S. A. Corser,

Casting Hollow-Ware.

No. 42,251. Patented Apr. 5, 1864.

Fig. 6.

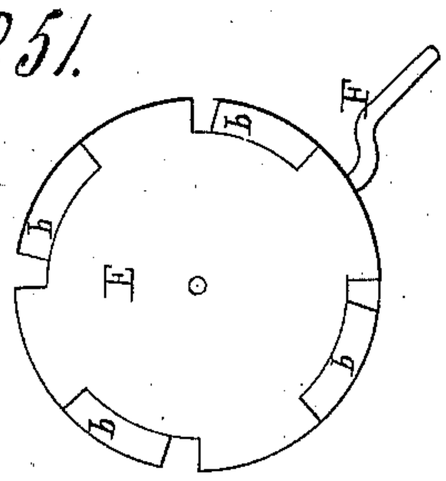


Fig. 7.

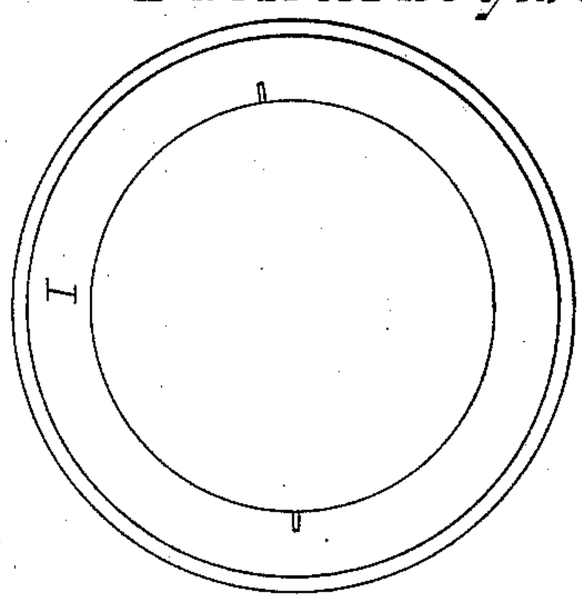


Fig. 5.

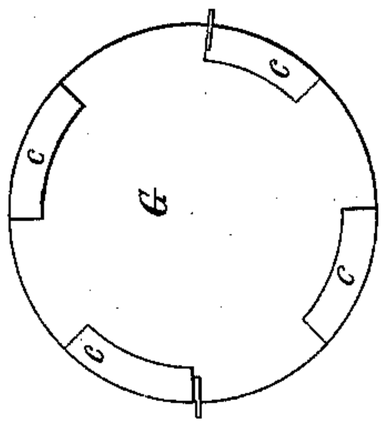


Fig. 4.

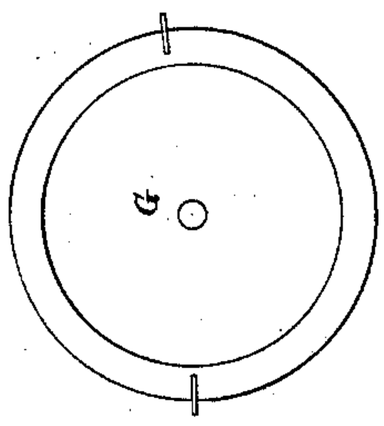


Fig. 3.

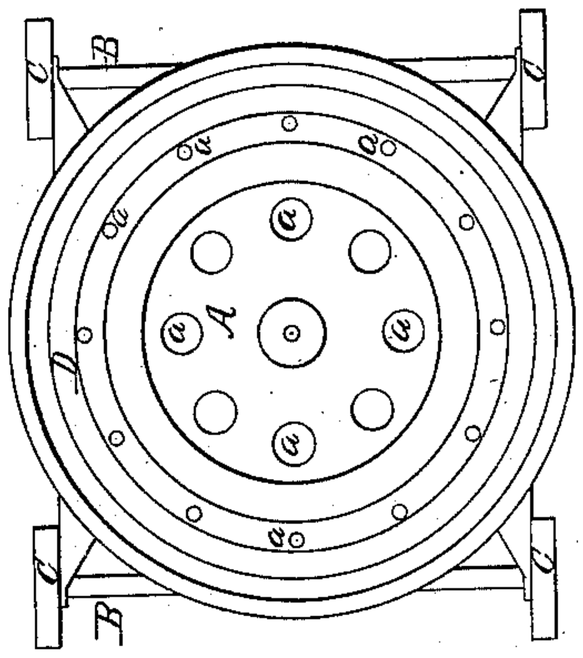


Fig. 1.

