

No. 710,331.

Patented Sept. 30, 1902.

J. MILLS.
MOLDING FLASK.

(Application filed Jan. 14, 1901.)

(No Model.)

2 Sheets—Sheet I.

Fig. 1.

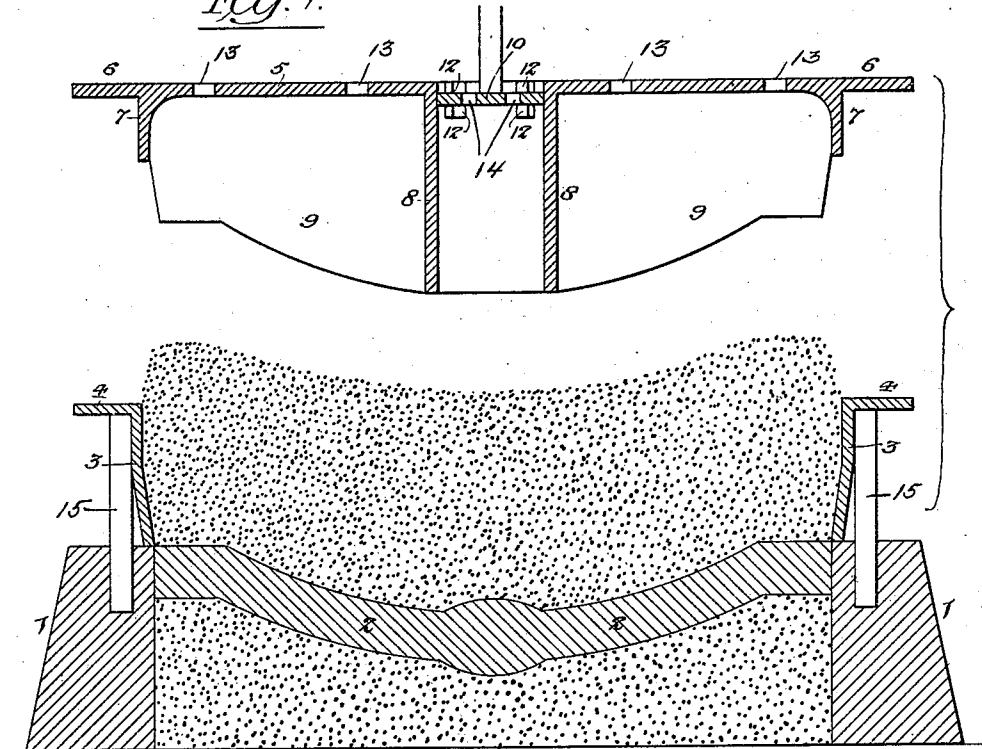
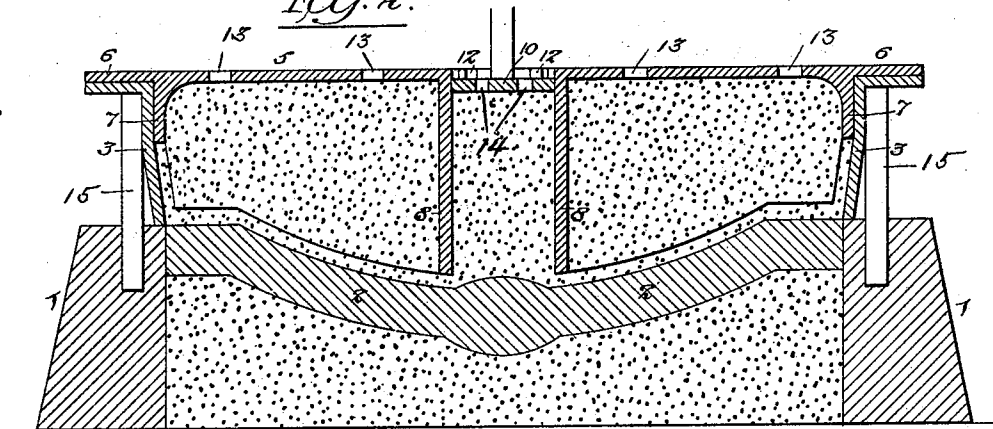


Fig. 2.



Witnesses:-

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UNITED STATES PATENT OFFICE.

JAMES MILLS, OF WILMINGTON, DELAWARE.

MOLDING-FLASK.

SPECIFICATION forming part of Letters Patent No. 710,331, dated September 30, 1902.

Application filed January 14, 1901. Serial No. 43,208. (No model.)

To all whom it may concern:

Be it known that I, JAMES MILLS, a citizen of the United States, and a resident of Wilmington, Delaware, have invented certain Improvements in Molding-Flasks, of which the following is a specification.

