

(No Model.)

2 Sheets—Sheet 1.

J. B. PRICE.  
SEWING MACHINE.

No. 339,113.

Patented Mar. 30, 1886.

Fig. 1.

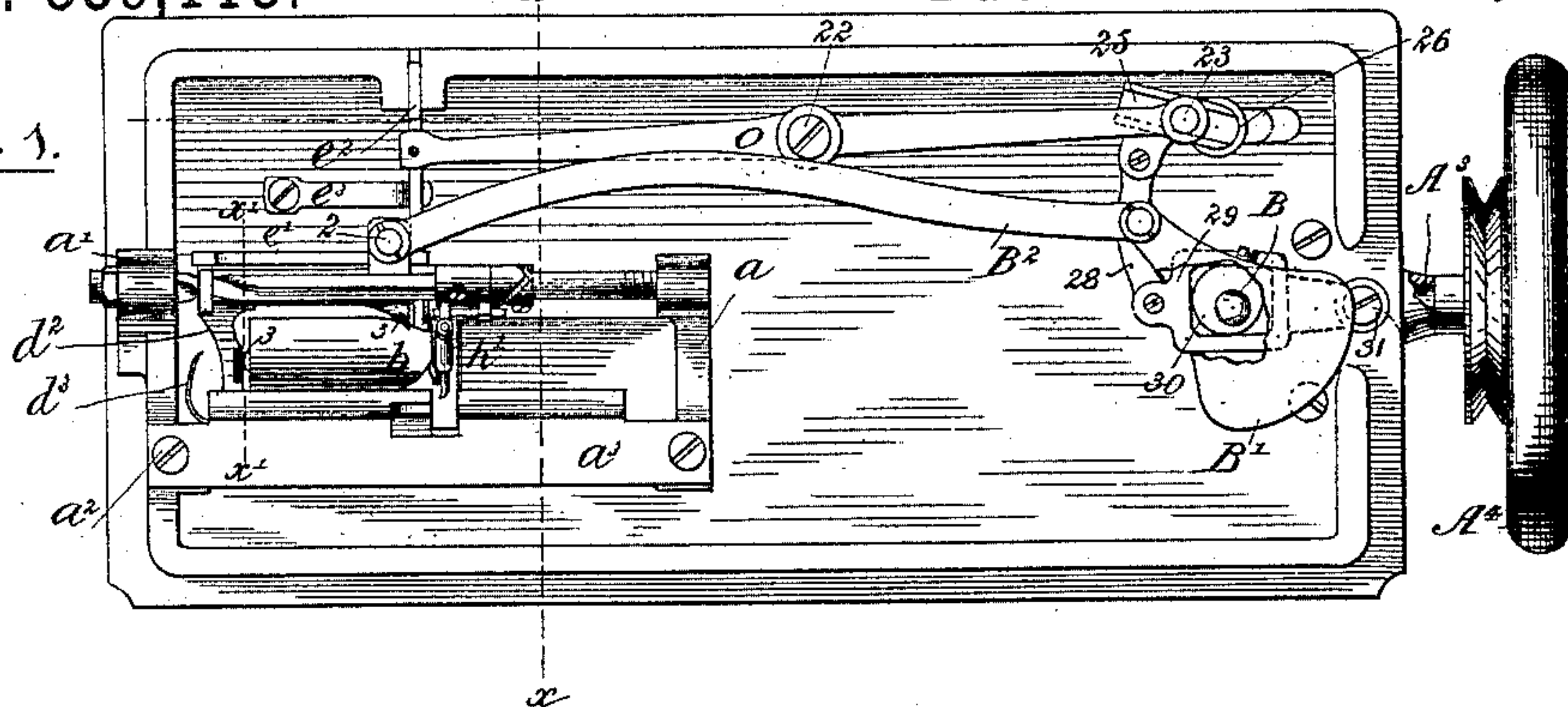


Fig. 3.

