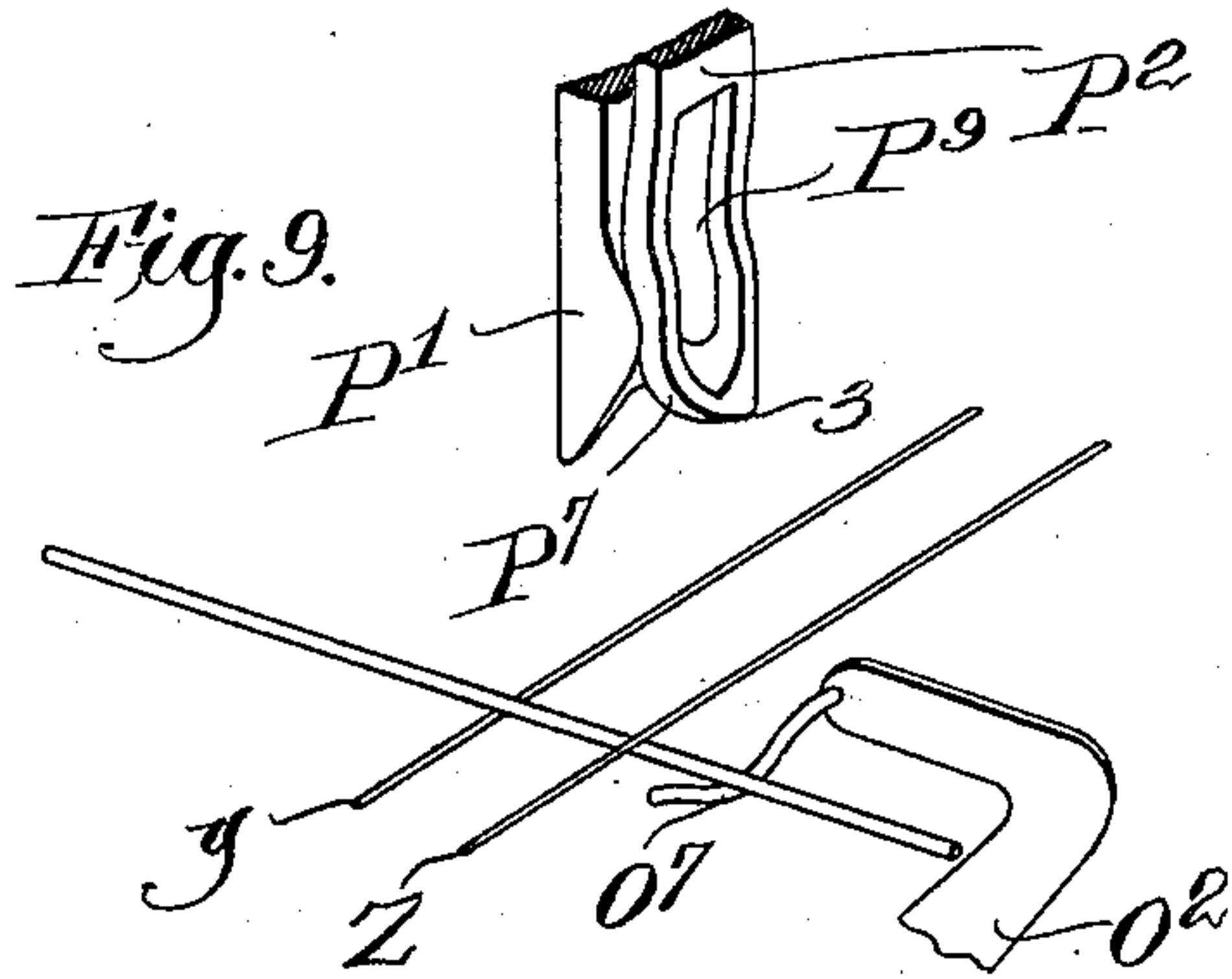
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SELVAGE FORMING MECHANISM FOR SHORT WEFT LOOMS.

APPLICATION FILED OCT. 2, 1903.

4 SHEETS—SHEET 4.



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# UNITED STATES PATENT OFFICE.

