

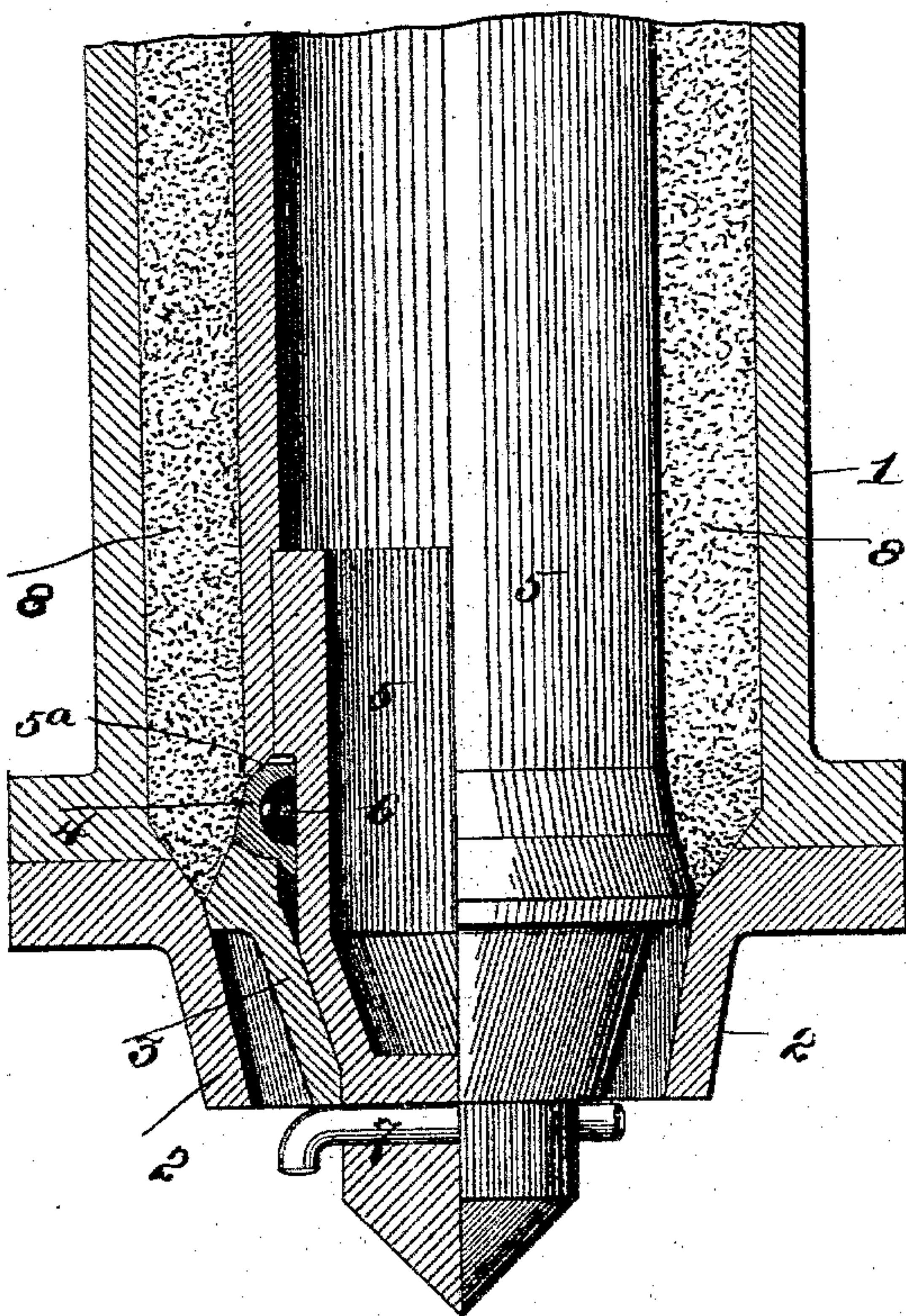
(No Model.)