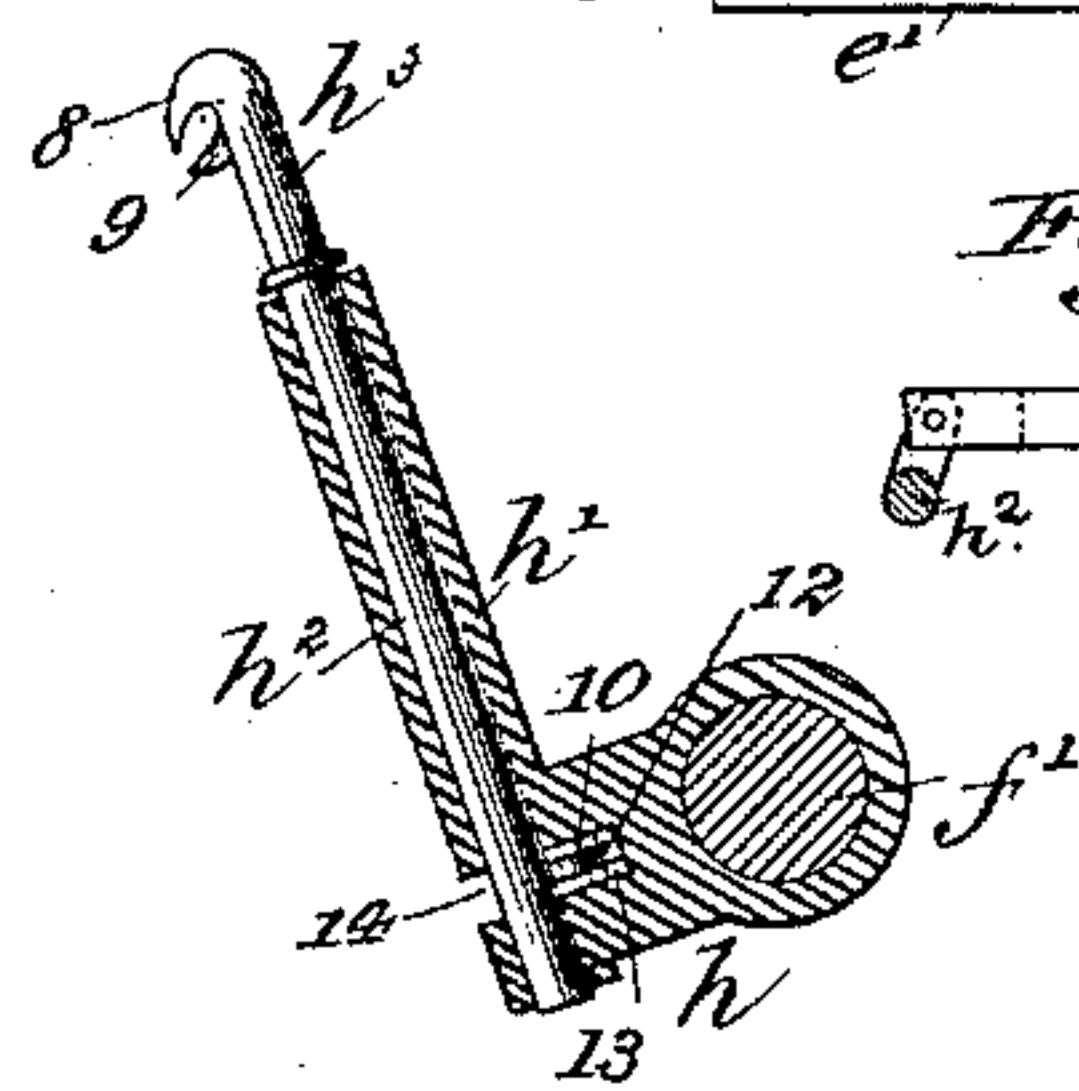


Fig. 9.

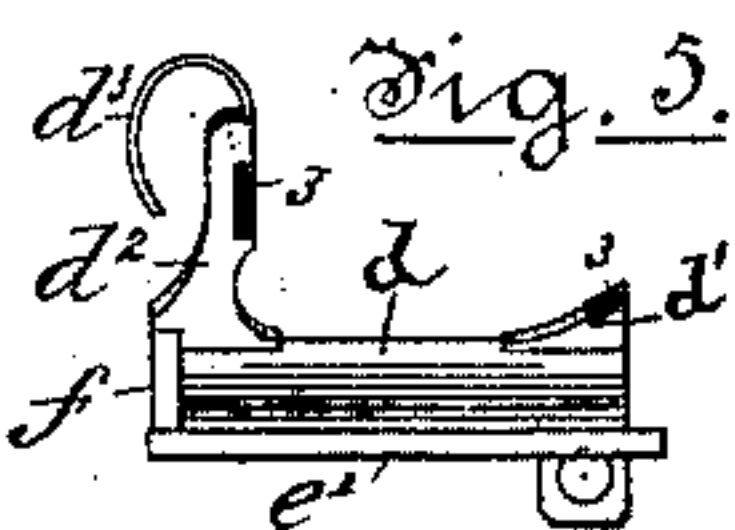
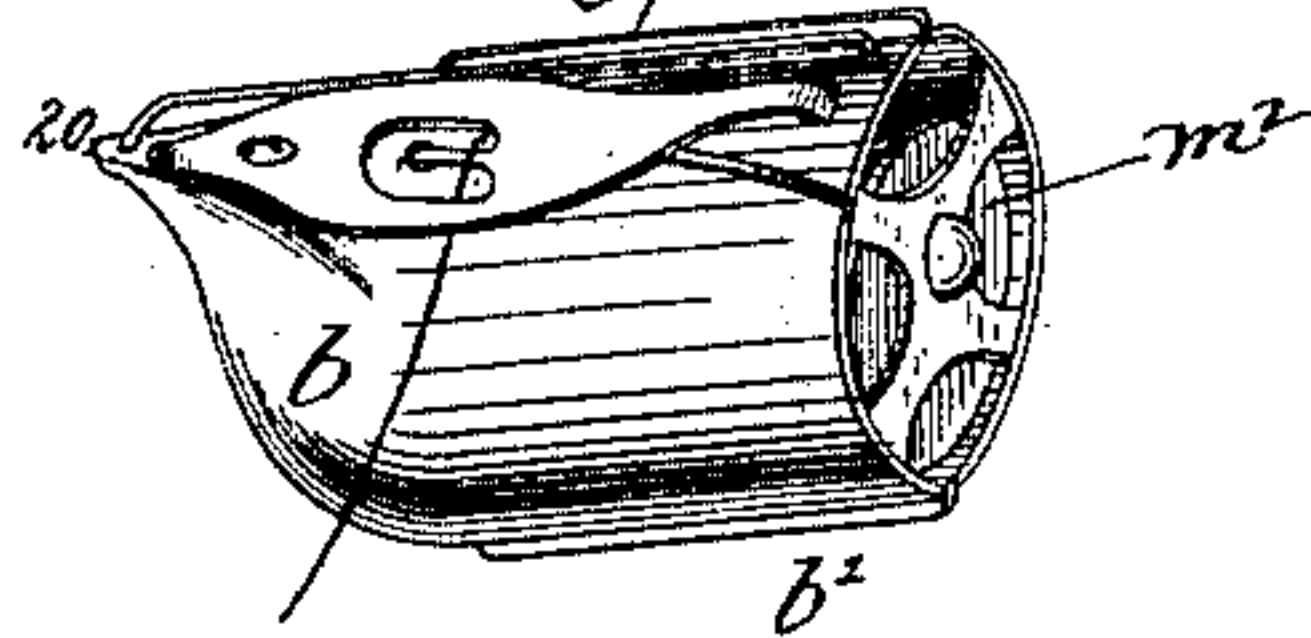


Fig. 11.

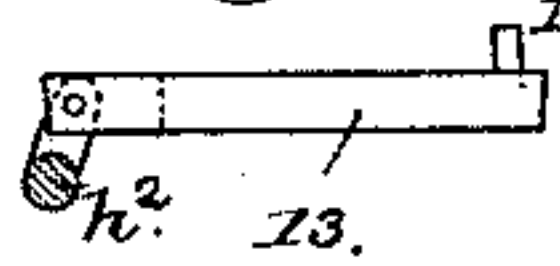


Fig. 2.

