

(No Model.)

J. I. KINSEY.

APPARATUS FOR CASTING RETORT PIPES, &c.

No. 435,041.

Patented Aug. 26, 1890.

Fig. 1.

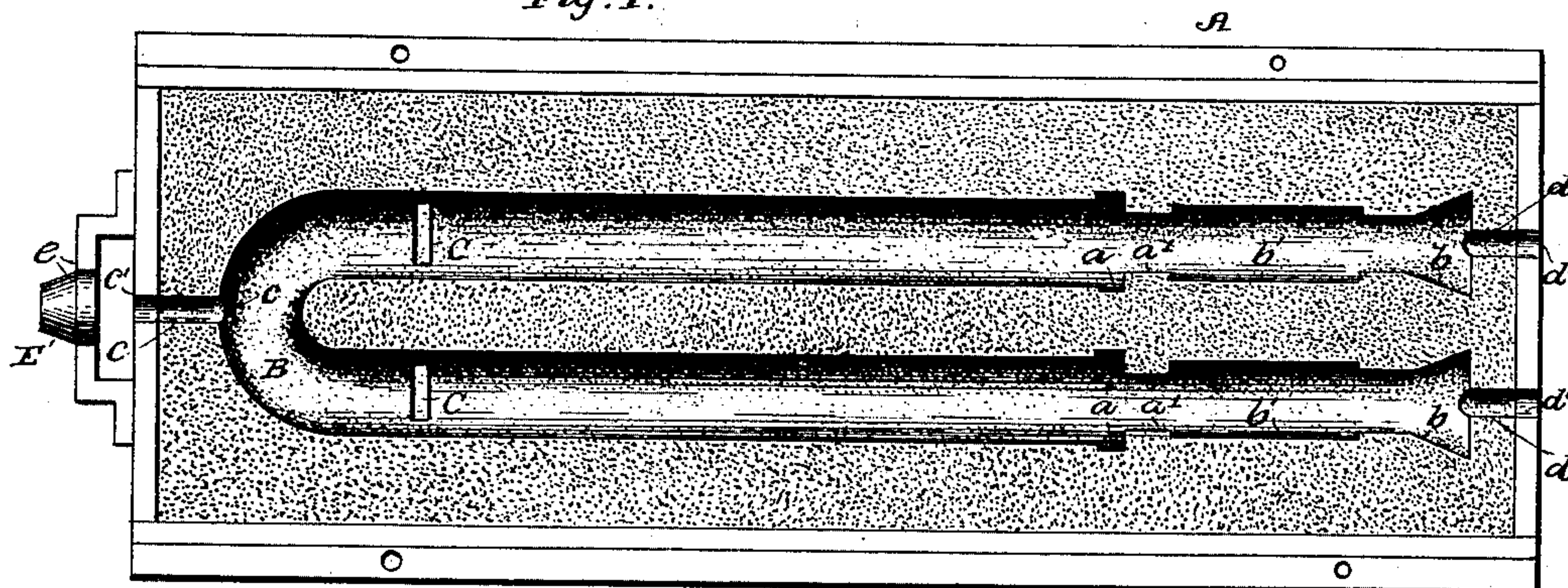


Fig. 2.

