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C. W. COLEMAN

METHOD AND APPARATUS FOR FORMING SAND MOLDS

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Fig. 1.

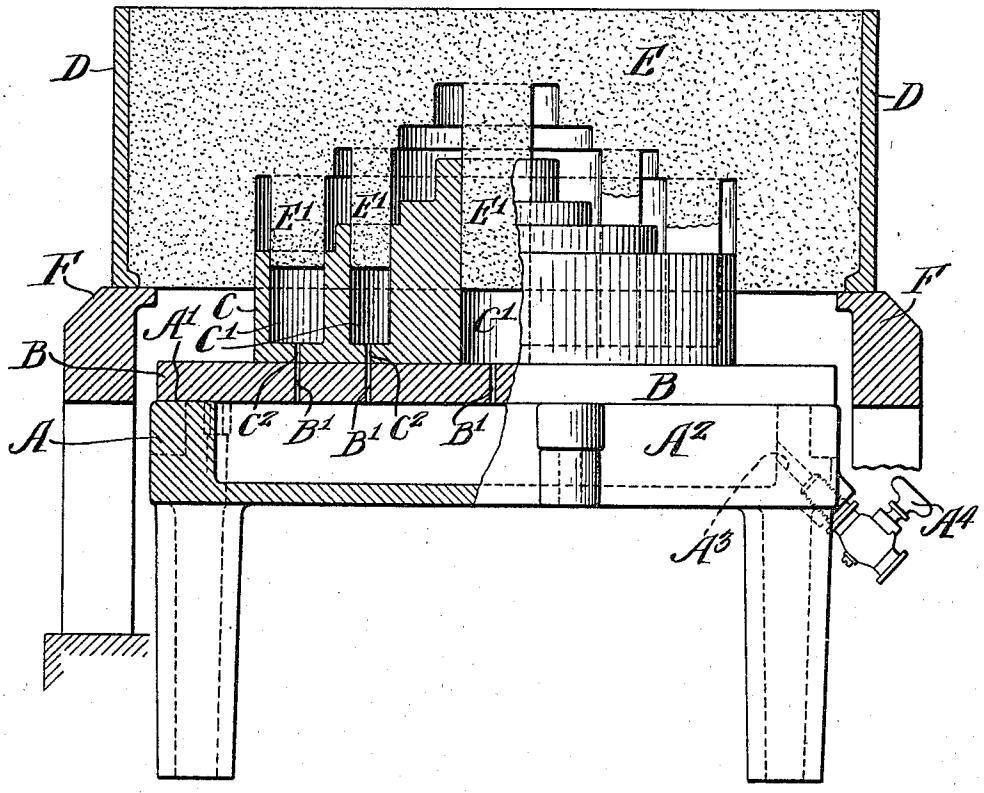
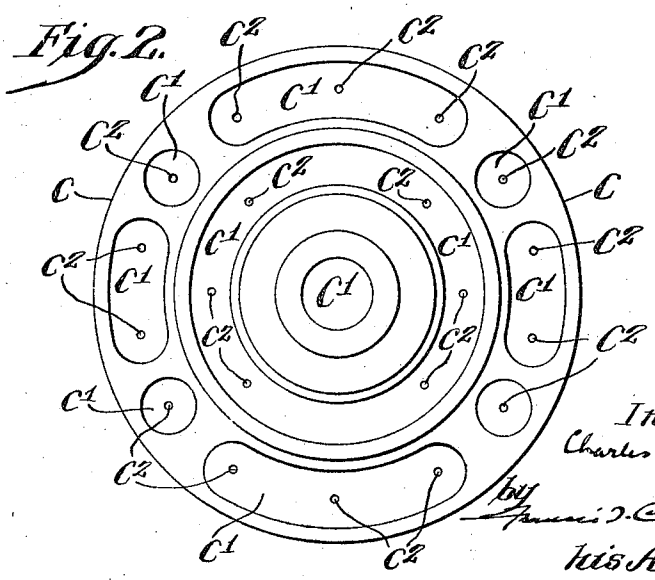


Fig. 2.



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UNITED STATES PATENT OFFICE.

