

(No Model.)

H. V. MOORE.
COMBINED PATTERN AND CORE BOX.

No. 574,748.

Patented Jan. 5, 1897.

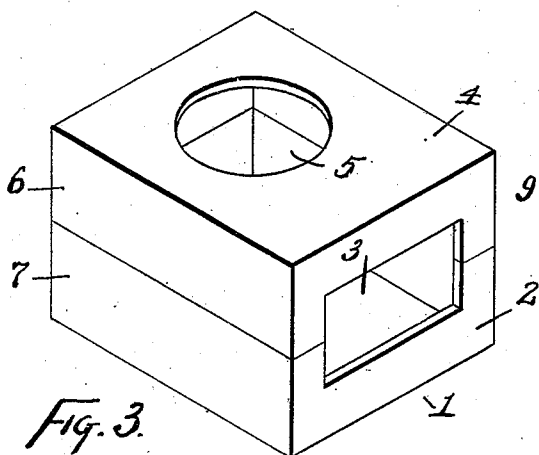


Fig. 3.

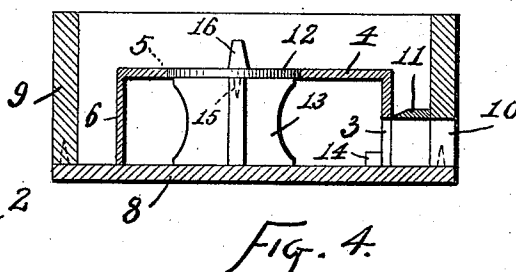


Fig. 4.

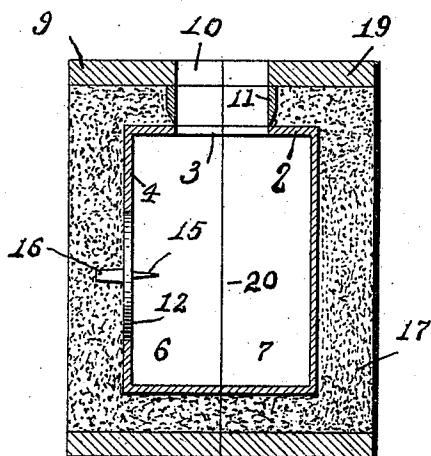


Fig. 1.

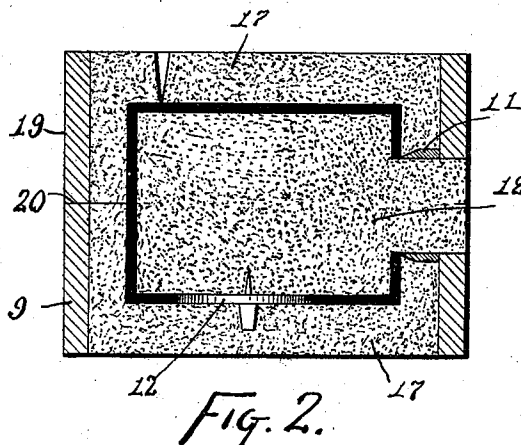


Fig. 2.

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HARRY V. MOORE, OF HAMILTON, OHIO, ASSIGNOR TO F. & L. KAHN & BROS., OF SAME PLACE.

COMBINED PATTERN AND CORE-BOX.

SPECIFICATION forming part of Letters Patent No. 574,748, dated January 5, 1897.

Application filed September 14, 1896. Serial No. 605,709. (No model.)

To all whom it may concern:

Be it known that I, HARRY V. MOORE, of Hamilton, Butler county, Ohio, have invented certain new and useful Improvements in a
5 Combined Pattern and Core-Box, of which the following is a specification.

My invention pertains to improvements in combined patterns and core-boxes for metal-founders' use in the production of boxes having top and frontal openings, and the same
10 ing top and frontal openings, and the same will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a vertical section of the combined
15 pattern and core-box in condition and position ready to have the core-sand rammed into it; Fig. 2, a vertical section of the mold and core after the pattern has been withdrawn and the mold is put in position ready for pouring; Fig. 3, a perspective view of the pattern, this view serving also to illustrate the box which is to be produced by casting in the mold; and Fig. 4, a vertical section of a half-flask containing half the pattern and disposed
20 on its follow-board ready to be filled and rammed.

