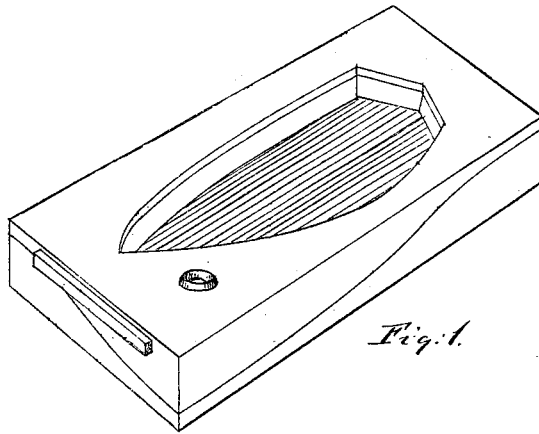


JAMES OLIVER.

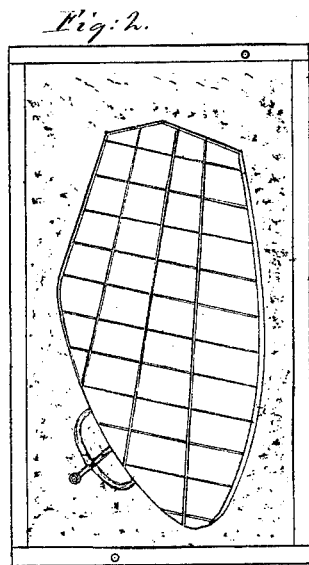
Improvement in Chills for Plow-Castings.

No. 114,469.

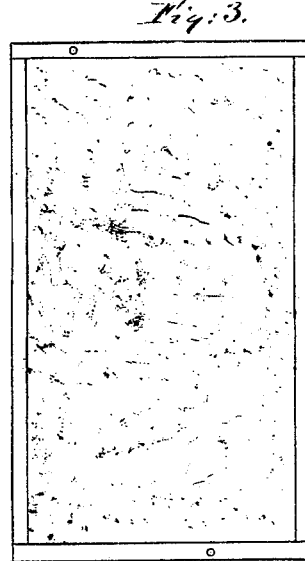
Patented May 2, 1871.



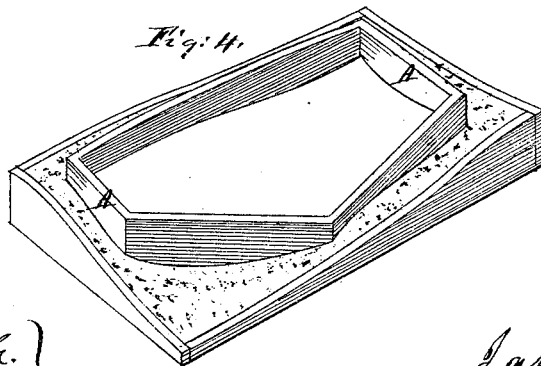
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Fig. 4.*

Witnesses:  
*Gacsmith.*  
*E. R. Brown.*

Inventor:  
*James Oliver*

# UNITED STATES PATENT OFFICE.

JAMES OLIVER, OF SOUTH BEND, INDIANA.

## IMPROVEMENT IN CHILLS FOR PLOW-CASTINGS.

Specification forming part of Letters Patent No. **114,469**, dated May 2, 1871.

### *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 Improvements in Casting Metals, of which the following is a specification:

The nature of my invention consists, first, in providing the under side of a metal chill with grooves, by means of which it is ventilated and a more perfect casting made; second, in a frame, which is placed on the lower part of the mold, and around the casting after the chill has been removed, in which is placed sawdust, to prevent too rapid cooling of the casting.

In the accompanying drawing, Figure 1 is a perspective view of the flask and chill; Fig. 2, a plan of the under side of the chill and mold; Fig. 3, a plan of the lower part of the mold; and Fig. 4, a perspective view of the lower part of the mold and frame.

In using metal chills it is necessary to oil the surface to prevent rusting. When the hot iron is poured into the mold it causes the oil to burn, which creates a smoke, and, there being no vent for its escape, it forces the metal away from the surface of the chill, thereby preventing it from receiving a perfect impression of the chill. If the chill is not oiled, the dampness will produce the same effect.

To prevent the above-mentioned difficulty,

I cut grooves in the face of the chill, as will be seen in Fig. 2, thereby furnishing a vent for the escape of smoke or steam produced by the introduction of the hot metal into the mold, thus producing a more perfect casting than by the ordinary method, as the metal cools so rapidly when it comes in contact with the chill it does not enter the grooves, as might, perhaps, be expected.

After the metal has been poured into the mold, and sufficient time has elapsed for its assuming a permanent form, the upper portion of the flask and chill is removed, and a frame, A, placed around the casting as it lies on the lower part of the mold. After this has been done, the frame is filled with sawdust, and that portion of it contiguous to the casting is soon converted, by means of heat from the casting, into charcoal, thereby sufficiently annealing the casting.

What I claim is—

1. A metal chill, with grooves in its face for the purpose of ventilation, substantially as shown and described.

2. The cooling-frame A, when used in connection with the mold, substantially as and for the purpose shown and described.

JAMES OLIVER.

Witnesses:

G. A. C. SMITH,  
E. R. BROWN.