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METHOD AND APPARATUS FOR FORMING SAND MOLDS.

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To all whom it may concern:

Be it known that I, CHARLES W. COLEMAN, a citizen of the United States, temporarily residing in London, in the county of Middlesex, England, in the Kingdom of Great Britain, have invented certain new and useful Improvements in Methods and Apparatus for Forming Sand Molds, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to the formation of sand molds by the ordinary method and apparatus in which a flask is set over a pattern and sand compacted in the flask and over the pattern to form the mold, the pattern being subsequently withdrawn to leave the mold in condition for use. As heretofore constructed and operated, and particularly where the pattern is one having pockets adapted to form projections in the sand mold, there is more or less frictional resistance to the parting of the sand from the pattern which sometimes results in the breaking of the sand and particularly of projecting portions of the sand. It is the object of my invention to provide an improved method and apparatus adapted for use with such method whereby the danger of breaking the mold can be obviated or greatly diminished, and, generally speaking, my invention consists in the method of forming such molds in which air under pressure is admitted through the pattern to the face of the sand mold so as to assist in lifting the mold from the pattern and overcoming the frictional resistance which tends to break certain parts of the sand mold and, obviously, where a pattern having pockets is employed, air under pressure is admitted to the bottom of the pockets so as to support the projections in the sand mold and assist in their withdrawal from the pockets. Mechanical features of my invention consist simply in making provision for the introduction of the air under pressure to the face of the pattern.

In the drawings which illustrate my invention,

Figure 1 is an elevation partly in section showing the parts of the molding machine to which my invention is applicable and showing the mold as partly withdrawn from the pattern, and

Figure 2 is a face view of the pattern indicated in Fig. 1.

A indicates a portion of the machine on which the pattern plate is supported, this being, as shown, a vibrator frame having a level top edge indicated at A′ and a compressed air chamber A^2 formed below this top edge and communicating through a passage A^3 with means, as, a cock indicated at A^4, for introducing compressed air into the chamber A^2. B is a pattern plate resting on the top edge of the frame A and, as is usual, firmly secured to the frame. B′ B′, etc., are air passages formed through the pattern plate B and registering, as shown, with similar air passages C^2 formed in the pattern which is indicated at C and which is shown as formed with wide, deep pockets indicated at C′, C′, etc. D is a flask of ordinary construction resting, as is usual, on the flask frame indicated at F. E indicates the sand mold formed in the flask having, as shown, projections E′, E′, etc., formed in the pocket C′ of the pattern, the mold being shown as partly withdrawn from the pattern.

In operation, the flask being placed in the proper position around the pattern plate, the molding sand is compacted in the flask and over the pattern in the usual way. Before, however, its introduction to separate the mold from the pattern, compressed air, preferably of regulated pressure, is introduced into the compressed air chamber A^2 and finds its way through the air passages B′, C^2, into the bottom of the pattern pockets C′ so that when the flask and pattern are separated, compressed air will act against the bottom of the projections E′ and assist in the work of lifting them out of the pockets, thus greatly diminishing the tendency of friction to break off the projections.

Having now described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In the formation of sand molds by the compacting of sand over patterns and subsequently withdrawing the mold so formed from the pattern, the method of facilitating the withdrawal of the mold from the pattern which consists in forcing air under pressure through the pattern into contact with the formed face of the sand mold.

2. In the formation of sand molds having projecting parts by the compacting of sand

over patterns having pockets to form such projections and subsequently withdrawing the mold so formed from the pattern, the method of facilitating the withdrawal of the mold from the pattern which consists in forcing air under pressure through the pattern into the pockets formed therein and into contact with the projecting parts of the sand mold.

3. In a sandmolding machine comprising a flask and pattern, the combination therewith of a compressed air chamber located at the base of the pattern and air passages connecting said chamber with the sand forming face of the pattern.

4. In a sand molding machine comprising a flask and pattern, having pockets for forming projections in the sand mold, the combination therewith of a compressed air chamber located at the base of the pattern and air passages connecting said chamber with the bottom of the pockets in the pattern.

CHARLES W. COLEMAN