

No. 622,846.

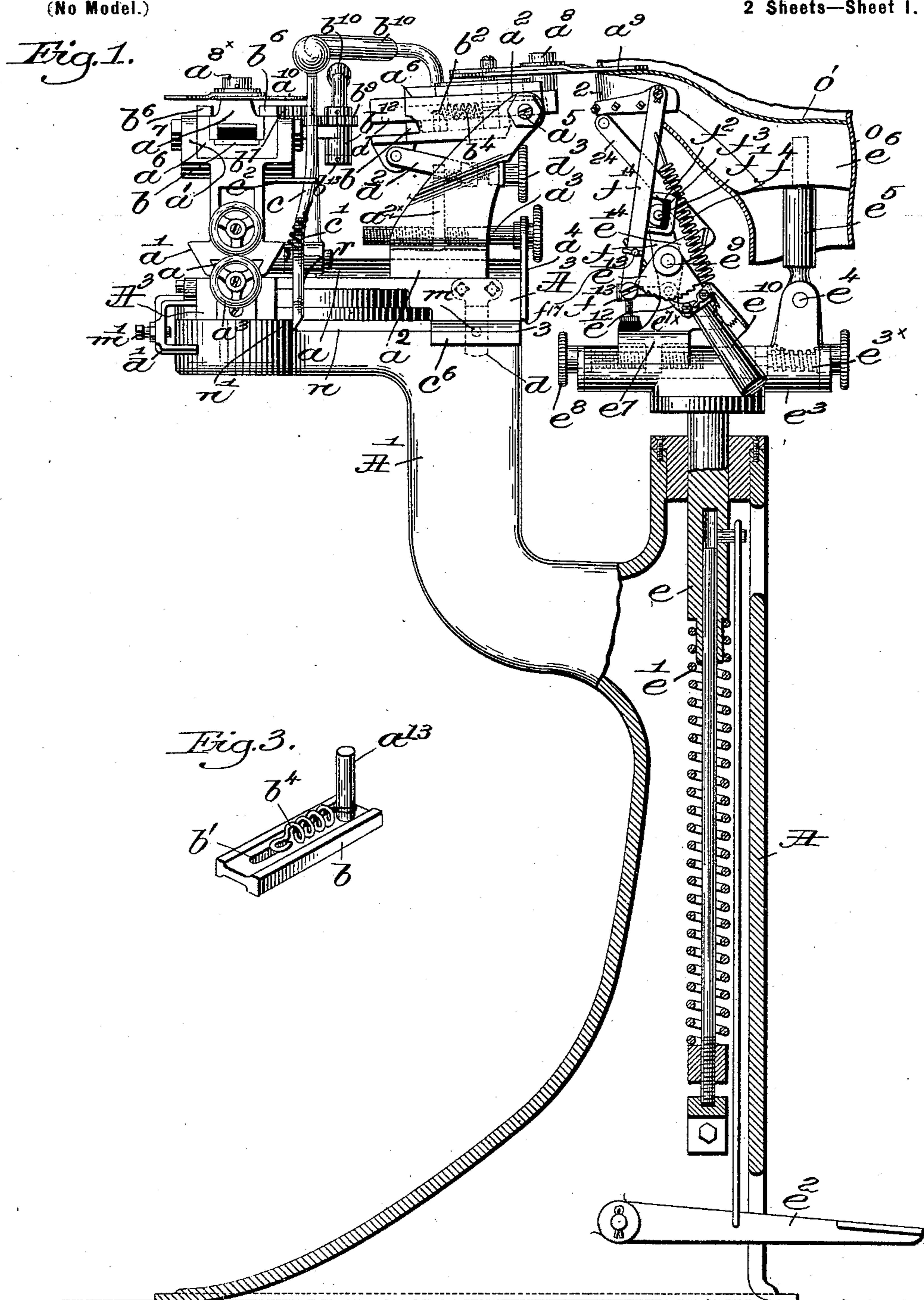
Patented Apr. 11, 1899.

R. J. GARDINER.
LASTING MACHINE.

(Application filed Jan. 7, 1898.)

(No Model.)

