

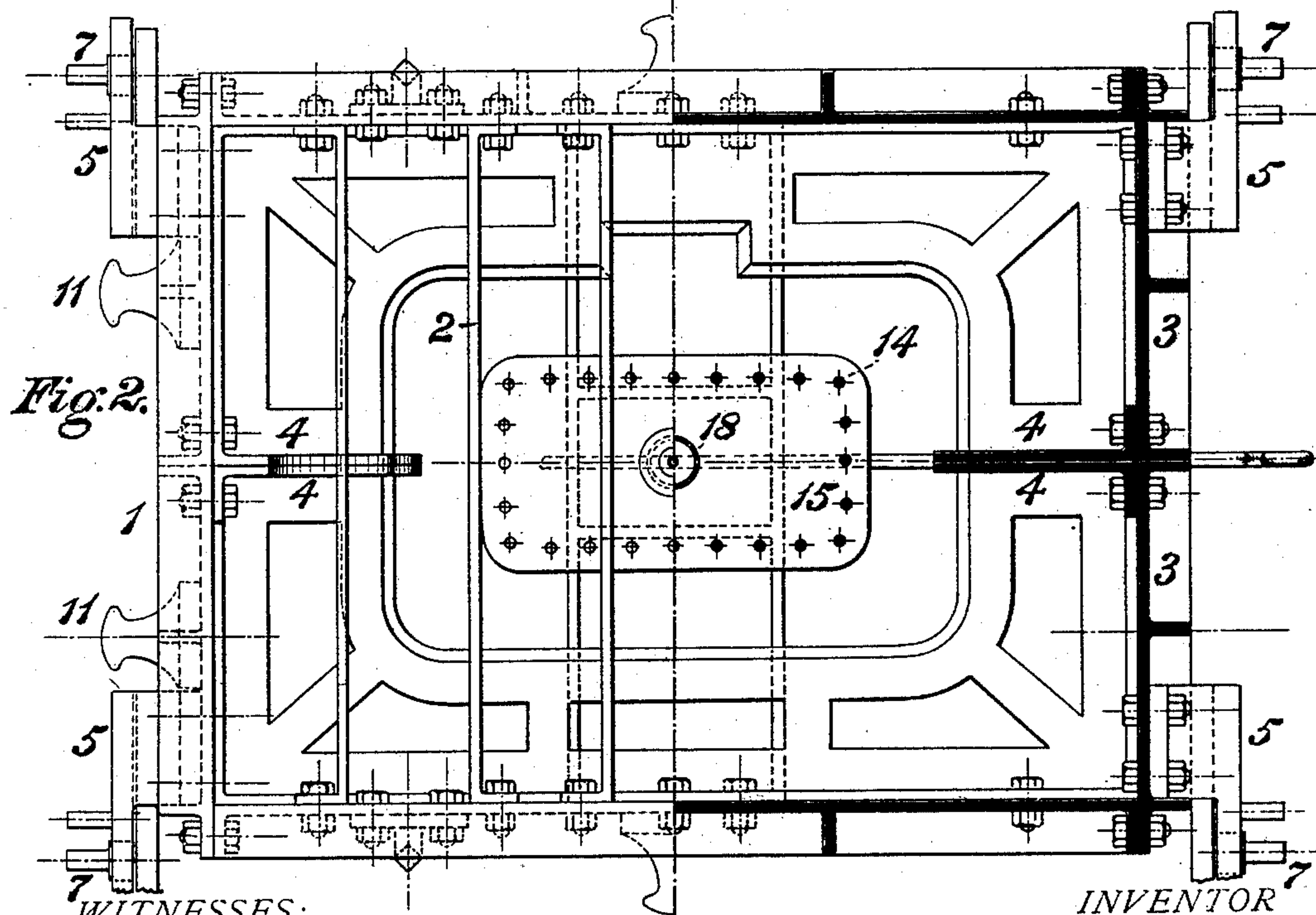
