Sept. 8, 1942. S. B. RITCHIE 2,294,935

CENTRIFUGAL MOLD STOPPER

Filed July 3, 1941

Fig-1-

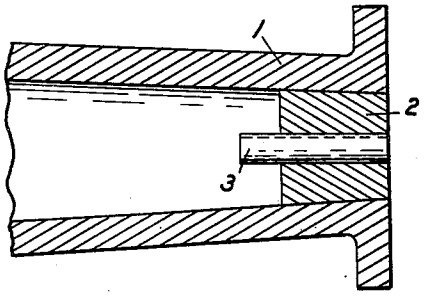


Fig-4-

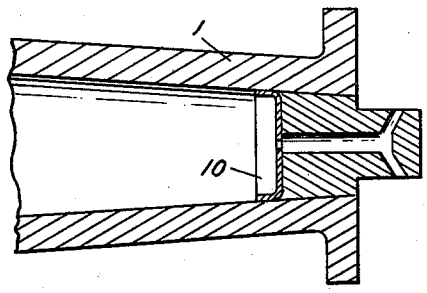


Fig-2-

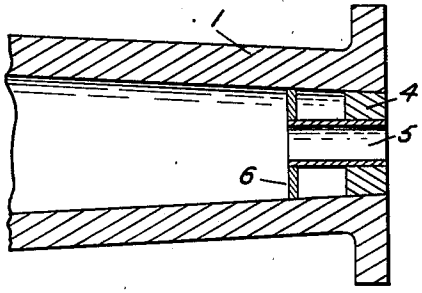


Fig-5-

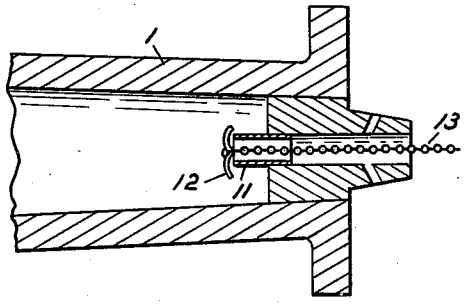


Fig-3-

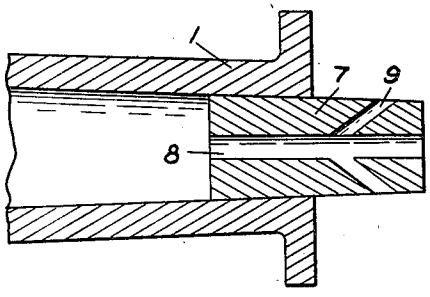
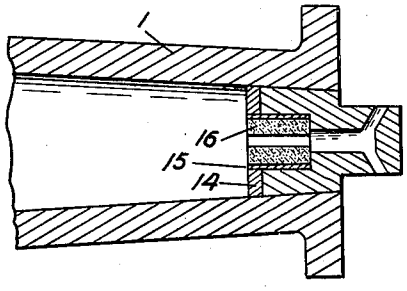


Fig-6-



Inventor

Scott B. Ritchie

By G. J. Kessenich & J. H. Church

Attorneys

Patented Sept. 8, 1942

2,294,935

UNITED STATES PATENT OFFICE

2,294,935

CENTRIFUGAL MOLD STOPPER

Scott B. Ritchie, United States Army,
Cootes Store, Va.

Application July 3, 1941, Serial No. 400,942

5 Claims. (Cl. 22—148)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

The invention described herein may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to centrifugal molds, and in particular to stoppers therefor. These are customarily employed in the ends of the tubular molds to limit the longitudinal flow of the molten metal. At the pouring end, the stopper or adapter has an opening to receive a pouring spout. This adapter is removable to permit removal of the finished casting. At the other end of the mold there is usually provided a stopper having a much smaller opening to permit escape of gases. In tapered molds used in forming gun barrels and the like, this stopper is usually located at the small end and has a complementary taper to fit the mold. It will thus resist removal outward, but may be forced inward against the finished casting to remove the same. Great trouble has been experienced with plugging of vent holes by splashed metal and the present invention is concerned with obviating such difficulties.

It is therefore an object of this invention to provide vent plugs for centrifugal casting molds in which the likelihood of fouling in service is greatly reduced.

It is another object of the invention to improve venting in general.

To these and other ends, the invention consists in the construction, arrangement and combination of elements described hereinafter and pointed out in the claims forming a part of this specification.

A practical embodiment of the invention is illustrated in the accompanying drawing wherein:

Figure 1 is an elevational view in axial section of the vent end of a centrifugal casting mold showing the stopper in place, and

Figures 2 to 6 are similar views showing modifications of the stopper.

Referring to the drawing by characters of reference, there is shown in Figure 1 a chill mold 1 bearing a centrally perforated stopper 2 having an outside taper nested within the chill mold. A pipe 3 is carried in the bore of the stopper and projects inward therefrom. This projecting pipe protects the vent passage in the stopper 2 when molten metal is run against the face of the stopper.

In Figure 2 is shown a stopper 4 having a pipe 5 and a steel plate 6 mounted thereon and spanning the bore of the mold. This plate is designed to protect the stopper 4 in the absence of refractory material.

In Figure 3 is shown a stopper 7 having a central opening 8 and branch openings 9 directed laterally and rearwardly. The removal of gases is assisted by the spinning action of these vents. The stopper 7 projects externally of the mold and this enables proper gauging of the position of the stopper and affords a convenient point of contact for a ram employed in removing the casting.

In Figure 4 is shown a stopper generally similar to that of Figure 3, but carrying a steel cup 10 which expands and forms a seal with the mold.

In Figure 5 is shown a plug similar to that of Figure 3, but having in addition a projecting pipe 11 and a check valve 12 actuated by a chain 13. This will permit escape of gas but prevent molten metal from entering the vent hole.

In Figure 6 is shown another plug similar to that of Figure 3, but having a plate 14 and a projecting pipe 15 with a refractory lining 16. This refractory prevents chilling of any metal which may splash into the vent passage and thus hinders plugging of the passage.

I claim:

1. A vent plug for a chill mold comprising a cylindrical body with an axial bore and auxiliary bores branching from said axial bore.

2. A vent plug for a chill mold comprising a main body portion with an axial bore and auxiliary bores branching from said axial bore, and a metallic cup-shaped member fixed to the base of said main body portion.

3. A vent plug for a chill mold comprising a man body portion with an axial bore, a tube in said bore and projecting from an end of said plug, a check valve on said tube and operating means therefor.

4. A stopper for centrifugal chill molds comprising a main body portion having an axial bore and substantially radially disposed bores communicating therewith for venting.

5. In combination with a centrifugal chill mold having a bore open at one end, a stopper for said bore having an axial passage and substantially radially disposed bores communicating therewith for venting.

SCOTT B. RITCHIE.