

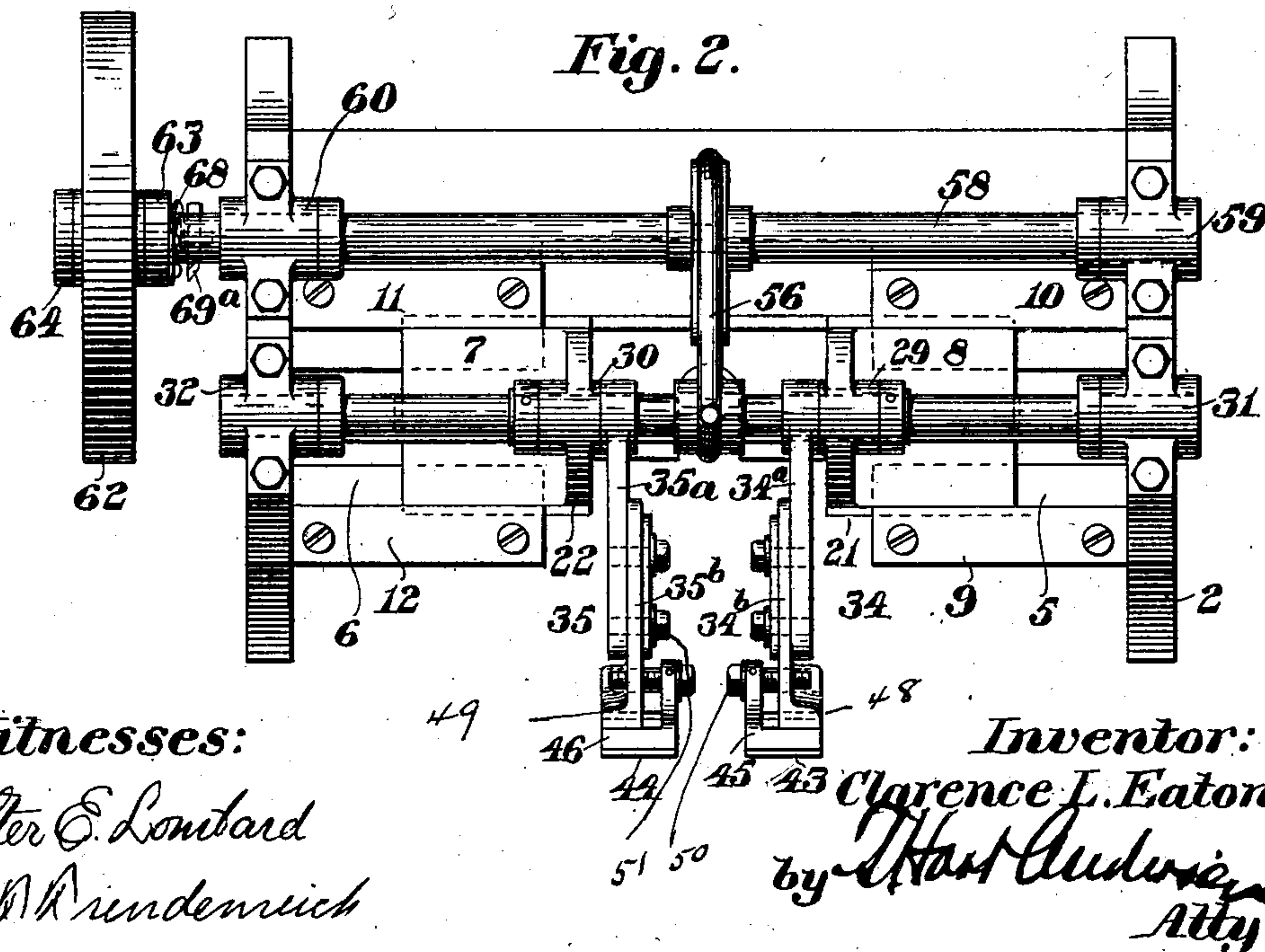
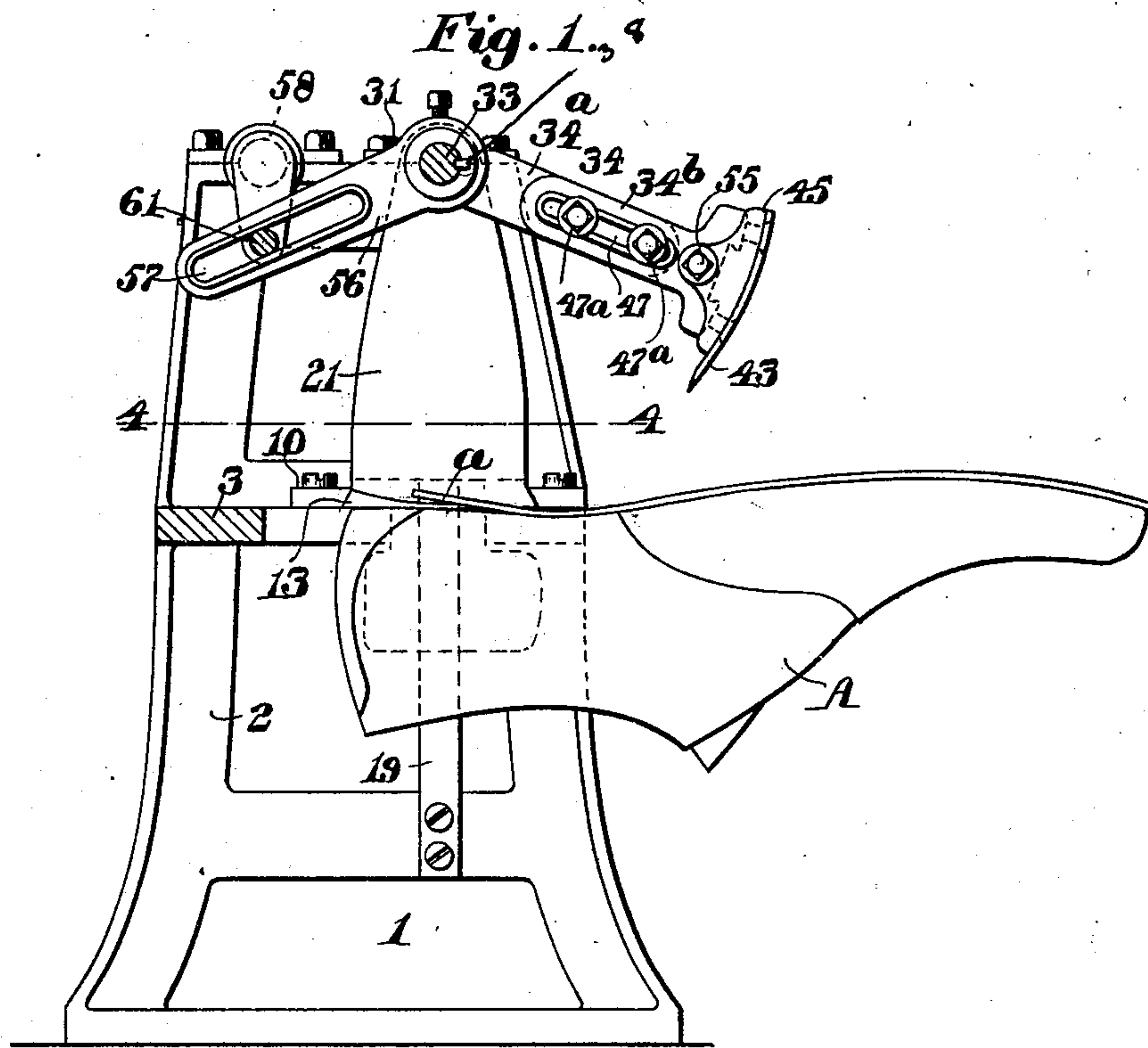
No. 724,828.

