No. 819,414. PATENTED MAY 1, 1906.

J. E. DONALDSON.

PRESS.

APPLICATION FILED OCT. 26, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

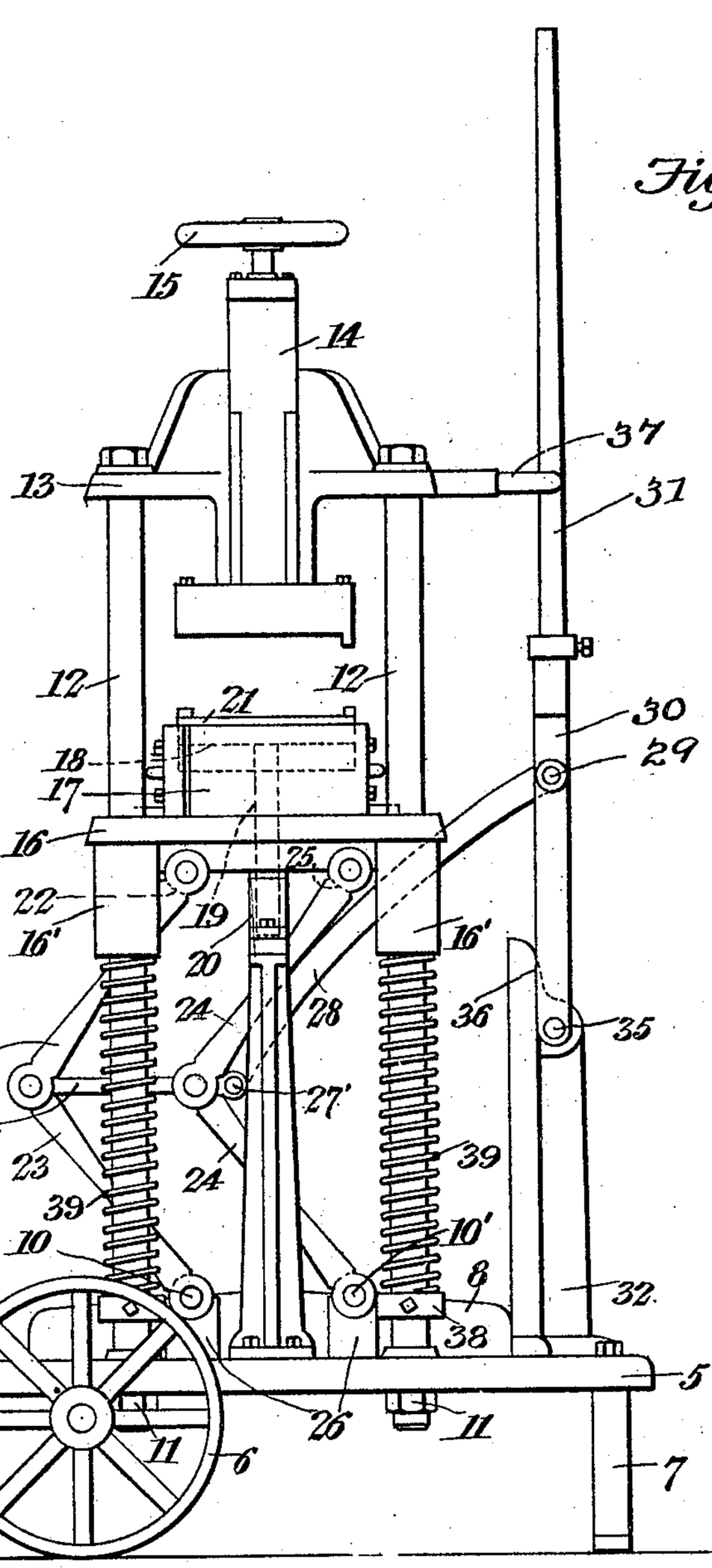

Fig 4.

Witnesses

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2 SHEETS—SHEET 2.