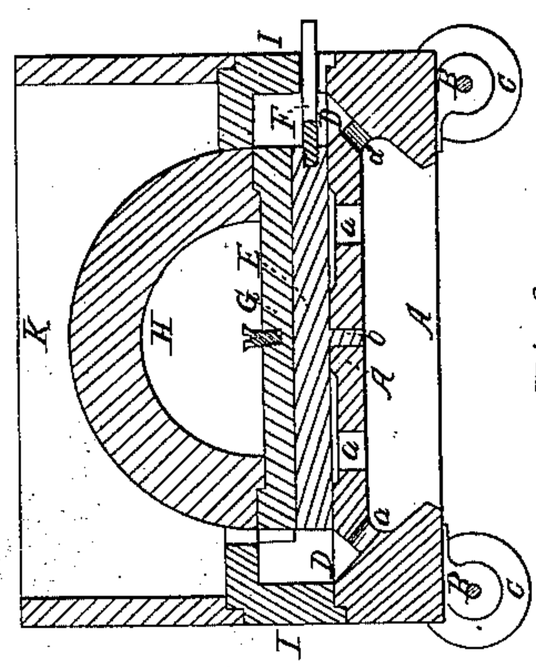
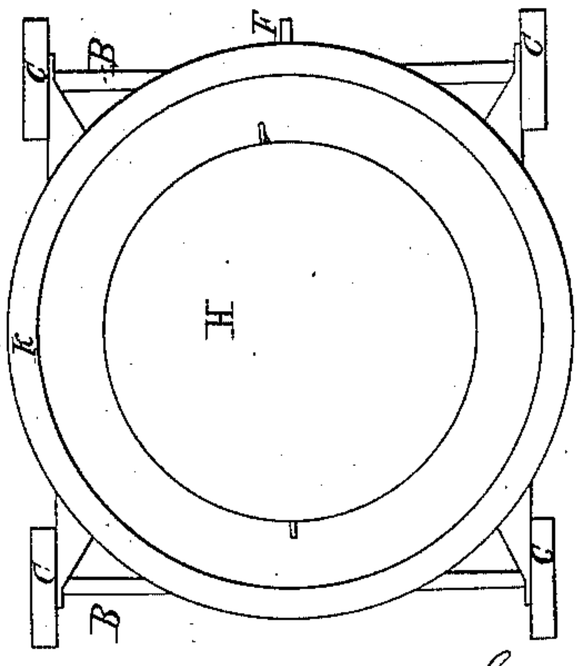


Fig. 2.



Witnesses.
F. P. Hale Jr.
Frederick Curtis.

Inventor
Samuel A. Corser.
by his attorney
R. H. Eddy.

UNITED STATES PATENT OFFICE.

SAMUEL A. CORSER, OF NORTHAMPTON, ASSIGNOR TO HIMSELF, ROBT. G. MARSH, OF HOLYOKE, WM. R. MARSH, OF NORTHAMPTON, AND JOHN A. SIMS, OF GREENFIELD, MASSACHUSETTS.

IMPROVEMENT IN MOLDS FOR MAKING CASTINGS.

Specification forming part of Letters Patent No. **42,251**, dated April 5, 1864; antedated March 28, 1864.

To all whom it may concern:

Be it known that I, SAMUEL A. CORSER, a resident of Northampton, in the county of Hampshire and State of Massachusetts, have made a new and useful invention having reference to Molds for Making Castings; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a central and vertical section of my said invention. Fig. 2 is a top view thereof. Fig. 3 is a top view of the circular truck-carriage or base part of the mold. Figs. 4 and 5 are respectively top and bottom views of the male cam-plate, to be hereinafter described. Fig. 6 is a top view of the female cam-plate, and Fig. 7 a top view of the flask base-ring.

My invention consists in combining with a mold provided with a mechanism for lowering the pattern with respect to the flask one or more sand grooves or recesses and discharging-outlets, arranged in the base of the mold, as hereinafter set forth.

It is a fact well known to founders, or those engaged in making heavy metallic castings, that great difficulty has been experienced in the methods heretofore adopted for disconnecting or freeing the pattern from the sand matrix after the latter may have been formed, such not only requiring a large amount of time, but often breaking or greatly injuring the surface of such matrix.