PATENTED APR. 7, 1903.

C. L. EATON.
WELT BUTTING MACHINE.
APPLICATION FILED AUG. 7, 1902.

NO MODEL

3 SHEETS—SHEET 1.



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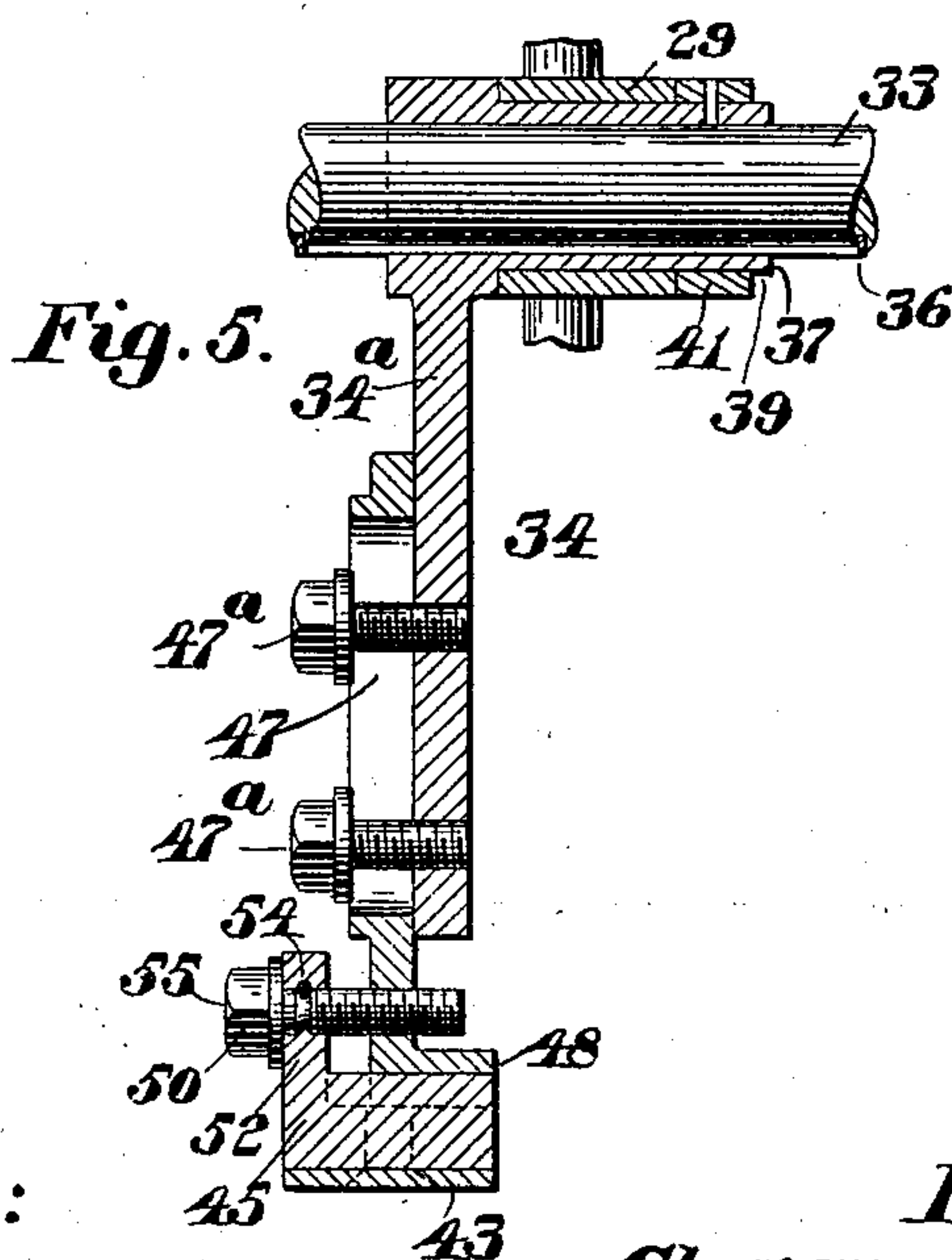
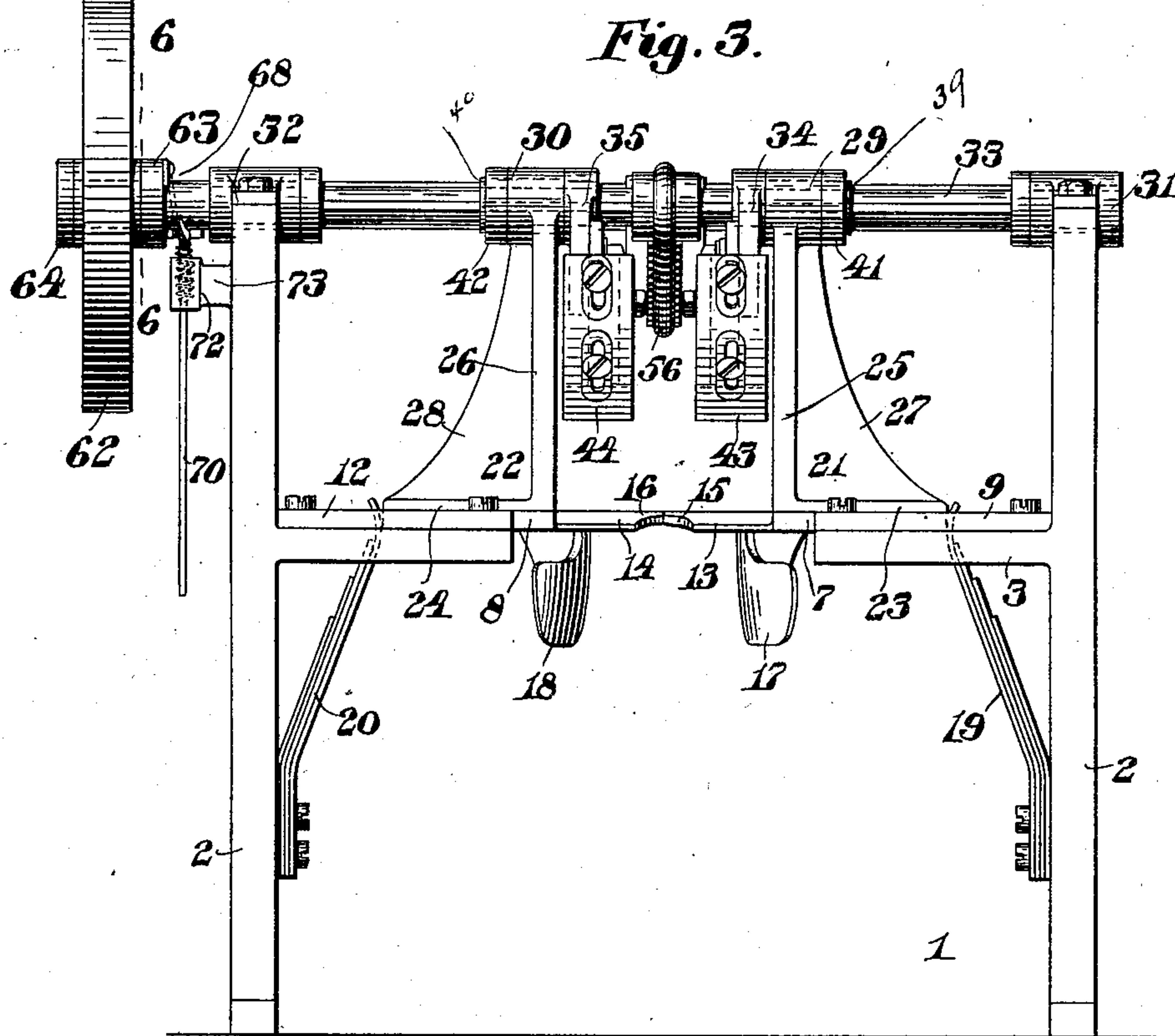
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3 SHEETS—SHEET 2.



