

No. 885,807.

PATENTED APR. 28, 1908.

E. D. TUCKER.
MOLD.

APPLICATION FILED OCT. 3, 1901.

2 SHEETS—SHEET 1.

Fig. 2.

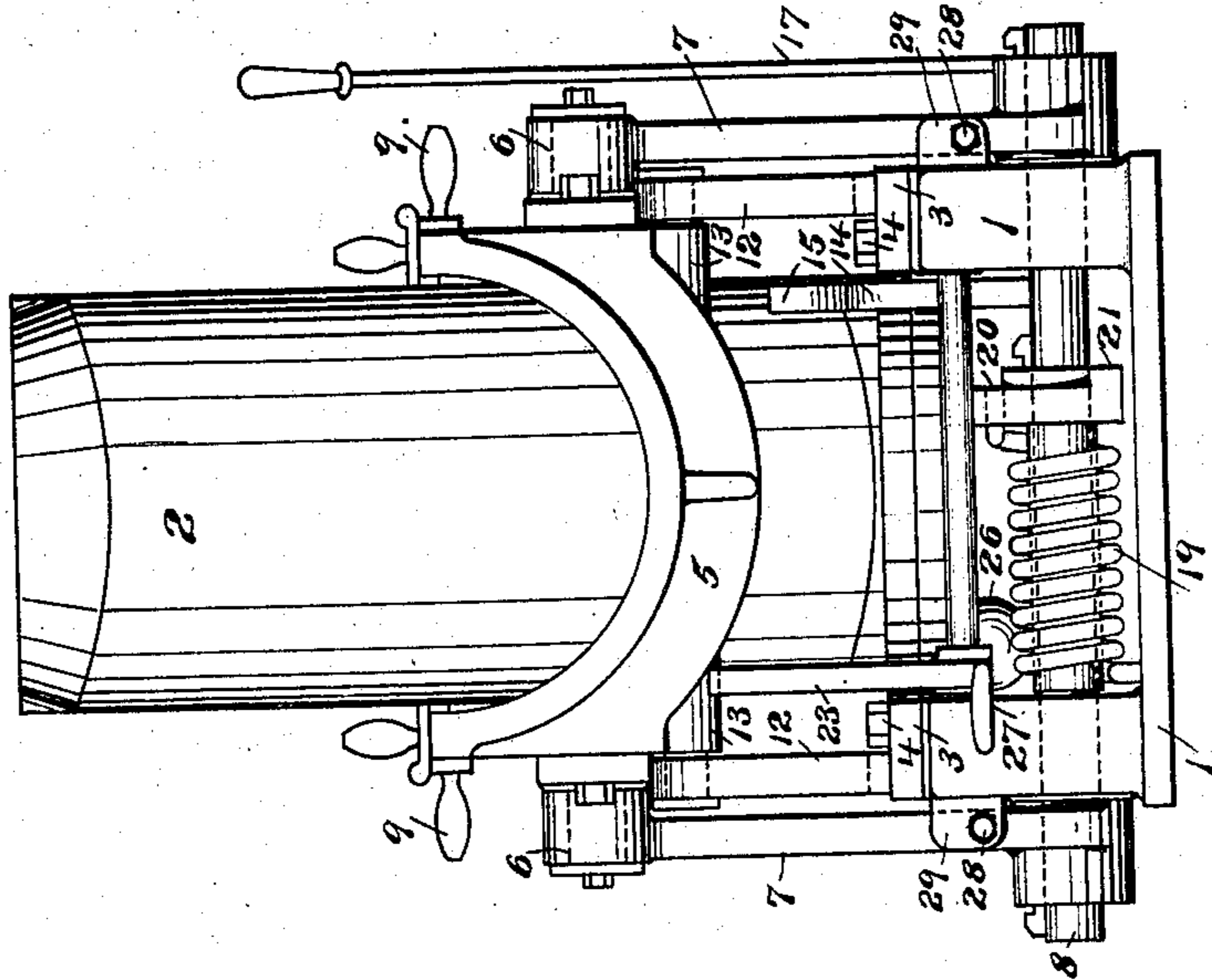


Fig. 1.

