

(No Model.)

E. F. CONNORS.
HEEL MACHINE.

No. 537,818.

Patented Apr. 23, 1895.

FIG. 1.

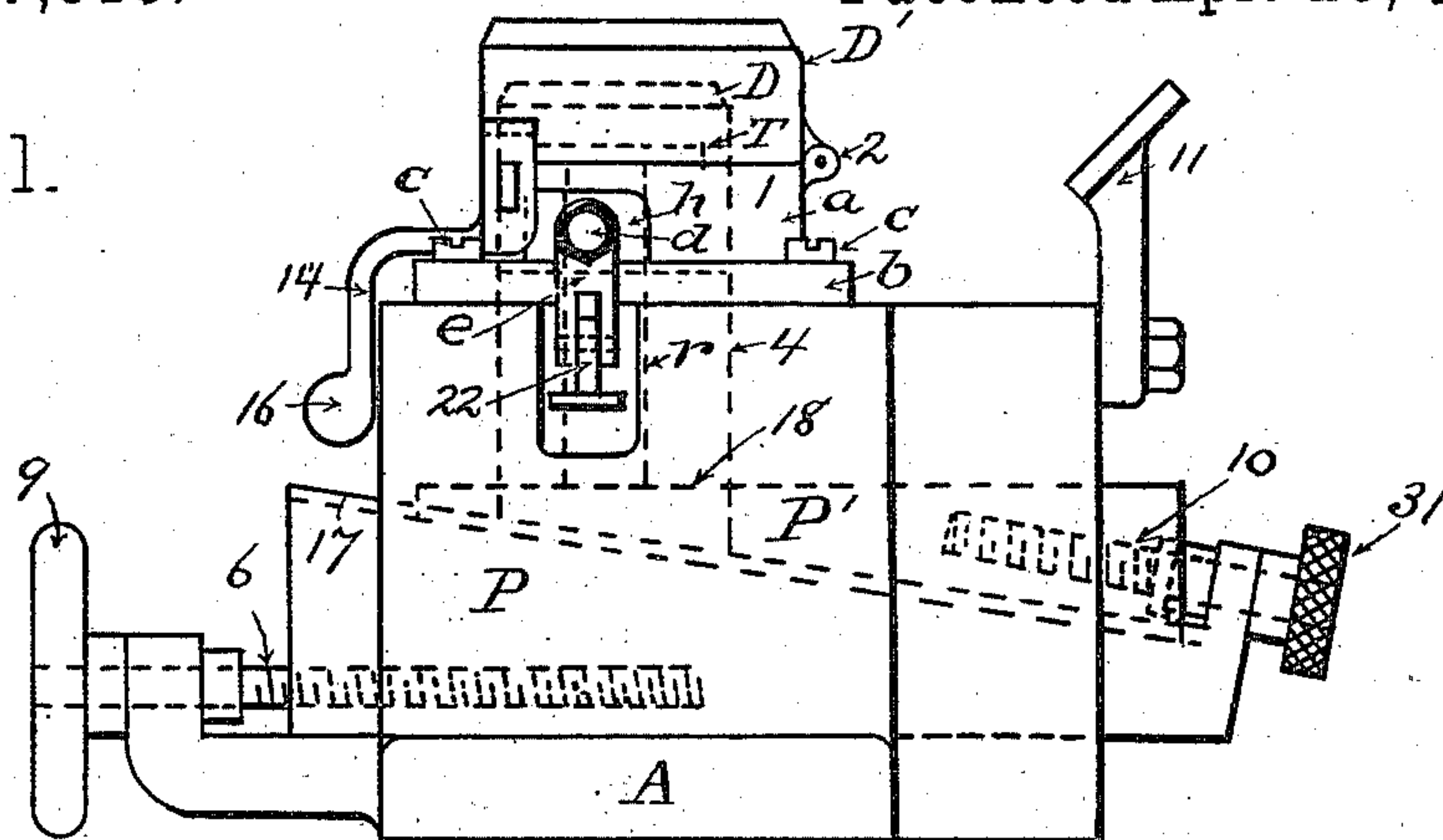


FIG. 3.

