

**No. 656,441.**

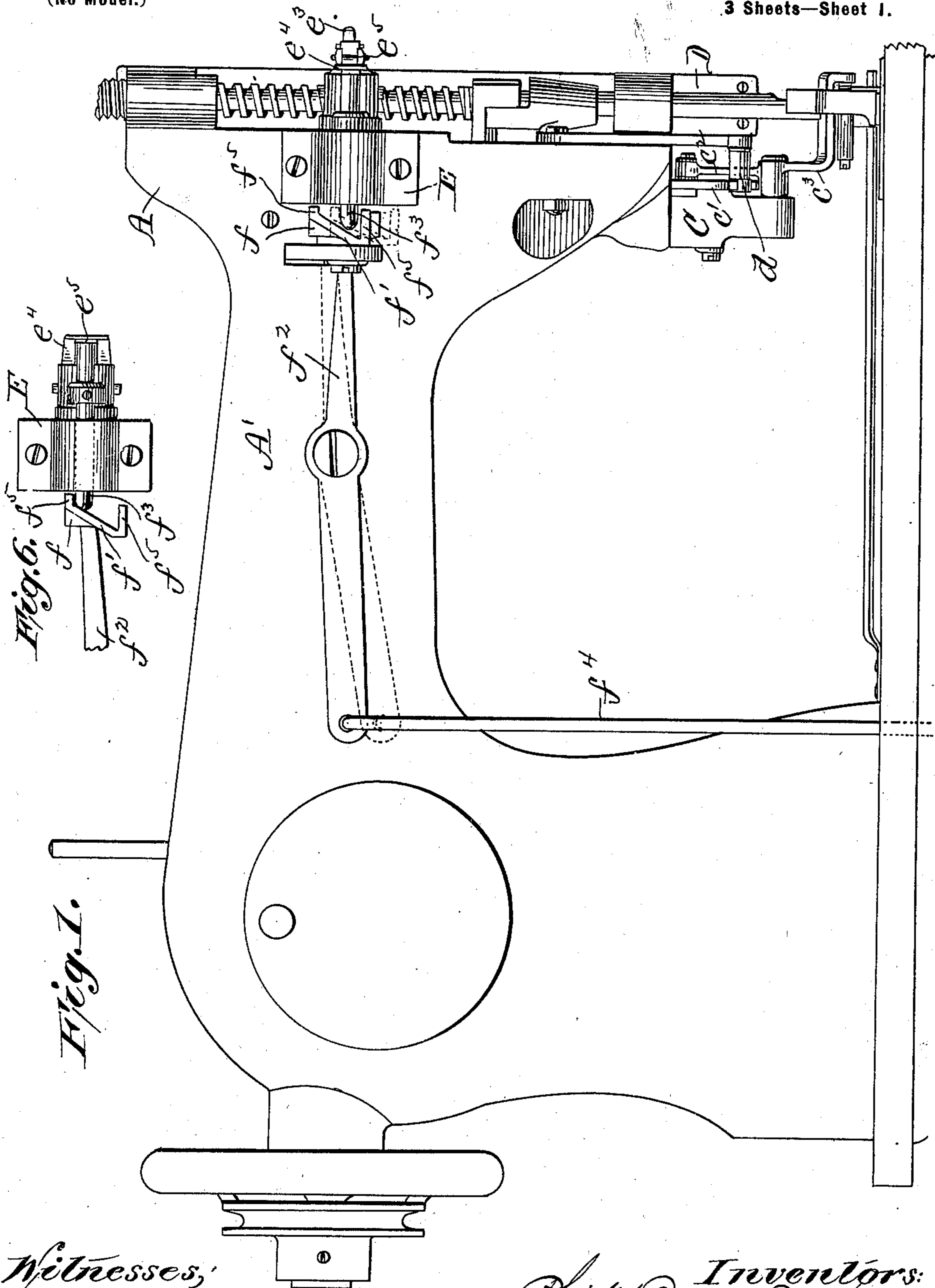
**Patented Aug. 21, 1900.**

**P. DIEHL & M. HEMLEB.**  
**RUFFLING SEWING MACHINE.**

(Application filed June 26, 1899.)

