

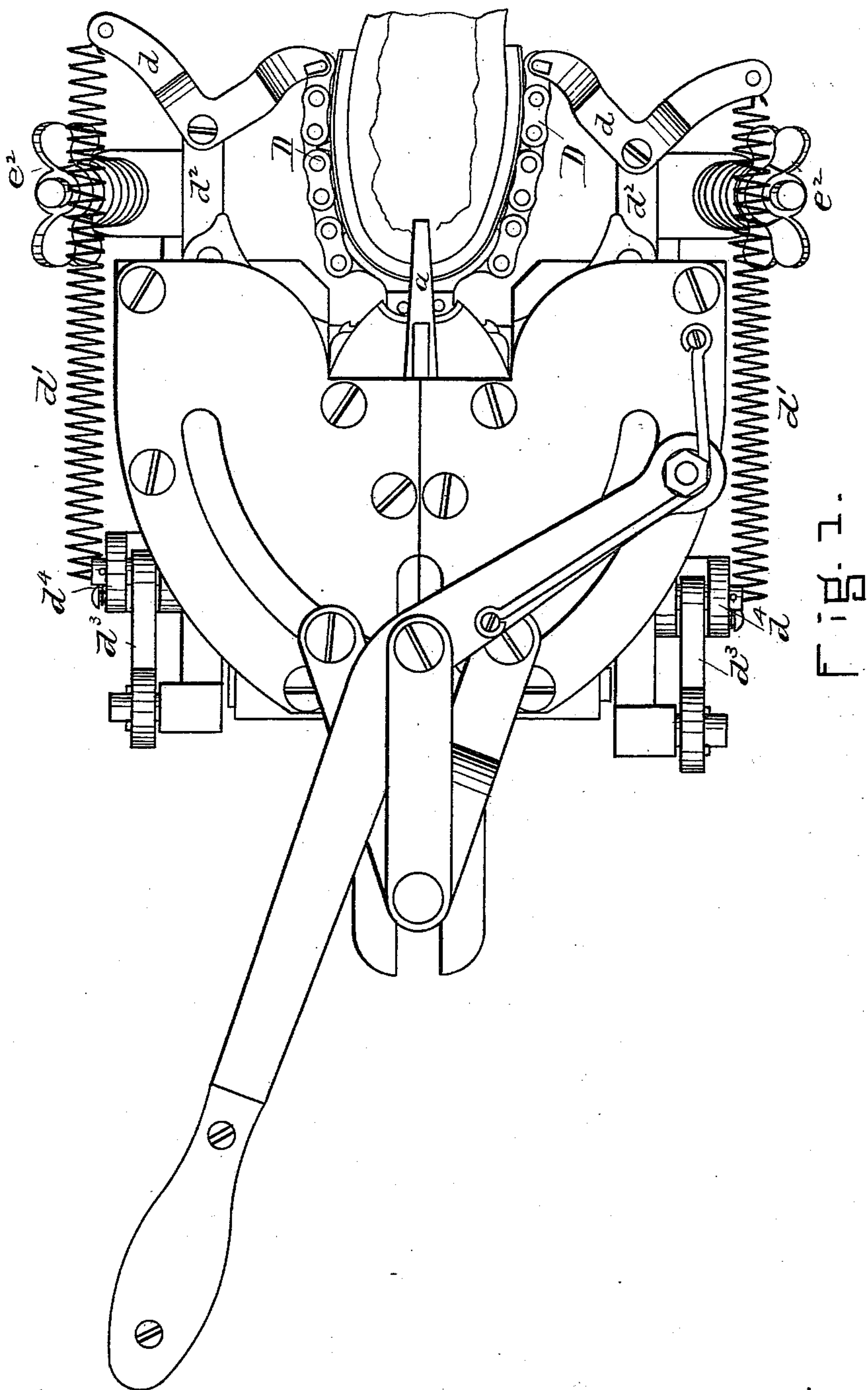
(No Model.)

5 Sheets—Sheet 1.

E. F. GRANDY.
LASTING MACHINE.

No. 420,268.

Patented Jan. 28, 1890.



WITNESSES.

J. E. Crisp

Mary E. Woodburn.

INVENTOR.

Edward F. Grandy.