The object of my invention is to so construct the "cope" portion of a molding-flask that the sand can be compacted against the face of the pattern by pressure of the cope thereupon and when thus compacted will be firmly retained by the cope, so that the latter can be lifted from the pattern without risk of the breaking away of any part of the sand contained in said cope. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional view of a molding-flask provided with my improved form of cope, the flask being represented as having the sand deposited therein before compression. Fig. 2 is a similar view showing the sand compressed against the pattern by the cope, and Fig. 3 is an inverted plan view of the top plate of the cope and its appurtenances.

In Figs. 1 and 2, 1 represents the "drag" portion of the flask, and 2 the pattern therein, this portion of the flask being constructed in any ordinary manner. The cope portion of the flask comprises a ring 3 with horizontal top flange 4 and a top plate 5 with horizontal flange 6, vertical depending ring or flange 7, central depending tube 8, and radiating wings 9, the lower portions of which conform approximately in shape to the shape of the pattern. The tube 8 is closed at the top by a stopper-plate 10, which is detachably held in position at the upper end of the tube in any suitable way—as, for instance, by forming notches 11 in the edge of the plate and upper and lower sets of inwardly-projecting lugs 12 at the upper end of the tube, the plate being inserted in position while its notches are in line with the lugs until it reaches a position between the two sets of lugs and being then partially turned so as to engage the lugs and be held in position thereby. The ring 3 of the cope is applied to the upper edge of the drag 1 of the flask, as shown in Fig. 1, the sand being then filled into the ring on top

of the pattern and the upper portion of the body of sand being shaped by means of a sweep or other suitable implement in the usual way. Pressure is then imparted to the upper portion of the cope, so as to drive it down upon and into the mass of sand, as shown in Fig. 2, thereby compacting the sand upon the surface of the pattern, as well as between the ribs 9 of the cope and into the central tube 8 of the same and also within the ring 3. It will be observed that the lower portion of the ring 3 is inclined inwardly, so that as the sand is pressed down into the same there will also be a lateral compression or pushing inward of the sand at and near the face of the pattern, whereby the sand at the face of the cope will be laterally compressed or compacted. The sand also clings to the ribs 9 and to the central tube 8 of the cope, so that when the final packing of the sand in the cope has been completed it presents a homogeneous and uniformly - pressed mass which will retain its form during the handling of the flask and the casting of the metal therein, thus overcoming an objectionable tendency of the sand in an ordinary machine-packed flask to break away and destroy the continuity of the matrix formed in the same by the pattern. The top plate of the cope is perforated, as at 13, for the escape of air or gases evolved during the operation of casting, and the stopper-plate 10 is likewise perforated, as at 14, for the passage of rods whereby to form gates in the central mass of sand contained within the tube 8 of the cope. Suitable guide and steady pins 15 serve to properly locate the cope upon the drag of the mold, as usual.

The number, shape, and arrangement of the ribs 9 within the cope may be varied, as the character of the casting to be produced may suggest, the essential feature of my invention being the provision of the top-plate of the cope with a series of depending ribs, so that as said top plate is pressed upon the sand in the flask said sand will be tightly compacted beneath and around the ribs and will be thereby so firmly held as to prevent any disintegration of the mass due to the handling of the flask or the pouring of the metal therein.

Having thus described my invention, I

claim and desire to secure by Letters Patent—

1. A molding-flask cope comprising an outer portion with straight upper part and inwardly-inclined lower part, and an inner portion capable of sliding within said straight upper part of the outer portion of the cope, said sliding inner portion having a top plate and transverse ribs below the same, said ribs compressing the sand beneath them and the top plate compressing the sand between the ribs, substantially as specified.

2. A molding-flask cope having a top plate provided with an opening and with depending ribs separated by spaces which extend up to the top plate, said ribs terminating at their inner ends near the center of the plate and forming a central passage communicating with the opening in the plate, whereby when the top plate is pressed upon the sand in the cope, said ribs will be thrust into the sand and the latter will be compressed by the top plate within the central passage and in the spaces between the ribs, substantially as specified.

3. A molding-flask cope having a top plate with depending ribs separated by spaces

which extend up to the top plate, and a depending tubular portion, whereby, when the top plate is pressed upon the sand in the cope, said ribs and the depending tube will be thrust into the sand and the latter will be compressed by the top plate within the tube and in the spaces between the ribs, substantially as specified.

4. A molding-flask cope having a top plate with depending ribs separated by spaces which extend up to the top plate, and a depending tube having a detachable stopper-plate at its upper end, substantially as specified.

5. A molding-flask cope having a top plate with depending outer flange, depending central tube and depending ribs extending between said outer flange and tube, and separated by spaces which extend up to the top plate, substantially as specified.

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

JAMES MILLS.

Witnesses:

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PHILEMMA CHANDLER.