(No Model.)

**3 Sheets—Sheet 1.**



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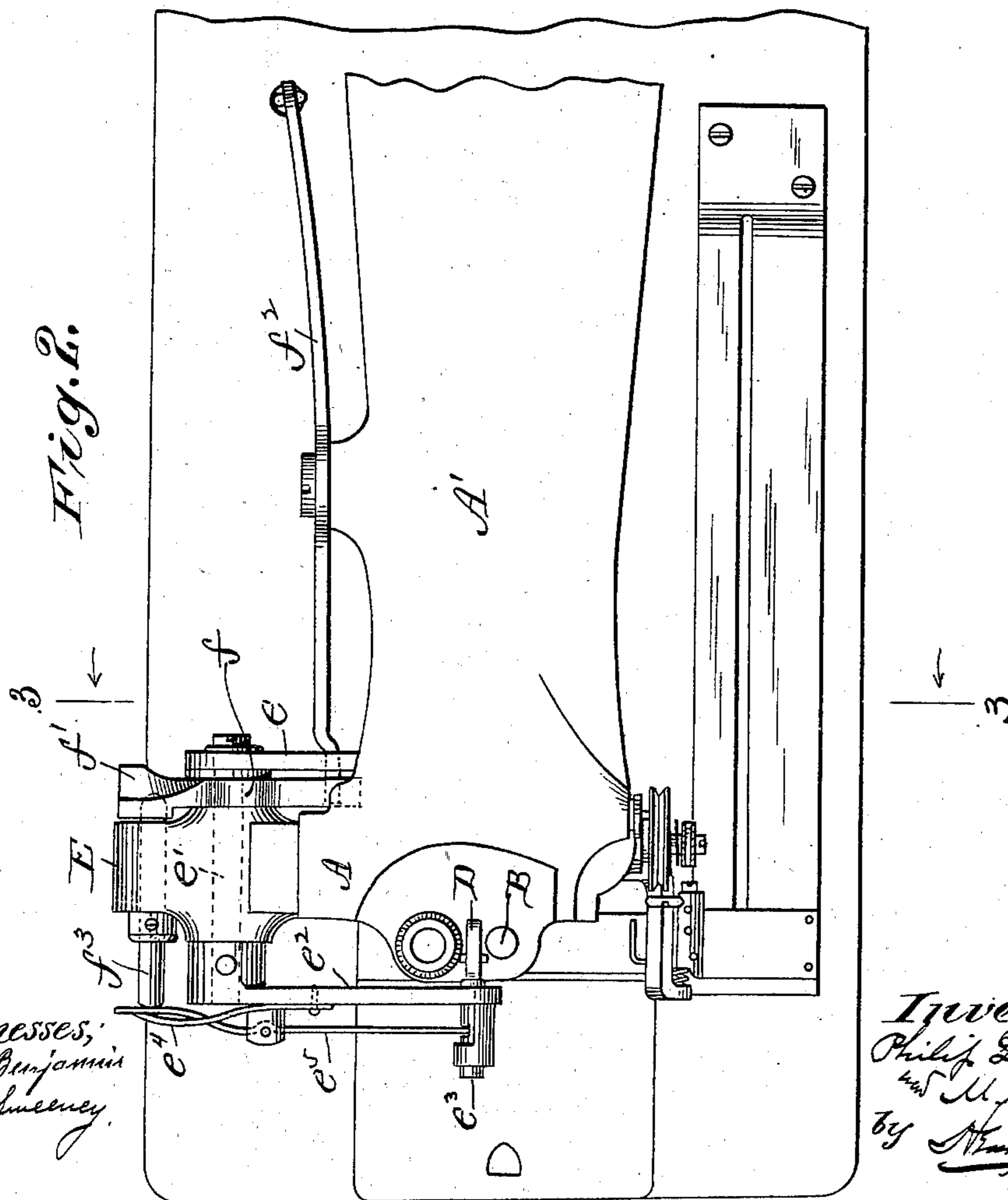
