

Jan. 14, 1930.

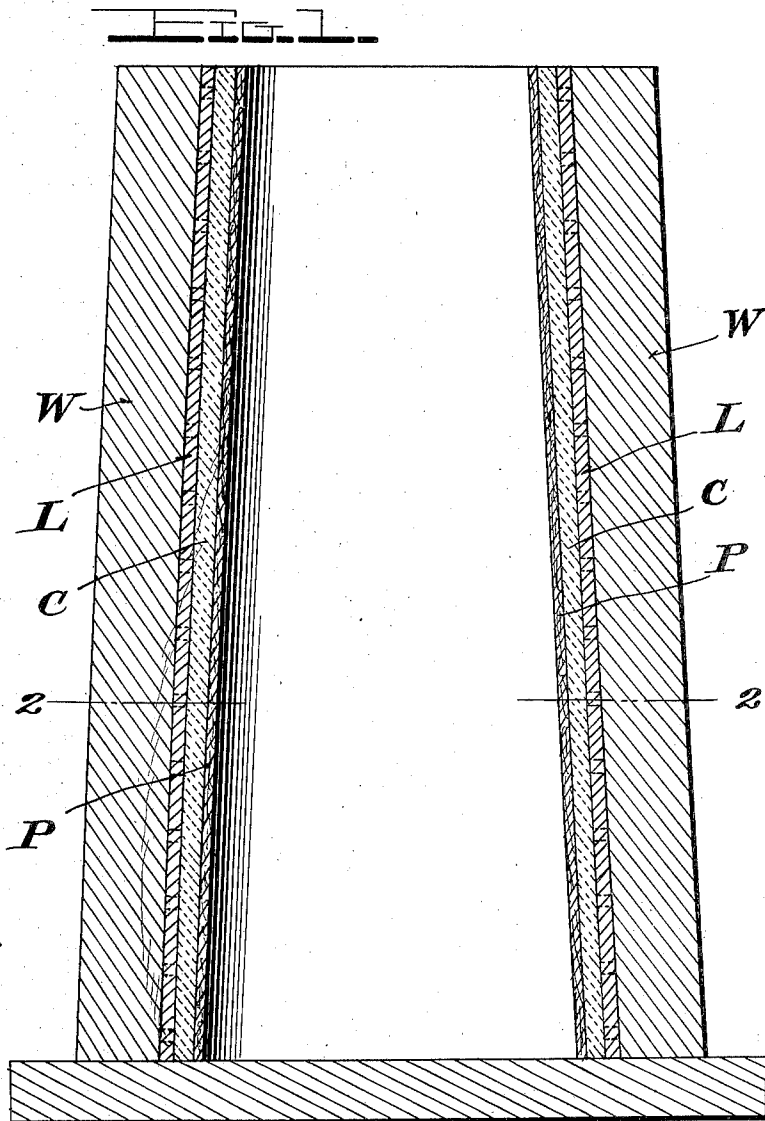
R. C. REED

1,743,932

INGOT MOLD

Filed Sept. 20, 1928

3 Sheets-Sheet 1



Inventor

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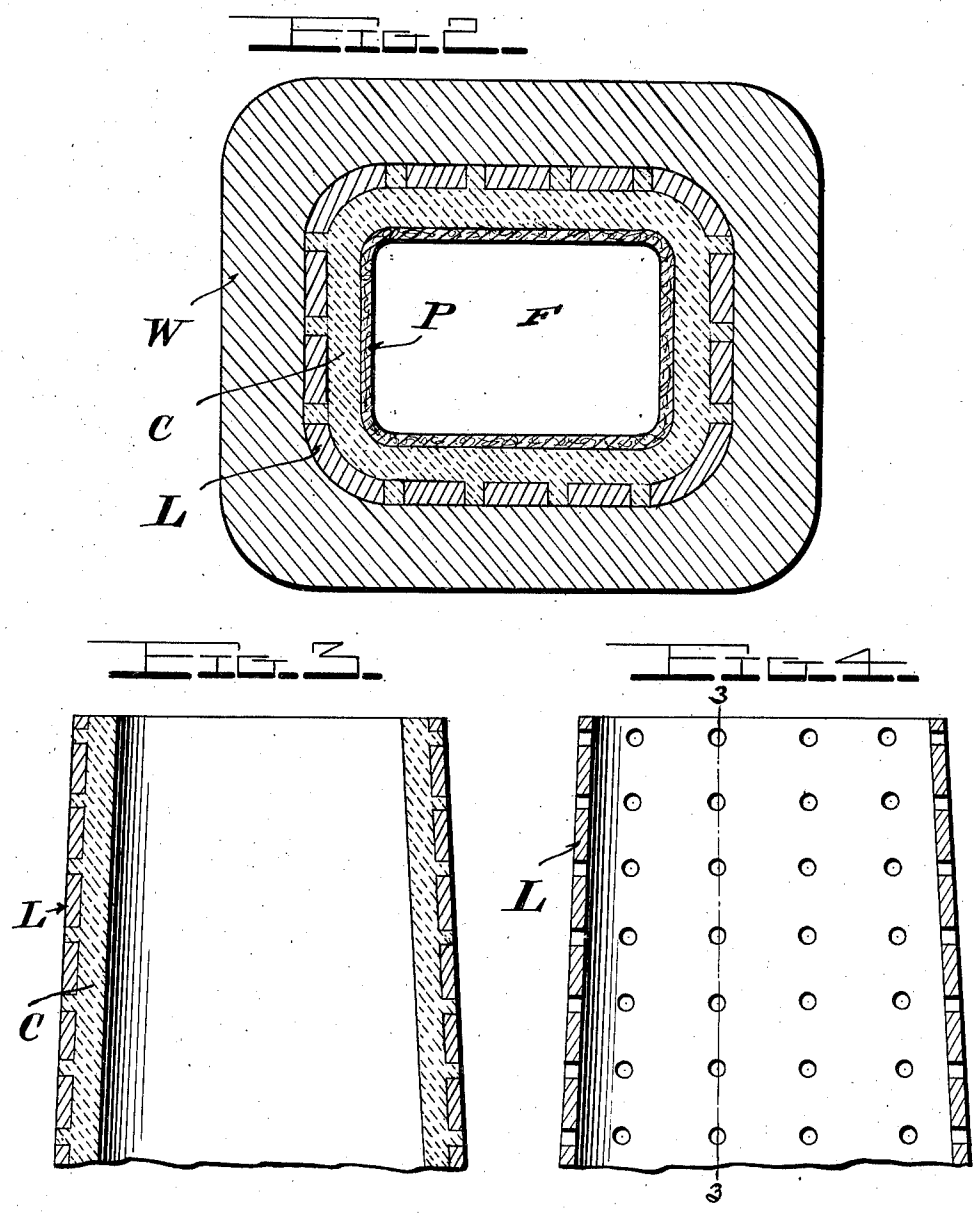
