

S. A. CORSER
 DEVICE FOR FORMING MOLDS FOR CASTING.
 No. 29,123. Patented July 10, 1860.

Fig. 1.

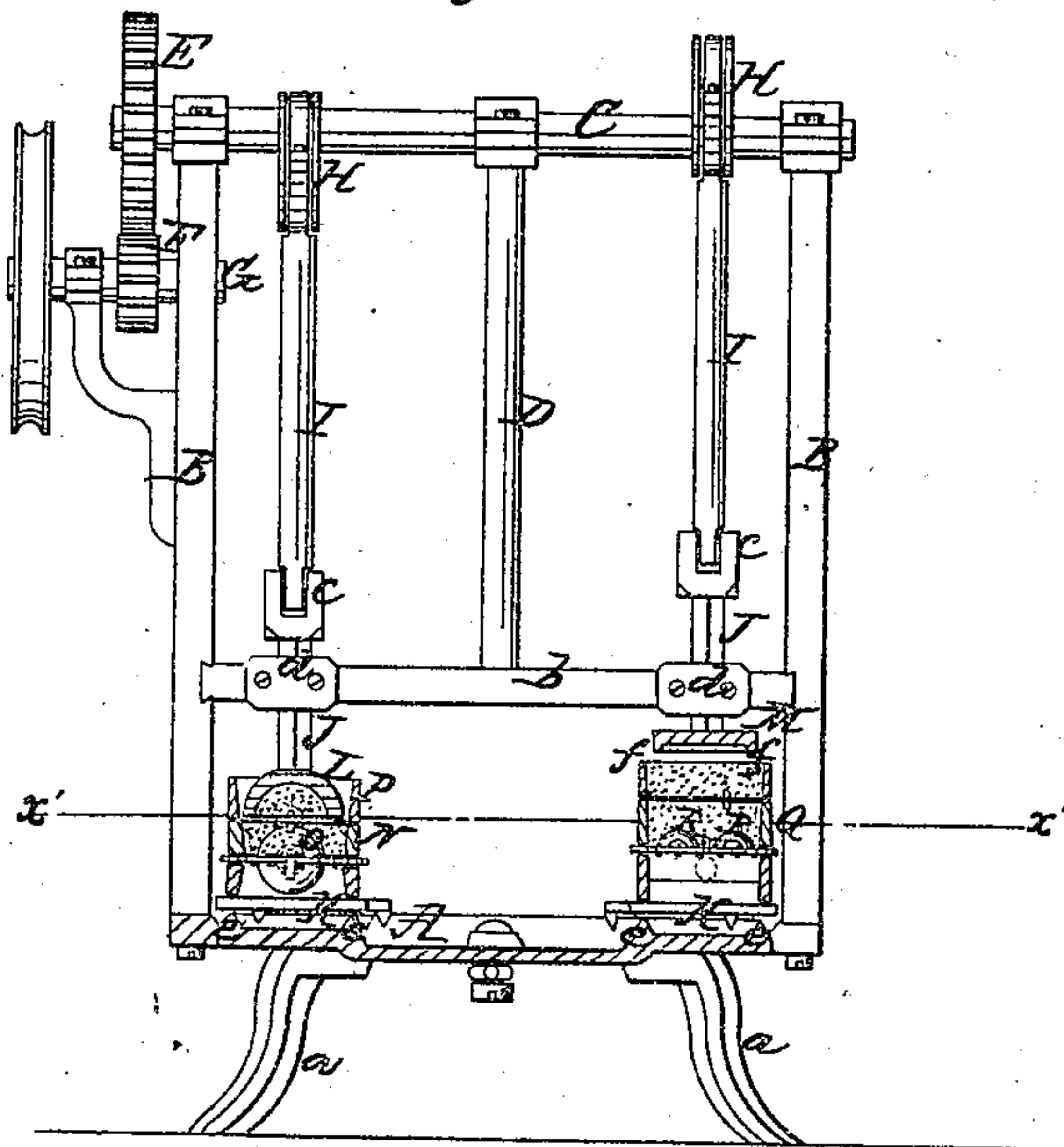


Fig. 2.