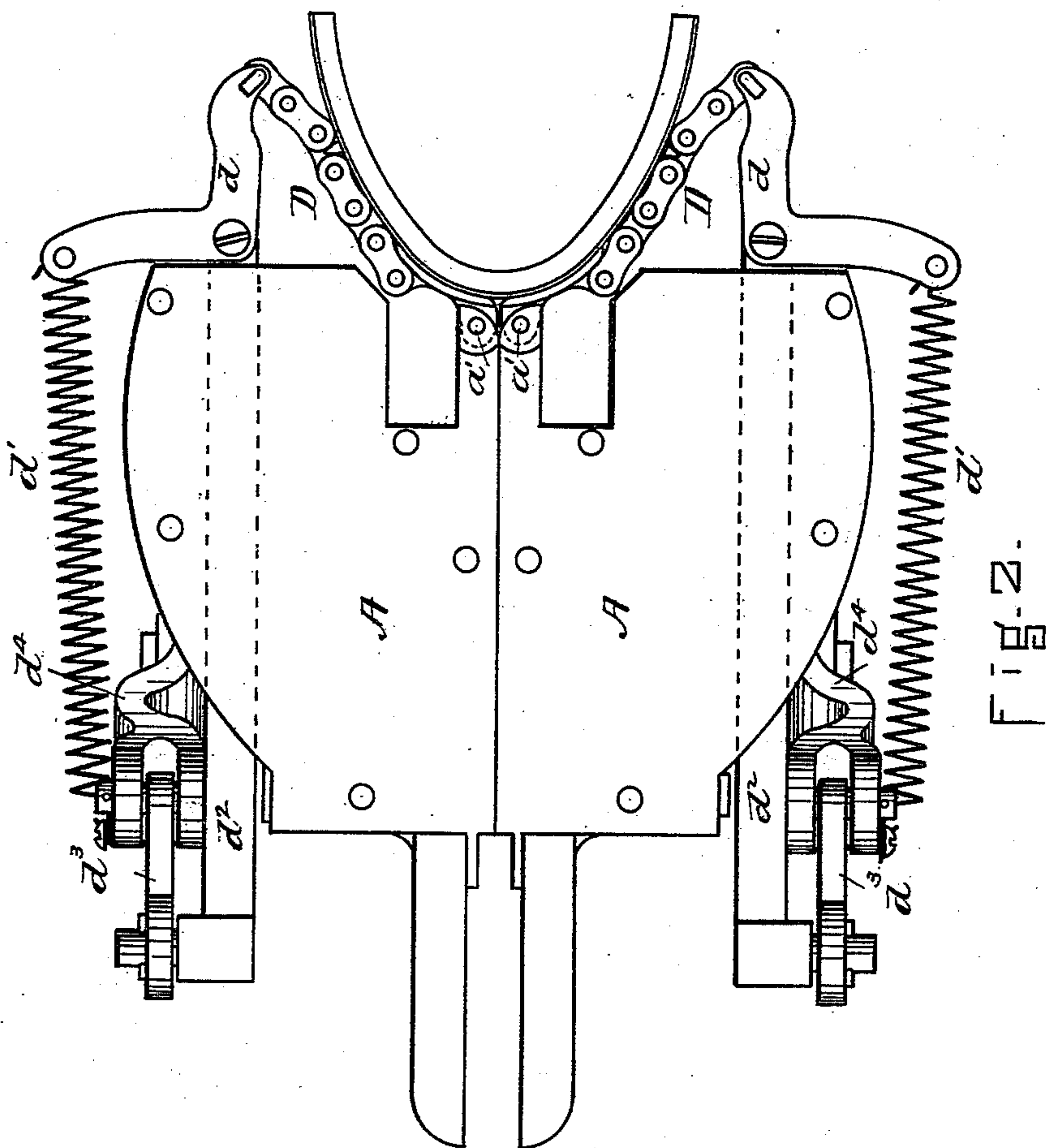
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5 Sheets—Sheet 3.

