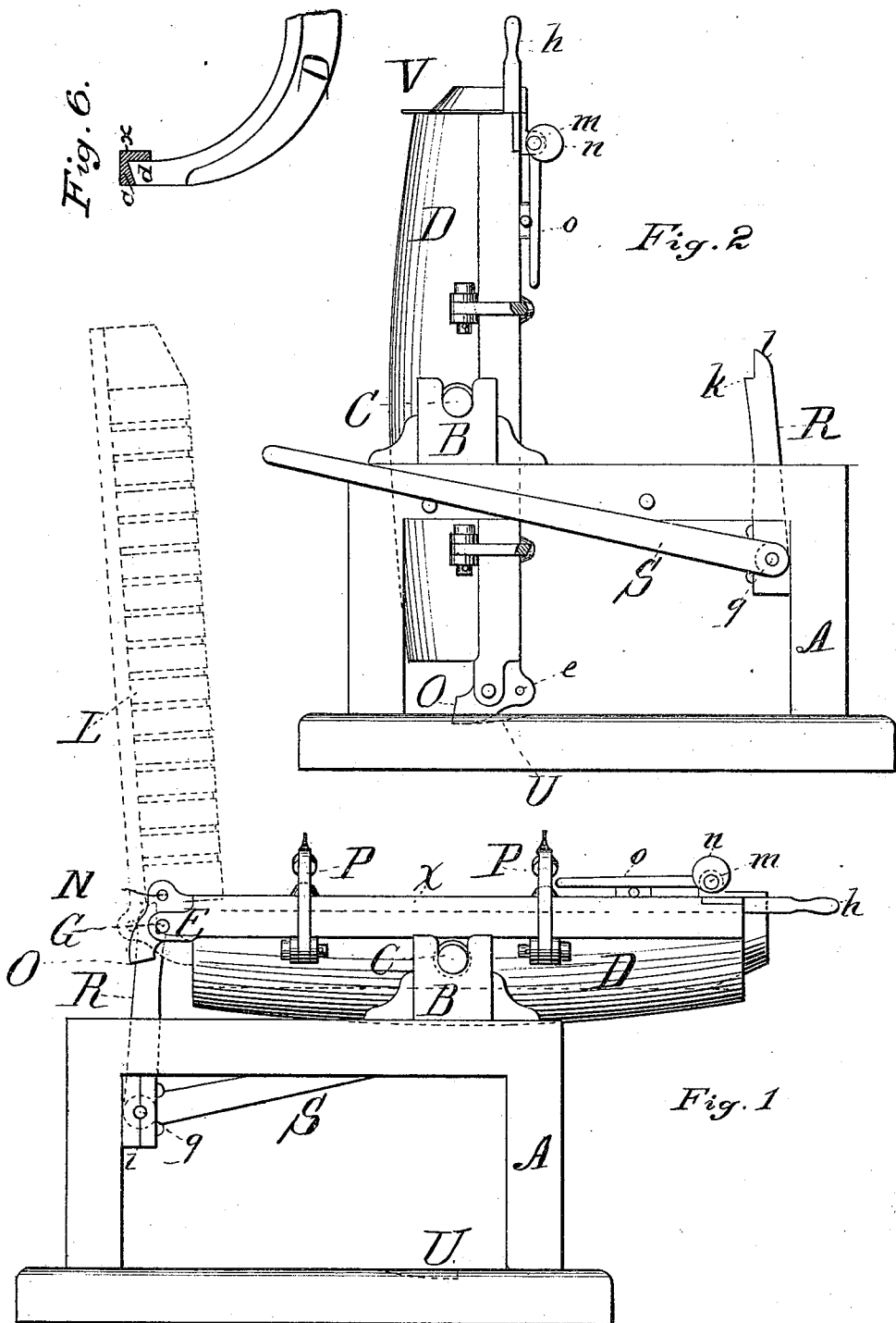


S. D. TUCKER.

MOLDS FOR CASTING STEREOTYPE-PLATES.

No. 175,393.

Patented March 28, 1876.