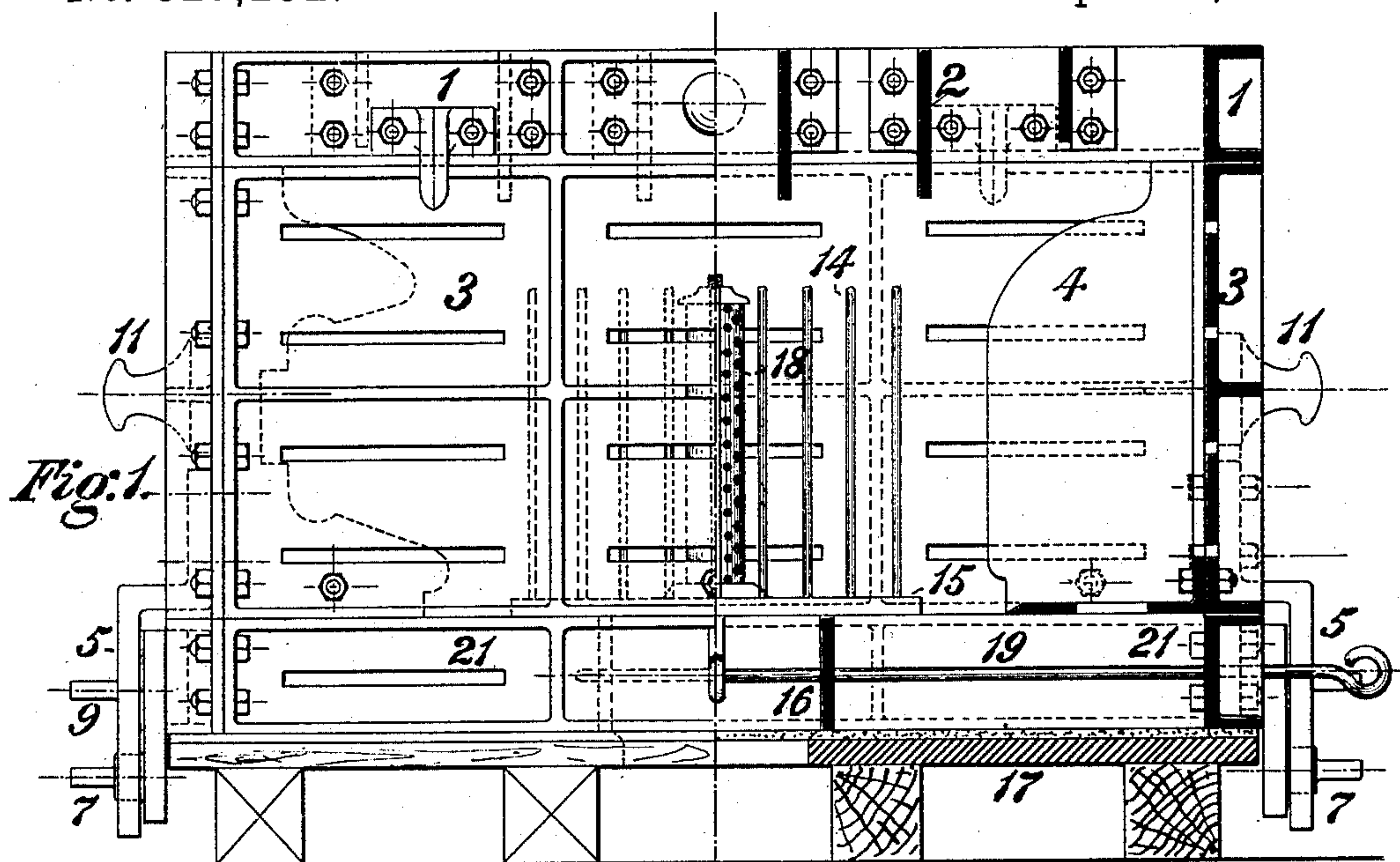
(No Model.)