Witnesses:
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Wm. D. Prudenreich

Inventor:
Clarence L. Eaton,
by *Wm. D. Prudenreich* atty.

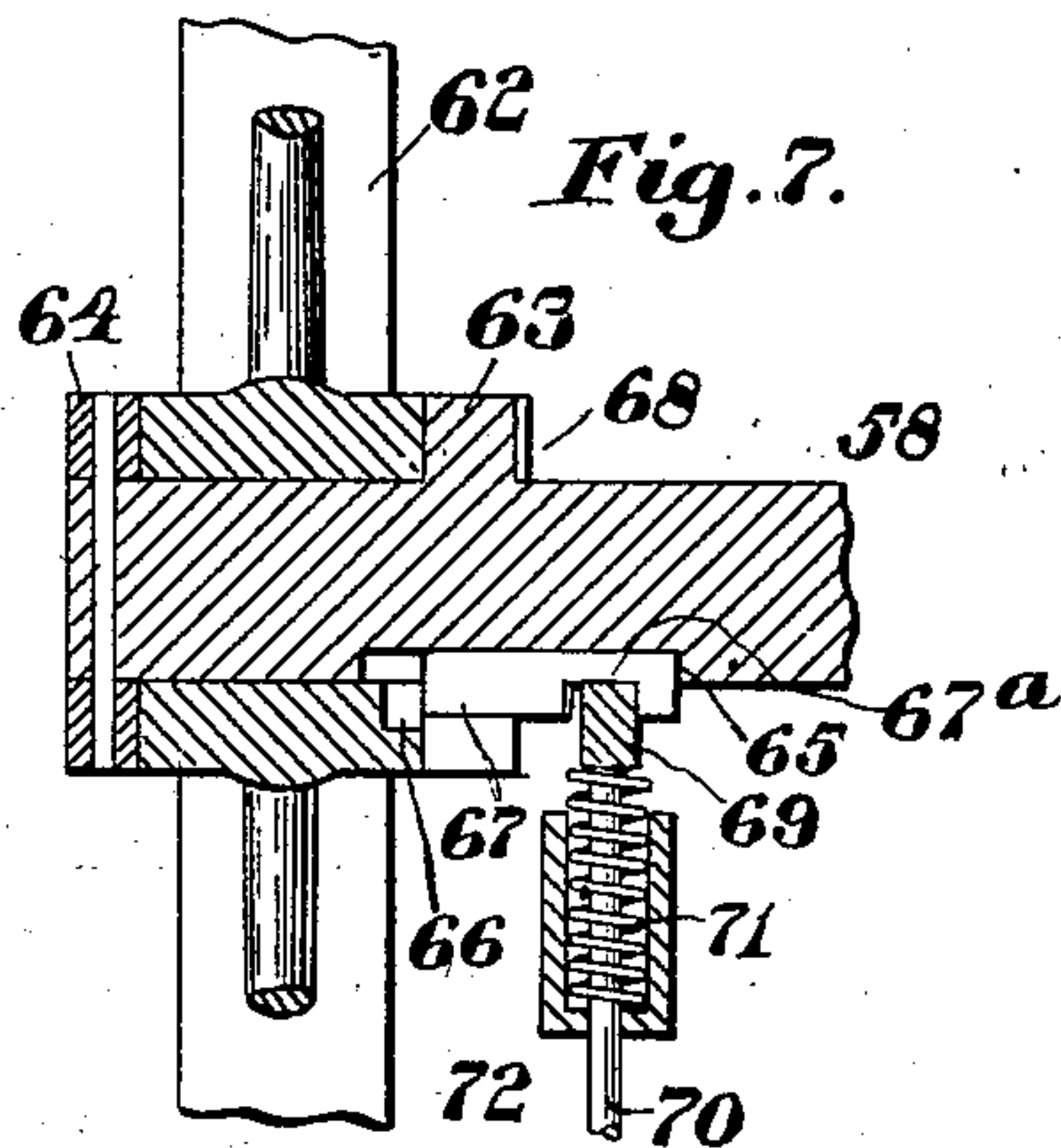
