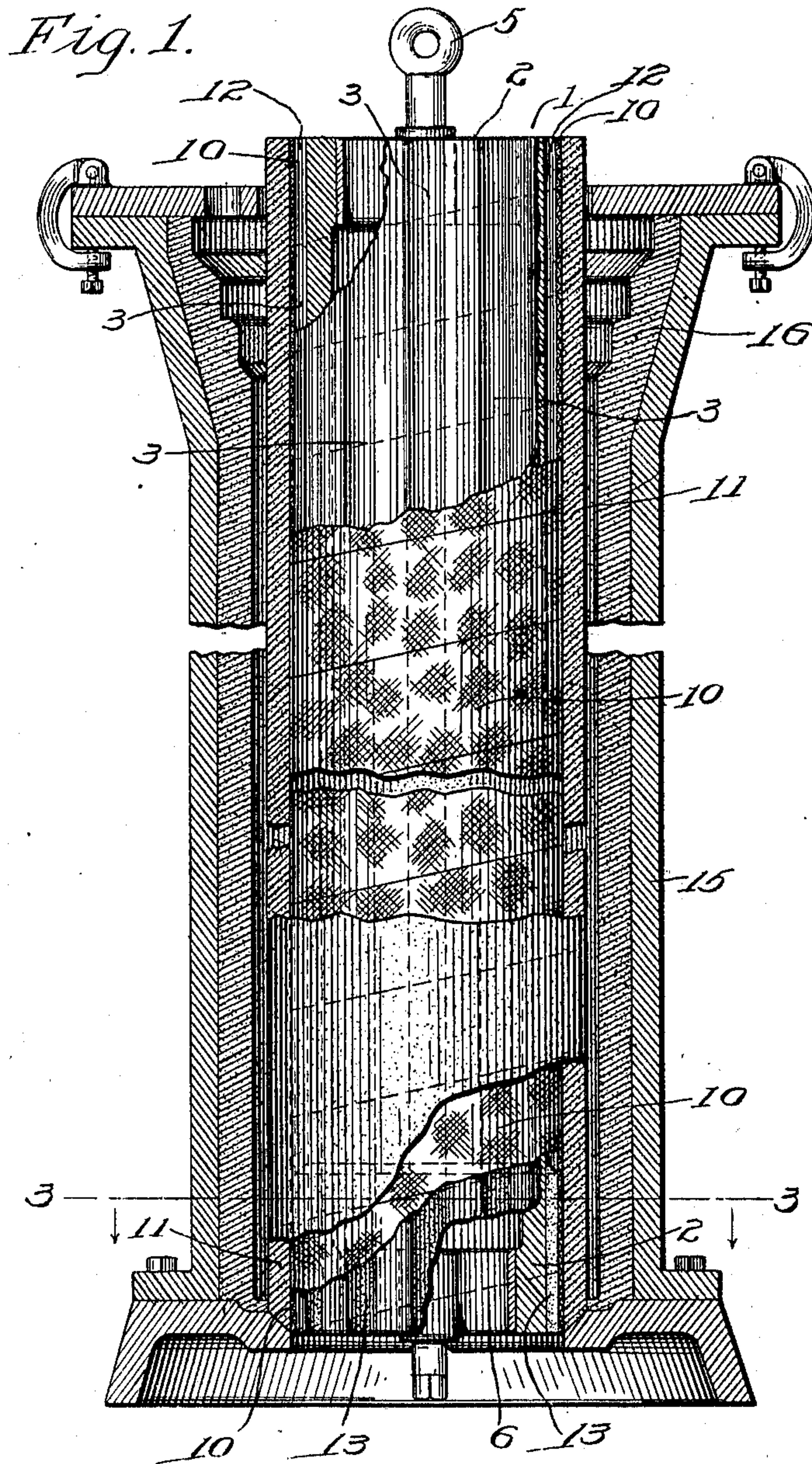


J. K. DIMMICK.
CORE FOR HOLLOW CASTINGS.
APPLICATION FILED JUNE 9, 1909.

993,156.

Patented May 23, 1911.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 2.