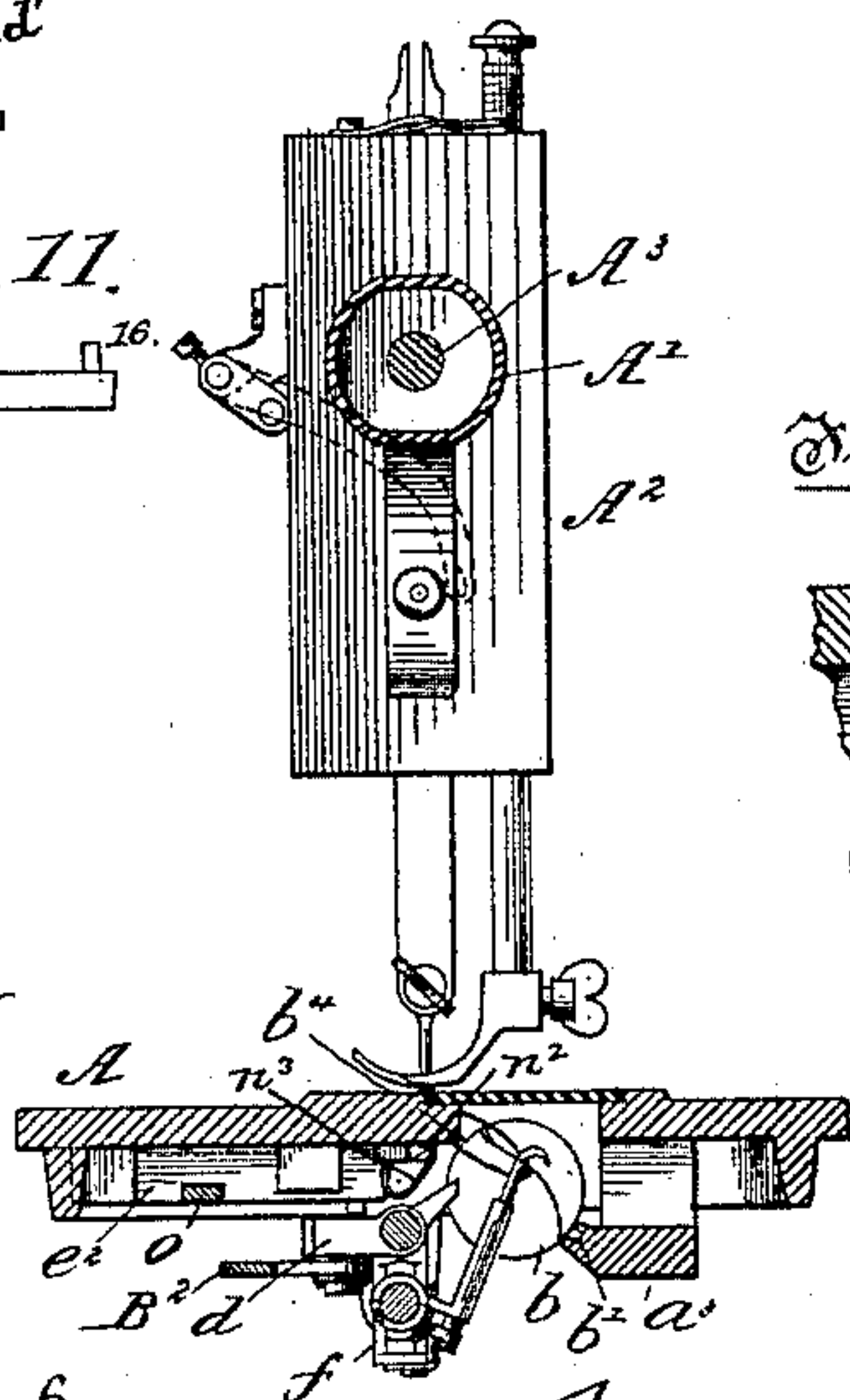


Fig. 4.

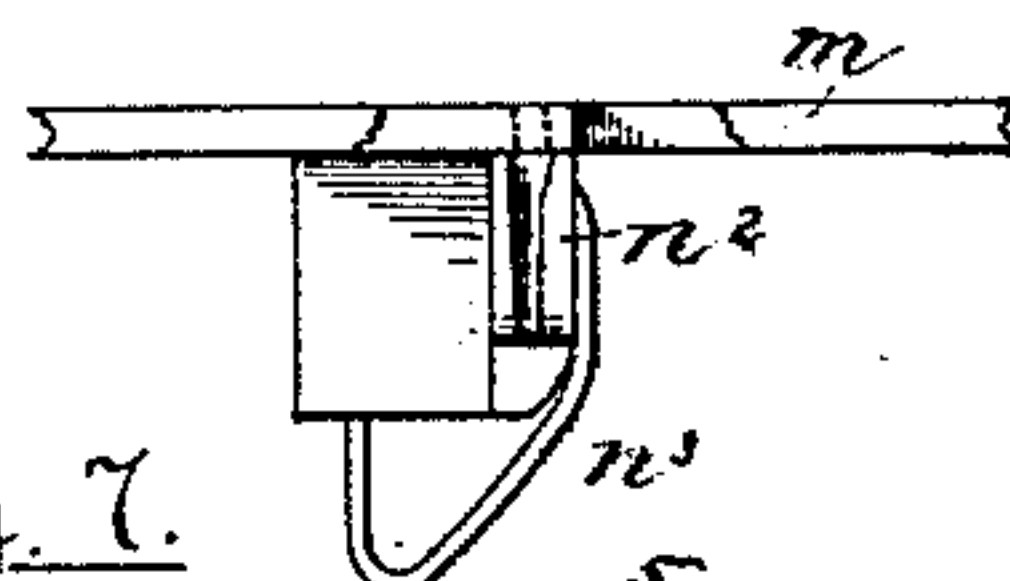


Fig. 7.