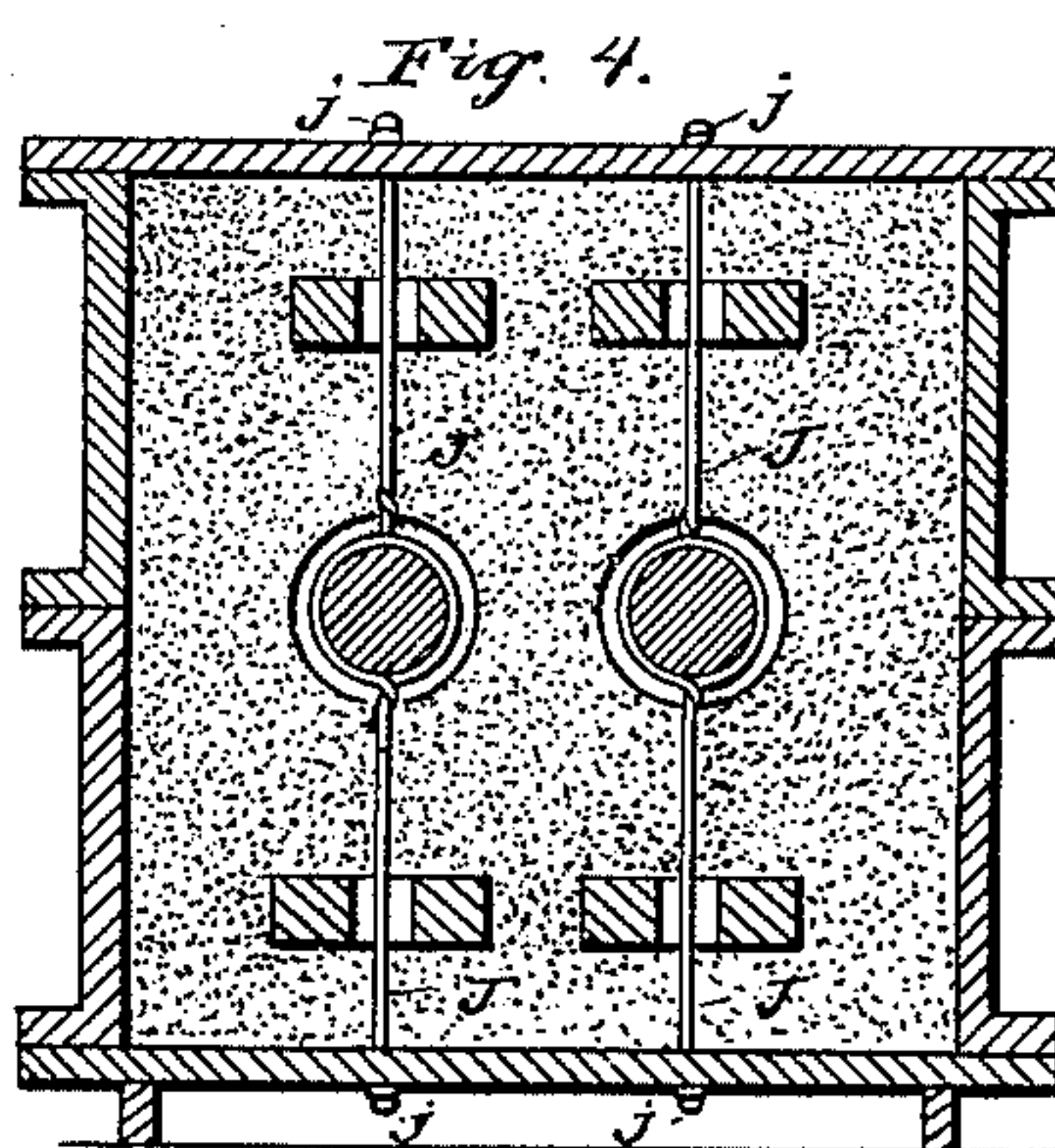
