H. F. BECHMAN.

STEREOTYPE PLATE CASTING APPARATUS.

APPLICATION FILED AUG. 15, 1906.

899,374. Patented Sept. 22, 1908.

Fig. 1.

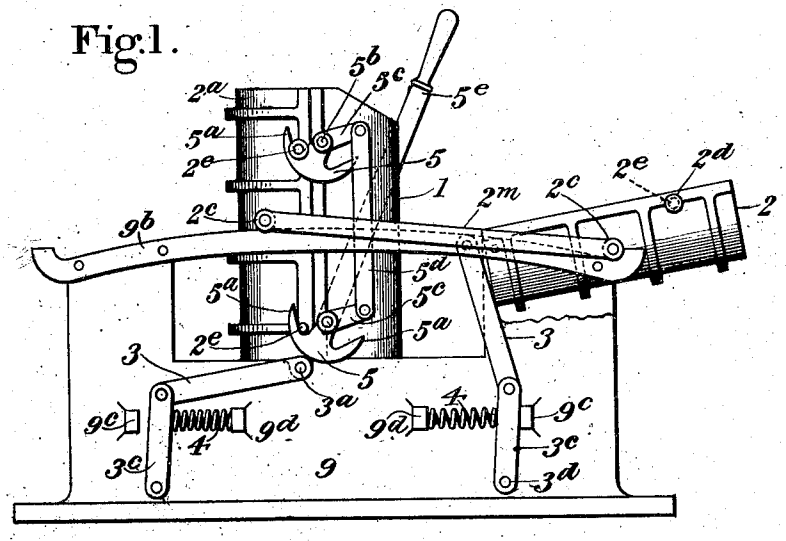
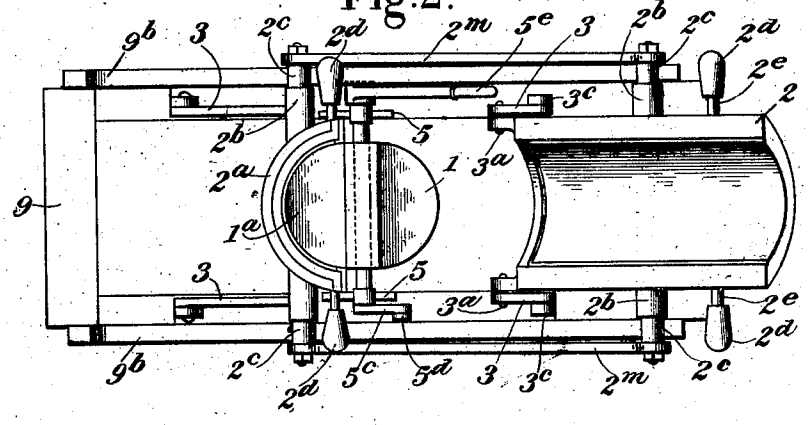


Fig. 2.



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Witnesses
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STEREOTYPE-PLATE-CASTING APPARATUS.

No. 899,374. Specification of Letters Patent. Patented Sept. 22, 1908.

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To all whom it may concern:

Be it known that I, HENRY F. BECHMAN, of Battle Creek, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Stereotype-Plate-Casting Apparatus; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

This invention is an improvement in apparatus for casting stereotype plates for use on rotary printing cylinders, and the object of the invention is to provide a duplex casting box wherein while one plate is being cast, another plate may be made ready for casting, and while the first plate is being removed from its casting box, another can be cast in the other box, the making ready of one flask taking place during the casting operation in the other, and vice versa. In the present invention the copes of the two flasks are so connected that one practically counterbalances the other, so that the movement of one cope into make-ready or plate removing, position, will throw the other cope into closed or casting position, thus greatly lessening the amount of manual labor necessary in handling the copes and facilitating the operation of making the plates. Means are also provided whereby the copes are caused to directly separate from the drag, so as to free the plates from the matrices before the copes are tilted away from the drag, and I also provide novel means for locking the copes to the drag.

The invention therefore consists in the novel constructions and combination of parts hereinafter described, and substantially illustrated in the drawings; and the features for which protection is desired are summarized in the claims.

In said drawings—Figure 1 is a side elevation of the complete apparatus showing one cope in position for casting, and the other open. Fig. 2 is a top plan view of Fig. 1.

The drag is provided with opposite casting faces 1, 1^a, of the usual construction necessary to give the proper form to the interior of the curved stereotype plates. Opposite, and respectively adapted to coact with the faces 1, 1^a, of the drag, are copes 2 and 2^a pivotally connected by links 2^m. These copes are provided with trunnions 2^b, having rollers 2^c, by which they are supported on ways 9^b on a base 9, which ways extend on opposite sides of the drag and are preferably curved downwardly at each side of the drag so that the copes are lowered as they move away from the drag and will rise as they move toward the drag.