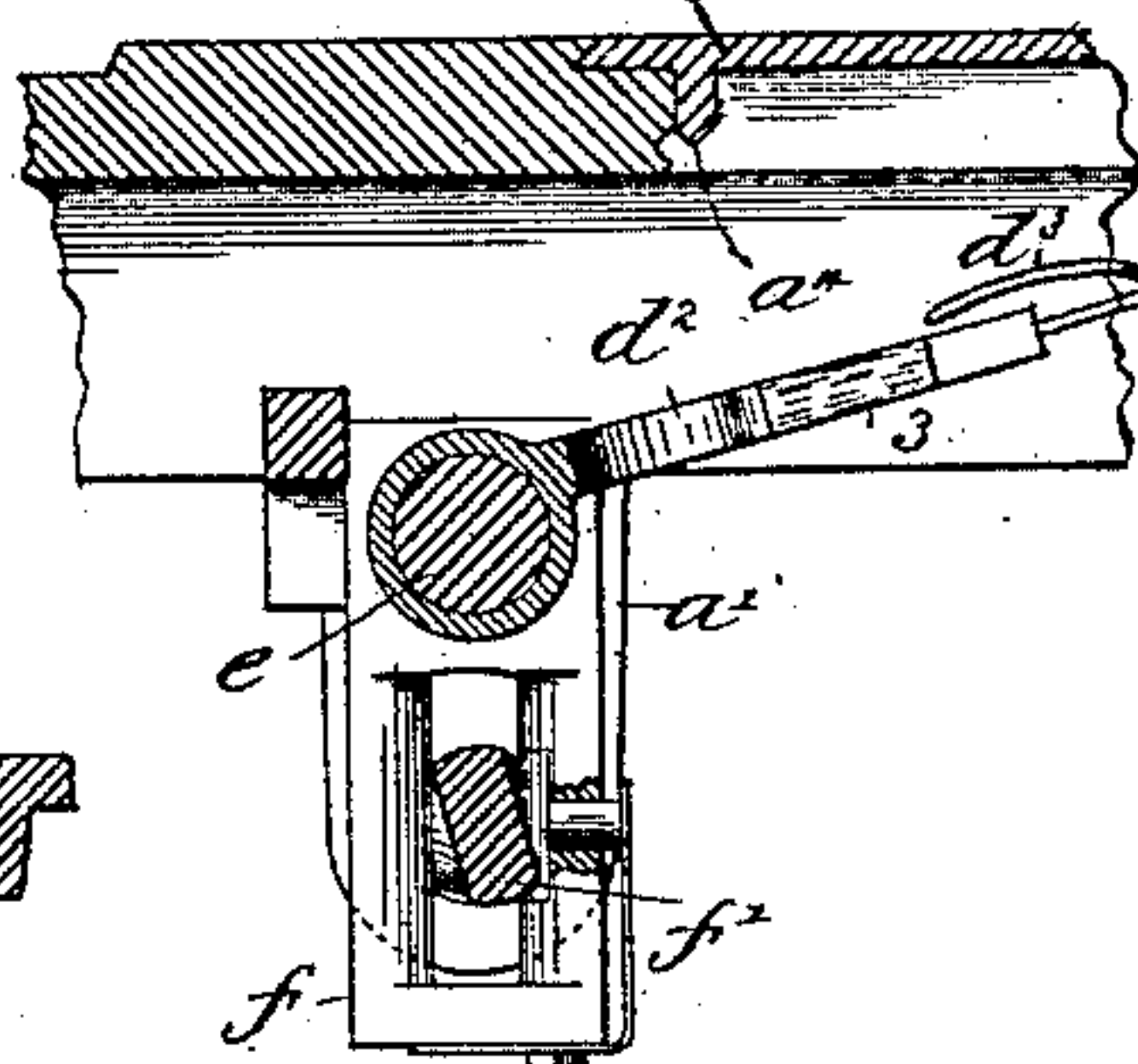


Fig. 6.

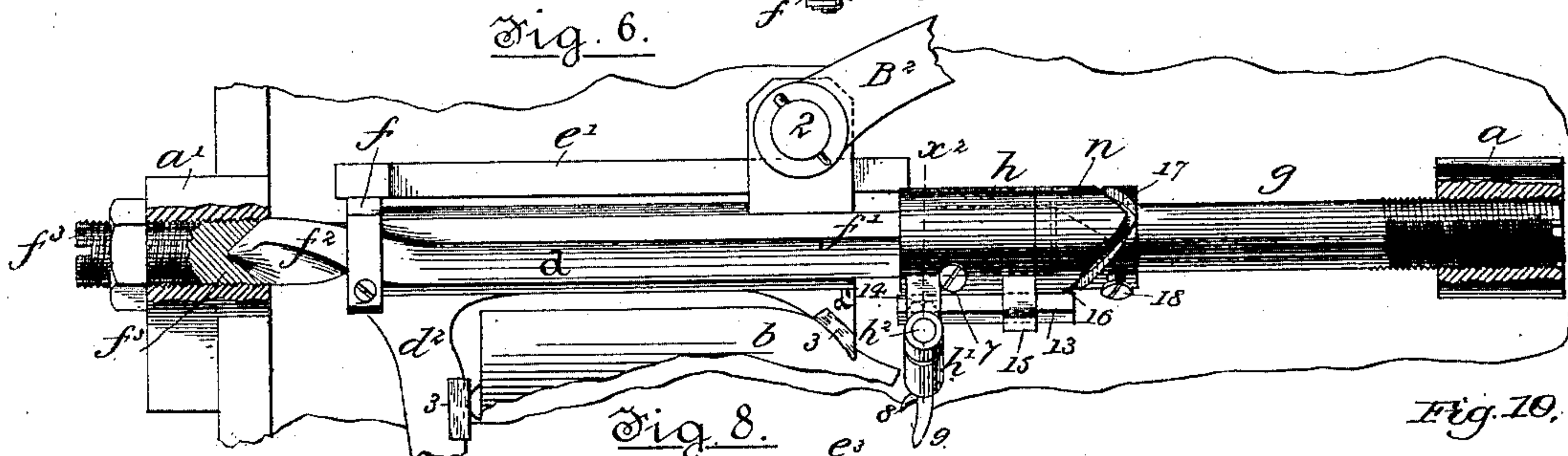


Fig. 8.