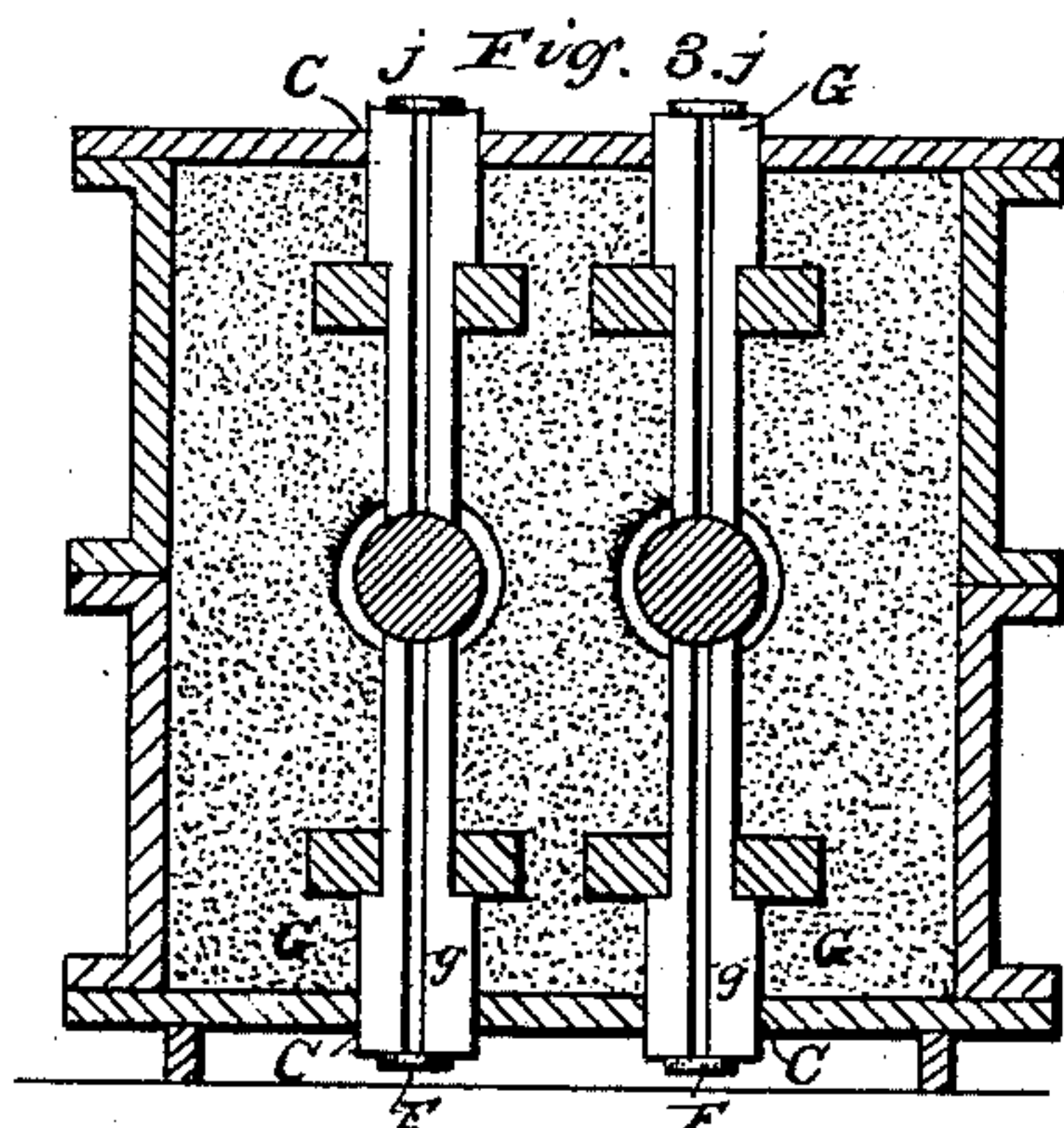
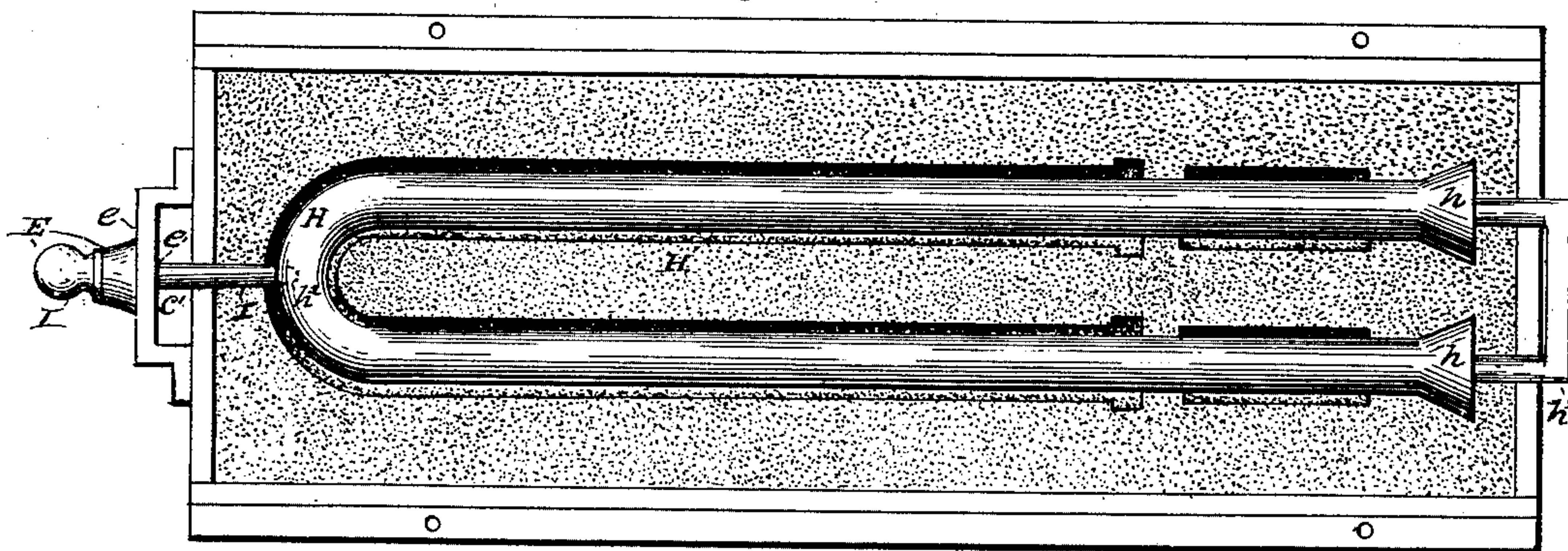
