

No. 804,102.

PATENTED NOV. 7, 1905.

W. C. CUNNINGHAM.

MACHINE FOR IRONING THE EDGES OF COLLARS AND CUFFS.

APPLICATION FILED AUG. 13, 1904.

4 SHEETS—SHEET 1.

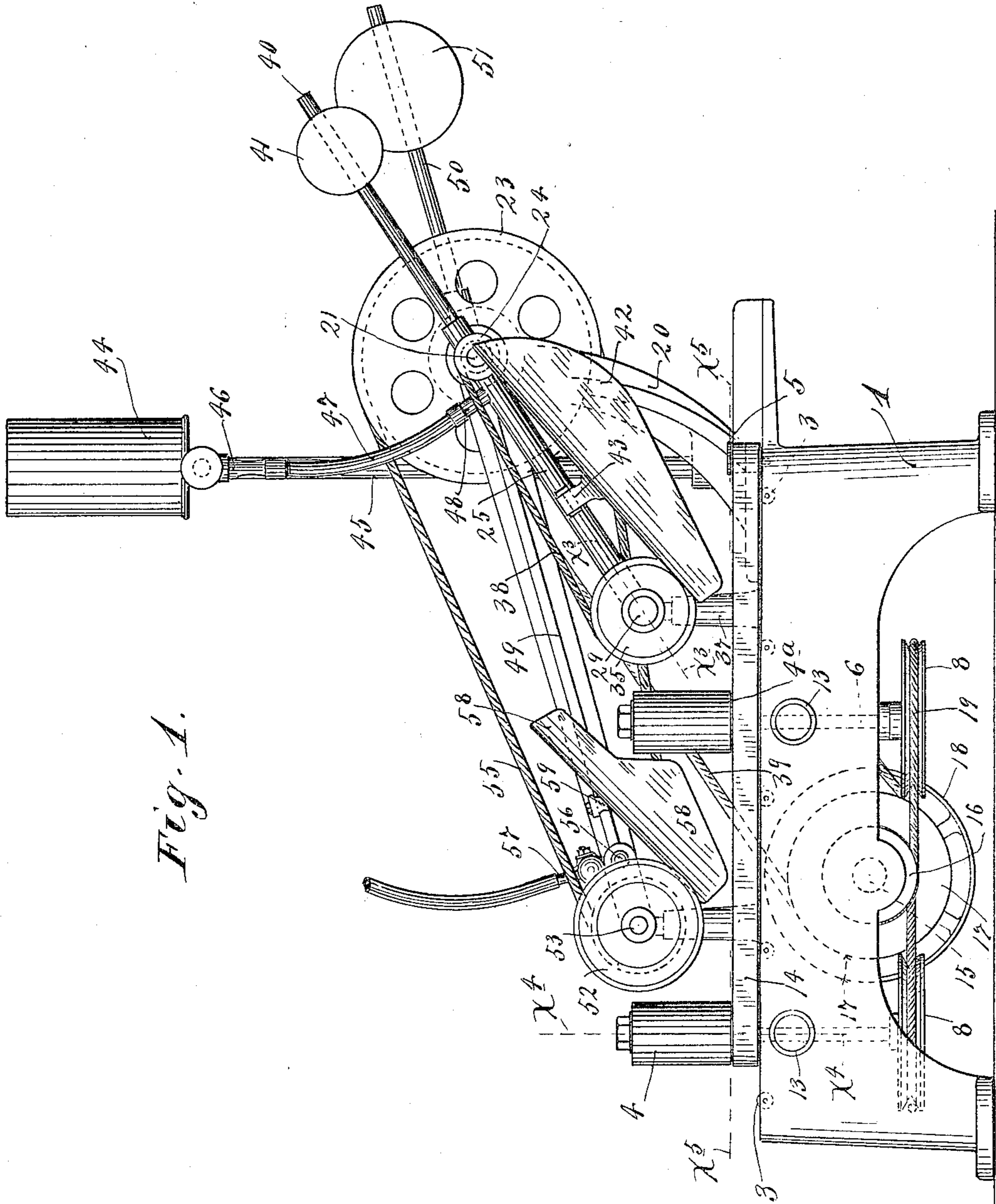


Fig. 1.

Witnesses.