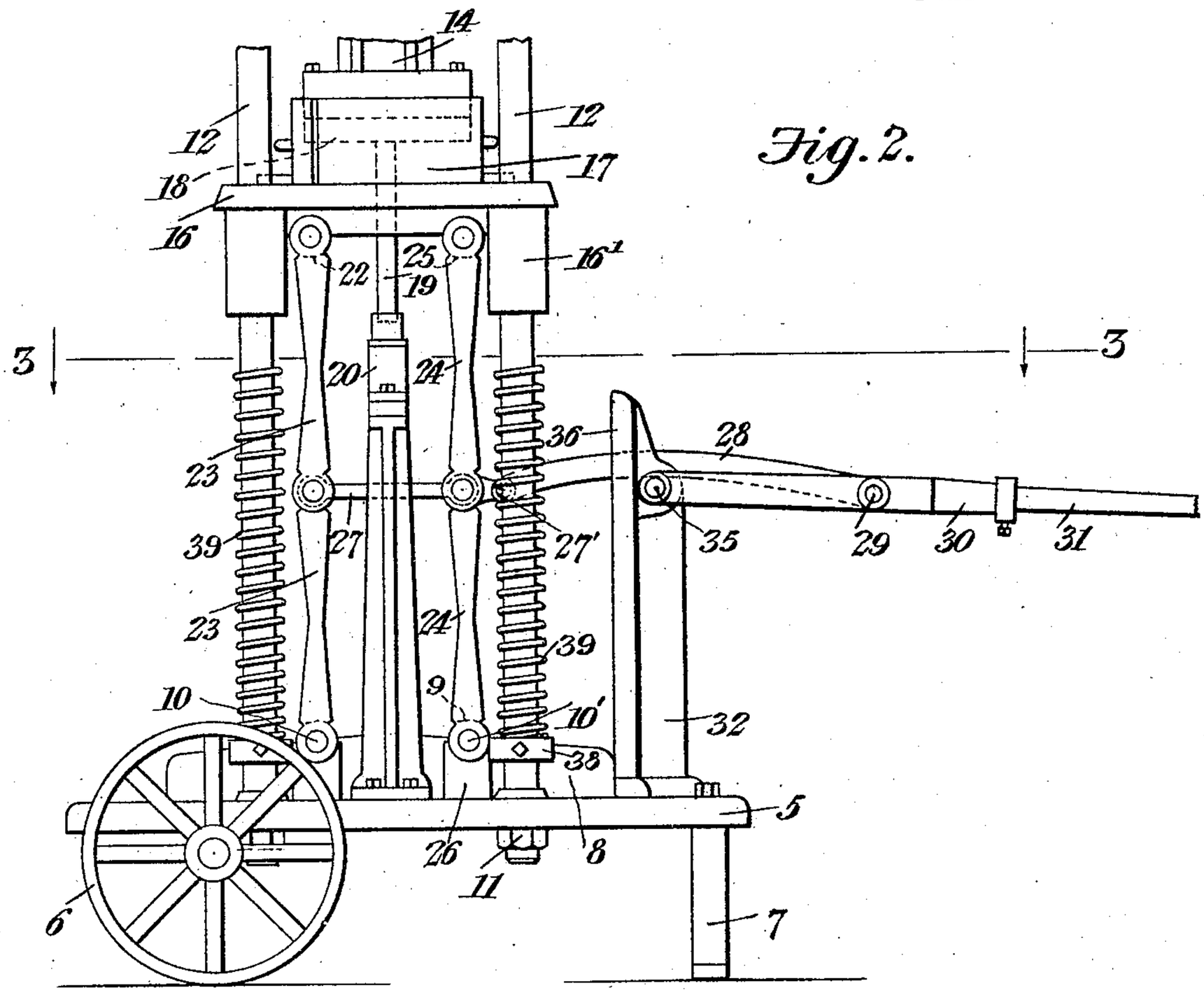

Fig. 2.