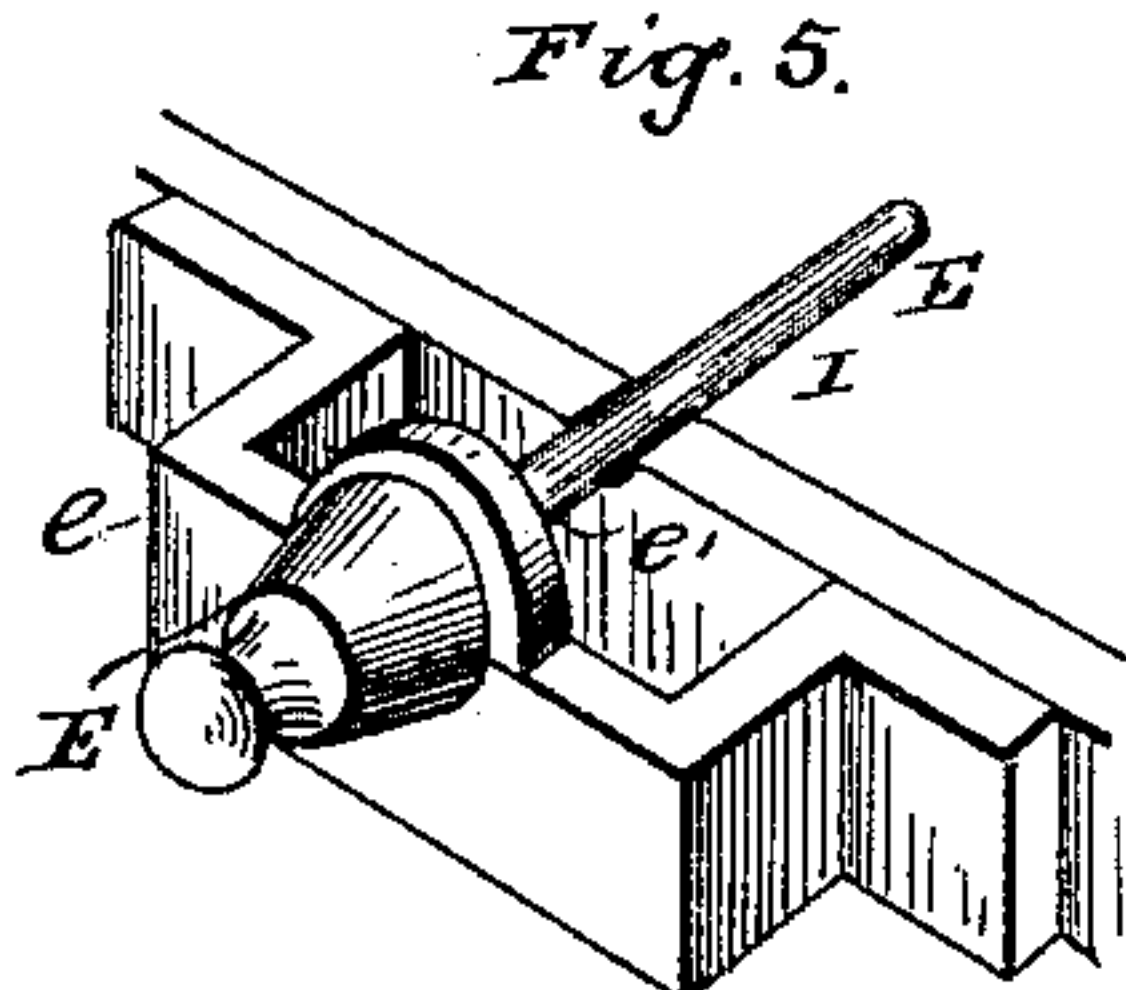