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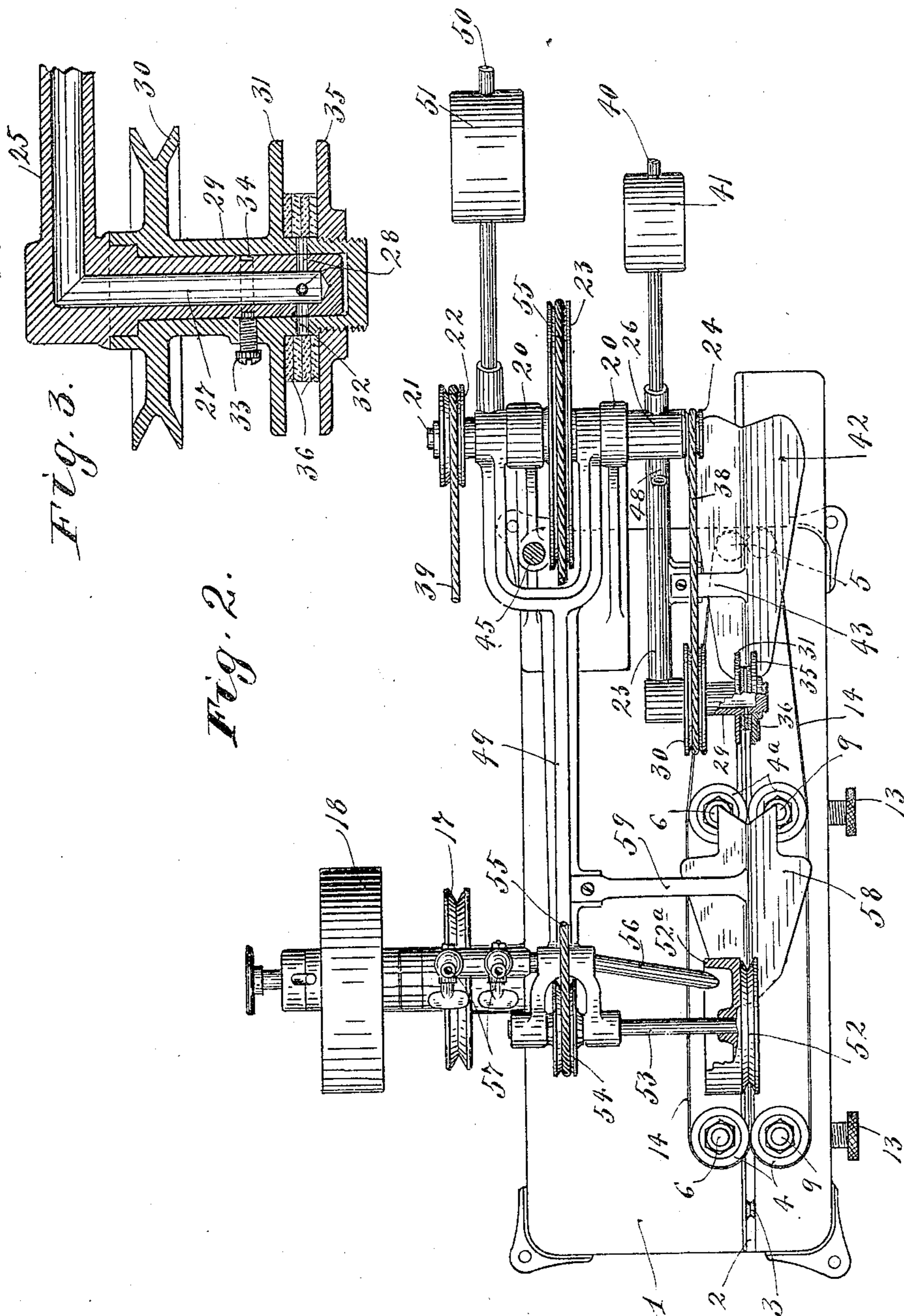
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4 SHEETS—SHEET 3.

Fig. 4.