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INGOT MOLD

Filed Sept. 20, 1928

3 Sheets-Sheet 2



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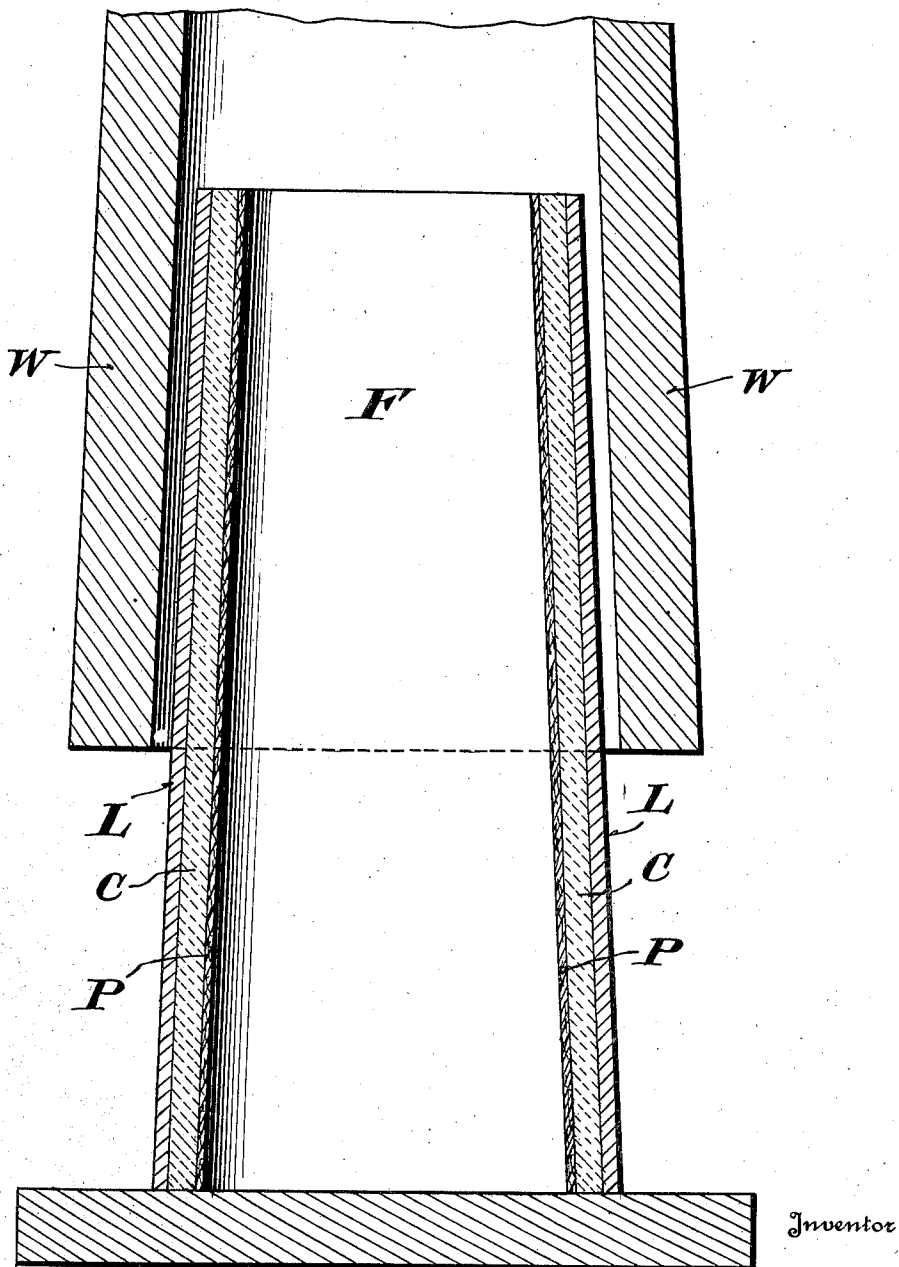
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INGOT MOLD

