

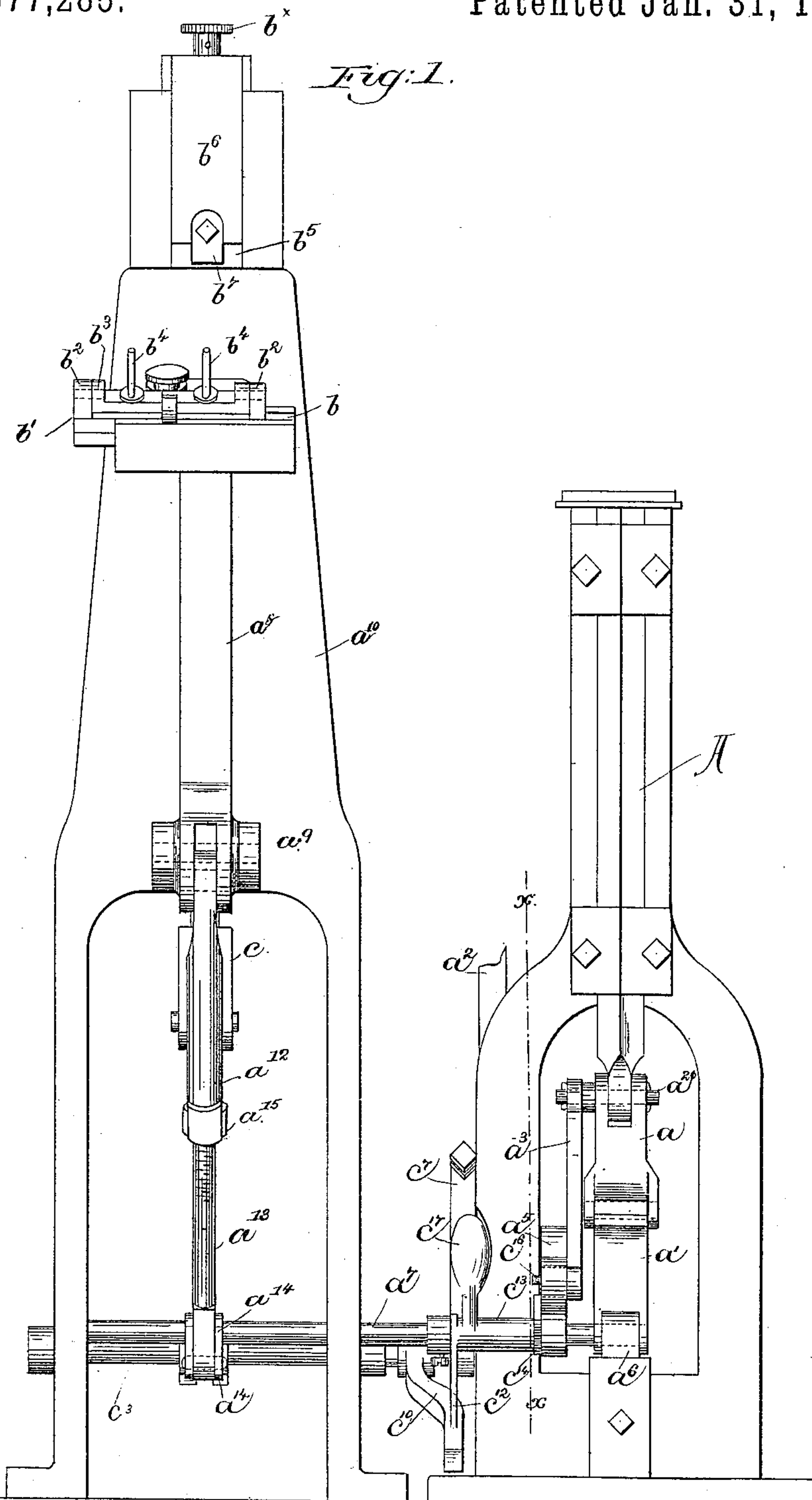
(No Model.)

3 Sheets—Sheet 1.

E. B. ALLEN.
HEEL NAILING AND BREASTING MACHINE.

No. 377,285.

