No. 720,011. PATENTED FEB. 10, 1903.

J. G. EMRICH.

ANCHOR FOR SAND CORES.

APPLICATION FILED FEB. 24, 1902.

NO MODEL.

Fig. 1.

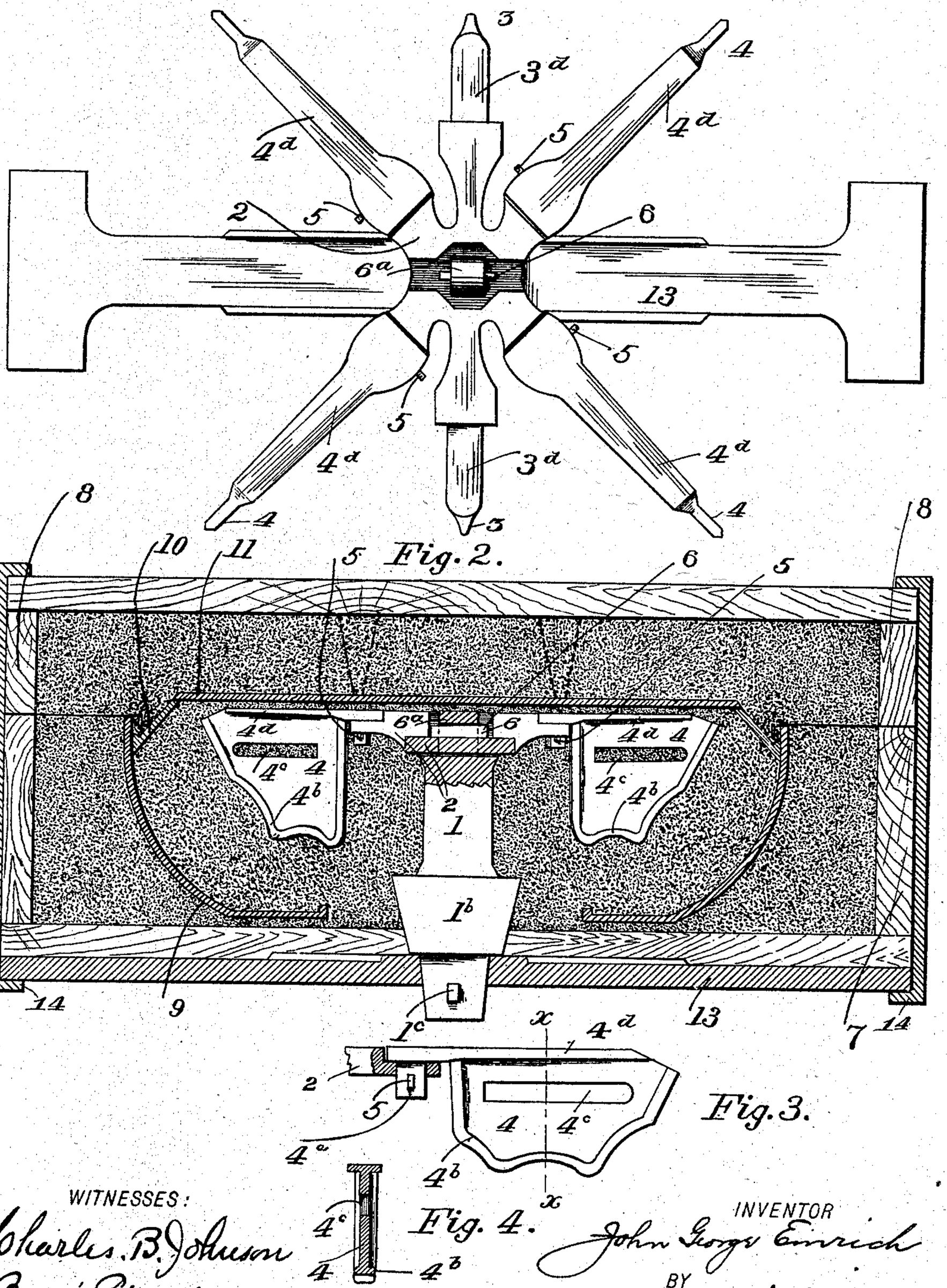

Fig. 2.

Fig. 3.

Fig. 4.

WITNESSES:

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JOHN GEORGE EMRICH, OF COLUMBUS, OHIO.

ANCHOR FOR SAND CORES.

SPECIFICATION forming part of Letters Patent No. 720,011, dated February 10, 1903.

Application filed February 24, 1902. Serial No. 95,334. (No model.)

To all whom it may concern:

Be it known that I, JOHN GEORGE EMRICH, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Anchors for Sand 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 bottoms of the bases of heating-stoves have heretofore been bolted on and the joints between the parts filled with putty; but after a short time the putty dries, cracks, and falls out, letting in air to the ash-pit and permitting ashes therein to fall through. Many attempts have been made to cast a stove-base, including its bottom, in one piece; but, so far as I am aware, such attempts have invariably resulted in failure. This failure has been due, I think, to the peculiar construction of a stove-base, particularly its extension in a horizontal direction from a common vertical axis, and to the inability to prevent dislodgment and disintegration of the sand core when the mold is being made and the metal poured.

My invention therefore relates to anchors for sand cores; and the invention consists in an improved construction of the same whereby stove-bases and articles of corresponding structure can be cast, all as hereinafter set forth and claimed.