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## SELVAGE-FORMING MECHANISM FOR SHORT-WEFT LOOMS.

No. 897,263.

Specification of Letters Patent.

Patented Sept. 1, 1908.

Application filed October 2, 1903. Serial No. 175,417.

*To all whom it may concern:*

Be it known that I, FREDRICK E. ARROUQUIER, a citizen of the United States, residing at Westbrook, county of Cumberland, State of Maine, have invented an Improvement in Selvage-Forming Mechanism for Short-Weft Looms, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to mechanism for forming what is known as the figure 8 selvage in looms for weaving fabrics wherein the weft is inserted in separate weft lengths, as for example, in the formation of straw matting. While a selvage of this character has hitherto been formed by hand I believe I am the first to provide a mechanism for forming such a selvage automatically or by machinery.

I have illustrated only such portions of a loom as are immediately connected with the selvage mechanism. This selvage mechanism is adapted for use in connection with any form of loom which feeds the weft in separate weft lengths. I do not desire, therefore, to be limited to the particular construction of loom.

In the drawings, Figure 1 represents a side elevation of a portion of a loom side and parts connected therewith; Fig. 2 is a front elevation of a portion of the lay of a loom and those parts directly concerned in the formation of the selvage; Fig. 3 is a view similar to Fig. 2 showing the parts in a different position; Fig. 4 is a side elevation, partly in cross-section, of the parts shown in Figs. 2 and 3; Fig. 5 is a side elevation, partly in cross-section, of the tying plunger; Figs. 6 and 7 are detail views of portions of the tying plunger; Fig. 8 illustrates somewhat diagrammatically the selvage formed by means of this invention. Figs. 9-12 inclusive are views illustrating different successive positions taken by the tying plunger and end turner in the manipulation of a weft end in the formation of the selvage.

I have shown my invention as applied to a loom such as illustrated and described in my application Serial No. 176,075, filed October 7, 1903, and for any further details of construction reference may be made to said application.

Referring to Fig. 1, A represents one loom side in which are mounted the end of the shaft C carrying the warp beam C<sup>8</sup>, and the

ends of the whip-roll C<sup>7x</sup>, and its pivot rod C<sup>8x</sup>, over which the warps pass as shown at a, b, to the breast-beam C<sup>9</sup>, the end of the cam shaft A<sup>13</sup> which by means of the cams shown and the pitman A<sup>7</sup> gives the proper movement to the lay-sword A<sup>2</sup> carrying the lay A<sup>3</sup> and the reed A<sup>4</sup>, the end of the cam shaft B<sup>2</sup> carrying the cams B, B', for giving movement to the mechanism of this invention, and the end of the tie-rod 104 carrying a bracket 103 upon which are pivoted levers operated by the cams B, B', hereinafter described.

The mechanism for forming the shed is not illustrated and may be of any usual form. In Fig. 1 the shed is shown by means of the warps a, b, as open.

In looms of this character the weft lengths are usually fed alternately from opposite sides of the looms, and but one end of each weft length is turned over or interlocked with the warps in some way to form the selvage. For this reason I have shown my invention as applied to both sides of the looms, but since its construction is the same on both sides it will be necessary to describe but one.

It is of course understood that by timing the operation of the selvage mechanism it may operate upon the end of every other straw or any other desired repetition, but I have found that the best results are obtained by forming the figure 8 on alternate straws at each side of the loom, as shown in Fig. 8 of the drawing.

While I have herein shown the mechanism for forming the selvage as mounted upon the lay and acting downwardly from above the surface of the matting being woven, it is to be understood that this position can be reversed so as to have the mechanism act upwardly from below. This mechanism or a portion of it might also be mounted upon some other portion of the loom so long as its position with respect to the warp and the weft at the time of the descent of the tying plunger is as indicated herein.

The mechanism for forming the selvage consists of two parts each having distinct operations to perform. The first of these I have termed the end turner. The object of this portion of the mechanism is to turn back the end of the weft and retain it in position for engagement by the second portion of the mechanism which I have termed the



tying plunger. The tying plunger then manipulates the turned-over weft end so as to carry it around the warp and out between the warp and the selvage cord so as to form the figure 8.

