

W. D. BERRY.  
SAND MOLD AND FLASK THEREFOR.  
APPLICATION FILED JUNE 12, 1907.

906,501.

Patented Dec. 15, 1908.

FIG. 1

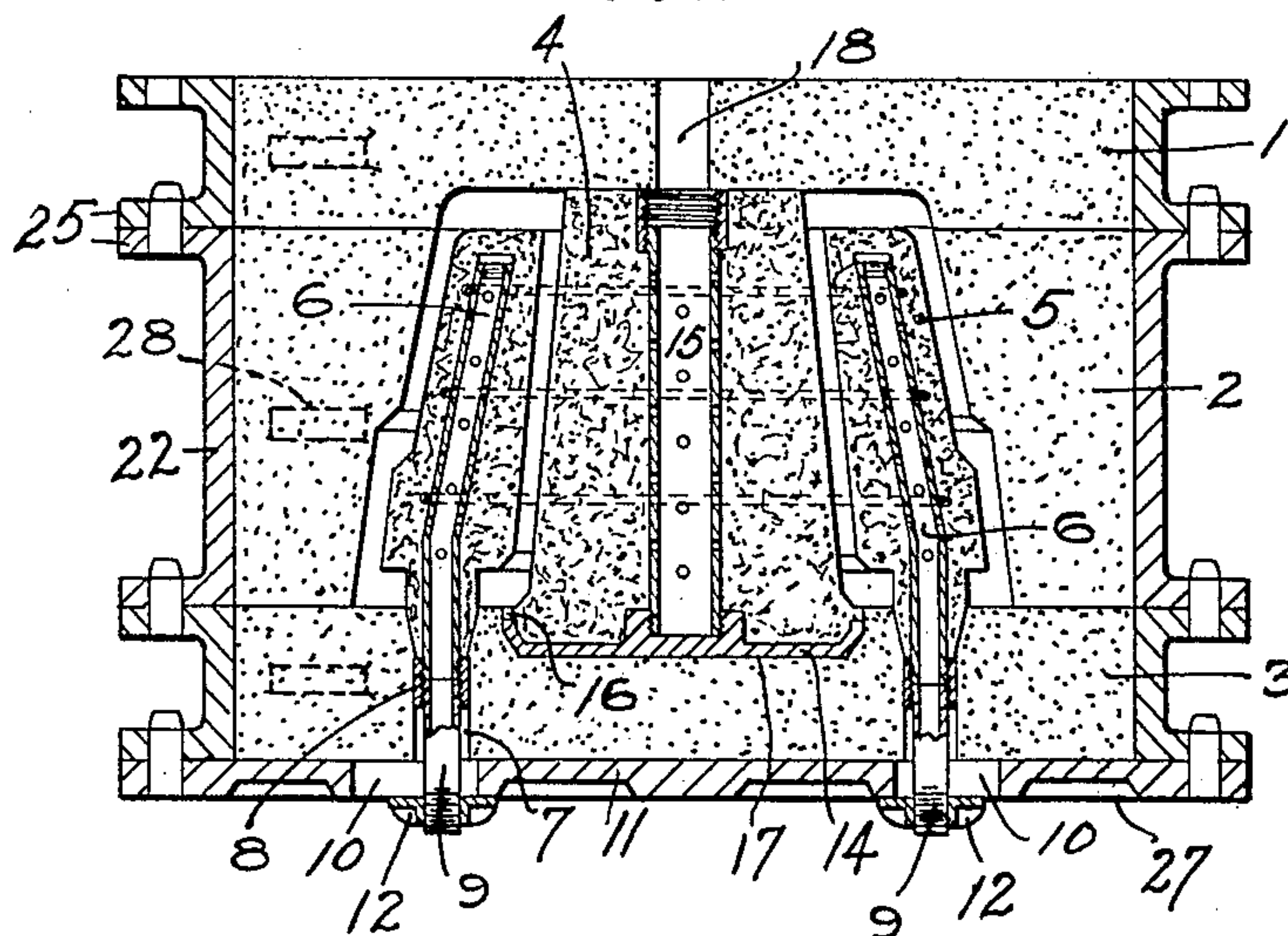


FIG. 2

