

(Model.)

O. C. LITTLE.
CORE FOR CASTING.

No. 519,538.

Patented May 8, 1894.

Fig. 1.

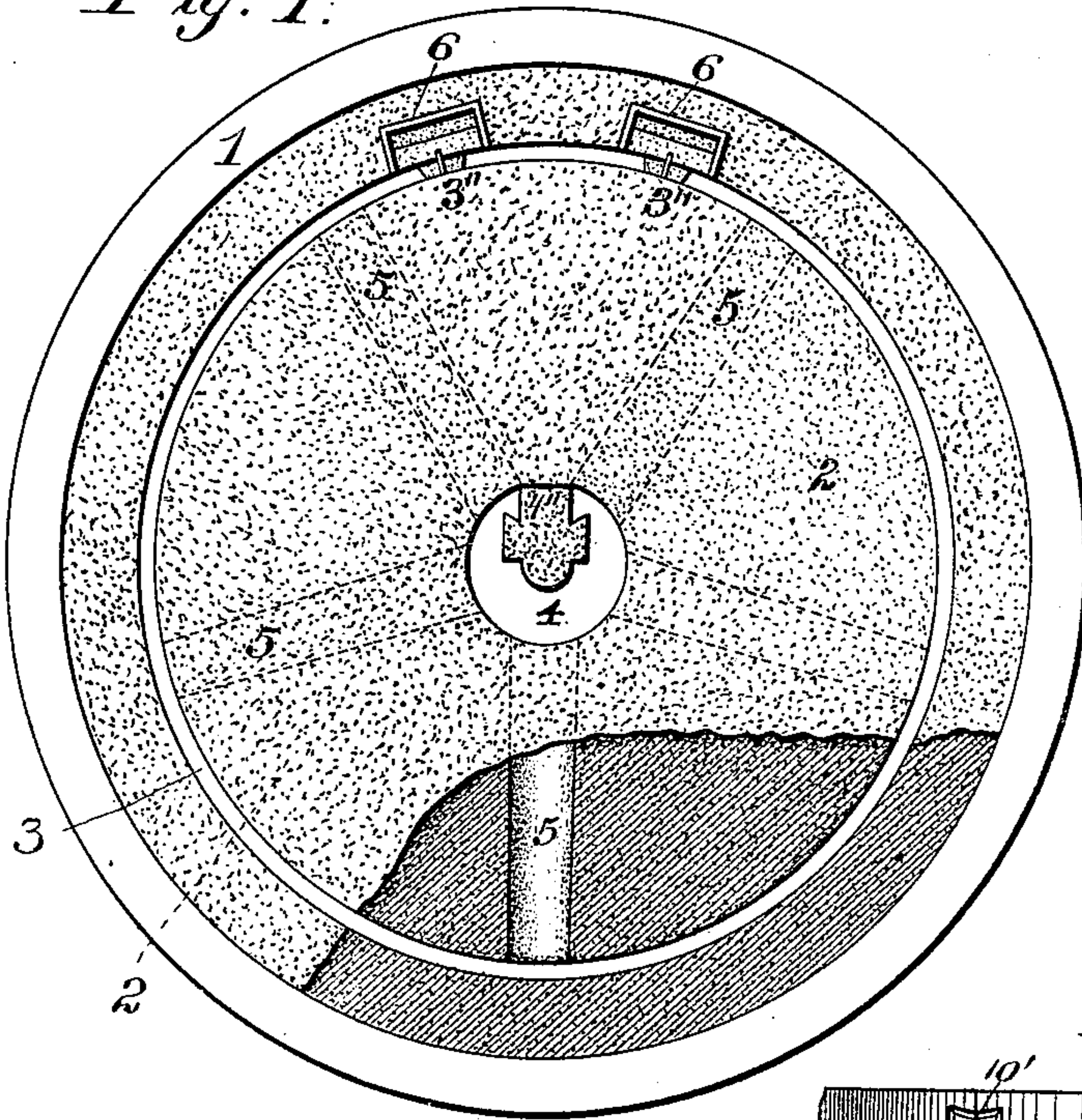


Fig. 5

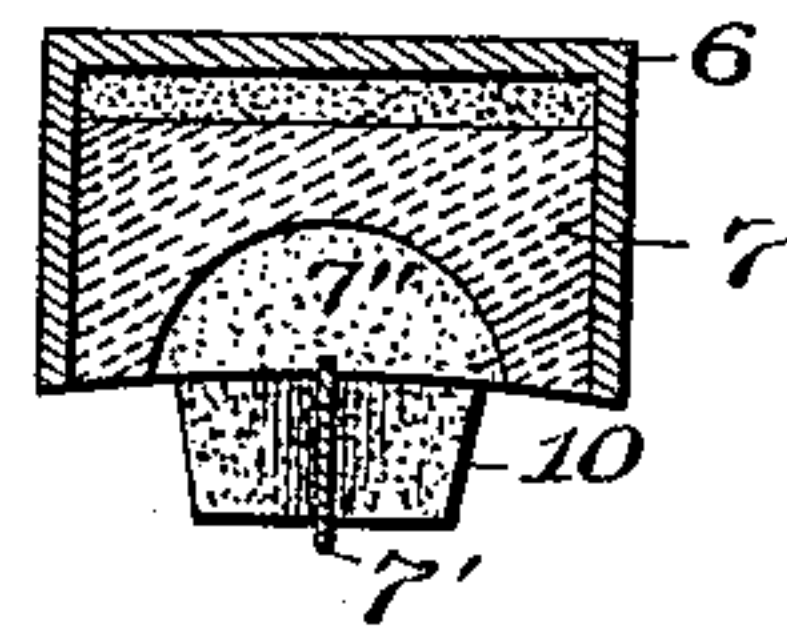


Fig. 2.

