G. H. VINING.

CASTING APPARATUS.

APPLICATION FILED OCT. 15, 1908.

961,182.

Patented June 14, 1910.

2 SHEETS—SHEET 1.

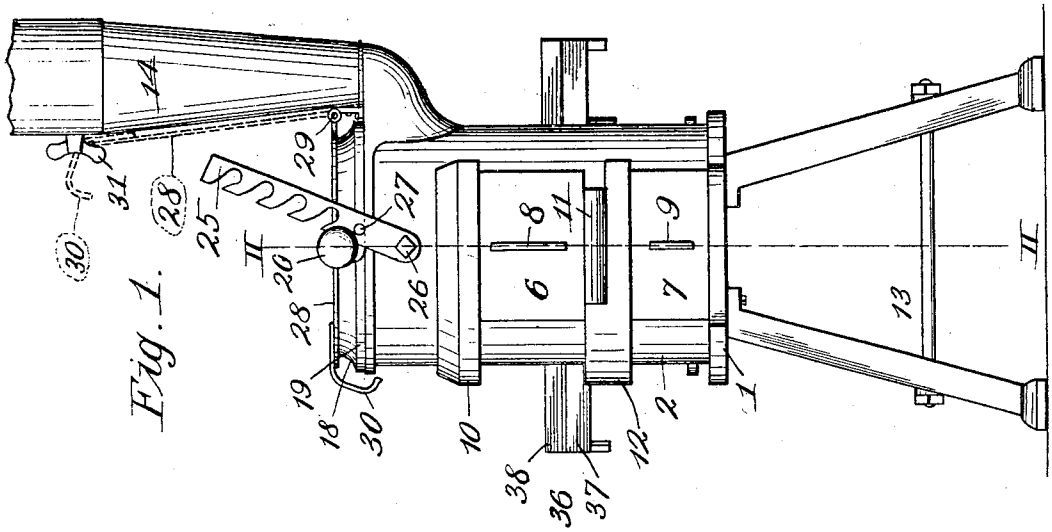

Fig. 1.

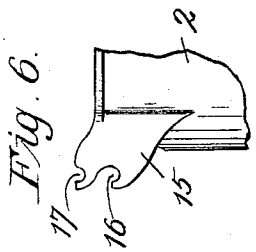

Fig. 6.