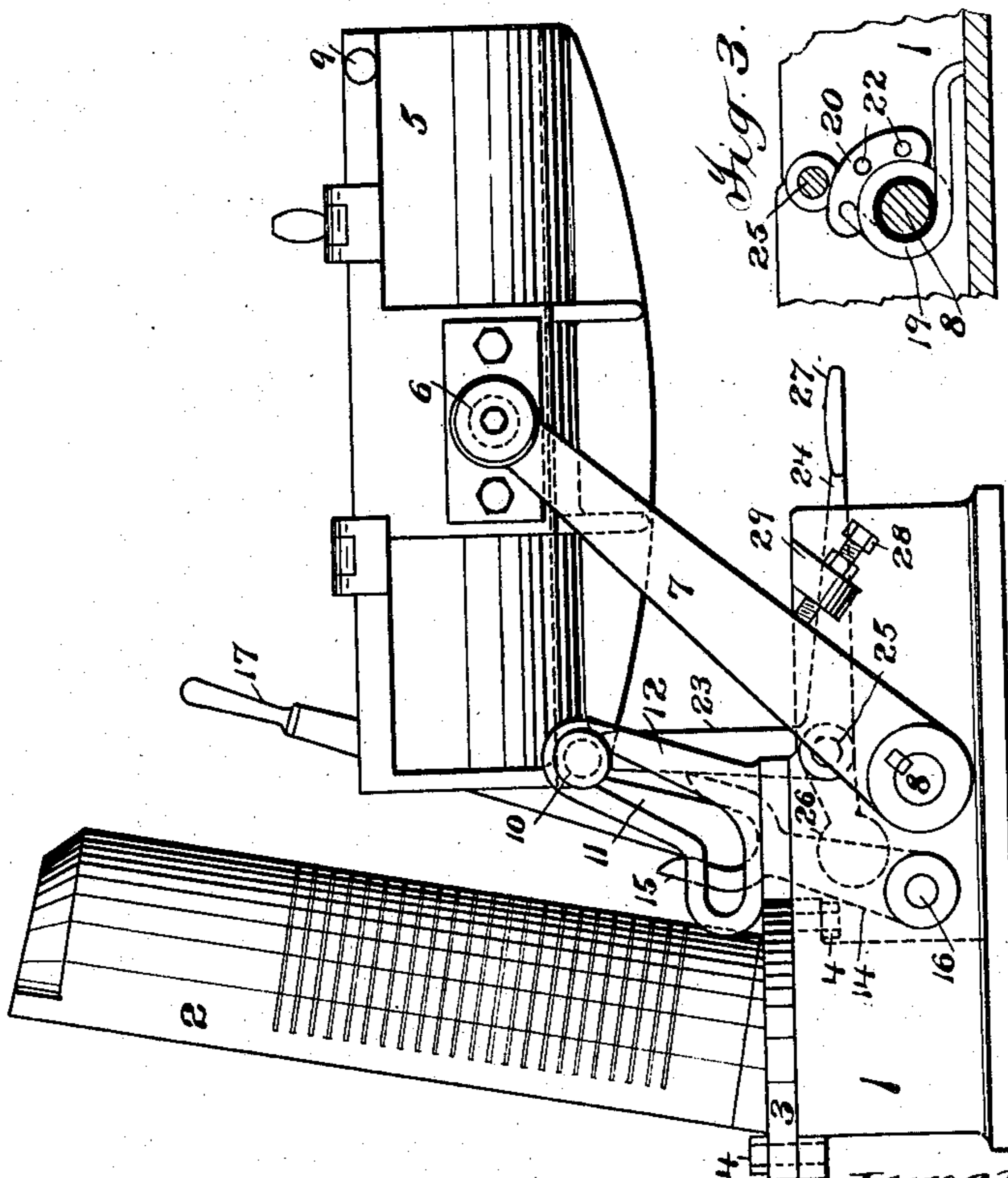


Fig. 3.