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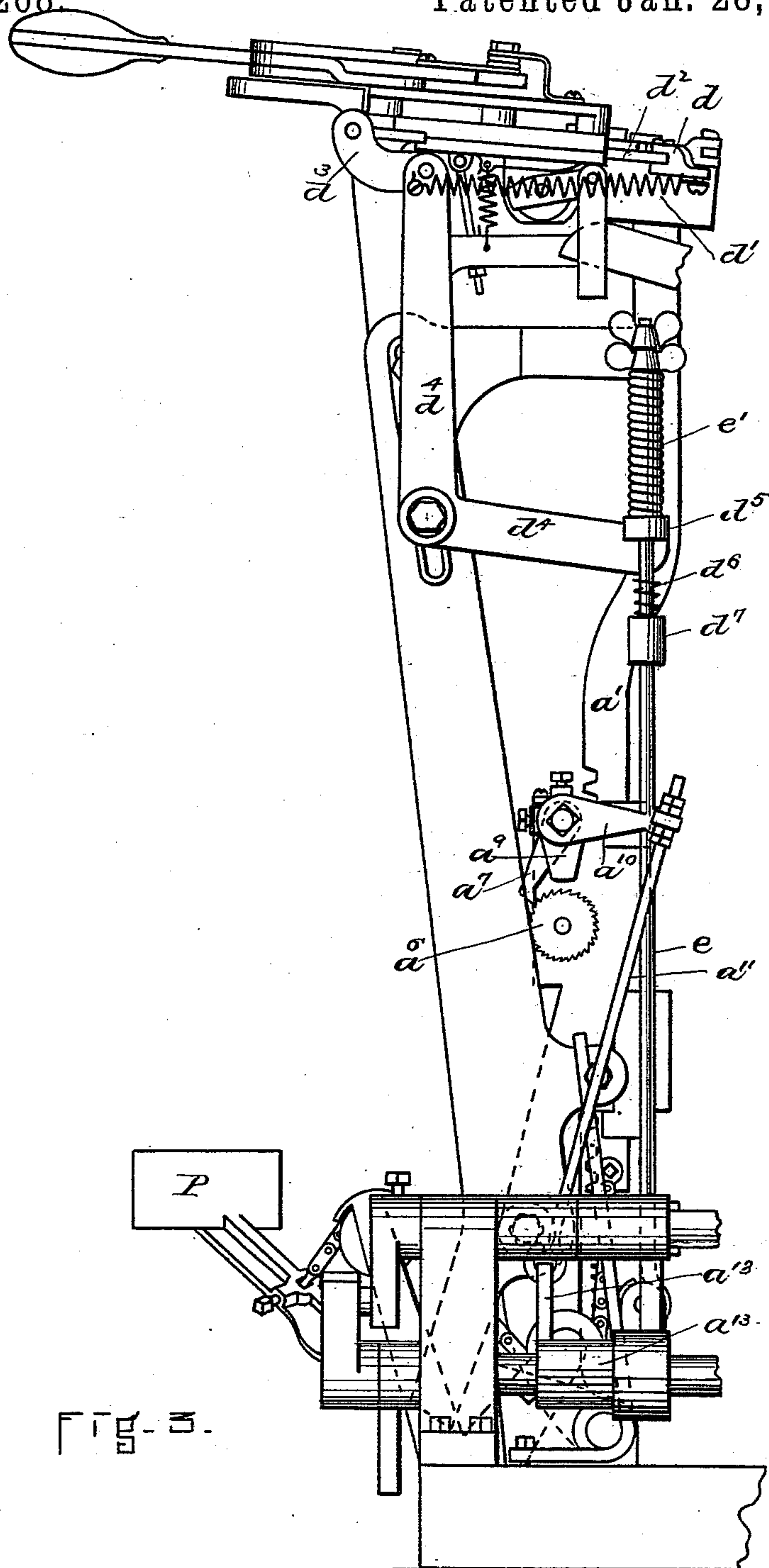


FIG. 3.

WITNESSES.