3 Sheets—Sheet 1.

H. H. GARRETT.  
MOLDER'S FLASK.

No. 327,252.

Patented Sept. 29, 1885.



WITNESSES:

*J. Snowden Bell.*  
*R. H. Whittlesey*

INVENTOR

*Henry H. Garrett,*  
*by George H. Christy*  
ATTORNEY

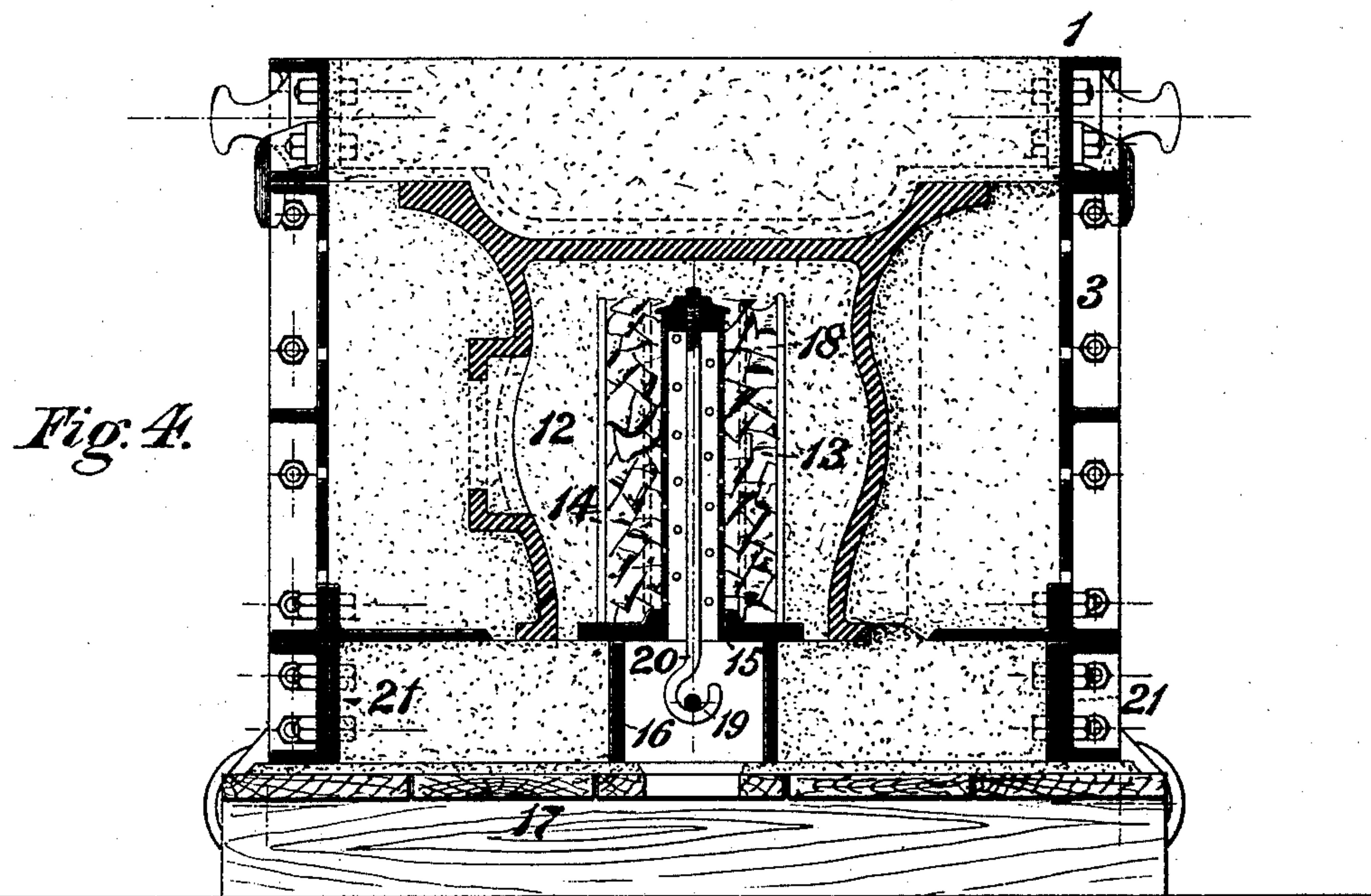
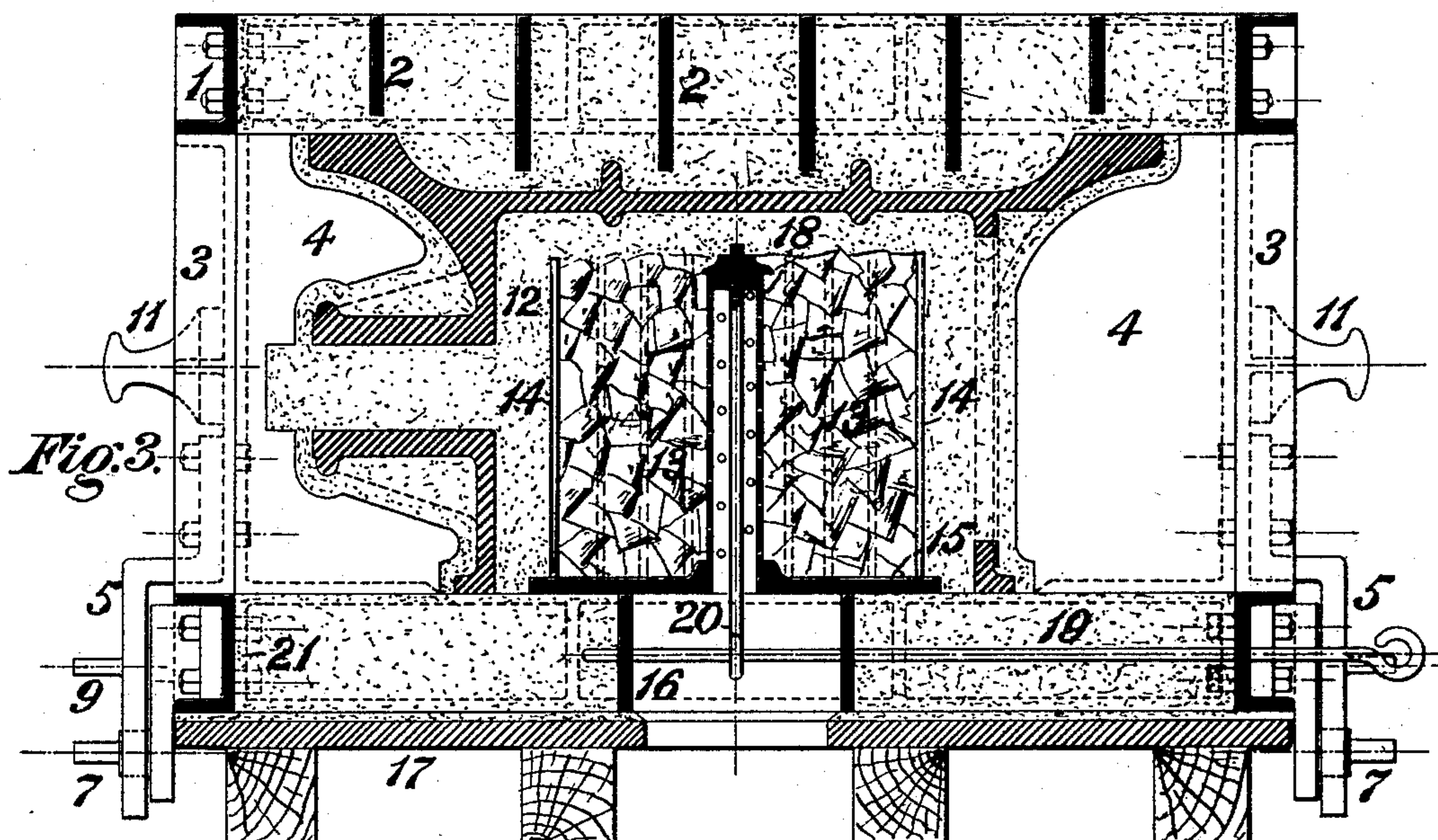
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WITNESSES:

*John D. Bell.*  
*R. H. Whipple.*

INVENTOR

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ATTORNEY



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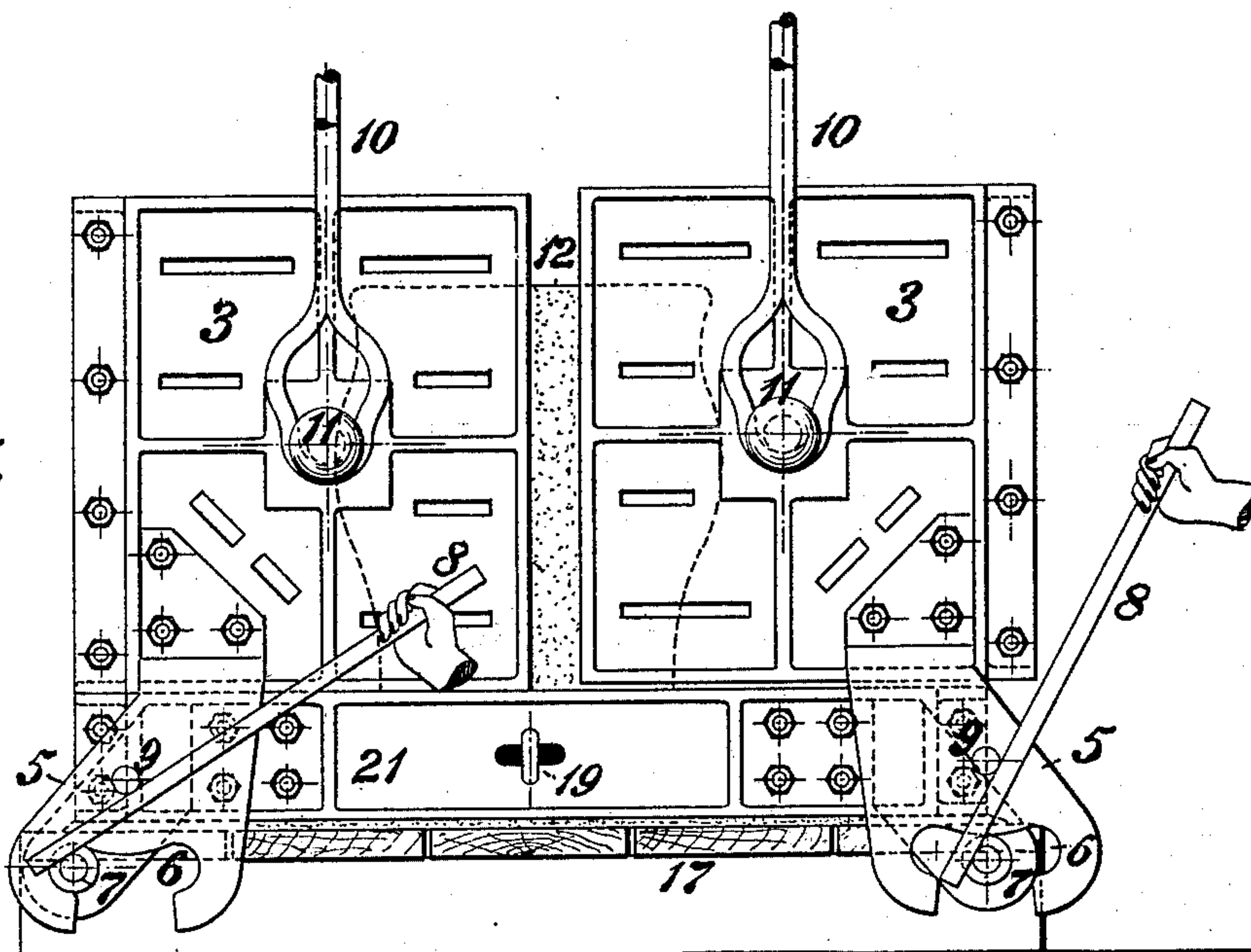
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H. H. GARRETT.  
MOLDER'S FLASK.