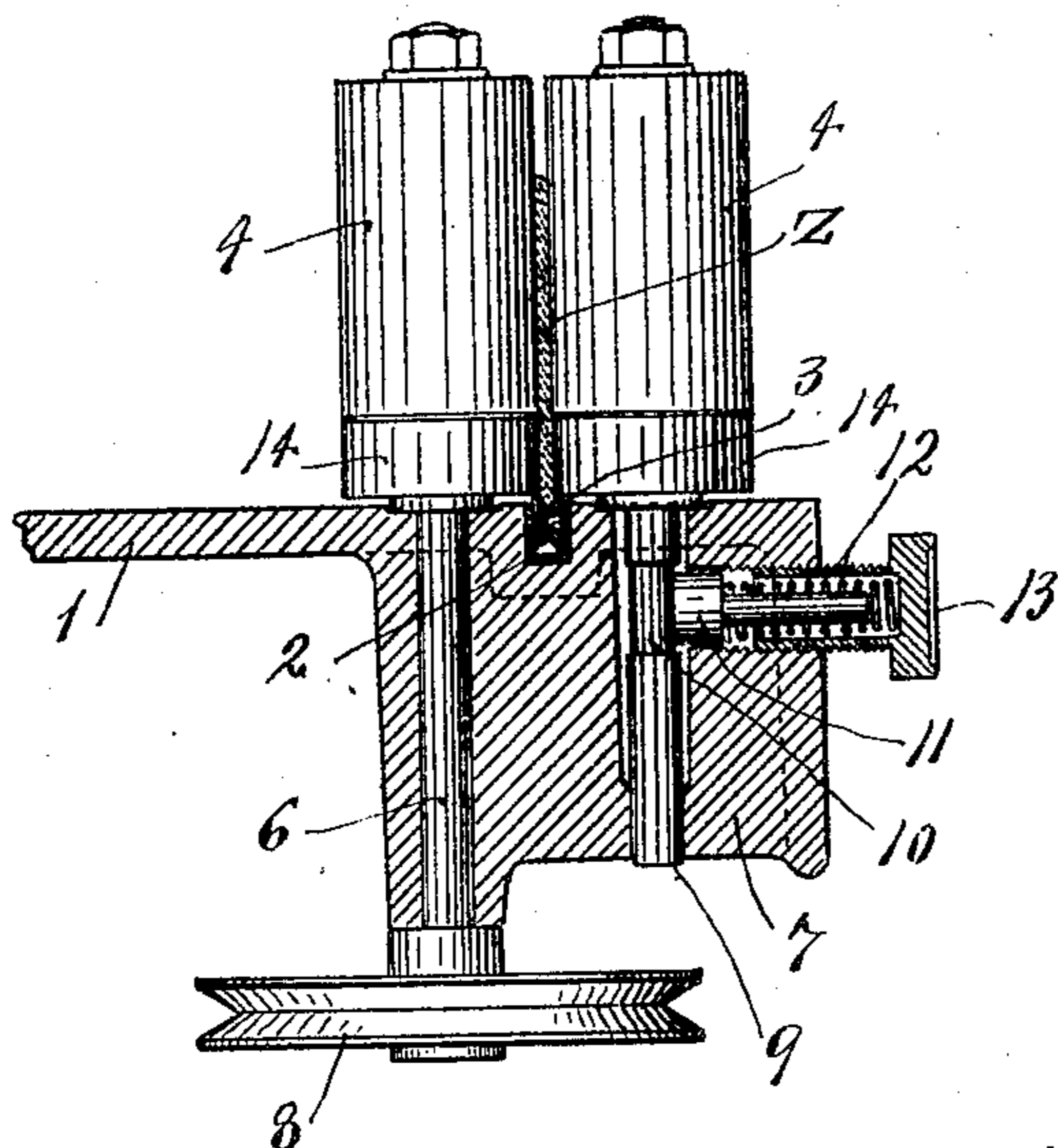


Fig. 7.