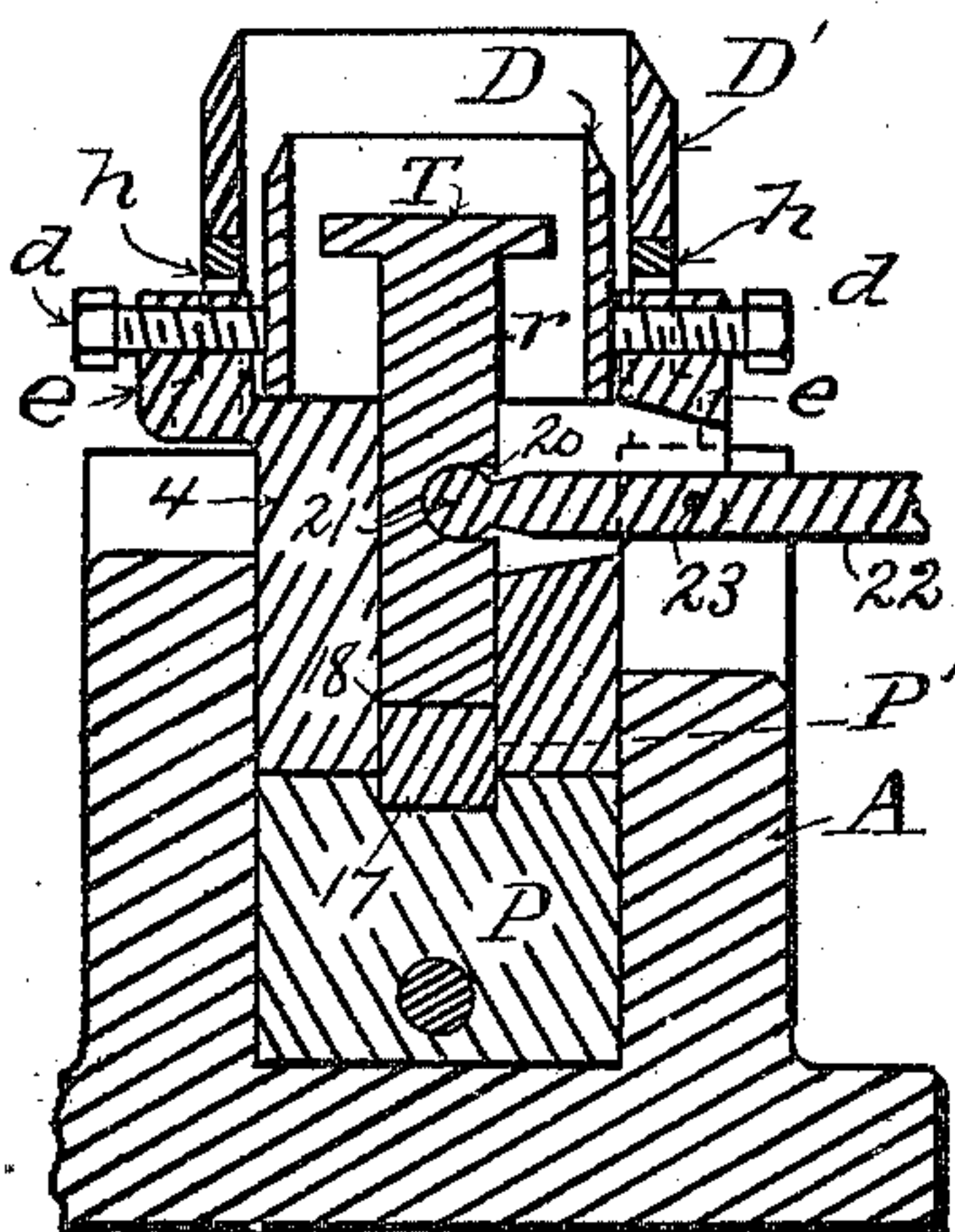


FIG. 2.