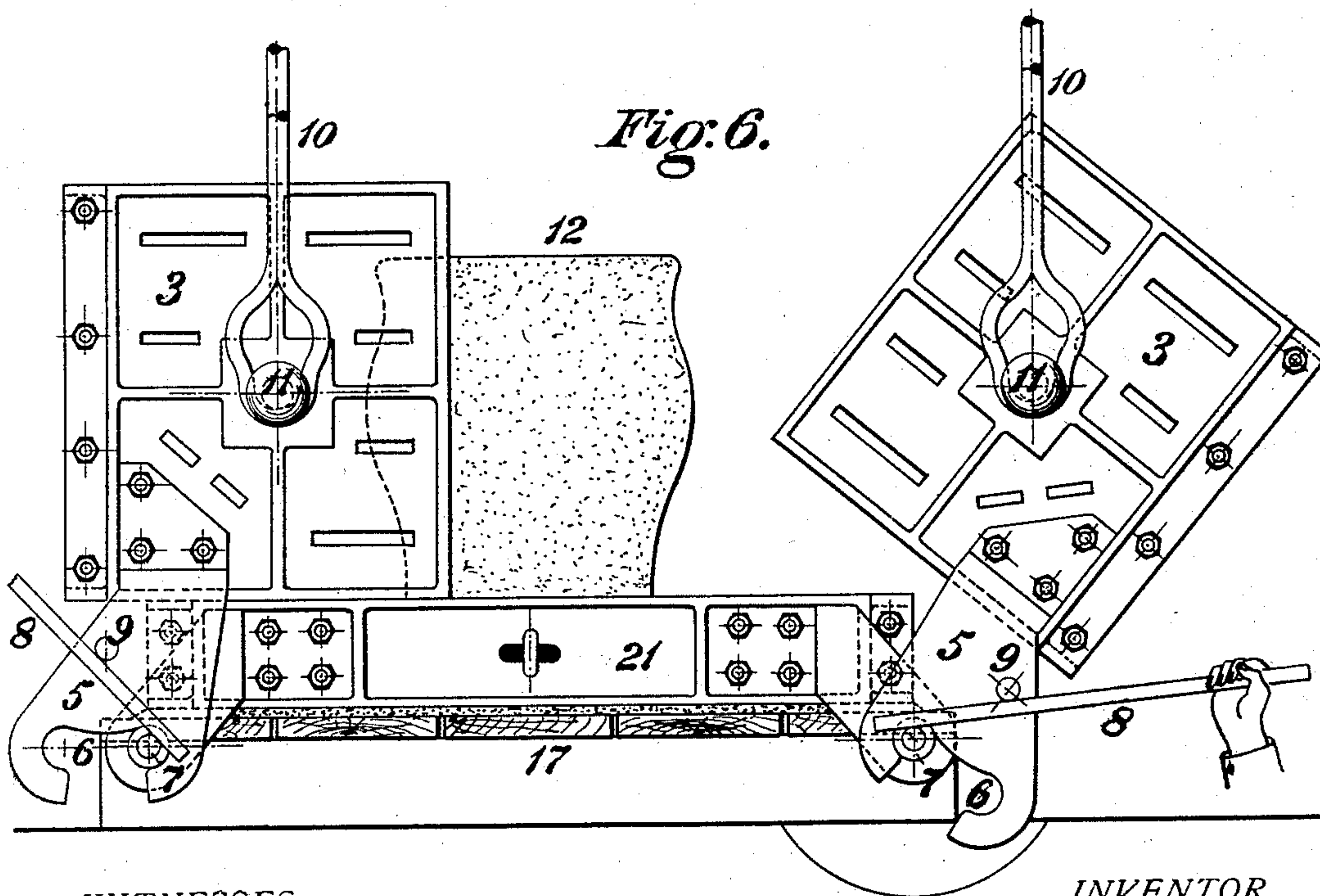
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*Fig. 5.*



*Fig. 6.*



WITNESSES:

*John D. Bell.*  
*R. H. Whipplesey*

INVENTOR

*Henry H. Garrett.*  
*by George H. Christy*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

HENRY H. GARRETT, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE  
WESTINGHOUSE MACHINE COMPANY, OF SAME PLACE.

## MOLDER'S FLASK.

SPECIFICATION forming part of Letters Patent No. 327,252, dated September 29, 1885.

Application filed July 25, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY H. GARRETT, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, a citizen of the United States, have invented or discovered certain new and useful Improvements in Molders' Flasks, of which improvements the following is a specification.

In the accompanying drawings, which make part of this specification, Figure 1 is a view, half in side elevation and half in vertical longitudinal central section, through a flask embodying my invention; Fig. 2, a view, half in plan and half in horizontal section, of the same; Fig. 3, a vertical longitudinal central section, and Fig. 4 a vertical transverse central section, through the same with the mold and core in position, and showing a section of the casting in each case; and Figs. 5 and 6, end views in elevation, showing different positions of the movable cheeks.

The object of my invention is to provide a flask in which castings having lateral flanges or re-entering curved faces can be readily and accurately made by the employment of green-sand cores; to which end my invention, generally stated, consists in the combination of a nowel or drag, and cheeks connected by sliding hinges thereto; also, in the combination, with a flask, of a core-iron, a series of core-supporting rods, and a removable holding-down bar. The improvements claimed are hereinafter fully set forth.

My invention is specially designed and is herein illustrated as adapted for the casting of crank cases or boxes for steam-engines of the double-cylinder single-acting type, such castings having, as shown, flanges or outward projections around their upper and lower sides, which sides are both inwardly and outwardly curved.