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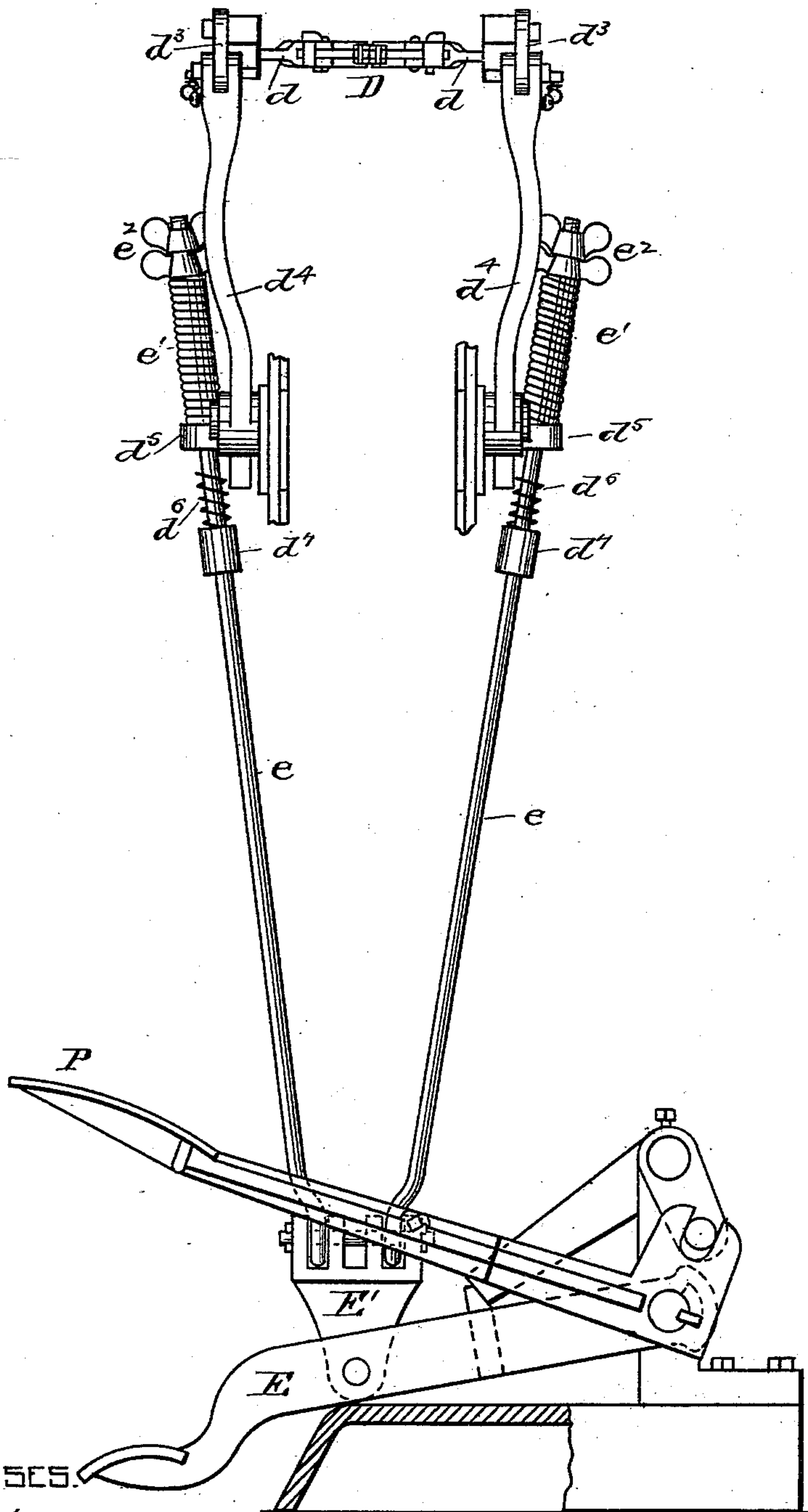
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Patented Jan. 28, 1890.



WITNESSES.

J. E. Briggs
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FIG. 4.

Edward F. Grandy

(No Model.)