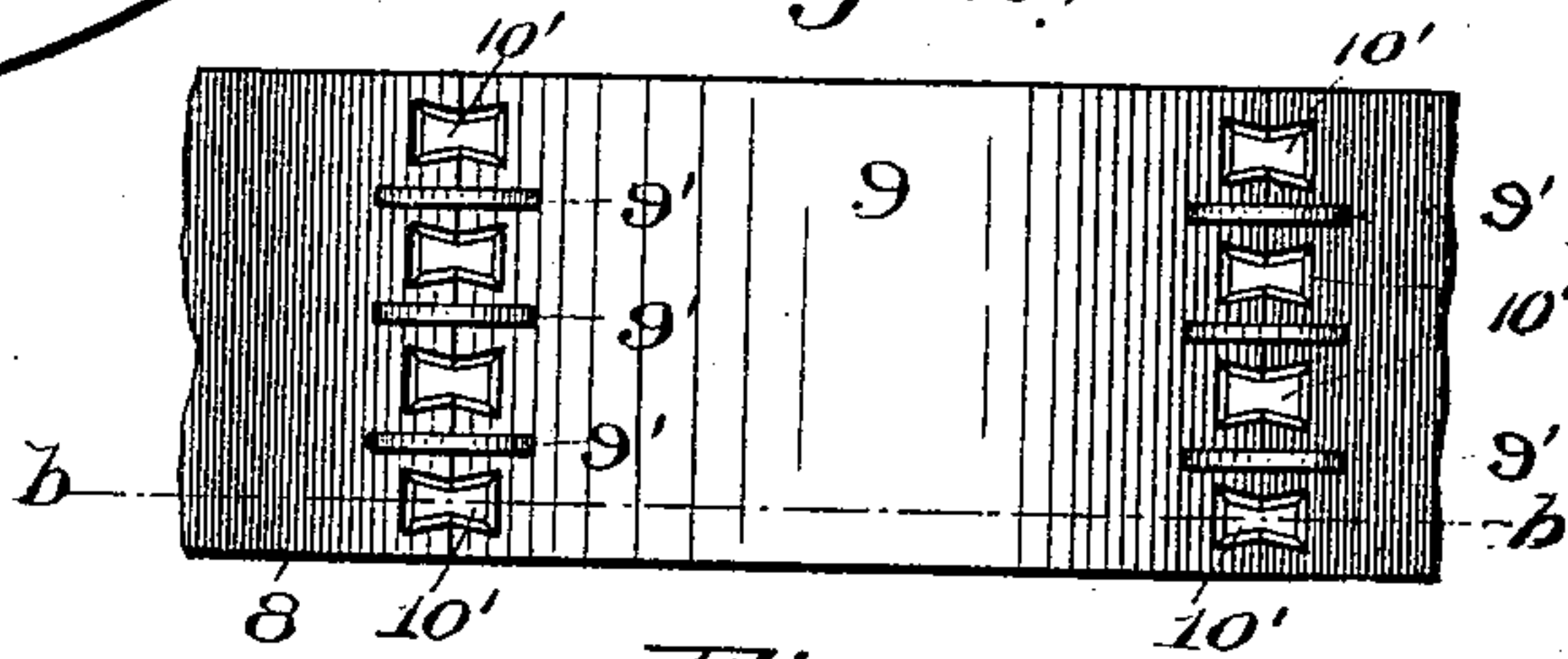


Fig. 4.