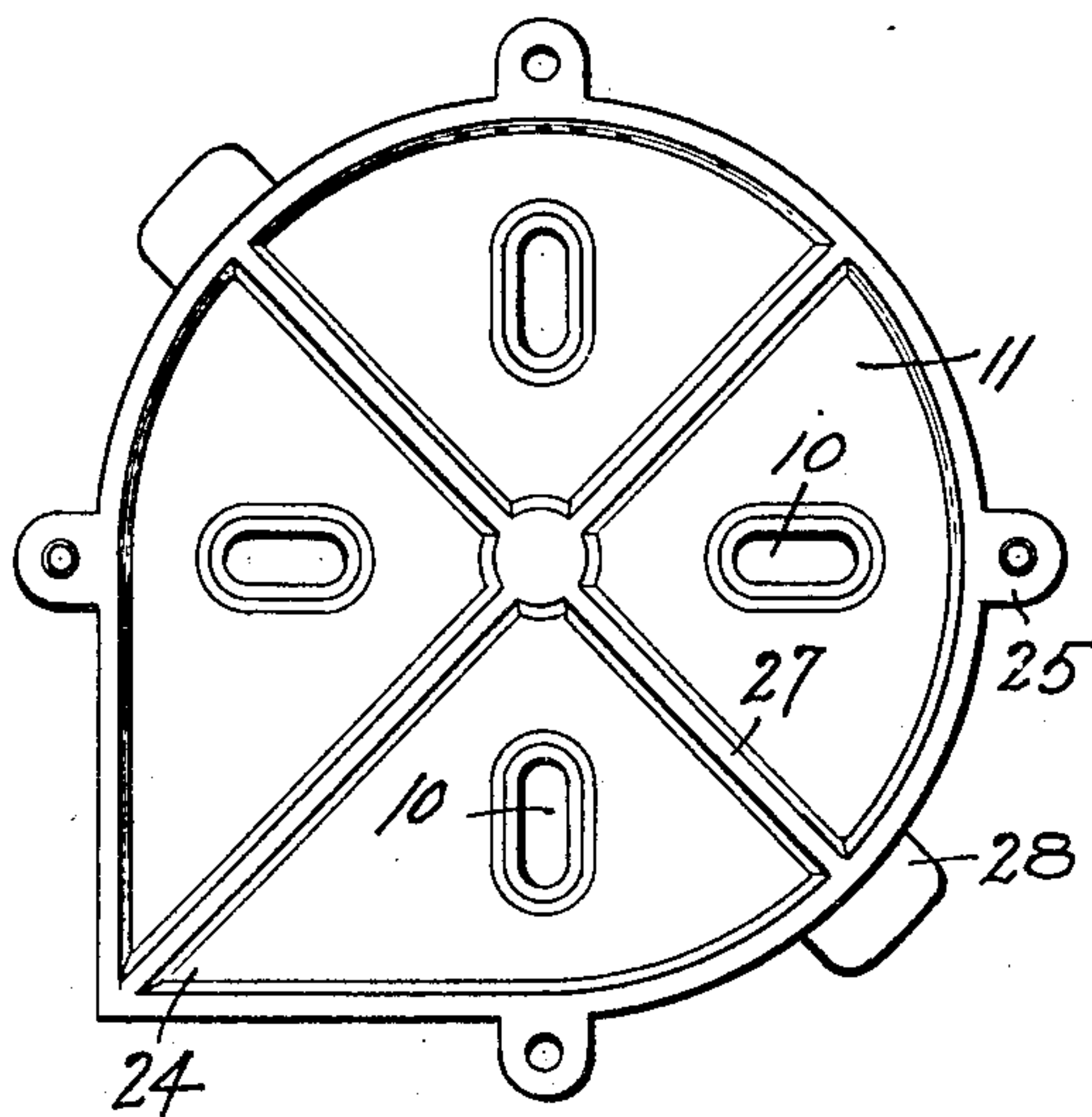
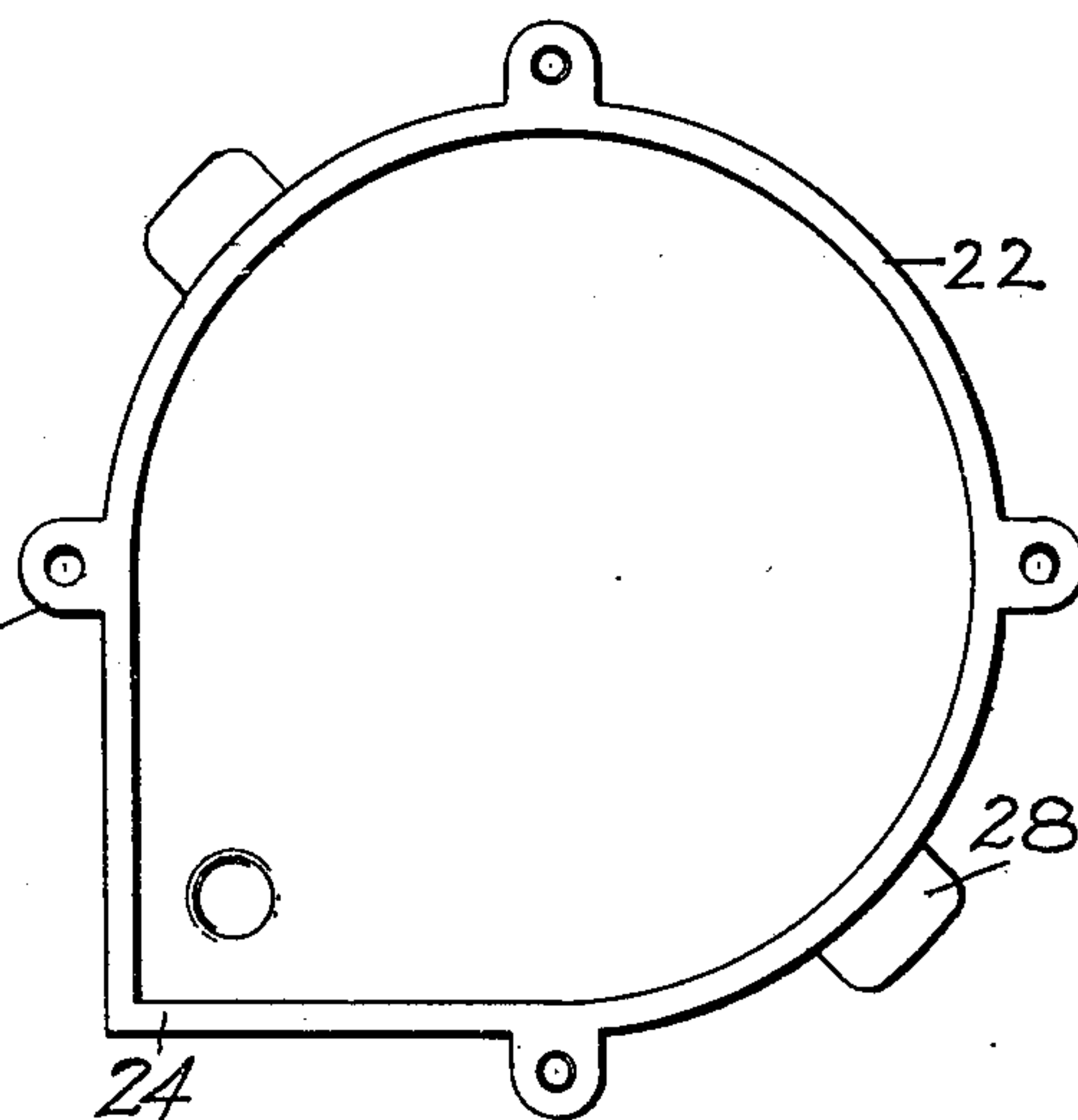


