

1,371,271.

Fig 1.

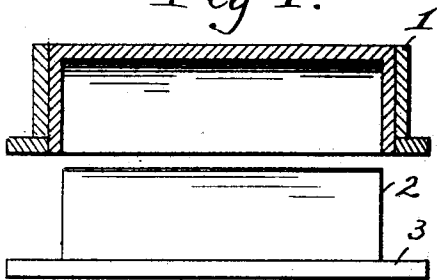


Fig. 2.



Fig. 3.

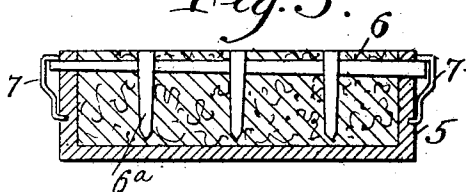


Fig. 4.

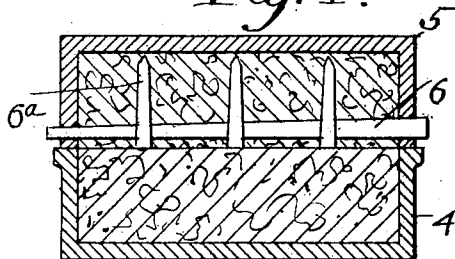


Fig. 5. 6a

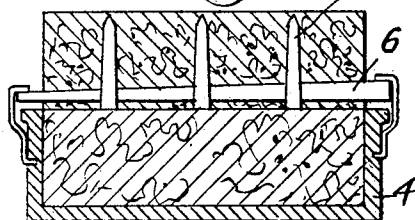
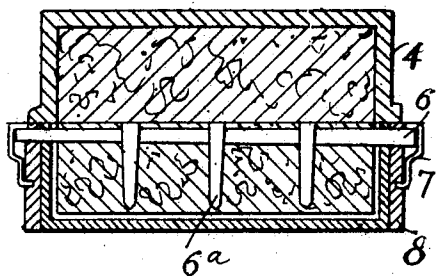
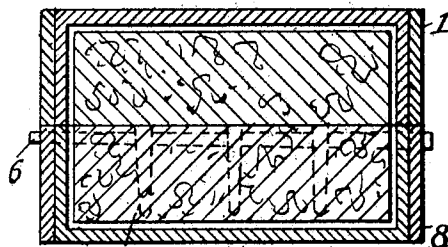


Fig. 6.



6^a Fig. 7.



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UNITED STATES PATENT OFFICE.

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METHOD OF MAKING MOLDS.

1,371,271.

Specification of Letters Patent.

Patented Mar. 15, 1921.

Application filed August 11, 1920. Serial No. 402,847.

To all whom it may concern:

Be it known that I, JOHN T. STONEY, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Methods of Making Molds, of which the following is a full, clear, and exact description.

The present invention is directed to a method of making a mold having a core which is made entirely of green sand.

I am aware that it has been known to make a mold having a green sand core, but in such instances, the cores are of simple form and can be lifted from the core box and set into the mold. The present invention is directed to the use of a green sand core which was thought impossible because of the great difficulty experienced in handling these cores. The present method is directed to handling this type of core from the above standpoint as well as from the possibility of increased production.

However, where the green sand core is of large size and of considerable weight, great difficulty is experienced in handling these cores and the present method is directed to this situation.

In an application filed by myself in March 11, 1919, I there set forth a method for making molds in which there was used a green sand core, and the present method embodies certain features which were utilized in that invention, but the present method differs somewhat and may be readily used where the drag core is of such size and shape that it can be readily handled, as will be later explained, rather than by the method set forth in my aforesaid application and by use of the present method effect a shorter molding operation.

Reference should be had to the accompanying drawings forming a part of this specification, in which Figure 1 shows a sectional elevation, a molding flask, and a pattern plate used in the making of a mold; Fig. 2 is a sectional elevation of a cope core box with a core therein; Fig. 3 is a sectional elevation of a drag core box with the core therein; Fig. 4 is a sectional elevation of a superimposed cope and drag core box; Fig. 5 is a sectional elevation, the same as Fig. 4, with the drag core box removed; Fig. 6 is a sectional elevation showing the drag of a mold and the drag core placed within the

mold; Fig. 7 is a sectional elevation showing the complete mold with the green sand core therein.