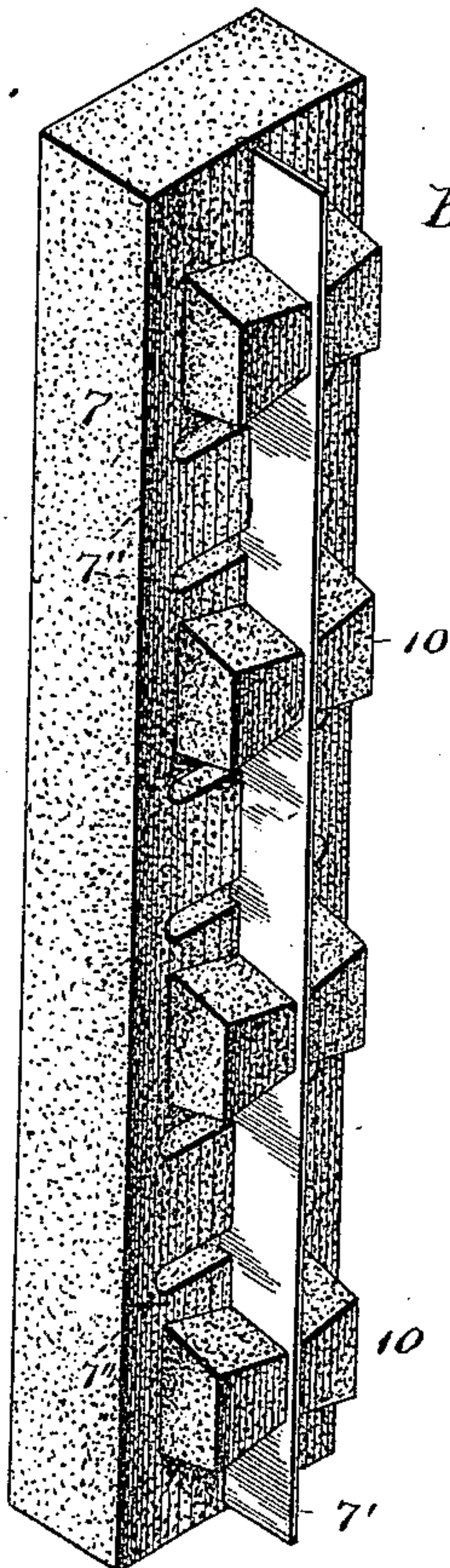
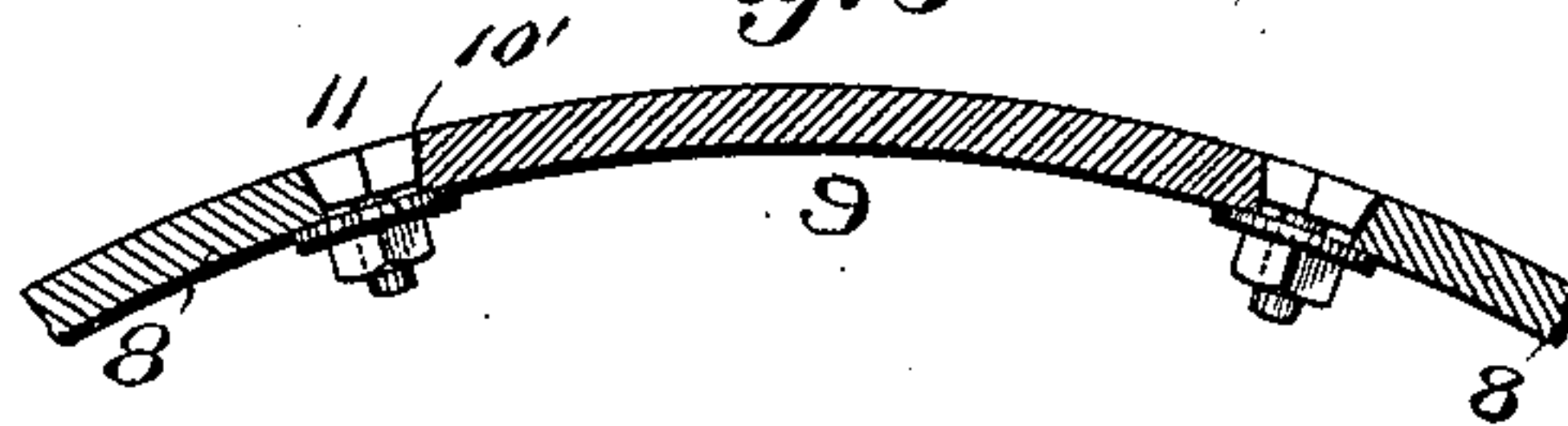