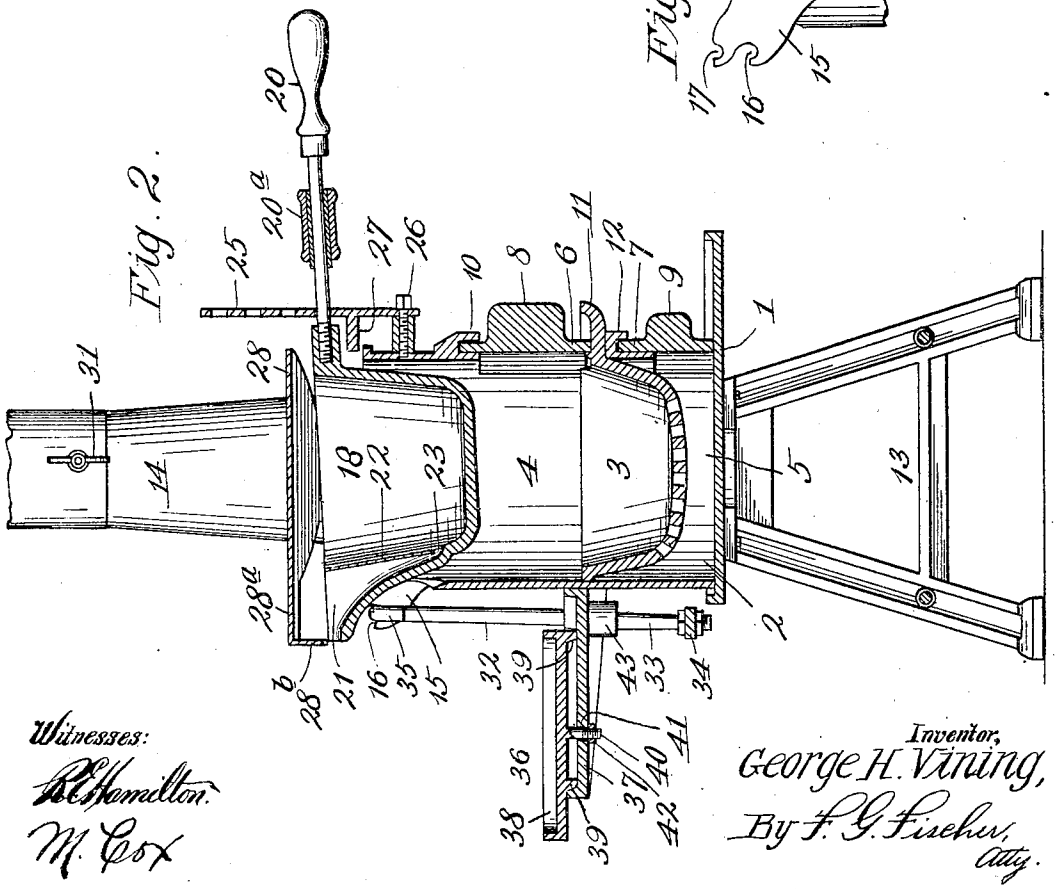

Fig. 2.

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2 SHEETS—SHEET 2.

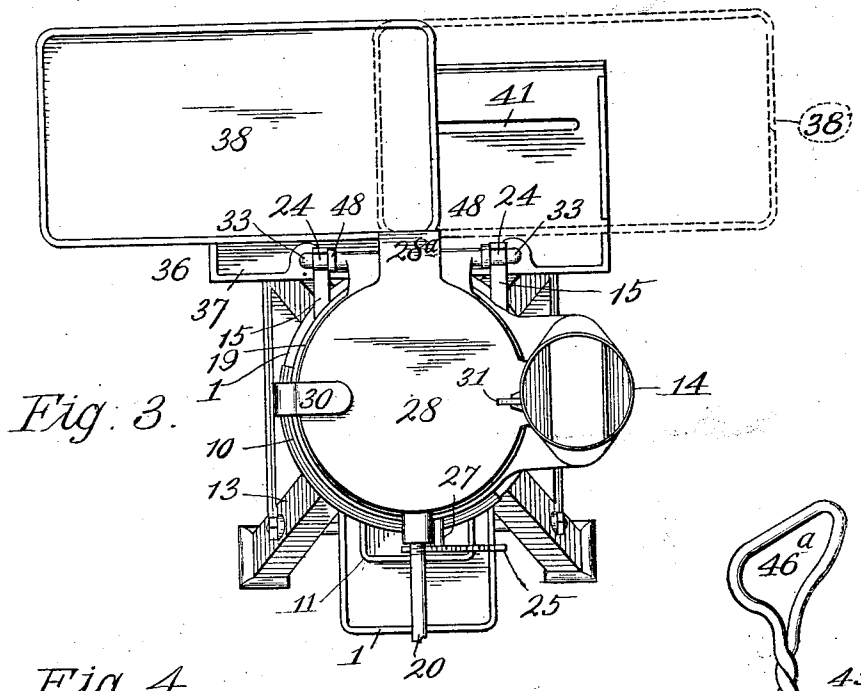
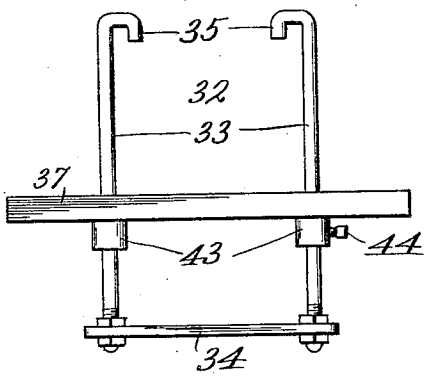


Fig. 3.