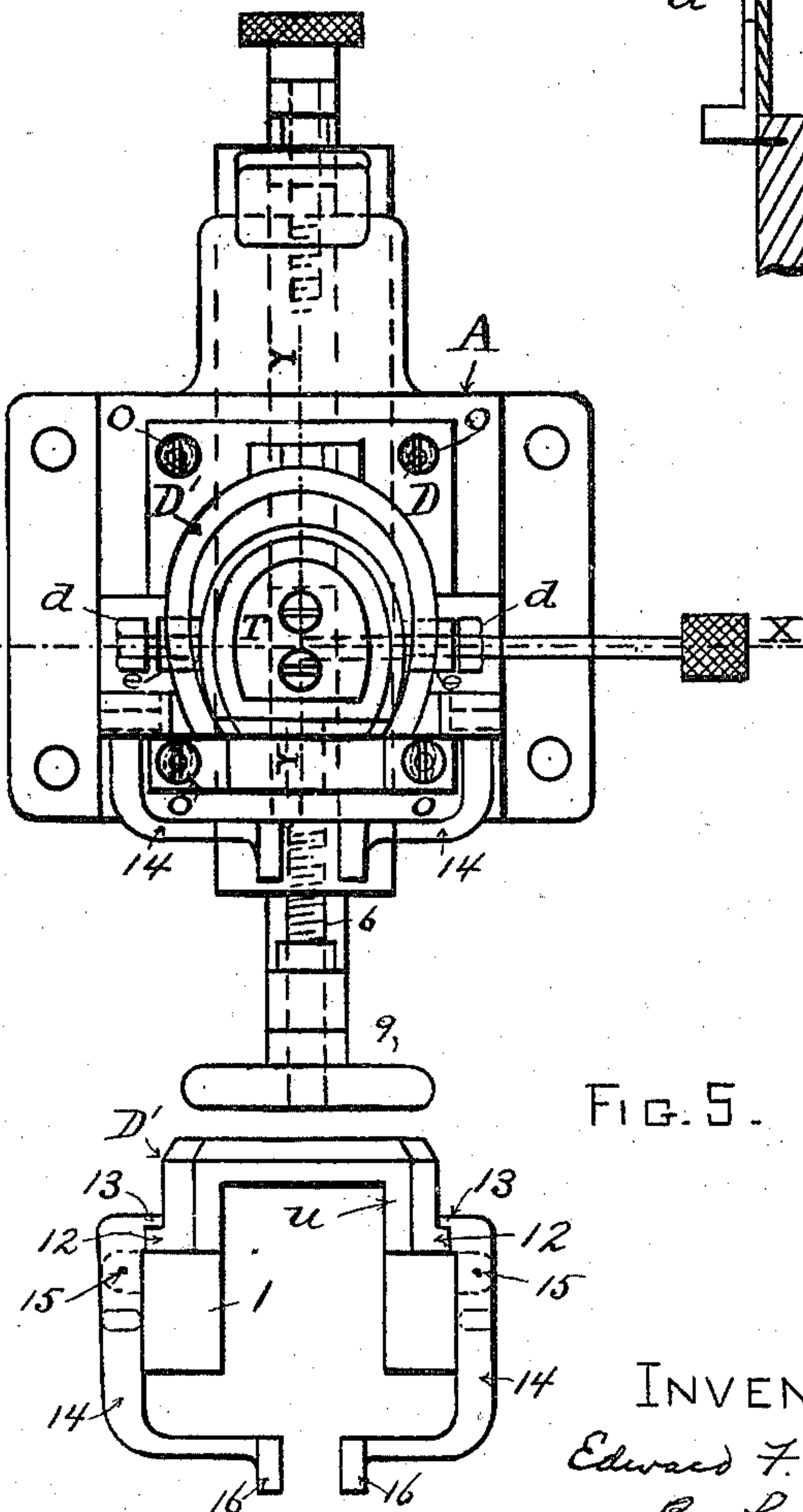


FIG. 4.