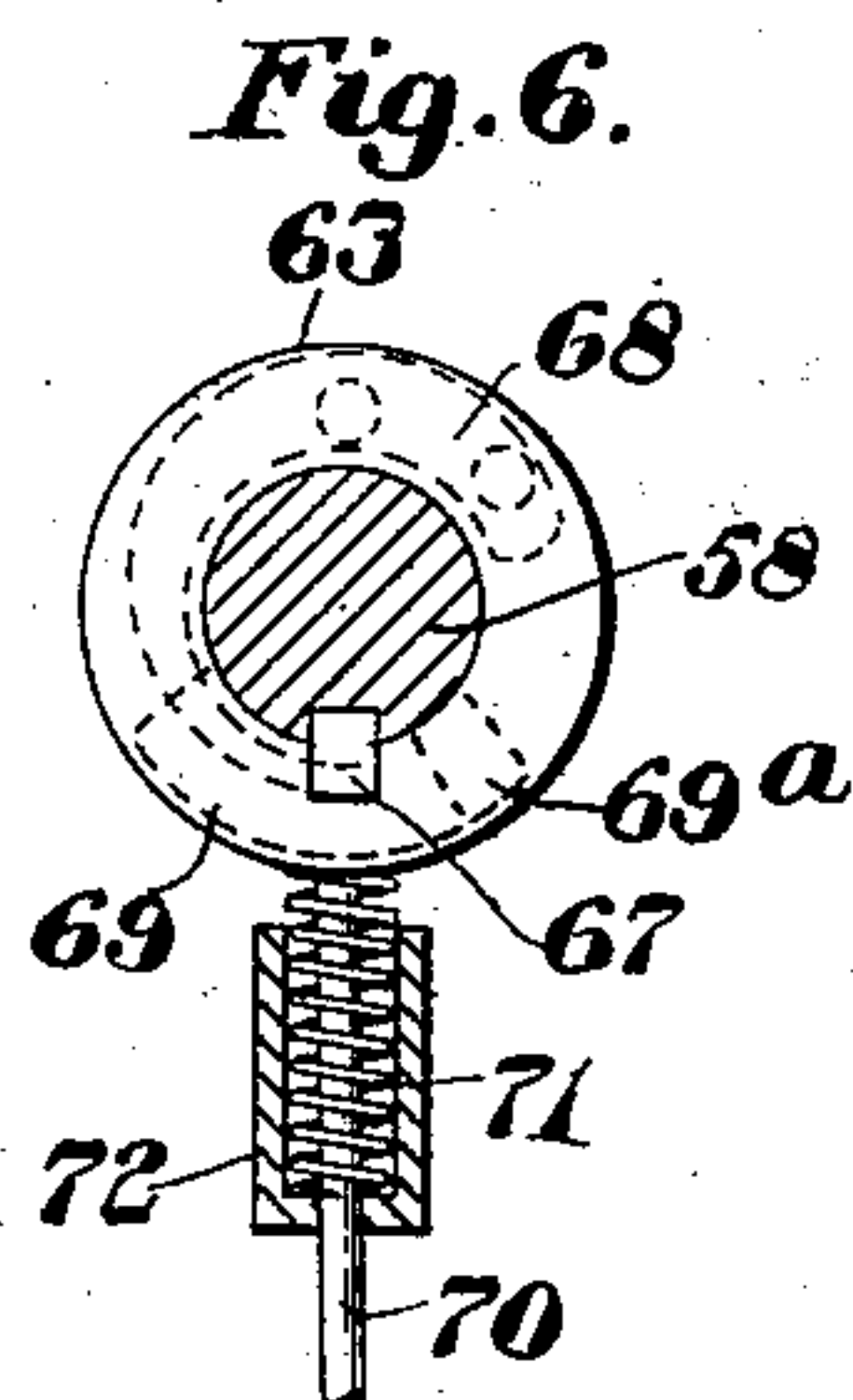
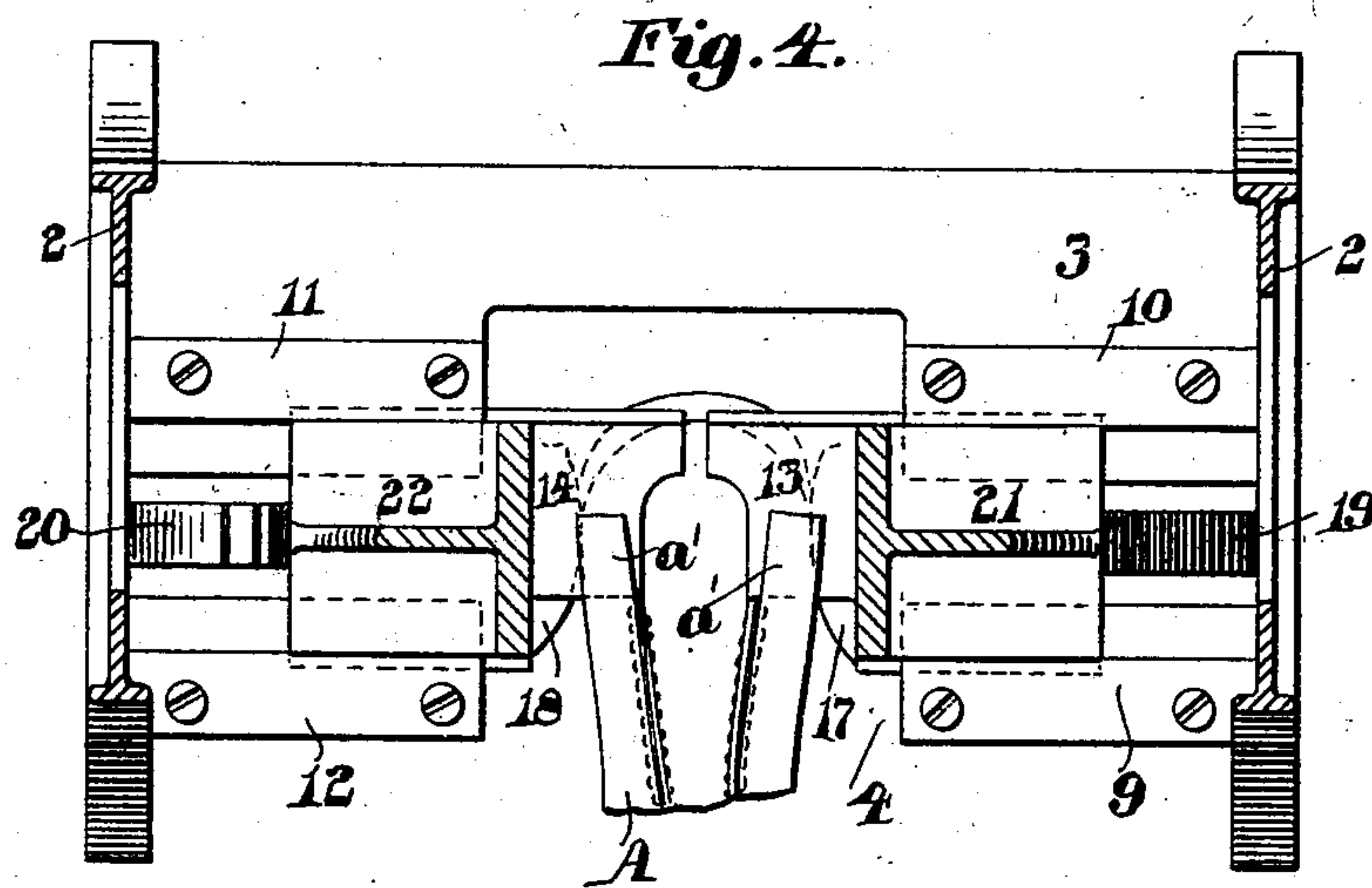
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NO MODEL.