Patented Jan. 31, 1888.



Witnesses.

John L. Edwards.

Fred A. Emery.

Inventor.

Edward B. Allen.
by Leroy & Gregory.
Attys.

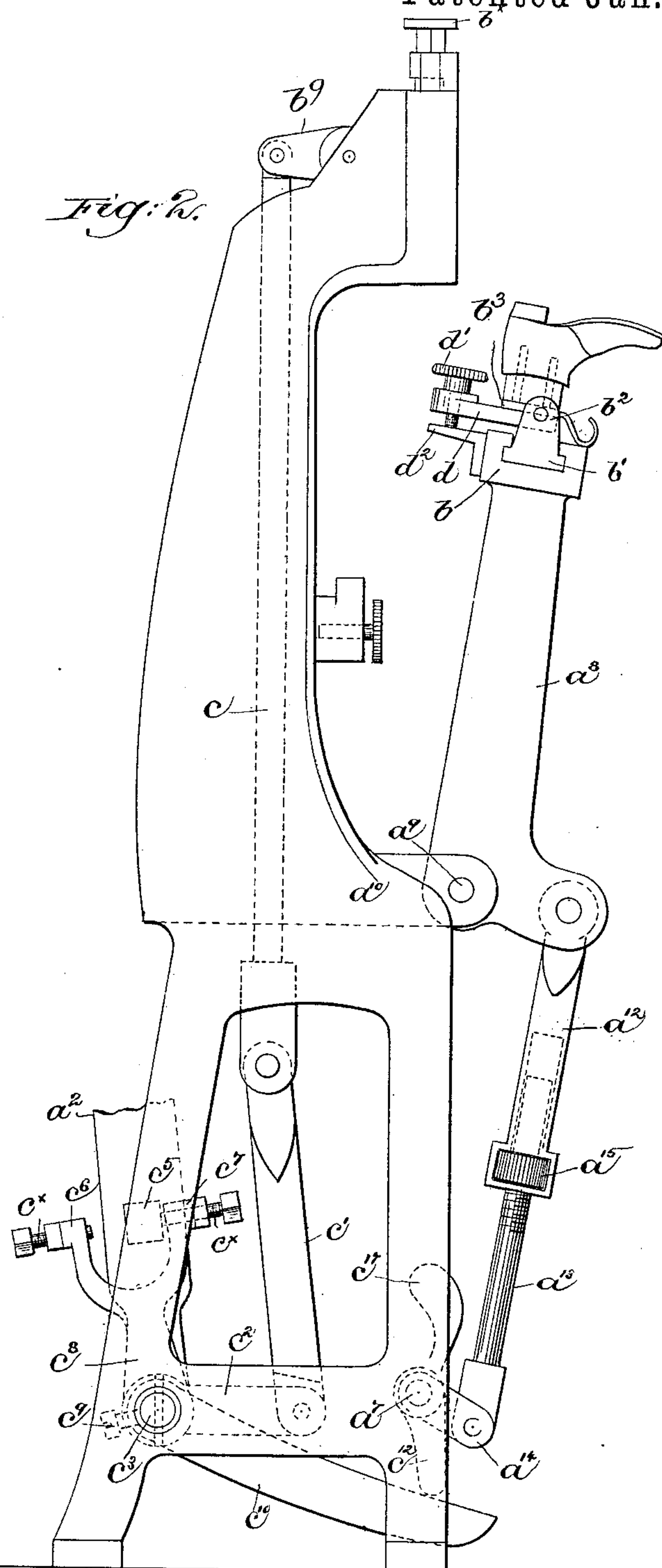
(No Model.)

3 Sheets—Sheet 2.

E. B. ALLEN.
HEEL NAILING AND BREASTING MACHINE.

No. 377,285.

Patented Jan. 31, 1888.



Witnesses.

Frederic A. Emery.
John F. C. Prentiss.

Inventor.

Edward B. Allen.
by Crosby & Gregory
Attys.