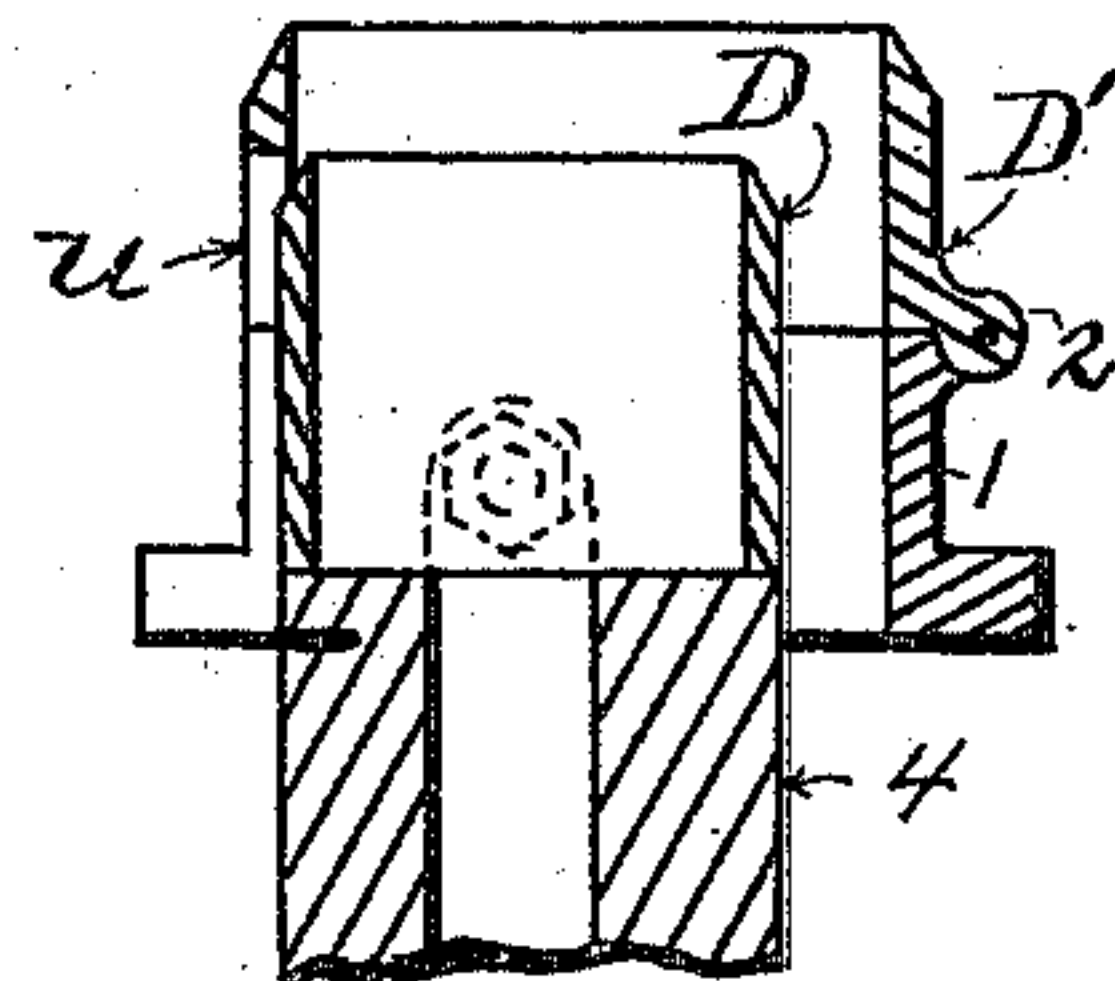