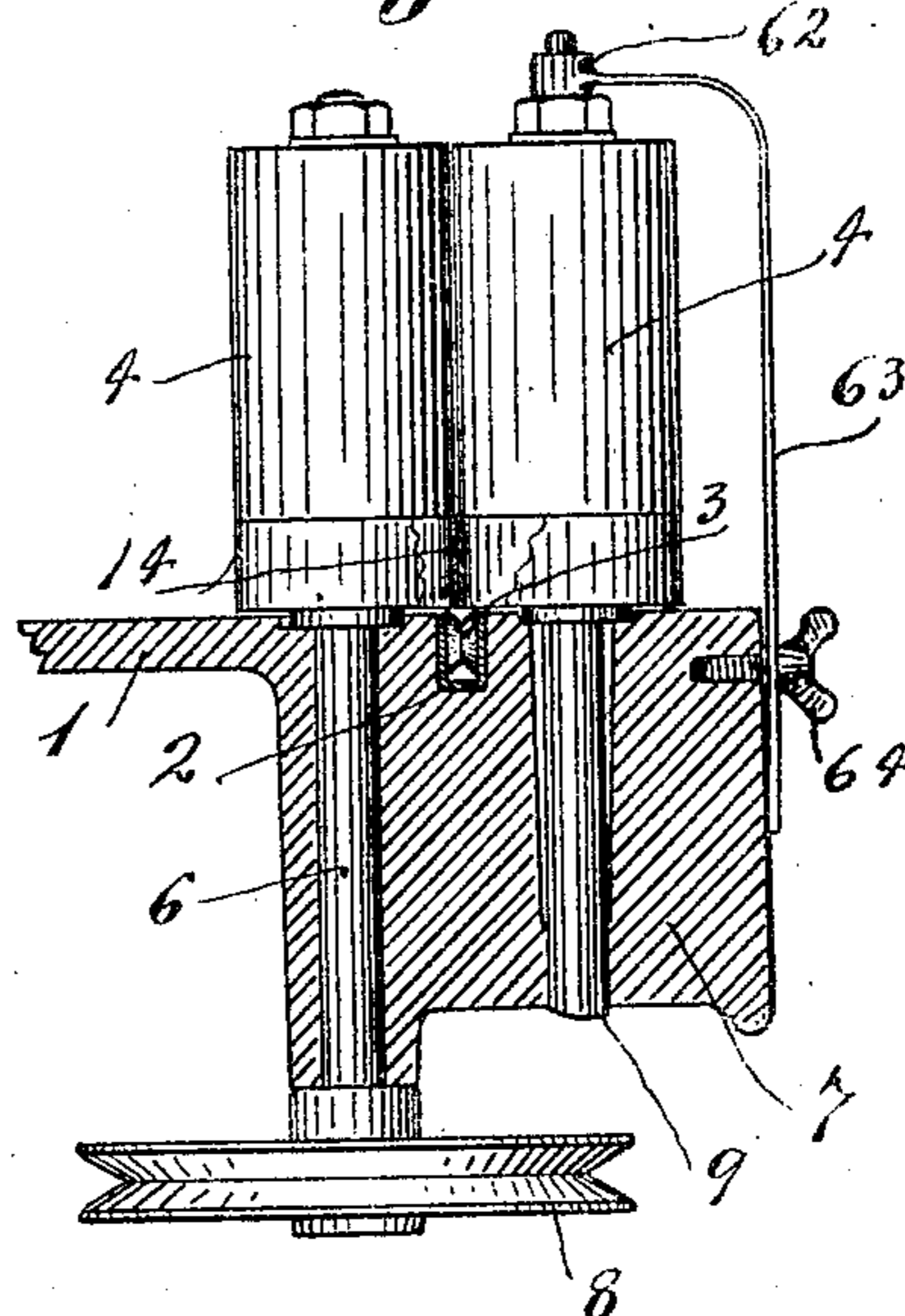


Fig. 5.