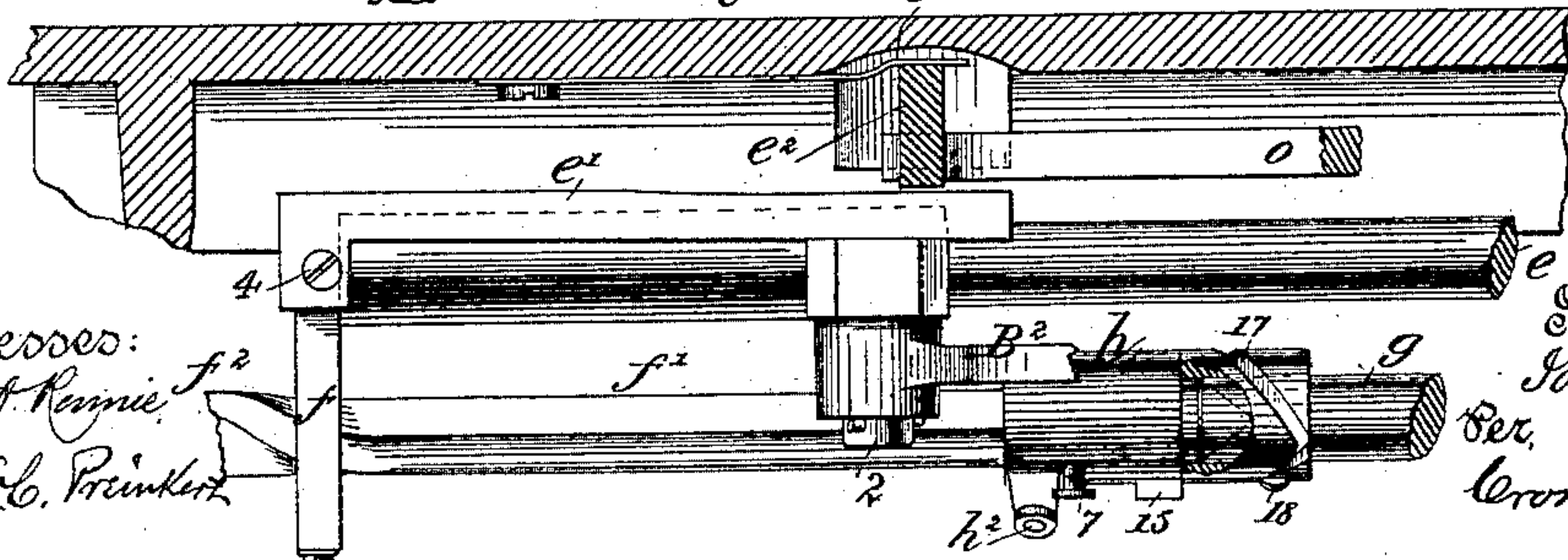


Fig. 10.



Witnesses:

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Inventor  
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Per.  
Crosby & Brezney  
his Attys