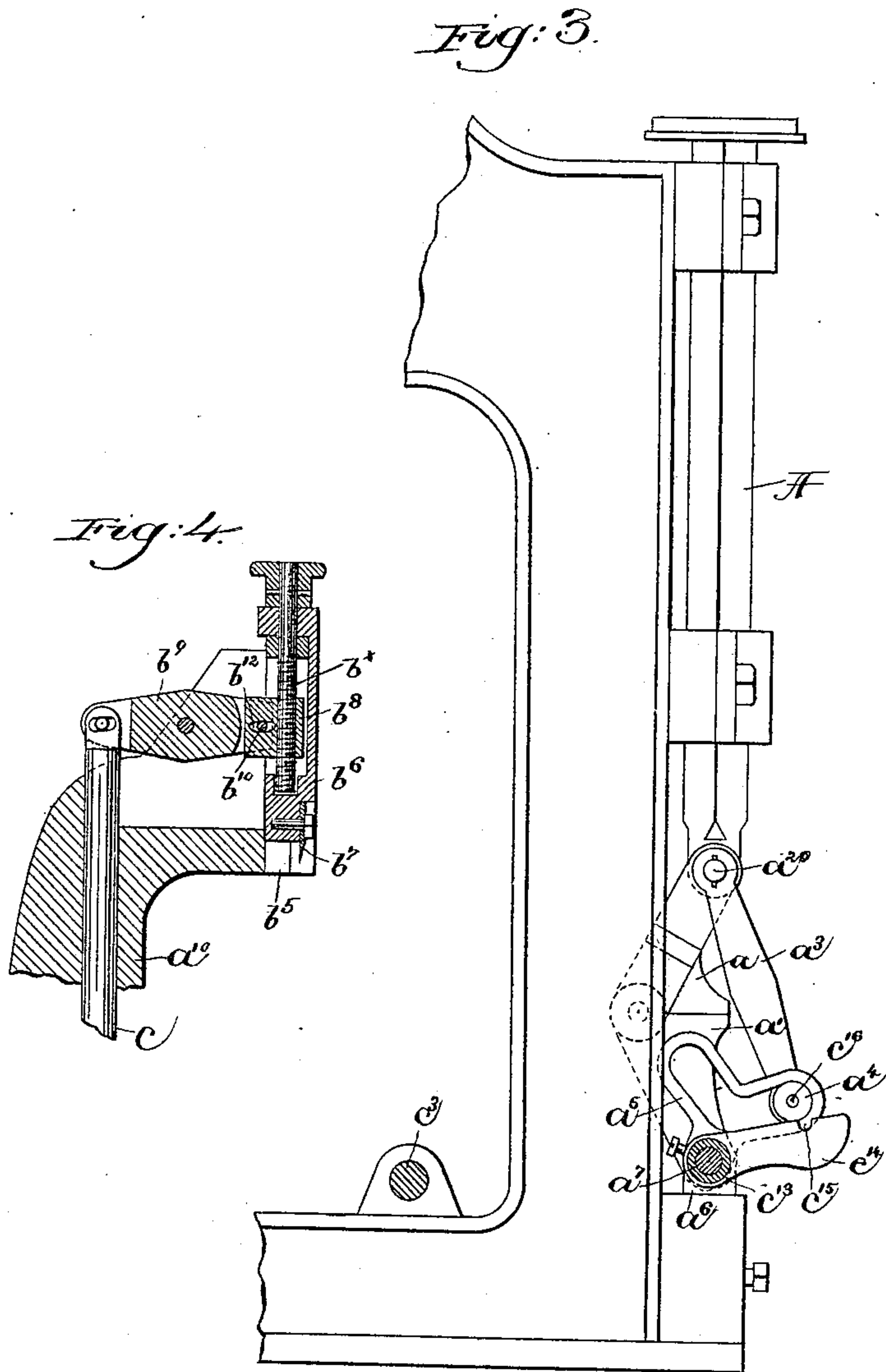
(No Model.)

3 Sheets—Sheet 3.

E. B. ALLEN.
HEEL NAILING AND BREASTING MACHINE.

No. 377,285.

Patented Jan. 31, 1888.



Witnesses.

Frederick A. Emery.