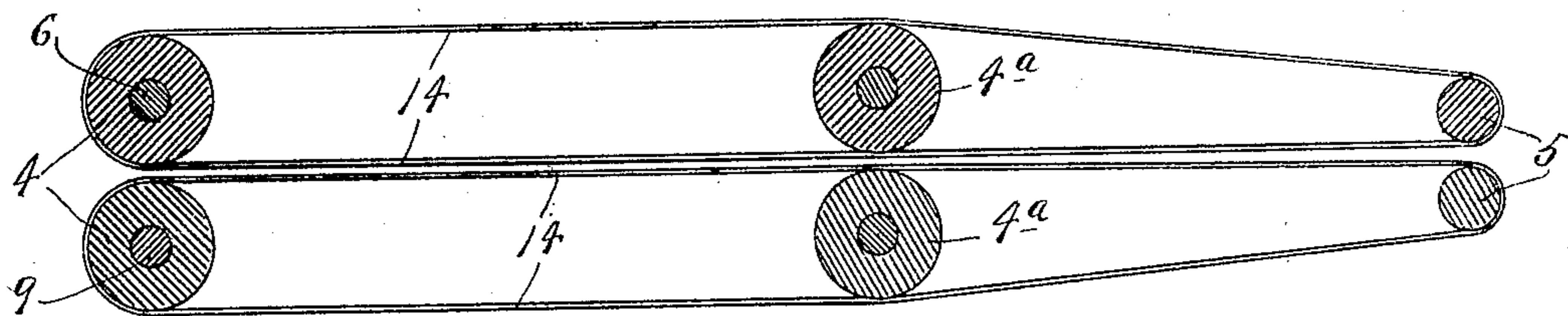
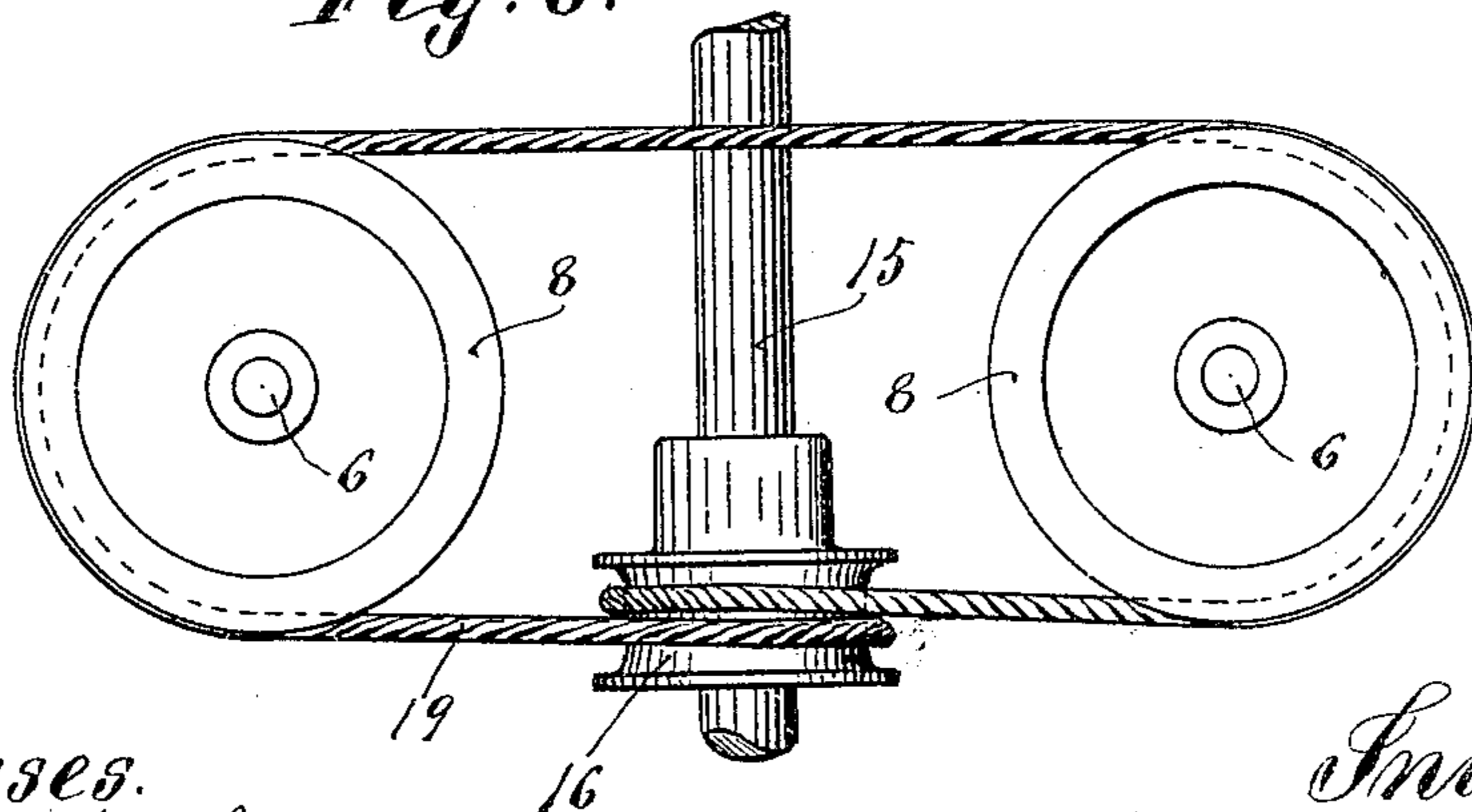


Fig. 6.



Witnesses.

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4 SHEETS—SHEET 4.