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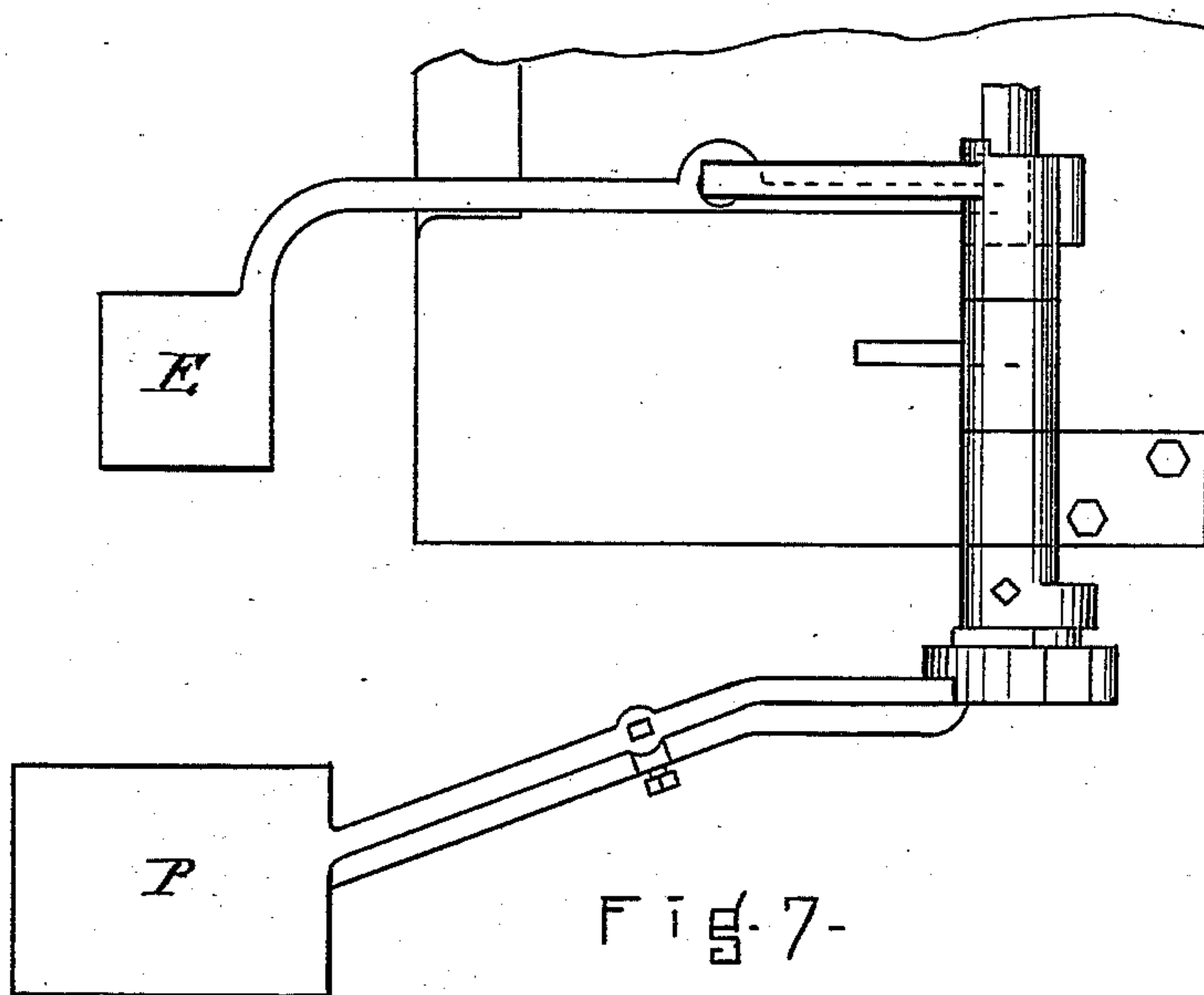