In the accompanying drawings, showing one embodiment of the invention, Figure 1 is a plan view of the anchor and its supporting-bar. Fig. 2 shows the position of the anchor in a flask containing the patterns for a hollow casting. Fig. 3 is a side view of one of the severable wings. Fig. 4 is a sectional view of such wing, taken on line x x, Fig. 3.

In the views, 1 designates the center post or stem of the anchor.

2 is the head or crown-piece, which is shown to be removably attached to the upper end of the stem 1 by means of a pin 6, passed through a loop 6^a, extending upward from the top of the center post. The crown-piece has reaching outward from it any suitable number of wings, the body portions of which are substantially flat, lying in planes substantially coinciding with the axis of the center post. Some of the wings 3, preferably the shorter, can be integral with the crown-piece, while others, 4, are separable. The wings 3 in the form of the anchor shown are shorter, because of the substantially square form of the stove-base pattern, the short wings reaching to the side portions and the long wings reaching toward the corners. The detachable or separable wings are fastened to the crown-piece by means of a pin 5, passed through a tongue or tenon on the shank of the wing, said tongue engaging a hole in the crown-piece 2. The wings are shown to project downward with respect to the upper end of the crown-piece and to have their upper edges made with rather wide laterally-projecting ribs or flanges 3^d and 4^d, so that the wing with said flange is substantially T shape in cross-section. The remaining or the greater portion of the remaining edges of the wings are shown to be provided with lateral ribs 4^b, and a hole 4^c is made in the body of the wing. The sand is tamped into and around said hole and all the ribs to aid in holding the whole body of the sand core intact. The ribs 4^d are shown to be enlarged toward their roots or shanks where they join the crown-piece, and such ribs are especially useful in bracing the core against lifting, because when the metal is poured into the mold, as hereinafter described, it fills the lower part of the mold first and there, especially if the sand be a trifle moist, generates steam and gas, the tendency of which is to lift or bulge the core upward and close the molding-spaces above, and particularly at the center, if the core be wide. Now these wide flanges 4^d, as will be seen from an inspection of Fig. 1, afford in the aggregate, and especially around the center, near the crown-piece, a large area of such bracing-surface by which the uplifting of the core is prevented.

In making a mold with my anchor I employ a supporting-bar 13, which is to be keyed by a pin 1^c to the center post 1 from time to time as the work proceeds. The post 1 is provided with an enlarged tapering shoulder 1^b, that not only affords a stop to fix the position of the post on the bar 13, but also at its upper end supplements the wings 3 and 4 in holding the sand of the core intact.

In Fig. 2 of the drawings I have depicted

the anchor as used in forming the mold for a hollow stove-base. In this view, 7 denotes the drag, and 8 the cope. Ordinary clamps 14 are employed for securing the drag and cope together. 9 denotes the pattern for the top of the stove-base, and 10 and 11 a ring and plate, respectively, constituting together the pattern for the bottom of the stove. The sand in this view, Fig. 2, is shown to be all tamped and the parts of the flask ready for separation preparatory to drawing the several pieces of the pattern. The lines drawn through the sand indicate parting-lines. When parts are made ready, as shown in Fig. 2, the flask is first rolled over from its position indicated in that view, and after removing the clamps 14 and taking out pin 1^c the drag is removed, leaving the pattern 9 exposed to be drawn. The drag is then replaced on the cope and the two clamped together, the pin 1^c also being inserted. The flask is then rolled over again to the position seen in Fig. 2 and the cope with its sand removed, leaving the pattern 10 and 11 exposed to be drawn, after which the cope is replaced and clamped to the drag. The flask is now ready for the pouring. Suitable gates, as indicated by dotted lines in the upper portion of Fig. 2, are of course provided through which the metal is poured. When the casting has cooled off, the anchor can be removed from the interior of the casting through the hole in the top by pulling out the pins 5, connecting the larger wings 4 with the crown, and the pin 6, connecting the crown with the stem.

What I claim, and desire to secure by Letters Patent, is—

1. An anchor for sand cores comprising a center post, a crown-piece thereon, and flat separable wings attached to said crown-piece and radiating therefrom in planes coinciding with the longitudinal axis of the post.

2. An anchor for sand cores comprising a center post, a removable crown-piece thereon and flat separable wings attached to said crown-piece and radiating therefrom in planes coinciding with the axis of said post.

3. An anchor for sand cores comprising a center post, a removable crown-piece thereon and flat separable wings attached to said crown-piece and radiating therefrom in planes coinciding with the axis of said post, said crown-piece also having fixed wings radiating therefrom in planes coinciding with the axis of the post.

4. An anchor for sand cores comprising a center post, a removable crown-piece having fixed radiating wings, and also wings separable therefrom radiating in planes coinciding with the axis of the center post.

5. An anchor for sand cores comprising a center post, a crown-piece thereon and flat separable wings radiating from said crown-piece in planes coinciding with the axis of said center post and provided with openings and laterally-extending ribs.

6. An anchor for sand cores comprising a center post having a shoulder at one end and a crown-piece at the other and flat separable wings radiating from said crown-piece in planes coinciding with the axis of the center post.

7. An anchor for sand cores comprising a center post having a shoulder at one end, and a crown-piece at the other and separable wings of T shape in vertical cross-section radiating from said crown-piece.

8. An anchor for sand cores comprising a center post having a shoulder at one end, and a crown-piece at the other, and flat separable wings radiating from said crown-piece, said wings having edge flanges 4^d enlarged near their inner ends.

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

JOHN GEORGE EMRICH.

Witnesses:
BENJ. FINCKEL,
GEO. M. FINCKEL.