S. H. BINGHAM.

MOLDS FOR CASTING RIBBED SURFACES.

No. 193,072. Patented July 17, 1877.

Fig 3

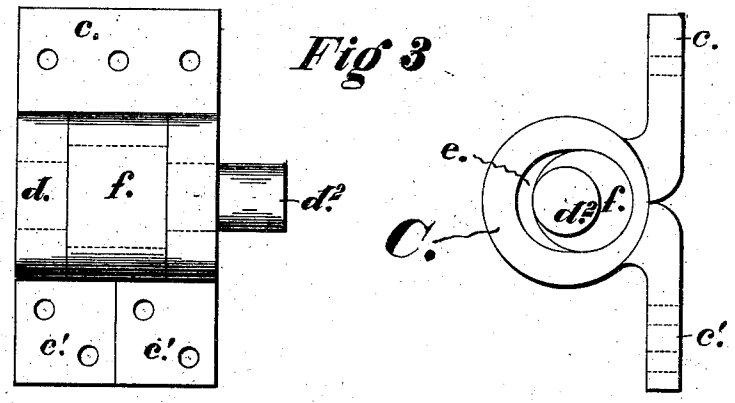


Fig 1

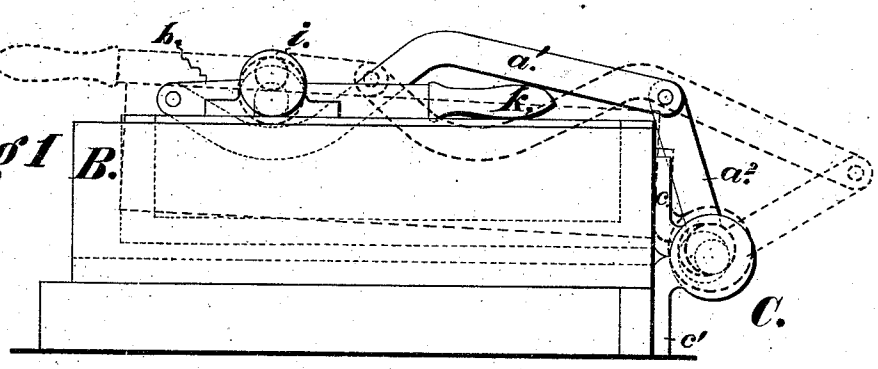
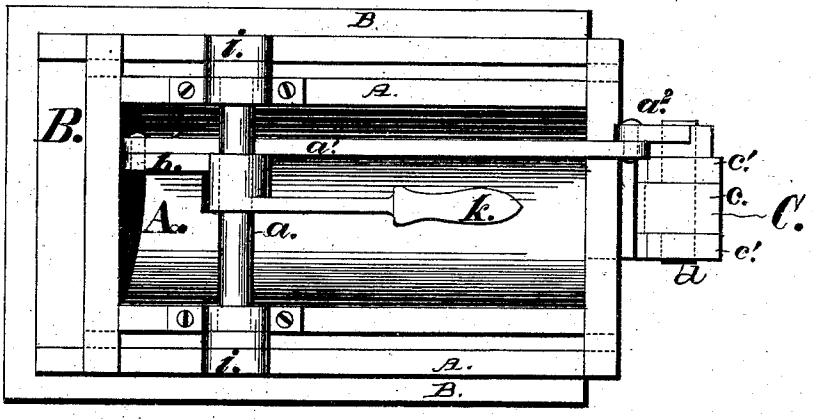


Fig 2



Witnesses:

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IMPROVEMENT IN MOLDS FOR CASTING RIBBED SURFACES.

Specification forming part of Letters Patent No. **193,072**, dated July 17, 1877; application filed May 5, 1877.

To all whom it may concern:

Be it known that I, SAMUEL H. BINGHAM, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Casting-Boxes, which improvement is fully set forth in the following specification and accompanying drawings, forming part of the same, in which—

Figure 1 is an elevation, and Fig. 2 a plan, of the casting-box. Fig. 3 illustrates details, hereinafter described.

The object of this invention is to provide a mold suitable for the rapid and convenient casting of forms in metal—more particularly soft metal—having ribbed or indented surfaces—such, for instance, as the stereotype-plates used upon cylinder and other printing-presses.

The form of the mold or casting-box constituting this invention does not differ from those in ordinary use; but the means of drawing or removing the top or lid from the lower box or body of the mold have heretofore only consisted of the rude method of prying off the lid by hand pinch-bars applied under one end of the lid until it could be rotated upon an ordinary hinge at the other end, and thrown back far enough to remove the cast plate from its bed within the box. By this rude method of removal not only is valuable time wasted, but the casting-box and lid are defaced and injured by the constant use of the pinch-bars; but the worst and most objectionable feature of the removal of the lid by pinch-bars is the injury inflicted upon the cast plate within the mold.