Fig. 7-

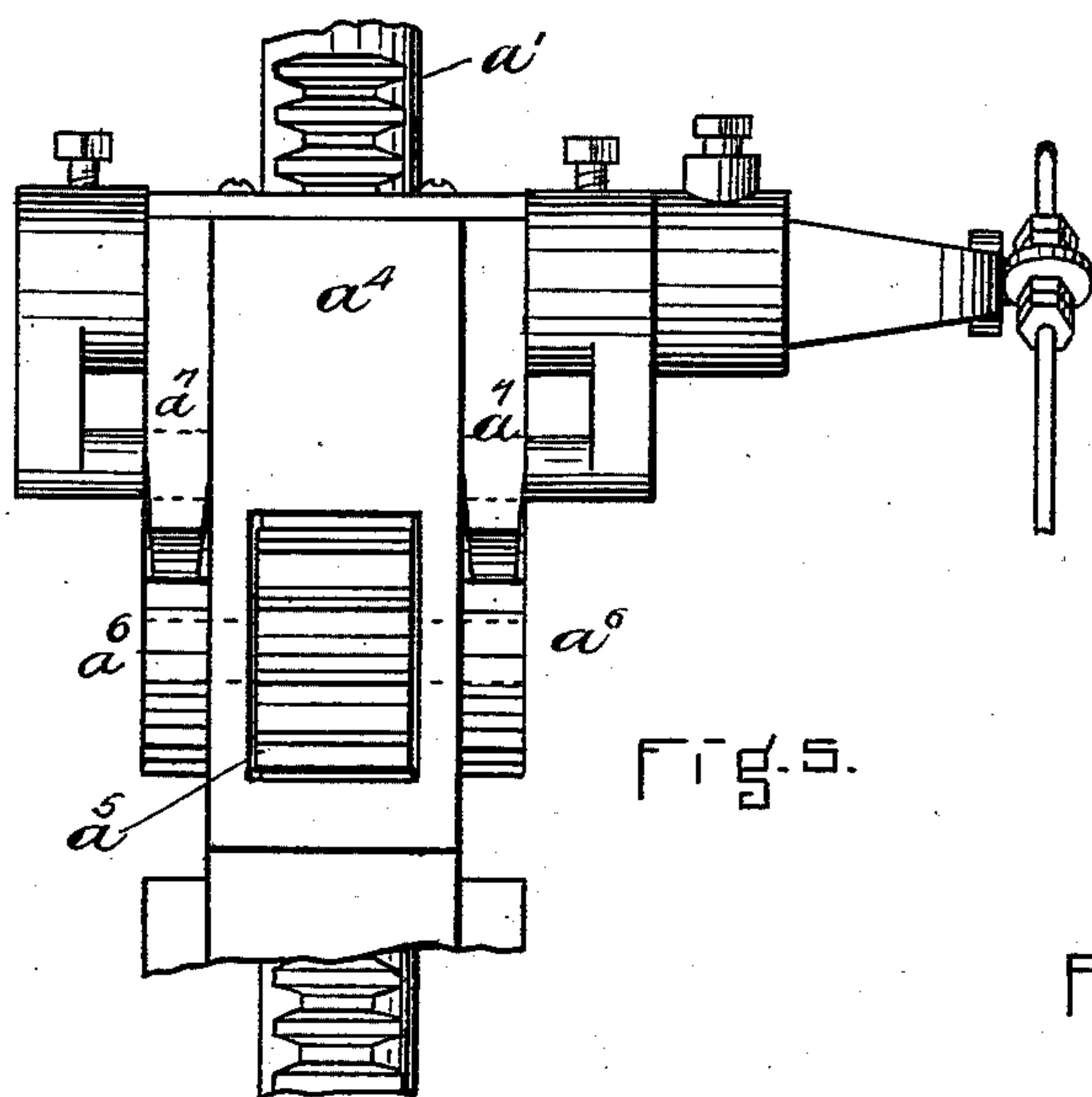


Fig. 5.