FIG. 3



WITNESSES.

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# UNITED STATES PATENT OFFICE

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## SAND MOLD AND FLASK THEREFOR.

No. 906,501.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed June 12, 1907. Serial No. 378,635.

*To all whom it may concern:*

Be it known that I, WILLIAM D. BERRY, a resident of New Brighton, in the county of Beaver and State of Pennsylvania, have invented a new and useful Improvement in Sand Molds and Flasks Therefor; and I do hereby declare the following to be a full, clear, and exact description thereof.

This invention relates to a sand mold and flask and more especially one adapted for making water cooled twyers or other tubular articles having hollow or cored walls.

The object of the invention is to provide a device of the character described which can be made and assembled by unskilled labor and with the assurance that it will be properly formed and assembled.

The invention comprises the combination and arrangement of parts hereinafter described and claimed.

In the accompanying drawings Figure 1 is a vertical section through my improved flask, core and mold; Fig. 2 is a plan view of the flask bottom plate, and Fig. 3 is a similar view of one of the flasks.

The mold shown comprises three mold parts and two cores, namely, cope 1, intermediate or cheek portion 2, drag 3, center core 4 and shell core 5. The shell core is centered by means of four upright tubes 6 which are preferably perforated to vent the gases formed in casting and which also serve as anchors for holding the shell core from rising when the metal is being cast. These tubes pass down into openings 7 formed in the drag 3 and are provided at their lower ends with sockets 8 for receiving nipples 9 which extend down through holes 10 in bottom flask plate 11 and there receive the winged nuts 12 for securing the anchors and holding the shell core against rising. The center core 4 is formed on a core pan 14 and has a central perforated vent tube 15 extending up to the top of said core. The bottom outer circumference of this core has a ledge portion 16 covering the top edge of the core pan and said core seats down in a depression or core print 17 in the drag so that the ledge portion 16 protects the core pan from the hot metal. The cope 1 is provided with a central vent opening 18 registering with the vent pipe 15 of the center core. The line of division or parting between the cope and cheek portion it will be observed is approximately level

with the top of the shell core 5. This enables the workman to have a clear view down into the mold parts when assembling the same. The center core 4 is sufficiently high to bear against the cope and is held down by the latter so that it needs no anchoring. The shell core itself is anchored by means of its vent pipes 6 and the nipples and winged nuts instead of by the old cumbersome method of wires as heretofore.

The flask proper comprises the bottom flask plate 11 and flask sections 22. These flask sections are of the same size but may be of different heights and they, as well as the bottom flask plate, are of peculiar shape, being three-quarter circular, having one corner or angle portion 24 which insures the proper assembling of the parts and forms an easy means for locating the gate which opens into the bottom of the mold cavity. As a further guide for assembling the parts, the bottom flask plate and flask sections are each provided with ears 25, some of which are provided with holes while the others are provided with studs, the flask sections each having ears at top and bottom. The holes and studs of said ears are oppositely arranged, that is, one ear will have a stud while the opposite ear on the same member is provided with a hole so that it will be impossible to get the mold parts assembled wrong, since they cannot be assembled unless the corners 24 register and studs on one part register with holes on the other part. The bottom flask plate 24 is strengthened by ribs 27 and is provided with projecting rings 28 for lifting the same. The holes 10 for receiving the anchors of the shell core are elongated or in the form of slots arranged radially in order to accommodate the anchors of molds of different diameters.

The flask and mold parts described are so constructed that the parts can be readily assembled and firmly held in place while pouring and so as to avoid all possibility of danger in assembling in improper relations.

Modifications may be made without affecting the principle of the invention.

What I claim is:—

1. A mold comprising a flask, a plate on which said flask rests and closing the bottom thereof, said plate being provided with radial slots, mold sections resting on said plate and providing a circular cavity whose axis is nor-



mal to said plate, a core located in said mold cavity and provided with anchoring means extending through the radial slots in the bottom plate to the exterior thereof, and anchor  
5 securing means bearing against the outer face of said bottom plate.

2. A mold comprising a flask, a plate on which said flask rests and closing the bottom thereof, mold sections resting on said plate  
10 and providing a circular mold cavity whose axis is normal to said plate, a core located in said mold cavity and provided with anchors extending through holes in said bottom plate to the exterior thereof and being threaded at  
15 their outer ends, and threaded securing means bearing against the outer face of said bottom plate and engaging the ends of said anchors.

3. A mold comprising a bottom flask plate  
20 provided with holes therethrough, mold sections resting thereupon and including a core provided with perforated pipes, nipples secured to said pipes and extending down through the holes in the bottom flask plate,  
25 and nuts securing said nipples to the bottom plate.

4. A mold comprising cope, drag and intermediate or cheek portions and providing the mold cavity, a shell core seated in said  
30 cavity but not extending to the top thereof, the cope and intermediate cheek portion being divided in line with the top of said shell core, anchoring means for said shell core, and a central core seated in the drag portion and

extending up and contacting with the cope 35 portion.

5. A mold comprising cope, drag and intermediate portions providing the mold cavity, a center core in said cavity and provided with a central perforated vent pipe terminating at the upper end of said core, and a vent  
40 opening through the cope in line with said vent pipe.

6. A mold comprising cope, drag and intermediate portions providing the mold cavity, said drag being provided with a central depression or core print, and a center core provided with a metallic core pan and having a ledge covering the edge of said pan and seating down into the core print in the drag. 50

7. A mold comprising a cope, drag and intermediate portions providing the mold cavity, a center core in said cavity and extending from top to bottom thereof, a central perforated vent pipe in said center core, an  
55 opening through the cope in line with said pipe, a shell core in said cavity surrounding the center core, perforated pipes in said shell core and extending down through holes in the drag, and securing means for the lower  
60 ends of said perforated pipes.

In testimony whereof I, the said WILLIAM D. BERRY have hereunto set my hand.

WILLIAM D. BERRY.

Witnesses:

ROBERT C. TOTTEN,  
JOHN F. WILL.