I have illustrated both portions of the selvage mechanism as mounted in the front portion of the lay A<sup>3</sup>, the operating rods O and P being mounted in grooves in the lay and retained therein by a plate N, N, fastened to the lay by bolts or other fastening devices *n*.

I refer first to the operation of the end turner. The function of this device is to turn the end of the weft around the selvage cord and back into the position shown at *x*, in Figs. 8 and 10. The end turner O<sup>2</sup> is shown as pivoted to its operating rod O at O<sup>3</sup>, and provided with a cam-slotted arm O<sup>4</sup>, cooperating with a fixed pin O<sup>5</sup>, on a standard O<sup>6</sup>, mounted on the lay, and it is also shown as provided with a hook O<sup>7</sup> for catching the end of the weft on its upper movement and so shaped as to retain the weft in its turned-over position.

The operating rod O is connected by a link O<sup>8</sup> with a lever O<sup>9</sup>, at the bottom of the loom, which lever is pivoted at the rear at C<sup>5</sup>. The lever O<sup>9</sup> cooperates with the cam B. A spring O<sup>10</sup> holds the lever O<sup>9</sup> against the cam B. The construction of the cam B is such that the end turner is held in its downward position against the tension of the spring O<sup>10</sup>, but when the portion of this cam shown in dotted lines in Fig. 1 reaches its active position, the operating rod O rises and the end turner throws the weft end back around the selvage, and retains the weft end under the hook O<sup>7</sup> in the position shown in Figs. 8 and 10 of the drawing until after the tying plunger has commenced its operation. The proper movement of the end turner is given by the cam-slotted arm O<sup>4</sup> riding over the pin O<sup>5</sup>.

I will now refer to the operation of the tying plunger. This device is rigidly mounted upon its operating rod P, and its construction is shown in detail in Figs. 5, 6, and 7. The office of the tying plunger is to carry the end of the weft from the position shown at *x* in Fig. 8 around the warp *y* and out between this warp and the selvage cord *z*. The tying plunger is shown as comprising a fixed member P' and a movable member P<sup>2</sup> mounted upon the fixed member P'. To allow of a free movement of the member P<sup>2</sup> I have shown it as provided with a projection P<sup>3</sup> rocking in a recess P<sup>4</sup>, guided by pins P<sup>5</sup>. A spring P<sup>6</sup> attached to the fixed member P' rests against the movable member P<sup>2</sup> and maintains it normally in contact with the fixed member. This construction enables the movable member P<sup>2</sup> to yield and allow the warp and weft end to pass between it and the fixed member, but retains the two

members of the tying plunger in alinement. The lower ends of the members of the tying plunger are beveled off so that upon the descent of the plunger the warp will be guided into and pass up in between the two members. The member P' is also shown as forked at its lower end so that it will pass over or straddle the weft end *x* on the inner side of the warp or that side opposite from the selvage cord. The movable member P<sup>2</sup> is beveled off at its lower end at P<sup>7</sup>, on one side only, viz., that side adjacent to the body of the weft whose end is being turned. It will thus be seen that when the plunger descends the points 1 and 2 of the member P' will straddle the turned end *x* on the side of the warp *y* opposite the selvage cord *z*, and the point 3 of the movable member P<sup>2</sup> will pass down on the same side of the end *x* as the point 2, as indicated in Fig. 8. As the plunger descends the beveled portion P<sup>7</sup> forces that portion of the weft lying between the selvage cord and adjacent warp to the side of the plunger and prevents it from passing up between the members, the forked end of the member P' depresses the turned end *x* and the entire plunger slides down over the warp *y* until the weft end *x* is lying practically between the two members of the plunger. Upon the continued downward movement of the plunger a hump P<sup>8</sup> on the fixed member P' forces the extreme end of the weft *x* out through an opening P<sup>9</sup> in the movable member P<sup>2</sup>. Upon the return upward movement of the plunger which then takes place the weft end *x* is pulled up guided by the opening P<sup>9</sup> between the warp *y* and the selvage cord *z* and snapped out over the selvage cord *z* to the position indicated by the wefts of the lower portion of Fig. 8 of the drawing. A fin P<sup>10</sup> on the movable member P<sup>2</sup> cooperating with a groove P<sup>11</sup> in the fixed member P' serves to guide the end *x* and prevent it being thrown out side-wise of the plunger, and a groove P<sup>12</sup> in the inner face of the fixed member also serves to guide the weft end centrally of the plunger.