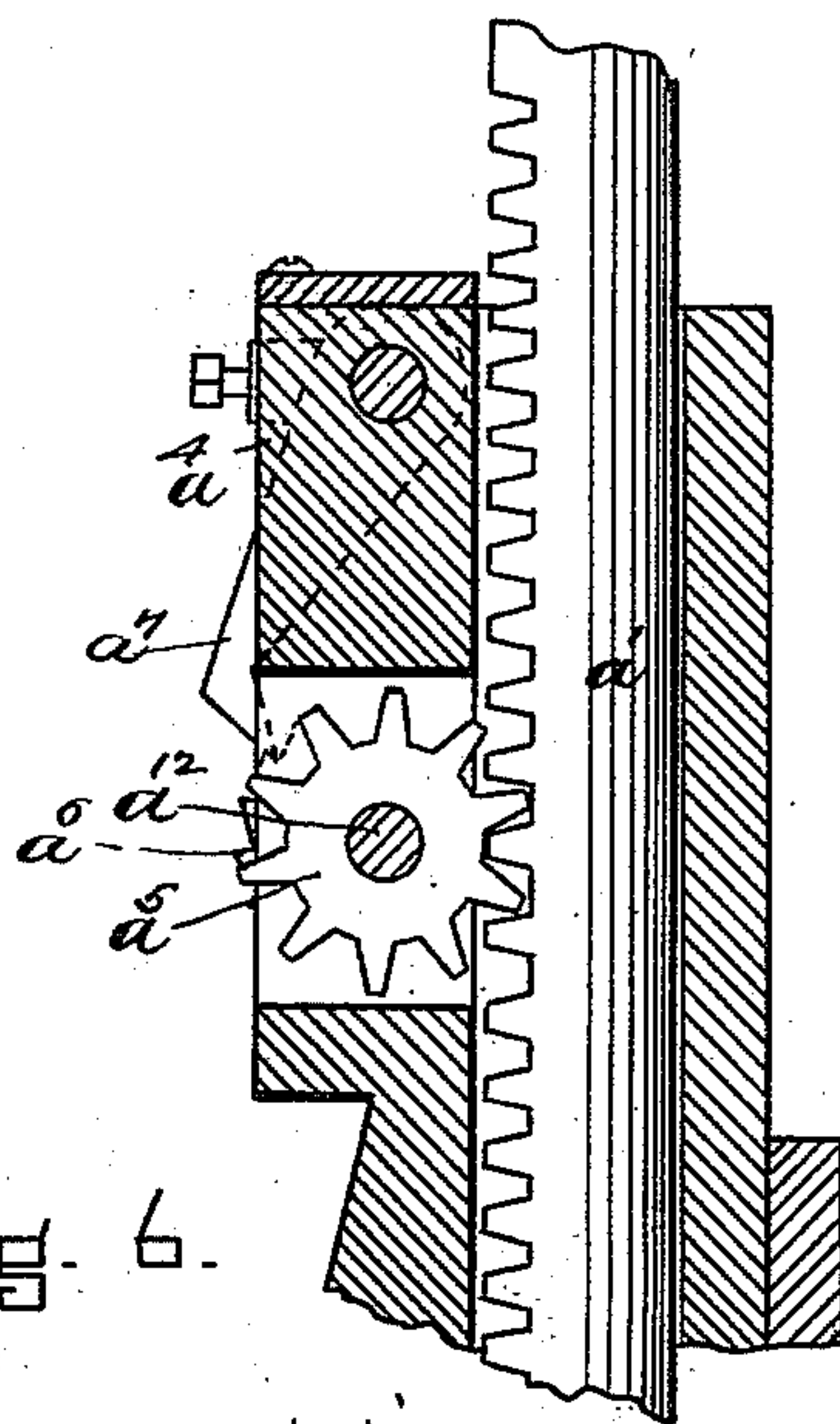


Fig. 6.

WITNESSES.

J. E. Smith
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INVENTOR.

Edward F. Grandy

UNITED STATES PATENT OFFICE.

EDWARD F. GRANDY, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
COPELAND IMPROVED LASTING AND TACKING COMPANY, OF SAME
PLACE.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 420,268, dated January 28, 1890.

Application filed November 4, 1889. Serial No. 329,184. (No model.)

To all whom it may concern:

Be it known that I, EDWARD F. GRANDY, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Lasting Boots and Shoes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

This invention consists of improvements upon those described and shown in prior Letters Patent granted me as joint inventor with others, dated June 28, 1887, and numbered, respectively, 365,504 and 365,505, and it relates to various details of construction to be hereinafter described.

In the drawings, Figure 1 is a plan view of the heel-lasting head, showing the band embracing the heel. Fig. 2 is a plan view of the same head with the lasting-plates and operating mechanism removed, showing the band open. Fig. 3 is a side elevation of the head and its support, showing the relation of the head to the jack-post. Fig. 4 is a front elevation of part of Fig. 3. Fig. 5 shows a portion of the jack-post and its locking mechanism. Fig. 6 is a cross-section of Fig. 5, showing the relation of the rack and pinion and the ratchets and pawls. Fig. 7 shows the treadles for operating the pawls.

Similar letters refer to similar parts throughout the several views.

In the improvements shown in said prior Patent No. 365,504, the band was drawn around the heel or toe in sections, and one of the objects of this invention is to provide means whereby the band may be drawn simultaneously around both sides of the heel or toe of a boot or shoe and an adjustment to equalize the strain with reference to right and left lasts.