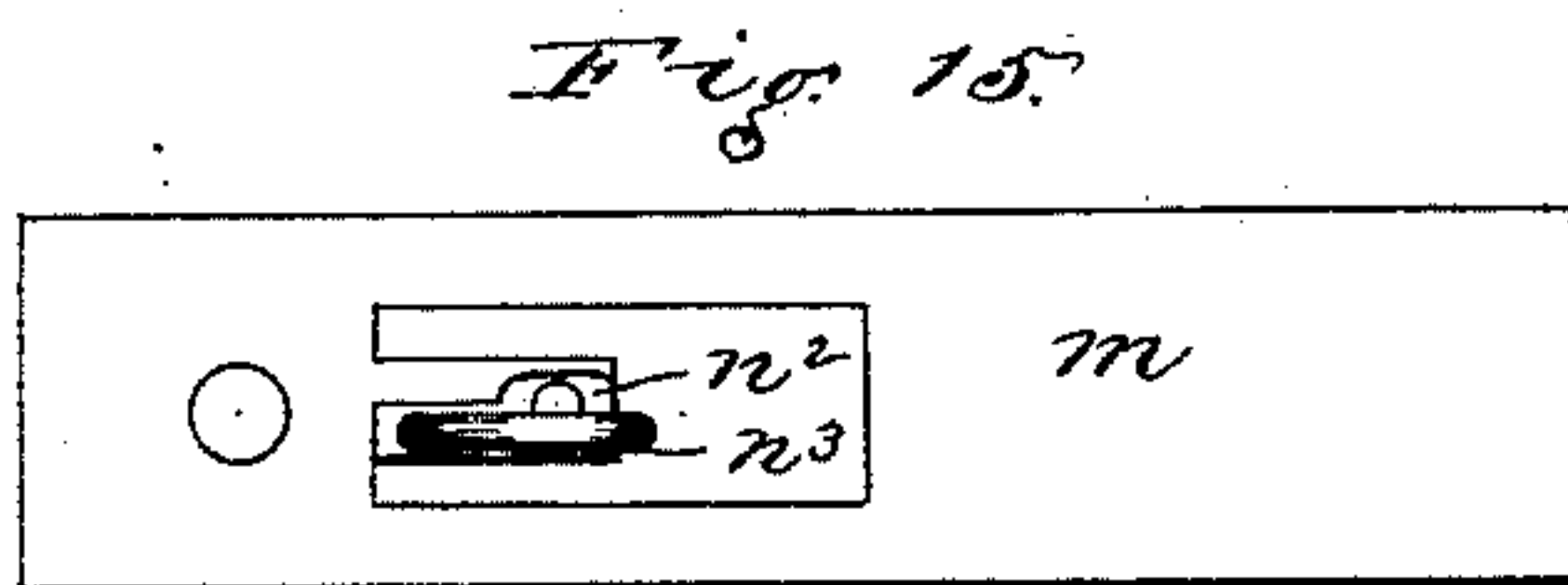
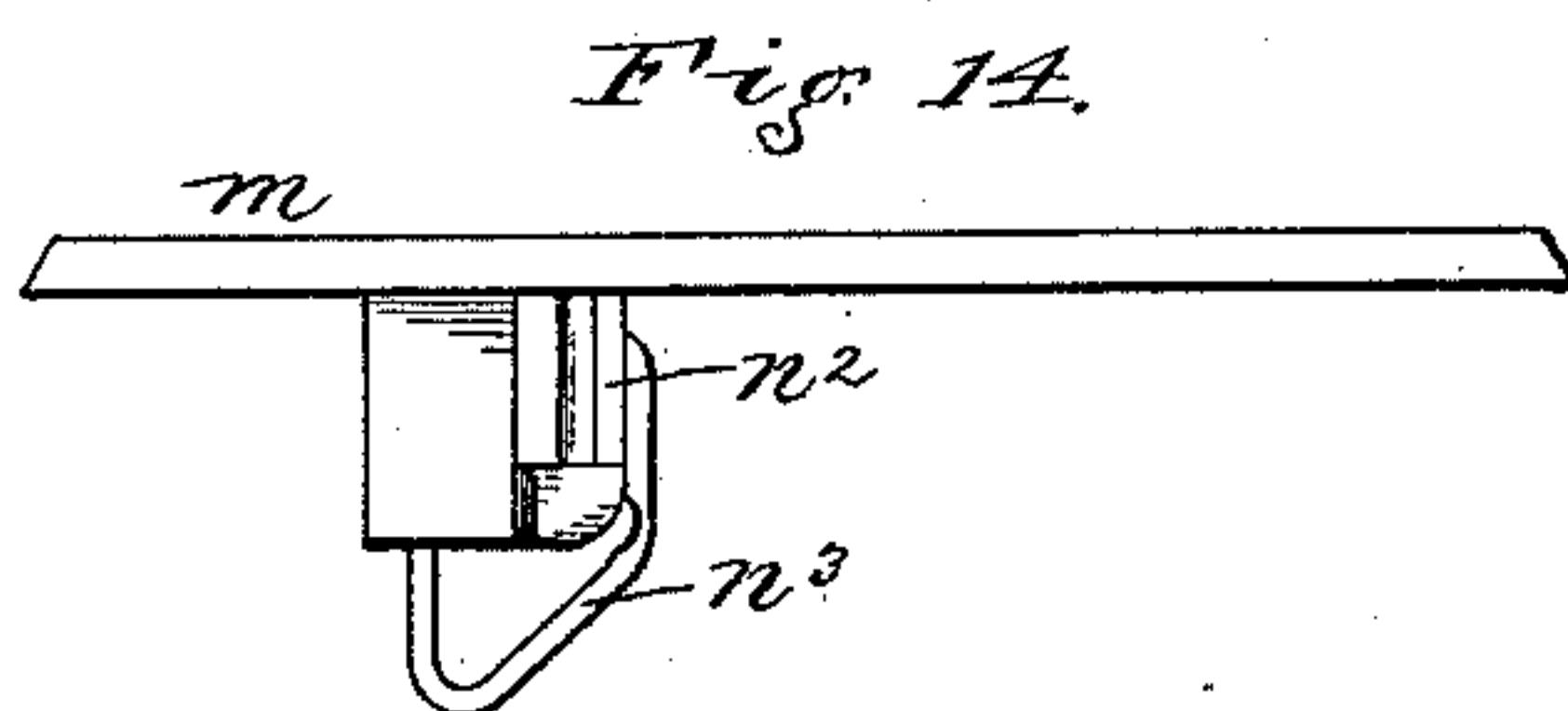
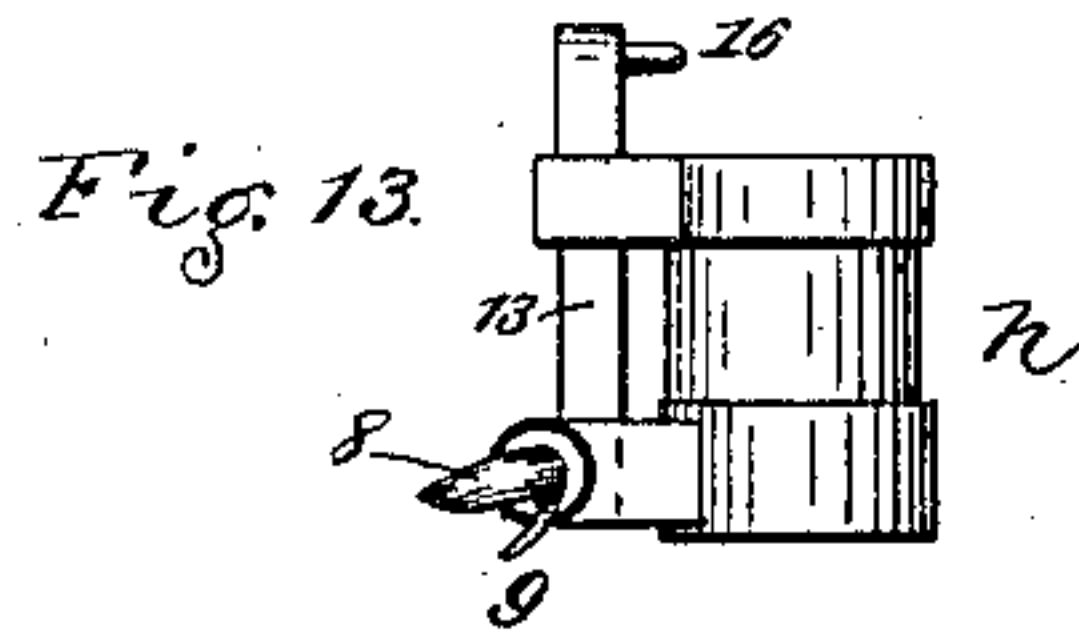
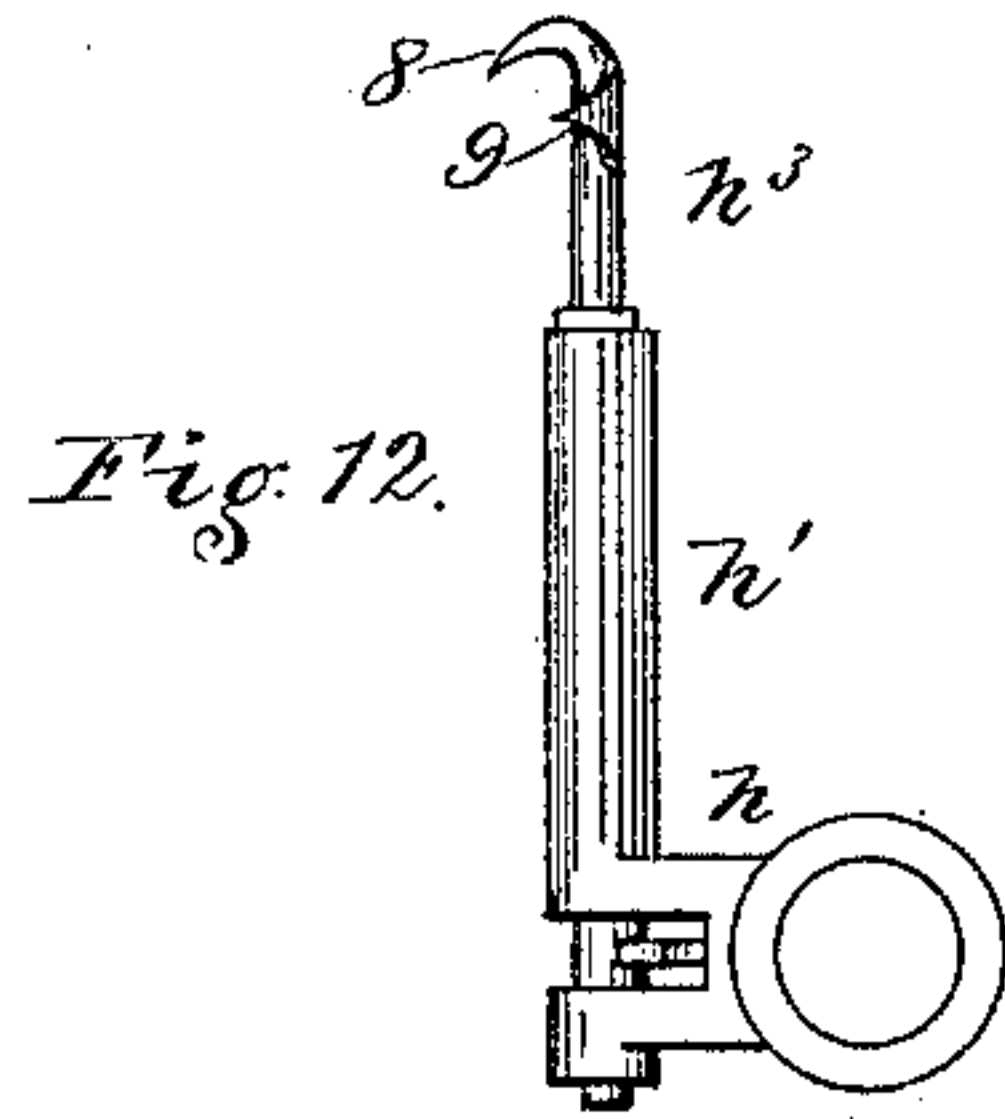
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2 Sheets—Sheet 2.