The tying plunger is operated in a similar manner to the end turner, that is to say, its operating rod P is connected by a link P<sup>13</sup> with a lever P<sup>14</sup>, also pivoted at C<sup>5</sup>. This lever is operated by cam B', a spring P<sup>15</sup> holding the lever in contact with the cam B'.

The operation of the mechanism will be rendered more clear by reference to Figs. 9-12 inclusive of the drawing, where the lower end of the tying plunger and the upper end of the end turner are represented in different positions which they assume in forming the selvage. In Fig. 9 the parts are in the position which they occupy after the weft has been shot into position, for example, over the warp *y* and under the selvage cord *z*, and is about to be turned. Here the tying plunger is above the fabric



and the end turner has its hook  $O^7$  under the free end of the weft. In Fig. 10 the end turner has moved up over the selvage cord. In this movement the free end of the weft is carried back over the fabric, and as the hook  $O^7$  slides over the free end of the weft its curved shape serves to throw the free end of the weft into the diagonal position illustrated. In Fig. 11 the tying plunger has descended, carrying the free end of the weft downwardly. In this movement the points of the tying plunger pass down over the free end of the weft, as shown in Fig. 8. In the downward movement of the tying plunger the portion of the weft end turned over and lying between the warp  $y$  and the selvage cord  $z$  rides up on the beveled side of the member  $P^2$ , while the portion of the weft lying out beyond the warp  $y$  is thrown downwardly by the notched lower end of the member  $P'$ , and then is guided in between the members  $P'$  and  $P^2$ , aided by the groove  $P^{12}$ , and the fin and groove  $P^{10}$  and  $P^{11}$ , until, in the continued downward movement of the tying plunger, it snaps out through the hole  $P^9$ , as shown in Fig. 11. Fig. 12 shows the tying plunger as having moved upward from the position shown in Fig. 11. In this movement it carries up the free end of the weft and snaps it out over the selvage cord between the warp  $y$  and the selvage cord, thus completing the selvage. The weft may be trimmed before it is shot into the loom, or afterward, by a suitable device, so as to present a free end of sufficient length to be readily handled, but, as is usual in the manufacture of selvage, it is left of sufficient length so that it is trimmed off after having been beaten in and the fabric finished.

In the following claims I have for convenience used the terms "up", "down", "upward", "downward", "over", "under", etc., in connection with the movements of the mechanism with respect to the shed, but it is to be understood that these terms are relative only, for the mechanism is equally adapted to be placed in a position opposite from that shown with respect to the shed and to operate accordingly in a reverse manner.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. Selvage forming mechanism for a loom weaving in short weft lengths, comprising means for supporting and guiding a selvage cord and a series of warps, and means for turning the weft end around the selvage cord and back over the adjacent warp and down around said warp and up between said warp and selvage cord.

2. Selvage forming mechanism for a loom weaving in short weft lengths, comprising means for turning the weft end around the selvage cord and back over the adjacent

warp, and means for carrying the turned weft end down around said warp and up between said warp and selvage cord.

3. Selvage forming mechanism for a loom weaving in short weft lengths, comprising means for supporting and guiding a selvage cord and a series of warps, and means mounted upon the lay for turning the weft end around the selvage cord and back over the adjacent warp and down around said warp and up between said warp and selvage cord.

4. Selvage forming mechanism for a loom weaving in short weft lengths, comprising means mounted upon the lay for turning the weft end around the selvage cord and back over the adjacent warp, and means mounted upon the lay for carrying the turned weft end down around said warp and up between said warp and selvage cord.