The copes are provided with the usual matrix retaining devices, which need no particular description herein, and also with handles 2^d by which they can be readily manipulated.

Each cope is connected at its lower end by pivot bolts 3^a to links 3, which are pivotally connected at their lower ends to links 3^c, pivoted at 3^d to the base 9. These links 3, 3^c cause the copes to oscillate on their trunnions or rollers 2^c as they move to and from the drag, the copes assuming a vertical position as they reach the drag, and a horizontal position as they move away therefrom, as indicated in the drawings.

The outward movement of the links 3^c is limited by stops 9^c on base 9 as shown in Fig. 1, and the links 3^c are pressed toward the stops 9^c by springs 4 interposed between the lugs 9^d on base 9 and the links 3^c. The links 3, 3^c not only perform the function of causing the copes to swing from a vertical to a horizontal position as they move away from the drag, but they also cause the copes to separate directly from the drag in the initial opening movements of the copes as hereinafter explained.

Pivoted on the side of the drag are locking members 5, which are provided with hook ends 5^a, respectively adapted to engage pins or studs 2^e on the sides of the copes 2 and 2^a, as shown. The locking members are fixed on shafts 5^b which extend through the cope and the shafts are provided at one end with arms 5^c which are pivotally connected to a link 5^d so that all the locking members are rocked simultaneously to engage or disengage the pins on the copes. The locking members may be actuated by a lever 5^e connected with one of the shafts 5^b, as shown.

When the locking members are in engagement with one cope they disengage the other. As shown in Fig. 1 the cope 2^a is closed and the cope 2 is opened. In this position a plate may be cast between the drag 1^a and the cope 2^a, while a previously cast plate may be removed from the cope 2, or the matrix can be made ready therein. When

cope 2 is ready for a casting operation, the operator first swings lever 5^e to the left so as to cause the hooks to release cope 2^a. As he does this the springs 4, engaging the left-hand links 3^c, tend to force the lower end of the cope 2^a directly away from the drag 1^a, and as soon as the operator moves cope 2 toward the drag, cope 2^a is separated from the drag and the springs 4 force its lower end directly away from the drag 1^a so that there shall be no binding or biting between the plate and the drag, and as cope 2 is closed, cope 2^a is opened. When cope 2 is brought up to a vertical position parallel with the drag 1, the lever 5^e is drawn over so as to cause the hooks 5 to engage the studs 2^e on cope 2, and close the same directly against the drag 1 and hold it there securely through the casting operation, which can be performed while the previously formed plate is being removed from the cope 2^a. In this manner the plates may be cast alternately, as is obvious, and while the casting is being performed between one cope and drag, the other cope is being made ready, or having a previously cast plate withdrawn therefrom.

The links 3 and 3^c and springs 4 perform the double function of causing the copes to oscillate on their trunnions as they move to and from the drag and of preventing the lower ends of the copes striking the lower end of the drag, and keep the copes from contacting the drag until forcibly drawn into contact therewith by the hooks 5^a; the copes being stopped when almost closed until they are engaged by the hooks, and then when engaged by the hooks they can be drawn directly toward the drag, thus in the final closing movement, and the initial opening movement, the copes move perpendicularly to the coacting faces of the drag.

Having described my invention what I claim as new and desire to secure by Letters Patent is:

1. The combination of a drag, a cope movable to and from the drag, links connected with the cope whereby it is caused to turn as it moves to and from the drag, a spring whereby the cope is arrested when brought to a position parallel to the drag, and locking devices adapted to engage and actuate the cope in its final closing movement, said spring causing the cope to move perpendicularly from the drag in the initial opening movement thereof.

2. The combination of a stationary drag, a tiltable cope, supports for said cope, means for tilting said cope on its supports as it is moved to and from the drag, locking devices adapted to engage the cope when the same is brought into closing position before the drag, means for arresting the cope when brought in its closing movement to a position parallel with the drag, said means being also adapted to separate the cope perpendicularly from the drag when it is released by the locking devices.

3. The combination of a stationary drag, a tiltable cope, supports for said cope, links and connections for tilting said cope on its supports as it is moved to and from the drag, locking devices adapted to engage the cope, springs for arresting the cope when brought to a position parallel with the drag in its closing movement, said springs being adapted to separate the cope perpendicularly from the drag when it is released by the locking devices.

4. In a stereotype casting apparatus the combination of a drag having opposite casting faces, with a pair of copes on opposite sides of the drag, and connected means whereby when one cope is closed the other is opened.

5. In a stereotype casting apparatus the combination of a drag having opposite casting faces, with a pair of copes on opposite sides of the drag, and a link connection between said copes whereby when one is closed the other is opened and vice versa.