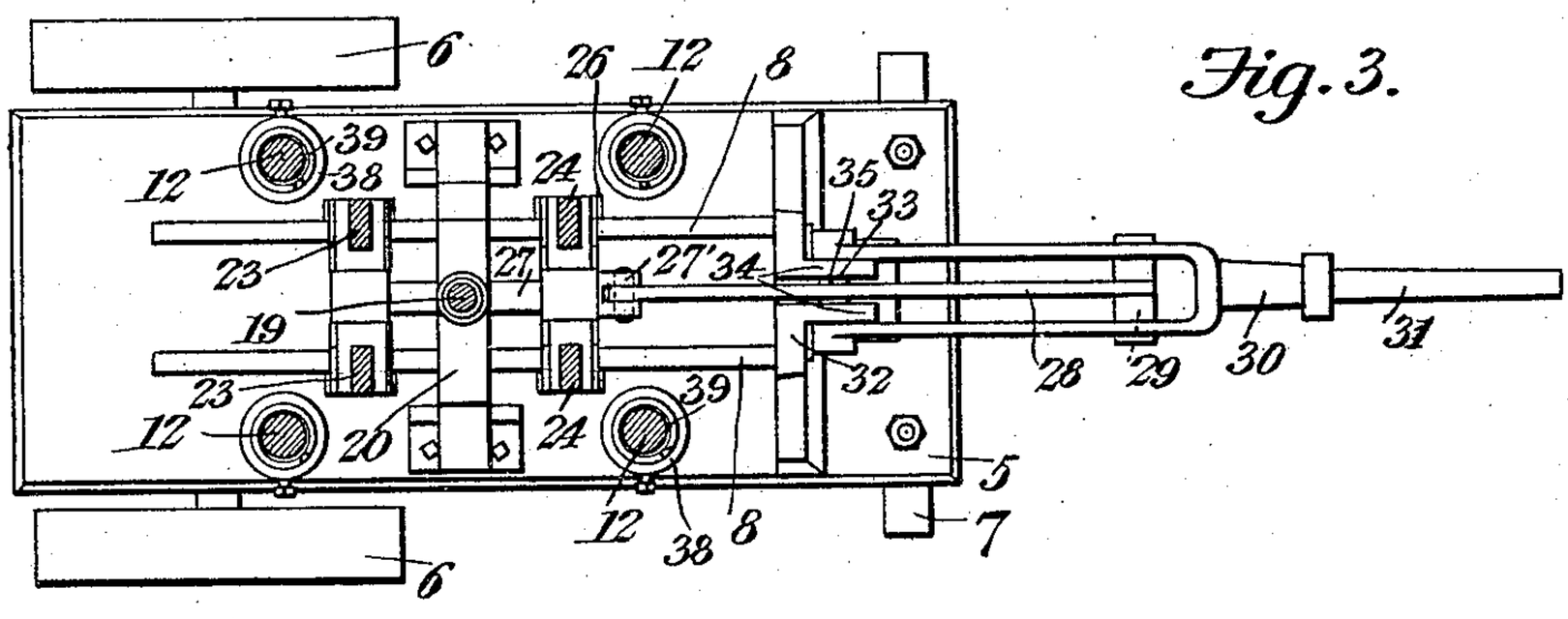

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

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PRESS.

No. 819,414. Specification of Letters Patent. Patented May 1, 1906.

Application filed October 26, 1905. Serial No. 284,533.

To all whom it may concern:

Be it known that I, JOHN E. DONALDSON, a citizen of the United States, residing at Frankfort, in the county of Clinton and State of Indiana, have invented a new and useful Press, of which the following is a specification.

This invention relates to presses, and more particularly to a machine for pressing roofing-tiles and similar articles from cement, concrete, terra-cotta, and other plastic material.

The object of the invention is to provide a strong, durable, and efficient machine of this character in which the molded tile is subjected to enormous pressure, so as to effectually remove any excess of moisture in the tile preparatory to introducing the latter into a kiln to be burned or baked.

A further object of the invention is to form the press with a plurality of toggle-levers arranged in pairs and pivotally connected with the die plate or carrier, the latter being guided in its backward-and-forward movement by depending boxes mounted for sliding movement on vertical guide-rods secured to the base of the machine, so that an even and uniform pressure may be exerted on the tile.