2 Sheets—Sheet 1.



witnesses:
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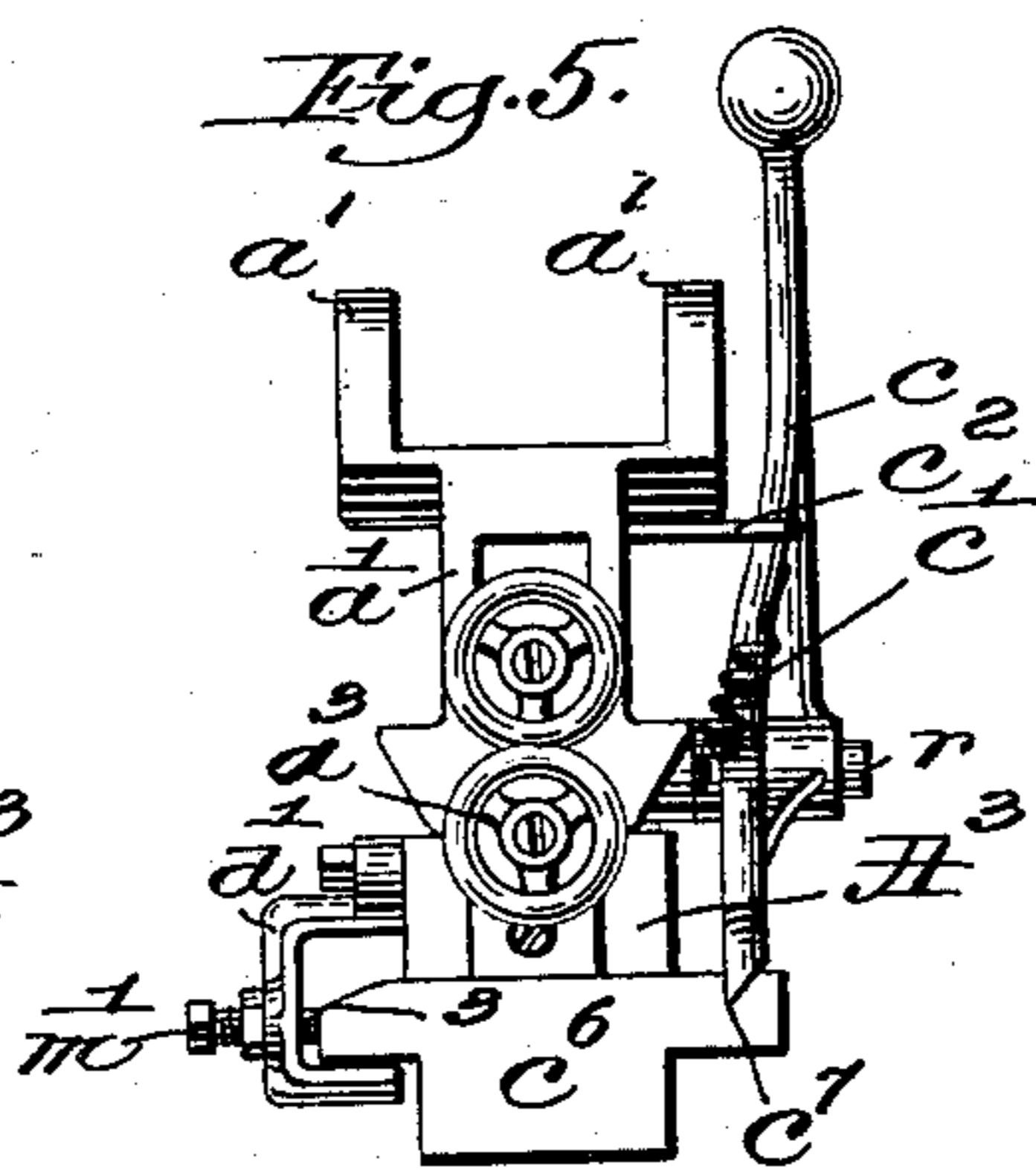
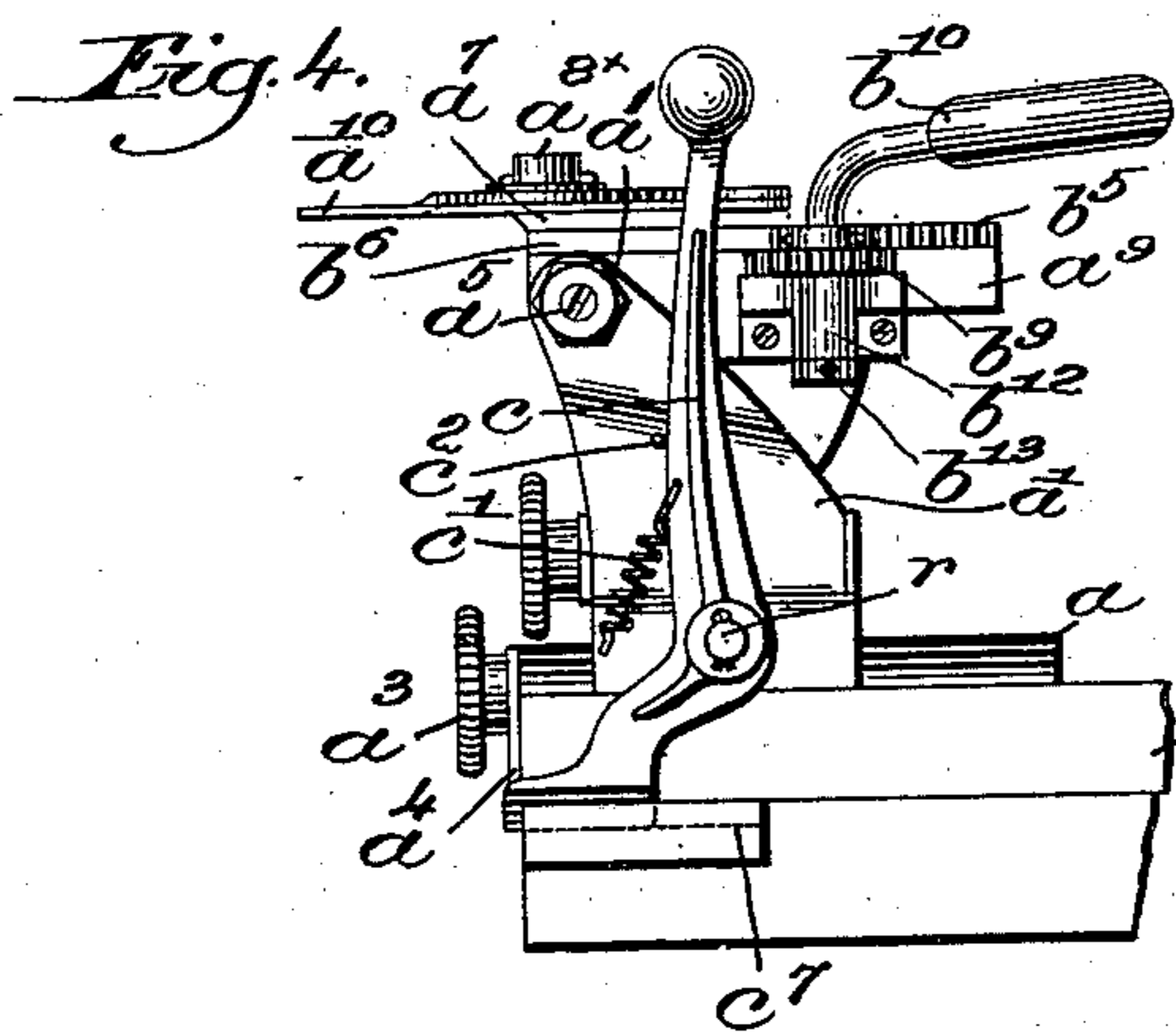
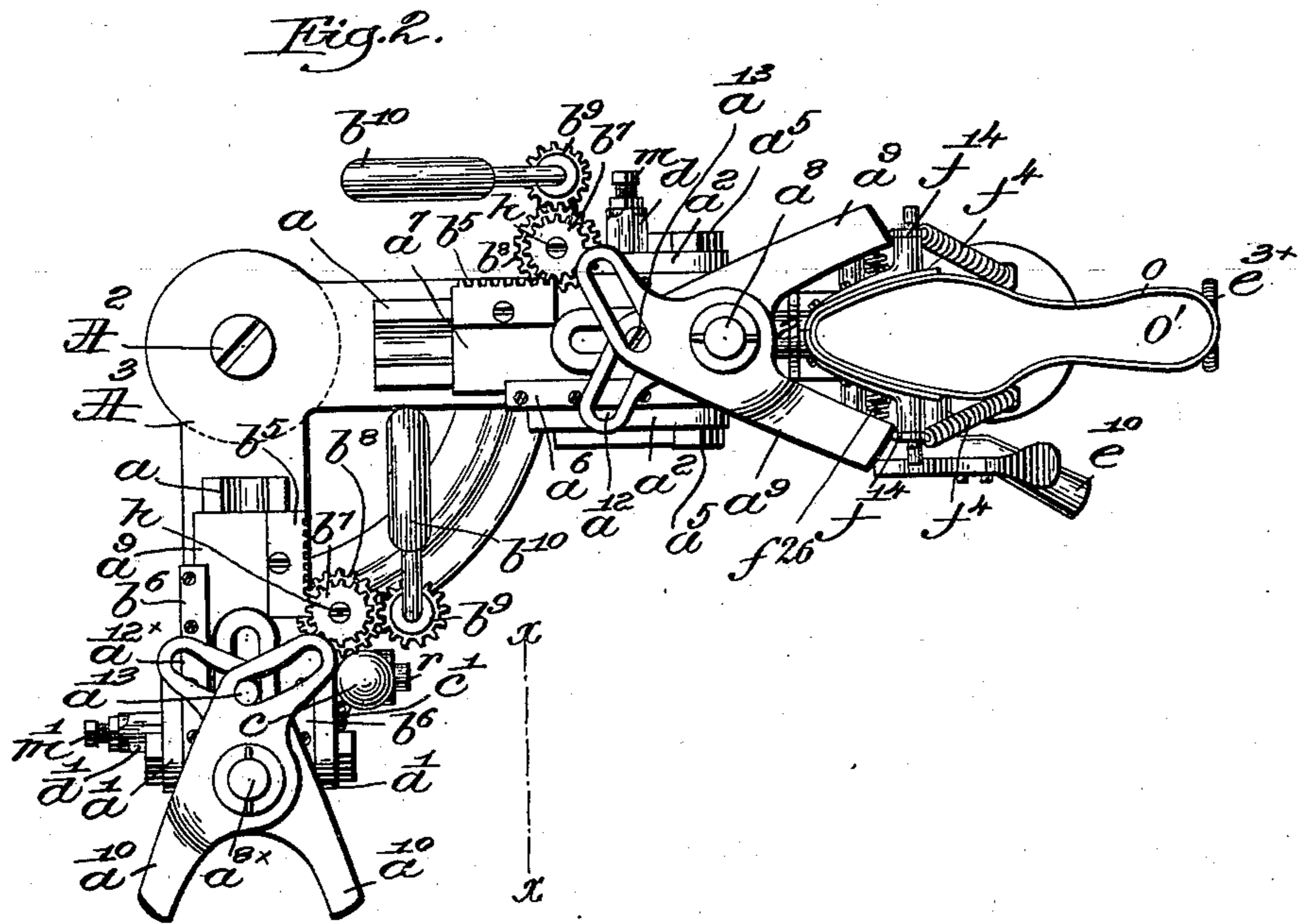