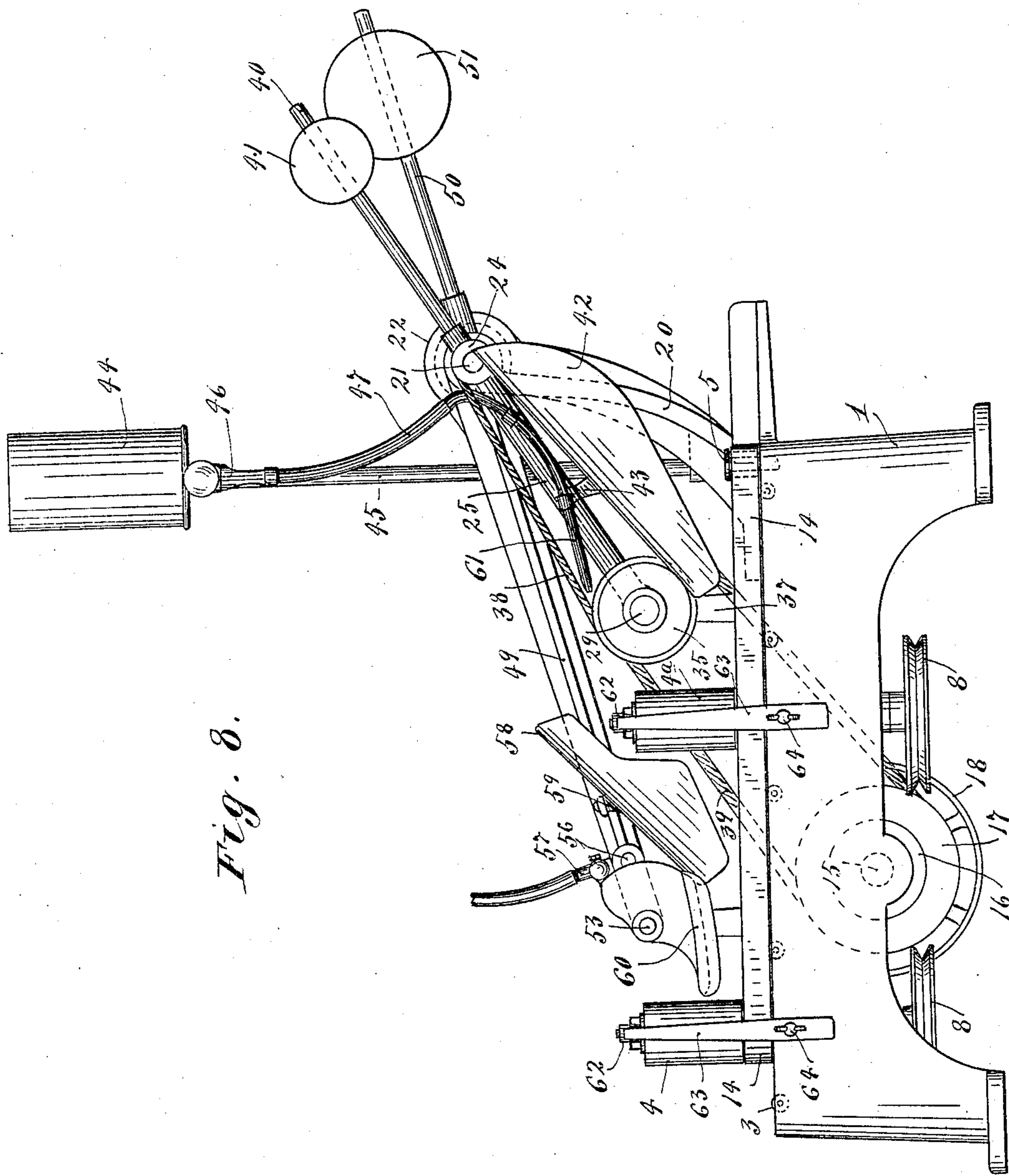


Fig. 8.

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UNITED STATES PATENT OFFICE.

WALTER C. CUNNINGHAM, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO
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MACHINE FOR IRONING THE EDGES OF COLLARS AND CUFFS.

No. 804,102.

Specification of Letters Patent.

Patented Nov. 7, 1905.

Application filed August 13, 1904. Serial No. 220,677.

To all whom it may concern:

Be it known that I, WALTER C. CUNNINGHAM, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Machines for Ironing the Edges of Collars and Cuffs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to so-called "edge-ironing machines"—that is, that class of machines which are especially adapted for use in laundries to iron edges of collars and cuffs, and has for its object to generally improve the same in point of efficiency, simplicity, and rapidity of action.

To the above ends the invention consists of the novel devices and combinations of devices hereinafter described, and defined in the claims.

The invention is illustrated in the accompanying drawings, wherein like characters indicate like parts throughout the several views.

Figure 1 is a view in side elevation, illustrating my improved machine. Fig. 2 is a plan view of the machine with some parts broken away. Fig. 3 is a detail in transverse section, taken approximately on the line $x^3 x^3$ of Fig. 1. Fig. 4 is a transverse vertical section on the line $x^4 x^4$ of Fig. 1. Fig. 5 is a detail in horizontal section on the line $x^5 x^5$ of Fig. 1, some parts being removed. Fig. 6 is a detail in bottom plan view, some parts being broken away and others removed. Fig. 7 is a view corresponding to Fig. 4, but illustrating a slightly-modified construction; and Fig. 8 is a view corresponding to Fig. 1, but illustrating a slightly-modified construction of the machine.