In proceeding with the description of the invention it will be understood that in the preparation of the cope and drag of the mold, as well as the cope and drag of the core, any desired form of machines for making these mold or core parts, may be used, and in practice it is usual to use such machines, but for the sake of simplicity, the machines are not shown or described.

In Fig. 1, 1 indicates a flask in which the cope of a mold has been formed corresponding to the pattern 2 carried by the pattern plate 3.

The drag of the mold is also prepared and in the instance disclosed in the present application, the cope and drag of the mold are precisely the same, although as will be well understood, this may not always be the case in practice.

The cope core box is suitably rammed with green sand as indicated in Fig. 2, and the drag core box is also suitably rammed with green sand but in connection with the making of the drag core an arbor is used which is embedded in the green sand and so positioned that when the drag core box is removed, the arbor acts as a stiffener and support so that the green sand core holds its shape and form.

The arbor in the present instance comprises a rod 6, which extends longitudinally of the drag core box 5, the ends of the rod extending through slots in the end of the core box and the arbor is secured to the core box in any desired manner, as by means of clamps such as indicated at 7. The arbor 6 is preferably a collapsible arbor and with this in view the part 6 is made tapering and upon the part 6 there are positioned plates such as indicated at 6^a, which plates are provided with openings of definite size so that when mounted upon the rod 6, they will definitely position themselves in accordance with the size of the openings through them.

The plates 6^a may be made of various configurations with a view to holding the sand in compacted condition and prevent its loosening and falling.

As before stated, the core is collapsible and may be removed from the casting subsequently by withdrawing the rod or bar 6 from the plates 6^a which may be done

through some convenient opening in the casting itself so that the plates 6^a may be disassembled from the bar 6 in the removal of the arbor.

5 After the preparation of the cope core and the drag core, the drag core box is superimposed on the cope core box as indicated in Fig. 4.

10 The clamps 7 are then removed and repositioned so that the arbor bar 6 is clamped to the cope core box 4. The drag core box is then withdrawn as indicated in Fig. 5.

15 The combined cores with the cope core box 4 is then inverted and placed within the drag 8 of the mold during this time the arbor 6 being clamped to the cope core box 4.

20 After the drag of the core has been placed within the drag of the mold, the clamps 7 are removed and the cope core box 4 is withdrawn. The cope 1 of the mold is then positioned on the drag of the mold, the same passing over the cope core.

25 In practice the operation of preparing the cope and drag of the mold, as well as the cope and drag of the core proceed simultaneously, and each mold is finished as the parts thereof are made, without the necessity for any previous preparation of the
30 core or other parts.

35 No description need be given of the completed mold with respect to the pouring gates, etc., as these form no part of the present invention and are matters which are readily understood by those familiar with the art.

Having described my invention, I claim:

1. The method of making a mold which comprises preparing a drag portion of a mold, preparing a cope portion of a mold, 40 preparing a cope portion of a core in a suitable core box, preparing a drag portion of a core in a suitable core box, which drag portion has internal support, superimposing the drag core box on the cope core box, withdrawing 45 the drag core box, securing the drag of the core to the cope core box, inverting the combined cores and positioning the drag core within the drag of the mold, withdrawing the cope core box and positioning the cope 50 of the mold over the cope of the core.

2. The method of preparing a mold which consists in preparing a cope portion and a drag portion, preparing a cope core in a suitable core box, preparing a drag core in 55 a suitable core box, the said drag core being formed with an arbor embedded therein, securing the arbor to the drag core box, inverting the drag core box and superimposing it upon the cope core box, releasing the 60 arbor from the drag core box and securing to the cope core box, withdrawing the drag core box, inverting the cope core box and the attached drag core and positioning the same within the drag of the mold, releasing 65 the arbor from the cope core box, withdrawing the cope core box, and positioning the cope of the mold over the cope core.

In testimony whereof I hereunto affix my signature.

JOHN T. STONEY.