3 SHEETS—SHEET 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

CLARENCE L. EATON, OF BINGHAMTON, NEW YORK.

WELT-BUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 724,828, dated April 7, 1903.

Application filed August 7, 1902. Serial No. 118,773. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE L. EATON, a citizen of the United States, residing at Binghamton, in the county of Broome and State of New York, have invented certain new and useful Improvements in Welt-Butting Machines; 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.

The present invention relates to machines used in the manufacture of boots and shoes, and has for its object to produce an improved machine for cutting off the rear ends of the welt adjacent to the heel-seat portion of the shoe, which operation is known in the art as "welt-butting."

In welted boots and shoes after the shoe has been subjected to the action of the welt-sewing machine, which unites the welt, upper, and inner sole, there is a considerable length of welt left projecting rearwardly over the heel-seat and unattached, and these free ends must be cut off before the attachment of the outer sole. This operation is now generally performed by a knife held in the hands of the operator, who first cuts off the end of the welt upon one side of the heel-seat and then the other. This hand operation is tiresome in the extreme and slow, and much care must be exercised on the part of the workman not to injure the upper, and in spite of the greatest care many shoes are accidentally cut while undergoing this process. Then, again, as both ends are cut off independently there is no uniformity in the cuts, and in most cases the welts are longer upon one side than the other.

It has been proposed prior to the present invention to provide suitable machines for "butting" welts, and while they to a great extent are a vast improvement on the hand method in that by their use uniformity in result can be secured, yet they have not been used to any extent, chiefly because the work cannot be expeditiously performed, for in such machines provision is made for cutting off but one end of the welt at each operation. In the present machine both ends of the welt are cut off at a single operation.

The machine comprises a pair of welt-but-

ting cutters and their coöperating welt-supporting blades arranged to be automatically adjusted to accommodate shoes of various sizes and widths.

The invention consists of the improved welt-butting machine and the devices and combinations of devices which will be hereinafter described and claimed.

The present invention is illustrated in the accompanying drawings, in which—

Figure 1 is a central vertical sectional view of the improved machine, showing a lasted and welted shoe in position to be operated upon. Fig. 2 is a plan view of the machine. Fig. 3 is a front elevation showing the parts in their normal positions. Fig. 4 is a section taken on line 4 4 of Fig. 1, showing a portion of a shoe with the supporting-blades introduced below the ends of the welt. Fig. 5 is a sectional view showing the connection of one of the cutters with its supporting-shaft and the means for adjusting the cutting-blades. Fig. 6 is a section taken substantially on line 6 6 of Fig. 3, showing the clutch mechanism between the driving-pulley and its driven shaft. Fig. 7 is a central vertical sectional view through the driving-pulley, its driven shaft, and the clutch for connecting the same.

Similar reference characters will be employed throughout the specification and drawings to designate corresponding parts.

