May 23, 1933. L. H. HOMAND 1,910,015

COOLING MOLD

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Fig. 1.

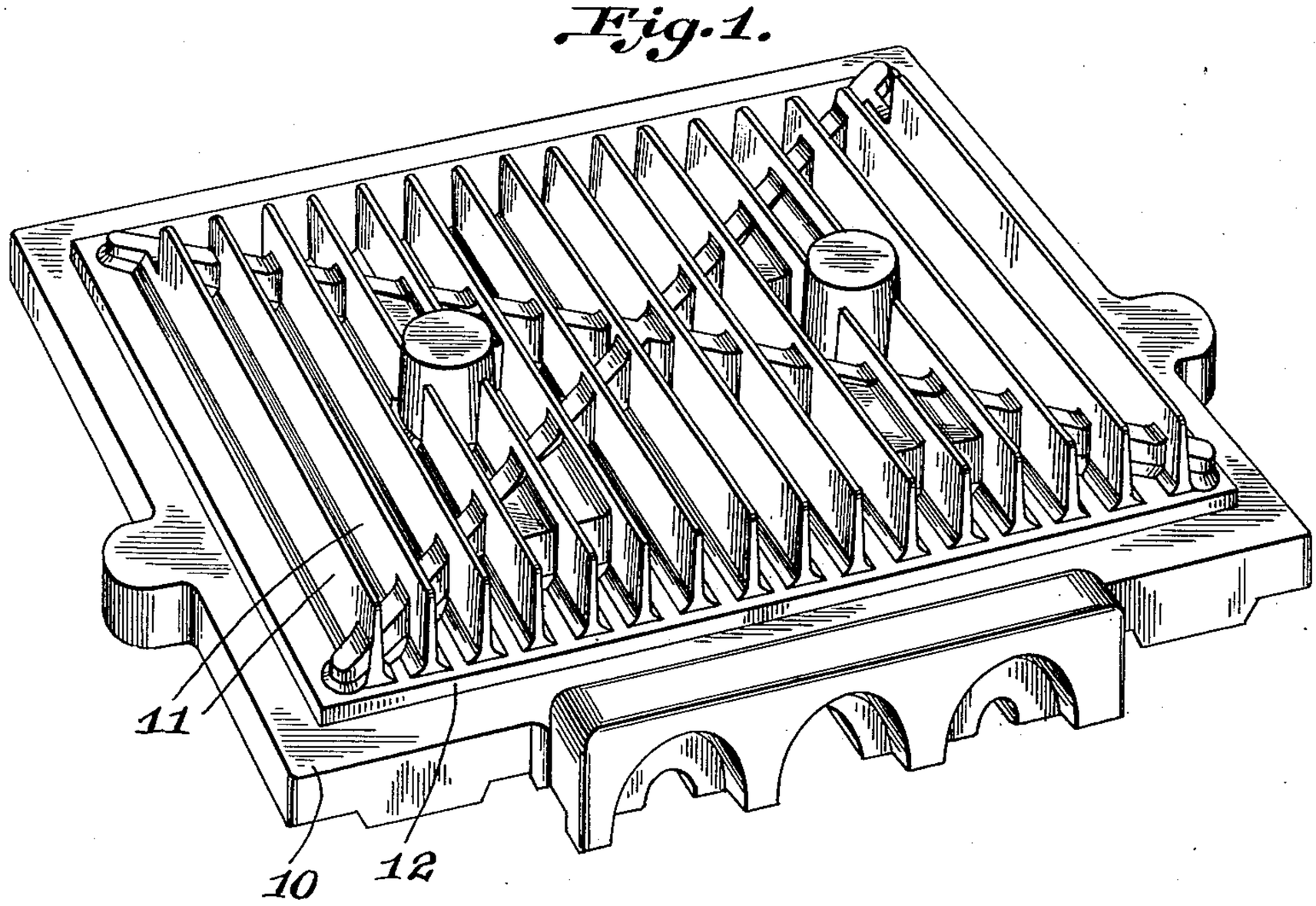

Fig. 2.