Fig. 6.

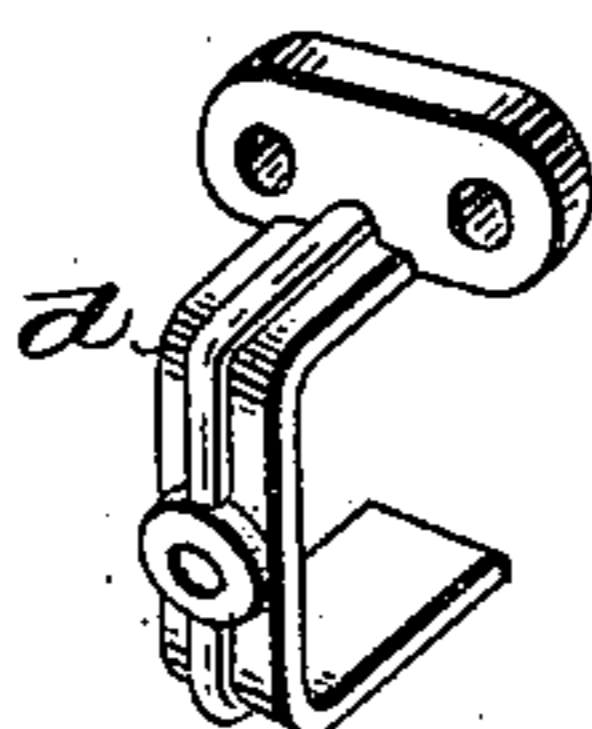
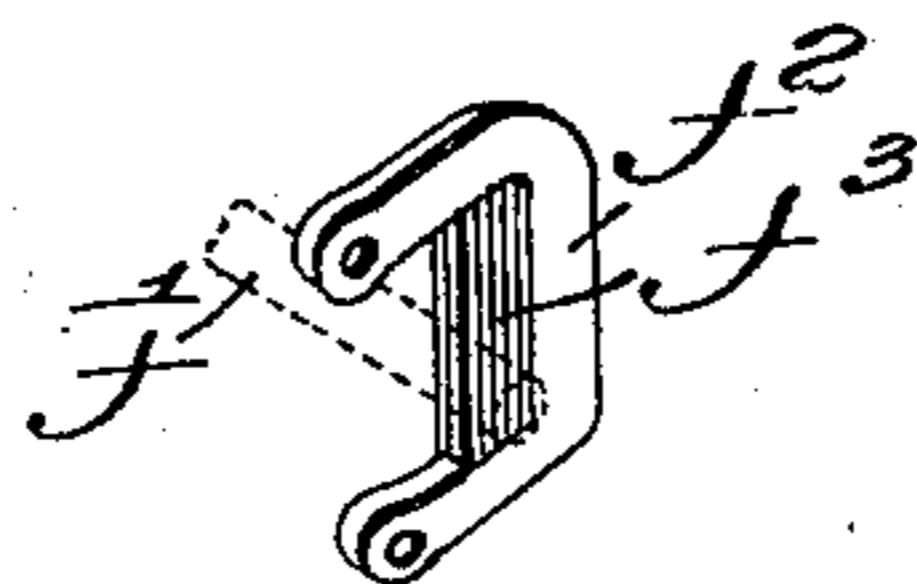