P. McARTHUR.  
METHOD OF AND APPARATUS FOR CASTING BEADS ON SPIGOT ENDS  
OF IRON PIPES.

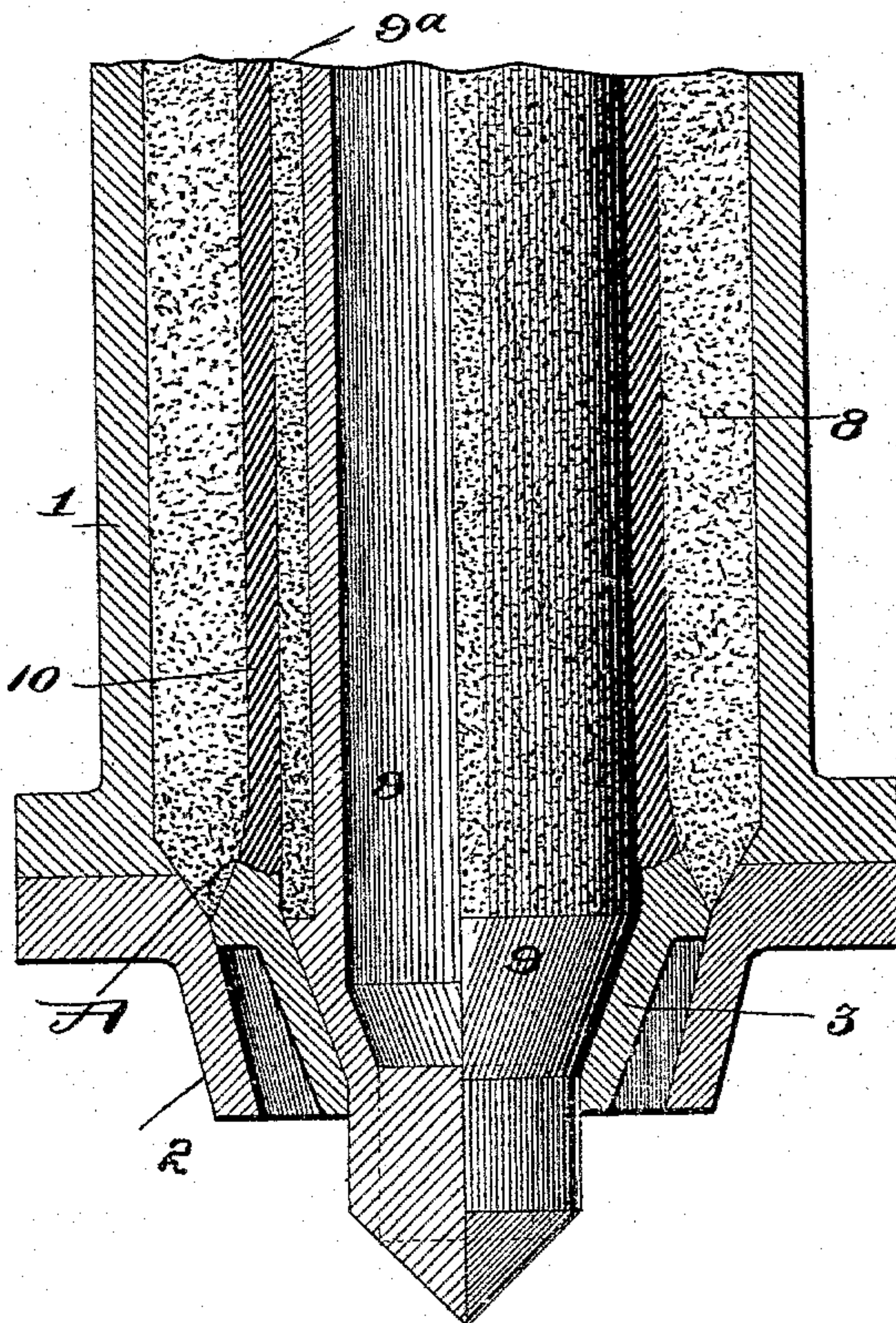
No. 511,247.

Patented Dec. 19, 1893.