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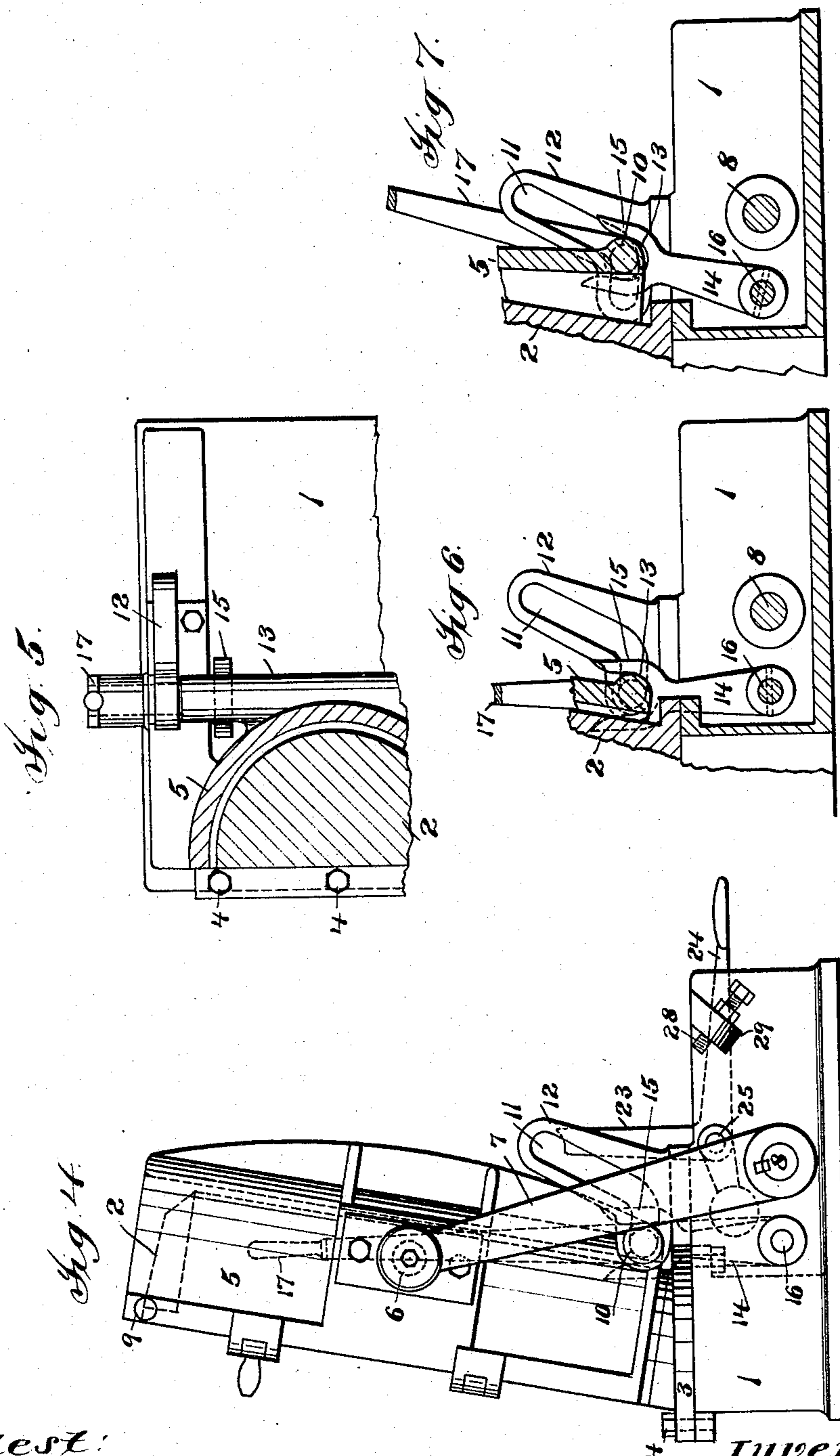
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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

EDWIN D. TUCKER, OF NEW YORK, N. Y., ASSIGNOR TO ROBERT HOE, OF NEW YORK, N. Y.