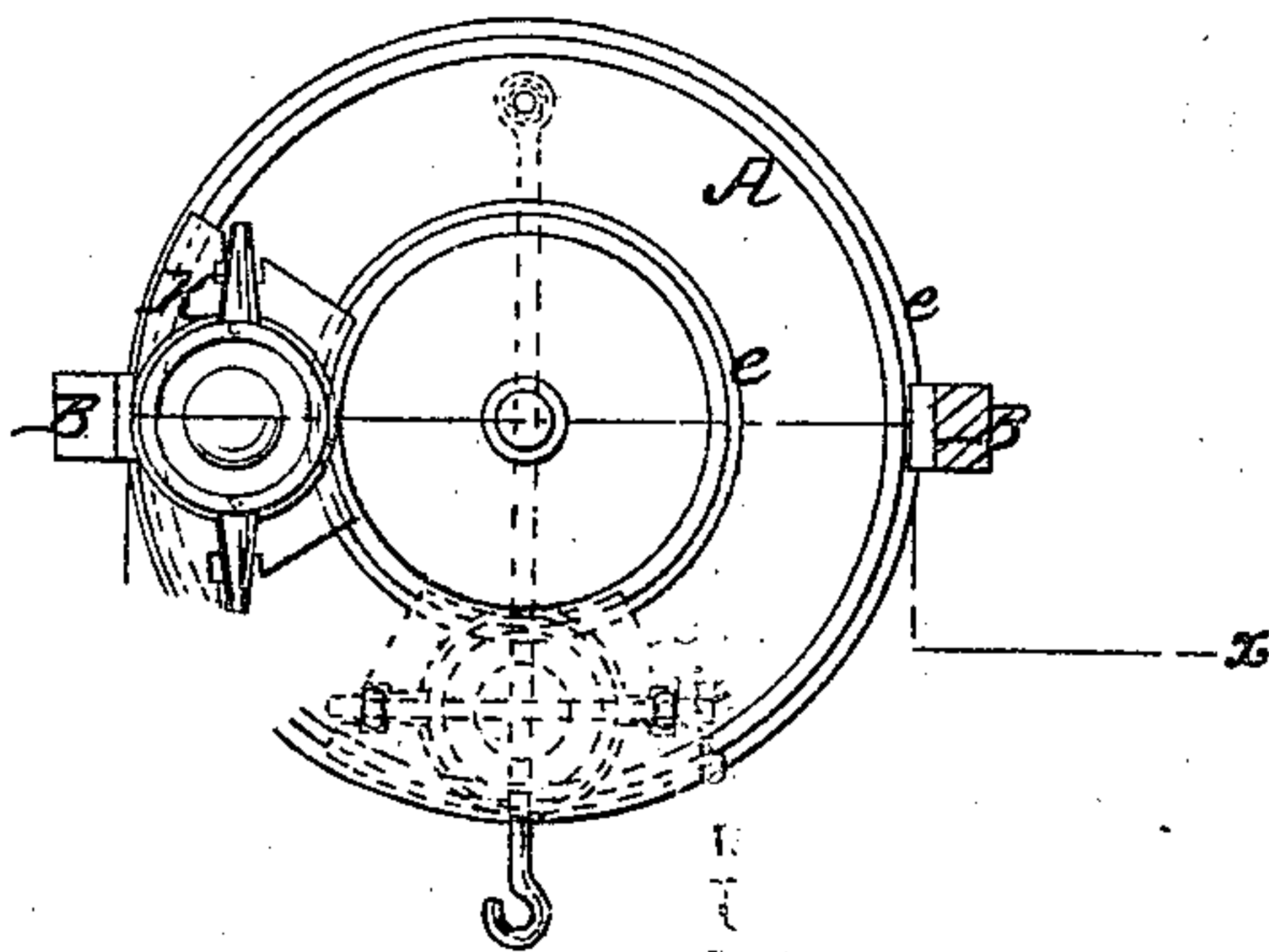


Fig. 3.



Witnesses.

R. S. Spurr
 J. W. Coombs

Inventor.

S. A. Corser
 per Munnell &
 Attorneys
 E. F. Larkin

UNITED STATES PATENT OFFICE.

S. A. CORSER, OF NORTHAMPTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF
AND I. A. NIMS, OF SAME PLACE.

IMPROVEMENT IN MOLDS FOR CASTING.

Specification forming part of Letters Patent No. 29,123, dated July 10, 1860.

To all whom it may concern:

Be it known that I, S. A. CORSER, of Northampton, in the county of Hampshire and State of Massachusetts, have invented a new and useful Device for Forming Sand Molds for Casting; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a vertical section of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a horizontal section of the same, taken in the line *x' x'*, Fig. 1; Fig. 3, detached vertical sections of plungers and patterns used with my invention.