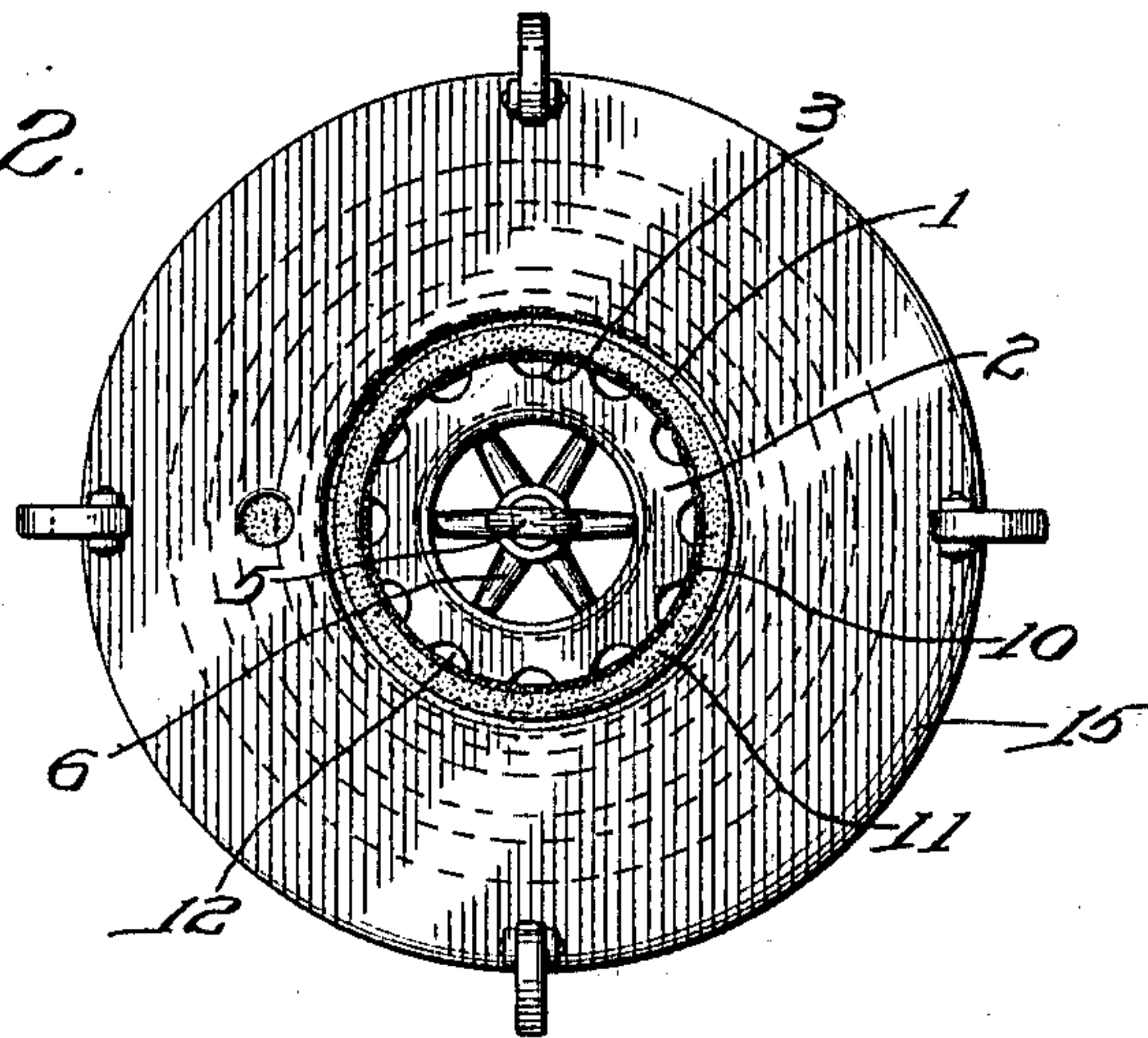
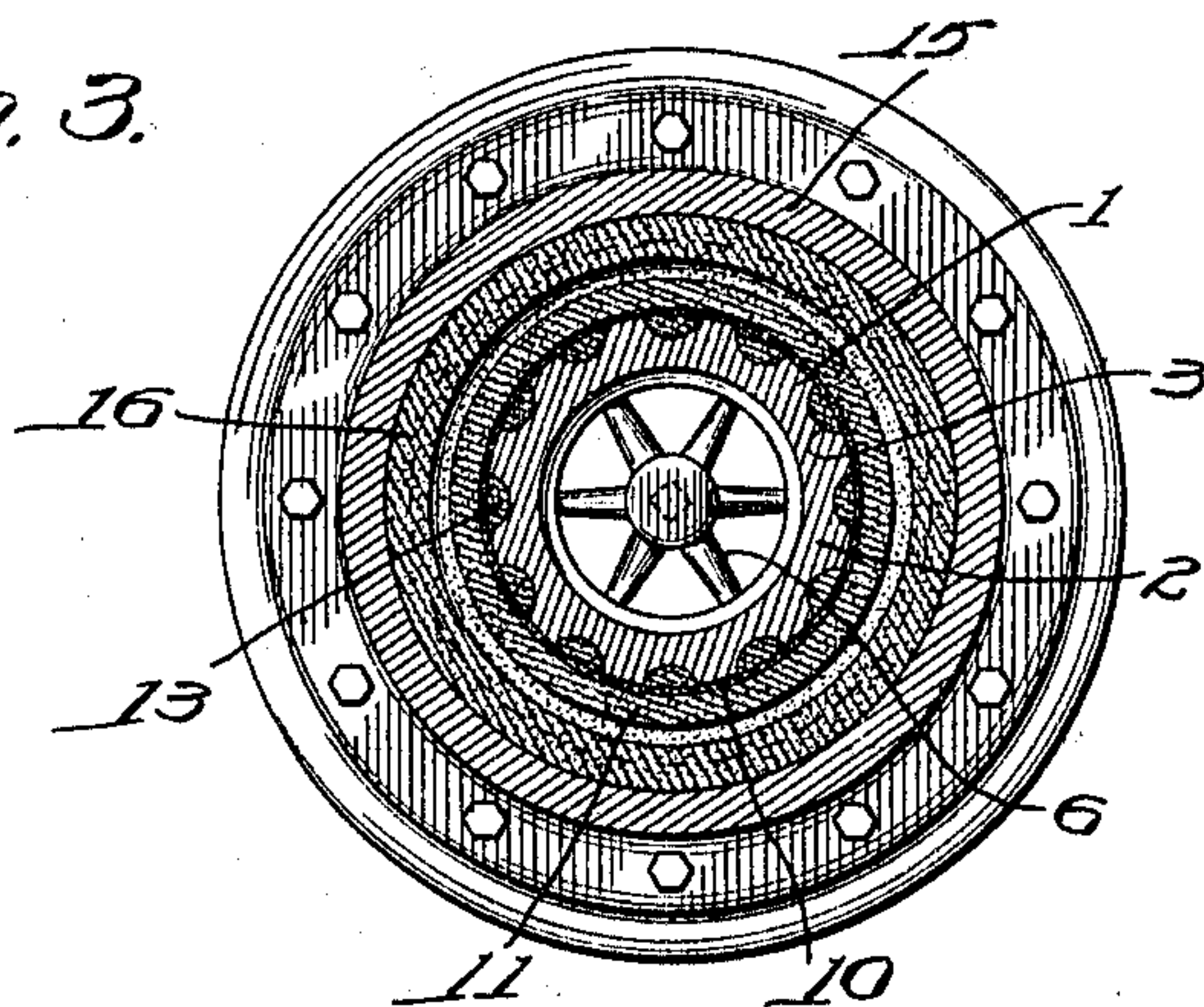