MOLD.

No. 885,807.

Specification of Letters Patent.

Patented April 28, 1908.

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To all whom it may concern:

Be it known that I, EDWIN D. TUCKER, a citizen of the United States, residing at New York, county of New York, and State of New York, have invented certain new and useful Improvements in Molds, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to certain improvements in molds and has reference more particularly to molds which are used in casting stereotype plates employed in printing machines.

In stereotype molds as ordinarily constructed, the cover is pivoted to the bottom of the mold and the bottom is trunnioned in a stationary frame. In manipulating such a mold it is necessary to first swing the cover down on the bottom and after locking it in position swing both the bottom and cover into a vertical position to receive the metal which is to be poured into it. After the cast has been made, these operations are repeated in reverse order.

It has been proposed to construct stereotype molds with a stationary cover standing in a substantially vertical position and to pivot the bottom on a sliding carriage, the purpose of this construction being to avoid the labor of swinging both parts of the mold from a vertical to a horizontal position and back again each time a cast is made. This construction, while having the advantage that it is not necessary to move the cover of the mold during the casting operation, is expensive to construct, because it embodies a number of complicated appurtenances, and is, furthermore, slow in operation. Molds of this character have not, therefore, gone into extensive use.

It is the object of this invention to construct a mold in which one of the parts shall be disconnected from the other and be moved towards and away from it during the casting operation, thereby avoiding the labor incident to moving both parts from a horizontal to a vertical position during the casting operation, and to accomplish this by means of a construction which is simple, cheap and efficient in operation.

With this and other objects in view, the invention consists in certain constructions and in certain parts, improvements and combinations as will be hereinafter fully described

and then specifically pointed out in the claims hereunto appended.

Referring to the drawings, in which like characters of reference indicate the same parts—Figure 1 is a side elevation of a stereotype mold constructed in accordance with the invention, the mold being shown in its open position. Fig. 2 is a front elevation of the construction shown in Fig. 1, the mold being also shown open. Fig. 3 is a detail view. Fig. 4 is a side elevation of the mold in its closed position, and Figs. 5, 6 and 7 are detail views illustrating certain features of the construction employed.

Referring to the drawings, which illustrate one embodiment of the invention, 1 indicates a base which may be of any suitable construction. This base serves to support the cover 2 of the mold, this cover being shown as stationary. The cover is mounted on the base in a nearly vertical position, although it is slightly inclined to a vertical line, and may be secured to the base in any suitable manner. As shown, it is provided with an integral flange 3 through which pass screw bolts 4 which pass through ears on the base. In the construction shown, the cover has a curved face, the mold being intended to cast curved plates.

The bottom of the mold, which is marked 5, is curved in outline on an arc corresponding to the curve of the cover, and is provided with trunnions 6 by which it is pivoted to a support. This support is movable and may be varied widely in the details of its construction. Preferably, however, it will be a rocking support. As shown, this support comprises a pair of arms 7 which are provided at their outer ends with bearings which receive the trunnions 6. The means for supporting and operating the arms, in the present construction, comprise a shaft 8 to which the arms are secured in any suitable manner, as by keys, said shaft being journaled in the sides of the base 1.

With the construction so far described, it is obvious that the bottom may be rocked with respect to its supporting arms, and the arms themselves rocked to carry the bottom toward the cover. The bottom may be moved and the shaft rocked through any desired agency. As shown, however, the bottom is provided with handles 9 which extend from opposite sides thereof and which are seized by the workmen who operate the

mold. In closing the mold, the bottom is first swung downward and then forward toward the cover.