6. In a stereotype casting box the combination of a stationary drag having opposite faces, a pair of tilting copes at opposite sides of the drag and movable to and from the same and connections between the copes whereby one is opened when the other is closed.

7. In a stereotype casting apparatus the combination of a drag having a plurality of casting faces, a plurality of copes respectively adapted to engage the adjacent casting faces on the drag; and connections between said copes whereby as one is closed another is opened.

8. In a stereotype casting apparatus the combination of a base, a drag thereon having a plurality of casting faces, a plurality of copes respectively adapted to engage the adjacent casting faces on the drag, means for moving said copes to and from the drag; and connections between said copes whereby when one is closed another is opened.

9. The combination of a drag having opposite casting faces, oppositely disposed copes respectively opposed to the casting faces of the drag, connected means for tilting said copes alternately from a vertical to horizontal position as they move to and from the drag, and locking devices attached to said drag adapted to lock either cope thereto.

10. The combination of a drag having opposed casting faces, movable copes respectively opposite the casting faces of the drag, means for moving said copes to and from the drag, and connecting means whereby when one cope is closed the other is opened, and devices for locking either cope to the drag.

11. The combination of a base, a drag thereon having opposed casting faces, copes respectively opposite the casting faces of the

drag, means for moving said copes to and from the drag, and a connection between said copes whereby when one is closed the other is opened; with spring controlled means whereby the copes are caused to move perpendicularly to and from the faces of the drag in the initial opening and final closing movements thereof.

12. The combination of a drag having opposite casting faces, oppositely disposed copes respectively opposed to the casting faces of the drag, and means for tilting said copes from a vertical to horizontal position as they move to and from the drag, and locking devices attached to said drag adapted to lock either cope thereto; with spring controlled means whereby the copes are caused to move perpendicularly to and from the faces of the drag in the initial opening and final closing movements thereof.

13. The combination of the base, the drag thereon having a plurality of casting faces, a plurality of copes respectively adapted to coact with one of the faces of the drag, supports for said copes, connected means for tilting said copes on their supports as they move to and from the drag and whereby one is opened when the other is closed, and locking devices on the drag for locking the copes thereto.

14. The combination of a drag having a plurality of casting faces, a plurality of copes respectively adapted to coact with one of the faces of the drag, supports for said copes, and means for tilting said copes on their supports as they move to and from the drag; with means for locking the copes to the drag, and connections between said copes whereby when one is closed the other is opened.

15. The combination of a drag having opposite casting faces, oppositely disposed copes, connected means for tilting said copes and means for moving them in alternation to and from the drag, and hooks on the drag adapted to engage pins on the copes to lock either of them to the drag.

16. The combination of a drag, oppositely disposed copes, means for moving said copes to and from the drag, hooks on the drag adapted to engage pins on the copes to lock them to the drag, and connections between said copes whereby when one is moved toward the drag the other is moved away therefrom.

17. The combination of a drag having opposite casting faces, cope supporting ways at opposite sides of the drag, copes movably mounted on said ways, links connecting the inner ends of the copes with the base whereby the copes are tilted as they are moved to and from the drag, locking devices adapted to engage the copes and alternately lock them to the drag, and means for arresting the final movement of the copes in closing and for initially separating them from the drag in opening, substantially as described.

18. The combination of the base, the drag mounted thereon having opposite casting faces, copes mounted at opposite sides of the drag, links connecting said copes whereby when one is moved toward the drag the other is moved away therefrom, links connecting the inner ends of the copes with the base whereby the copes are tilted as they are moved to and from the drag, locking devices adapted to engage pins on the copes and alternately lock them to the drag, and springs for arresting the final movement of the copes in closing and for initially separating them from the drag in opening, substantially as described.

19. In a casting box, the combination with a core having a plurality of sections, of a plurality of movable covers one for each section, and means for moving the covers successively into casting relation with the core whereby one part of the mold may be employed for a casting while another part is open.

20. In a casting box, the combination with a core having a plurality of sections, of a plurality of covers, one for each section, and connections between the covers whereby one cover is swung into casting relation with the core as another cover is swung out of such relation.

21. In a casting box, the combination with a core arranged in upright position, said core having a plurality of sections, of a plurality of movable covers, one for each section, a standard on which the covers are mounted, and connections between the covers whereby one cover moves into casting relation with the mold as another cover moves out of such relation.

22. In a casting box, the combination with a core arranged in upright position, of a plurality of covers coöperating therewith, and connections between the covers whereby the weight of one cover assists in moving another cover.

23. In a casting box, the combination with a core arranged in upright position, of a plurality of covers coöperating therewith, a standard on which the covers are mounted, and connections between the covers whereby as one cover is opened another is closed.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

HENRY F. BECHMAN.

In presence of—
F. W. DUNNING,
CHAS. G. MECHEM.