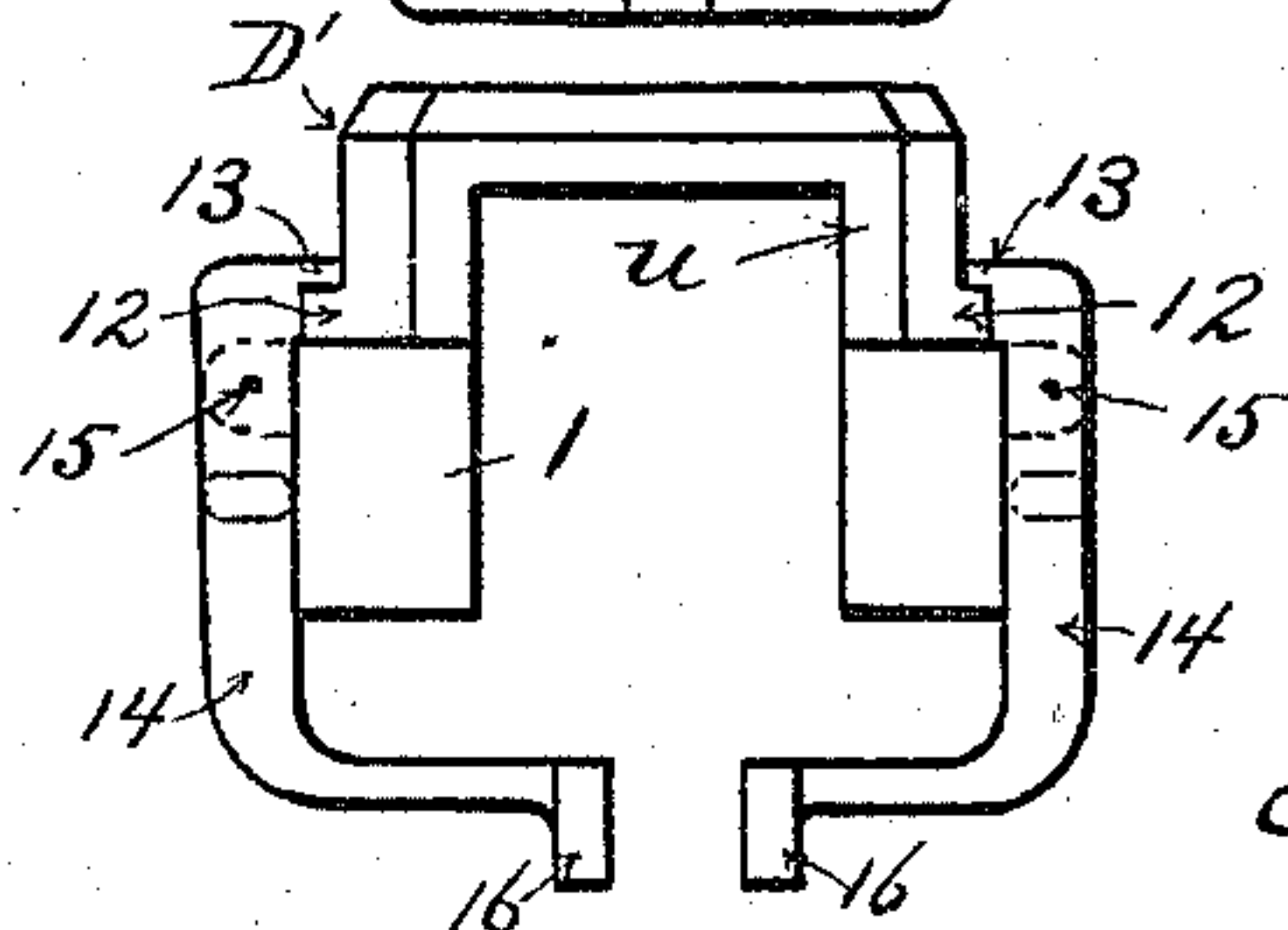