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Witnesses

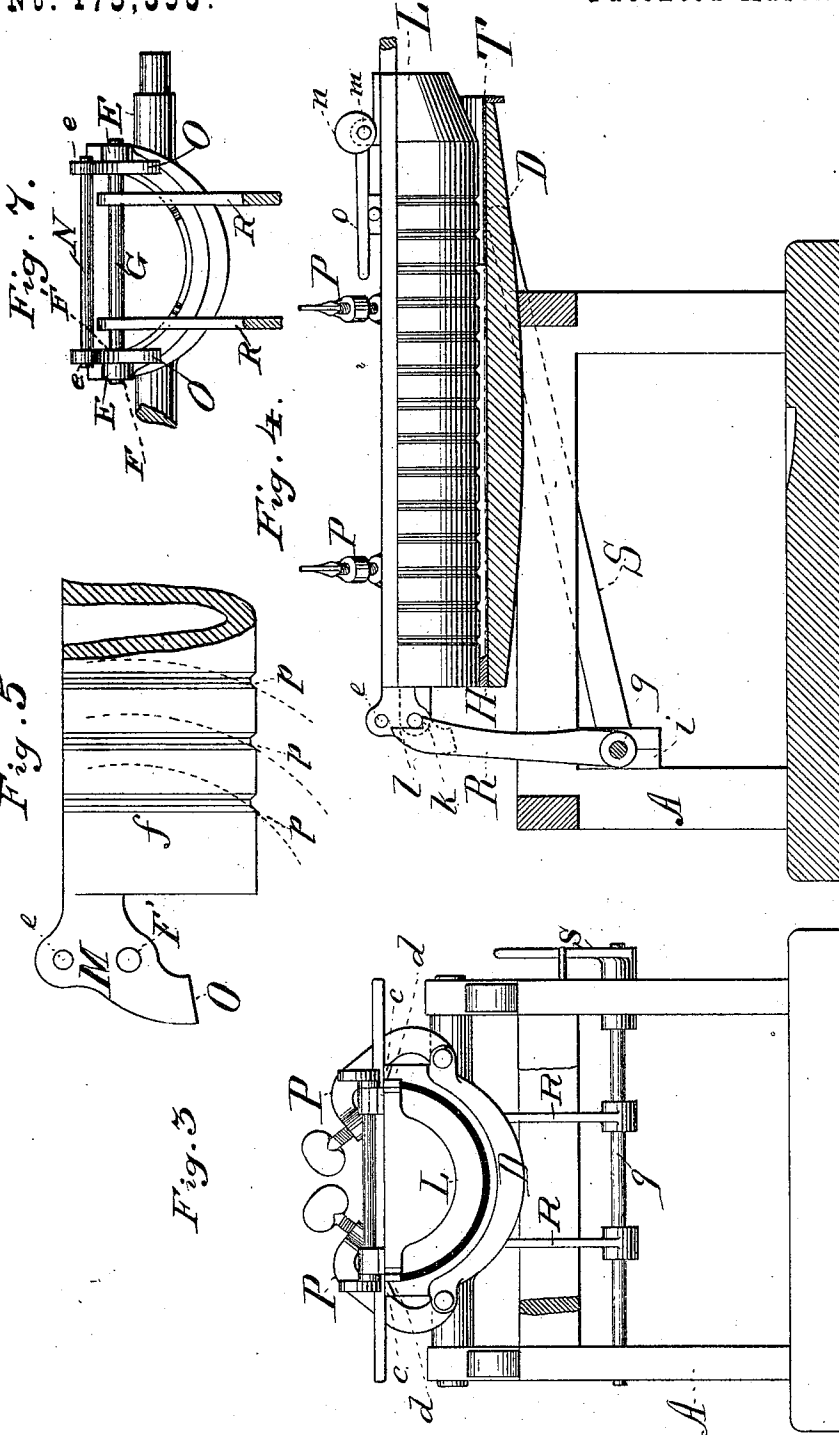
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UNITED STATES PATENT OFFICE.

