J. K. DIMMICK.

MOLDING AND CASTING PIPE.

No. 190,835. Patented May 15, 1877.

Fig. 1

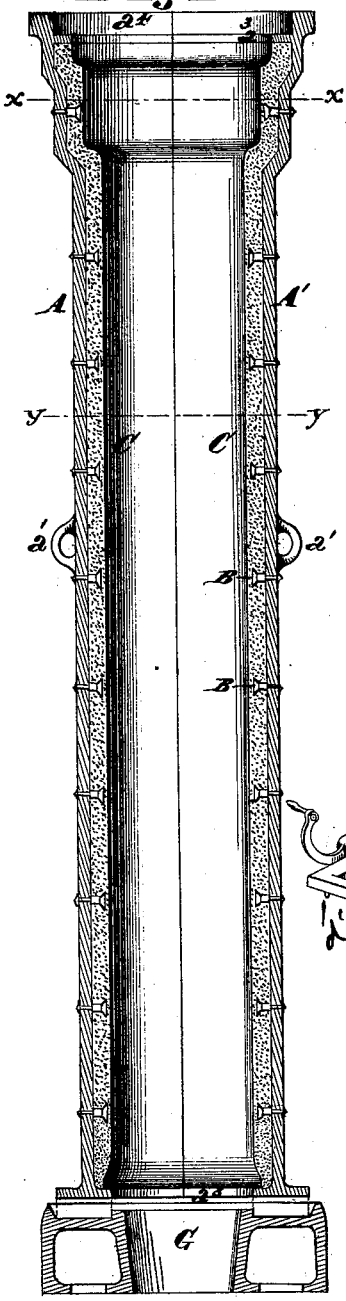


Fig. 2

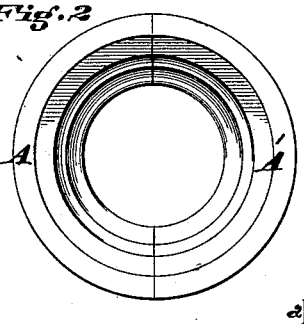


Fig. 3

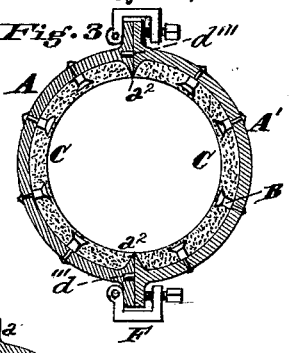


Fig. 4

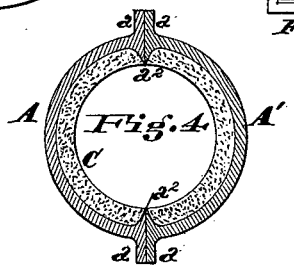


Fig. 5

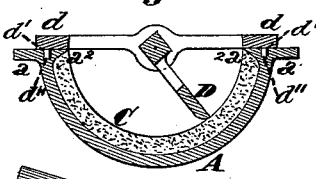


Fig. 7

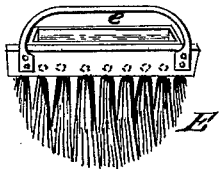
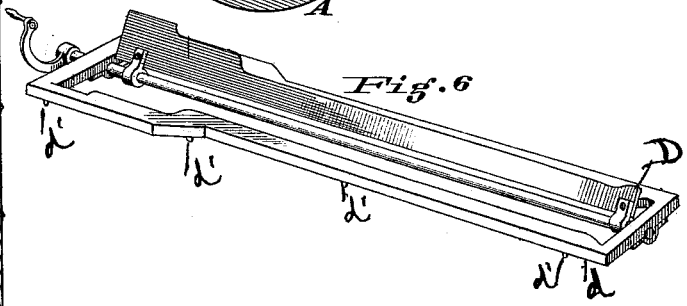


Fig. 6



Witnesses:

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UNITED STATES PATENT OFFICE.

JACOB K. DIMMICK, OF NEWPORT, KENTUCKY, ASSIGNOR OF ONE-FOURTH HIS RIGHT TO FREDERICK A. STINE, OF SAME PLACE.

IMPROVEMENT IN MOLDING AND CASTING PIPE.

Specification forming part of Letters Patent No. **190,835**, dated May 15, 1877; application filed September 20, 1876.

To all whom it may concern:

Be it known that I, JACOB K. DIMMICK, of Newport, Campbell county, State of Kentucky, have invented an Improvement in Molding and Casting Pipes and other Castings, of which the following is a specification:

This invention relates to molding-flasks constructed at the parting-lines with feather-edged flanges, protruding inward to lap over and protect the edges of the mold at the parting in such a manner that a single mold can be used repeatedly.

The first part of my invention consists in providing a flask thus constructed with inwardly-projecting headed or tapering pins, to aid the feather-edged flanges in holding the mold in position, and to give firmness thereto; second, in combination with one part of the flask, the provision of hinged clamps secured thereto, so that while they permit the detachment of the component parts of the flask, the presence of the screw-clamp can always be depended upon; third, in combination with the component parts of the flask in the process of molding castings, the provision of a sweep-frame and journaled sweep, by which the interior configuration of the molding material is defined, as desired and repeated, through any number of times of molding the flask, the interior contour of the sweep-frame corresponding to the inner lines of the mold at the parting, so that it will protect the edges of the mold from crumbling under the action of the sweep.