It can be readily seen that if the top or lid of the casting-box be so indented as to form ribs or other raised surfaces upon the cast plate, the lid must first be bodily withdrawn, in a right line, clear of such ribs before it can be rotated upon end; for if such rotation be attempted before the lid is clear of the ribs of the plate, shearing and distortion of such ribs must occur, aggravated, of course, the greater the depth of the ribs and the length of the cast plate.

By the means employed in this invention for raising the lid of the casting-box all the above-mentioned objections are obviated, as will appear by reference to the accompanying drawing, in which—

A is the lid of the casting-box, and B the box proper, or bottom of the mold. In practice, however, when the metal is poured, the box is turned in a vertical plane upon trunnions, upon which it is suspended, in which position it remains until the metal has sufficiently cooled for the removal of the casting from the mold. C is a hinge uniting at their rear or lower ends the box B and lid A. The said hinge is provided with an eccentric axial pin, *d f*, and an elongated eye, *e*. One jaw of said hinge is formed in two pieces, c' c', so that the eccentric-pin *d f* may be inserted within the eye of the hinge. To the pin *d f* is secured the arm a^2, which arm is connected, by the bent connecting-rod a^1, to the arm *b*, which arm forms part of a boss secured to the shaft *a*, and provided with another arm or hand-lever, *k*. The shaft *a* has two journals in bearings secured to the lid A, as seen in the drawing, and is provided with two eccentrics, *i i*, which serve to elevate the lid A when the said eccentrics are brought into contact with the top edges of the sides of the box B.

The operation of this mechanism can now be readily understood, and is as follows: In Fig. 1, the light dotted lines indicate the respective positions of the lid and its operative mechanism when the lid is closed, when a cast-metal plate may be supposed to be embedded between it and the box proper. The heavy dotted lines indicate the respective positions of the lid and its operative mechanism when the lid has been elevated in a right, or virtually right, plane, preparatory to its rotation upon the hinge C as a center, after which rotation the casting can be drawn out of the box clear of the lid. When the hand-lever *k* is in the position shown in Fig. 2, the lid is closed; but by simply throwing the said lever over into the position shown in dotted lines in Fig. 1 the lid is raised bodily in a right plane clear of any ribs or ridges in the cast plate within the box, when, by using the lever *k* or any other attachments as handles, without rotating it in its bearings, the lid may be rotated by either the lever *k* or said attachments upon the hinge C. The movement in a right line of the lid A is effected

at the rear end by the motion given to the arm a^2 from the hand-lever k through the connecting-rod a^1, which, operating the eccentric-pin $d\,f$, causes it to raise one jaw of the hinge C within the elongated eye e of the said hinge. When this motion has fairly commenced, the further movement of the hand-lever k brings the eccentrics $i\,i$ down upon the sides of the box B, and their rotation during the remainder of the movement given to the hand-lever k elevates the front end of the lid A, in harmony with the movement just previously imparted to the rear end of the lid. When the hand-lever k has reached the position shown in dotted lines in Fig. 1, the lid has been raised clear of all ribs or elevations cast upon the plate within the mold. The lid can then be rotated upon the hinge C in the ordinary manner, carrying the whole operative mechanism with it, whenever desired.

In can, of course, readily be seen that the only office of the connecting-rod a^1 is to enable the lid to be raised by the movement of one hand-lever.

If preferred, the connecting-rod may be dispensed with, and the arms a^2 and b be separately operated.

I do not herein claim, *per se*, the eccentric-hinge herein described, as I reserve said hinge as the subject of a future application for other Letters Patent.

Having thus fully described this improvement in casting-boxes, as of my invention, I claim—

1. A casting-box for the molding of indented castings, consisting of a lower box, in combination with a movable top or lid operated by an attached arm or arms, whereby the rear or lower end of the lid is first raised in a right line, and then axially rotated, substantially as and for the purpose specified.

2. A casting-box for the molding of indented castings, consisting of a lower box, in combination with a movable top or lid, operated by an attached arm or arms, whereby the upper or forward end of the lid is first raised in a right line, and then rotated upon the rear end, substantially as and for the purpose specified.

3. A casting-box for the molding of indented castings, consisting of a lower box, in combination with a movable top or lid, operated by attached and connected arms or levers, whereby the entire lid is first raised in a right line by a single hand-lever, and then rotated upon one end, substantially as and for the purpose specified.

4. The combination, with a casting-box consisting of a lower box, B, and a top or lid, A, of an eccentric-shaft, $a\,i$, attached thereto, whereby the upper or forward end of the lid is raised in a right, or virtually right, line, as and for the purpose specified.

5. A casting-box consisting of a lower box, B, and a top or lid, A, united thereto by a slotted hinge, provided with an eccentric-pin, whereon the lower or rear end of the lid may be first raised in a right, or virtually right, line, and then rotated, substantially as and for the purpose specified.

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