H. H. LANGE.

PATTERN FOR SKIM GATES.

APPLICATION FILED SEPT. 6, 1912.

1,049,877. Patented Jan. 7, 1913.

Fig. 1.

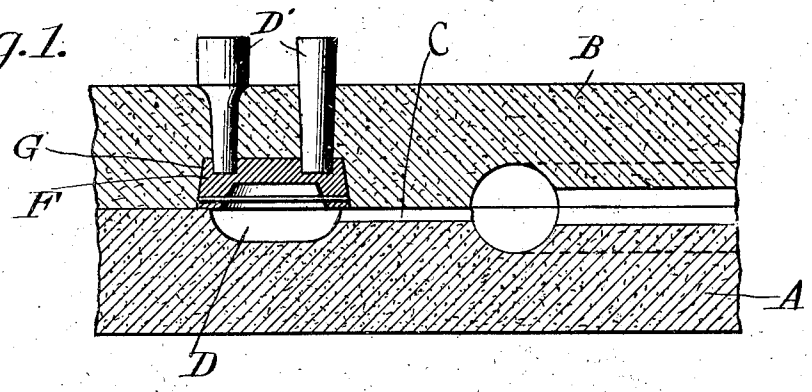


Fig. 2.

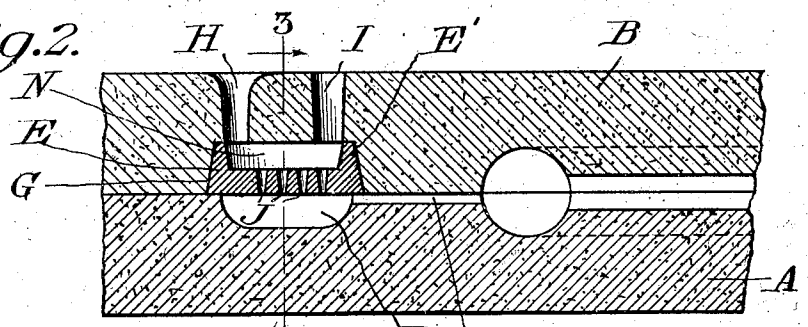


Fig. 3.

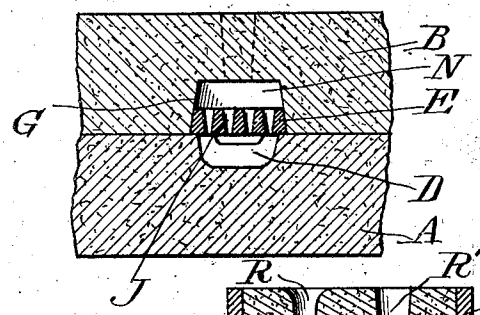


Fig. 4.

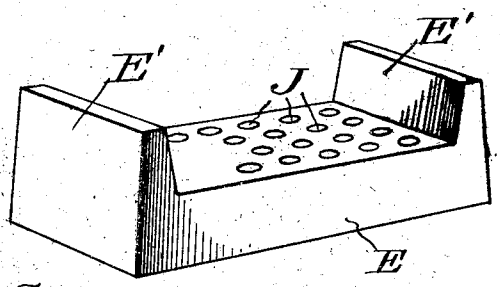
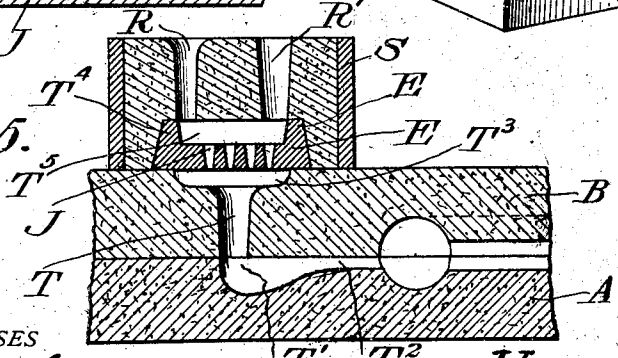


Fig. 5.



WITNESSES

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PATTERN FOR SKIM-GATES.

1,049,877. Specification of Letters Patent. Patented Jan. 7, 1913.

Application filed September 6, 1912. Serial No. 718,948.

To all whom it may concern:

Be it known that I, HERMAN H. LANGE, a citizen of the United States, residing at Appleton, in the county of Outagamie and State of Wisconsin, have invented certain new and useful Improvements in Patterns for Skim-Gates; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as 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 and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in skim gate cores for use in connection with metal molding apparatus and the object in view is to produce a simple and efficient device of this nature and provided for the purpose of separating dirt and slag from the molten metal as it is poured into a mold.

