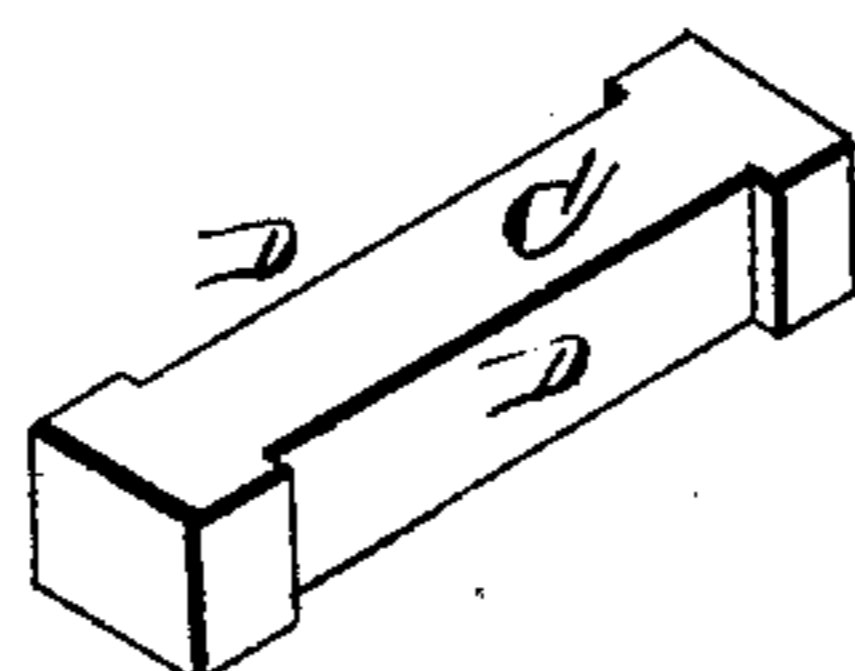
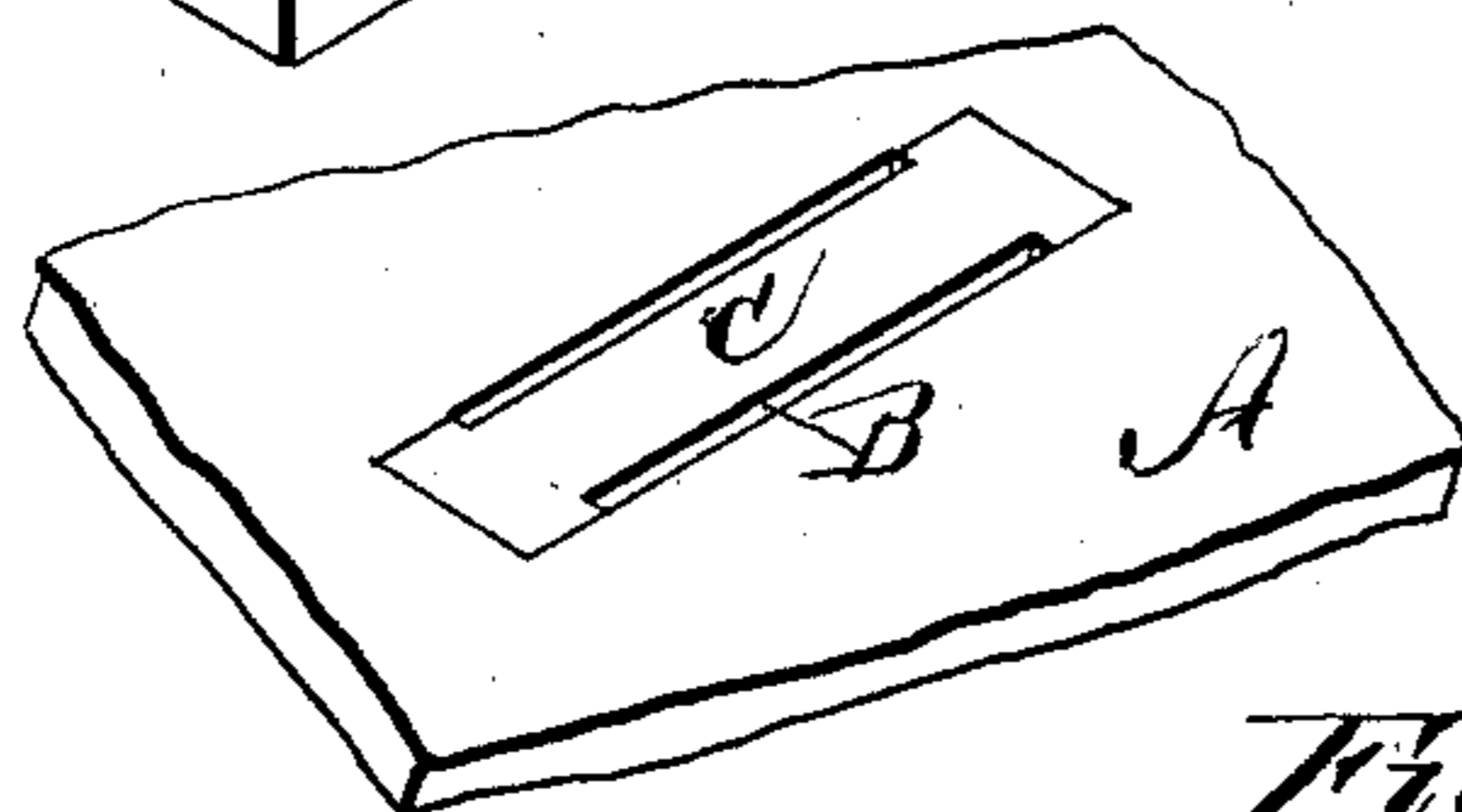