J. B. PRICE.  
SEWING MACHINE.

No. 339,113.

Patented Mar. 30, 1886.



WITNESSES:

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*C. E. Doyle*

INVENTOR:

*J. B. Price*  
BY  
*Henry Falout*  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

JOHN B. PRICE, OF WOLLASTON, MASSACHUSETTS, ASSIGNOR TO THE  
BISPOOL SEWING MACHINE COMPANY, OF KITTERY, MAINE.

## SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 339,113, dated March 30, 1886.

Application filed September 21, 1885. Serial No. 177,646. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN B. PRICE, of Wollaston, county of Norfolk, and State of Massachusetts, have invented an Improve-  
5 ment in Sewing-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention in sewing-machines has for its object to improve the stitch-forming mechanism in such manner as to permit the employment of a very large shuttle, one capable even of carrying as a bobbin an ordinary  
15 spool of commerce.

In accordance with my invention the loop of needle-thread below the material being sewed is caught by a hook, which has a move-  
20 ment in the arc of a circle at substantially a right angle to the path of reciprocation of the shuttle, and also an oscillating movement for about ninety degrees from the point where the point of the shuttle enters the loop of  
25 needle-thread until just before the heel of the shuttle is to leave the said loop, the vibration of the hook drawing out the loop of needle-thread and holding it in proper position for the point and curved nose of the shuttle to  
30 enter it, the oscillation of the hook permitting the loop of needle-thread to be readily discharged or given up to the action of the take-up after the passage of the shuttle through it.

My invention consists, essentially, in the  
35 combination, with an eye-pointed needle and shuttle, of a hook having a vibrating and an oscillating movement to engage the loop of needle-thread drawn out while the shuttle is moved through the loop, the hook casting the  
40 loop off, substantially as will be described.

Other features of my invention will be pointed out in the claims, at the end of this specification.

Figure 1 is an under side view of a sewing-  
45 machine embodying my improvements, the shuttle-actuating crank being partially broken out to show parts of the feed-actuating devices above it. Fig. 2 is a section thereof on

the dotted line  $x x$ , looking toward the left. Fig. 3 is a sectional detail of the hook on a  
50 larger scale in the line  $x^2$ , Fig. 6; Fig. 4, a view of the throat-plate containing the needle and feed-holes, with my improved needle-guide attached to its under side. Fig. 5 is a top view of the shuttle-driver detached; Fig. 55  
6, an enlarged partial view of the under side of the machine; Fig. 7, a section of Fig. 1 in the dotted line  $x'$ , looking toward the left, the shuttle being omitted; Fig. 8, an enlarged detail in side elevation. Fig. 9 is a detail of  
60 the shuttle removed. Fig. 10 is a detail, on an enlarged scale, showing that part of the bed-plate which is grooved next the shuttle-covering slide to form a guide for the uppermost rib or keel of the shuttle, and Fig. 11 is  
65 a detail showing the link 13 and its connection with the shank of the hook. Figs. 12 and 13 are detail views of the hook and adjacent parts, and Figs. 14 and 15 are detail views of the throat-plate and its needle and  
70 thread-guard.

The frame-work of the machine, including the bed-plate A, overhanging arm A', head A<sup>2</sup>, main rotating needle-bar-actuating shaft A<sup>3</sup>, belt-wheel A<sup>4</sup>, upright shaft B, in prac-  
75 tice rotated from the shaft A<sup>3</sup> by usual bevel-gears, (not shown, but as common, for instance in the Singer machine.) the weighted crank B', and the shuttle-actuating link B<sup>2</sup>, are all substantially as usual. 80

The bed-plate A at its under side has two lugs or brackets,  $a a'$ , to which, by screws  $a^2$ , is attached the lower member,  $a^3$ , of the shuttle-  
85 race, the edge of the said race being grooved longitudinally for the reception of a rib,  $b'$ , on the shuttle  $b$ . The shuttle has a second rib,  $b^4$ , which enters a groove made in the bed of the machine near the slot which receives the shuttle-covering plates, (see Figs. 2, 7, and  
90 10,) one of the said plates (marked  $a^5$ ) being provided with a lip or ledge,  $a^4$ , (see Fig. 7,) the said lip being attached to the said cover-plate, in order that it may be withdrawn to enable the shuttle to be removed from the ma-  
95 chine when desired.