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN I. KINSEY, OF EASTON, PENNSYLVANIA.

APPARATUS FOR CASTING RETORT-PIPES, &c.

SPECIFICATION forming part of Letters Patent No. 435,041, dated August 26, 1890.

Application filed March 4, 1890. Serial No. 342,571. (No model.)

To all whom it may concern:

Be it known that I, JOHN I. KINSEY, of Easton, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Casting Retort-Pipes or other Similar Articles, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The objects of the invention are, first, to cast a retort-pipe (or any casting that is to be made hollow with a core) without using chaplets or anchors, and at the same time hold the core in a central position in the mold when in a vertical position, thereby obtaining a uniform thickness of metal in the casting; secondly, to provide means to prevent the core from being forced up or out of place by the metal when poured into the mold, and, thirdly, to provide means for testing or ascertaining if the core is central of the mold after the latter has been placed in a vertical position.

Heretofore in the ordinary way of making such castings the core has been supported by chaplets or anchors, which caused the iron to chill, and under such circumstances a solid casting cannot be always obtained, as the casting will frequently leak at the chaplets or anchors.

My invention is designed to obviate these defects, as will be fully described, and set forth in the following specification and claims.

In carrying out my invention I use, preferably, a mold such as is formed by the apparatus described in my application filed November 4, 1889, Serial No. 329,114, and to which reference may be had.

In the accompanying drawings, Figure 1 is a plan of one section of a flask and mold. Fig. 2 is a similar view showing the core in position. Fig. 3 is a transverse section of the mold and core, showing the manner of temporarily supporting one end of the core in proper position. Fig. 4 is a similar view showing the manner of maintaining one end of the core centrally in the mold during the process of casting. Fig. 5 represents detached details.

Similar letters of reference indicate similar parts in the respective figures.

A is a section of the flask, and B a mold formed therein for casting a retort or U-shaped pipe. The mold for the pipe proper extends from the bent end as far as the enlarged portions *a a*, which are designed to form flanges on the ends of the pipe. Immediately adjoining the enlarged portions *a a* the mold is contracted to the size of the core in order to fit closely around it and form bearings *a' a'*. This contraction will also prevent the molten metal from flowing beyond *a a*. The extreme ends of the extension of the mold are widened, preferably, to a cone shape, as shown at *b*, for the purpose of forming an anchor for the core to prevent its rising during the process of pouring the metal, and between the ends and the contracted portions *a' a'* the mold may, if desired, be enlarged, as shown at *b'*, for the purpose of forming an air-chamber around the core. A semicircular depression *c* is also made in the material in which the mold is formed, leading centrally from the U-shaped end of the mold to a semicircular recess *c'* in the edge of one end of the flask. Similar depressions *d d* lead from the cone-shaped ends of the mold to the semicircular recesses *d' d'* in the edge of the opposite end of the flask.

C C are openings leading from the mold through the substance in which the mold is formed and the side of the flask.

E is a guide removably secured by means of the lugs *e* to the end of the flask nearest the U-shaped end of the mold and provided with a central perforation *e'*, the lower half section of which will register with the recess *c'* in the edge of the flask.