A still further object is to generally improve the class of devices so as to add to their utility and durability as well as to reduce the cost of manufacture.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in claims hereto appended, it being understood that various changes in form, proportion, and minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

In the accompanying drawings, forming a part of this specification, Figure 1 is a side elevation of a press constructed in accordance with my invention, showing the press box or mold in position to receive a tile. Fig. 2 is similar views showing the machine in the act of pressing a tile. Fig. 3 is a transverse sectional view taken on the line 3 3 of Fig. 2, and Fig. 4 is a detail perspective view of one end of one of the toggle-levers.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The machine consists of a suitable base or platform 5, supported at one end upon wheels or rollers 6 and having depending legs or feet 7, secured to its opposite end, as shown, said base being provided with spaced reinforcing ribs or flanges 8, the upper edges of which are provided with curved lugs 9, having openings formed therein for the reception of stub-shafts 10 and 10′.

Secured to the base 5, as by nuts 11, are a plurality of vertically-disposed guide-rods 12, the upper ends of which are connected to a stationary head-plate 13, in which is mounted for vertical movement an adjustable platen 14, operable through the medium of a hand-wheel 15. The rods 12 are preferably four in number and arranged in rectangular form at the center of the base to form vertical guides upon which is mounted for travel the die plate or carrier 16, the latter being provided with integral depending bearing-boxes 16′, which receive the rods and are preferably lined with Babbitt metal in order to insure a perfect fit and prevent accidental wabbling of the carrier. Mounted on the carrier 16 is the press-box 17, having the usual movable bottom 18 and depending stem 19, which passes through an opening in the arch 20 and elevates the tile 21 in the usual manner when the die plate or carrier is lowered. Pivotally mounted on lugs 22, secured to the bottom of the carrier, are a pair of spaced toggle-levers 23, the lower ends of which are pivotally mounted on the stub-shaft 10, while spaced from the levers 23 are a pair of similar levers 24, pivoted at their upper ends to corresponding lugs 25 and at their lower ends to the stub-shaft 10′. The lower ends of the toggle-levers 23 and 24 are seated in the concave recesses of lateral enlargements or blocks 26, preferably cast integral with the reinforcing ribs or flanges 8, and are movable over the curved surfaces of the lugs 9, while the central pivotal points of the toggle-levers are connected by a bar or link 27. Pivoted to the free end of the link 27, as indicated at 27′, is a curved bar 28, the opposite end of which is pivotally connected to a pin 29, extending transversely across the bifurcated end of the socket 30 of an operating-handle 31.

Secured to or formed integral with the forward portion of the base 5 is a bracket 32, provided with a longitudinal slot 33, defining a pair of spaced ribs or flanges 34, through

which extends a pin or bolt 35, upon which is pivotally mounted for swinging movement the socket of the handle 31.

The upward-and-forward movement of the operating-handle 31 is limited by engagement of the arms or bifurcated end of the socket 30 with the inclined shoulders 36 of bracket 32, the handle being temporarily held in this position by an auxiliary locking member, preferably in the form of a spring-clip 37, carried by the head-plate 13 and engaging the handle, as shown. The downward movement of the handle is limited by engagement of the bar 28 with the transverse pin or bolt 35, attention being called to the fact that by reason of the curved or bowed portion of the bar 28 and the relative position of the pivotal point 29 with respect to the pivots 35 and 27′ the toggle-levers will be locked in vertical alinement and the handle held against accidental displacement during the pressing operation.

Mounted on the guide-rods 12 and interposed between the boxes 16′ and suitable sleeves or collars 38 are heavy coil-springs 39, which receive the impact of the carrier 16 and assist in supporting the weight of the same when in lowered position and also assist in elevating the carrier when the operating-handle is lowered or depressed.

By having the press constructed in this manner the carrier or die plate is always maintained in horizontal position, so that a constant and uniform pressure may be exerted on the tile and the die-plate.

From the foregoing description it is thought that the construction and operation of the machine will be fully understood by those skilled in the art, and further description thereof is deemed unnecessary.

Having thus described the invention, what is claimed is—

1. In a machine of the class described, a base, guide-rods secured to the base, a die-carrying plate mounted for vertical movement on the guide-rods, toggle-levers pivoted to the base and die-carrying plate, respectively, a pivoted operating-lever for actuating the toggle-levers to raise and lower the die-carrying plate, and a link connecting the toggle-levers and operating-lever and having one end thereof movable to a position below the pivotal center of the operating-lever when the latter is depressed for locking said lever in operative position.

