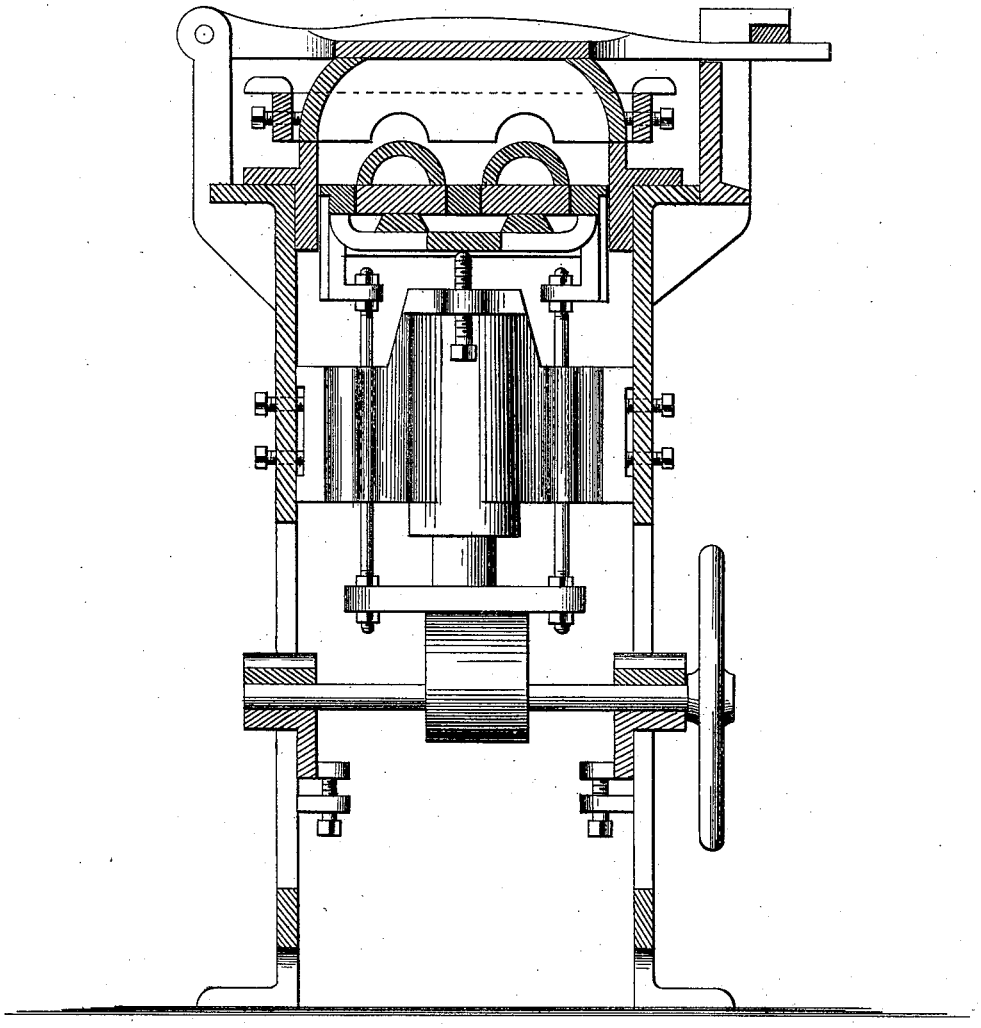
W. AIKIN & W. W. DRUMMOND.

ART OF MOLDING SAND FOR MAKING CASTINGS.

No. 195,071. Patented Sept. 11, 1877.



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UNITED STATES PATENT OFFICE.

WILLIAM AIKIN AND WILLIAM W. DRUMMOND, OF LOUISVILLE, KY.

IMPROVEMENT IN THE ART OF MOLDING SAND FOR MAKING CASTINGS.

Specification forming part of Letters Patent No. **195,071**, dated September 11, 1877; application filed May 7, 1877.

CASE B.

To all whom it may concern:

Be it known that we, WILLIAM AIKIN and WILLIAM W. DRUMMOND, of Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Improvement in the Art of Molding in Sand, of which the following is a specification:

In making sand-molds for castings the molder has generally formed the mold by ramming the sand in the flask about the pattern by hand; but machines have been invented designed to perform the work mechanically by compressing the sand about the pattern by the forward movement of the pattern and follower, forming a plunger. In these machines the pattern and follower formed the movable bottom of a box, into which the sand was first placed, and over which a half-flask was then placed, and the plunger forced up, carrying with it the sand which was compressed in the half-flask about the pattern; then the follower and pattern were withdrawn, sometimes at the same time, and sometimes the pattern first and then the follower. None of these machines have, so far as we are advised, proved sufficiently practical to have been brought into general use. We believe we have overcome the defects inherent in former machines, and in an application forming another division with this we have set forth one form of machine adapted to work our improvement, and to this we refer for further information as to the structure of the machine, which need not be particularly described herein.

We illustrate by the annexed drawing, in vertical section, said machine, which is adapted for working this process, in which the open flask into which the sand is introduced is shown in position on the box which contains the pattern head and follower, the mechanism for simultaneously advancing and successively withdrawing the pattern and follower heads, for a full description of which reference is made to the patent covering the machine of even date herewith. The machine for working the process does not form part of this application, and will be covered in said separate patent.

Our improved mode of mechanical molding may be carried on with the sections of any ordinary two-part flask, and can be worked in the following manner: The half-pattern we prefer to attach to one of the sections of a sectional follower working in a box of which the plunger forms a movable bottom. The half-flask is then fitted onto upper edge of the box, and box and flask loosely filled with sand. A cap is then placed on top of the flask and fastened, and the plunger raised, compressing the sand about the pattern. In this mode of molding the flask is filled with sand before compression, and the box only need contain enough to supply the quantity needed for the shrinkage in bulk on compression. Of course the quantity of sand and movement of the plunger must be such that the face of the latter will, when the work of compression is done, be flush with the edge of the flask to form a correct casting.

It is in this preliminary filling of the flask with loose sand that our invention is distinguished from all before known, as thereby we are enabled to use the ordinary half-flask with bars to support the sand.

It will, however, be understood that it is not necessary that the flask should be absolutely filled with sand. The term is intended to include the approximate filling of the half-box.

When the pattern has thus been embedded in the compressed sand, it is withdrawn while the other sections of the follower support the adjacent sand; then such remaining sections are withdrawn, the half-flask removed, and another substituted to form the complete mold.

What we claim as our invention, and desire to secure by Letters Patent, is—

As an improvement in the art of molding in sand, forming molds by compression by first filling loosely the open flask placed over a box and movable follower, then closing the flask, and afterward compressing all the sand into the flask about the pattern by the uniform forward movement of the follower and pattern, then withdrawing the pattern, and finally withdrawing the intermediate sections of the follower, substantially as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM AIKIN.
WILLIAM WHYTE DRUMMOND.

Witnesses:
JOHN F. SCHROAB,
WILLIAM WOERNER.