Fig. 3



Witnesses:
C. M. Albee.
W. L. Sill.

Inventor.
Onton C. Little.
By G. H. Albee
his Atty.

UNITED STATES PATENT OFFICE.

ORTON C. LITTLE, OF MENASHA, WISCONSIN, ASSIGNOR OF ONE-HALF TO
DUNCAN T. H. MACKINNON, OF SAME PLACE.

CORE FOR CASTING.

SPECIFICATION forming part of Letters Patent No. 519,538, dated May 8, 1894.

Application filed September 23, 1892. Serial No. 446,701. (Model.)

To all whom it may concern:

Be it known that I, ORTON C. LITTLE, a citizen of the United States, residing at Menasha, in the county of Winnebago and State of Wisconsin, have invented a new and useful Improvement in Cores for Use in Casting, of which the following is a specification.

My invention relates to a core for use in casting pulleys, in which the rim is formed in two parts, a section thereof being removable for convenience in applying the pulley to a shaft, and the object of my improvement is, to provide a means of casting a pulley rim in sections, in a mold which is formed from a pulley rim pattern in the form of a whole ring, and thereby permitting the use of a rim pattern which is a true circle, and will produce a casting of a like true circular form, and also to provide means for casting the ends of the rim sections so accurately that they will make a perfect fit with each other, without the necessity of said ends being further fitted by the machinist in finishing the pulley, and furthermore, to form recesses in each end of the rim sections for receiving a bolt head for connecting the rim sections to each other. I attain these objects by means of the devices and arrangement thereof, illustrated in the accompanying drawings, in which—

Figure 1 is a plan view of a pulley flask and a pulley mold therein having my improved core applied to it. Fig. 2 is a short section of the two ends of the main portion of a separable pulley rim casting having a removable section of the rim, as the casting appears after being removed from the flask. Fig. 3 is a view in section of said pulley rim casting upon the line *b, b*, of Fig. 2, as it appears after it is finished and the parts bolted together. Fig. 4 is a perspective view of the pulley rim core and Fig. 5 a sectional end view of the same, the two latter figures being upon a larger scale than the others.

