(No Model.)

F. L. BADGER.

DEVICE FOR SUPPORTING AND CENTERING CORES.

No. 457,021. Patented Aug. 4, 1891.

Fig. 1.

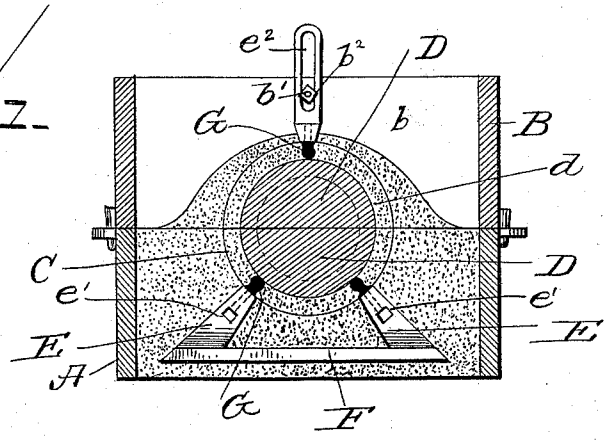


Fig. 2.

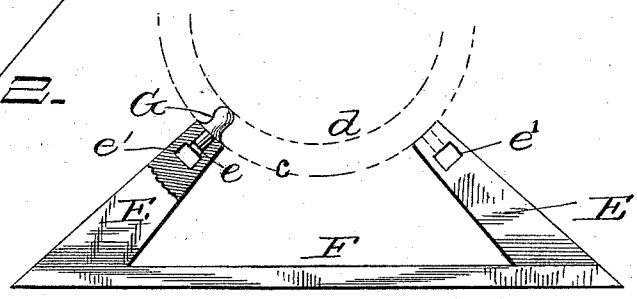
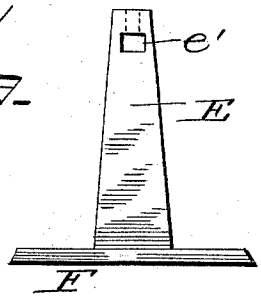


Fig. 3.



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UNITED STATES PATENT OFFICE.

FRANK L. BADGER, OF CONCORD, NEW HAMPSHIRE, ASSIGNOR TO THE CONCORD FOUNDRY COMPANY, OF SAME PLACE.

DEVICE FOR SUPPORTING AND CENTERING CORES.

SPECIFICATION forming part of Letters Patent No. 457,021, dated August 4, 1891.

Application filed March 17, 1891. Serial No. 385,386. (No model.)

To all whom it may concern:

Be it known that I, FRANK L. BADGER, a citizen of the United States, residing at Concord, in the county of Merrimac and State of New Hampshire, have invented certain new and useful Improvements in Devices for Supporting and Centering Cores; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The devices heretofore used for supporting cores have been of the most primitive nature and frequently prove ineffectual from the great pressure of melted metal flowing upon the core, forcing them out of place. In thin light hollow castings the slightest displacement of the core frequently ruins the casting, as it may thus be left too thin in places to admit of the required finish, and the same is true of cored work requiring to be bored, the displacement of a core in the latter case being liable to necessitate the boring of a larger hole than the finished work would permit. My desire to remedy these evils resulted in the conception of the present invention, by use of which cores may be supported and accurately centered even without the use of "core-prints."

The invention will be fully set forth in the following specification and claims, and clearly illustrated in accompanying drawings, forming a part thereof, of which—

Figure 1 is a cross-sectional view of a two-part flask, in which are formed both halves of a mold for a plain cylindrical body and its core, with my improved centering and supporting devices shown in elevation and sustaining the core in its proper position. Fig. 2 is an enlarged detached sectional elevation of that portion of my improvements which properly applies to the "nowel" half of a flask; and Fig. 3 is a view of a modification of my invention, which may be used in either the nowel or cope and adapted for more general use.

Similar reference-letters indicate corresponding parts.

A represents a cross-section of the nowel, and B the cope, in which is shown the mold C for a hollow cylindrical body—such, for instance, as a column—with its core D in proper position.

The dotted lines *d* within the circle of the core represent the ordinary core-prints, these for short cores being all that is necessary to hold a core centrally within a mold; but long cores must be supported at frequent intervals between the ends.

In Fig. 2 the dotted line *c* indicates the column, and the dotted line *d* its core.

My improved supports consist of metal posts E, which may project singly or in pairs from an integral plate F, as shown. The posts E, when placed at the ends of the plate, are preferably inclined toward each other at their upper ends, and are each provided with sockets *e*, in which to mount studs G, of which various lengths are provided, one length being substituted for another upon occasion.

In reducing my invention to practice the nowel is placed bottom up upon the mold-board in the usual way, and half of a pattern placed therein. Then before entirely covering with sand one of my improved core-supports is placed upon the pattern bottom up and more sand applied and rammed down until the nowel is filled, when it may be turned over and the cope B, with the remaining half of the pattern, placed thereon in proper position and sand applied in the usual manner; but before covering the pattern entirely one of my improved core-supports is placed upon the pattern, when the remainder of sand may be put in and rammed down.

The style of support which I prefer for use in the cope is that shown in Fig. 1, which is provided with a slot e^2 for receiving a stud-bolt b', projecting from the cross-bars *b* of said cope, and to which is threaded a nut b^2, by which the improved supports are adjusted to various patterns. After opening the flask and removing the pattern the studs G are placed in the sockets *e* of the posts E and the core D placed thereon, the length of the studs G being equal to the space between the mold C and the core D in any case, or, in other words, their length is equal to the space left between the core and the sand which is to be filled by melted metal.

For circular work I prefer using two posts

E upon a plate F in the nowel in the manner seen in Fig. 1, which, with the support in the cope, makes three bearings for a core and accurately maintains its center. Each post E will have a side opening *e'* connecting with its socket *e* for freeing the latter from sand.

Having described my invention, what I claim is—

1. In a core centering and supporting device, a base-plate adapted to be placed loosely in the flask and provided with a bar or post at each end, the upper ends of which bars are inclined toward each other, and a stud detachably secured to the upper end of each bar, substantially as described.

2. In core-supporting devices, a bar or post having in one end a longitudinal socket provided with a side opening or outlet, and a detachable stud mounted in said socket, substantially for the purpose specified.

3. In core centering and supporting devices, the combination, with a series of posts adapted to be radially secured within the mold, one of which is adjustably secured relatively to the others, of a stud detachably mounted upon the inner end of each of the posts, substantially as described.

4. In core centering and supporting devices, the combination, with a series of posts adapted to be arranged radially within the mold, of a stud detachably mounted upon the inner end of each of the posts, substantially as described.

5. In core centering and supporting devices, the combination, with a series of radially-arranged posts, one of which is slotted longitudinally, of a clamping-bolt through the slot, a support for the bolt, and a stud detachably mounted in the inner end of each of the posts, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

FRANK L. BADGER.

Witnesses:
J. B. THURSTON,
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