

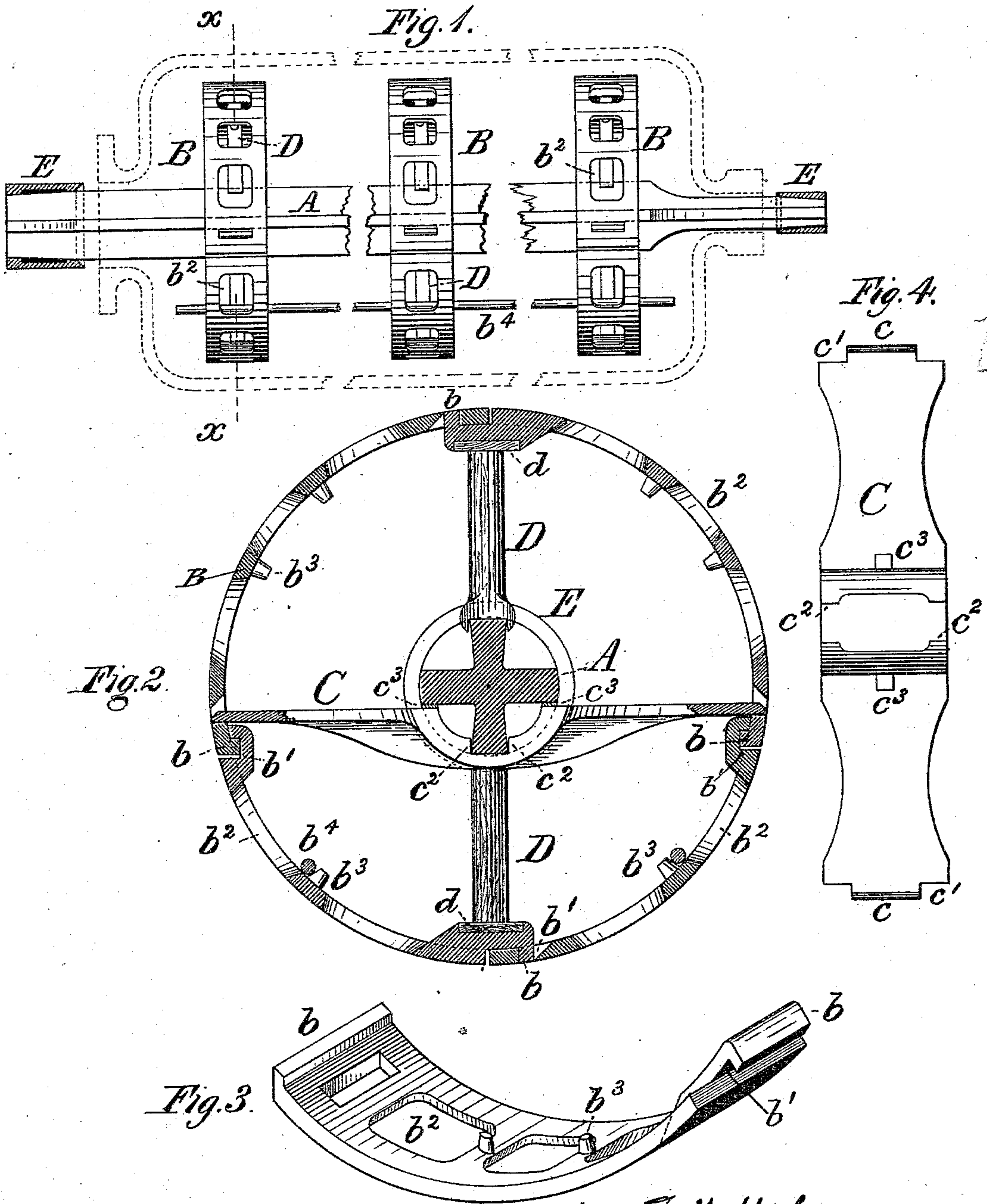
(No Model.)

W. T. MOBBERLEY & R. TAYLOR.

CORE BARREL.

No. 295,039.

Patented Mar. 11, 1884.



WITNESSES:

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UNITED STATES PATENT OFFICE.

WILLIAM T. MOBBERLEY AND ROBERT TAYLOR, OF ALLEGHENY, PA.

CORE-BARREL.

SPECIFICATION forming part of Letters Patent No. 295,039, dated March 11, 1884.

Application filed December 8, 1883. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM T. MOBBERLEY and ROBERT TAYLOR, citizens of the United States, residing at Allegheny, county of Allegheny, State of Pennsylvania, have invented or discovered a new and useful Improvement in Core-Barrels; and we do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a side view in elevation of a core-barrel embodying our invention; Fig. 2, a transverse section, on an enlarged scale, through the same at the line *xx* of Fig. 1; Fig. 3, a view in perspective of one of the ribs or stays detached, and Fig. 4 a plan view of a transverse brace.

The object of our invention is to provide a core-barrel desirably adaptable to use in the formation of green-sand cores for pipes, columns, or hollow castings of various descriptions—such as air chambers, reservoirs, &c.—having an end opening or openings materially less in diameter than that of the main portion of the inside of the casting.

To this end our invention consists in certain novel devices and combinations, including a bar or arbor, one or more ribs, stays, or supports adapted to be connected to the arbor in desired number and relation, preparatory to the formation of the core, and to be detached and removed in sections after the casting is made, and end rings or sleeves connected removably to the arbor, and serving to support the sand of the core and afford vent for gases in casting.

The improvements claimed are hereinafter fully set forth.