Means are provided to control the pivotal movement of the bottom so that as it moves toward the cover it may come in substantial parallelism therewith. These controlling means may be of any suitable construction. As shown, the bottom is provided with pins or studs 10 which engage in slots 11 formed in guide pieces 12 which are secured to the base 1 in any suitable manner. The pins 10 are or may be mounted in the ends of a lug or boss 13 which is cast on the bottom. The slots 11 are generally L-shape in configuration. As the bottom and support are rocked toward the cover, the pins 10 pass down through that part of the slots 11 which in the construction shown are nearly vertical, thus controlling the downward movement of the bottom. When the bottom has been moved sufficiently to cause the pins to enter the horizontal part of the slots, the bottom will be in substantial parallelism with the cover, though not truly parallel therewith.

While the momentum of the movement of the bottom might be sufficient to carry the parts of the mold into closed relation, difficulty might be experienced in separating the parts of the mold. Means are, therefore, preferably provided for insuring a relative movement between the cover and the bottom after the two have reached a substantially parallel position, these means operating both to finally close the mold and to initially open the same.

The means employed for the purpose of giving the cover the movement required may be widely varied in construction. As shown, however, they consist of a lever 14, said lever having a fork 15 which engages the lug 13 in which the pins 10 are mounted. This lever 14 is mounted on a shaft 16 which is or may be suitably journaled in the base 1. Any suitable means may be employed for operating the lever 14. As shown, however, a hand lever 17 is employed for this purpose, this hand lever being keyed to the end of the shaft 16 or secured thereto in any other suitable manner.

The operation of the lever 14 will be clearly understood from an inspection of Figs. 6 and 7. Fig. 7 shows the lever 14 and its fork 15 in position to receive the boss 13 as the pins 10 reach the bottom of the straight part of the slots 11. When the parts have reached this position, the hand lever 17 is thrown by the attendant and the bottom is thrown forward, the pins passing from the straight part of the slots, thus closing the mold. In the preferred construction, this lever 14 will be so arranged as to pass the center of the shaft 16 when the mold is fully closed. In this position, therefore, the

lever serves to lock the mold when the parts are in closed position. The detail view (Fig. 6) illustrates the position which the parts occupy when the mold is closed and locked.

When it is desired to open the mold, the lever 17 is thrown in a reverse direction, causing the pins 10 to travel backward in the straight part of the slots 11 until they reach the position illustrated in Fig. 7, after which the mold can be tipped back and the plate removed.

A power device is preferably provided to assist in throwing the bottom forward. While this power device may be variously constructed, it preferably consists of a torsional spring 19 (see Figs. 2 and 3) which is wound around the shaft 8 and has one of its ends bearing on the bottom of the base 1 and its other end secured in a perforated plate 20 secured to or forming a part of a collar 21 mounted on the shaft 8, this plate being provided with a series of holes 22, so that the tension of the spring may be adjusted. The spring is so arranged that it will be placed under tension as the bottom of the mold is swung back into the position shown in Fig. 1. It will be understood that as the bottom swings back into this position it is carrying the cast plate and the sprue thereon. The weight of this plate is considerable, especially where large plates are being cast, and assists materially in overcoming the resistance of the spring when the mold is opened. When the plate has been removed, however, the power of the spring, which may be made very strong, can be relied upon to perform a considerable part of the work necessary in returning the bottom.

In order to maintain the bottom, when it is open, in a substantially horizontal position, so that the cast plate may be readily removed, a holding or locking device is preferably provided. This holding or locking device may be of any usual description. As shown, the bell crank lever 23, 24 is provided, said lever being pivoted to the base at 25. This lever is so arranged that the arm 23 will take under the lug 13 when the bottom is thrown back, as shown in Fig. 1, thus holding it in a horizontal position. This bell-crank lever is or may be provided with a counterweight 26 and with a pedal 27. When the mold is to be closed the operator steps on the pedal 27 forcing the arm 23 of the bell-crank out from under the boss 13 so that the bottom is free to be swung down. After the operator removes his foot from the pedal, the bell-crank is brought forward by the counterweight so as to be out of the way when the bottom has returned to open position.

