

F. X. LEUTHNER, DEC'D.
F. J. LEUTHNER, EXECUTOR, AND M. L. TAYLOR, EXECUTRIX.
MOLDING APPARATUS.

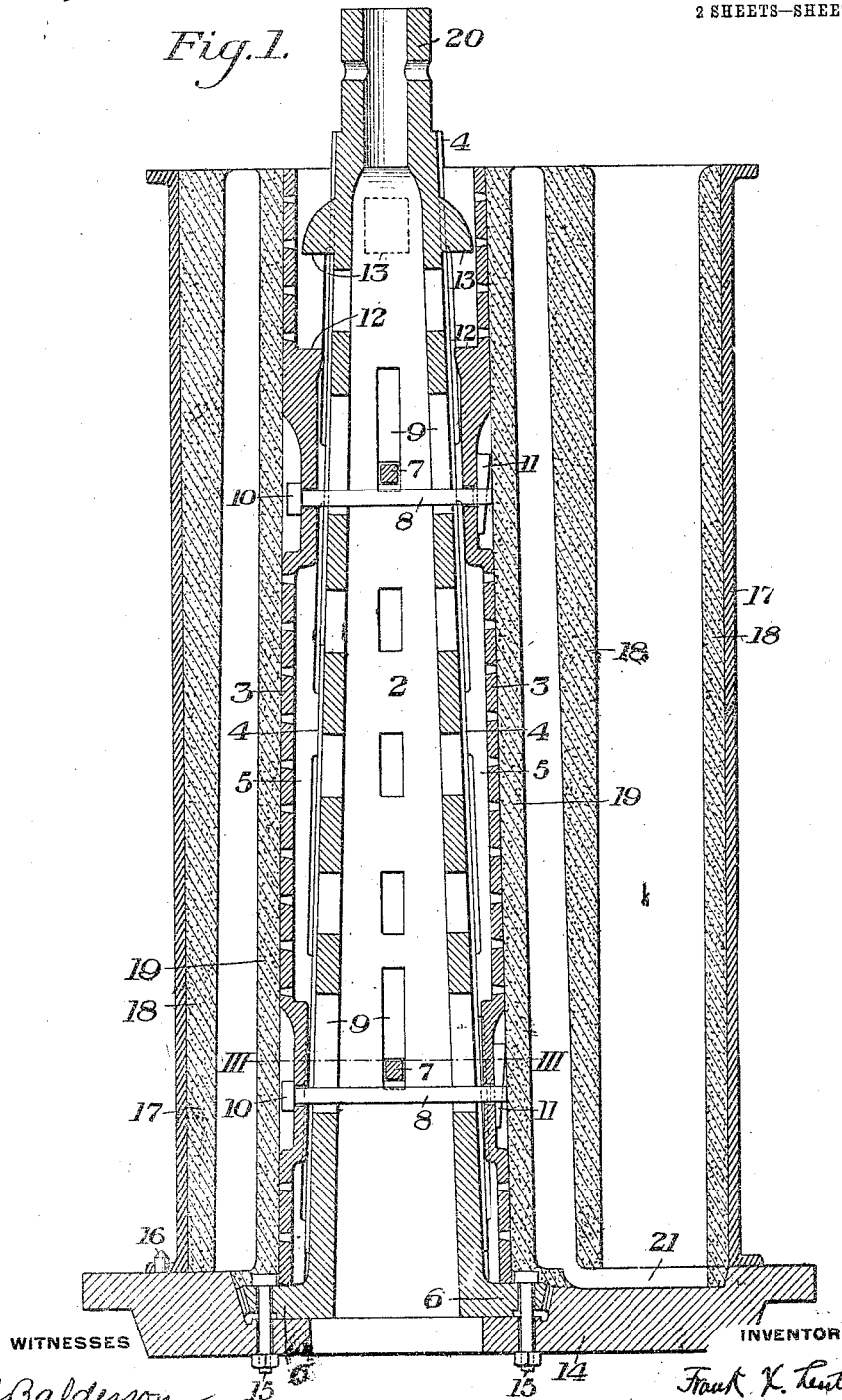
APPLICATION FILED JULY 6, 1910.

Patented Feb. 27, 1912.

2 SHEETS—SHEET 1.

1,018,668.

Fig. 1.



WITNESSES

INVENTOR

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2 SHEETS—SHEET 2.

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Fig. 2.

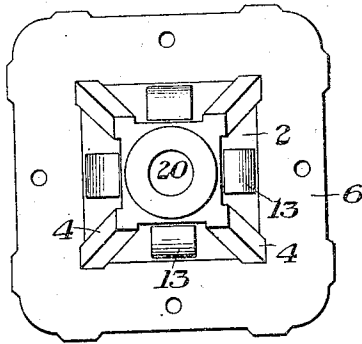


Fig. 3.