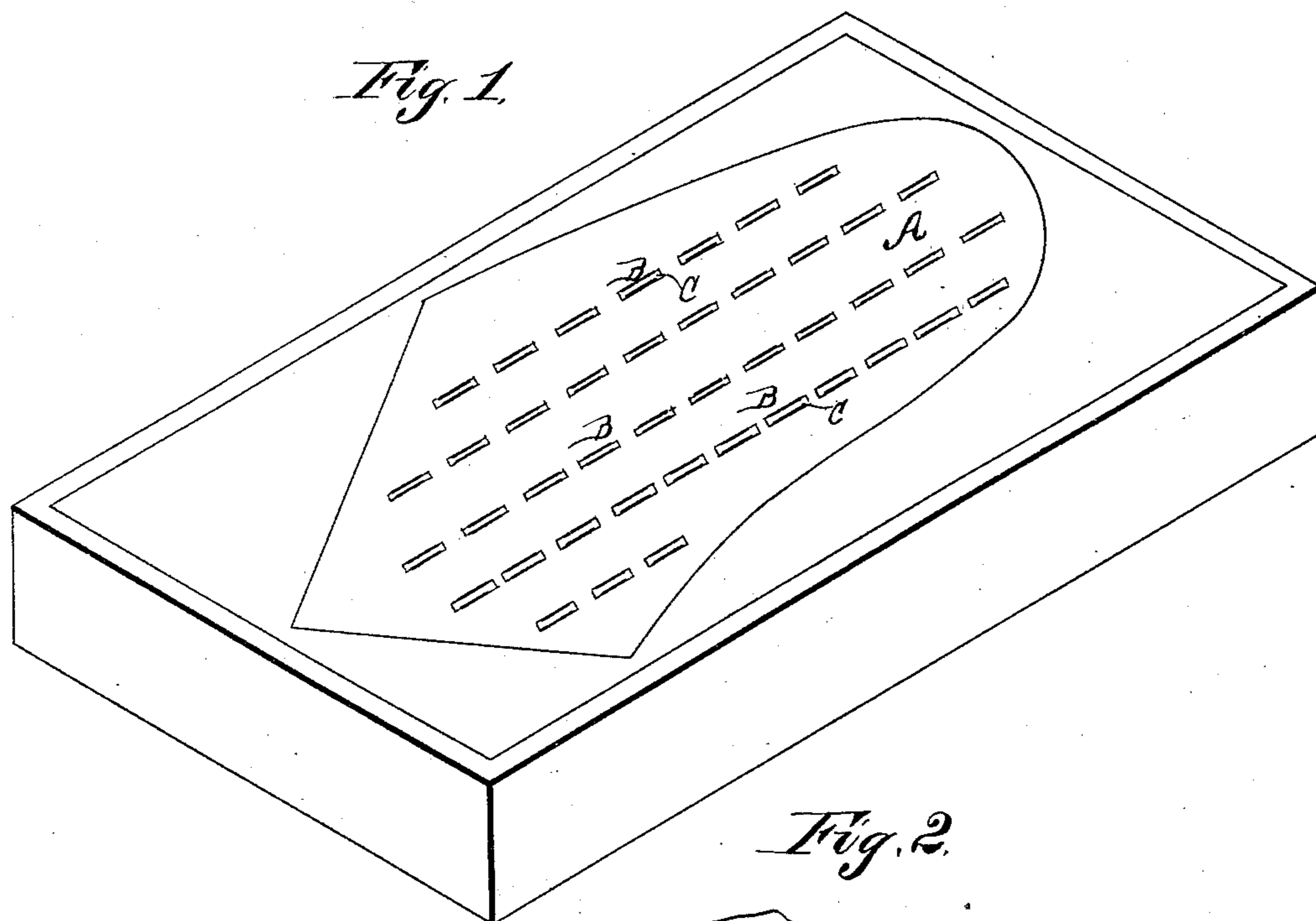