While the slotted guides 12 might be depended on to prevent the bottom from going too far as the mold is thrown open, in order to relieve the strain on these parts stops are

preferably provided to limit the opening movement of the bottom. As shown, these stops consist of set screws 28 tapped in ears 29 secured to the base 1, these stops being so arranged as to be struck by the arms 7 when the mold is fully opened.

While the mechanism in which the invention is embodied is an effective one for the purpose described, it is to be understood that the invention may be embodied in other mechanisms which differ widely from the one hereinbefore set forth. The invention is not, therefore, to be confined to the precise constructions hereinbefore described.

15 What is claimed is:—

1. In a stereotype plate casting mold, the combination with the bottom and cover, of a support on which one of said parts is pivoted, said support being capacitated to receive a movement whereby the pivoted part may be caused to move towards and away from the other part of the mold and to swing with respect to the support, means including a pin and slot connection for controlling said pivotal movement, and a power device for assisting in the movement of said pivoted part toward the other part, substantially as described.

2. In a stereotype plate casting mold, the combination with the bottom and cover, of a support on which one of said parts is pivoted, said support being capacitated to receive a movement whereby the pivoted part may be caused to move towards and away from the other part of the mold and to swing with respect to the support, means including a pin and slot connection for controlling said pivotal movement, and a spring for assisting in the movement of said pivoted part toward the other part, substantially as described.

3. In a stereotype plate casting mold, the combination with a stationary cover, of a rocking support, a bottom pivoted thereto, whereby said bottom may swing with respect to the support and may move with it toward and away from the cover, means including a pin and slot connection for controlling said pivotal movement, and a power device for assisting in the movement of the bottom toward the cover, substantially as described.

4. In a stereotype plate casting mold, the combination with a stationary cover, of a rocking support, a bottom pivoted thereto, whereby said bottom may swing with respect to the support and may move with it toward and away from the cover, means including a pin and slot connection for controlling said pivotal movement, and a spring for assisting in the movement of the bottom toward the cover, substantially as described.

5. The combination with the bottom and cover of a stereotype plate casting mold, of a rocking support on which one of said parts is pivoted, whereby said part may swing with

respect to the support and move with it towards and away from the other part, means for controlling the pivotal movement so as to bring said pivoted part into substantial parallelism with the other part, means for positively forcing the two parts together to close the mold, and a spring for assisting in the movement of the pivoted part toward the other part, substantially as described.

6. The combination with the bottom and cover of a stereotype plate casting mold, of a rocking support on which one of said parts is pivoted, whereby said part may swing with respect to the support and move with it towards and away from the other part, means for controlling the pivotal movement so as to bring said pivoted part into substantial parallelism with the other part, means for positively forcing the two parts together to close the mold, said means being constructed to lock the mold in its closed position, and a spring for assisting in the movement of the pivoted part toward the other part, substantially as described.

7. In a stereotype plate casting mold, the combination with a stationary cover, of a rocking support, a bottom pivoted thereto whereby said bottom may swing with respect to the support and move with it towards and away from the cover, means for controlling the pivotal movement so as to bring said bottom into substantial parallelism with the cover, means for positively forcing the bottom against the cover to close the mold, and a spring for assisting in the movement of the bottom toward the cover, substantially as described.

8. In a stereotype plate casting mold, the combination with a stationary cover, of a rocking support, a bottom pivoted thereto whereby said bottom may swing with respect to the support and move with it toward and away from the cover, means for controlling the pivotal movement so as to bring said bottom into substantial parallelism with the cover, means for positively forcing the bottom against the cover to close the mold, said means being constructed to lock the mold in its closed position, and a spring for assisting in the movement of the bottom toward the cover, substantially as described.

9. In a stereotype plate casting mold, the combination with the bottom and a stationary cover, of a rocking support to which said bottom is pivoted, whereby the bottom may be moved with respect to the support and with it toward and away from the cover, means including a pin and slot connection for controlling the pivotal movement of the bottom, and a lever arranged to operate upon the bottom to force it towards and away from the cover, said lever being constructed to pass the center as the bottom moves into closed position and thus lock it in this position, substantially as described.