John F. C. Prinkert

Inventor.

Edward B. Allen

by Crosby & Gregory
Attys.

UNITED STATES PATENT OFFICE.

EDWARD B. ALLEN, OF PORTLAND, MAINE, ASSIGNOR TO JAMES W. BROOKS, TRUSTEE, OF CAMBRIDGE, MASSACHUSETTS.

HEEL NAILING AND BREASTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 377,285, dated January 31, 1888.

Application filed October 31, 1887. Serial No. 253,850. (No model.)

To all whom it may concern:

Be it known that I, EDWARD B. ALLEN, of Portland, county of Cumberland, and State of Maine, have invented an Improvement in Heel Nailing and Breasting Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to couple together a heel attaching and trimming machine and a heel-breasting machine, whereby the breasting-machine may be automatically operated by the heel attaching and trimming machine, or whereby the said machines may be operated as separate machines independent of each other.

My invention consists in the combination, with the die-bed spindle of a heel attaching and trimming machine, of a rock-shaft of a breasting-machine, a jack connected to and operated by the said rock-shaft, and mechanism, substantially as will be described, to operatively connect the said rock-shaft and die-bed spindle, whereby the said shaft is rocked by movement of the die-bed spindle; also, in the combination, with the trimming mechanism of a heel attaching and trimming machine, of a rock-shaft of a breasting-machine, a breasting-knife and its carrier connected to and operated by the rock-shaft, the said rock-shaft being rocked by movement of the trimming mechanism to produce reciprocation of the knife and carrier, all substantially as will be described.

Other features of my invention will be pointed out in the claims at the end of this specification.

Figure 1 is a front elevation of a sufficient portion of a heel breasting and trimming machine embodying my invention to enable it to be understood. Fig. 2 is a side elevation of the heel-breasting machine, the heel-trimming machine being omitted, the lever operating the trimming mechanism of the trimming-machine being broken off; Fig. 3, a section of Fig. 1 on line *x x*, looking toward the right; and Fig. 4, a sectional detail to be referred to.

Referring to Fig. 1, A represents the die-bed spindle of a McKay and Bigelow heel attaching and trimming machine, substantially such as shown in United States Patent No.

332,032, dated December 8, 1885, wherein the said spindle is raised and lowered by toggle-levers *a a'*. The toggle-lever *a* is connected to the die-bed spindle A by an arbor, *a*²⁰, having an arm, *a*³, provided with a roller or other stud, *a*⁴, which is extended through a slot in a cam, *a*⁵, secured to a rock-shaft, *a*⁷, for a purpose to be described. The lower toggle-lever, *a'*, is connected to its step *a*⁶ by the rock-shaft *a*⁷, it constituting the operating-shaft for the jack *a*⁸ of the breasting-machine, (shown at the left in Fig. 1,) the said jack being pivoted, as at *a*⁹, to the frame *a*¹⁰ of the machine, and joined by an adjustable connecting-rod composed of two parts, *a*¹² *a*¹³, to a crank, *a*¹⁴, on the rock-shaft, the part *a*¹³ being made adjustable in the part *a*¹² by the nut *a*¹⁵. The jack *a*⁸ on its upper side is dovetailed or grooved, as at *b*, as shown in Fig. 1, to form a guideway for a sliding block or support, *b'*, having ears *b*², to which are pivoted a last-holding jack, *b*³, provided, as shown, with two sets of pins, *b*⁴, to receive two lasts.

The frame *a*¹⁰ of the breasting-machine above the last-holding jack is dovetailed or grooved, as at *b*⁵, (see Fig. 1,) to form a guideway, in which is reciprocated a cutter or knife carrier, *b*⁶, having secured to it a knife or cutter, *b*⁷, by which the heel is breasted. The cutter-carrier *b*⁶ is connected, as shown, by an adjusting-screw, *b*^x, to a block, *b*⁸, (see Fig. 4,) to which one end of the walking-beam *b*⁹ is secured by pin *b*¹⁰, extended into a slot, *b*¹², in said block, the said walking-beam having its other end joined, as shown, by connecting-rods *c c'*, to a crank, *c*², on a shaft, *c*³, the said shaft having bearings, as shown, in the frame common to both the breasting and heeling apparatus.