(No Model.)

W. B. SEWARD.
Plow Chill.

No. 232,305.

Patented Sept. 14, 1880.



Witnesses:
H. C. McArthur,
John C. Rogers

Inventor:
Williamson B. Seward,
per *J. M. Alexander,*
Attorney.

UNITED STATES PATENT OFFICE.

WILLIAMSON B. SEWARD, OF BLOOMINGTON, INDIANA.

PLOW-CHILL.

SPECIFICATION forming part of Letters Patent No. 232,305, dated September 14, 1880.

Application filed August 2, 1880. (No model.)

To all whom it may concern:

Be it known that I, WILLIAMSON B. SEWARD, of Bloomington, in the county of Monroe and State of Indiana, have invented certain
5 new and useful Improvements in Plow-Chills; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked
10 thereon, which form part of this specification.

This invention is particularly designed to furnish an improved chill for casting articles having large or extended surfaces, such as mold-boards for plows and the like, although it is
15 applicable to all other kinds of castings.

In the manufacture of chilled castings, especially such as have extended surfaces, great difficulty has been experienced in producing a perfect casting evenly chilled over the entire
20 surface, owing to the fact that the air contained in the mold and the steam and gases generated therein by the intense heat of the molten metal when poured into the mold are confined, in part, between the molten metal
25 and the chill, constituting a cushion, which prevents perfect contact of the molten metal with the chill, resulting in a defective or imperfectly-chilled casting. Often there is such an accumulation of air, steam, and gas in
30 places over the chill as to form large holes partly, and sometimes entirely, through the casting, rendering it utterly worthless.

The object of my invention is to obviate these objections; and to this end it consists in
35 a chill of such shape as to exactly conform to the shape of the surface of the casting to be chilled, and provided with a number of openings so formed and of such size as will admit of their being partially plugged, so that
40 while the air, steam, and gases contained and generated in the mold by the heat of the molten metal can freely escape, the molten metal itself can find no egress through said openings.

45 Referring to the accompanying drawings, Figure 1 represents a perspective view of a

flask containing my chill; Fig. 2, a similar view of part of my chill, showing the peculiar mode of forming the gas-openings; and Fig. 3,
50 a similar view of the plug.

The letter A indicates my improved chill, constructed of metal, as usual, and which, in the present instance, is represented as a chill for mold-boards. The said chill is made to conform accurately to the shape of the sur-
55 face to be chilled in the casting.

The letter B indicates a series of openings or apertures formed in the chill. The said apertures are made much larger than the size ultimately intended, and of any desired shape
60 or configuration, and are then brought to the proper ultimate size and shape by filling them partly with suitably-shaped plugs C, of proper size. In the present instance the openings are represented as rectangular in shape, and the
65 plugs of like configuration, each plug being recessed on opposite sides, as indicated by the letter D, so as to leave narrow openings for the escape of air, steam, and gas, but which will prevent the escape of the molten
70 metal.

The chill as thus constructed is employed in connection with a pattern and flask in the manner well known to founders, and therefore further explanation on this point is deemed
75 unnecessary.

I am aware that chills have been heretofore constructed with small apertures for the purpose of ventilation; but, owing to the thickness of the metal necessary to the proper durability of the chill, and the necessarily small
80 size of the apertures to prevent the iron from flowing through or filling them up, and the number requisite to properly ventilate the mold, this plan is exceedingly expensive, and, moreover, does not effectually accomplish the
85 result sought.

By forming the apertures larger than ultimately intended it is evident that the whole chill may be constructed of cast metal, and
90 the apertures, by the subsequent plugging or filling, may be made sufficiently narrow to pre-

vent the escape of metal, which has hitherto only been effected by drilling the apertures—a very expensive and troublesome operation.

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

A chill for mold-boards and other castings, formed of cast metal with a series of apertures, which are provided with partial fillings, whereby the apertures are reduced to proper size to permit the free escape of air, steam, or

gas from the mold, and at the same time effectually retain the molten metal, substantially as herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAMSON B. SEWARD.

Witnesses:

MORTON C. HUNTER,
JOHN CORY HUNTER.