Fig. 4.



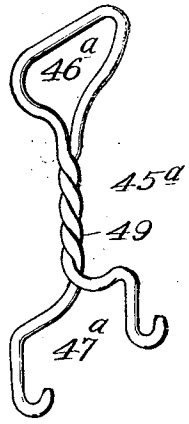


Fig. 7.

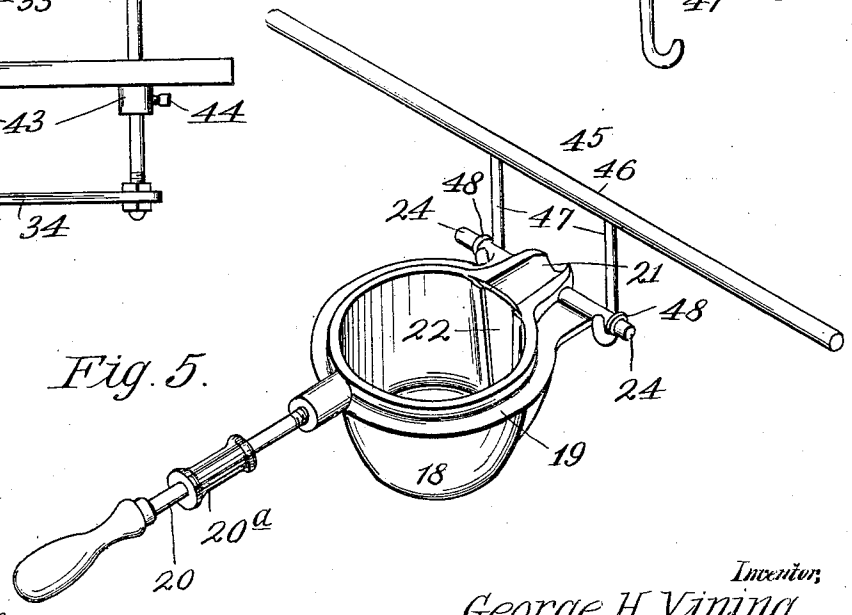


Fig. 5.

Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE H. VINING, OF KANSAS CITY, MISSOURI.

CASTING APPARATUS.

961,182. Specification of Letters Patent. **Patented June 14, 1910.**

Application filed October 15, 1908. Serial No. 457,870.

To all whom it may concern:

Be it known that I, GEORGE H. VINING, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Casting Apparatus, of which the following is a specification.

My invention relates to improvements in casting apparatus; and my objects are first, to provide a furnace and a crucible which latter is adjustable on the former and acts to a certain extent as a damper for regulating the fire in the furnace; second, to provide an adjustable table for supporting objects, such for instance as journal-bearings, beneath the spout of the crucible so that when the latter is tipped up to pour the molten metal therefrom the same may be properly distributed throughout the object by moving the table backward or forward; third, to provide means whereby the crucible may be lifted from the furnace and carried some distance therefrom preparatory to pouring the molten metal.

Other objects of the invention will hereinafter appear and in order that said invention may be fully understood, reference will now be made to the accompanying drawings, in which:

Figure 1 represents a front elevation of the invention. Fig. 2 represents a vertical central section on line II—II of Fig. 1. Fig. 3 represents a plan view of the invention. Fig. 4 is a front elevation of a hanger and a portion of the table employed in carrying out the invention. Fig. 5 is a detail perspective view of the crucible and a carrier for handling the same. Fig. 6 is a broken detail of the upper portion of the furnace. Fig. 7 is a detail perspective of a modified form of carrier.