To find a simple means of obviating these difficulties, as well as others incident to the founding of metallic bodies, has been the object of my invention.

In the drawings, A denotes the base of the mold, which is of a circular form in horizontal section, and is supported by two axles, B B, each of which is furnished with two wheels, C C, the object of such wheels being to enable the mold to be readily moved from one place to another.

D is a channel or groove formed concentrically around in the top surface of the base A, and near the outer edge thereof, the same being to receive any sand which may fall through the joints of the mold. *a a a* are a series of vertical ports for the discharge of any sand which, while the mold may be in use, may be thrown down into the said channel.

E is a female cam-plate whose under surface rests on the top of the base A, and has a series of inclined recesses or cams, *b b b b*, formed in its outer surface, as seen in the drawings; and, furthermore, the said cam-plate has a pin or stud, *o*, extending down vertically from it and into a corresponding hole formed vertically and centrally through the base A. The object of the stud or pin is to allow the said female cam-plate to be rotated horizontally.

F is an arm or lever extending horizontally from the periphery of the plate E, and into and through the base flask-ring I, and is for the purpose of causing rotary motion to be imparted to the said plate.

G is the male cam-plate, which is of the same diameter as its fellow plate E, and has a series of curved wedges, inclines, or cams, *c c c c*, projecting downward from its under surface, the same being counterparts of the recesses *b b b b*, before mentioned, and made to co-operate therewith for the purpose of causing the pattern H (arranged on the top of the male cam-plate) to be either elevated or depressed, as occasion may require. After the sand matrix may have been formed, by simply moving the arm F horizontally through an arc of thirty degrees, or thereabout, the gravitating power of the pattern will cause it to fall or be drawn away from such matrix. The said pattern (shown in the drawings) represents a half-sphere for forming the two halves of the matrix of a cannon-ball; but I do not intend to limit my invention to molds for the formation of bodies having spherical shapes, as it is well adapted to the production of articles having either plane or irregular surfaces.

I is an annulus, which encompasses the male and female cam-plates, and rests upon the base A of the mold. The said ring has a circular hole made vertically through it, of a diameter just sufficient to allow the said male plate G to play vertically through it, as circumstances may require. The said ring I has a slot formed horizontally through one of its sides for the reception of the arm F, before

mentioned, and, furthermore, on the inner vertical face of the said ring there are two vertical ways or guide-grooves which, respectively, receive an arm or stud projecting horizontally and at opposite sides from the upper cam-plate, G, the said arms and grooves being for the purpose of preventing rotation of such plate and allowing it to have only a free vertical movement.

K is the flask containing the pattern H, and has its lower surface resting on the ring I. This flask is of a cylindrical form, and has its outer curved surface coincident with those of the base A and the ring I.

Having described the construction of my invention, its operation may be described as follows: If we suppose the several parts to be arranged as described, we first lay hold of the arm or lever F, and by moving the same from right to left the two inclines of the two cam-plates will be brought into action with each other, and will cause the male cam-plate to be elevated to its highest position, and as the base of the pattern rests on the said male plate such pattern will be brought into its proper position for forming the sand matrix. The flask is next to be filled with sand, and the latter to be firmly compressed into the former and around the pattern by any suitable mechanism. (I prefer, however, the mechanism or means described in Letters Patent granted to me and another on the 10th day of July, A. D. 1860.) After the sand matrix has been formed within the flask we next move the arm F from left to right, which causes the cams or projections of the male plate to descend into the inclined recesses of the female plate, and thereby allow the said pattern to fall away from the sand matrix, which it will do by its own gravitating power. After this the flask is to be removed from its base-plate, inverted, and set aside to allow the matrix formed therein to become dry. Next an empty flask is to be put, in the place of the former one, on the flask-ring, and the former operation repeated to form the other half of the matrix for the fellow half of the cannon-ball or sphere.

By the construction of the base flask-ring in the manner described easy access can be had to the parts of the mold, should they get out of order.

I claim—

The mold as constructed with a mechanism for lowering the pattern relatively to the flask, and as provided with one or more sand-receiving grooves or recesses and discharging-outlets arranged in the base of the mold, substantially as specified.

S. A. CORSER.

Witnesses:
ENOS PARSONS,
I. R. JONES.