No. 882,885. PATENTED MAR. 24, 1908.

B. HORN.

MOLDING APPARATUS.

APPLICATION FILED JUNE 19, 1907.

Fig. 1.

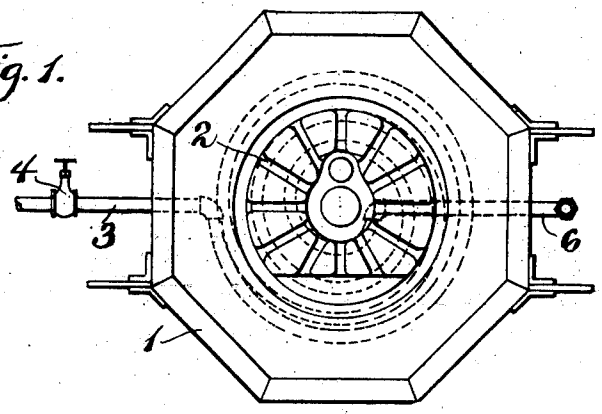


Fig. 2.

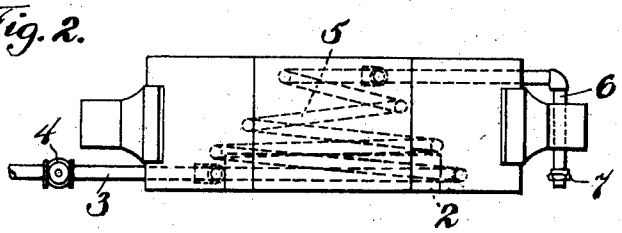


Fig. 3.

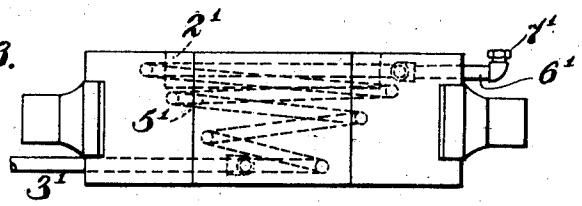


Fig. 4

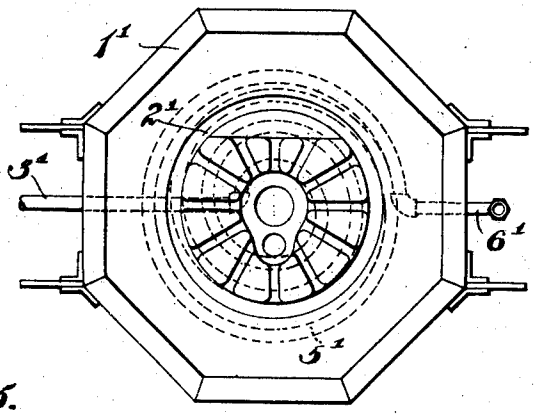
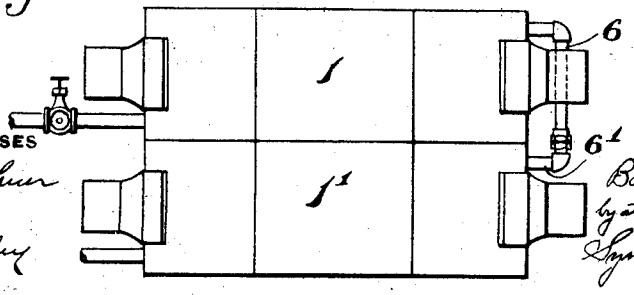


Fig. 5.



WITNESSES

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MOLDING APPARATUS.

No. 882,885. Specification of Letters Patent. Patented March 24, 1908.

Application filed June 19, 1907. Serial No. 379,684.

To all whom it may concern:

Be it known that I, BASTIAN HORN, a denizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Molding Apparatus, of which the following is a specification.

My invention relates to molding apparatus, and has for its objects; to provide an improved construction for securing without delay any desired degree of dryness of the sand in the flask after the mold is formed, and; to provide a mold construction having means of simple and inexpensive character for drying the sand without any disturbance thereof, and also when desired for heating the sand preliminary to the pouring so that undue hardening of the shell of the casting is avoided. Other advantages incident to my construction will be apparent to those skilled in the art. One embodiment of the invention is illustrated in the accompanying drawing, wherein:

Figure 1 is a plan view of the cope shown in Figure 2, looking up,

Figure 2 is a side elevation of the cope,

Figure 3 is a side elevation of the drag,

Figure 4 is a plan view of the drag, and

Figure 5 is an end elevation of the assembled flask.

Heretofore in the making of sand molds, difficulty has often been experienced in securing the proper degree of dampness in the sand in the molds, too little moisture affecting the strength of the mold, and too much moisture involving an undue generation of steam and a poor surface to the casting or perhaps a dangerous explosion in the course of the pouring. It has therefore been customary to make the sand to be used in molding, a trifle damp, and then permit the mold to dry out somewhat, or convey it to the drying oven for more rapid drying. This drying-out process without the use of the oven is slow and often results in a waste of time before the mold is in condition for use, while the transferring of the mold to the oven is liable to injure it. My invention is designed to overcome these difficulties by providing a means whereby the sand may be dried to precisely the proper extent, and without any delay, and without the necessity of carrying the mold to the drying oven. My construction further provides a means whereby the sand may be heated at the time of pouring, if desired, so that an unduly hard surface on the casting is avoided, and whereby in the case of thin castings undue strain is obviated. To this end I extend steam pipes through the body of the mold in such a way that the sand adjacent the molded portion may be thoroughly dried and warmed in a short space of time, and without any disturbance of the sand or injury to the mold.

In the drawings, the mold as shown is a circular one designed for the molding of engine drivers, but it will be apparent that the principle involved is of wide application and that the steam pipes may be extended through any kind of a sand mold. Referring to Figures 1 and 2, which illustrate the cope, 1 is the frame work, 2 is the imprint left by the pattern, 3 is the entrance portion of the steam pipe provided with the valve 4, 5 is a series of steam coils extending through the body of the mold and 6 is the exit portion of the pipe, which, as shown in Figure 2, extends out at the right hand side of the cope and runs downwardly, terminating in a coupling part 7. The drag of the mold is shown in Figures 3 and 4, and is a substantial counterpart of the cope, with the exception that the parts are reversed, the elements 1′, 2′, 3′, 5′, 6′ and 7′ corresponding to the elements 1, 2, 3, 5, 6 and 7 in the cope, with the exception that the pipe 3′ is the exit pipe instead of an entrance pipe. When the cope and drag are placed together to form the completed mold, as shown in Figure 5, the two ends of the coupling members 7 and 7′ are in engagement and a complete circulation of steam is secured through the coils in the two mold parts. It will be apparent from the foregoing that by the apparatus shown, a very quick and complete drying of the sand in the mold is secured, insuring a very smooth casting, and that the sand adjacent the part to be occupied by the casting may be thoroughly heated, thus avoiding an undue chilling of its surface. I have illustrated only one embodiment of the invention, but it will be apparent to those skilled in the art, that the invention may be applied to various types of molds to advantage.

Having thus described my invention and illustrated its use, what I claim as new and

desire to secure by Letters Patent is the following:—

1. The combination with a mold casing, of a steam pipe carried thereby and extending through the sand therein in such manner as to secure a drying of such sand.

2. The combination with a mold casing, of a steam pipe carried thereby and extending through the sand therein in a series of coils.

3. The combination with a cope and drag, of a steam pipe extending through the sand in each of the members and a coupling between adjacent ends of the two pipes.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

BASTIAN HORN.

Witnesses:
J. C. BRADLEY,
DOERING BELLINGER.