FIG. 5.



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EDWARD F. CONNORS, OF LYNN, MASSACHUSETTS.

HEEL-MACHINE.

SPECIFICATION forming part of Letters Patent No. 537,818, dated April 23, 1895.

Application filed December 21, 1894. Serial No. 532,538. (No model.)

To all whom it may concern:

Be it known that I, EDWARD F. CONNORS, a citizen of the United States, and a resident of Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented a new and useful Improvement in Heel-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates generally to improvements in machines of the above class and more particularly to improvements in machines for cutting and assembling decked heel blanks.

Decked heel blanks as the term is commonly used in the trade consists of a series of lower lifts of substantially uniform size to which are nailed a series of upper lifts of larger size commonly called the deck. The deck projects around the curved portion of the blank but is commonly even with the rest of the blank on the breast.

My invention consists of improvements in the form and arrangement of the lower lift die and deck die and of the mechanism for regulating the thickness of the assembled deck and bottom blank and expelling the finished blank from the dies, as hereinafter more specifically set forth and claimed.

My invention further consists of a device whereby the deck die may be removed while the lifts are being cut by the lower lift die, and adjusted in position and locked to cut and assemble the deck lifts.

My invention further consists of a device for removing the finished blank from the dies, and of the devices and combination of devices hereinafter more specifically set forth and claimed.

As deck heel blanks have been heretofore constructed the lower lifts are cut and assembled in a suitable die. They are then nailed together and removed from the die. The bottom blank thus assembled is then placed in the deck die (so called) having been first placed in a case or false deck which fills the space between the walls of the deck die and the bottom blank, and holds the same in position in the deck die. The deck lifts are then cut and assembled in the deck die and nailed to the bottom blank.

The object of my invention is to provide a device whereby a decked heel blank may be

rapidly and conveniently cut and assembled without removing any portion thereof from the dies.

My invention is illustrated by the drawings herewith submitted, in which—

Figure 1 is a side elevation. Fig. 2 is a plan view. Fig. 3 is a section on line X X, Fig. 2. Fig. 4 is a section on line Y Y, Fig. 2. Fig. 5 is a front view of the dies showing locking mechanism for deck die.

Similar letters and figures of reference refer to similar parts throughout the several views.

Referring to the drawings A represents a frame suitable to support the working parts of the machine.

D represents the bottom lift die by means of which the lifts of the bottom blank are cut and assembled, and D' represents the "deck die" by means of which the deck lifts are cut and assembled.

The dies D and D' are vertically disposed with reference to each other, the die D being smaller than the die D' and placed within its periphery or a horizontal projection thereof.

T represents the supporting table which forms the working bottom of the die D' upon which the bottom lifts are assembled. The upper edge of each of the dies D and D' constitutes its cutting edge and their relative vertical position is adjustable. The supporting table T is also vertically adjustable in the die D. The vertical adjustment of the dies D and D' determines the thickness of the deck and the vertical adjustment of the table T in the die D determines the thickness of the bottom blank. The die D' is arranged to be removed from its position over die D, to allow the bottom lifts to be cut and assembled therein, and to be readjusted and locked in position for the forming of the deck.

I will now describe in detail the form and arrangement of the dies and auxiliary mechanism shown in the drawings, but before doing so I wish to say that I do not consider my invention limited to the specific devices hereinafter described as many modifications thereof will readily suggest themselves to one skilled in the art involving no departure from the essential nature of my invention.

Mounted in suitable bearings in the frame A is a standard 4, free to reciprocate vertically in said bearings for the purposes here-

inafter set forth. Mounted upon the standard 4 is the bottom lift die D adjustably secured thereon, conveniently by means of the set screws d, d , which are supported by the ears e, e which project from the standard 4. Surrounding the die D is the deck die D' which is suitably mounted upon the frame A. In the specific construction shown, the die D' is connected by hinge 2 (preferably at the center of its curved portion) to a bracket 1. The bracket 1 consists of a vertical portion a which supports the die D', forming substantially a continuation of its wall, and a horizontal portion or plate b which is secured to the frame A conveniently by the bolts c, c , &c. To keep the breasts of the dies D and D' in substantially the same vertical plane for the purposes hereinafter described, I find it convenient to provide the die D' with a horizontal adjustment in the direction of the breast. This I secure by slightly elongating the bolt holes o, o , &c., in the bracket 1 (as indicated by dotted lines Fig. 2) so that the bracket 1 and die D' thereon can be moved slightly toward or away from the breast of die D. The bracket 1 is provided with the slots h, h which receive the ears e, e , and permit the raising and lowering of the same with the standard 4.

