

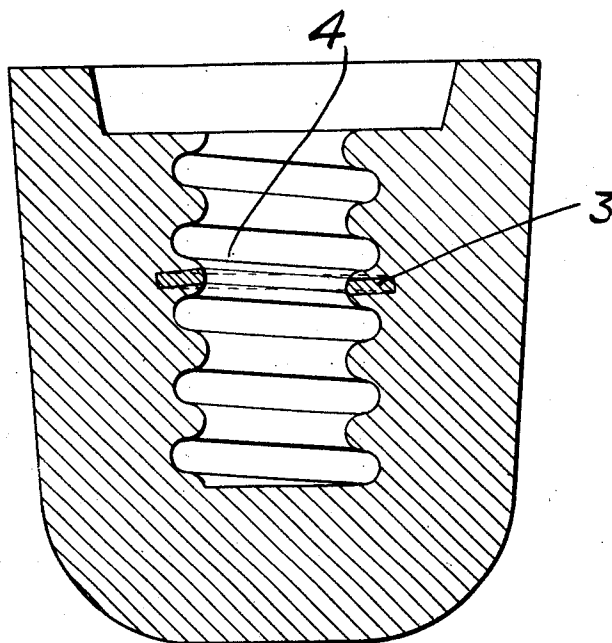
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C. C. BACON

LADLE STOPPER

Filed July 31, 1925



WITNESS:

Robt. R. Mitchell

INVENTOR

Charles C. Bacon

BY

Augustus B. S. Foughton

ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES C. BACON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO ROSS TACONY CRUCIBLE COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

LADLE STOPPER.

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The invention relates to improvements in stoppers for bottom pour ladles used to contain molten metal.

5 The principal object of the present invention is to provide a stopper for use in controlling the flow of molten metal from a ladle which will not be damaged in fitting it to a stopper rod or when unusual strain is put upon it.

10 Usually an open end ladle stopper entirely of clay or of clay and graphite is attached to the stopper rod by a bolt slotted for a key at one end and provided at the other end with a circular head of either flat or button
15 type. After the stopper, mounted on the bolt, has been attached to the rod by connecting the bolt with the end of the rod, sleeves are adjusted on the rod with sufficient slurry between and held down firmly by
20 fastening means at the upper end of the rod. If the bolt is not exactly the right size and shape for proper engagement with the wall of the recess and bolt hole of the stopper, the force exerted for adjusting the sleeves will
25 draw the bolt head into the softer clay or clay and graphite of the stopper to the great danger of seriously damaging it with resultant failure during the pouring operation. If a skull is formed in the metal in the ladle
30 the extra force required to release and lift the stopper is liable to cause some damage.

In the case of a screw stopper head the thread by which it is connected with the rod is likely to be stripped or to give way.

35 It is a further object of my invention to add strength which is of great advantage in the screw type in resisting the pressure of the sleeve brick and the strains set up when

the stopper, while frozen in the nozzle, is being lifted.

To these and other ends hereinafter set forth the invention, stated generally, comprises a ladle stopper of refractory material provided with a recess or cavity and having a plate washer split and opened and anchored
45 in the wall of the recess to become a part of the thread.

In the following description reference will be made to the accompanying drawing in which the single figure is a transverse central section of a screw stopper head embodying features of the invention.

Referring to the drawing, the plate washer 3 is split and the ends at the split are bent apart giving to the washer a spiral form.
55 The washer of spiral form is anchored during the molding of the stopper in the wall of the recess or cavity 4 and in the screw threaded portion thereof which it materially strengthens. The washer is a plate of metal.

60 It will be obvious to those skilled in the art to which the invention relates that modifications may be made in details of construction and arrangement and in matters of mere form without departing from the spirit of
65 the invention which is not limited as to such matters or otherwise than the prior art and the appended claim may require.

I claim:

A stopper of refractory material having a
70 concavity provided with a thread of refractory material and having a plate washer of spiral form embedded in the wall of the cavity and constituting a part of the thread.

CHARLES C. BACON.