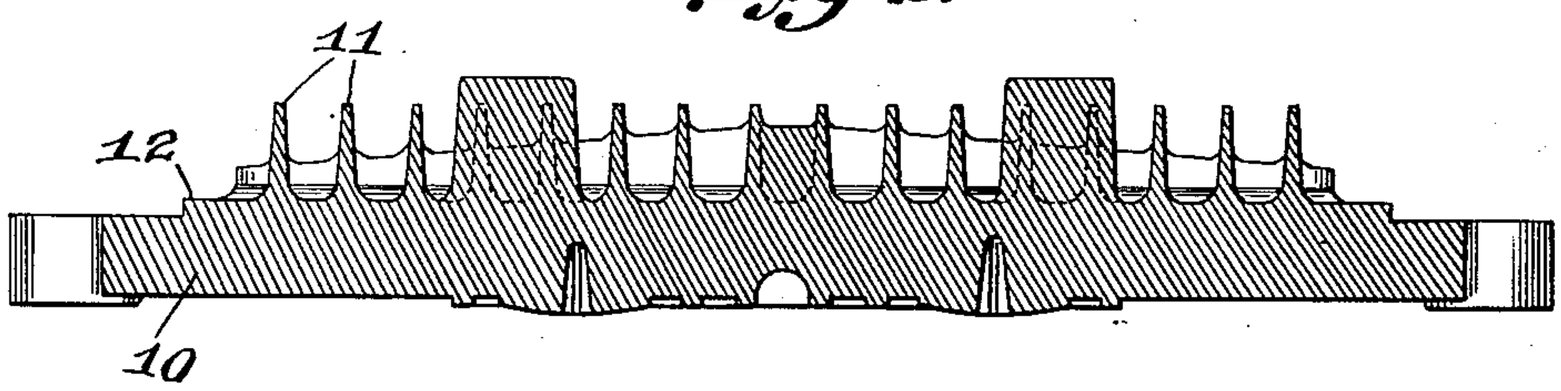

Fig. 3.

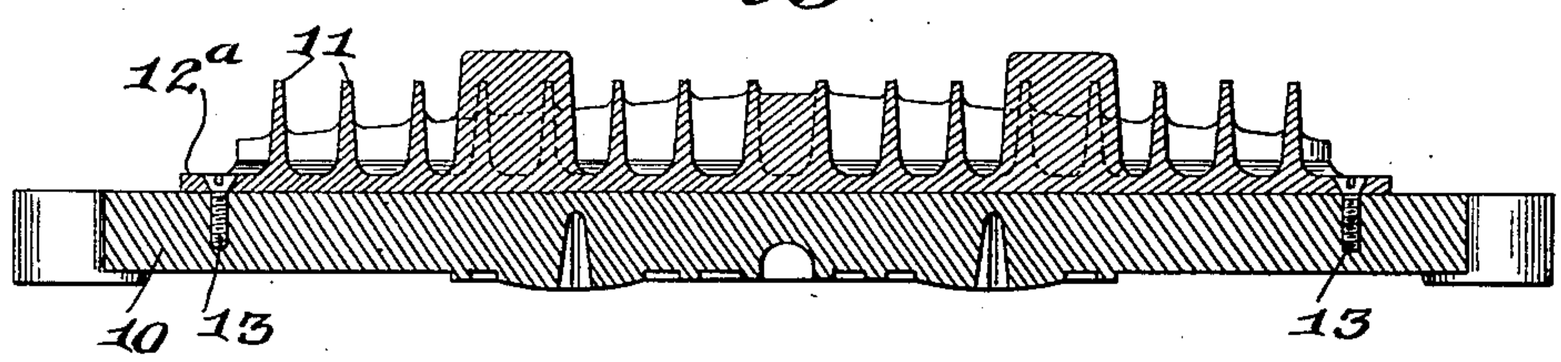

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Fig. 4.