Fig. 3.



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CORE FOR HOLLOW CASTINGS.

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Specification of Letters Patent.

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Application filed June 9, 1909. Serial No. 501,131.

To all whom it may concern:

Be it known that I, JACOB K. DIMMICK, a citizen of the United States, and a resident of the city of Philadelphia, State of Pennsylvania, have invented certain new and useful Improvements in Cores for Hollow Castings, of which the following is a full, clear, and exact disclosure, reference being made to the accompanying drawings, forming a part of this specification.

The main objects of this invention are, to provide a simple core that may be quickly and cheaply constructed and that will be serviceable, effective and economical in use; to provide an improved core comprising a core bar and a foundation of combustible core material surrounding the bar, and from which the bar may be readily removed after the casting has set, and in which the combustible material will be protected from the action of the atmosphere, and consequently from burning, until the bar is removed; to provide an improved core for use in casting hollow articles such as pipe, and in which suitable passages are provided for the emission of gases, steam, etc., formed during the casting operation; and to provide other improvements as will appear hereinafter.

In the accompanying drawings, Figure 1 is a fragmentary vertical central section of a core constructed in accordance with this invention, and in an operative position in a flask; Fig. 2 a top plan view of the same; and Fig. 3 a transverse section on line 3—3 of Fig. 1.

Referring to the drawings, one embodiment of this invention comprises a core 1, the inner portion of which is formed by a core bar 2, which is preferably slightly tapered from its upper end downwardly to permit the easy withdrawal of the bar after the casting is made. For conducting away the gases, steam, etc., that form during the casting operation, this core bar is provided externally with longitudinal grooves or flutes 3 which may extend the full length of the bar and open at each end of the bar, as shown in Fig. 1. The core bar 2 may be made of metal or any suitable material, and may be hollow or tubular in form, and for convenience of manipulation may be provided at its upper end with an eye bolt 5 connected to the core bar by a spider 6 or any other suitable means.