The furnace consists of a bottom plate 1, a shell 2 resting thereon and open at its upper end, and a fire-pot 3 dividing the shell into a combustion-chamber 4 and an ash-pit 5. The combustion-chamber and the ash-pit have openings which are normally closed by doors 6 and 7, provided with handles 8 and 9, respectively, whereby they may be opened or closed. Door 6 is slidably mounted in a grooved guide 10 and an extension 11 on the front portion of the fire-pot. Door 7 is slidably mounted upon the bottom plate 1, and in a grooved guide 12. Guides 10 and 12 are secured to the front of the furnace, which is supported by a stand 13 and provided at its upper portion with a flue 14 for carrying off the products of combustion.

15 designates a pair of brackets, each of which is provided with a bearing 16 and a bearing 17, which latter is arranged above the former for a purpose which will hereinafter appear.

18 designates the crucible which is adjustable on the furnace and adapted to rest in the upper portion thereof, it being provided with a collar 19, adapted to engage the upper surface of the furnace, and together with the crucible close the open end of said furnace. The crucible is also provided with a handle 20, a handhold 20^a slidably mounted upon handle 20, a spout 21, and a removable skimmer 22. Spout 21 extends from the upper to the lower portion of the crucible, and skimmer 22 extends almost to the bottom of the spout, leaving only a small opening 23 through which to pour the molten metal from the crucible. By arranging the skimmer in this manner it will intercept the dross arising to the surface of the molten metal so that it cannot be poured from the crucible therewith and thus produce defective castings.

Spout 21 is provided at its opposite sides with trunnions 24 which are mounted in bearings 17 to support the crucible when it is tipped upward to pour the metal therefrom. The crucible is also adjusted or tipped upward to allow a column of cold air to pass downward into the furnace and thus regulate the fire therein. When it is adjusted upward for this purpose, it is supported by its handle and a ratchet-bar 25 pivotally mounted upon a bolt 26 engaging the front portion of the furnace. Ratchet-bar 25 is provided with a finger 27 adapted to contact with the top of the furnace, and thus limit the pivotal movement of the ratchet-bar when the same is thrown to the inoperative position shown in Fig. 1.

28 designates a lid secured to the upper rear portion of the furnace by a hinge 29 and provided with a handle 30, so that when desired it may be thrown up to the dotted position shown in Fig. 1, where it is secured by any suitable means, a turn-button 31 be-

ing shown for this purpose. Lid 28 is provided with an extension 28[a] and a down-turned end 28[b], adapted to close spout 21 when the lid is resting upon the crucible.

When a fire is started in the furnace, lid 28 is let down upon the crucible to retain the heat therein, but when the temperature exceeds a certain degree the crucible is adjusted upward as shown in Fig. 2, to allow a column of cold air to descend into the furnace for the purpose of reducing the temperature therein. Lid 28 is in turn raised by the crucible to admit cold air to the contents of the latter to prevent overheating said contents.

32 designates a hanger consisting of a pair of parallel rods 33 united at their lower ends by a transverse bar 34 and bent at their upper terminals to form hooks 35, which removably engage bearings 16.

36 designates a table adjustably mounted on the hanger for the purpose of supporting journal-boxes or other objects beneath the spout of the crucible. Said table consists of a lower section 37 and an upper section 38, which latter is provided with a pair of runners 39 whereby it may slide back and forth to the positions shown by full and dotted lines, Fig. 3. This movement is desirable because when babbitting a journal-box it permits the latter to be moved back and forth, so that the metal may be equally distributed throughout the same as it is poured from the crucible. This movement is also advantageous when pouring remelted scrap metal to form ingots.

The upper section of the table is held upon the lower section by a depending stud-bolt 40, which extends loosely through a longitudinal slot 41 in the lower section, and is secured with a nut 42. The lower section 37 is provided with a pair of depending sleeves 43 which slidably embrace rods 33 so that the table may be adjusted toward or away from the crucible spout and thus accommodate castings of different heights. Ordinarily, the sleeves are sufficient to support the table and its load, by reason of the fact that the forward end of the table has a tendency to drop down a slight distance beyond its rear end and thus cause the sleeves to bind upon the rods, but I also provide one of the sleeves with a set-screw 44 adapted to abut against the adjacent rod 33, and thus reliably lock the table from accidental downward movement.