STEPHEN D. TUCKER, OF NEW YORK, N. Y.

IMPROVEMENT IN MOLDS FOR CASTING STEREOTYPE-PLATES.

Specification forming part of Letters Patent No. **175,393**, dated March 23, 1876; application filed October 21, 1875.

To all whom it may concern:

Be it known that I, STEPHEN D. TUCKER, of the city, county, and State of New York, have invented new and useful Improvements in Molds for Casting Curved Stereotype-Plates; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

Prior to my invention, curved stereotype-plates, having concentric ribs running across their concave faces, have been cast in molds, the upper half or cope of which was raised bodily and squarely from off the lower half or drag by a hoisting apparatus, and entirely disconnected therefrom. The inconvenience attending the use of a hoisting apparatus when room is limited, and the annoyance and length of time consumed incident to the use of this well-known mode of casting, have always been felt in large printing-establishments where such plates are constantly being used.

The object of my invention is to produce a mold which will obviate the difficulties above adverted to, and by means of which the plates can be cast with parallel ribs on their concave faces, without the use of a hoisting apparatus, and without disconnecting entirely the cope from the drag; and it consists in the means hereinafter more fully described and claimed.

Figure 1 is a side elevation of the mold, either ready to receive the papier-maché or other matrix, or to permit it and the stereotype-plate to be removed. Fig. 2 is a side elevation of the same, showing the mold in a position to receive the melted type-metal. Fig. 3 is an end view of the mold. Fig. 4 is a vertical longitudinal section of part of the mold. Fig. 5 is a plan view of part of the cope. Fig. 6 is an end view of part of the drag, showing one of the side bars in section. Fig. 7 is a rear end view of the mold, showing the devices used to support the same in a horizontal position.

In a suitable frame, A, provided with pillow-blocks B, the lower part or drag D of the mold is supported at or near the middle thereof by means of trunnions C, resting loosely in said pillow-blocks. The drag D, formed in the arc of a circle on its inner side is pro-

vided at one end with two projecting lugs, E, apertured at F to receive a rod, G, which is secured therein, the axis of said rod forming the chord of an arc, the versed sine of which is about one-third of the diameter of the circle of which the drag D forms a part. To the same end a removable curved bar, H, is secured in position by slots therein, fitting over pins on the drag D. This bar is provided on its inner edge with a beveled rib, and near each end with recesses, which latter receive the toes of side bars X. These side bars are provided with beveled ribs on their under sides, and at their front ends with lips or hooks c, beveled downwardly and outwardly to fit over the top edges of the front end of the drag D, at d, to hold them in position. They are also provided with handles h, by means of which they can be removed or replaced when desired. All three of these bars have a slight rabbet, of the thickness of the matrix, cut in their under side, running a short distance under from their inner edge and the whole length of the bars, so that when the matrix is placed in the mold they will slightly overlap and press lightly on its border, and thus prevent the molten metal from getting behind it, but must not press on the matrix so hard as to prevent it from being moved to its exact position in the mold.

The thin steel plate T, curved to conform to the drag D, loosely fits within the front end of the drag and is provided with a flange to hold it in position. Its length is sufficient to make it overreach the end of the matrix, and it serves to keep the matrix in place and conduct the melted metal past its end, and thus prevent the metal from penetrating behind it. The upper portion, or cope L of the mold, is provided with lugs M, apertured at e to receive a rod, N, and at F^a to embrace the rod G, and move freely thereon.

The ends O of the lugs M are beveled, as shown in Fig. 5, for a purpose more fully hereinafter described.

Two or more clamps, P, are pivoted to each side of the drag, and provided with screws which are made to impinge on lugs on the cope L, when it is desired to hold the cope and drag rigidly together.

A shaft, m, carrying cams n, and provided

with a lever, *o*, at or near its center, is journaled in lugs provided in the front end of the cope. The cope *L* is provided with a series of parallel grooves, *f*, the rear walls *p* of which, as shown in Fig. 5, are at such an angle with the periphery of the cope as to easily clear the sides of the ribs cast on the stereotype-plate when said cope is raised on its shaft *G*, out of contact with the drag *D*, after the plate is cast.