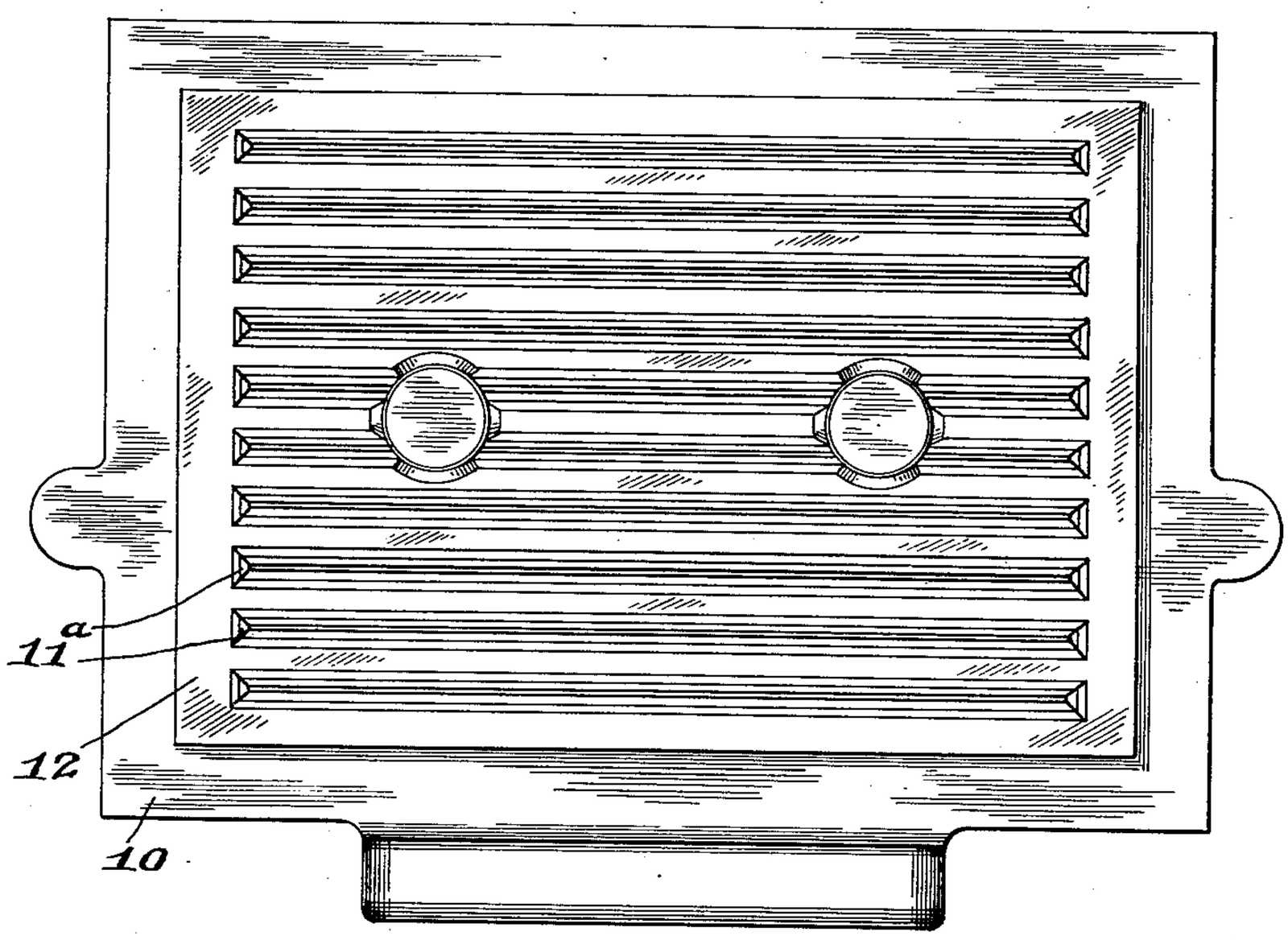


Fig. 5.

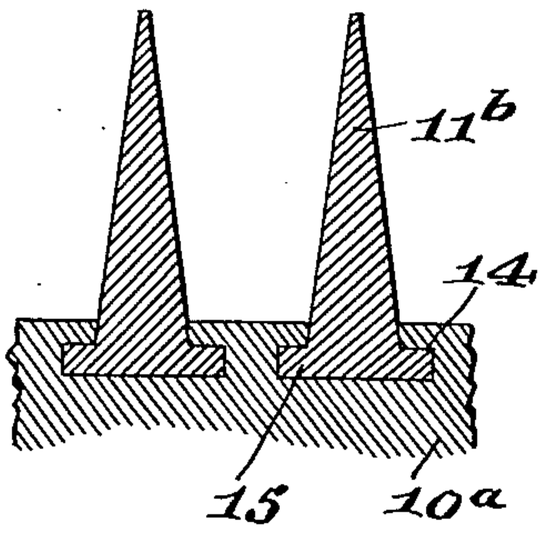
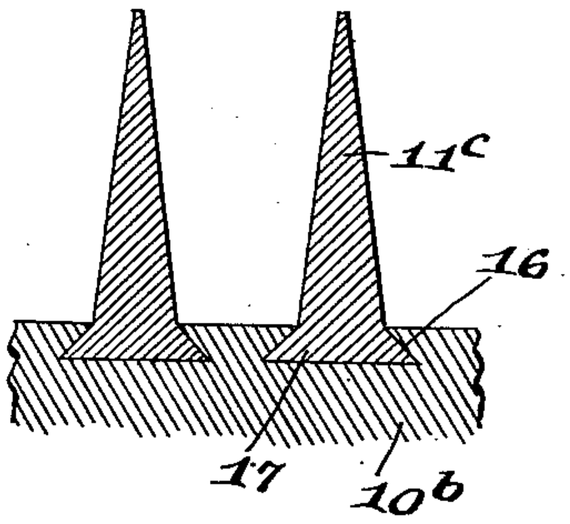


Fig. 6.



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UNITED STATES PATENT OFFICE

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COOLING MOLD

Application filed August 19, 1930. Serial No. 476,369.