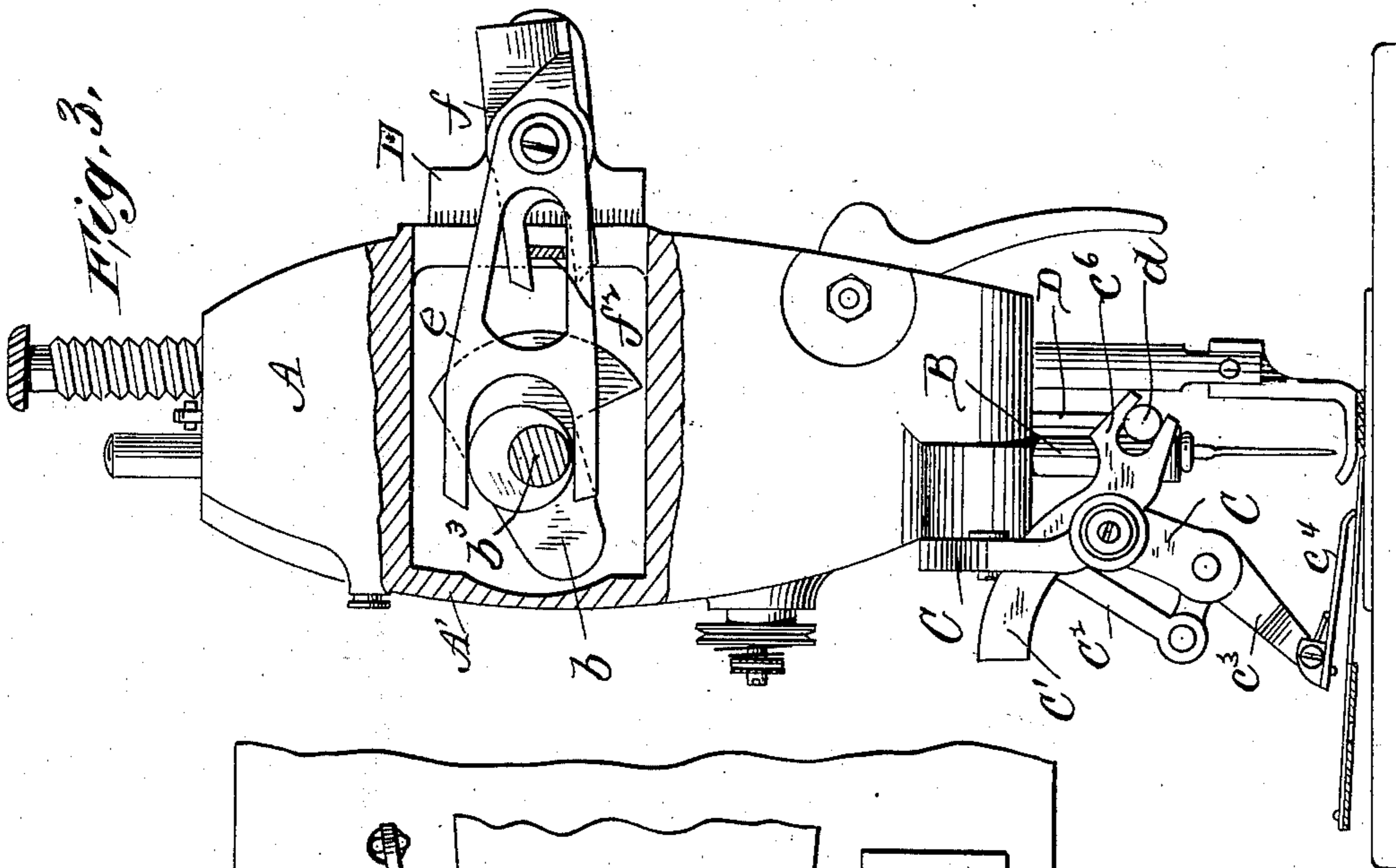
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(No Model.)