The link B<sup>2</sup> is pivoted at 2 to an arm of the



shuttle-driver, composed of a frame,  $d$ , fitted to slide as a sleeve on a rod,  $e$ , the said frame having two horns,  $d'$   $d^2$ , each preferably provided with a piece of leather or rawhide, as at 3 3. The horn  $d^2$ , that acts against the heel of the shuttle, is provided with a loop-guard,  $d^3$ , the purpose of which is to prevent the loop of needle-thread as it escapes from the heel of the shuttle from being caught about the said horn  $d^2$ , which would break the said loop.

The frame  $d$  of the shuttle-driver has attached to it, by screw 4, the wedge-shaped finger  $e'$ , that acts to lift the feeding device  $e^2$ , the spring  $e^3$  throwing it down quickly. The frame  $d$  has also attached to it an extension or loop,  $f$ , that bears against or embraces the flattened and spirally-twisted part  $f^2$  of the rock-shaft  $f'$ , one pointed end of which has its bearing in the adjustable bearing-screw  $f^3$ , while the other end of the said shaft, also preferably pointed, is made to enter a recess (see dotted lines, Fig. 8) at the end of a long pin or stud,  $g$ , preferably held adjustably in the ear  $a$ . The shaft  $f'$  has secured to it by screw 7 a hub,  $h$ , having a long sleeve,  $h'$ , which receives in it the shank  $h^2$  of the hook  $h^3$ , provided with two prongs, 8 9, the latter of which enters the loop of needle-thread just after the needle rises sufficiently to throw out the loop, the prong 8 serving to prevent the said loop from slipping over the point of the hook or otherwise getting out of place, in which case the loop would be liable to be missed by the point of the shuttle. The shank  $h^2$  of the hook entering the sleeve  $h'$  loosely, is provided near its lower end with an ear, 10, which is notched and is engaged by a pin, 12, of a link, 13, extended through a guide, 14, and through a mortise, 15, in the sleeve or hub, the said link having a pin, 16, that enters a cam-groove, 17, in a hub,  $n$ , secured by screw 18 to the stud  $g$ .

The reciprocation of the frame  $d$  causes the loop  $f$ , embracing the helically or spirally twisted rod  $f'$ , to oscillate the latter, carrying with it the hub  $h$ , sleeve  $h'$ , and hook, the prong 9 engaging the loop of needle-thread, as in Fig. 2, drawing the same out and holding it open to be entered by the point 20 of the shuttle.

As the rod  $f'$  is rocked, as described, to vibrate the hook across the path of movement of the shuttle, the pin 16 in the cam-groove 17 of the stationary hub  $n$  causes the link 13 to be moved in the direction of its length, which causes the hook to be oscillated for about a quarter-turn, which results in placing the prongs of the hook in such position as to permit the loop of the needle-thread, the shuttle having passed most through it, to be discharged from the hook to enable the stitch to be completed by a take-up of usual construction.

I have provided the throat-plate  $m$ , partially shown in Fig. 4, but broken out at one

side, with a depending needle and thread guard composed of a grooved block,  $n^2$ , and a wire,  $n^3$ , the latter co-operating with the grooved block to prevent the loop of needle-thread from being caught about the said block. This needle and thread guard is also shown in Figs. 2, 14, and 15, the last-named figure being a bottom view of the throat-plate with the needle and thread guard attached thereto. From the drawings it will be seen that the bent wire  $n^3$  extends below the block or needle-guard  $n^2$ , and it is thus adapted to serve as a fender or guard to prevent the loops of needle-thread from being caught on the lower end of the said block as the said loops are drawn up in tightening the stitches.

I do not broadly claim a hook to enter, hold, and expand a loop of needle-thread while the shuttle enters it.

The feed is produced by the lever  $o$ , pivoted at 22, and having a pin, 23, which enters a slot in a trough, 25, having a fulcrum-pin extended through a hollow stud, 26, made adjustable on the bed-plate, the said trough being vibrated by a link, 28, and jointed to a lever, 29, pivoted at 31, and cut out, as shown in Fig. 1, to receive the cam 30, attached to the shaft B.

The shuttle shown in Fig. 9 has two ribs,  $b'$   $b^4$ , and a point, 20, and the shell of the shuttle is of such shape as to bring the said point close up to the under side of the bed-plate. The shuttle receives the spool  $m^2$  of commerce.

The shuttle herein shown is made the subject-matter of another application, Serial No. 177,645, filed September 21, 1885.

I claim—

1. The shuttle and its driver, provided with an extension or loop,  $f$ , combined with an oscillating shaft,  $f'$ , the hub  $h$ , sleeve  $h'$ , and hook  $h^3$ , the latter being provided with prongs to engage and open a loop of needle-thread prior to the entrance of the point of the shuttle into said loop, substantially as described.

2. The oscillating shaft  $f'$ , its attached hub  $h$ , sleeve  $h'$ , and hook  $h^3$ , provided with prongs and having a projection, 10, combined with the link 13, and cam to reciprocate the link and oscillate the said hook, substantially as described.

3. The shuttle-driver provided with an extension or loop,  $f$ , and the spirally-twisted shaft  $f'$ , embraced by the said extension or loop, the hub  $h$ , the sleeve and hook, the link 13, and cam  $n$ , to operate the link, combined with the rod  $g$  and with means to operate the shuttle-driver, substantially as described.

4. The shuttle-driver provided with the horn  $d^2$ , combined with the loop-guard  $d^3$ , the same being extended horizontally beyond the end of the said horn, substantially as represented, to prevent the needle-thread as it escapes from the heel of the shuttle from being caught by the said horn, substantially as set forth.



5. The combination, with the throat-plate and its attached depending needle-guard  $n^2$ , of the wire  $n^3$ , shaped substantially as described, and extended below the said needle-guard, as represented, to prevent the loop or thread from being caught by the needle-guard, as set forth.

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

JOHN B. PRICE.

Witnesses:

G. W. GREGORY,  
F. CUTTER.