

J. W. LATCHER.
CASTING APPARATUS.
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950,637.

Patented Mar. 1, 1910.

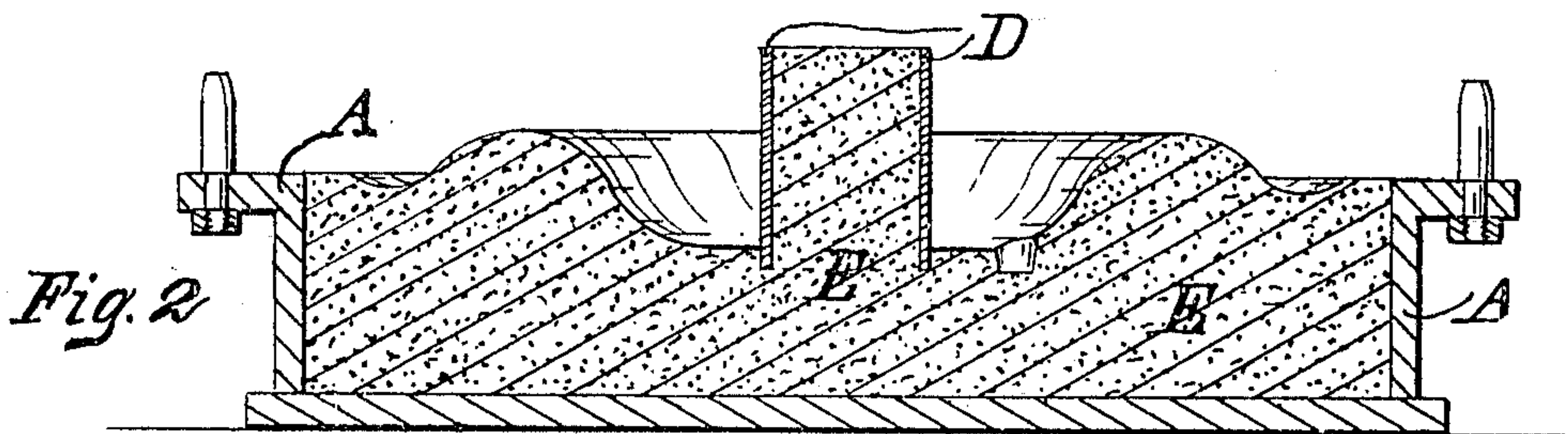
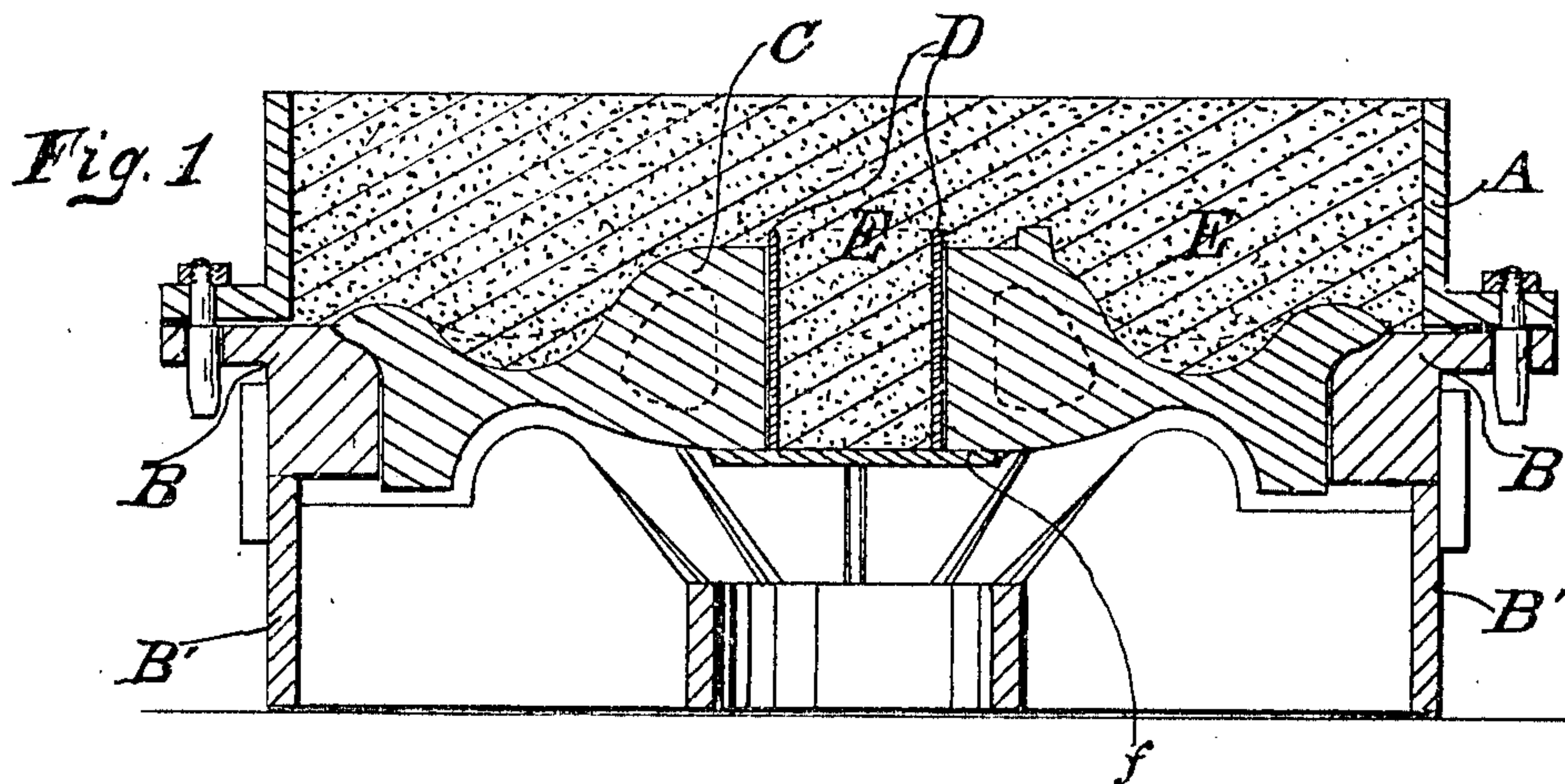