Similar letters of reference indicate corresponding parts in the several figures.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a circular base, supported at a suitable height by legs *a*, and B B are two uprights attached to the base A and connected a short distance above the base by a traverse-bar, *b*. On the upper end of the uprights B B a shaft, C, is placed, said shaft having a central bearing or support, D. On one end of the shaft C a toothed wheel, E, is placed, into which a pinion, F, gears, said pinion being on a driving-shaft, G. On the shaft C two eccentrics, H H', are placed in opposite positions, each eccentric having a rod, I, attached to it. To the lower end of each rod I a square bar, J, is connected by a joint, *c*, the bars *J* being fitted in guides *d* in the traverse-bar. On the base A there are two annular ways, *e e*, on which a plate or carriage, K, is fitted and allowed to move freely, and on this carriage the flask containing the pattern is placed.

The plate or carriage may be made in the form of a complete disk or circular rotating table, if desired, instead of being made in the form of segments. In either case it is obvious that by the employment of circular ways the operator may prepare and place upon the ways other molds or flasks while those already beneath the plungers are being operated upon. To the lower end of each bar J a plunger is attached (see Fig. 1) in which a plunger, L, is attached to one bar J and a plunger, M,

to the other. The plunger L, it will be seen, is a semi-spherical shell, and is designed for forming molds for casting balls or spheres. N is a flask which contains the pattern O of the balls or spheres to be cast. The interior of the plunger L corresponds inversely with the pattern O. P is a supplemental flask, which is placed on the flask N to increase the capacity of the latter, so that it may hold the requisite quantity of loose or uncompressed sand to form the mold.

In forming a mold for the casting of a ball or sphere, the flask N is placed on the carriage K, and the supplemental flask P is fitted on the flask N, and the flasks filled with sand. The carriage K is then moved around underneath the plunger L, which is directly over the space between the ways *e e*. The shaft C is then rotated, and the plunger L descends into the supplemental flask P and presses the sand into flask N, the sand being snugly compressed around the pattern O, the sand being compressed equally all around the pattern on account of the universally-corresponding form of the plunger L. This will be fully understood by referring to Fig. 1. It will be seen that if a flat plunger were used, the sand at the center of the flask would be greatly compressed, while that near the sides would be subjected to comparatively little pressure. The mold, therefore, would be formed of unequally-compressed sand. This difficulty of unequal pressure has hitherto prevented the adoption of machinery for the purposes of sand molding, a difficulty fully obviated by my invention.

From the above description, it will be seen that whatever the form of the pattern may be, the face side of the plunger must correspond inversely thereto or have an approximate inverse form. The plunger M has simply a recess made in its under or face side, so as to leave a flange, *f*, all around its edge. This form of plunger may be used in forming cylindrical, or those for casting cylindrical articles of rather small diameter. For this purpose the flange *f* would be sufficient, as it forces down the sand at the sides of its flask Q toward the patterns R R, two of which are placed in the flask. When the sand is compressed into the flask at one side of the pattern, the

flask is inverted, the supplemental flask being detached, the flask being inverted by raising the flask and turning it on trunnions and then lowering it, placing the supplemental flask on it, filling the flask with sand and again adjusting it beneath the proper plunger. It will be seen that the supplemental flasks are essential, for they permit sufficient loose sand to be placed in the flasks to compensate for the compression of the sand under the action of the plungers. It will also be seen that the form of the face sides of the plungers are varied according to the form of the pattern. If the pattern, for instance, has a recess or depression in it, as shown at a^{**} in Fig. 3, a corresponding projection, a^* , must be on the face of the plunger.

I do not claim placing molding flasks on carriages fitted on ways for the purpose of readily adjusting flasks underneath plungers, for this has been previously done; neither do I claim providing a flask with trunnions in which, at the proper time, they may be suspended for inversion; but

I do claim as new and desire to secure by Letters Patent—

1. The employment of a mold-carriage that moves in a circle, in combination with the compression-plungers L M, substantially as and for the purpose herein shown and described.

2. The employment, in combination, with the flasks N Q, of pistons L M, that have their faces shaped to correspond with the form of the article to be molded, so that the compression of the sand within the flask will be equal in every part, as set forth.

3. The employment of the supplemental molds P P, in combination with the pistons L M and flasks N Q, as and for the purposes herein shown and described.

S. A. CORSER.

Witnesses:

ENAS PARSONS,
O. A. HILLMAN.