5. Selvage forming mechanism for a loom weaving in short weft lengths, comprising an end turner provided with a hook and mounted upon the lay, means for moving the end turner to carry the hook from below the shed up around the selvage cord and back over the shed, whereby the hook turns the weft end around the selvage cord and back over the adjacent warp, and means for carrying the turned weft end down around said warp and up between said warp and selvage cord.

6. Selvage forming mechanism for a loom weaving in short weft lengths, comprising an end turner provided with a hook and mounted upon the lay, means for moving the end turner to carry the hook from below the shed up around the selvage cord and back over the shed, whereby the hook turns the weft end around the selvage cord and back over the adjacent warp, and means mounted upon the lay for carrying the turned weft end down around said warp and up between said warp and selvage cord.

7. Selvage forming mechanism for a loom weaving in short weft lengths, comprising an end turner provided with a hook having a shank and mounted upon the lay, means for moving the end turner to carry the hook from below the shed up around the selvage cord and back over the shed, whereby the hook turns the weft end around the selvage cord and back over the adjacent warp, and the hook shank retains the warp end in its turned position, and means for carrying the turned weft end down around said warp and up between said warp and selvage cord.

8. Selvage forming mechanism for a loom weaving in short weft lengths, comprising an end turner provided with a hook having a shank and mounted upon the lay, means for moving the end turner to carry the hook from below the shed up around the selvage cord and back over the shed, whereby the hook turns the weft end around the selvage cord and back over the adjacent warp, and



the hook shank retains the warp end in its turned position, and means mounted upon the lay for carrying the turned weft end down around said warp and up between said warp and selvage cord.

9. Selvage forming mechanism for a loom weaving in short weft lengths, comprising a rod mounted in the lay, an end turner provided with a hook and pivoted to said rod, a cam guiding connection between the end turner and lay, means for moving the rod longitudinally whereby under the guidance of the cam connection the end turner carries the hook to turn the weft end around the selvage cord and back over the adjacent warp, and means for carrying the turned weft end down around said warp and up between said warp and selvage cord.

10. Selvage forming mechanism for a loom weaving in short weft lengths, comprising a rod mounted in the lay, an end turner provided with a hook, and pivoted to said rod, a cam guiding connection between the end turner and lay, means for moving the rod longitudinally whereby under the guidance of the cam connection the end turner carries the hook to turn the weft end around the selvage cord and back over the adjacent warp, and means mounted upon the lay for carrying the turned weft end down around said warp and up between said warp and selvage cord.

11. Selvage forming mechanism for a loom weaving in short weft lengths, comprising a rod mounted in the lay, an end turner provided with a hook having a shank, and pivoted to said rod, a cam connection between the end turner and lay, means for moving the rod longitudinally whereby under the guidance of the cam connection the end turner carries the hook to turn the weft end around the selvage cord and back over the adjacent warp, and the hook shank retains the weft end in its turned position, and means for carrying the turned weft end down around said warp and up between said warp and selvage cord.

12. Selvage forming mechanism for a loom weaving in short weft lengths, comprising a rod mounted in the lay, an end turner provided with a hook having a shank, and pivoted to said rod, a cam connection between the end turner and lay, means for moving the rod longitudinally whereby under the guidance of the cam connection the end turner carries the hook to turn the weft end around the selvage cord and back over the adjacent warp, and the hook shank retains the weft end in its turned position, and means mounted upon the lay for carrying the turned weft end down around said warp and up between said warp and selvage cord.

13. Selvage forming mechanism for a loom weaving in short weft lengths, comprising a rod mounted in the lay, an end turner pivoted to said rod and provided with a hook and

provided with an arm having a cam slot therein cooperating with a pin, said pin rigidly mounted on the lay, means for moving the rod longitudinally whereby the hook is moved to turn the weft end around the selvage cord and back over the adjacent warp, and means for carrying the turned weft end down around said warp and up between said warp and selvage cord.

14. Selvage forming mechanism for a loom weaving in short weft lengths, comprising a rod mounted in the lay, an end turner pivoted to said rod and provided with a hook having a shank, and provided with an arm having a cam slot therein cooperating with a pin, said pin rigidly mounted on the lay, means for moving the rod longitudinally whereby the hook is moved to turn the weft end around the selvage cord and back over the adjacent warp, and the hook shank retains the weft end in its turned position, and means mounted upon the lay for carrying the turned weft end down around said warp and up between said warp and selvage cord.