Fig. 4

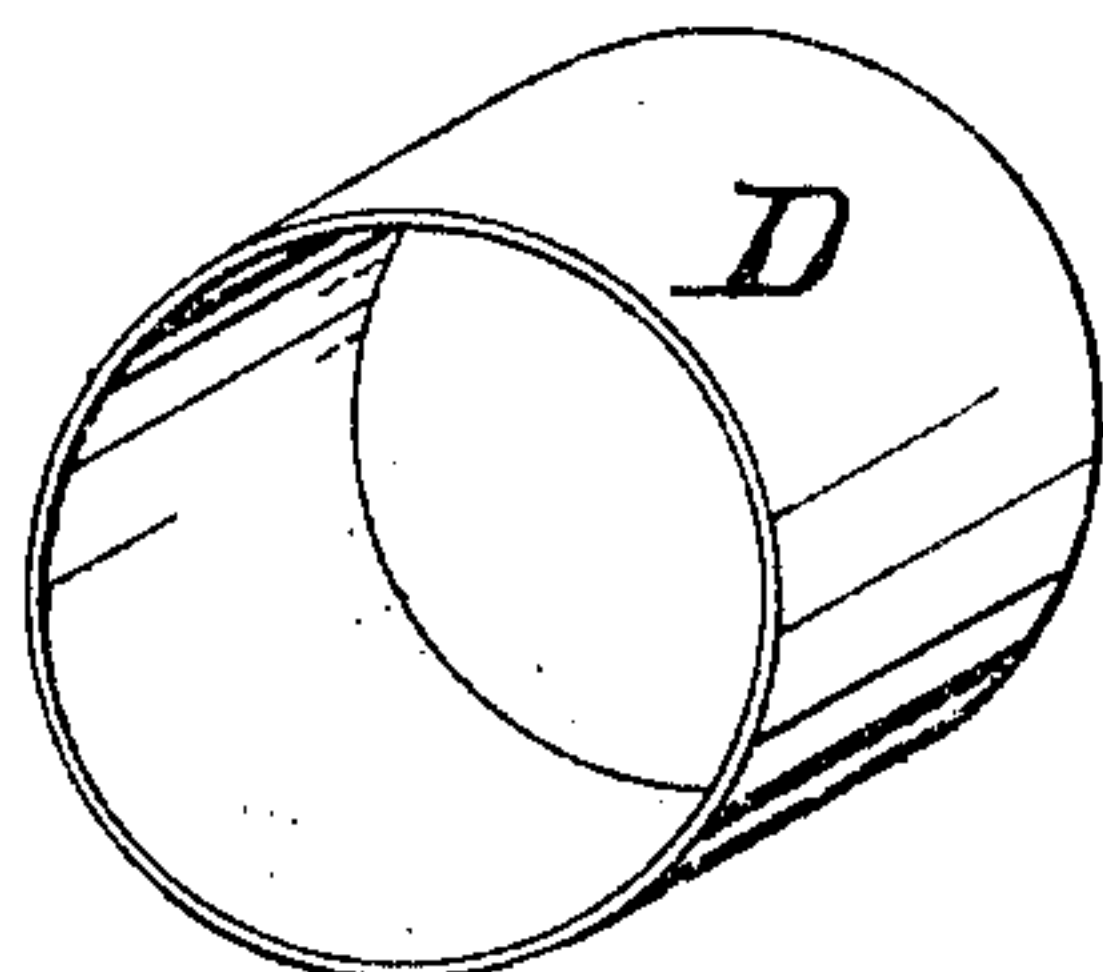
