No. 869,224. PATENTED OCT. 29, 1907.

A. J. BAZELEY.

CORE BOX.

APPLICATION FILED NOV. 27, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

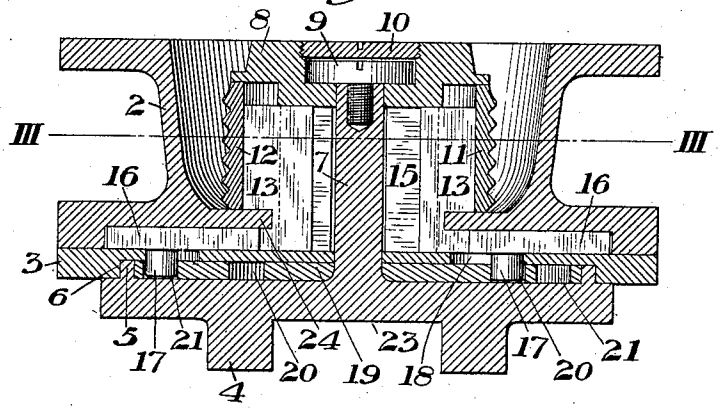
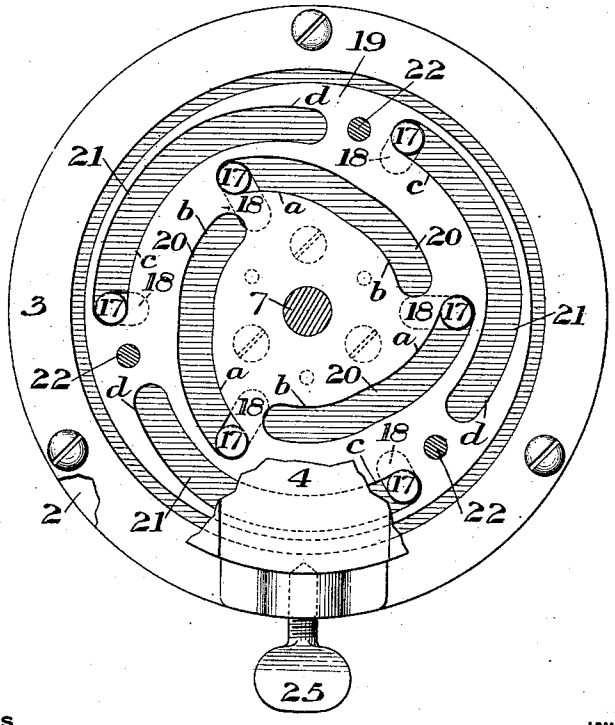


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

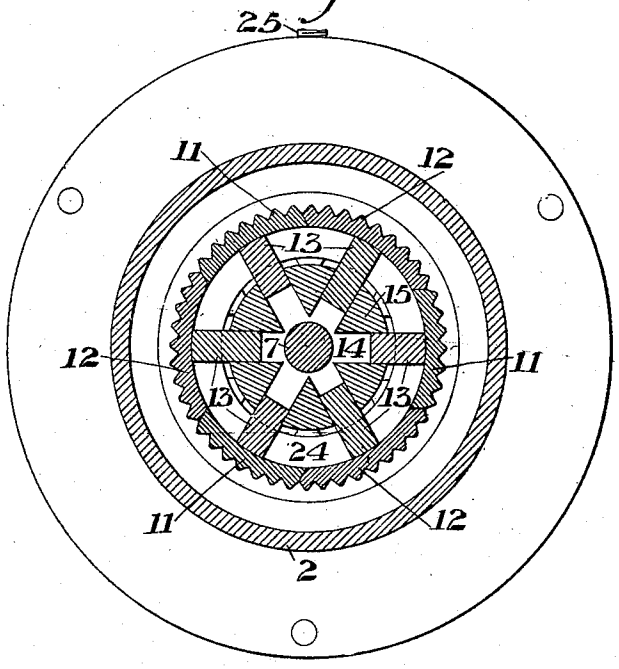
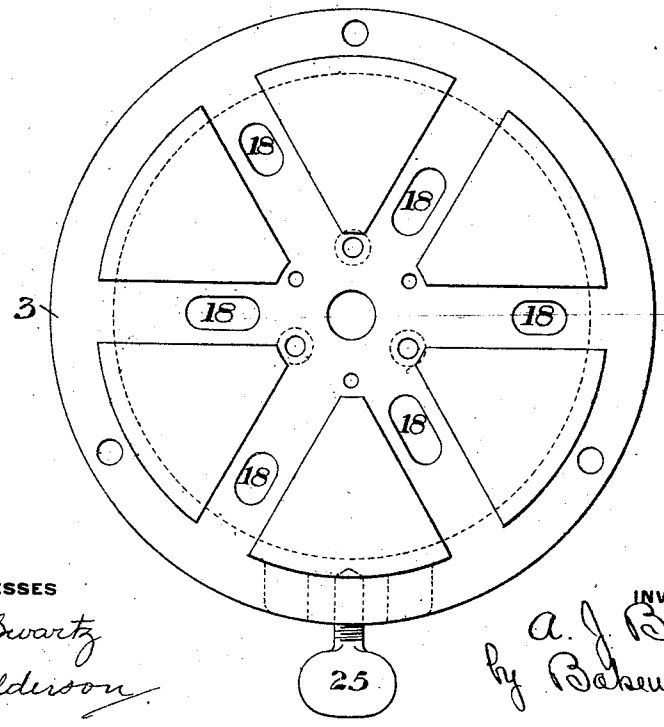


