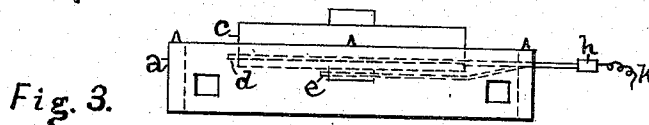
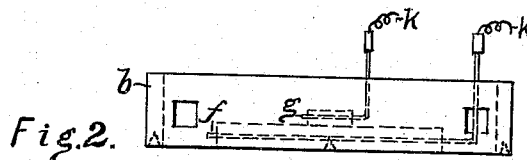
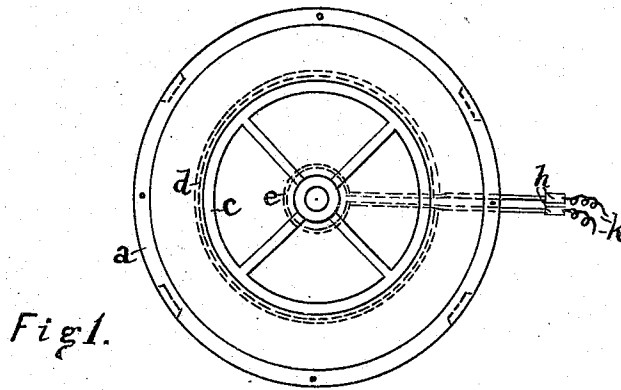


939,581.

W. ZIMMERMAN.  
MOLDING MECHANISM.  
APPLICATION FILED MAY 11, 1908.

Patented Nov. 9, 1909.



Witnesses.  
S. M. Blumenschein.  
M. Sprenger.

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# UNITED STATES PATENT OFFICE.

WILLIAM ZIMMERMAN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-THIRD TO EMIL MOEHLIN.

## MOLDING MECHANISM.

939,581.

Specification of Letters Patent.

Patented Nov. 9, 1909.

Application filed May 11, 1908. Serial No. 432,286.

*To all whom it may concern:*

Be it known that I, WILLIAM ZIMMERMAN, a citizen of the United States, residing in Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Molding Mechanism used in Foundries in Founding Metals, whereof the following is a full and correct specification, reference being had to the hereto accompanying drawing, forming a part hereof, and in which—

Figure 1 shows a top plan view of the drag, or lower part of a flask holding the pattern of a wheel, and provided with my new device, shown in broken outlines. Fig. 2 shows the cope to such a drag, in side elevation, raised from the drag, with impressed mold provided with my new mechanism, indicated in broken outlines. Fig. 3 shows Fig. 1 in side elevation with its half of the wheel pattern in the sand and the upper half free above it and the said part in the sand provided with my new device which is indicated in broken outlines.

Like reference letters denote like parts throughout.

The object of my invention is to provide means for both drying and heating molds for foundry castings and to thereby expedite the work and, at the same time, also improve the quality of the castings in regulatable degree, at will, as by drying and by heating the sand-mold the "chill", due to both moisture and cold, and said cold due to moisture, are greatly reduced, if not removed entirely, by drying, and also by heating the mold, particularly that part or face of the mold which comes in contact with the metal, while the remaining parts of the mold retain sufficient moisture to retain the mold in form and hold it securely in its flask. Moisture in any degree, however slight, contacting with the molten metal, in a mold, always acts unfavorably for the production of best castings.

Heretofore foundry molds have been allowed to stand and dry or else put into a heated drying room, or steam pipes have been put into the sand, but the latter way is both clumsy and costly as well as impracticable, except for large castings and requires great care to prevent the leakage of steam because that would defeat the end sought

and, besides all this, steam heat is not regulatable to any great extent and its temperature in certain cases may be too hot while, on the other hand, it is limited to a comparatively small range of temperature. Moreover, it is time consuming to make the connections and couplings of the pipes in the flasks. In my device said difficulties are overcome very perfectly because an electric current can be held under perfect control in a heating element so as to give as little or as much heat as may be desired, as for drying the mold, or, on the other hand, the heat may be used in such volume as to cause a red or white heat temperature and thereby produce a correspondingly increased beneficial effect on the castings, results not, hitherto, attainable. I attain said desirable end in, substantially, the following manner, namely: I connect an electric heating element, or elements, as *d, e, f, g*, in any suitable form, placed as near as may be, to the form of the desired casting and mold it into the sand as near as possible to the pattern, but so as to always insure a sufficient film, or sand covering, between the heating element and pattern, or casting.

The drawing shows a wheel *c* near which are shown rings *d, e, f, g*, of electric heating elements, in simplest form, wherewith, by passing the requisite volume of electric current through said rings, the said result may be attained with more or less speed according to the volume or heating power of the electric current sent through said heaters by means of the wires *h* which lead to a suitable source of electric force.

The flask *a* and cope *b* are shown separated in Figs. 2 and 3, and the impress in *b* is indicated in broken outlines. The heating elements *f, g* are also indicated in broken outlines. The couplers *h* couple the heaters *d, e* and wires *h*.

What I claim is:—

A mold provided with an electrical heating element, said element conforming its shape and position to the cavity of the mold.

WILLIAM ZIMMERMAN.

Witnesses:

P. R. EARLING,  
A. A. BAUDER.