The mold is supported in a horizontal position by means of two or more arms, *R*, secured at one end to a shaft, *g*, journaled in boxes *i*, attached to the frame *A*, their other end being cut away to form a lug, *l*, and shoulder *k*, upon which latter rests the rod *G* of drag *D*. Attached to shaft *g* is a lever, *S*, whose motion is limited by pins on the frame, to just permit the lug *l* in arm *R* to touch the rod *G* in one position, and permit the shoulder *k* to be entirely withdrawn from beneath the rod *G* in its other position.

Grooves *U* are cut in the bottom of the frame, against the square shoulders of which the face *O* of lugs *M* rest when the mold is in a vertical position. Instead of these grooves, stops of any form may be secured either to the floor or the base of the frame *A*.

To cast the stereotype-plate, the cope *L* is raised into the position shown in dotted lines in Fig. 1, the end *O* of its lugs *M* then resting against the end of the drag *D*, their bevel being such as to bring the center of gravity of the cope just in the rear of the axes of the shaft *G*, its weight then retaining it firmly in position. The shaft *N* at the same time bears upon the ends of the arms *R*, and prevents the latter from being withdrawn from beneath the rod *G* of cope *L*, while in said position.

The papier-maché or other matrix is then placed in the drag *D*, one end fitting under the curved bar *H*. The toes of the side bars *X* are then inserted in the recesses in the curved bar *H*, their beveled lips or hooks *d* then resting over the top edge of the front end of the drag *D*, hold them securely in position on the matrix. The plate *T* is then inserted in the front end of the drag *D*, with its inner end also resting on the matrix. The cope *L* is then lowered into a horizontal position and is securely fastened to the drag *D* by means of the clamps *P*.

The arms *R* are then withdrawn from beneath the rod *G* of the drag *D*, and the mold swung on its trunnions *C*, into the vertical position shown in Fig. 2, the faces *O* of the lugs *M* resting firmly in the grooves *U*.

The melted type-metal is then poured into the funnel-shaped mouth *V* of the mold to form the stereotype-plate.

After it has sufficiently cooled, the mold is moved back into its horizontal position, the

arms *R*, by means of the weight of the lever *S*, being moved under the rod *G* of the drag *D*, to support the same.

The clamps *P* are then loosened and moved out of the way, the cope *L* is partially raised from the drag *D* by the cams *n*, rotated by lever *o*, and then raised into the position shown in dotted lines in Fig. 1, its rod *N* in that position preventing the supports *R* from being withdrawn from beneath the rod *G* of the drag *D*. The side bars *X* and plate *T* are then removed, and the stereotype-plate taken out and properly planed and trimmed for the printing-press.

As before stated, the versed sine of the arc, cut off from the circle of the drag *D* by the chord formed by the rod *G*, is about one-third of the diameter of said circle, and the angle of the rear walls *p* of the grooves *f* in the cope is such that when the cope is raised they will always clear without abrasion the ribs cast in them on the stereotype-plates when the cope is raised out of contact with the drag *D*.

The means for partially lifting the cope may be varied without departing from this part of my invention, any of the well-known substitutes for the same, such as levers, screws, &c., being deemed substantial equivalents.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the cope and drag, the former provided with grooves running in the direction of the curve in the convex side, and the two hinged together, substantially as shown and described.

2. The combination of the cope *L*, provided with grooves running in the direction of the curve in the convex side, with the drag *D*, the two hinged together at one end, and provided with means, substantially as described, at the other end for partially raising the cope from the drag.

3. The side bars *X*, provided with beveled lips or hooks *c*, substantially as shown and described.

4. The side bars *X*, provided with lips or hooks *c*, in combination with the drag *D*, beveled off at *d*, substantially as shown and described.

5. In combination with supporting-arms *R*, the rod *N* on the cope *L*, substantially as shown and described, and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

STEPHEN D. TUCKER.

Witnesses:

N. WALTER ANTHONY,
CHARLES VERNON PAGE.