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3 Sheets-Sheet 3

FIG. 5.



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UNITED STATES PATENT OFFICE

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INGOT MOLD

Application filed September 20, 1928. Serial No. 307,124.

My invention relates to molds for the casting of metal ingots, the primary purpose being to provide a mold which will reduce what is known as "piping" to a minimum.

5 Piping, in mill-parlance, is the formation of longitudinal cavities in the ingot during the process of cooling, extending from the upper end downwardly to varying depths, frequently well towards the longitudinal center of the ingot.

10 This result is serious and costly, due to the fact that the wall of the cavity becomes oxidized, thus preventing the perfect welding or proper uniting of the metal around the cavity in the process of rolling, and it is generally necessary to cut a substantial portion off of the end of the ingot.

15 My invention resides in the lining of the mold with clay or other similar substance, in order to prevent the molten metal from coming into direct or immediate contact with the metal of the mold during the pouring and cooling process.

20 In the accompanying drawings, Fig. 1 is a vertical section of an ordinary ingot mold equipped with my device; Fig. 2 is a cross section on line 2—2 Fig. 1; Fig. 3 is a section on line 3—3 Fig. 4; Fig. 4 is a fragmentary view of a section of the metal sheet or plate to which the clay or other substance is applied; Fig. 5 is a vertical section showing the process of dropping the mold down over the core as hereinafter described.

25 The ordinary ingot mold is oblong in cross-section, and while the drawings show my invention as applied to the mold in one continuous strip or section, in the practical application of the same I use four separate sections or units, one for each of the four sides of the mold.

30 W represents the wall of the mold, and L a metal sheet or plate, of which four sections may be used to advantage.

35 These sheets or plates are first perforated, as shown in Figure 4, and then covered with a relatively thick coating of clay or other similar or kindred plastic, heat-resisting substance C, in any suitable and convenient manner, such as spreading the clay on the

sheet and then passing it between a set of rolls if desired or deemed necessary.

40 After the sheets have been perforated and covered as indicated above, they are placed around a central core F with the clay or other coating next the core.

45 This core is a counter-part of the ingot to be cast, and being tapered toward the top, the various sections of lining will lean against it and remain in place without fastening.

50 The mold is then dropped over the core and linings, and as the mold flares outwardly, conforming to the shape of the core, it acts in a wedging manner, pressing the plates firmly against the clay and forcing it through the perforations against the wall of the mold, while the surplus clay, if any, will emerge at the top of the mold. See Figure 5.

55 The clay pressed into and through the perforations will ordinarily adhere to the wall of the mold and hold the linings around the mold when the core is removed. If necessary, however, simple means may be employed to assist in this respect.

60 The mold is then lifted off of the core properly lined, and in shape and condition to receive its charge of molten metal.

65 If necessary, in order to avoid any of the clay sticking to the core as the latter is removed, a card-board, or other suitable substance P, may be placed next the core between it and the clay.

70 I claim:

75 1. An ingot mold provided with an inner lining consisting of sheet metal having its inner face covered with a coating of plastic, heat-resisting substance.

80 2. An ingot mold provided with an inner lining consisting of perforated sheet metal having its inner face covered with a coating of plastic, heat-resisting substance.

85 3. An ingot mold provided with an inner lining consisting of a base having its inner face covered with a coating of plastic, heat-resisting substance.

90 4. The method of lining an ingot mold consisting of first applying a coating of

plastic substance to a metal sheet, then standing the sheet up against a central core with the coating next to the core, and then dropping the mold over both sheet and core.

5 In testimony whereof I have affixed my signature.

RALPH C. REED.

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