The machine comprises a suitable frame 1 of a size and shape to support the operative parts, consisting of the side standards 2 and a horizontal web 3. The central portion of the web 3 is cut out at the front, forming an opening 4, in which the heel portion of the shoe is inserted and positioned with relation to the welt-butting mechanism.

As heretofore stated, it is designed that both ends of the welt shall be cut off simultaneously, and for this purpose the machine comprises two welt-butting cutters and their coöperating welt-supporting blades, the pairs of cutters and blades being movable toward each other and positioned with relation to the ends of the welt accordingly as the shoe is narrow or wide, and such adjustment of the cutters and coöperating blades is automatically produced by the insertion and positioning of the shoe to be operated on.

As shown in the drawings, the web 3 is pro-

vided with guideways 5 and 6, located on opposite sides of the opening 4, and in these guideways are supported the sliding plates 7 and 8, upon which are mounted the welt-supporting plates and the welt-butting cutters. The guideways 5 and 6 are preferably formed by plates 9, 10, 11, and 12, having a beveled edge secured to the upper face of the web 3, so as to form dovetailed grooves in which the plates 7 and 8 may slide while being held thereby against vertical displacement.

Secured to or formed integrally with the opposing ends of the plates 7 and 8 are the welt-supporting blades 13 and 14, formed so as to provide a substantially heel-shaped opening and thinned or tapering toward their edges, whereby a thin edge is presented to the incoming shoe. These blades are designed to be passed under and to support the rear ends of the welt for the action of the welt-butting cutters.

Secured to the lower faces of the plates 7 and 8 are two depending guide-flanges 17 and 18, curved, as shown, and projecting through the opening 4 of the machine. As the shoe A is forced through the guide-flanges 17 and 18 the said guide-flanges contacting with the sides of the shoe will spread the sliding plates 7 and 8, and thus position the welt-supporting blades and cutters.

Springs 19 and 20, preferably leaf-springs, as shown, are arranged between the plates 7 and 8 and the frame of the machine for the purpose of maintaining the plates normally in their inward position. It will be seen that by means of this yielding mounting provision is made for operating on shoes of different widths, since the introduction of a shoe between the flanges 17 and 18 will move the plates 7 and 8 to position the welt-supporting blades and cutters according to the width of the shoe.

Secured to the upper faces of the plates 7 and 8 are standards 21 and 22, which serve to control the positions of the knives for cutting off the rear ends of the welt. These standards rise vertically from the plates 7 and 8 and at their upper ends carry bearings 29 and 30 for engaging sleeves on the knife or cutter arms, which will now be described.

Mounted in bearings 31 and 32 at the upper ends of the standards 2 is a horizontal shaft 33, provided with a key or keyway extending the whole length thereof. A pair of arms 34 and 35, which support the knives, are sleeved and are provided with corresponding ways or keys for cooperating with the complementary parts on the shaft. In the drawings the shaft 33 is illustrated as having a key and the sleeves as having ways 37 and 38. The sleeved arms are therefore free to slide along the shaft, but must rotate or oscillate with it. The sleeves 39 and 40 of the respective arms are made of considerable length, whereby they may be journaled in the bearings 29 and 30 of the standards 21 and 22. The sleeves are free to turn in these bear-

ings, but are secured against lateral movements with relation thereto by means of collars 41 and 42, fixed to the outer ends of the respective sleeves and abutting against the sides of the bearings. As the standards are moved laterally by the insertion of the shoe to be operated upon it will be seen that the arms 34 and 35, and therefore the cutting blades or knives, are likewise moved, each knife being therefore always located above its cooperating supporting-blade.

The arms 34 and 35 are provided at their outer ends with knives 43 and 44, respectively, the knives conforming to the curvature of the supporting-heads 45 and 46, the curves being preferably arcs of circles with their centers at the axis of the shaft 33. It is clear that if the shaft 33 is oscillated the knives 43 and 44 will descend and if properly adjusted will cut the free ends of the welt resting on the supporting-blades 13 and 14. The upper surfaces of the blades 13 and 14 are preferably curved similarly to the knives in order that the knives may swing into close proximity therewith without danger of contact.

As a means for accurately adjusting the cutters I have made each of the arms 34 and 35 in two parts 34^a 34^b and 35^a 35^b, one of which is slotted, as at 47, and secured to the other by means of set-screws 47^a, passing through the slots. By loosening the set-screws the arms may be lengthened or shortened, as desired. In order to provide for lateral adjustment of the knives, the heads 45 and 46 are slidably mounted in dovetailed grooves 48 and 49 in the ends of the arms 34 and 35, respectively. Set-screws 50 and 51 pass through flanges 52 and 53 of the heads 45 and 46 and are threaded into the arms 34 and 35. Pins 54 engage grooves 55 in the respective set-screws and while allowing freedom of rotation thereof prevent any axial movement of the screws with respect to the heads. By these adjustments the positions of the knives can be regulated as desired.