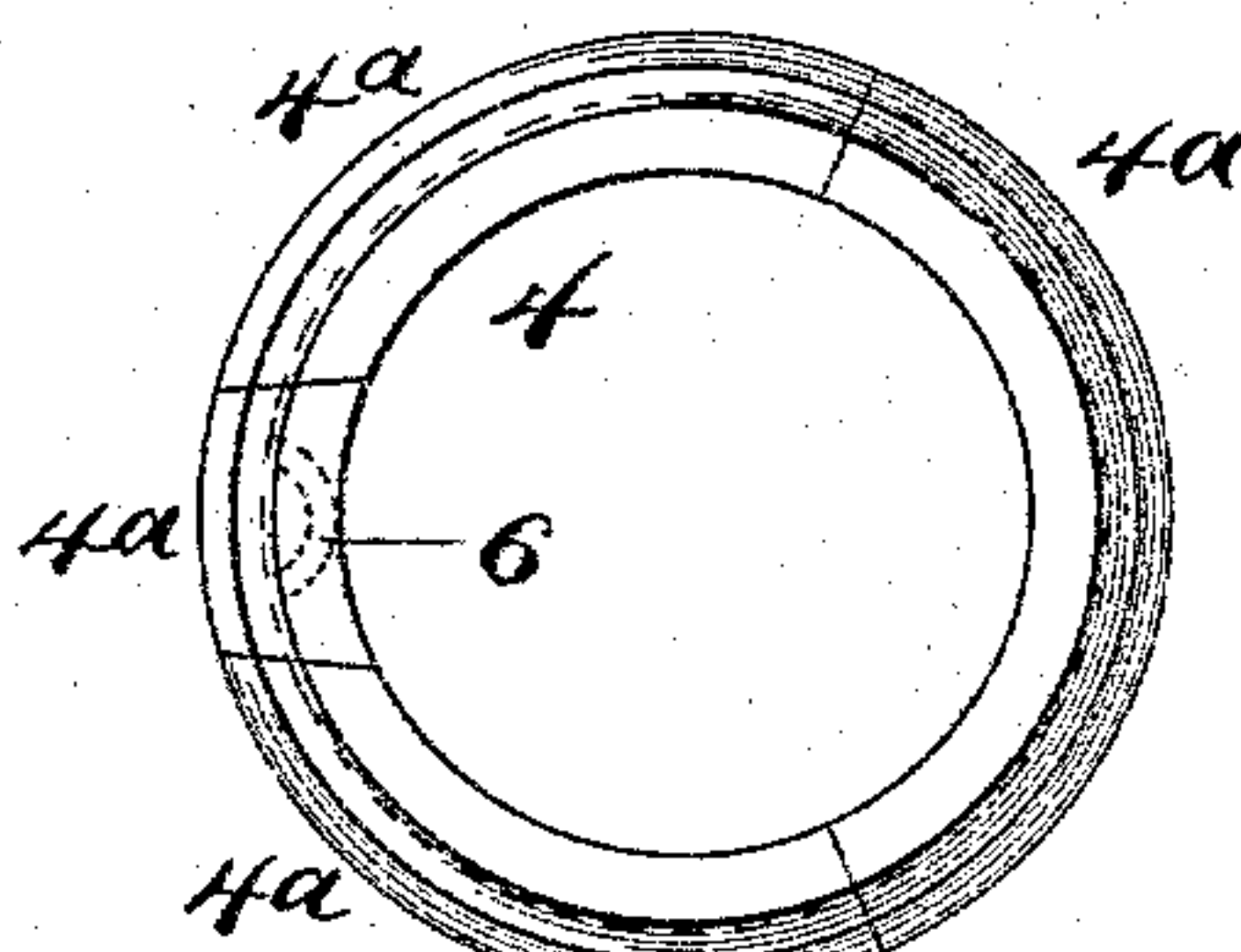
*Fig. I.*



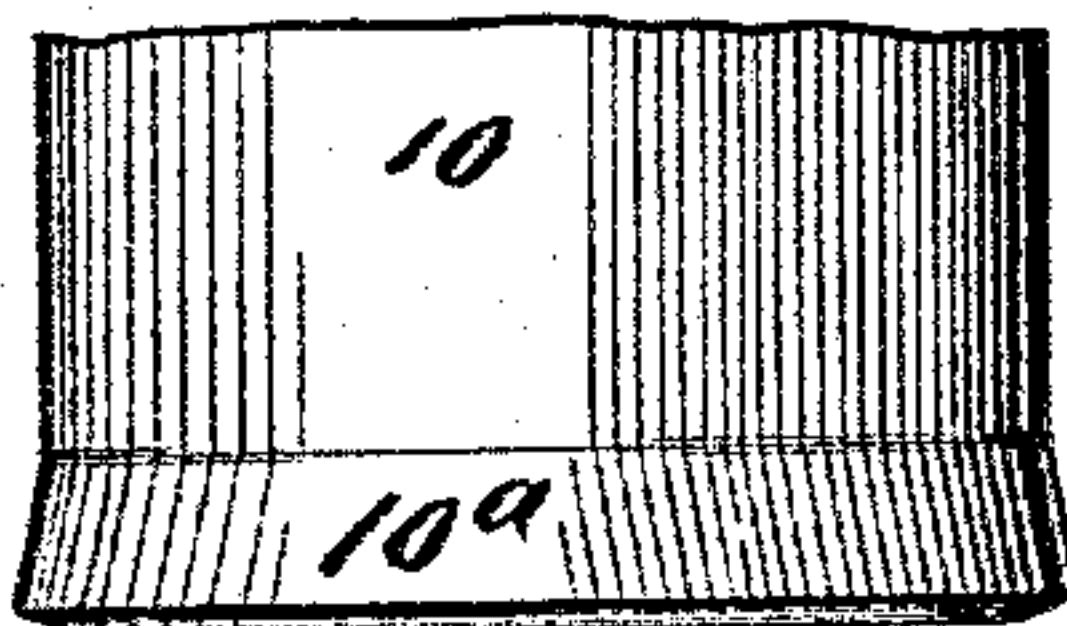
*Fig. II.*



*Fig. III.*



*Fig. IV.*



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# UNITED STATES PATENT OFFICE.

PETER MCARTHUR, OF BESSEMER, ALABAMA, ASSIGNOR TO DORA H. NICHOLS, OF SAME PLACE.

## METHOD OF AND APPARATUS FOR CASTING BEADS ON SPIGOT ENDS OF IRON PIPES.

SPECIFICATION forming part of Letters Patent No. 511,247, dated December 19, 1893.

Application filed November 3, 1892. Serial No. 450,893. (No model.)

*To all whom it may concern:*

Be it known that I, PETER MCARTHUR, of Bessemer, in the county of Jefferson and State of Alabama, have invented a certain new and useful Improvement in Methods of and Apparatus for Casting Beads on Spigot Ends of Iron Pipes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to an improved method of and an improved mechanism for forming beads on the small or spigot ends of vertically cast, iron pipes, such as water pipes, and the like, and my invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure I illustrates my invention, part in vertical section, and part in elevation, the pattern being in place. Fig. II is a similar view, showing the core in place and the pipe cast. Fig. III is a top view of the bead ring. Fig. IV is a detail view showing the spigot end of the pipe.

Referring to the drawings, 1 represents a flask, which has a permanently attached bottom 2.

3 represents a conical ring, which serves the purpose of, first, centering the sections of the bead ring 4, before it is slipped onto the pattern 5, (which is done before the pattern is dropped into the flask,) and, second, this conical ring centers the pattern in the bottom of the flask, which is made conical to receive it, as shown in Fig. I, and, third, this conical ring forms the lower end of the pipe with the portion of the bead up to the point marked A. The bead ring is made in sections 4<sup>a</sup>, as shown in Fig. III, one of the sections being preferably smaller than the others, and provided with a loop 6 which can be taken hold of to remove this section, when the other sections can be easily removed. By setting the bead ring in this conical ring, it is centered, and will remain in the position of a circle until the conical ring is slipped up on the bottom of the pattern, (which is done before the pattern is inserted into the flask,) and further centered by the pattern being turned with an inverted conical shoulder 5<sup>a</sup>, to receive the upper conical portion of the bead ring, thereby center-