The shaft *c*³ has loosely mounted upon it, as shown, a trimming-lever, *a*², connected to and operating the heel-trimming mechanism—not herein shown, but substantially such as shown in the patent referred to, where the trimming-lever is designated by like letter, it in practice, in my present invention, actuating devices common to my said patent.

The trimming-lever *a*², as shown, has a stud, *a*⁵, extended outwardly between the forks *c*⁶ *c*⁷ of a lever, *c*⁸, fastened, as shown in Fig. 2, by set-screw *c*⁹, to the shaft *c*³, the said forks hav-

ing adjusting devices c^x , to act sooner or later on the trimming-lever to effect various lengths of stroke of the breasting-knife, thereby enabling the said knife to cut heels of various or different heights. The shaft c^3 also has fast upon it a lever, c^{10} , adapted to be brought into engagement on the backward movement of the trimming-lever with an arm or wiper, c^{12} , on a sleeve, c^{13} , loose on the rock-shaft a^7 , the said sleeve having a second arm, c^{14} , (see Fig. 3,) provided with a recess, c^{15} , to engage a stud, c^{16} , on the roller or other stud a^4 , to thus lock the said stud a^4 and prevent its movement in the slot of the cam a^5 as the die-bed spindle is lowered after spanking on the top lift, thereby causing the arm a^3 to at such time rock through the cam a^5 and insure the outward movement of the last-holding jack from under the breasting-knife, the arm c^{14} being disengaged from the stud c^{16} as soon as the herein-shown counterbalancing-weight c^{17} , secured to or forming part of the sleeve c^{13} , passes the top center of the said sleeve, which happens as the die-bed spindle reaches its lowest position.

In the operation of the machine the parts thereof normally occupy the positions shown in Fig. 1, the die-bed spindle being in its lowest position, to enable a heel-blank to be placed in position upon and so as to be attached to the boot or shoe in usual manner, the jack or part a^8 of the breasting-machine being removed from under the breasting-knife into such position as to enable a boot or shoe to be removed from or placed upon pins b^4 , as shown in Fig. 2, the trimming-lever being at such time in the forward position shown in said figure.

The die-bed spindle is first raised through mechanism, not herein shown, but common to the patent referred to, and the heel-blank is attached to the boot or shoe held upon the usual jack or last, not shown, but common to heeling-machines of the class referred to, and located above the die-bed spindle and its attached nail-box. (Not shown.) As the die-bed spindle is thus raised, the rock-shaft a^7 is rocked by the stud a^4 , it acting in the cam a^5 to bring the jack a^8 under the knife-carrier b^6 , so that by moving the last-holding jack to the right or left in the guide b^x , a boot or shoe placed on one or the other set of pins b^4 of the last-holding jacks may be placed in proper position below and in line with the breasting-knife. The actuating-power is next withdrawn from the toggles a^a to lower the die-bed spindle and usual parts carried by it, as in the said patent, to enable a top lift to be placed in position in usual manner to be spanked upon the said heel-blank at the next rise of the die-bed spindle. During the downward movement of the die-bed spindle, as stated, the crank-pin a^4 slides down in the slot in the cam a^5 and does not actuate it, so that the breasting-machine remains stationary or inoperative. The toggles are now straightened to raise the die-bed spindle in usual manner to spank the top lift on the heel-