**3 Sheets—Sheet 2.**



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3 Sheets—Sheet 3.

Fig. 5.

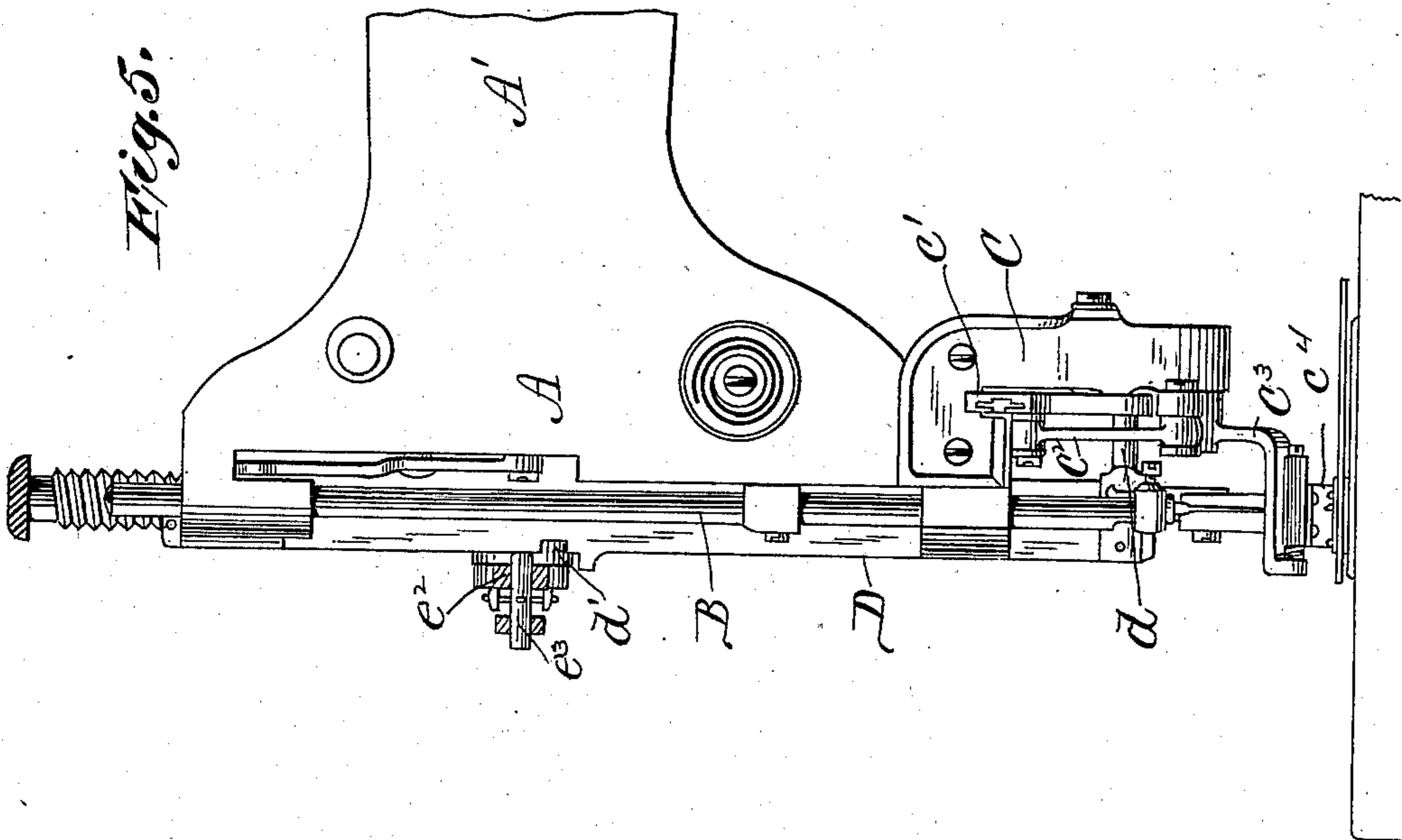
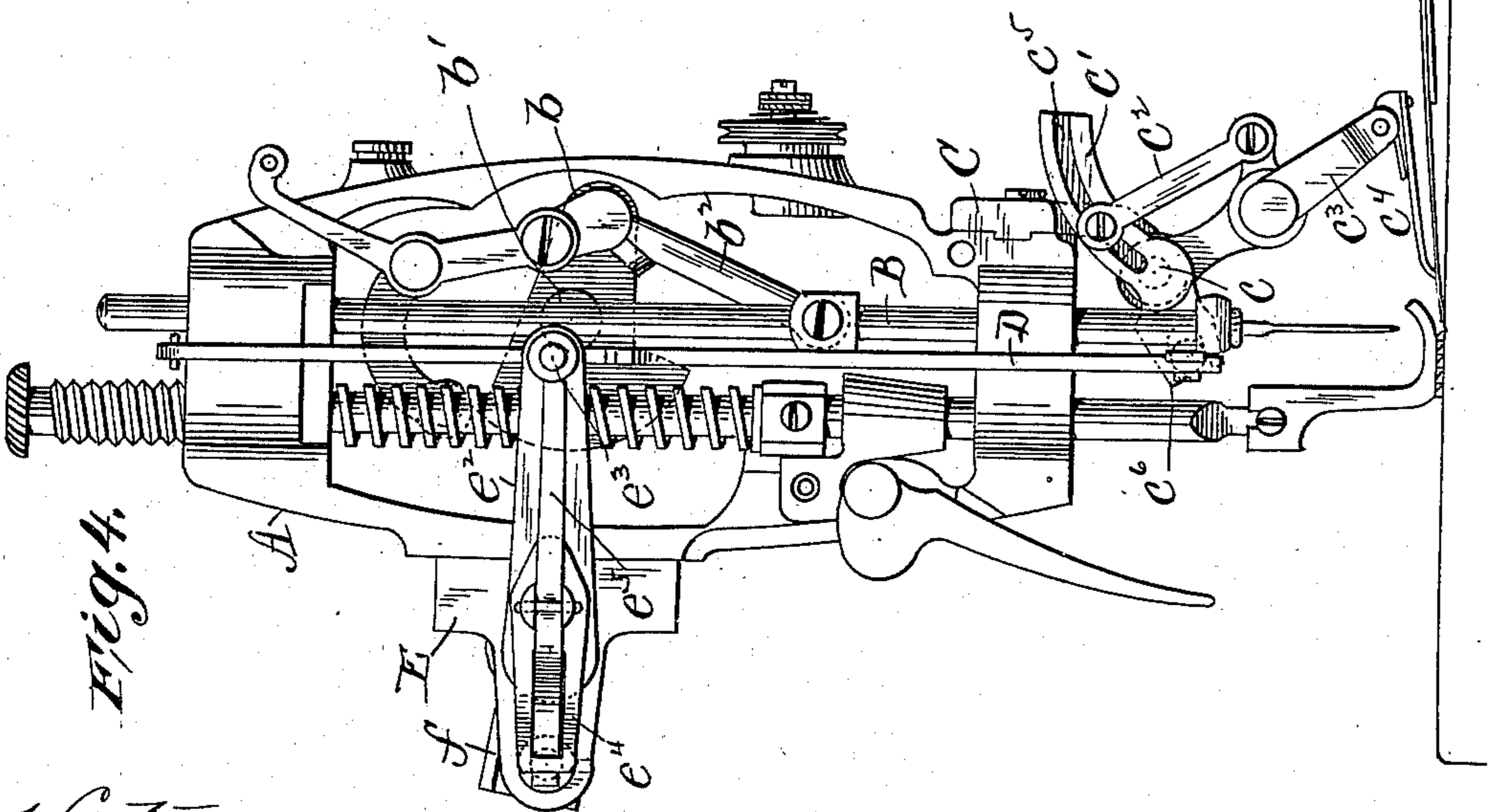


