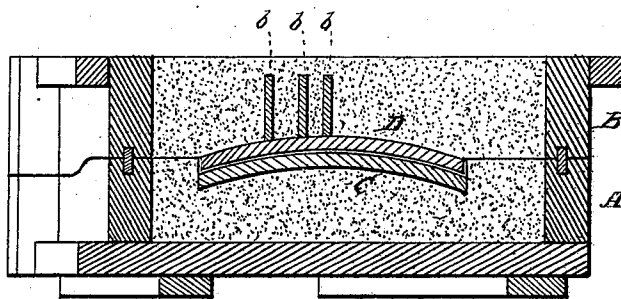


J. OLIVER.

Chills for Casting Mold-Boards.

No. 148,237.

Patented March 3, 1874.



WITNESSES:

P. C. Dieterich.
H. C. Scott.

INVENTOR

James Oliver

per *CH Watson & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JAMES OLIVER, OF SOUTH BEND, INDIANA.

IMPROVEMENT IN CHILLS FOR CASTING MOLD-BOARDS.

Specification forming part of Letters Patent No. **148,237**, dated March 3, 1874; application filed February 12, 1874.

CASE B.

To all whom it may concern:

Be it known that I, JAMES OLIVER, of South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Chill for Casting Mold-Boards; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

When melted iron is poured into a flask containing a mold-board chill the iron that is to form the face of the mold-board casting comes in direct contact with the chill, which rapidly cools the face of the casting, thereby chilling or hardening it to a greater or less depth. This chilling process contracts the face of the casting to the depth it is chilled more than the back of the casting which is not chilled, in consequence of which the casting is sprung or warped out of shape, to a greater or less extent, depending on the depth to which the metal is chilled—for instance, a mold-board that is chilled half through the thickness of the metal will warp more than one that is chilled two-thirds through. This warping makes it difficult to fit chilled mold-boards to plow standards and points, and many are rendered unfit for use after casting, while nearly all of them have to be ground, chipped, and filed on the backs to make them fit properly before they can be set up. To overcome this warping is the object of my invention; and to this end I insert metallic strips in the cope of the flask, so as to chill the mold-board at certain points entirely through the metal, as will be hereinafter more fully set forth.

In the accompanying drawing, A represents the body of the flask. B is the cope thereof. C represents the chill, D the mold-board pattern, and *b b* the metal strips. After the pattern D is placed on the chill C, the cope B is

put on, and a layer of sand sifted on the back of the pattern about one inch deep. Into this sand are forced thin strips, *b b*, of metal edgewise, which strips are worked backward and forward until their edges rest solid on the back of the mold-board pattern. These strips should be upon that part of the mold-board which rests on the standard when set up for use. The cope is then filled up with sand tucked around the metal strips and rammed in the usual manner. The cope is now lifted to remove the pattern, when the edges of the metal strips will be seen embedded in the sand and flush with it. When the melted iron is poured into the flask the face of the casting is chilled by contact with the iron forming the face-chill, and where the melted iron comes in contact with the strips *b b* it also chills, thus chilling the mold-board entirely through the thickness of the metal at these points. This effectually prevents the mold-board from twisting or warping by separating in several sections that portion of metal which forms the back or unchilled part of the mold-boards, so that the backs, instead of being in one piece to warp or twist by the unequal contraction in cooling, the warp, twist, or strain is confined to the narrow sections between the portions chilled clear through, thereby breaking the power of the strain which otherwise would twist the castings out of shape.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

Metallic strips *b b*, used in combination with a chill for casting mold-boards, for the purpose herein set forth.

In testimony that I claim the foregoing, I have hereunto set my hand this 2d day of February, 1874.

JAMES OLIVER.

Witnesses:

C. H. WATSON,
H. C. SCOTT.