In order to operate the shaft 33 to cause the cutters to act, I have provided it with a central arm 56, slotted, as at 57, the arm being operated by a crank carried by a second shaft 58, mounted in bearings 59 and 60 to the rear of the shaft 33. The shaft 58 is provided with a central crank 61, engaging in the slot 57 of the arm 56. The shaft 58 is intermittently driven one revolution at a time, so that the cutters make one stroke only every time that they are set in operation. The means for producing this intermittent motion will now be described.

Loosely mounted on one end of the shaft 58 is a pulley 62, held against movement along the shaft by means of a pair of collars 63 and 64, fixed to the shaft on opposite sides of the pulley. The shaft 58 is provided with a short keyway 65, extending some distance within the hub of the pulley 62, the pulley-hub having a complementary slot or keyway 66. A

key 67 of any preferred form is slidingly mounted in the keyway 65. The key 67 may be supported and actuated in any desired manner; but in the drawings I have shown preferred means. A curved spring-plate 68 is secured at one end to the collar 63 and passes under and is secured to the key, thereby supporting the key and tending to move it into engagement with the pulley-slot 66. When such engagement of the key and slot is effected, the pulley, which is driven continuously, will carry with it the shaft 58, thereby operating the cutters. The key is normally held out of engagement with the pulley-slot by means of a detent 69, secured to a rod 70 and pressed upwardly by means of a spring 71, encircling the rod 70 and bearing at one end against the detent and at its other end against an inclosing cup 72, carried by a bracket 73, which projects from the frame 1. When the detent is in engagement with the notch 67^a of the key, the connection between the shaft and pulley is broken and the pulley rotates freely. To the lower end of the rod 70 is secured a treadle, (not shown,) and by pressing his foot on the treadle the operator retracts the detent 69 against the tension of the spring 71, thereby releasing the key 67 and permitting the spring 68 to act and throw the key into operative engagement with the pulley. As it is desired that but a single rotation of the shaft 58 shall occur at each operation of the treadle, the detent 69 is so constructed that if the treadle is pressed down and then released immediately the detent will automatically engage the key 67 and retract it after one revolution of the shaft. For this purpose the detent 69 is curved to lie close to the shaft through a considerable arc and is beveled at one end 69^a. As the shaft 58 revolves the beveled end of the detent engages the notch 67^a and retracts the detent.

The operation of the machine will now be clearly understood in connection with the above description and the drawings and is as follows: The operator inserts the rear end of a lasted and welted shoe, bottom side upward, between the flanges 17 and 18 and presses the shoe inward until the blades 13 and 14 have entered the requisite distance below the ends *a* and *a'* of the welt, this operation forcing the slides 7 and 8 apart and spacing the cutters 43 and 44 the proper distance apart for acting on the welt ends. The treadle 74 is then depressed and immediately released, this causing the detent 69 to free the spring-pressed key 67, whereupon the key slides into engagement with the pulley. The pulley now carries with it in its rotation the shaft 58, and through the crank connection of this shaft with the shaft 33 the cutters, which are normally raised, as shown in Fig. 1, descend and trim or cut away the loose ends of the welt. As the shaft completes its revolution the movement of the shaft 33 is reversed and the

cutters are again raised preparatory to another cutting operation. At the same time that the cutters are raised the bevel 69^a of the detent engages the notch 67^a and retracts the key 67, thereby breaking the connection between the pulley and its shaft.

Having described my invention, I claim as new and desire to protect by Letters Patent of the United States—

1. A machine for butting welts, having in combination, a pair of welt-supporting blades, a pair of welt-butting cutters and mechanism to simultaneously operate said cutters, substantially as described.

2. A machine for butting welts, having in combination, a pair of welt-butting cutters movable laterally toward and from each other and mechanism to simultaneously operate said cutters, substantially as described.

3. A machine for butting welts, having in combination, a pair of welt-supporting blades, a pair of welt-butting cutters, movable carriers therefor and springs for moving the carriers toward each other, substantially as described.

4. A machine for butting welts, having in combination, a pair of welt-butting cutters, spring-pressed carriers upon which said cutters are mounted and means arranged to be engaged by the inserted shoe for positioning the cutters over the ends of the welt, substantially as described.

5. In a welt-butting machine, the combination with a pair of welt-butting cutters for cutting off the ends of the welt at opposite sides of the shoe, of means controlled by the shoe being operated upon to position said cutters with relation to the ends of the welt whether the shoe be wide or narrow, substantially as described.

6. A welt-butting machine, having in combination, a pair of welt-butting cutters mounted upon laterally-movable supports and a sliding connection between said cutters and their operating mechanism, substantially as described.

7. A welt-butting machine having in combination, a welt-butting cutter, a rocker-arm supporting said cutter, a shaft supporting said rocker-arm and means to permit said rocker-arm to slide along said shaft, substantially as described.

8. A welt-butting machine, comprising a pair of welt-supporting blades, a pair of welt-butting cutters, sliding carriers for said welt-supporting blades and cutters and guide-flanges for engaging the sides of the shoe to position said cutters and welt-supporting blades with relation to the ends of the welt, substantially as described.

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

CLARENCE L. EATON.

Witnesses:

T. HART ANDERSON,
WM. F. FREUDENREICH.