Fig. 7.



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UNITED STATES PATENT OFFICE.

ROBERT J. GARDINER, OF ROCHESTER, NEW YORK.

LASTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 622,846, dated April 11, 1899.

Application filed January 7, 1898. Serial No. 665,922. (No model.)

To all whom it may concern:

Be it known that I, ROBERT J. GARDINER, of Rochester, county of Monroe, State of New York, have invented an Improvement in Lasting-Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

This invention has for its object to improve the construction of the lasting-machine shown and described in United States Patent No. 378,446, dated February 28, 1888. The machine described in said patent as it was first put into use was modified as to the shape of the movable head or table carrying the lasting-plates, and instead of using a straight head or table the head or table was changed and made angular in shape, so that either the toe or heel lasting plates might be put in position with but a slight movement of said head or table, and in the machine so modified the slides carrying the said lasting-plates were adapted to be moved longitudinally by or through the action of levers having toothed segments attached to or forming part thereof, said levers being located one at the right and the other at the left hand side of the slides carrying the said lasting-plates. When the machine modified as described is used, the toe is first lasted and then the heel, and the operator uses his right hand to actuate the slide for turning the toe of the upper over upon the inner sole on the last, and the toe having been lasted the angular head or table carrying the two slides and lasting-plates is swung around, putting the plates for lasting the heel in position, and the operator then engaged by his left hand the lever and moved the slide and plates for lasting the heel. The lasting of the heel by the action of the left hand of the operator was found to be especially awkward and tiresome, and the lasting could not be done as well nor as rapidly as when the right hand was used. Hence the invention to be herein described. I have consequently devised means whereby these two sets of lasting-plates may be actuated each by a device located at the right-hand side of the lasting-plates, and to enable this to be done practically I have to provide means for locking the oscillating head carrying the two sets of lasting-plates, especially

when the heel is being lasted. I have also provided means whereby the links carrying the toe-wiper and clamp cooperating with the toe of the upper may be better controlled than heretofore.

Figure 1, in side elevation, partly broken out, represents a lasting-machine embodying my improvement. Fig. 2 is a top or plan view thereof. Fig. 3 is a detail showing detached the slide carrying the pin for opening and closing the lasting-plates. Fig. 4 is a view at the left of the dotted line *x*, Fig. 2. Fig. 5 is a view of the parts shown in Fig. 4, but swung one-quarter around to the right into working position. Fig. 6 is a detail of one of the stops for the heads when swung to the right or left, and Fig. 7 is a detail to be referred to.

The standard *A* has an extension *A'*, on which is pivoted at *A²* a movable head *A³*, said head being herein represented as angular rather than straight, so as to present two arms. Each arm of the movable head has a suitable track or way *a* of dovetailed shape in cross-section, on which is fitted to slide the foot of one of two like carriages *a'* and *a²*, the carriage *a'* carrying the lasting-plates employed to last the heel and the carriage *a²* carrying the lasting-plates employed to last the toe of a shoe.

The drawings Figs. 1 and 2 show the carriage *a²* and the plates for lasting the toe of a shoe in operating position. Each of these carriages is provided with a suitable bar or upright *a^{2x}*, but one of said uprights or bars being shown—viz., in Fig. 1. Each bar has a threaded hole at its lower end which is entered by a screw *a³*, mounted to rotate, but not to move longitudinally, in a stand *a⁴*, fixed to the end of the head *A³*, rotation of said screw moving the carriage longitudinally in one or the other direction with relation to the heel-pin *e⁵*, to be described, in order to adapt the machine for lasts of different length. Each carriage receives at its upper end a suitable pivot *a⁵*, on which is pivoted a block *a⁶*, grooved longitudinally to constitute a guide-way, said groove receiving a slide *a⁷*, having erected upon it a stud *a⁸* or *a^{8x}*, the stud *a⁸* receiving the lasting-plates *a⁹*, adapted to last the toe of a shoe, while the stud *a^{8x}* receives the lasting-plates *a¹⁰*, adapted to last