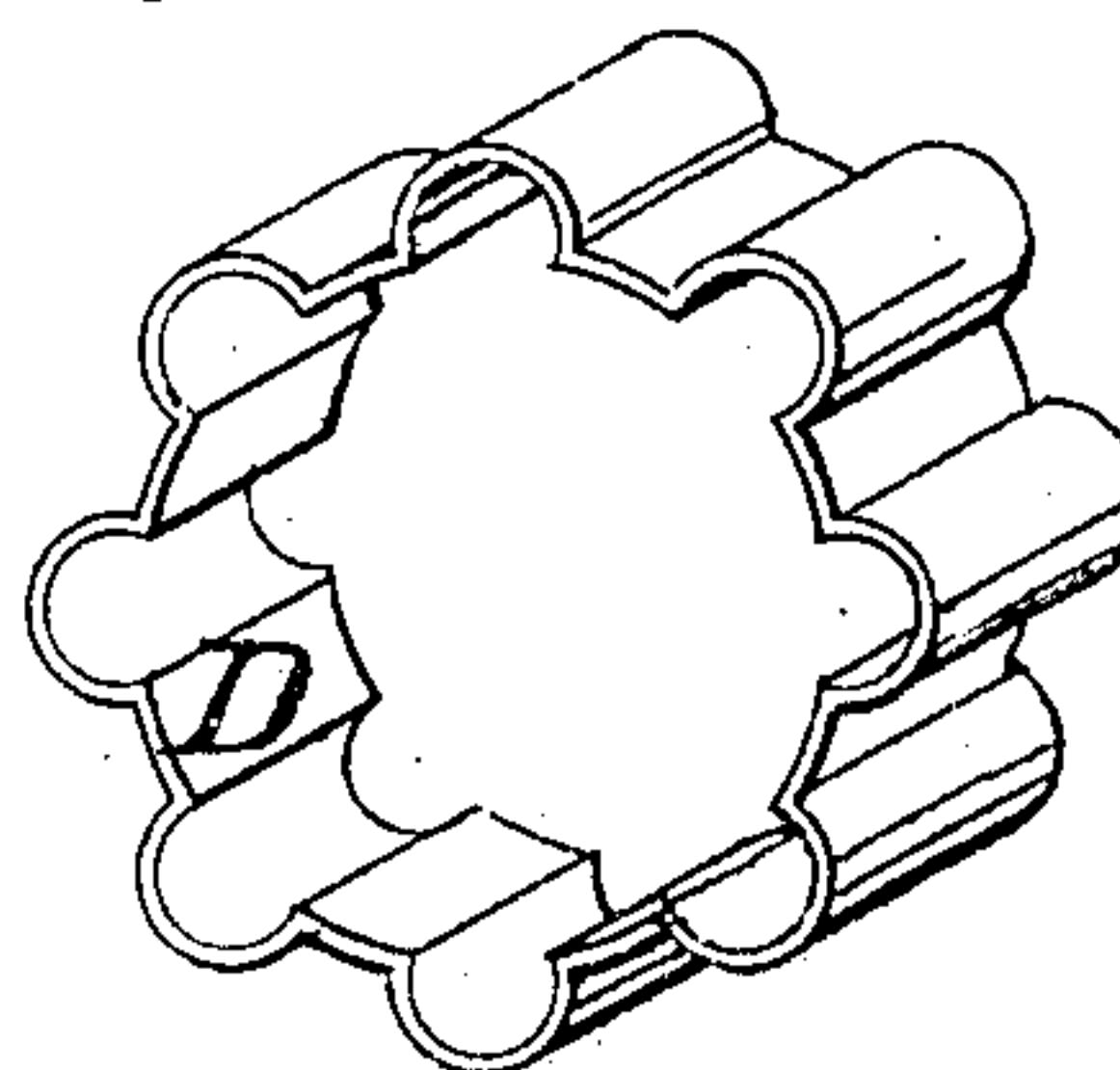