The present invention comprises various details of construction and combinations and arrangements of parts which will be hereinafter fully described and then specifically defined in the appended claim.

My invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical sectional view through a mold showing a skim gate pattern positioned within the cope of the mold for the purpose of forming a recess for the reception of the skim gate core. Fig. 2 is a similar sectional view through the mold and skim gate adjusted in position within the recess in the cope. Fig. 3 is a section on line 3—3 of Fig. 2, looking in the direction of the arrow. Fig. 4 is a detail perspective view of the skim gate core, and Fig. 5 is a sectional view showing a modification in the application of the skim gate core.

Reference now being had to the details of the drawings by letter, A designates the drag of a mold and B the cope in which the sand or other material utilized for making the mold is tamped in the usual manner about the pattern in the formation of the mold.

C designates a gate leading to the mold and through which the molten metal passes from the recess D which is formed in the sand immediately underneath the location of the skim gate core E.

In the formation of the mold a skim gate pattern, designated by letter F, having preferably inclined sides as shown in Fig. 1 of the drawings, is placed immediately over the recess D, and pins D′ are inserted in holes formed in the upper face of said pattern and the sand is tamped about the pattern and pins, after which the cope is removed and the pattern and pins withdrawn therefrom, thus leaving a recess G conforming to the shape of the pattern with gates H and I leading into said recess, the gate I being preferably of a little larger area than the gate H, affording means whereby the molten metal may be poured into the mold, while the gate I forms a riser. Said skim gate core, which is made of any suitable material, is shaped with inclined edges to conform to and adapted to snugly fit into the recess G in the manner shown in Fig. 2 of the drawings, so that the inclined walls of said core will contact with the inclined ends of the recess G and the flanges E′ of said core will contact with the bottom wall of the recess at each end and adjacent to said gates H and I. It will be noted also that the inner edges of the flanges are also inclined, one inclined edge of the flange at one end of the core being adapted to direct the flow of the molten metal as it is poured into the gate H into a recess N formed intermediate the flanges E′ toward the tapering apertures J through which the metal passes into the recess D.

In the formation of the mold and the adjustment of the skim gate in its proper position, it is essential that the space and the core be small enough to permit the sand wall of the drag to support the skim gate core and at the same time sufficiently large to take care of all metal which may pass through the apertures in the bottom of the core, preferably there should be no holes or apertures in the bottom of the core directly beneath the pouring gate H so that the metal in striking the skim gate core will be obliged to flow more indirectly through the holes, thus preventing the force of the molten metal coming down in the gate from carrying dirt and slag through the apertures of the core.

In Fig. 5 of the drawings, I have shown a slight modification in the application of my invention, in which the cope may be too shallow to permit of the utilization of the skim gate core between the cope and drag and in which modification the core is shown

as applied to the top of the cope with the aid of a runner box. This application of the invention may be utilized when there is not sufficient room beside the casting in the flask or box to use the skim gate in that manner. In said modification the mold is formed in the usual manner with gate T extending down through the cope and communicating with the recess T′ formed in the drag from which an inclined gate T^2 leads to the mold. The upper portion of the gate T is recessed away as at T^3, and T^4 designates a skim gate core rested upon the top of the cope and in a recess shaped to conform thereto and which has been previously formed by a suitable pattern in the sand of the runner box S. A pouring gate R is formed in the sand of the runner box and forms means for pouring the molten metal into the recess T^5 formed intermediate the flanges at the ends of the core and a riser R′ is formed in the sand of the runner box and communicates with the recess T^5 adjacent to the end opposite to that with which the pouring gate communicates.

In operation, the molten metal as it is poured into the pouring gate will pass into the recess formed intermediate the flanges at the ends of the skim gate core and the opposite walls of the recess previously formed by the pattern block illustrated in Fig. 1 of the drawings. The metal as it is poured through the gate H, or through the gate R in the modified form, will be directed by the inclined end of the flange toward the tapering holes formed in the bottom of the core and which will tend to separate the dirt and slag from the molten metal. The dirt and slag will remain in the recess N and riser I, or in the corresponding recess and riser T^5 and R′ respectively in the modified form and, when the mold is filled with metal, it will rise and fill the recess between the flanges of the core as well as the gate and riser, thus giving evidence of the filling of the mold.

What I claim to be new is:—

In combination with the drag and cope of a mold, a perforated skim gate core adapted to snugly seat in a recess in the face of the cope, the ends of said core having flanges, the inner edges of which are inclined and form end walls of a recess, the walls to the opposite sides of which recess are formed of the sand of the cope and into which recess a gate and riser lead, one adjacent to each end thereof, as set forth.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

HERMAN H. LANGE.

Witnesses:
FRANKLIN H. HOUGH,
A. L. HOUGH.