Similar figures of reference indicate like parts in the several views.

1, indicates a pulley flask; 2, molding sand therein; 3, a pulley rim mold; 4, a pulley hub mold; 4'', a core in said hub mold for forming in the hub casting an opening for receiving a removable section of the hub; 5, pulley arm molds, the sand being removed about the outer end of the lower arm and showing a

part of the mold for said arm, the location of the other arms being shown by dotted lines, as they are under the sand 2 of the mold; 6, pulley rim core holders; 7, pulley rim core prints; 7', a thin piece of metal which is embedded in the core prints 7; 7'', recesses in the print; 8, the ends of the main portion of the pulley rim casting; 9, the smaller and removable section of the pulley rim casting; 9', connecting lugs which connect the rim sections 8 and 9 to each other in the unfinished pulley casting; 10, projections or cores upon the concave face of the print which produce in the meeting ends of the rim section casting the seats 10', for receiving the head of a bolt which is shaped like two dove tails, joined together at their narrowest ends; 11, a bolt for connecting the rim sections together. The pulley which is represented as being molded is a separable one, a small portion of its rim and hub being each removable for allowing the pulley to be easily applied to a shaft. A section of the rim is removable between the points, 3'', 3'', and of its hub where shown by core 4''.

The invention may be applied for separating the rim into sections at any point of its circumference, but is more particularly adapted for the pulley herein shown.

The devices I use consist of a core holder, 6, and a print 7, having cores 7' and 10. The core holder is preferably made of metal, and may be cast of, or stamped into the desired form. It may however be made of any quality of sand which is adapted for making cores. It consists of three sides, its open side being placed next to the pulley pattern and the edges of the sides in contact with it. Two of these holders are used, one at each point of the pulley rim pattern at which it is desired to separate the rim casting into sections. They are preferably placed upon the outside of the rim pattern, but may be at either its outer or inner side.

The description of the holder and print herein given applies to the former position, a different form of some parts of the print and holder being required if they are to be applied inside of the rim, such changes as will be evident to any molder. The print 7, I make in a print box in the usual manner, one face of it being concaved to the circle of the rim pattern, and it has embedded in the body

of the print, projecting through said face, a thin strip of metal 7'. Sheet steel, or iron, of about No. 26 gage, is suitable for it. The strip should be of a width sufficient so that it will project from said concave face a distance equaling, or slightly exceeding, the thickness of the pulley rim pattern, and the excess of said width should be pressed into the sand upon the opposite side of the mold so as to prevent the displacement of said strip during the operation of pouring the metal. Two prints with their cores being placed in position, one in each core holder, and sand rammed in behind them, as shown in Fig. 5, with said strip 7', projecting across the pulley rim mold, the pulley rim casting will be divided into two sections. The prints are each provided with several cavities, 7'', into which the metal will run in casting the pulley and thereby form a series of lugs, 9', which connect the rim sections together during the casting, removal from the sand, cleaning, &c., when the lugs may be easily broken off with a light blow of a hammer. Said prints are also provided with projections, 10, for forming in each end of said rim sections seats, 10', for receiving the head of a double dovetail headed bolt 11, for connecting the rim sections 8 and 9 together.

The bolt head cores may be of any desired form, of any number, and be arranged in any suitable position.