When operating on work too heavy to be supported by the table, it is necessary to remove the crucible from the furnace and carry it to the work, so I provide a carrier 45, consisting of a handle 46 and a pair of depending hooks 47, which latter are adapted to engage the trunnions 24, as shown in Fig. 5. The carrier 45 and handle 20 afford convenient means whereby two or three men may transport the crucible to the work. Hooks 47 are spaced apart so they may engage the trunnions while the latter are resting in bearings 17, without interfering with said bearings.

Where small crucibles are employed, that can be easily handled by one man, I provide the modified form of carrier 45[a], shown by Fig. 7 consisting of a handle 46[a], hooks 47[a], and a shank 49 connecting the handle and the hooks.

Having thus described my invention, what I claim is:—

1. In combination, a furnace open at its upper end, a crucible adjustably mounted on the furnace and adapted to rest in the upper open end thereof, and a table supported by the furnace beneath the spout of said crucible.

2. In combination, a furnace, a crucible adjustably mounted on said furnace, adapted to either close or partly open the upper end thereof, and a lid hinged to the furnace and adapted to rest on the crucible so that it will be lifted to partly open the same when the crucible is adjusted to partly open the furnace.

3. In combination, a furnace open at its upper end, a crucible adjustably mounted on the furnace and adapted to rest in the upper end thereof, a handle on said crucible for adjusting it up or down, and a ratchet-bar secured to the furnace, adapted to be engaged by the handle to support the crucible in any of its adjusted positions.

4. In combination, a furnace, a crucible adjustably mounted on said furnace adapted to either close or partly open the upper end thereof, a handle on said crucible, a ratchet-bar pivoted to the furnace adapted to be engaged by the handle to support the crucible in any of its adjusted positions, a lid hinged to the furnace and adapted to rest on the crucible so it will be lifted thereby to partly open the same when the crucible is adjusted to partly open the furnace, and means adjacent the lid for holding the same upward in an inoperative position.

5. In combination, a furnace open at its upper end, a crucible adjustably and removably mounted on the furnace adapted to either close or partly open the upper end thereof, a lid hinged to the furnace and adapted to rest on the crucible, so it will be lifted thereby to partly open the same when said crucible is adjusted to partly open the furnace, and a turn-button adjacent the lid for holding the same upward in an inoperative position.

6. In combination, a furnace open at its upper end, a crucible adjustably mounted on the furnace adapted to partly close the upper end thereof, a collar surrounding the upper portion of the crucible adapted to rest on the upper end of the furnace when said

crucible is adjusted to its lowermost position, bearings on the upper portion of the furnace, and trunnions projecting from opposite sides of the crucible spout mounted in said bearings.

7. In combination, a furnace, a crucible adjustably mounted thereon, a hanger depending from the furnace, and a table supported by said hanger beneath the spout of said crucible.

8. In combination, a furnace, a crucible adjustably mounted thereon, a hanger depending from the furnace, and a table supported by said hanger beneath the spout of said crucible, said table being vertically adjustable on the hanger, substantially as described.

9. In combination, a furnace, bearings thereon, a crucible on the upper portion of the furnace provided with trunnions mounted in the bearings thereon, a hanger removably engaging the bearings, and an adjustable table supported by the hanger beneath the spout of the crucible.

10. In combination, a furnace, a crucible mounted on the upper portion thereof, and a table supported by the furnace beneath the spout of the crucible, said table consisting of a lower section and an upper section which latter is movable on the former, for the purpose described.

11. In combination, a furnace, bearings thereon, a crucible adapted to rest in the upper portion of the furnace, trunnions on said crucible mounted in the bearings on the furnace, and a carrier having hooked terminals adapted to engage the trunnions while the latter are resting in the bearings.

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

GEORGE H. VINING.

Witnesses:
F. G. FISCHER,
M. COX.