Figure 1 is a longitudinal section through flask and mold. Fig. 2 is an end elevation of flask. Fig. 3 is a section on line $x\,x$, Fig. 1. Fig. 4 is a section on line $y\,y$, Fig. 1. Fig. 5 is a section of half the flask and mold with the sweep in position. Fig. 6 is a perspective view of the sweep. Fig. 7 is a perspective view of the brush.

A A′ are the two parts of a pipe-molding flask, provided with longitudinal exterior flanges $a\,a$, by which they can be secured together, and with handles $a^1\,a^1$, by which to support and move them. The interiors of the two halves of the flask are provided with the longitudinal line-edge flanges or lips $a^2\,a^2$ and the circular end flanges $a^3\,a^3$, all of such depth as to extend to the inner surface of the mold when formed, and which flanges are for the purpose of supporting and finishing the edges of the mold. At the top of the flask is the socket a^4, for the occupancy of the cake-ring, which supports the core ordinarily. Over the inner surface of the flask are formed projections B, having enlarged heads or ends, as shown, but extending inward preferably a less distance than the depth of the flanges a^2, and consequently stopping short of the surface of the mold. The mold C is formed of loam, sand, and the usual materials, with, preferably, for this purpose, an ingredient of strong cohesive properties, such as plaster-of-paris and silicon, to give porosity for the escape of the gases and resistance to the destructive effect of the heat. It is spread over the interior surfaces of the two parts of the flask to a depth equal to the depth of flanges $a^2\,a^2$ and $a^3\,a^3$, and is, when dried and finished, held rigidly together and in place by the said flanges and the projections B. The flanges $a^2\,a^2$ are made, in this instance, with line-edges preferably, so as to allow the entire surface of the mold to be of loam. To provide for the sweeping up of the mold in the first place, I provide a sweep, D, pivoted in suitable frame d, which may be always adjusted upon the halves of the flask by dowel-pins d', fitting in holes d'' in an exact position, so that in revolving it the sweep will follow a path concentrically conforming to the walls of the flask, and will just revolve past the edges of the flanges $a^2\,a^2$, so as, in use, to finish the mold in perfect cylindrical form, even with these edges. The object of the above construction is to furnish a mold that shall, to a certain extent, be permanent, admitting of the casting of a number of counterpart articles without other preparation than reblacking the mold; and it is obvious that such a mold, whose first cost could not reasonably be appreciably more than the ordinary mold prepared for each article cast by the old methods, would become a great saving in the manufacture of pipe and other heavy castings. For the rigid securing of the halves of the flask in a true position when desired, I provide the usual dowel-pins d'''. E is a brush

used in blacking the mold. In casting pipe, the flask A A′ is first provided with the mold C, struck up as described, and suitably blackened, with plumbago or other material, by the brush E. The two parts of the flask are then secured rigidly together by clamps F upon the flanges *a a*, and I prefer to hinge these clamps to the flask in such a way that they can, when loosened, be swung back, to permit the detachment of the parts of the flask, but be incapable of detachment in themselves; and thus the loss of these clamps—a common source of annoyance in casting pipe—is obviated. The brush E is of the same configuration in its bristles as the mold, as shown, and is provided with a fountain or reservoir, *e*, for holding the blackwash, which communicates by apertures with the bristles, so that the wash may fall by gravity into the bristles, and keep them constantly supplied, while it is in motion across the interior surface of the mold. G is the bottom chill-plate, which receives the core, and upon which the flask rests when the pipe is being cast.

With reference to the second part of my invention, I will state that I do not desire to confine myself in the use of the hinged clamps to flasks of the exact construction shown herein, as it is obvious that the hinged clamps are applicable to any flask having two or more parts.

I am aware that flasks have heretofore been provided with feather-edged flanges at the parting for the same purpose which I have assigned to such flanges in my flask. These flanges alone did not accomplish the end sought, because the mold or sand would shrink away from them after the first cast, so that the second casting would be imperfect. This difficulty is obviated by the use of the tapering or headed projections heretofore alluded to, which, being distributed over the whole interior surface of the semi-flasks, are found to hold the mold in position, and to preserve the close junction at the feather-edged flanges, notwithstanding the inevitable shrinkage of the mold. Such projections, separately considered, have been used heretofore in the art of molding and casting. My invention touching these two features consists, simply, in their combination, in consequence of which the mode of producing several castings by the use of mold held in the flask by feather-edged flanges at the parting is made practicable.

I claim—

1. A flask or section of a flask, provided with inwardly-projecting lips or flanges at the parting, and also with inwardly-projecting tapering or headed studs at different points of the interior surface, substantially as and for the purposes specified.

2. In combination with a flask having two or more parts, the hinged screw-clamps F, connected and operating substantially as and for the purpose specified.

3. The combination, substantially as specified, of the flask, the sweep, and the sweep-frame, whose interior contour corresponds to the inner lines of the mold at the parting, so that the edges of the mold are protected thereby.

In testimony of which invention I hereunto set my hand.

JACOB K. DIMMICK.

Witnesses:

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J. L. WARTMANN.