The die D' may be turned back on the hinge 2 to be out of the way while the bottom lifts are being cut by the die D, and a suitable rest 11 may be conveniently provided to support the die D' when turned back for the purpose above set forth.

When in position above the die D to cut and assemble the deck, the die D' may be conveniently locked in position by the following mechanism:

Projecting from the die D' are the flanges 12, 12 which are engaged by the shoulders 13, 13 on the levers 14, 14 which are pivoted at 15, 15 to the bracket 1. Suitably placed springs (not shown) acting on the levers 14, 14, normally hold the shoulders 13, 13 in engagement with the flanges 12, 12, or the same result may be secured by the weight of levers 14, 14. The levers 14, 14 extend over the front of the machine and are bent to approximate their free ends, which may conveniently be provided with the thumb pieces 16, 16 by means of which they may be turned inwardly and the flange 12 released from the shoulder 13.

As already stated the standard 4 is free to reciprocate in suitable bearings in frame A and to effect such reciprocation I provide the following mechanism:

In a suitable guide way in the frame A is mounted a longitudinally beveled bar P, the upper and beveled surface of which forms an inclined plane upon which rests the lower end of the standard 4. The bar P is free to reciprocate along its guide way in frame A and may be set in any desired position along the same by means of the threaded bolt 6 which

may be conveniently operated by the wheel 9, and is provided with suitable bearings in frame A.

The above described arrangement is such that as the bar P is reciprocated along its ways in the frame A by the rotation of wheel 9 the inclined face thereof acts upon the lower end of the standard 4 to raise or lower said standard and the die D mounted thereon, and, since the die D' is secured to the frame A, to effect the vertical adjustment of the die D with relation to the die D'.

As the distance from the top of the die D to top of die D' determines the thickness of the deck, this result is secured by the above described adjustment.

As hereinbefore stated the vertical adjustment of table T determines the thickness of the bottom blank and the same may be conveniently accomplished as follows: The table T is mounted upon a rod r free to reciprocate vertically in a suitable guide way in the standard 4. To a groove 17 in the bar P is fitted a longitudinally beveled bar P' the under side of which forms an inclined plane corresponding in inclination with the inclined face of bar P. The bar P' is free to reciprocate along the groove 17 and may be conveniently actuated by a threaded bolt 10 rotated by a wheel 31. The bearings of the bolt 13 are secured to the bar P. In the standard 4 is a slot 18 which receives the bar P' as the bar P is slid along under the same by the rotation of the wheel 9. The rod r rests upon the upper side of the bar P' which is substantially horizontal. By the arrangement above described, when the bar P is reciprocated to raise or lower the die D, the rod r rests upon the horizontal side of the bar P' and its vertical position and the vertical position of the table T mounted thereon remain unchanged, but when the die D has been brought into the required position, the table T may be adjusted to the required height in the die D by moving the bar P' along the groove 17 by means of the thumb wheel 31.

In the rod r is formed a socket 20 in which works a ball 21, carried by the lever 22 pivoted at 23 to one of the ears e upon the standard 4. The free end of lever 22 projects from the frame A in convenient position to be struck by a hammer or other convenient instrument. The above described arrangement is such that after the decked blank is assembled and nailed or otherwise suitably united, by striking a sharp blow on the lever 22, the finished blank is thrown out of the dies D and D'.

As shown in Fig. 4 the cutting edge of breast of die D is in substantially the same vertical plane as the cutting edge of the breast of die D' and for this arrangement a slot u is formed in the breast of die D' into which the breast wall of die D extends.