Another object of my said invention is to hold the jack-post more firmly against the downward pressure than heretofore, and at the same time to give it a more minute adjustment and greater stability in its sleeve.

D represents the heel band or strap, Figs.

1 and 2, to be composed of metal and leather and to be secured at its center under the downhold *a* to the head A at *a' a'*. Both sides of this band are simultaneously pressed or drawn around the sides of the heel by the bell-crank levers *d d*, operated by the sliding bars *d² d²*, against the force of the springs *d' d'*, and linked to the bell-crank levers *d⁴ d⁴* by the connecting-links *d³ d³*. These bell-crank levers *d⁴ d⁴* are operated by the foot-treadle E, Fig. 4, through the connection E', to which are jointed the drawing-rods *e e*. These rods *e e* pass through lugs *d⁵ d⁵*, and by acting against the force of the springs *e' e'* cause both sides of the band to embrace the quarter or toe of a boot or shoe, provision being made by the thumb-screw nuts *e² e²* to regulate the intensity with which the band embraces the shoe, the springs *e' e'* yielding with reference to each other to accommodate the band to the variations in size of lasts and also to the variations in shape of right and left lasts.

By inspection of Letters Patent No. 365,505 it will appear that after the lasting process is finished, in order to remove the last from the machine, the foot-treadle P is pressed down, thereby allowing all parts of the machine to resume their normal positions ready for another last to be put in position on the jack-post.

In order to prevent injury to the levers *d⁴ d⁴*, rebound-springs at *d⁶ d⁶* are placed beneath the lugs *d⁵ d⁵* and their positions are adjusted by the collars and set-screws *d⁷ d⁷*.

In said Patent No. 365,505 the jack-post is shown supported against downward pressure by a ratchet cut directly thereon and pawls engaging therewith; but in my present invention a rack is cut directly upon the jack-post *a'* and a pinion *a⁵* is fixed upon the shaft *a¹²*, the shaft *a¹²* being mounted in bearings formed back of the sleeve *a⁴* at such distance from the rack on *a'* that the points or ends of the teeth of both rack and pinion bottom sufficiently to prevent any motion of the jack-post upon its axis and yet allow it free vertical motion. (See Figs. 5 and 6.) Upon the shaft *a¹²*, outside of the sleeve *a⁴*, are fixed ratchet-wheels *a⁶ a⁶*, Fig. 5, one upon

each side thereof, and to engage with the teeth of said ratchets I have arranged the pawls a^7 a^7 , of sufficient strength to give the desired stability to the jack-post, and in order
5 to give increased range of adjustment to the jack-post I make one pawl one-half of a ratchet-tooth larger than the other, both being hung upon a common center. Fixed upon this shaft are the pawl-lifters a^9 a^9 , operated by
10 the lever a^{10} , Fig. 3, by means of the connecting-rod a^{11} , Fig. 3, attached to a crank a^{13} , so that the depression of the lever P will raise the pawls a^7 a^7 clear of the teeth of the ratchets a^6 a^6 and allow freedom of motion to the
15 jack-post and the parts connected therewith.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a lasting-machine, the combination, with lasting devices, of a jack-post movable
20 in its support, and a spring for moving it upward in relation thereto, with a rack on the back of said jack-post and a pinion which engages with said rack and prevents said jack-post from turning in its sleeve, substan-

tially as and for the purpose shown and described. 25

2. In a lasting-machine, the combination, with lasting devices, of the rack a' and pinion a^5 with the ratchet-wheels a^6 and a^6 , the retaining-pawls a^7 and a^7 , and lifting mechanism for said pawls, substantially as and for
30 the purpose shown and described.

3. In a lasting-machine, the combination, with lasting devices, of the foot-treadle E, the connection-rods e e , each provided with a collar and spring and springs for governing or
35 equalizing the pressure given by the band on the counter or toe, substantially as and for the purpose shown and described.

4. In a lasting-machine, the combination, 40 of the spring e' , the thumb-screw nuts c^3 , and the rod e , arranged and operating in the manner and for the purpose as shown and described.

EDWARD F. GRANDY.

Witnesses:

JOS. E. CRISP,

MARY E. WOODBURN.