The manner of using the devices is as follows: A pulley rim pattern, consisting as before described, of an entire ring, is placed within a flask, or suitable pit; and properly supported by having molding sand filled in and rammed up, under and within the pattern. The two core holders, 6, 6, of approximately the length corresponding with the desired width of pulley face are then placed near the points where it is desired to have the pulley rim divided into sections, with the edges of their sides, in contact with said pattern. The hub and arm patterns may now be placed in position and the flask filled to the required height and rammed up. The patterns may then be withdrawn from the sand. The arm pattern being sufficiently short may be in one piece and be drawn into, and out through the hub mold, but if too long to allow this to be done it may be in sections properly hinged to each other so that the sections can be turned at right angles with each other for withdrawing the arm patterns through the hub mold. The hub core, 4'', should then be placed in position, the prints 7, inserted into the core holders 6, with the projections 10, bearing against the inner side of the rim mold and the strips 7', pressed slightly into said inner side, sand being rammed into the space behind the cores and within the core holders for holding the cores in position while the metal is being poured, suitable sprues and vents being formed therein, when the pulley may be cast in the usual manner. The pulley pattern need not necessarily be made in the manner

herein described in order that the cores 7' and 10 may be used, but may be made in two corresponding parts, the entire pattern for the pulley being divided upon a plane parallel with the ends of the pulley, which passes through the rim, arms and hub. One of the parts may be embedded in the drag, the other in the cope, the drag and cope being each provided with a core holder and be filled with sand and rammed up in a usual and well known manner. The pattern being withdrawn from each, the drag and cope, the hub core may be placed in the hub mold, the prints 7 with their cores placed in the core holders 6 as before described, when the cope being placed upon the drag and provided with the usual sprues and vents may receive the melted metal. The sectional arm pattern above described is not a necessity in molding a pulley having a divided rim, but if the pulley is too large to allow the arm pattern to be withdrawn through the hub mold, if it is in one piece, it lessens in a large degree the labor of molding as it makes a cope consisting of nearly one half the mold unnecessary, a narrow ring for the cope over the rim mold and a small cope over the hub mold being all that is required. The thin strips 7' in the cores divide the rim when it is cast into sections and allow the ends of said sections to make a perfect joint with each other, while the projecting cores 10, form seats for the heads of the bolts 11, the screwing of the nuts upon said bolts drawing the sections toward each other and holding them firmly in their place.

It will be evident that a single core holder may be used, one having two cores therein, or a single core holder and core can be applied in molding a small pulley, or one needing but a small section of its rim removable, but for most purposes the two holders and cores will be found to be preferable.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A core for a pulley mold, consisting of a core print having a thin strip of metal embedded therein, for dividing a pulley rim transversely thereof into sections, said strip having a length corresponding with the width of the pulley face, and a width for allowing it to project from said core print a distance, equaling, or slightly exceeding the thickness of said rim mold, said core print having also, one or more cavities therein for receiving melted metal and forming lugs upon the pulley rim in casting it, said lugs connecting the sections of the pulley rim separated by the aforesaid strip of metal, substantially as set forth.

2. A core for a pulley mold, consisting of a core print having a thin strip of metal embedded therein, for dividing a pulley rim transversely thereof into sections, said strip having a length corresponding with the width of the pulley face, and a width for allowing it to project from said core print a distance,

equaling, or slightly exceeding, the thickness of said rim mold, said core print having also, one or more cavities therein for receiving melted metal and forming lugs upon the pulley rim in casting it, said lugs connecting the sections of the pulley rim separated by the aforesaid strips of metal, said core print being also provided with projections suitably arranged for forming bolt head seats in each end of said rim sections, substantially as set forth.

3. The combination with a pulley mold of two core holders, each having a core with a thin strip of metal embedded in the print thereof, said strips being adapted to divide

the pulley rim transversely thereof in casting it, into two sections, the print of each core being provided with cavities for receiving melted metal and forming a connecting lug between the ends of each section, and also having projections suitably arranged thereon for forming seats in the ends of each section, for receiving the heads of bolts adapted for connecting said rim sections together, substantially as set forth and described.

ORTON C. LITTLE.

Witnesses:

JOHN PAYNE,
J. E. SMITH.