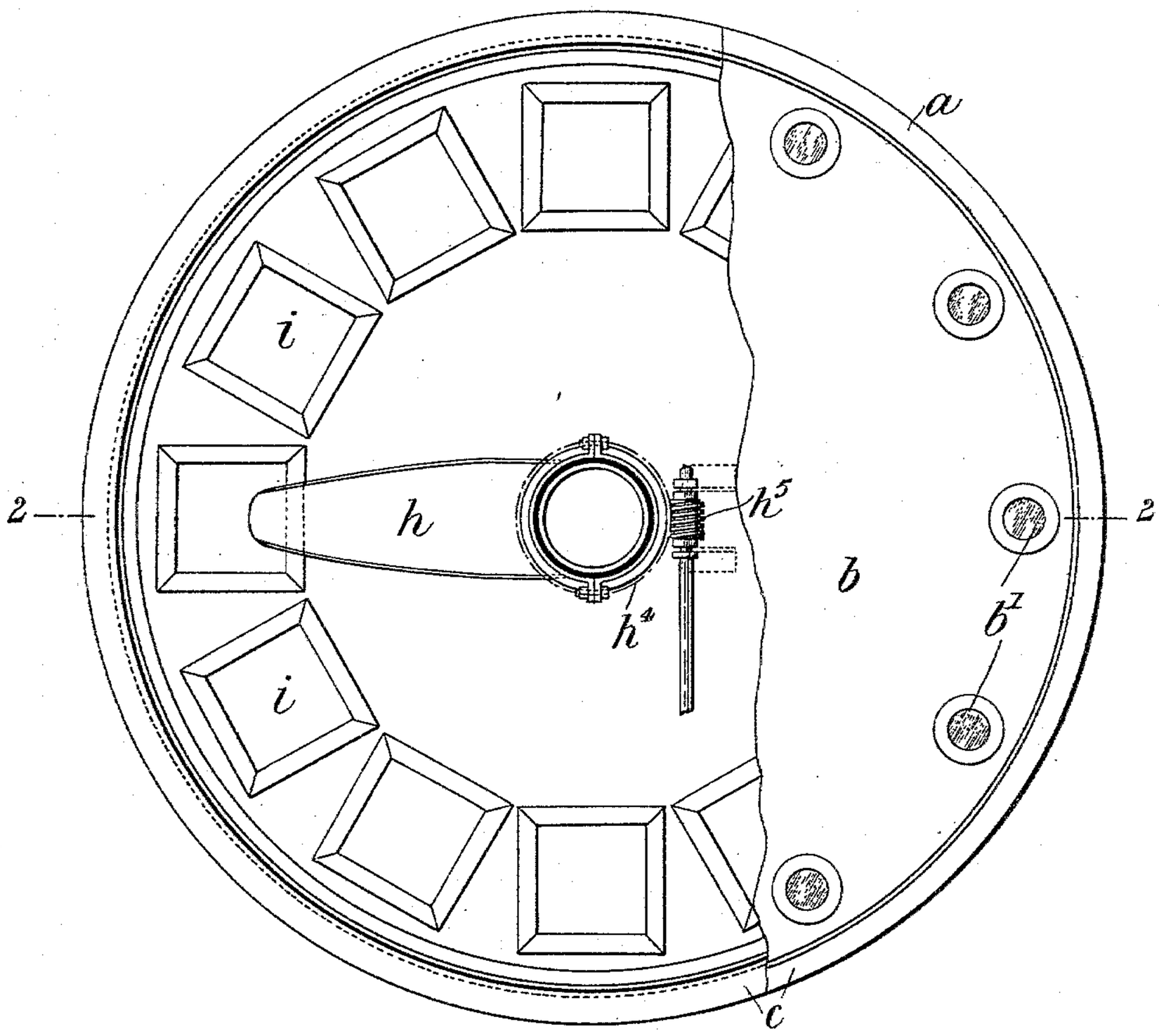
(No Model.) 3 Sheets—Sheet 1.

W. E. MAY.

APPARATUS FOR CASTING METALS.

No. 596,897. Patented Jan. 4, 1898.

Fig. 1.



Witnesses.
J. D. Kingsbury
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By Whittemore Peabody Attys.

(No Model.) 3 Sheets—Sheet 2.

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APPARATUS FOR CASTING METALS.

No. 596,897. Patented Jan. 4, 1898.

Fig. 2.