Fig. 4.



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# UNITED STATES PATENT OFFICE.

PHILIP DIEHL AND MARTIN HEMLEB, OF ELIZABETH, NEW JERSEY, ASSIGNORS TO THE SINGER MANUFACTURING COMPANY, OF NEW JERSEY.

## RUFFLING SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 656,441, dated August 21, 1900.

Application filed June 26, 1899. Serial No. 721,919. (No model.)

*To all whom it may concern:*

Be it known that we, PHILIP DIEHL and MARTIN HEMLEB, citizens of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Sewing-Machine Rufflers or Gatherers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention has for its object to provide a sewing-machine ruffling or gathering device which is adapted to be thrown out of action by the attendant while the machine is running, so that the machine may do plain stitching or may form stitched ruffles or gathers, as may be desired, without requiring the rapid operation of the machine to be suspended. Thus in doing such work as sewing sleeves into shirts, where it is desired to gather the fabric during a portion of the seam and to form a portion of the seam plain, the attendant may at any desired moment throw the ruffler or gatherer into or out of operation without stopping the machine, this being preferably effected by a treadle or knee-lever-operated device actuated from beneath the work-plate, thus leaving the hands of the attendant free for the convenient manipulation of the work.

In the accompanying drawings, Figure 1 is a rear side view of one style of Singer sewing-machine with the invention applied thereto. Fig. 2 is a partial plan view of the same. Fig. 3 is a sectional elevation on line 3-3 Fig. 2 looking in the direction of the arrows adjacent to said line. Fig. 4 is a front end elevation of the machine-head with the face-plate removed, and Fig. 5 is a front side elevation of the same. Fig. 6 is a detail view of part of the coupling and uncoupling mechanism.

A denotes the head at the forward end of the machine bracket-arm A'.

B is the needle-bar, operated in a well-known manner from a crank  $b$  on the driving-shaft  $b'$  through a pitman  $b^2$ .

C is a bracket attached to the head A, and to which bracket is pivoted at  $c$  an operating-lever  $c'$ , connected by a link  $c^2$  with an elbow-lever  $c^3$ , carrying the ruffling or plaiting blade

$c^4$ . The link  $c^2$  has an adjustable connection at its upper end with the operating-lever  $c'$  by means of the curved groove  $c^5$  in one arm of said lever, the latter being forked at  $c^6$  at its other end for engagement with a stud  $d$  on a vertically-reciprocating operating-bar D, which imparts movement to the said lever  $c'$ .

The driving-shaft  $b'$  is provided at the rear of the crank  $b$  with an eccentric  $b^3$ , embraced by a forked arm  $e$  on a rock-shaft  $e'$ , having its bearing in a bracket E, attached to the rear side of the head A, said shaft having a second arm  $e^2$ , carrying at its forward end a sliding coupling-pin  $e^3$ , adapted to engage a notch  $d'$  in the operating-bar D.

Loosely mounted on the shaft  $e'$  is a lever  $f$ , having an incline  $f'$ , with which the rear end of a small rod  $f^3$ , fitted to slide loosely in the bracket E, is in contact, said rod being pressed toward the incline on said lever by a spring  $e^4$  on the arm  $e^2$  of the shaft  $e'$ . A spring-lever  $e^5$ , pivotally mounted on the said arm  $e^2$  and engaging at one end the pin  $e^3$ , is so placed that its other end is pressed against the forward end of the slide-rod  $f^3$  by the spring  $e^4$ , so that when the said slide-rod is forced forward or outward by the downward movement of the incline  $f'$  of the lever  $f$  the coupling-pin  $e^3$  will be pressed against the operating-bar D by the spring-lever  $e^5$ , and thus when said pin by the vibration of constantly-moving arm  $e^2$  comes into register with the notch  $d'$  of the said operating-bar said pin will be forced into said notch, thus coupling the said bar with said vibrating arm, and thereby through said operating-bar putting the ruffler or gatherer into action to form ruffles or gathers in the work. The arc of vertical movement of the rear end of the spring-lever  $e^5$  is so short that said lever does not move out of contact with the outer end of the rod  $f^3$ .

The coupling-lever  $f$  is, preferably, actuated by the attendant through a lever  $f^2$ , engaging the forked inner end of the said lever  $f$  and connected by a rod  $f^4$  with a suitable knee-lever or treadle of ordinary construction located beneath the work-plate A<sup>2</sup> of the machine, thus leaving the hands of the attendant free for the convenient manipulation of the work. The flanges  $f^5$  at the top and

bottom of the incline  $f'$  serve as stops to limit the movement of the lever  $f$  by abutting against the upper and lower sides of the slide-rod  $f^3$ .