To carry out our invention, we provide a bar or arbor, A, of metal, which is preferably of cruciform section, as shown, and has one or more of its webs, being those which are intended to stand perpendicular when the core is set in the mold, inwardly beveled or inclined, to more effectually support the sand packed around them. One or more ribs, stays, or supports, B, formed in separate sections, are connected to the arbor A, at any desired point or

points, in such manner as to be readily attached thereto and detached therefrom, as presently to be described, said supports being greater or less in number, according to the length of the core to be formed, and being bent or curved in correspondence with the transverse section thereof, as cylindrical, rectangular, hexagonal, or any other desired regular or irregular figure. The core-barrel shown is designed for the formation of a core for a casting of the character of that indicated in dotted lines in Fig. 1, the interior of which is cylindrical and uniform in diameter between its ends, each of which has a central opening, said openings being of different diameters, respectively. The stays or supports B are each composed of a series of segmentally-curved plate-sections, either two or four being employed in each support, accordingly as it may be desired to have the support of semicircular or of circular outline; and their width of face is such as to permit them to be passed through the opening of the casting formed by the use of the core in which they are employed. The sections are connected one to the other by tongues *b* and slots or mortises *b'*, formed on and adjacent to their ends, and adapted to be readily engaged and disengaged, and the sections (two or more) constituting each stay are fixed in desired position upon the arbor by a transverse brace, C, and a key-piece, D. A tongue, *c*, having a shoulder, *c'*, on one or both of its sides, is formed upon each end of the brace C, the tongues entering slots or recesses in the ends of two of the sections, and the shoulders serving to prevent inward motion of said ends toward the arbor. The brace C is recessed centrally, to admit of the entrance of one of the webs of the arbor A, bearings *c*² being provided adjacent to its sides, to enable the arbor to be fitted centrally in the recess, and bearings *c*³ are formed upon the top of the brace, to serve as seats for the webs of the arbor perpendicular to that which enters the recess of the brace. Two of the sections being coupled together by their tongues and mortises, the transverse brace is fitted in desired longitudinal position upon the bar, and its tongues entered into the recesses of the free ends of the coupled sections. The key-

piece D is then inserted so as to bear at one end against the inner side of a wooden cushion or packing-piece, d , fitting in a recess in the inner side of one of the sections at their meeting-point, and at the other against the vertical rib or web of the arbor A. The wedging action of the key-piece D, acting against the resistance of the end shoulders, e' , of the transverse brace C, maintains the sections together and in position upon the bar, and the wooden cushion d being shrunk or burned in the operation of casting, the parts can be readily separated by being shaken, so as to be separately removed through the end opening of the casting. When four sections are employed to form a continuous support around the core, as shown, they are connected in a similar manner, an additional key-piece and cushion being inserted on the opposite side of the arbor A. Openings b^2 , having inwardly-tapered sides, are formed in the sections of the supports B, to assist in retaining the sand, which is packed in and around them, and tapered pins b^3 on the inside of the sections serve as supports for longitudinal brace-rods b^4 , which provide support for the sand between the main supports B. The diameter of the arbor A is such as to enable sufficient space to be filled with sand beyond its ribs to prevent the contact thereof with the metal of the casting at the end opening or openings thereof, and when the device is used for the formation and support of a core for a casting having openings of different diameters, respectively, in its ends, it is reduced at and near one end to properly pass through the smaller opening, as shown in Fig. 1. The ends of the arbor are slightly tapered, and a ring or sleeve, E, is driven upon each. Said sleeves are inwardly beveled or recessed at their inner ends, to prevent accidental displacement of the sand packed against them, and the openings which are left between their inner sides and the radial faces of the webs of the arbor A serve as vents for the escape of gases in casting.

It will be obvious that the supports may be made of any desired form in outline, as required by the shape of the casting to be made, and that they may be of uniform or of varying diameters, and of greater or less number, in accordance with the shape and size of the cores for which they are designed, and, further, that a sleeve may be used upon one or both ends of the arbor, according as an opening is required in one or in both ends of the casting.

Our improvements provide a core-barrel of simple and inexpensive construction, the members of which can be readily connected and securely held in position to form the supporting structure of a core, and which can be de-

tached and separately removed from the casting when made without difficulty and through a comparatively small opening.

We claim herein as our invention—

1. In a core-barrel, the combination of a bar or arbor and one or more stays or supports connected removably thereto, each of said supports being composed of a series of plate-sections, the width of face of which is less than the length of the core to be formed, and their length less than the diameter thereof, these members being combined for joint operation to admit of the displacement and separate withdrawal of the sections, after the completion of the casting, through an end opening therein substantially less in diameter than the body thereof, substantially as set forth.

2. In a core-barrel, the combination of a bar or arbor, one or more sectional supports connected removably thereto, and a ring or sleeve fitting on said bar at one or both of its ends over interposed channels or recesses, said rings being of less diameter than the supports, and acting as end bearings for the core, as well as providing vents for the gases in casting, substantially as set forth.

3. In a core-barrel, the combination of a bar or arbor, a support formed of sections having interlocking ends, a transverse brace bearing against the sections of the support, and a key-piece bearing at its inner end against the arbor, and at its outer end against the sections of the support, substantially as set forth.

4. In a core-barrel, the combination of a bar or arbor, a support composed of interlocked sections and a transverse brace, a key-piece bearing against the arbor and the sections, and a cushion or packing-piece of wood or other shrinkable material interposed between the outer end of the key-piece and the sections, substantially as and for the purpose set forth.

5. In a core-barrel, the combination of a bar or arbor, two or more supports attached removably thereto, and longitudinal bars or rods resting upon pins or projections on said supports, substantially as set forth.

6. A transverse brace for a core-barrel, having a central recess provided with bearings for the sides of a bar or arbor, and tongues upon its ends adapted to engage the sections of a support, substantially as set forth.

In testimony whereof we have hereunto set our hands.

WILLIAM T. MOBBERLEY.
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Witnesses:

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