ing the sections of the bead ring and locking them in position to a positive diameter to the body of the pattern by inserting a pin 7, through the pattern underneath the conical ring, which prevents it from dropping until it is lowered into the seat in the bottom of the flask, when the pin is removed, which enables the pattern to be withdrawn when the mold is completed, leaving the conical ring and bead ring behind it, when the bead ring can be easily removed by inserting the hand through the conical ring 3 from beneath. The conical ring then serves the additional purpose of centering the core 9, and, as before stated, forms the end of the casting 10. The core barrel is coated with a jacket of loam 9<sup>a</sup>, as usual, before being inserted. After the casting is made, and the core barrel removed, a chain is dropped through the pipe and conical ring, and secured to the ring which is hoisted up with the pipe, leaving the full size of the opening of the bottom unobstructed to permit sand to fall freely through.

The operation, which will explain my improved method, is as follows:—The flask, with its fixed bottom 2, being arranged in place, the bead ring 4 is placed on the conical ring 3, the ring being then slipped over the small end of the pattern, and the pin 7 is inserted, thus securing the conical ring and the bead ring firmly in place on the pattern. The pattern, with the conical ring, and the bead ring is then dropped into the flask until the conical ring comes against the bottom 2 of the flask, which centers the pattern, as shown in Fig. I. The molding material 8 is then inserted or applied in the usual way. The pin 7 is then removed and the pattern 5 withdrawn, leaving the conical ring 3 and bead ring 4 in place. The bead ring 4 is then removed, a section at a time, by inserting the hand from beneath through the open, conical ring. The core 9 (which has been prepared, as usual, with a coating 9<sup>a</sup>), is inserted, its conical lower end seating itself in the conical ring 3. The molten metal, forming the pipe 10 is now poured into the space between the mold and the core, the upper edge of the conical ring 3 forming, as stated, the bottom of the pipe with the bead up to the point marked A in Fig. II, and the remainder of the bead be-



ing formed by that portion of the mold 8 which was shaped or formed by the presence of the bead ring. When the metal forming the pipe has sufficiently cooled, the core 9 is removed by drawing it upwardly. A chain is then lowered through the space occupied by the core, and is attached or made fast by a cross-bar or otherwise, to the conical ring, and by an upward pull on the chain, the conical ring and pipe 10 are withdrawn together, the mold sifting or falling through the bottom of the flask.

This method and apparatus produces a well formed bead 10<sup>a</sup>, (see Fig. IV) on the pipe.

I claim as my invention--

1. The improved method of forming beads on iron pipes, which consists in first securing a conical ring and a sectional bead ring to the lower end of the pattern, then inserting the pattern into a flask, then forming a mold around the pattern, then withdrawing the pattern, then removing the bead-ring through the open, conical ring, then inserting a core, then pouring the molten metal into the space between the core and mold, whereby a bead is formed in part by said conical ring, and in part by the impression in the mold made by said bead ring, then withdrawing the core, and finally withdrawing the pipe and said conical ring together; substantially as set forth.

2. In a mechanism for casting iron pipe, the combination of a flask, having a bottom, a

pattern, a conical ring, independent of the flask bottom and a sectional bead ring seated on said conical ring, and against said pattern; substantially as set forth.

3. In a mechanism for casting iron pipe, the combination of a flask having a fixed bottom, a pattern having a bead-ring shoulder, a conical ring adapted to fit on said pattern, and a sectional bead ring adapted to fit between said conical ring and said seat on the pattern, substantially as and for the purpose set forth.

4. In a mechanism for casting iron pipes, the combination of a flask, a pattern, a conical ring adapted to fit over the end of the pattern, and adapted to form part of the bead on the pipe, and a sectional bead ring adapted to fit between said conical ring, and a shoulder on said pattern; substantially as and for the purpose set forth.

5. In a mechanism for casting iron pipe, the combination of a flask having a fixed bottom, a pattern having a seat 5<sup>a</sup>, a conical ring having a seat for a bead ring, which seat is adapted to form the lower end of the pipe, and a sectional bead-ring fitting upon said seat of said conical ring, and against the seat 5<sup>a</sup> on the pattern; substantially as and for the purpose set forth.

PETER McARTHUR.

In presence of—

F. B. NICHOLS,

JAS. CUMMINGS.