Fig. 4.



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UNITED STATES PATENT OFFICE.

ARTHUR J. BAZELEY, OF CLEVELAND, OHIO, ASSIGNOR TO THE NATIONAL MALLEABLE CASTINGS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

CORE-BOX.

No. 869,224. Specification of Letters Patent. Patented Oct. 29, 1907.

Application filed November 27, 1906. Serial No. 345,328.

To all whom it may concern:

Be it known that I, ARTHUR J. BAZELEY, of Cleveland, Cuyahoga county, Ohio, have invented a new and useful Core-Box, 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 central vertical section of a core box embodying my invention; Fig. 2 is a bottom plan view of the same with the base partly broken away; Fig. 3 is a section on the line III—III of Fig. 1; and Fig. 4 is a detail view of the guide plate.

My invention has relation to the class of core boxes, and more particularly to core boxes which are designed for the manufacture of cylindrical cores, the interior faces of which are formed with depressions or under-cut portions which by their engagement with the inner wall of the box ordinarily make their removal from the box a matter of difficulty.

The object of my invention is to provide a core box of this character in which the inner wall is so constructed and arranged that it may be readily retracted from engagement with the core, thus leaving the core free to be removed from the box.

My invention also consists in the novel construction, arrangement and combinaion of parts all substantially as hereinafter described and pointed out in the appended claims.

In the accompanying drawings, the numeral 2 designates the outer wall of the core box, to the lower end of which is secured a circular guide plate 3 which is rotatably engaged by a base 4, the rotary engagement being formed by the flange 5 on the base which fits within the shoulder 6 on the guide plate 3. The base 4 is provided with a central stem or spindle 7 which extends upwardly through a central hub within the inner wall of the core box, and is secured by means of the screw 9 engaging a head portion 8 of the hub, a screw-cap 10 being seated above the screw 9.

The inner wall of the box is composed of a plurality of segments 11 and 12, alternate segments being designated by the numerals 11 and the intermediate segments by the numerals 12. The segments, when in the position shown in Figs. 1 and 3, form a complete circle having a continuous outer surface, but the lateral edges of the alternate segments 11 fit the adjacent edges of the intervening segments 12 in such a manner that the segments 11 may be drawn inwardly after the core has been rammed up, after which the segments 12 are similarly retracted or drawn inwardly to permit the core to be withdrawn. Each segment is formed on its face with a radial inwardly-extending plate or rib 13 which slidingly engages a radial slot 14 of the central fixed hub 15, said hub being secured at its lower end to the guide plate 3, and having a slot 14 for each segment.