The numeral 1 indicates a suitable frame supported by legs and is formed with a flat horizontal upper surface affording a bed-plate and having a longitudinal extended groove 2, in which is loosely journaled a plurality of small grooved bed rolls or wheels 3, adapted to engage the lower edge of the collar or cuff, as will hereinafter more fully appear.

The character z indicates a collar (see Fig. 4) which is supported in vertical position by the said bed-wheels 3. The collar is held in

an upright position and is fed longitudinally of the machine by opposing pairs of vertically-disposed feed-rolls 4, 4^a, and 5, said rolls 5 being idle members loosely journaled on the face of the frame 1. The feed-rolls 4 and 4^a are preferably rubber-faced to give them increased frictional action on the collar or cuff. The inner rolls 4 and 4^a are provided with the depending shafts 6, that are journaled in a bearing portion 7 of the frame 1 and are provided at their lower ends with grooved pulleys 8. The outer roller 4 and 4^a have depending stems 9, that are journaled in the bearing 7 with freedom for lateral movement, so as to permit the coöperating rollers to move toward and from each other, and thus adapt themselves to the thickness of the collar or cuff. As illustrated in Fig. 4, the stems 9 are reduced at 10 and at such points are engaged by spring-pressed plungers 11, mounted in the bearing 7 and subject to a coiled spring 12, held by a cap-nut 13, screwed into a seat in said bearing and affording means for adjusting the tension of the spring 12.

Endless feed-belts 14, working in opposing pairs, run over the end rolls 4 and 5 and bear against the corresponding intermediate rolls 4^a. The collar or cuff is introduced between the belts 14 by entering them between the idle rolls 5, and to facilitate thus entering them said rolls 5 are so spaced as to cause the belts to diverge or flare apart slightly at the receiving portions. Of course the chief feeding action is produced by the feed-rollers 4 and 4^a; but the belts 14 greatly assist in the feeding action and serve to deliver the collar or cuff to the feed-rollers 4^a, and, furthermore, they serve to hold the collar or cuff straight and make unnecessary the use of guide-flanges on the frame 1.

Extending transversely of and mounted in the side flanges of the frame 1 is a counter-shaft 15, which carries a grooved pulley 16 at its intermediate portion and another grooved pulley 17 at its outer end. The said counter-shaft at its extreme outer end is provided with a pulley 18, over which runs a power-driven belt (not shown) to impart motion to said counter-shaft and other running parts of the machine, as will presently appear. An endless driving-belt 19, which is preferably round in cross-section, runs over the grooved pulleys 8 of the roller-shaft 6 and over the

grooved pulley 16, said belt being preferably given a complete wrap about said pulley 16 for the purposes of increased friction.

Rigidly secured on the receiving end of the frame 1—to wit, on the right-hand end thereof, as shown in the drawings—is a vertically-extended bearing-pedestal 20, which, as shown, is bifurcated. In the bearings afforded by the prongs of the pedestal 20 is loosely journaled a counter-shaft 21, which carries three grooved pulleys 22, 23, and 24.

The numeral 25 indicates a tubular arm having a hub portion 26, which is journaled on the shaft 21 just inward of the pulley 24, said arm being thus mounted for vertical pivotal movements. At its forwardly-projecting free end the tubular arm 25 is formed with a laterally-turned hollow trunnion 27, which is closed at its outer end, but is provided near its outer end with radial passages 28, as shown in Fig. 3. Loosely journaled on the trunnion 27 is a sleeve 29, which carries a grooved pulley 30 and a clamping-disk 31. The extreme outer end of said sleeve 29 is closed, but near its outer end is formed with radial water-passages 32, that are adapted to register successively with the radial passages 28 of said trunnion 27. Said sleeve 29 is held against axial displacement by set-screw 33, which works therethrough and at its inner end runs in a groove 34, formed in said trunnion.

Working with screw-threaded engagement on the outer end of the sleeve 29 is a clamping-disk 35, which coöperates with the relatively fixed clamping-disk 31 to clamp in position an annular moistening-ring 36 of felt or other absorbent material. This moistening-ring 36 covers the perforations 32 of the sleeve 29 and is supplied with water therefrom delivered thereto through the perforations 28 and through the hollow arm 25 and trunnion 27. Said clamping-disks and moistening-ring together make up what I term a “moistening-wheel.” The projecting flanges of the disks 31 and 35 embrace the upper edge of the collar or cuff, and the moistening-ring 36 rotates in contact with the upper edge thereof, thereby dampening the same and putting the same in proper condition for ironing. The extreme downward movement of the arm 25 is limited by a fixed stop 37 on the face of the frame 1. (See Fig. 1.) Motion is imparted to the sleeve 29, and hence to the moistening-wheel, by a belt 38, which runs over the pulley 30 and over the pulley 24. Motion is imparted to the counter-shaft 21, and hence to the pulleys 23 and 24, through a belt 39, which runs over the pulleys 17 and 22. In practice I have found that the weight of the arm 25 and parts carried thereby will cause the moistening-wheel to press too heavily upon the edge of the collar or cuff, and hence I have provided the said arm with a counterbalance extension 40, having