15. Selvage forming mechanism for a loom weaving in short weft lengths, comprising means for turning the weft end around the selvage cord and back over the adjacent warp, a tying plunger comprising two members adapted to straddle the adjacent warp, the first member being forked to straddle the turned weft end and the second member being provided with means to catch the end of the weft, and means for reciprocating said tying plunger whereby upon its downward movement the turned weft end is carried by said first member down around said warp and upon its upward movement the weft end is carried by said second member up between said warp and selvage cord.

16. Selvage forming mechanism for a loom weaving in short weft lengths, comprising means mounted upon the lay for turning the weft end around the selvage cord and back over the adjacent warp, a tying plunger comprising two members adapted to straddle the adjacent warp, the first member being forked to straddle the turned weft end and the second member being provided with means to catch the end of the weft, and means for reciprocating said tying plunger whereby upon its downward movement the turned weft end is carried by said first member down around said warp and upon its upward movement the weft end is carried by said second member up between said warp and selvage cord.

17. Selvage forming mechanism for a loom weaving in short weft lengths, comprising means for turning the weft end around the selvage cord and back over the adjacent warp, a tying plunger comprising two members adapted to straddle the adjacent warp, the first member being forked to straddle the turned weft end, the second member being yieldingly mounted upon the first member,



and provided with means to catch the end of the weft, and means for reciprocating said tying plunger whereby upon its downward movement the turned weft end is carried by  
 5 said first member down around said warp and upon its upward movement the weft end is carried by said second member up between said warp and selvage cord.

18. Selvage forming mechanism for a loom  
 10 weaving in short weft lengths, comprising means mounted upon the lay for turning the weft end around the selvage cord and back over the adjacent warp, a tying plunger comprising two members adapted to straddle the  
 15 adjacent warp, the first member being forked to straddle the turned weft end, the second member being yieldingly mounted upon the first member, and provided with means to catch the end of the weft, and means for re-  
 20 ciprocating said tying plunger whereby upon its downward movement the turned weft end is carried by said first member down around said warp and upon its upward movement the weft end is carried by said second mem-  
 25 ber up between said warp and selvage cord.

19. Selvage forming mechanism for a loom  
 weaving in short weft lengths, comprising means for turning the weft end around the selvage cord and back over the adjacent  
 30 warp, a tying plunger comprising two members adapted to straddle the adjacent warp, the first member being forked to straddle the turned weft end and having a hump on the side adjacent the second member, the second  
 35 member being yieldingly mounted upon the first member and provided with an aperture opposite said hump, and means for reciprocating said tying plunger whereby upon its downward movement the turned weft end is  
 40 carried by said first member down around said warp and directed by said hump into said aperture, and upon its upward movement the weft end is carried by said second member up between said warp and selvage  
 45 cord.

20. Selvage forming mechanism for a loom  
 weaving in short weft lengths, comprising means mounted upon the lay for turning the weft end around the selvage cord and back  
 50 over the adjacent warp, a tying plunger comprising two members adapted to straddle the adjacent warp, the first member being forked to straddle the turned weft end and having a hump on the side adjacent the second mem-  
 55 ber, the second member being yieldingly mounted upon the first member and provided with an aperture opposite said hump, and means for reciprocating said tying plunger whereby upon its downward movement the  
 60 turned weft end is carried by said first member down around said warp and directed by said hump into said aperture, and upon its upward movement the weft end is carried by said second member up between said warp  
 65 and selvage cord.

21. Selvage forming mechanism for a loom  
 weaving in short weft lengths, comprising means for turning the weft end around the selvage cord and back over the adjacent  
 warp, a tying plunger comprising two mem- 70  
 bers adapted to straddle the adjacent warp, the first member being forked to straddle the turned weft end and having a hump on the side adjacent the second member, the second  
 member being yieldingly mounted on the first 75  
 member and having its lower end beveled on the side toward the fell and provided with an aperture opposite said hump, and means for reciprocating said tying plunger whereby  
 upon its downward movement the turned 80  
 weft end is carried by said first member down around said warp and directed by said hump into said aperture, and upon its upward movement the weft end is carried by said  
 second member up between said warp and 85  
 selvage cord.