Fig. 6



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CASTING APPARATUS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN WALTHART LATCHER, citizen of the United States, residing at Edinburg, in the county of Saratoga and State of New York, have invented certain new and useful Improvements in Casting Apparatus, of which the following is a specification.

My invention relates to improvements in casting apparatus.

In my patent granted October 22nd, 1907, No. 868,875, I contemplated incasing the usual core compound or composition in a metal case or jacket and afterward baking the core so made, and then setting the core in the mold the same as though it were not incased.

In this case, the main object is the provision of an apparatus, which will enable the hole to be cast in the desired size, or rather slightly smaller, and shape; and produce when the casting is solidified, a hole in the wheel or other object, said hole not being chilled or hardened, whereby said hole is trued or bored to fit upon the desired article, as for instance a car axle. In effecting this, I employ a thin sheet metal tube or core print or jacket, of the desired shape of the hole to be formed, and such tube is left in the sand after the casting has solidified, and is removed without chilling or hardening the metal of the casting surrounding the tube.

The ordinary type of molder's flask is used without modification, in connection with my invention, as will be understood by the drawings.

Figure 1 is a vertical central sectional view of an ordinary car-wheel flask, showing both nowel, tread chill and cope, with pattern, and sheet-metal tube to form the core with the molding material. Fig. 2 is a vertical central sectional view of the nowel on its bed on the molding floor, showing molded face of a car wheel and central core tube with pattern, chill and cope removed. Fig. 3 is an edge view of a metal plate showing end locks to form a band or jacket for a plain cylindrical core, as shown in Fig. 4. Fig. 4 is a perspective view of the cylindrical tube or casing. Fig. 5 is a similar view to Fig. 3 of a modified form of tube or casing, and Fig. 6 is a perspective view of such modified form of tube or casing.

Referring to the drawings:—A designates in section the nowel of a car wheel flask, B,

the tread chill, and B' the cope frame connected to B, as in the ordinary forms of car-wheel flask. C designates, also in section, a car-wheel pattern, differing from the ordinary type, in that it has a hole through or nearly so in the center to receive the core tube, casing or jacket D, the form shown in Figs. 1, 2, 3 and 4, being a cylindrical tube open at both ends, while in Figs. 5 and 6, it is provided with a series of flutings.

E designates, in section, the molding material packed into the tube D and onto the pattern C. Fig. 1, the core and wheel face material being one solid or undivided mass. The thin metal plate *f* is secured to the hub of the pattern C and closes the tube or jacket and supports the same while the molding material is being rammed or charged by pressure of the molding material in the flask.