the heel of a shoe. These lasting-plates are substantially alike, with the exception of the slight difference in the shape of the slots a^{12} and a^{12x} in the ends of the plates, the slots 5 in the toe-lasting plates being somewhat straighter than those in the heel-lasting plates. These slots are each entered by a like pin a^{13} , each pin being extended through the two slots of the pair of plates with which it coöperates. 10 Each pin a^{13} rises from a like plate b , (shown detached in Fig. 3,) it being located in the guideway of the block a^6 under the slide a^7 , said plate having a slot b' , (see Fig. 3,) through which rises a stud b^2 , extended from the block 15 a^6 . The plate b is normally retained in operating position by means of a spring b^4 , connected to the stud b^2 , rising from the part a^6 , and with the stud a^{13} . The slides a^7 have each connected to it a rack b^5 , and the slides 20 are kept in the groove of the block a^6 by means of suitable gibs b^6 . These racks b^5 are each connected to the right-hand edge of the slides a^7 , and each rack is engaged by a pinion b^7 , loose on a stud h , said pinion having fast to 25 it a gear b^8 , which is engaged by a pinion b^9 , formed on one end of a handpiece or handle b^{10} , said handpiece beyond said pinion taking a bearing in the box b^{12} , fast on the block a^6 , the end of each handpiece being provided 30 with a collar b^{13} to keep it in said bearing. By turning this handpiece in one or the other direction the slides a^7 and the lasting-plates mounted thereon may be slid back and forth toward and from the last and shoe to be de- 35 scribed, and in the forward movement of these plates the studs a^{13} in the slots a^{12} and a^{12x} serve to close the plates on and so as to wipe the edges of the upper with which they contact over the inner sole on both the toe and 40 heel end of the last. These plates are opened as the slide a^7 is slid back from the last and shoe.

The head A^3 is provided near its opposite ends with two adjustable transverse stop- 45 screws m m' , said stop-screws being screwed into the holes in like ears d and d' , one of said ears—viz., the one d —being shown detached in Fig. 6. These set-screws point toward each other and each contacts with one or the other 50 end of a stop c^6 , attached to or forming part of the arm A' , extended from the column A , the free end of the ear entering, preferably, beneath a projection of the said stop, as represented in Fig. 5, where the ear d and the 55 screw m' are shown in operative position, such position being the one occupied by the parts when the heel is being lasted and the lasting-plates a^{10} are operated. These stop-screws are old and common in the lasting-machine 60 upon which this present invention is an improvement; but the employment of these two stop-screws and the stop c^6 to determine the working position of the lasting-plates necessitated working the right-hand pair of last- 65 ing-plates a^9 used to last the toe of a shoe by the action of the right hand on the lever or handpiece b^{10} , located at the right-hand side

of the said plates; but when the left-hand plates a^{10} or the ones to last the heel were to be worked the actuating-lever had to be lo- 70 cated at the left-hand side of the said plates or else the strain exerted on the lever to move the slide a^7 , carrying said plates, would tend to turn the head to the left, thus putting out of working position or line the left-hand 75 plates, and sometimes the operator attempted to hold the head in position by his right hand, while with his left hand he operated the plates a^{10} .

This present invention, as stated, provides 80 a construction whereby each slide and its plates may be moved by a lever or handpiece, as b^{10} , located at the right-hand side of the plates to be moved, thus enabling the right hand to be used for all the work being done. 85 To do this, I have provided the foot of the carriage a' , carrying the left-hand or heel-lasting plates, with a locking device c , shown as a lever acted upon by a spring c' , said spring holding said lever in a yielding man- 90 ner against a stop c^2 , shown as a pin or projection extended from said carriage, and I have beveled the right-hand side of the stop c^6 , so that when the left-hand end of the head carrying the toe-lasting plates is swung into 95 position to be operated the beveled lower end of said locking device will strike the beveled end and will ride up onto the stop c^6 , and just as the said carriage arrives into correct work- 100 ing position the lower end of said locking device under the stress of the spring c' will enter a notch c^7 , cut in the top of said stop or plate c^6 , and thereafter the said head, with its heel-lasting devices in operative position, 105 will be effectually locked in place, so that the operator may by his right hand engage the hand-lever b^{10} , located at the right-hand side of the slide b^7 , carrying the heel-lasting plates a^{10} , and pull said lever with his right hand without any liability whatever of displacing 110 the said head. The heel having been lasted by or through the operation of the heel-lasting plates a^{10} , the locking-lever c will be grasped by the operator, who will turn it to release its end from the notch c^7 , thus leav- 115 ing the head free to be again turned back to the left into the position shown in Figs. 1 and 2, and during this operation the lower end of the locking-lever rests on the stop c^6 , said head being turned to the left until the 120 stop-screw m meets the right-hand side of the stop c^6 .