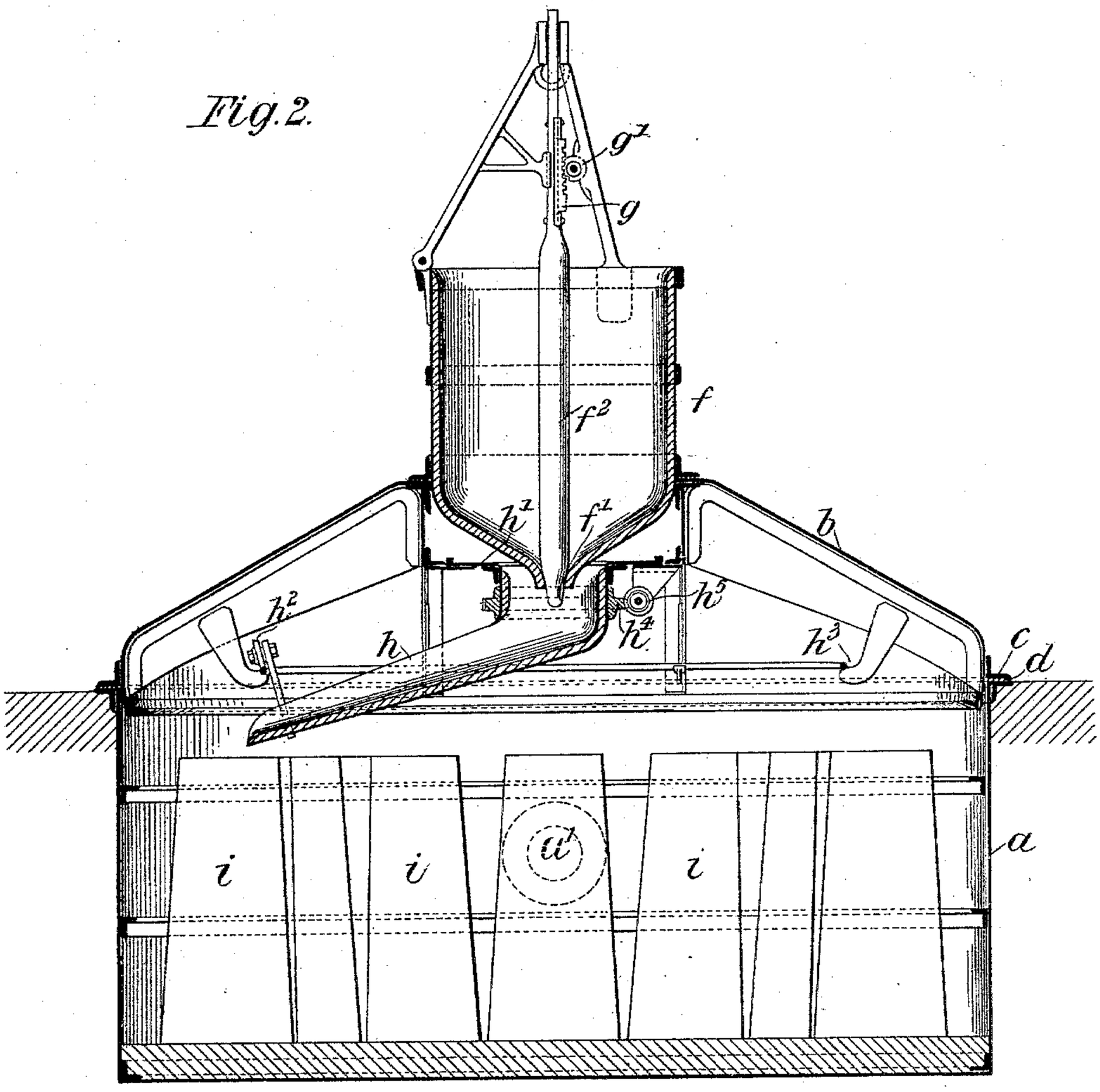
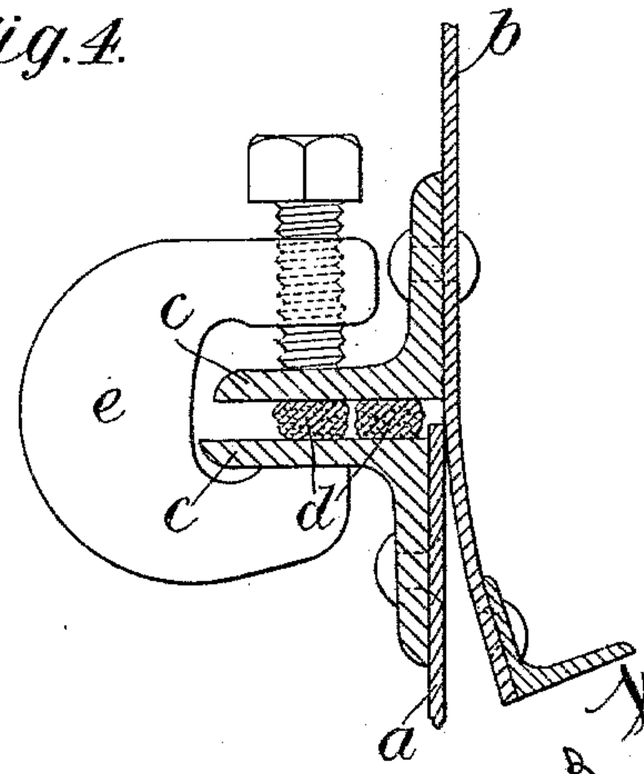


Fig. 4.