In Fig. 2, the nowel A is ready for a ring core, and the closing of the cope B and B', as is the usual foundry practice.

In the present instance, it is evident that I dispense with the use of the ordinary core compound, the subsequent baking of the cores so incased, the operation of setting the same in the mold or flask, substituting in lieu thereof, the new method described, which is as follows:—First, I form a hole or receptacle in the pattern C, in form and slightly larger than the opening is to be in the casting; second, I make a thin sheet metal tube or casing D, open at both ends, to loosely fit in the opening of the pattern C and somewhat longer than the depth of the orifice or opening in said pattern, in order to make a firm hold in the mold so that the tube will not become displaced in the operation of pouring the metal; third, these tubes are smeared, coated or dipped with coal tar, japan, oil or any resinous or siccative substance, of a carbonaceous material and are finally dusted with powdered coke, talc or a non-gritty powder, and are lastly subjected to sufficient heat to expel or dissipate the most volatile part of the coating; fourth and last, the pattern C is placed in the nowel A, of the flask, as in the ordinary manner of molding, then the tube D, is placed in the hole or orifice of the pattern C, the molding material being now placed in the nowel and in the tube D, and rammed. The tube is somewhat longer than the depth of the pattern C, so that when the nowel is turned over on its bed, the extra length of the tube will act as a firm seat for

the incased core and also forms its own core print in and with the molding material.

It will be understood that heretofore, car wheels and other patterns were solid and
5 provided with bosses or projections to serve as core prints, where it was desired there should be holes in the castings.

My method and apparatus, dispense with the ordinary solid pattern, by providing
10 holes or receptacles therein to receive a loosely-fitting sheet metal core tube, jacket or casing of any size or form for the hole in the casting, and of molding cores and faces of pattern at one and the same time,
15 without resorting to the making of core patterns, of baking the same and afterward setting the core in the mold, as is the present practice.

The core tube, casing or jacket D, may be
20 coated as already alluded to, and more especially when it is desired to re-use them, as they will come away from the casting without vitrifying the core sand or molding material, and without chilling or harden-
25 ing the metal surrounding the tube, casing or jacket.

By my method of molding, where holes are to be made in castings much time or labor and expense are saved over the present
30 methods or operations in general use.

This invention, as is evident, is applicable to various forms of castings, not to car wheels alone.

What I claim, as new, is:—

35 1. In a casting apparatus, the combination with a nowel, and a cope frame, of a thin metal tube open at both ends adapted to have one end project upon one side of the pattern, when the pattern is resting
40 within the nowel and form a core print, said tube remaining in the sand in the nowel after the withdrawal of the pattern.

2. In a casting apparatus, the combination with a nowel, a cope frame, and a tread

chill, of a thin metal tube open at both ends 45 adapted to have one end project upon one side of the pattern, when the pattern is resting within the nowel and form a core print, said tube remaining in the sand in the nowel after the withdrawal of the pattern. 50

3. In a casting apparatus, the combination with a nowel, and a cope frame, of a thin metal tube open at both ends and adapted to have one end project upon one side of the pattern when the pattern is resting within 55 the nowel and form a core print, and a metal plate carried by the pattern to form a closure for the tube, whereby the pattern and plate are withdrawn from the sand and the tube remains. 60

4. In a casting apparatus, the combination with a nowel, a cope frame, and a tread chill, of a thin metal tube open at both ends and adapted to have one end project upon one side of the pattern when the 65 pattern is resting within the nowel and form a core print, and a metal plate carried by the pattern to form a closure for the tube, whereby the pattern and plate are withdrawn from the sand and the tube re- 70 mains.

5. In a casting apparatus, the combination with a nowel, and a cope frame, of a thin metal tube open at both ends and adapted to loosely fit within the core open- 75 ing of a pattern and of greater length than the width or depth of the pattern at this point, whereby as the pattern rests within the nowel the tube forms a core print, said tube remaining in the sand in the nowel 80 after the withdrawal of the pattern.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN WALTHART LATCHER.

Witnesses:

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