F F are catches or clamps pivoted on the outside of the flask and adapted to swing over the openings *C C* when desired.

The foregoing description of one section of the flask and mold applies equally to the other section, one being a duplicate of the other.

G G are guards or supports adapted to pass through the openings *C* and to be supported therein by means of the pivoted catches *F*. These guards are of such length that when in proper position they will extend above the surface of the mold a distance equal to the thickness of the casting to be made. Each guard is provided with a groove *g* extending from end to end on one of its sides. The ob-

ject of these grooves will be explained hereinafter.

H is the core, having cone-shaped ends h , connected by means of the core-iron h' . The U-shaped end of the core is provided centrally with a hole h^2 .

I is a pin adapted to pass through the perforated guides E for a purpose to be hereinafter set forth.

To prepare the apparatus for casting, the guards or supports G are inserted in the openings C C and held in position by the pivoted catches F. The core H is then placed in the mold, the U-shaped end resting on the guards G, the other end being supported by the bearings a' and the core-iron h' , which fits in the depressions $d d$ and the recesses $d' d'$. The cone-shaped ends h also fit in the conical depressions b . The pin I is also passed through the guide E, recess c' , and depression c into the hole h^2 in the end of the core. Four wires J are now secured at one end to the core and the other ends of two of the wires are passed through the openings C of one section of the flask, the grooves in the guard G permitting their passage, and are drawn up tightly and secured to pins j on the outside of the flask, the guards G preventing the core from being pulled out of position. It will be understood that the core is secured in one section of the flask, as above described, and the other section, having the guards G in position, is then fitted on the first in its proper position. The other two wires J are then drawn up tightly through the openings C in the second section of the flask and secured to their pins j . The guards G are now removed and cores inserted to close up the holes and prevent the running out of the metal. The flask can now be stood on end, and in order to ascertain whether the core is held firmly in a position central of the mold it is only necessary to withdraw the pin I, and if it can be again easily inserted it will indicate that the core is central of the mold and firmly held there, for it will readily be seen that the wires J will hold the U-end firmly in position, and that the other end will be firmly held by the bearings $a' a'$ and the core-iron h' . The conical ends of the core fitting in the conical depressions b will also prevent the rising of the core when the metal is poured in. The pin I can be entirely removed before commencing the pouring, or it may remain in position until the casting is nearly completed. A riser or sink-head is made at the upper end of the flask to permit any dirt or dross to come out as the

metal is poured into the mold. When the molten metal surrounds the wires, they will become fused and amalgamated with the metal, as they do not present sufficient surface to chill the molten metal. A solid casting is consequently produced and all danger of leakage obviated.

While I have illustrated and described my invention as applied to the casting of retort or U-shaped pipes, it is evident that it is applicable to most operations in molding in which a core is employed.

Having described my invention, I claim—

1. The combination, with a flask and a mold formed within the flask, said mold and flask having openings extending from opposite sides of the flask to the inner surface of the mold, of a core within the mold, and guards or supports passing through the said openings and on which said core rests loosely to be temporarily supported, said guards or supports being adapted to be withdrawn before the operation of casting, substantially as and for the purpose specified.

2. The combination, with a flask and a mold formed therein, said flask having an opening extending from the central point of one of its end walls to a central point of the inner surface of one end of the mold, of a core temporarily supported within the mold and provided with a hole centrally in one end, a removable pin passing through the said opening in the flask and mold to engage the hole in the end of the core, whereby the core is centered in the mold, substantially as and for the purpose specified.

3. A flask and a mold formed therein having openings extending from the surface of the mold to the outer surface of opposite sides of the flask, and having also an opening extending centrally from one end of the mold to the outer surface of one end of the flask, combined with a core within the mold, said core having a hole centrally of one end, wires passing through the openings leading from the mold to the opposite sides of the flask and secured to the core and to the outside of the flask, and a removable pin passing through the opening in the end of the flask and mold to the hole in the end of the core, substantially as and for the purpose specified.

In testimony whereof I have hereunto set my hand and seal.

JOHN I. KINSEY. [L. S.]

Witnesses:

AMOS TURNER,

W. B. SOLLIDAY.