Witnesses.
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(No Model.) 3 Sheets—Sheet 3.

W. E. MAY.

APPARATUS FOR CASTING METALS.

No. 596,897. Patented Jan. 4, 1898.

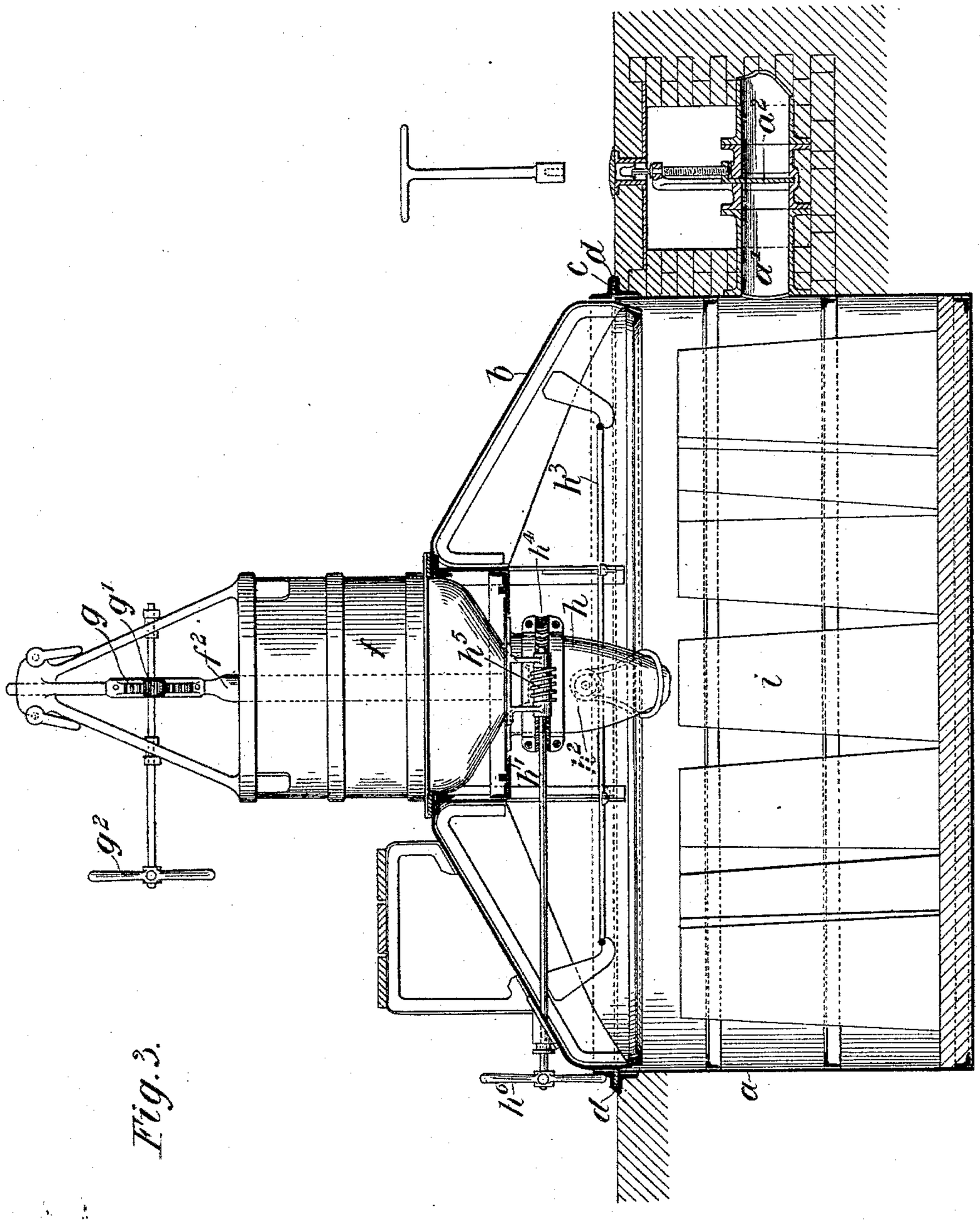

Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM ELLIS MAY, OF LONDON, ENGLAND, ASSIGNOR TO THE ELLIS MAY VACUUM STEEL SYNDICATE, LIMITED, OF SAME PLACE.