In the drawings, confining attention for the present exclusively to Fig. 3, 1 indicates the pattern, similar in shape to the casting to be
30 produced, the pattern being the same in character as the casting except that the pattern is parted, as hereinafter explained; 2, the front wall of the pattern; 3, an opening through this front wall; 4, the top wall of the pattern; 5, an opening through this top wall, openings 3 and 5 being therefore in planes at right angles to each other; 6, the upper portion of the pattern, and 7 the lower portion of the pattern, the portions 6 and 7 constituting the upper and lower members of the pattern, these two members joining on a line of separation parallel with the top wall 4 of the pattern and cutting through the opening 3 in the front wall of the pattern, the parting-line or joint of separation of the pattern members appearing in Fig. 3.

While the structure which has been thus far described will, if the parting between the upper and lower members be ignored, represent the box-casting to be produced, it is for
50 present purposes to be considered as the pattern to be employed.

Now, giving attention exclusively to Fig. 4 of the drawings, 8 indicates a follow-board on which is placed portion 6 of the pattern, the
55 top wall 4 of the pattern, having the opening 5, being upward; 9, a half-flask set upon this follow-board around the pattern and doweled to the follow-board in the usual manner; 10, a large opening in the lower portion of one
60 wall of the half-flask, this opening coming opposite to and corresponding with the portion of the opening 3 in the front wall of the upper pattern part; 11, a metallic box with the inner edges of its walls fitting accurately and
65 closely against the front wall of the pattern around the opening 3, the outer edges of the walls of box 11 making contact with the inner surface of the front wall of the flask around opening 10 therein, box 11 resting on follow-
70 board 8 and being open below to the follow-board; 12, a plate closing opening 5 in the top wall of pattern part 6; 13, a stool on the follow-board, within the pattern part 6 and supporting plate 5; 14, a stay fast on the fol-
75 low-board and serving to hold the front of the pattern firmly up against the inner edge of box 11, the front wall of the pattern being thus clamped between box 11 and stay 14; 15, an anchor projecting from the lower sur-
80 face of plate 12, which anchor will be later explained more fully, and 16 an anchor projecting from the upper surface of plate 12, which anchor will be later more fully explained.

The parts being in the position and condition indicated in Fig. 4, the front wall of the pattern is held rigidly up against box 11 and all is in condition for forming the half-mold. The half-flask is to be filled and rammed, plate
90 12 keeping any sand from reaching the interior of the pattern through the top opening and box 11 keeping the sand from entering the pattern through the front opening 3. When the half-mold has thus been rammed
95 it is to be turned over and the follow-board 8 with the stool 13 removed. The face of the mold is then to be dusted with parting-sand, this face being now uppermost and being the face which would be downward while the mold
100 is being rammed. The lower portion 7 of the pattern, Fig. 3, is now to be properly set over the pattern portion 6, which is in the half-mold, the two pattern parts being doweled

together, as is usual in parted patterns. Another half-flask similar to half-flask 9 and similarly provided with an opening 10, together with a similar box 11, is now to be set upon the completed half-mold and sand rammed therein, as before. This operation has completed the mold proper ready for the ramming of the core. The completed mold, with its two halves properly clamped together, is now to be turned to the position shown in Fig. 1, with its opening 10 upwardly.

17 indicates the sand in the two half-flasks around the pattern and forming the mold. The interior of the pattern is now to be filled with sand through opening 10 and properly rammed flush with the upper surface of what is in the present position the top wall of the flask. Looking at Fig. 1 and considering it before the sand is put into the interior of the pattern, let us consider half-flask 19 as the cope and half-flask 9 as the drag, line 20 being the parting which separates these two mold parts and being also the line of parting between the two parts 6 and 7 of the pattern. After the sand has been rammed to form the core the mold is to be turned to bring drag 9 uppermost. This condition may be best appreciated by properly turning Fig. 1 of the drawings so that drag 9 can be viewed as being the top of the drawing. Drag 9 is now to be lifted, after which portion 6 of the pattern is to be removed and the drag replaced. The mold is now to be turned over, bringing cope 19 uppermost. By again turning the drawing it will be appreciated that pattern portion 7 is now at the top of the mold and that pattern portion 6 is absent, and that the core would be supported by the sand below plate 12, the plate acting as a support between the core and the mold-sand at the opening in wall 4 of the pattern. Cope 19 is now to be lifted, pattern part 7 is to be removed, and the mold closed by replacing the cope. This completes the mold, as seen in Fig. 2, and the mold is ready for pouring, the core being supported by the mold-sand under plate 12.