The core bar 2 is covered first with a single layer 10 of combustible material,

preferably burlap, shoddy, or other combustible fabric or material, which may be in the form of a strip wound spirally around the bar, the edge of each convolution of the strip being in abutment with the edge of the adjacent convolution. This layer of burlap or other combustible material is then covered with one coat 11 of loam or other suitable non-combustible core material, applied in a plastic state, forming the outer surface of the core. The core is then placed in an oven and dried and is then ready for use. In thus covering the core bar, the grooves or flutes are preferably left open at the upper end of the bar as at 12, but are preferably temporarily closed at the base or lower end of the bar by means of the loam or other material by which the bar is covered, usually for a distance of about two or three inches, as indicated at 13, to prevent the free circulation of air through the grooves during the casting operation.

In operation, the core thus constructed is arranged as usual in a flask 15 containing a mold 16, and the molten metal or material is poured between the core and the mold. While the metal is cooling, gases, steam, vapors, etc., are generated but are permitted to escape through the porous covering of the core bar and into the grooves of the bar and to be conducted through the upper open ends of the grooves into the atmosphere outside of the flask, thus preventing explosions, and obviating blow holes and other defects in the casting.

It has been found that by thus using burlap, shoddy or other combustible material in forming the core and by preventing the free circulation of air through the longitudinal grooves of the core bar, that the combustible material will not burn during the casting process, until the core bar is removed, although the combustible material will be slightly charred by the heat of the molten metal. The core thus retains its original shape until the metal has cooled sufficiently to set.

After the metal has set the core bar may be removed, and this is facilitated by the charring of the combustible material that has occurred while the metal was cooling.

Although only one form has been illustrated in which this invention may be embodied, it is obvious that the invention is not limited to the particular construction shown. The core bar may be made solid

instead of hollow, if preferred, and in any shape desired to adapt it to any one of a great variety of cores. It is also obvious that the grooves in the outer surface of the core bar may be of any shape or form that will effect the purpose for which they are intended, or may be omitted entirely, and that various other changes might be made in the construction shown without departing from the spirit of this invention or the scope of the appended claims.

Having thus fully described my invention, I claim and desire to protect, by Letters Patent of the United States:

1. The combination with a core bar, having a groove in the surface thereof, of combustible material surrounding said bar, said groove being in communication with the circumambient atmosphere, and a portion of said groove being closed to prevent the free circulation of air therethrough.

2. The combination with a hollow core bar, having a groove in the surface thereof, of combustible material surrounding said bar, said groove being in communication with the circumambient atmosphere, a portion of said groove being closed to prevent the free circulation of air therethrough.

3. The combination with a core bar, having a groove in the surface thereof, of combustible material surrounding said bar, said groove being in communication with the circumambient atmosphere, a portion of said groove being closed to prevent the free circulation of air therethrough, and non-combustible material surrounding said combustible material.

4. The combination with a core bar having a groove in the surface thereof, of combustible material surrounding and in contact with said bar, said groove forming a duct leading between the bar and the combustible material and communicating with the circumambient atmosphere, and a portion of said duct being closed by the material surrounding the bar to prevent the free circulation of air from said duct.

5. The combination with a core bar hav-

ing a groove in the surface thereof, of combustible material surrounding and in contact with said bar, and a layer of non-combustible material surrounding said combustible material, said groove forming a duct between said bar and said combustible material and communicating with the circumambient atmosphere, a portion of said groove being closed to prevent the free circulation of air therethrough.

6. The combination with a core bar having a plurality of longitudinal grooves, of combustible material surrounding said bar, said grooves being in communication with the circumambient atmosphere, and each of said grooves being closed adjacent one end, to prevent the free circulation of air there-

7. The combination with a core bar having a plurality of longitudinal grooves, of a single layer of combustible material surrounding said bar, said grooves being in communication with the circumambient atmosphere, and each of said grooves being closed adjacent one end, to prevent a free circulation of air therethrough.

8. The combination with a core bar having a plurality of longitudinal grooves, of a single layer of combustible material surrounding said bar, and a single layer of non-combustible material surrounding said combustible material, said grooves being in communication with the circumambient atmosphere, and each of said grooves being closed adjacent one end, to prevent a free circulation of air therethrough.

9. A core comprising a core bar having a groove upon its outer surface, and a coating of burlap inclosing said outer surface and said groove, said groove forming a vent for said core.

In witness whereof, I have hereunto set my hand this 7th day of June, A. D. 1909.

JACOB K. DIMMICK.

Witnesses:

ROBERT H. CRAWFORD,
L. A. CLONGHLEY.