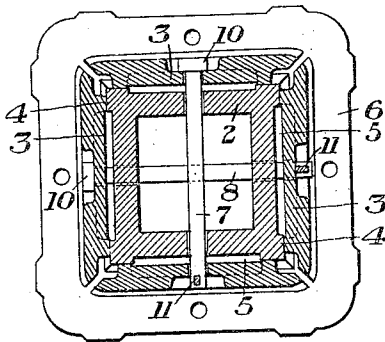
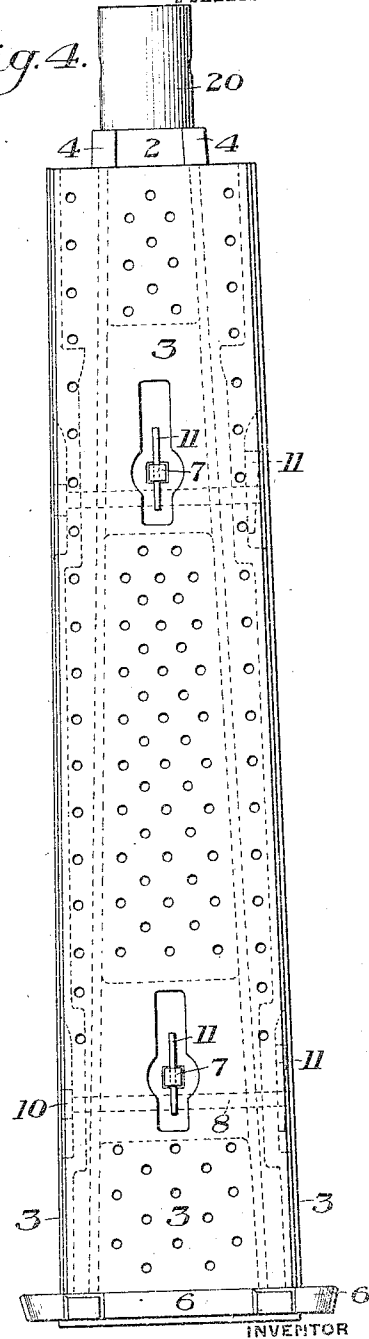


Fig. 5.



Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRANK X. LEUTHNER, OF BUFFALO, NEW YORK, ASSIGNOR OF ONE-HALF TO FRANK TICKNER, OF SHARPSVILLE, PENNSYLVANIA; FRANK J. LEUTHNER EXECUTOR AND MINNIE LEUTHNER TAYLOR EXECUTRIX OF SAID FRANK X. LEUTHNER, DECEASED.

MOLDING APPARATUS.

1,018,668.

Specification of Letters Patent.

Patented Feb. 27, 1912.

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To all whom it may concern:

Be it known that I, FRANK X. LEUTHNER, of Buffalo, Erie county, New York, have invented a new and useful Improvement in Molding Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical sectional view showing one of my improved ingot molds; Fig. 2 is a top plan view of the core barrel; Fig. 3 is a cross-section on the line III—III of Fig. 1, Fig. 4 is a side elevation of the core barrel; and Fig. 5 is a cross-section of one of the movable plates thereof.

My invention relates to the class of molds employing collapsible cores, and particularly to collapsible core molds for casting ingot molds.

The object of the invention is to simplify the apparatus, avoid removable parts in the core barrel, and reduce the labor in connection with molding.

To that end, the invention consists primarily in securing the collapsing core barrel to the drag of the mold, so that the labor of centering the core barrel on the drag is done away with and the liability to improper positioning is avoided.

It further consists in securing to the drag a collapsible core barrel having inwardly movable sides which are actuated by the central stem or column of the barrel to expand or collapse the core barrel sides.

It further consists in the construction and arrangement of the parts as hereinafter more fully described and claimed.

In the drawings, 2 represents the central stem or column of the core barrel, which is shown as substantially rectangular in cross-section and tapering from the bottom toward the top in the form of a portion of a pyramid. This stem is preferably hollow, though this is not necessary; and when hollow I provide it with a series of perforations or holes to assist in venting.

In the form shown the sides of the core barrel are formed by four plates 3, which preferably seat against corner ribs 4 of the column or stem to provide air spaces shown at 5, between the plate sides and the stem.

The lower ends of these plates rest upon flanges 6 projecting from the base of the column 2, and are preferably secured by cross-bolts 7 and 8. These bolts are at two different levels, and extend through vertical slots 9 in the column to allow movement of the plate sides and column relative to each other. I have shown the plates as externally recessed to receive the heads 10 and the securing cotter pins 11 of these bolts, and I preferably provide two sets of the bolts, one set in the upper portion and the other set in the lower portion of the core barrel, as shown in Fig. 1.

The plate side portions of the core barrel are perforated for proper venting, and the upper portions of the plates are provided with internal shoulders 12, which in the movement of the plates and column relative to each other will contact with external lugs or shoulders 13 on the upper portion of the column.

The column and side plates thus form the collapsible core barrel, which is expanded or collapsed by movement of the plates and column relative to each other. This core barrel as a whole is secured to the drag 14 of the mold by any desirable securing means. In the form shown, I have provided bolts for this purpose, these bolts extending through the lateral flanges at the bottom of the column 2 and through the drag. I have also shown the flanged base of the core barrel as seating downwardly within a recess in the drag, but in this connection it may also be varied as desirable.