To adjust the block a^6 to the incline of the toe or heel of the last, the under side of said block has connected to it a slotted or two-part 125 link d^2 , having at its end a pivoted nut which is entered by the threaded part of a screw d^3 , which may be rotated in the carriage, but may not slide therein, the rotation of said screw moving the nut in one or the other di- 130 rection to raise or lower the rear end of the block; but this may be and is all as usual.

The column A has a bearing for a jack-spindle e , normally kept elevated by a spring

e' , said spindle being capable of being depressed by a suitable treadle e^2 , and the upper end of the jack-spindle has a head or cross-piece e^3 , having upwardly-extended ears provided with a pivot-pin e^4 , on which is pivoted the usual heel-pin e^5 , it entering a hole in the heel end of a last e^6 . This last is shown as provided with an upper o and with an inner sole o' , laid on the bottom of the last, all in usual manner. The cross-piece e^3 receives a suitable screw, as e^{3x} , the rotation of which in usual manner adjusts the heel-pin back and forth about its pivot e^4 . Said cross-piece also has suitable ways to receive a foot e^7 , provided with a rising stand e^{7x} , said foot being made longitudinally adjustable on the cross-piece by a suitable screw e^8 . The stand e^{7x} has suitable bearings for a rock-shaft e^9 , to one end of which is attached a hand-lever e^{10} , provided with a spring-pressed pawl e^{12} , which coöperates with the teeth of a stationary ratchet-plate e^{13} , the pawl and ratchet locking the rock-shaft e^9 in any position in which it may be left by the operator. The opposite end of the rock-shaft e^9 has an arm e^{14} , to which is jointed a suitable link 24, which in practice may be a double link, said link or links being attached to the toe-wiper 2, the toe-wiper being pivoted at its outer corners to like parallel bars or rests f^{14} , pivoted on suitable arms f^{13} , said links, toe-wiper, and bars or rests being common to said patent, where they are designated by like letters and figures.

Herein I have provided the rock-shafts e^9 with an extra arm f' , having a pin or projection f' , which enters a loop or eye f^2 , suitably attached to one of the bars f^{14} and projecting therefrom at its rear side toward the heel-pin e^5 , said pin or projection f' receiving against it one of the bars f^{14} when the toe-wiper is not acting against the toe of the upper; but when the toe-wiper is operating the said pin is acted against by an india-rubber block or buffer f^3 , held in said loop or eye. Suitable springs f^4 act on the bars f^{14} , and between the said rests there is a rod f^{17} , surrounded by a spring f^{26} , (see Fig. 2,) for the purposes described in said patent.

The operator having applied an upper and inner sole to the last and placed the latter on the heel-pin e^5 pushes the toe-wiper 2 over to the left against the action of the springs f^4 , so as to adapt the toe-wiper to the particular length of the last, and then he turns the handle e^{10} to impart a movement through the links 24 to the toe-wiper and cause it to rub upwardly along the upper on the toe of the last and wipe the said upper up above the inner sole lying on the last, thus taking out of the upper any wrinkles therein and fitting the upper closely to the toe of the last. During this operation the arms or rests f^{14} will be turned somewhat to the left, Fig. 1, thus pressing the india-rubber buffer harder and harder against the pin or projection f^3 . This pin acts as a stop for the arms or rests f^{14} , carry-

ing the toe-wiper 2, to prevent movement thereof to the left during the lasting operation; but owing to the india-rubber buffer the toe-wiper is not fixedly restrained, but may yield somewhat when the strain exerted upon it is or would be sufficient to tear or mar the upper, and when this is about to happen the rubber buffer permits just enough yielding movement of the toe-wiper to prevent tearing or marring the upper, or, in other words, the interposition of the india-rubber buffer at the right-hand side of the pin or stop f' prevents the tearing of the upper, and, further, by locating the loop and the buffer, the devices which permit the movement of the arms f^{14} and the toe-wiper toward the toe-lasting devices, at the inner or right-hand side of the last rather than at the outer or left-hand side thereof, a position in which a different sort of rest or stop has previously been located, affords a more ample space for the adjustment not only of the shoe and its upper, but of the toe and lasting devices, to adapt them to shoes of different sizes and not in any way obstruct the movements of the devices. As the lasting-plates come onto the toe of the shoe to crimp the upper at the toe over the inner sole on the last, the pressure of said plates is usually sufficient to somewhat depress the toe-wiper, and the buffer described permits this to a certain extent. After the operator has actuated the heel-lasting plates by the right-hand piece he will by the same hand turn the locking-lever c to release the head A^3 , and without removing his hand he will turn the head and put the toe-lasting plate again in working line or position.