In the operation of my invention the die D is first adjusted in the deck die D' to make a deck

of the required thickness and the deck die D' then thrown back onto the rest 11. The table T is then adjusted in the die D to form the bottom blank of required thickness and the lifts are cut and assembled in the die D in the usual manner. When the die D is full the die D' is closed over the same and locked as hereinbefore described and the deck lifts are cut and assembled therein in the usual manner, the bottom deck lift resting upon the full die D. When the deck die D' is full a nail (or nails) is driven through the deck into the bottom blank to hold the finished blank together, and by tapping on the lever 22 the finished blank is thrown out of the dies D and D'.

Having thus described my invention and its mode of operation, I claim as novel and desire to secure by Letters Patent—

1. In a heel machine the combination of the deck die and bottom lift die vertically disposed with reference to each other, mechanism for adjusting the relative vertical position of said dies, a supporting table in the bottom lift die, and a vertically reciprocating rod supporting said table, mechanism for reciprocating said rod adapted to retain it at the required height to regulate the thickness of the bottom blank, and independent mechanism for reciprocating said rod to expel the finished blank, substantially as described.

2. In a heel machine the combination of a deck die and bottom lift die vertically disposed with reference to each other, a vertical reciprocating standard supporting the bottom lift die, a vertical guide way in said standard, a supporting table in the bottom lift die, a rod supporting said table and arranged to reciprocate in said guide way, and mechanism for independently reciprocating the standard and the rod adapted to retain them at the required height to regulate the relative thickness of the deck and bottom blank, substantially as described.

3. In a heel machine the combination of a deck die and bottom lift die vertically disposed with reference to each other, a supporting table in the bottom lift die, a vertical rod free to reciprocate vertically supporting said table, and a horizontally reciprocating beveled bar supporting said rod substantially as described.

4. In a heel machine the combination of a bottom lift die and deck die having a slot in its breast wall to receive the breast wall of the lower lift die whereby the cutting edges of the breasts of said dies are brought substantially into the same vertical plane, substantially as described.

5. In a heel machine the combination of a deck die, a bottom lift die within the deck die, a slot in the breast of deck die to receive the breast of the bottom lift die and means for horizontally adjusting the dies to bring the cutting edges of their breasts substantially in a vertical plane, substantially as described.

6. In a heel machine the combination of a deck die and bottom lift die vertically disposed with reference to each other, a vertically adjustable standard supporting the bottom lift die, a vertical guide way in said standard, a supporting table in the bottom lift die, a rod supporting said table and arranged to reciprocate in said guide way, a horizontally reciprocating beveled bar supporting said rod, and a lever pivoted to said standard and arranged to reciprocate said rod to expel a finished blank from the dies, substantially as described.

7. In a heel machine the combination of a bottom lift die, a bracket surrounding the bottom lift die, a deck die mounted upon said bracket, a hinge connection between the deck die and bracket, and a locking device for locking the deck die to the bracket, substantially as described.

8. In a heel machine the combination of a deck die and bottom lift die vertically disposed with reference to each other and having their breast edges in substantially the same vertical plane whereby a blank is formed with decked sides and back and an even breast substantially as described.

9. In a heel machine the combination with a suitable supporting frame of a deck die and bottom lift die vertically disposed with reference to each other, a supporting table in the bottom lift die, a pair of bars each having a beveled and horizontal face and placed one above the other with their beveled faces in contact, a vertical standard supporting the bottom lift die and resting upon the bevel face of the lower bar and a vertical rod supporting the table and resting upon the horizontal face of the upper bar, mechanism for horizontally reciprocating the bars together along a suitable guide way in the frame to raise or lower the standard and mechanism for sliding one bar along the other to raise or lower the table, substantially as described.

Witness my hand this 8th day of December, 1894.

EDWARD F. CONNORS.

Witnesses:

BENJAMIN PHILLIPS,
WALTER H. MERRITS.