The lower end of each rib 13 is formed with a horizontal outwardly-extending arm 16 having a depending stud 17 which passes through an elongated radial slot 18 in the guide plate 3 and into engagement with a cam slot of a cam plate 19. The cam plate 19 is formed with two series of cam slots, those of the inner series being designated by the numeral 20 and those of the outer series by the numeral 21. The stud 17 of the segments 11 engage the respective slots 20, while the corresponding studs of the segments 12 engage the cam slots 21. Each of the cam slots 20 is formed with an eccentric portion *a* at one end and with a concentric portion *b* at the opposite end; and each of the slots 21 is formed with a concentric portion *c* at one end and an eccentric portion *d* at the opposite end, the eccentric portions *d* and *a* being at opposite ends of the respective slots. The cam plate 19 is secured to the base 4 by means of pins 22, or any other suitable means, so as to rotate therewith, the base being rotated in any suitable manner, as by means of a lever engaged with the notch or recess 23 therein. The core box 2 is provided with the inwardly-projecting flange 24 which engages the segments 11 and 12 in the manner shown in Fig. 1 to form guides therefor.

25 designates a set screw by means of which the rotation of the base 4 may be prevented when the segments are in the position shown in Figs. 1 and 3, and the core box is being rammed up.

The operation is as follows:—The segments 11 and 12 having been advanced to form the complete inner circular wall of the core box, the box is rammed up with sand in the usual manner. The set screw 25 is then loosened, and the base 4 is given a partial turn, thereby rotating the cam plate 19. As the cam plate commences to turn, the eccentric portions of the cam slots 20 act to retract the segments 11 until the said studs reach the concentric portions *b* of said slots. During this movement the studs of the segments 12 have been traveling in the concentric portions of the cam slots 21, but at the time that the studs of the segments 11 pass into the concentric portions of the slots 20, the studs of the segments 12 pass into the eccentric portions *d* of the slots 21, and the segments 12 are now retracted. The core can now be readily removed from the box.

The advantages of my invention consists in the provision of the segmental inner wall of the box in connection with the simple and positive means whereby a portion of the segments thereof may be first retracted, and the remaining segments subsequently retracted.

Various changes may be made in the construction and arrangement of the parts by those skilled in the art without departing from my invention; thus either set of cam

slots may be arranged to act first, and the form and arrangement of the cam and its mode of engagement with the segments may be changed in various ways.

What I claim is:—

1. In a core box for forming hollow sand cores, an inner wall formed of a plurality of separately movable sections having projections on their outer faces, each section having a radially arranged guide rib or plate, and a downwardly-extending arm, and an actuating cam engaged with said arms; substantially as described.

2. A core box for forming hollow sand cores having a fixed outer wall, an inner wall composed of similar separately movable segments having radial guiding ribs, a central radial slotted hub forming guides for the ribs, an actuating cam engaging the segments, and a rotary base member to which the cam is secured; substantially as described.

3. A core box for forming hollow sand cores having a fixed outer wall, a slotted bottom guide plate secured thereto, an inner wall composed of a series of radially movable segments having projections on their outer surfaces having studs which pass through the slots of the guide plate, an actuating cam for the segments engaged by said studs, and means for actuating the cam; substantially as described.

4. A core box for forming hollow sand cores having its inner wall formed by a plurality of independently movable segments having projections on their outer surfaces, an actuating cam for the segments, a rotary base member secured to the cam, and means for holding the base member against rotation; substantially as described.

5. A core-box for forming hollow sand-cores, comprising a rotary base portion, a cam-member carried thereby, a relatively fixed guide member having a central hub secured thereto, an outer fixed wall, and an inner wall composed of a plurality of radially movable segments having an actuating engagement with the cam plate through the guide member, said segments also having guides in the hub; substantially as described.

6. A core box, having an outer wall, an inner wall composed of a plurality of radially movable segments, a base supporting the outer wall and having a rotary connection with the box proper, and means carried by the base and engaging said segments to move the same; substantially as described.

7. A core-box having an outer wall, a base portion supporting said wall and provided with a vertical stem or spindle, a hub surrounding the same and having radial slots therein, an inner core-box wall surrounding the hub and composed of a plurality of segments movably engaged with the slots of the hub, and cam means carried by the base portion and engaging the segments, the box and base portion having a rotary connection; substantially as described.

8. A core box for forming hollow sand cores having an inner wall composed of a plurality of separately movable segments having projections on their outer faces, and a rotary cam plate having two series of cam slots engaging the segments, each of said slots having an eccentric and a concentric portion, and such portions being reversely arranged in the two series of slots, substantially as described.

In testimony whereof, I have hereunto set my hand.

ARTHUR J. BAZELEY.

Witnesses:

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HARRY E. ORR.