The drag is preferably provided with the centering pins 16, which center the flask thereon.

18 represents the lining of the flask, and 19 the molded covering for the core barrel.

The central stem or column 2 projects above the plate sides of the core barrel, and also above the flask, as shown at 20. This is to provide for extraction by the device shown in my prior Patent No. 868,607, dated October 15, 1907.

In the use of the device, the plate sides and column being in the relative position shown, the sides of the barrel are preferably treated with a clay wash and the core box put in place and the core rammed up. The

core thus formed and the drag attached to it, are removed, a face of blacking applied, and the cores dried in the core oven. The flask is rammed up in the usual manner, and the parts assembled as shown in Fig. 1. In this figure, 21 represents the pouring gate, which extends through the drag and communicates with the runner of the flask.

When the mold has been cast, the core barrel is extracted from the mold, preferably by the use of the device above referred to, in which the central head of the device bears on the column, while the flask is stripped upwardly from the core. In this action, the side plate portions of the core barrel rise with the casting, and as they travel over the tapered part of the column they collapse inwardly. Their upward movement is stopped by the shoulders 12, meeting the lugs 13 of the column, whereupon the flask is further lifted off with its contained ingot mold casting and the plate portions dropped back on the column. When the flask and casting have been removed, the core barrel and drag are lifted as one piece and taken to the molding room, where they are again prepared for the next mold.

The advantages of my invention will be obvious to those skilled in the art. Owing to the securing of the collapsible core barrel to the drag, the core barrel is always centered in the mold. This avoids any forming of thick and thin walls on the ingot mold. At the same time if the drying ovens are not of sufficient size to receive the entire core barrel and drag, they may be detached and treated separately from each other. The securing of the plate sides movably to the column makes the entire core barrel and drag one constantly connected part. The plates do not drop off, and this entire part may be handled as one piece. Thorough venting is obtained by the perforate sides of the core barrel, and also by the separation of the edges of the plate sides, as shown in Fig. 3. This separation of the plate sides at two or more corners of the barrel assists in venting, and also enables the collapsible action to take place by inward movement of the plate sides.

The weight of the drag or mold base, which is fastened to the barrel, assists in extraction. In practice the core barrel and drag are never detached from each other.

Many variations may be made in the form and arrangement of the collapsible core barrel, and the drag, without departing from my invention, since I consider myself the first to secure a collapsible core to the drag so that they are handled as one part. The relative movement between the central stem and the plate sides may be obtained in other ways; the plate sides may be secured to the drag instead of securing the column

thereto; the plates may be arranged to move inwardly and outwardly with or without endwise movement, and many other changes may be made within the spirit of my invention.

By the word "permanently" in my claims, as applied to the connection between the barrel and the drag, I intend to differentiate the connection from the temporary attachment of the drag and core, but not to limit myself to a connection which cannot be severed or renewed.

I claim:—

1. A collapsible core barrel having a central stem or column, movable plate sides, and a drag permanently secured to said core barrel; substantially as described.

2. A collapsible core barrel having a central stem or column, movable plate sides, and a drag permanently secured to said core barrel, the drag having centering means for the flask; substantially as described.

3. A core barrel comprising a central stem having a tapered portion, side plates connected to the column and arranged to be contracted or expanded thereby, and a drag permanently secured to the core barrel; substantially as described.

4. A core barrel having plate sides with an internal connection between them, a central stem arranged to expand and contract the sides, and a drag permanently secured to the core barrel; substantially as described.

5. A core barrel having a stem or column with a tapered portion, and side collapsible plates connected to the stem, said side plates being perforated for venting, and a drag permanently secured to the core barrel; substantially as described.

6. A collapsible core barrel having a stem projecting above the side plates, and a drag permanently secured to the lower end of said barrel; substantially as described.

7. A core barrel having a column or stem, collapsible plates connected to but movable on said column, and a drag permanently secured to the lower end of said barrel; substantially as described.

8. A collapsible core barrel comprising a central column or stem having a tapered portion, plate sides connected to but movable lengthwise of said column, and a drag permanently secured to the column; substantially as described.

9. A collapsible core barrel having plate sides movable toward and from each other, with spaces between their edges, a central stem or column movable relative to the plate sides, and a drag permanently secured to the core barrel; substantially as described.

10. A collapsible core barrel for ingot molds having an upwardly projecting central stem with a tapered portion arranged

to contract or expand the plate sides, and a drag or bottom plate permanently secured to the core barrel; substantially as described.

- 5 11. A collapsible core barrel comprising a central stem or column, plate sides connected to but movable lengthwise of said column and arranged to automatically collapse upon lifting of the mold, and a drag permanently

secured to said core barrel; substantially as described.

In testimony whereof, I have hereunto set my hand.

FRANK X. LEUTHNER.

Witnesses:

GEO. B. BLEMING,
R. A. BALDERSON.