APPARATUS FOR CASTING METALS.

SPECIFICATION forming part of Letters Patent No. 596,897, dated January 4, 1898.

Application filed February 5, 1897. Serial No. 622,183. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ELLIS MAY, a subject of the Queen of Great Britain, residing at Bromley, London, in the county of Kent, England, have invented new and useful Improvements in Apparatus for Casting Metals, of which the following is a specification.

This invention relates to the casting of metals *in vacuo*, as described in the specification of my former patent, No. 481,799, wherein a system of store vacuum-chambers is described in connection with working or operating chambers in which a vacuum is maintained while the casting is being performed, the objects of my present invention being to facilitate the casting operation and to simplify the construction of the apparatus.

In carrying out my invention I construct and arrange the working or operating chambers as follows—that is to say, I provide a chamber preferably buried in the ground to the depth of the sides and having a removable top and adapted to contain a series of molds. The ladle is supported in and hermetically closes a central opening in the top of the chamber and has a hole at the bottom for running the metal, a plug operated by any suitable mechanism being used to close the said hole. A chute or runner is arranged with one end beneath the hole in the ladle and is adapted to turn in a bearing, while the other end or mouth is supported by wheels on a circular railway, on which it can be moved by suitable mechanism, so as to direct the metal from the ladle to the several ingot-molds arranged in a circle in the vacuum-chamber. When the molds are filled, the top and ladle can be removed and used in connection with another series of molds. An air-tight packing is employed between flanges on the sides and top of the chamber, and in some cases screw-clamps are employed to increase the pressure on the packing.

To enable my invention to be clearly understood, I will describe the same by reference to the accompanying drawings, in which—

Figure 1 is a plan, with part of the top or cover removed, of apparatus constructed according to my invention. Fig. 2 is a section on the line 2 2, Fig. 1. Fig. 3 is a section through the chamber at right angles to Fig. 2, and Fig. 4 is a sectional view of means for clamping the top of the chamber to the sides thereof.

a is the working or operating chamber, which is preferably buried in the ground to the depth of the sides, and *b* is the removable top of the same, the said top and sides of the chamber being provided with flanges *c c*, between which a suitable air-tight packing *d* is placed, screw-clamps *e*, such as that shown in Fig. 4, being sometimes employed to increase the pressure upon the packing.

b' b' are glazed sight-holes in the top or cover *b* to enable the operations carried on within the chamber to be observed.

a' is the pipe connecting the working chamber with the store vacuum-chamber, a^2 being the valve in the said pipe for shutting off communication between the said chambers.

f is the ladle for containing the molten metal before it is run into the molds, *f'* being the hole at the bottom of the same for running the metal.

f^2 is the plug which serves to close the hole *f'*, any suitable mechanism being employed for operating the said plug. In the arrangement shown I have illustrated the plug as being operated by a rack *g*, pinion *g'*, and star-wheel g^2, although it is obvious that any other suitable means can be employed.

h is the runner for conveying the molten metal from the ladle to the molds *i i*. The runner has one end arranged to turn in a bearing formed in a plate *h'* beneath the ladle, while the other end or mouth is supported by wheels h^2 on the circular railway h^3, on which it can be moved so as to direct the metal from the ladle to any one of the ingot-molds *i i*, the said molds being arranged in a circle for the purpose. Mechanism for actuating the said runner advantageously consists of a worm-wheel h^4, attached to the runner, and a worm h^5, engaging with the said worm-wheel and actuated from the outside of the chamber by a star-wheel h^6.

By forming the tops or covers detachable from the chambers one top or cover can be made use of in connection with several chambers—that is to say, after the molds in one

chamber have been filled the top or cover can be removed and used in connection with another chamber.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In apparatus for casting metals the combination with a vacuum-chamber the cover of which is provided with a ladle, of a runner rotatably mounted at one end in bearings, of a circular railway on which the other end or mouth of the runner moves and of means for rotating the runner, substantially as described.

2. In apparatus for casting metals the combination with a vacuum-chamber the cover of which is provided with a ladle, of a runner rotatably mounted in bearings at one end, of a circular railway on which the other end or mouth of the runner is supported and of worm-gear for rotating the runner, substantially as described.

3. Apparatus for casting metals consisting of the vacuum-chamber a, cover b, ladle f, plug f^2, runner h, circular railway h^3, worm-gear h^4, h^5 and molds i, substantially as described.

WILLIAM ELLIS MAY.

Witnesses:
G. F. REDFERN,
G. F. TYSON.