It is essential that plate 12 be present while the drag is being rammed, but it is not essential that it should stay in the mold. After the drag has been rammed and turned and the follow-board and stool removed the plate 12 may be removed and the mold-surface left by it in the cope may be dusted with parting-sand, in which case, when the mold is completed ready for pouring, the core will not only be supported by but will be in direct parting contact with the mold-sand below it. But in practice cases will arise in which the core is very large in proportion to the size of the opening 5 in the top of the box, giving considerable unsupported overhang to the lower corners of the core, making a weak core and also producing considerable floating tendency on the part of the core. In such cases plate 12 offers peculiar facilities for strengthening the core or for anchoring it to the mold or for doing both. In the drawings I have shown the

plate as provided with an anchor 15 upon that surface of the plate which comes in contact with the core. This anchor may be extended into any desired direction or have any desired form to engage the sand within the core, and it may reach into whatever parts of the core may be found most in need of support. Plate 12 in such case serves at once as a filler for the opening 5 in the pattern, as a parting between the mold-sand and the core-sand, and as an anchor for increasing the structural stability of the core. But if it be found necessary to anchor the core to the mold to guard against its floating then anchor 16 on the outer surface of plate 12 may be employed, and it may have any form or mechanical connections best suited to detachably binding the plate to the drag. In the drawings the anchor 16 is a mere stud projecting into the sand of the drag. This will be sufficient in many cases, while other cases may call for a further extension of this anchor, so as to receive a key or bolt, in connection with a cross-bar on the drag, as is common in the anchoring of cores.

I claim as my invention—

1. The combination, substantially as set forth, of a half-pattern portion in box form with an opening in its top, an opening in its front wall and an open bottom, a follow-board supporting said pattern portion, a plate closing said top opening, a half-flask resting on the follow-board and having in one of its walls an opening corresponding with the opening in the front wall of the pattern portion, a half-box between the front wall of the half-flask and the front wall of the pattern portion around the openings therein, and a stay clamping the pattern against the inner edge of said box.

2. The combination, substantially as set forth, of a box-pattern having an opening in its upper wall and an opening in its front wall and having a parting through the last-mentioned opening in a plane substantially parallel with the top wall of the pattern, two half-flasks inclosing said pattern and joining each other in a plane substantially parallel with said top wall and having in their joint an opening opposite to and corresponding with the opening in the front wall of the pattern, and a metallic box with the edges of its walls in contact with the outer surface of the front wall of the pattern and with the inner surface of the corresponding wall of the flask around the openings therein.

3. The combination, substantially as set forth, of a box-pattern having an opening in its top wall and an opening in its front wall and having a parting through said latter opening substantially parallel with the plane of the top opening, and a plate in said top opening.

4. The combination, substantially as set forth, of a box-pattern having an opening in its top wall and an opening in its front wall and a parting through said front opening sub-

stantially parallel with the plane of the top opening, a flask formed in two parts and enclosing said pattern and having an opening in one of its walls corresponding with the front opening in said pattern, and a plate in the top opening of the pattern and adapted to serve as a parting between mold-sand rammed in the flask outside the pattern and core-sand rammed within the pattern.

5 10 5. The combination, substantially as set forth, of a box-pattern having an opening in its top wall and an opening in its front wall and parted through said latter opening in a plane substantially parallel with the plane of the top opening, a flask surrounding the pattern, and a plate in the top opening of the pattern and provided with an anchor projecting from its inner surface and adapted to serve as a parting between mold-sand and core-sand.

6. The combination, substantially as set

forth, of a box-pattern having a top opening and a front opening and a parting through the front opening in a plane substantially parallel with the top opening, and a plate within said top opening and provided with an anchor projecting from its outer surface and adapted to serve as a parting between mold-sand and core-sand.

7. The combination, substantially as set forth, of a box-pattern having a top opening and a front opening and parted through the front opening in a plane substantially parallel with the top opening, and a plate in said top opening and provided with anchors projecting from its inner and outer surfaces and adapted to serve as a parting between mold-sand and core-sand.

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