an adjustable counterweight 41, by the adjustment of which weight the said moistening-wheel may be set to any desired pressure. A downwardly-inclined trough-like cam-plate 42 is rigidly secured, as shown by bracket 43, to the arm 25, and when the edge of the collar or cuff is thrown against the cam-plate 42 it will assist in raising the moistening-ring 36. The moistening-water is, as shown, supplied from an elevated tank 44, supported from the frame 1 by a post 45. This tank 44 has a depending valved discharge-tube 46, which is connected by a flexible tube 47 to a nipple 48 on the tubular arm 25.

A second arm 49, which is much longer than the arm 25 and which, as shown, is pronged at its pivot end, is pivoted on the shaft 21 and is provided with a counterbalancing extension 50, having adjustable counterweight 51. At its forwardly-projecting free end the arm 49 carries an ironing device which in the form of the device illustrated in Figs. 1 to 6, inclusive, is in the form of a grooved metallic ironing-wheel 52, the shaft 53 of which is directly journaled in said arm and is provided with a grooved pulley 54. Rotary motion is imparted to the said ironing-wheel by a belt 55, which runs over said pulley 54 and over the pulley 23 of the shaft 21. The peripheral groove of the ironing-wheel 52 stands in position to engage the moistened upper edge of the collar or cuff as the same is fed thereto from the moistening-wheel by the coöperating feed-rolls and belts. The said ironing-wheel on its inner face is formed with an annular flange 52^a, which affords a sort of combustion-chamber, into which projects the flame from a gas-burner tube 56, which, as shown, is rigid on the head of arm 49 and at its receiving end is provided with a pair of valved inlet-nipples 57. In practice gas under pressure would be delivered into one of the nipples 57 and air under pressure into the other from flexible delivery-tubes (not shown) extended from suitable sources of supply. A downwardly-inclined trough-like cam-plate 58 is rigidly secured to said arm 49, as shown, by means of bracket 59. When the edge of the collar or cuff is thrown against the cam-plate 58, it will assist in raising the ironing-wheel 52.

The construction illustrated in Figs. 7 and 8 is the same as that previously described, with the following exceptions: Instead of an ironing-wheel an ironing-shoe 60 is carried by the free end on the arm 49. The flexible water-delivery tube 47 is connected to nozzle-tube 61, secured to the outer portion of the arm 25. The discharge end of this nozzle-tube 61 immediately overlies the felt ring of the moistening-wheel.

The stems 9 of the outer rollers 4 and 4^a project at their upper ends and are journaled in bearings 62 of flat springs 63, the lower

ends of which springs bear against the outer side of the frame-bearing 7 and are adjustably clamped thereto by thumb-screws 64.

What I claim, and desire to secure by Letters Patent of the United States, is as follows:

1. In a machine of the class described the combination with means for feeding and guiding the articles to be ironed, of a vertically-movable edge-ironing member, a vertically-movable support, a moistening-wheel carried by said support for action on the edge of the article being ironed, and means for supplying water to said moistening-wheel, having a water-conduit extending through said vertically-movable support and peripherally out through the journal and hub portion of said moistening-wheel, substantially as described.

2. The combination with a suitable framework and means for feeding and guiding the articles to be ironed, of a vertically-movable edge-ironing member, a vertically-movable tubular supporting-arm pivotally supported from said frame and having a hollow laterally-extended trunnion formed with peripheral

passages, means for supplying water to said tubular arm, a sleeve having a closed outer end journaled onto said trunnion, and provided with a clamping flange or disk and with radial water-passages adapted to register with the radial passages of said trunnion, a clamping-disk working with screw-threaded engagement on said sleeve, and an absorbent moistening-ring surrounding the water-passages of said sleeve and clamped between the clamping-disks thereof, substantially as described.

3. The combination with a suitable frame, of opposing pairs of feed-rollers set upright, endless belts running in pairs over said feed-rollers, adapted to feed the article to be ironed edgewise, and vertically-movable moistening and ironing devices, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

WALTER C. CUNNINGHAM.

Witnesses:

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E. W. JEPPESEN.