10. In a stereotype plate casting mold, the combination with a stationary cover and with a bottom having a projection, of a rocking support to which said bottom is pivoted, whereby the bottom may be moved with respect to the support and with it toward and away from the cover, means including a pin and slot connection for controlling the pivotal movement of the bottom, and a forked lever constructed to engage the projection on the bottom to force it towards and away from the cover, substantially as described.

11. In a stereotype plate casting mold, the combination with a stationary cover and a bottom having a projection, of a rocking support to which said bottom is pivoted, whereby the bottom may be moved with respect to the support and with it toward and away from the cover, means including a pin and slot connection for controlling the pivotal movement of the bottom, and a forked lever constructed to engage the projection on the bottom to force it towards and away from the cover, said lever being constructed to pass the center as the bottom moves into closed position and thus lock it in this position, substantially as described.

12. In a stereotype plate casting mold, the combination with the bottom and a stationary cover, of a rocking support to which said bottom is pivoted, whereby the bottom may be moved with respect to the support and with it toward and away from the cover, means including a pin and slot connection for controlling the pivotal movement of the bottom, a lever arranged to operate upon the bottom to force it towards and away from the cover, and a spring for assisting in the movement of the bottom toward the cover, substantially as described.

13. In a stereotype plate casting mold, the combination with the bottom and a stationary cover, of a rocking support to which said bottom is pivoted, whereby the bottom may be moved with respect to the support and with it toward and away from the cover, means including a pin and slot connection for controlling the pivotal movement of the bottom, a lever arranged to operate upon the bottom to force it towards and away from the cover, said lever being constructed to pass the center as the bottom moves into closed position and thus lock it in this position, and a spring for assisting in the movement of the bottom toward the cover, substantially as described.

14. In a stereotype plate casting mold, the combination with a stationary cover and a bottom having a projection, of a rocking support to which said bottom is pivoted, whereby the bottom may be moved with respect to the support and with it toward and away from the cover, means including a pin and slot connection for controlling the pivotal

movement of the bottom, a forked lever constructed to engage the projection on the bottom to force it towards and away from the cover, and a spring for assisting in the movement of the bottom toward the cover, substantially as described.

15. In a stereotype plate casting mold, the combination with a stationary cover and a bottom having a projection, of a rocking support to which said bottom is pivoted, whereby the bottom may be moved with respect to the support and with it toward and away from the cover, means including a pin and slot connection for controlling the pivotal movement of the bottom, a forked lever constructed to engage the projection on the bottom to force it towards and away from the cover, said lever being constructed to pass the center as the bottom moves into closed position and thus lock it in this position, and a spring for assisting in the movement of the bottom toward the cover, substantially as described.

16. In a stereotype plate casting mold, the combination with a cover and a bottom having a projection one of said parts being stationary, of a shaft, a support carried thereby, pivotal connections between the support and the movable part of the mold, means for controlling the pivotal movement of said part, said means including a pin and slot, a forked lever constructed to engage the projection on the movable part, and a torsional spring encircling the shaft, said spring being placed under tension by the movement of the shaft as the pivoted part moves away from the other part to assist in its return movement, substantially as described.

17. In a stereotype plate casting mold, the combination with a stationary cover, of a shaft, a support connected thereto, a bottom having a projection pivoted to the support, a pin carried by the bottom, a slotted guide with which the pin engages, said pin and guide serving to control the pivotal movement of the bottom, a forked lever for engaging the projection on the bottom as it comes into parallelism with the cover and operating to force the bottom towards and away from the cover, said lever being constructed to pass the center as the bottom moves into closed position, and a torsional spring encircling the shaft, said spring being placed under tension as the bottom swings away from the cover whereby it assists in the movement of the bottom toward the cover, substantially as described.

In testimony whereof, I have hereunto set my hand, in the presence of two subscribing witnesses.

EDWIN D. TUCKER.

Witnesses:

F. W. H. CRANE,
S. ROEHM.