5 From the foregoing it will be understood that while the rear end of the lever  $f^2$  is held depressed and the coupling-lever  $f$  is tilted down, so that the parts are in the positions shown in Fig. 6 and denoted by dotted lines  
10 in Fig. 1, the coupling-pin  $e^3$  will be held in engagement with the operating-bar D and the ruffler or gatherer will continue in operation while the machine is running. When it is desired to suspend the operation of the ruffler  
15 or gatherer, the attendant releases the knee-lever or treadle, when the pressure of the spring  $e^4$ , acting through the spring-lever  $e^5$  and the slide-rod  $f^3$ , will restore the parts to the positions shown in Fig. 2 and in full lines  
20 in Fig. 1, thus uncoupling the pin  $e^3$  from the operating-bar D and throwing the ruffler or gatherer out of action. This coupling and uncoupling of the operating-bar D and its actuating mechanism is easily and instantly  
25 effected while the machine is running at any speed and without any appreciable shock or jar, so that gathered or plain sewing at the will of the attendant may be done on high-speed machines without suspending or slack-  
30 ening the running thereof.

We do not claim, broadly, in this application the combination, with a sewing-machine ruffling or plaiting attachment provided with an operating-lever, of a vertically-reciprocating bar in the head of the machine and independent of the needle-bar and connected with  
35 and serving to operate said lever, this feature of our invention being claimed in our application No. 721,918, filed simultaneously herewith.  
40

We do not wish to be understood as limiting our invention to the details herein shown, as these may be varied widely without departing from the essence of our invention.

45 Having thus described our invention, we claim and desire to secure by Letters Patent—

1. The combination with a sewing-machine ruffling or gathering attachment, of a bar for  
50 operating said attachment, an actuating device for said bar, coupling mechanism for connecting and disconnecting said actuating device and operating-bar, said coupling mechanism comprising a lever having a portion  
55 which is inclined relative to the direction of movement of said lever, a sliding rod operated by the inclined portion of said lever, and means for holding said sliding rod in contact with said inclined portion: whereby the attendant may throw the said attachment into  
60

or out of operation while the machine is running.

2. The combination with a sewing-machine ruffling or gathering attachment, of a notched, operating-bar for said attachment, independent of the needle mechanism of the machine,  
65 a constantly-vibrating arm carrying a sliding coupling-pin adapted to engage the notch of said bar, and a lever controlled by the attendant and provided with a portion which is inclined relative to the line of movement of  
70 said lever, which latter is connected with the said coupling-pin to control the movements of said pin in coupling and uncoupling said operating-bar and vibrating arm.  
75

3. The combination with a sewing-machine ruffling or gathering attachment, of a notched operating-bar D therefor, a constantly-operating vibrating arm carrying a coupling-pin adapted to engage the notch of said bar, a  
80 spring-lever carried by said arm and engaging said pin, a slide-rod to operate said lever, and a movable incline, controlled by the attendant, to actuate said slide-rod and throw the said attachment into or out of operation  
85 while the machine is running.

4. The combination with a sewing-machine ruffling or gathering attachment, of an operating-bar therefor, a constantly-moving rock-shaft having a vibrating arm provided with  
90 a coupling-pin to engage said bar, a lever provided with an incline, a slide-rod controlled by said incline, connections between said slide-rod and coupling-pin, and means whereby said lever may be actuated by the attendant  
95 while the machine is running to cause the said coupling-pin to be engaged with or disengaged from said operating-bar.

5. The combination with a sewing-machine ruffling or gathering attachment, of a bar for  
100 operating said attachment, an actuating device for said bar, coupling mechanism for connecting and disconnecting said actuating device and operating-bar, said coupling mechanism comprising a lever having an incline,  
105 stops for limiting the movement of said lever in either direction, a sliding rod operated by said lever, and means for holding said sliding rod in contact with said incline; whereby the attendant may throw the said attachment into  
110 or out of operation while the machine is running, and whereby, also, the movement of the said lever by the attendant, will be limited.

In testimony whereof we affix our signatures in the presence of two witnesses.

PHILIP DIEHL.  
MARTIN HEMLER.

Witnesses:

HENRY J. MILLER,  
HAROLD W. BROWN.