blank. The top lift having been spanked on the heel-blank, the trimming-lever a^2 is operated as provided for in the patent referred to, it being moved backward to trim the heel of the boot or shoe on that part of the machine devoted to heeling. As the trimming-lever is moved backward from the position shown in Fig. 2 to actuate the usual trimming mechanism, not herein shown, but common to the said patent, to trim the heel in usual manner, the stud c^5 on the said trimming-lever strikes against the fork c^6 or the adjusting device c^x of the lever c^8 , carried by the said fork, and moves the said lever backward, causing the shaft c^3 to be rocked. As the shaft c^3 is thus rocked, the breasting-knife carrier, through the crank c^2 , connecting-rods c' , and walking-beam b^9 , is reciprocated in its guideway, the knife being moved to cut or breast the heel of a boot or shoe on one of the sets of pins b^4 of the last-holding jack b^3 . As the trimming-lever is moved backward, as described, to cause the knife to breast the heel, the lever c^{10} , fast to the said shaft, is made to engage with the arm c^{12} of the sleeve c^{13} , the said lever turning the sleeve on the shaft a^7 to cause the recess c^{15} in the arm c^{14} to engage the stud c^{16} and lock the same, so that on the next downward movement of the die-bed spindle after the heel has been trimmed and the breasting-knife carrier elevated the jack of the breasting portion of the machine will be thrown forward away from the breasting-knife into its normal position, (shown in Fig. 2,) to enable the boot or shoe to be removed from the breasting portion of the machine. The return of the jack a^8 into its normal position is effected by the arm c^{14} , which engages the stud c^{16} and locks the stud a^4 , so that the latter in the descent of the die-bed spindle acts on the cam a^5 as a lever, causing the latter to be moved, and with it the shaft a^7 . As the cam is thus moved and the shaft a^7 is rocked, the jack a^8 is thrown into its normal position. When the die-bed spindle is lowered and the jack a^8 moved into its normal position, as shown, the stud c^{16} is unlocked or released, as shown, by the counterbalancing-weight c^{17} as it is moved past the top center of the shaft a^7 . To enable the heels to be cut or breasted at various or different pitches, the last-holding jack b^3 has, as herein shown, a rearwardly-extended arm, d , (see Fig. 2,) through which is inserted an adjusting-screw, d' , the said screw bearing upon a shelf or projection, d^2 , of the sliding block or support b' .

The last-holding jack b^3 may be turned on its pivots to vary the angular position of the breast of the heel to the knife through the nut a^{15} .

The forked lever c^8 , normally fast upon the shaft c^3 , may be made loose thereon by unscrewing the screw c^9 , and in this case the heeling and the breasting portions of the machine may operate independent of each other.

I claim—

1. In an organized machine for nailing,

trimming, and breasting heels, the die-bed spindle of a heel nailing and trimming machine, a rock-shaft, connection between the said die-bed spindle and rock-shaft to actuate the said
5 rock-shaft, a jack or holder for a shoe to be breasted, a heel-breasting knife and a carrier therefor, and means, substantially as described, to connect the said jack or holder with the said rock-shaft, to operate substantially as described.
10

2. In an organized machine for nailing, trimming, and breasting heels, the breasting-knife, its carrier, the rock-shaft c^3 and connections between it and the said carrier, and a
15 jack or holder for the shoe to be breasted, a movable part of a heel-trimming mechanism, as the lever a^2 of the rock-shaft c^3 , the latter being extended horizontally and deriving its movement from the said movable member of
20 the heel-trimming mechanism, for the purposes set forth.

3. The die-bed spindle of a heel-nailing machine, its toggle, the link a^3 , having a roller-stud, the cam a^5 , entered by the said roller-stud, the rock-shaft to which the said cam is
25 attached, the arm a^8 , carrying the jack or holder of the boot or shoe to be breasted, a

breasting-knife and carrier therefor, and connections between the said arm and rock-shaft, combined with means, substantially as described, for temporarily locking the said stud
30 in the slot of the said cam as the die-bed spindle is being lowered, to thus automatically move the jack or holder out from under the breasting-knife, for the purposes set forth.
35

4. The combination, with the die-bed spindle of a heel attaching and trimming machine, of a rock-shaft, a^7 , of a breasting-machine, a jack connected to and operated by the said
40 rock-shaft, a trimming mechanism of the heel-attaching machine, a rock-shaft, c^3 , of the breasting-machine, a cam, a^5 , an arm having a stud, a^4 , in engagement with the said cam, a locking device to engage said pin, and a lever, c^{10} , actuated by the movement of the trim-
45 ming mechanism to operate the locking device, as and for the purpose specified.

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

EDWARD B. ALLEN.

Witnesses:

JAS. H. CHURCHILL,
C. M. CONE.