The notch c^7 entered by the beveled foot of the locking device is a long notch, and thereby it is possible to adjust either of the carriages a' or a^2 to correspond with the size of the last used and at the same time the locking device will enter said notch.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a lasting-machine the following instrumentalities, viz: a rigid arm or support A' , an oscillating angular head A^3 pivotally mounted thereon and provided with a plurality of carriages; slides supported in said carriages and provided one with toe-lasting and the other with heel-lasting plates, said slides each having an attached rack; two levers each located at the right-hand side of said slides; means intermediate said levers and said racks to move said slides and actuate said lasting-plates; a stop connected with said rigid arm and provided with a notch or projection, a locking device mounted upon the carriage containing the slide and lasting-plates for lasting the heel of a boot or shoe, said locking device meeting said stop and engaging its notch or projection to lock the head and retain the heel-lasting plates in operative position with relation to the shoe to be lasted, substantially as described.

2. In a lasting-machine, the following instrumentalities, viz: a rigid arm or support A', a head pivotally mounted thereon and provided with a plurality of carriages; slides supported in said carriages and provided one with toe-lasting and the other with heel-lasting plates; said slides each having an attached rack; two levers each located at the right-hand side of said slides; means intermediate said levers and said racks to move said slides and actuate said lasting-plates; a locking device mounted upon the carriage containing the slide and lasting-plates for lasting the heel of a boot or shoe; a stop c^6 connected with said arm and provided with a notch or projection to be engaged by said locking device, said locking device engaging said notch or projection and locking the head in place when the head is turned to bring the heel-lasting plates in operative position with relation to the shoe to be lasted, and an adjustable stop-screw carried by said head to contact with one end of said stop c^6 when the locking device engages the notch or projection therein, substantially as described.

3. In a lasting-machine, the following instrumentalities, viz: a rigid arm or support A', a head pivotally mounted thereon and provided with a plurality of carriages movable therein, one substantially at right angles to the other, slides supported in said carriages and provided one with toe-lasting and the other with heel-lasting plates, said slides each having an attached rack; two levers, each located at the right-hand side of said slides, means intermediate said levers and said racks to move said slides and actuate said lasting-plates; a spring-controlled locking device mounted upon the sliding carriage containing the slide and lasting-plates for lasting the heel of a boot or shoe; a stop connected with said rigid arm and provided with a notch or projection to be engaged by said locking device, said locking device engaging said notch or projection to lock said head in place only when the head is turned to bring the

heel-lasting plates in operative position with relation to the shoe to be lasted, substantially as described.

4. In a lasting-machine, the arm A', having an attached beveled stop c^6 provided with a notch, the pivoted head mounted thereon and having a sliding carriage a' to support a slide having heel-lasting devices, combined with a locking-lever c pivoted on said carriage and beveled at its lower end to cooperate with the bevel of said stop, and a spring connected with said locking device to hold it yielding in operative position, substantially as described.

5. In a lasting-machine, a heel-pin to receive and hold a last provided with an upper the toe of which is to be lasted, a toe-wiper, and bars or rests f^{14} to support the same in an adjustable manner, said bars or rests having a suitable loop, as f^{22} , projecting from its inner or right-hand side, said loop containing a yielding buffer, combined with a suitable pin, as f' , adjustable as to its position, the said pin cooperating with said buffer to enable the toe-wiper to yield before its pressure on the toe of the upper in its movement in wiping the upper up and about the toe of the last is sufficient to tear or mar the upper, substantially as described.

6. In a lasting-machine, an oscillating head, carriages therein having respectively toe and heel lasting devices, a standard having an attached grooved stop, means to adjust the position of said carriages and lasting devices on said head for shoes of different lengths, combined with a locking device carried by one of said carriages as described, said locking device cooperating with a groove in said stop in all the adjustments of said carriage, substantially as described.

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

ROBERT J. GARDINER.

Witnesses:

GEO. W. GREGORY,
M. A. DUNN.