22. Selvage forming mechanism for a loom  
 weaving in short weft lengths, comprising means for turning the weft end around the selvage cord and back over the adjacent warp, 90  
 a tying plunger comprising two members adapted to straddle the adjacent warp, the first member being forked to straddle the turned weft end and having a hump on the  
 side adjacent the second member, the second 95  
 member being yieldingly mounted on the first member and having its lower end beveled on the side toward the fell and provided with an aperture opposite said hump, said members  
 being also provided near their extremities 100  
 one with a fin and the other with a groove for guiding the weft end, and means for reciprocating said tying plunger whereby upon its  
 downward movement the turned weft end is 105  
 carried by said first member down around said warp and directed by said hump into  
 said aperture, and upon its upward move-  
 ment the weft end is carried by said second  
 member up between said warp and selvage  
 cord. 110

23. Selvage forming mechanism for a loom  
 weaving in short weft lengths, comprising an end turner provided with a hook having a shank and mounted upon the lay, means for  
 moving the end turner to carry the hook 115  
 from below the shed up around the selvage cord and back over the shed, whereby the hook turns the weft end around the selvage cord and back over the adjacent warp, and the hook shank retains the warp end in its  
 turned position, a tying plunger comprising 120  
 two members adapted to straddle the adjacent warp, the first member being forked to straddle the turned weft end and the second  
 member being provided with means to catch 125  
 the end of the weft, and means for reciprocating said tying plunger whereby upon its downward movement the turned weft end is  
 carried by said first member down around  
 said warp and upon its upward movement 130



the weft end is carried by said second member up between said warp and selvage cord.

24. Selvage forming mechanism for a loom weaving in short weft lengths, comprising a 5 rod mounted in the lay, an end turner provided with a hook, and pivoted to said rod guiding connection between the end turner and lay a cam, means for moving the rod longitudinally whereby under the guidance 10 of the cam connection the end turner carries the hook to turn the weft end around the selvage cord and back over the adjacent warp, a tying plunger comprising two members adapted to straddle the adjacent warp, 15 the first member being forked to straddle the turned weft end, the second member being yieldingly mounted upon the first member, and provided with means to catch the end of the weft, and means for reciprocating said 20 tying plunger whereby upon its downward movement the turned weft end is carried by said first member down around said warp and upon its upward movement the weft end is carried by said second member up between 25 said warp and selvage cord.

25. Selvage forming mechanism for a loom weaving in short weft lengths, comprising a rod mounted in the lay, an end turner pivoted to said rod and provided with a hook 30 and provided with an arm having a cam slot therein cooperating with a pin, said pin, rigidly mounted on the lay, means for moving the rod longitudinally whereby the hook is moved to turn the weft end around the 35 selvage cord and back over the adjacent warp, a tying plunger comprising two mem-

bers adapted to straddle the adjacent warp, the first member being forked to straddle the turned weft end and having a hump on the side adjacent the second member, the 40 second member being yieldingly mounted upon the first member and provided with an aperture opposite said hump, and means for reciprocating said tying plunger whereby upon its downward movement the turned 45 weft end is carried by said first member down around said warp and directed by said hump into said aperture, and upon its upward movement the weft end is carried by said second member up between said 50 warp and selvage cord.

26. Selvage-forming mechanism for a loom weaving in short weft lengths, comprising a weft end turner and means cooperating therewith to form a figure 8 selvage. 55

27. Selvage-forming mechanism for a loom weaving in short weft lengths, comprising a tying plunger, and means cooperating therewith to form a figure 8 selvage.

28. Selvage-forming mechanism for a loom 60 weaving in short weft lengths, comprising a weft end turner and a tying plunger cooperating with each other to form a figure 8 selvage.

In testimony whereof, I have signed my 65 name to this specification, in the presence of two subscribing witnesses.

FREDRICK E. ARROQUIER.

Witnesses:

NATHAN HEARD,  
MABEL PARTELOW.