The cope 1, which is of rectangular form and provided with the usual cope-bars, 2, for supporting the sand, rests upon the top of two cheeks, 3, each of which is a three-sided box or case open upon its fourth side, except so far as the latter is closed by division-plates 4, secured to and projecting inwardly from its ends, said plates being shaped on their inner ends substantially in correspondence with the casting to be formed. The division-plates of the opposite cheeks abut one against the other when the parts are in position for the pouring of the metal, as seen in the section

Fig. 2. Each of the cheeks 3 is hinged at bottom to the nowel 21 by lugs or hinge-plates 5, secured to its opposite ends, each of said plates having an elongated slot or recess, 6, at its lower end, fitting over a hinge-pin, 7, fixed to the end of the nowel. The recesses 6 are semi-circular at their ends, at which they are of corresponding diameter with the hinge-pins, and their intermediate portions are slightly convex or curved downwardly from a horizontal plane, so that by the application of levers 8 to the outer portions of the hinge-pins 7 as fulcrums, said levers bearing against pins 9 on the hinge-plates, the cheeks 3 may be moved transversely upon the nowel, being, by the curvature of the recesses 6, slightly raised from the top of the nowel during their traverse to or from the positions which they occupy when the mold is ready for the pouring of the casting, as shown on the left of Fig. 5, and from or to positions in which they can be swung downwardly to expose their open inner sides, as shown on the right of Fig. 4, the inner ends of the recesses 6 then fitting over the hinge-pins 7. The cheeks are suspended from a crane by links 10, coupled to pins 11 on the ends of the cheeks, and when in their outer positions are swung upon the pins 7 by lowering the links. It will be seen that by moving out and turning down the cheeks, unobstructed access is afforded to the central portion of the nowel and to the cheeks for the formation of the core and the side portions of the mold, respectively, and the cheeks being entirely clear of the core while swinging on their hinge-pins, there is no liability to injury of the core or mold in the movements of the cheeks.

The accessibility and facility of manipulation afforded renders the use of green-sand cores readily practicable in the flask. The central and major portion of the core 12 is filled up with fragments of coke 13, or analogous material, which are inserted between and maintained in position by a series of core-supporting rods, 14, secured to and extending vertically above a horizontal plate or core-iron, 15, which is supported upon a frame, 16, open at its upper and lower sides and located centrally in the nowel 3 on the bed or flooring 17, upon which the same rests. A perforated vent-pipe, 18, for the escape of gases is fitted into a socket in the core-iron 15, above an opening therein, and the core-



iron with its supporting rods and filling is held in position by a removable holding-down bar, 19, passing through one end of the nowel and fitting holes in the supporting-frame 16 of the core-iron. A rod, 20, is screwed at its upper end into the cap of the vent-pipe and engages the holding-down bar 19 by a hook on its lower end. The holding-down bar thus serves to maintain the core in position, and upon its removal after the completion and cooling of the casting, the casting and core may be removed together from the flask.

The vent-pipe and its cap afford the most convenient means of making the attachment of the rod 20 to the core-iron 15, but the prime function of said rod being to connect the core-iron to the holding-down bar 19, such connection may be effected either by using the vent-pipe as an intermediary, as shown, or by attaching the rod 20 directly to the core-iron.

I am aware that the employment of cheek-pieces hinged to the nowel of a flask is not new, and such therefore, broadly, I hereby disclaim.

I claim herein as my invention—

1. The combination, in a moulder's flask, of a nowel and a pair of cheeks connected thereto by lugs having elongated recesses fitting hinge-pins secured to the nowel, these members being combined for joint operation to admit of transverse movement of the cheeks

upon the nowel, independently of their movement about the axes of the hinge-pins, substantially as set forth.

2. The combination of a nowel, a pair of hinge-pins fixed thereto, a cheek, and a pair of lugs secured to said cheek, each having an elongated lower recess, the ends of which are adapted to fit partially around one of the hinge-pins, and the intermediate portion of which is convex or downwardly curved, substantially as set forth.

3. The combination of a nowel, a horizontal plate or core-iron carrying a series of core-supporting rods and resting upon a support in the nowel, and a vent-pipe supported upon the core-iron above an opening therein, substantially as set forth.

4. The combination of a nowel, a core-iron carrying a series of core-supporting bars, and a vent-pipe, and resting upon a support in the nowel, a holding-down bar fitting removably in the nowel, and a rod connecting said bar with the core-iron, substantially as set forth.

In testimony whereof I have hereunto set my hand.

HENRY H. GARRETT.

Witnesses:

J. SNOWDEN BELL,  
R. H. WHITTLESEY.