2. In a machine of the class described, a base, guide-rods secured to the base, a die-carrying plate mounted for vertical movement on the guide-rods, a plurality of sets of toggle-levers pivoted to the base and die-carrying plate, respectively, a pivoted operating-lever for actuating the several sets of toggle-levers to raise and lower the die-carrying plate, and a link connecting the toggle-levers and operating-levers and having its intermediate portion bowed laterally and one end thereof movable to a position below the pivotal center of the operating-lever when the latter is depressed for locking said lever in operative position.

3. In a machine of the class described, a base, guide-rods secured to the base, a die-carrying plate mounted for vertical movement on the guide-rods and provided with depending bearing-boxes, a plurality of sets of toggle-levers pivoted to the base and die-carrying plate, respectively, springs mounted on the guide-rods and adapted to engage the bearing-boxes, a pivoted operating-lever for actuating the several sets of toggle-levers to raise and lower the die-carrying plate, and a link connecting the toggle-levers and operating-lever and having its intermediate portion bowed laterally and one end thereof movable to a position below the pivotal center of the operating-lever when the latter is depressed for locking said lever in operative position.

4. In a machine of the class described, a base, vertical guides secured to the base, a die-carrying plate mounted for vertical movement on the guides, a plurality of sets of toggle-levers pivoted to the base and die-carrying plate, respectively, a bracket secured to the base, and an operating-lever pivoted to the bracket for actuating the toggle-levers to raise and lower the die-carrying plate, said bracket serving to limit the upward-and-forward movement of the operating-lever.

5. In a machine of the class described, a base, vertical guides secured to the base, a die-carrying plate mounted for vertical movement in the guides, a plurality of sets of toggle-levers pivoted to the base and die-carrying plate, respectively, a bracket secured to the base and having its upper end bifurcated, a pin extending transversely of the bracket, an operating-lever mounted for swinging movement on said pin, and a link or bar connecting the toggle-levers and operating-lever and adapted to enter the bifurcated portion of the bracket and engage the transverse pin for limiting the downward movement of the operating-lever.

6. In a machine of the class described, a base, vertical guides secured to the base, a die-carrying plate mounted for vertical movement on the guides, a plurality of sets of toggle-levers pivoted to the base and die-carrying plate, respectively, a bracket secured to the base and having its upper end bifurcated and provided with shoulders, a pin extending transversely of the bracket, an operating-lever mounted for swinging movement on said pin, a curved link or bar connecting the toggle-levers and operating-lever and adapted to enter the bifurcated end of the bracket and engage the transverse pin for limiting the downward movement of the lever, the upward-and-forward movement of said lever being limited by engagement with

the shoulders, and means for locking the operating-lever in substantially vertical position.

7. In a machine of the class described, a base, provided with a pair of spaced vertically-disposed reinforcing-ribs having their upper edges provided with curved lugs and their outer walls opposite said lugs formed with lateral enlargements provided with concave recesses, a die-carrying plate mounted for vertical movement on the guide-rods, a plurality of sets of toggle-levers having their upper ends pivoted to the die-carrying plate and their lower ends pivoted to the lugs and seated in the concave recesses, a bracket secured to the base and having its upper end bifurcated, an operating-lever pivoted to the bracket, and a link or bar connecting the toggle-levers and the operating-lever and adapted to enter the bifurcated end of the bracket.

8. In a machine of the class described, a base, vertical guide-rods secured to the base, a head-plate secured to the rods, a platen carried by the head-plate, a die-carrying plate mounted for vertical movement on the guide-rods and provided with depending bearing-boxes, springs carried by the guide-rods and interposed between the bearing-boxes and the base, a plurality of sets of toggle-levers pivoted to the die-carrying plate and the base, respectively, a bracket secured to said base, an operating-lever pivoted to the bracket, a link or bar connecting the toggle-levers and operating-lever, and a clip secured to the head-plate and adapted to engage the operating-lever for holding the latter in substantially vertical position.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN E. DONALDSON.

Witnesses:

WALTER S. MERRITT,

WILLIAM O. WRIGHT.