

A. ECKARDT.

MOLD.

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1,003,722.

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Fig.1.

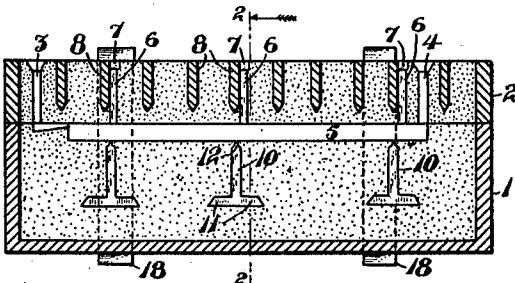


Fig.2.

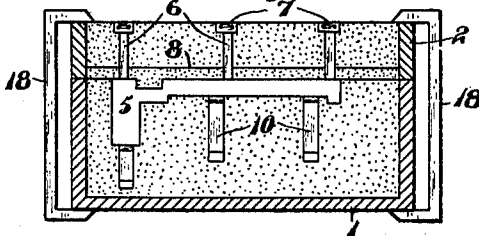


Fig.3.

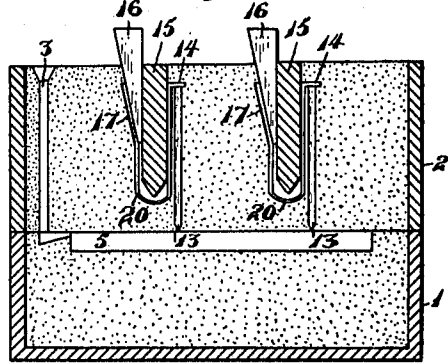


Fig.4.

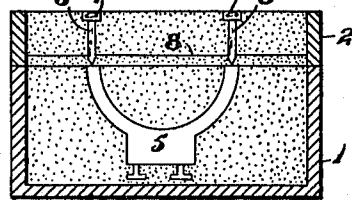


Fig.5.

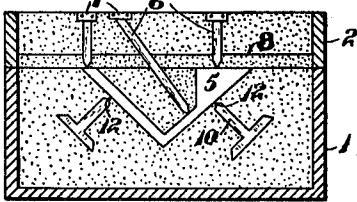


Fig.6.

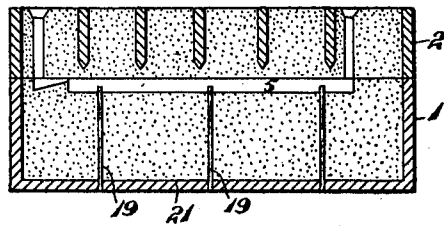


Fig.8.

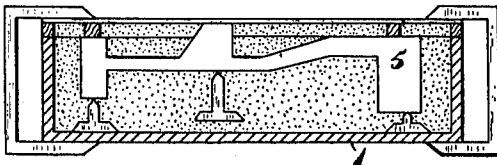


Fig.7.

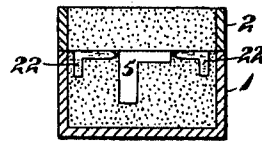


Fig.9.

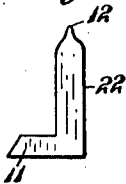
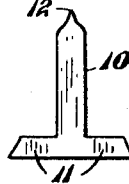


Fig.10.



WITNESSES

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MOLD.

1,003,722.

Specification of Letters Patent.

Patented Sept. 19, 1911.

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To all whom it may concern:

Be it known that I, ALBIN ECKARDT, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Molds, of which the following is a specification.

All long castings, which vary at different points in the thickness of the metal, have a tendency while cooling off to bend out of the shape of the pattern owing to the metal retaining the heat and remaining in a soft condition longer at the thicker parts than at the thinner.

The object of the present invention is to provide means in a sand or other non-metallic mold for preventing this deformation of such castings.

In the accompanying drawing, Figure 1 is a vertical longitudinal section of a sand mold constructed in accordance with my invention; Fig. 2 is a section on the line 2—2 of Fig. 1; Figs. 3, 4, 5, 6, 7 and 8, are vertical sections of modified forms of my invention; Figs. 9 and 10 are detail side views of the supports used in my invention.

Referring to the drawing, 1 indicates the drag of a sand, loam, or similar mold and 2 the cope thereof.

3 is the gate and 4 the riser.

5 is the mold for the casting.

In order to prevent the casting from being deformed by shrinkage at different times of the several parts thereof, I provide supports for the molten metal which are of various forms.

Fig. 1 shows a long mold in which the upper supports 6 are resting against blocks of wood nailed to bars 8 in the cope, this arrangement being sufficient to resist the slight upward pressure. The lower supports 10 are made of cast iron having flanges 11 at the bottom, their upper ends 12 being pointed so as to leave no mark in the casting. While the casting is cooling the drag and cope are held together and kept from separating by means of a clamp 18.

Fig. 3 shows a flask with iron supports 13. The upward pressure of each support is resisted by a heel 14 of a flask 20, which is secured to the bar 15 by means of a wedge 16 driven between the bar 15 and the opposite wall 17 of the flask 20.

Fig. 4 shows the supports 7 and 11 differently placed.

In the modification of the invention shown in Fig. 5, the supports are placed obliquely in the mold.

In the modification shown in Fig. 6, in addition to the supports of the form above referred to, I may use thin iron rods 19, of which the lower ends are secured to the bottom 21 of the mold board, and the upper ends may project into the mold cavity and thus prevent the mold from bending downward as well as upward.

In the modification shown in Fig. 7, the supports 22, having a flange on one side only, are placed sidewise in the mold to prevent the casing bending sidewise.

In the modification shown in Fig. 8, the supports are shown applied to a mold cavity for forming castings having heavy masses of metal on its surface. Such castings only need supports in the drag, as the cope must be taken off and iron bars laid across the flask, corresponding with the supports in the drag, and then clamped down and properly wedged and the heavy parts must be exposed while cooling to keep the casting from cracking.

In the claims I use the word "sand", as a brief term to include also loam or other loose material, used to form molds of a similar character to sand molds.

I claim:—

1. A sand mold provided with metallic elements in the sand of said mold extending so as to have portions thereof substantially flush with the outer surface of the mold cavity at the parts at which the casting tends, when cooling, to bend in the direction of said element, said elements thus forming supports to prevent such bending.

2. A sand mold provided with metallic

elements in the sand of said mold extending so as to have pointed portions thereof substantially flush with the outer surface of the mold cavity at the parts at which the
5 casting tends, when cooling, to bend in the direction of said element, said elements thus forming supports to prevent such bending.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALBIN ECKARDT.

Witnesses:

FRANCIS M. WRIGHT,
D. B. RICHARDS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