The present invention relates to improvements in cooling molds and relates more particularly to an improved cooling mold for die casting and permanent molds.

An object of the invention is to provide cooling means for the molds whereby to rapidly dissipate the heat and to provide for quicker and more economical cooling of the molds.

A further object of the invention is to provide cooling fins upon the mold back or upon other parts of the mold in such numbers and sizes as to take care of the degree of heat encountered in connection with any particular industry.

With the foregoing and other objects in view the invention will be more fully described hereinafter and more particularly pointed out in the appended claims.

In the drawings, in which like reference symbols refer to like or corresponding parts throughout the several views,

Fig. 1 is a perspective view of an improved mold back constructed in accordance with the present invention.

Fig. 2 is a longitudinal section taken therethrough.

Fig. 3 is a similar section showing a slight modification.

Fig. 4 is a plan view showing a further modification.

Fig. 5 is a fragmentary section taken on an enlarged scale and showing a modified form of mounting of the fins, and

Fig. 6 is a similar view showing still another modified form of attaching the fins.

Referring more particularly to the drawings and for the present to Figs. 1 and 2, 10 designates a mold back provided with an appropriate pattern, which however forms no part of the present invention, and with the other equipment usually found upon mold backs for cooperating with the other mold parts.

In accordance with the present invention there is molded directly upon such mold back cooling fins 11 in such numbers, length and sizes as may be required to properly dissipate the heat. It is preferred that these cooling fins 11, which are spaced apart an appropriate distance, be cast upon a plate 12 and this plate is in turn cast with the mold back 10. The plate 12 and the cooling fins 11 carried thereby are of any appropriate material and it is preferred that at the bases of the fins 11 they shall be of thicker section, which section shall progressively decrease outwardly toward the free ends of the fins. In other words, the fins are of wedge cross section, tapering toward their outer edges in order to facilitate the radiation of the heat.

In accordance with Fig. 3 a plate 12*a* is employed to carry the cooling fins 11, and this plate is separate and distinct from the mold back 10, being secured thereto by the screws or other fastenings 13. In this case the plate 12*a* and the fins 11 may be cast as a unit and independently from the mold back 10 and be afterwards assembled thereon. However, by reason of the separate materials from which made, it is probable that the transference of heat between the mold back 10 and the plate 12*a* will not be as free and quick as between the plate 12 and the mold back as shown in Figs. 1 and 2 where these parts are cast integral.

Whereas, in Figs. 1 and 2, the cooling fins 11 are shown as extending transversely of the mold back 10, in Fig. 4 I show the cooling fins 11*a* extending longitudinally of the mold back. It is understood that they can be made to extend in any desired direction, either longitudinally, transversely or diagonally.

Also, some of the fins may be thick and some thin, some high and some low in order to increase or decrease the cooling effect of the cooling area.

As shown more particularly in Fig. 5 a modified form of mold back 10*a* or plate is shown having T-tracks or slots 14 adapted to receive the flanged bases 15 of modified cooling fins 11*b*. These flanged bases 15 may be slid in from one end of the slots or tracks 14.

In accordance with Fig. 6, the mold back or plate 10*b* is provided with tracks or slots 16 of a shape to conform to the dove-tail bases 17 of the cooling fins 11*c*.

It will of course be understood that the fins may be mounted in a variety of other ways. From the foregoing it will be appreciated that

cooling fins may be mounted upon the mold back or upon other parts of the molds in such relation, sizes and numbers as will adequately conduct off the heat and cool the molds.

Having thus described the invention, what is claimed as new is:

1. An improved cooling mold comprising a mold back provided with undercut closely spaced parallel surface grooves occupying substantially the entire area of one side of the mold back, wedge shaped heat-disseminating fins having abruptly widened heat collecting rear portions conforming to the cross section of and snugly fitting in said grooves, the heat collecting rear portions of adjacent fins closely apprcaching one another whereby to directly intercept practically all outwardly moving heat, and discharge a maximum volume to the outer wedge shaped portions, and the wedge shaped exterior portions of said ribs enabling said heat to be readily disseminated despite the close proximity of the ribs to one another.

2. An improved cooling mold comprising a mold back provided with closely spaced substantially parallel surface grooves occupying substantially the entire area of one side of the mold back, heat disseminating fins having abruptly widened heat-collecting rear portions seated in said grooves, said mold back having portions overhanging said grooves to hold said fin bases in said grooves, the heat collecting rear portions of adjacent fins closely approaching one another whereby to directly intercept practically all outwardly moving heat, and discharge a maximum volume to the outer portions of said fins.

In testimony whereof I hereunto affix my signature.

LEO H. HOMAND.