

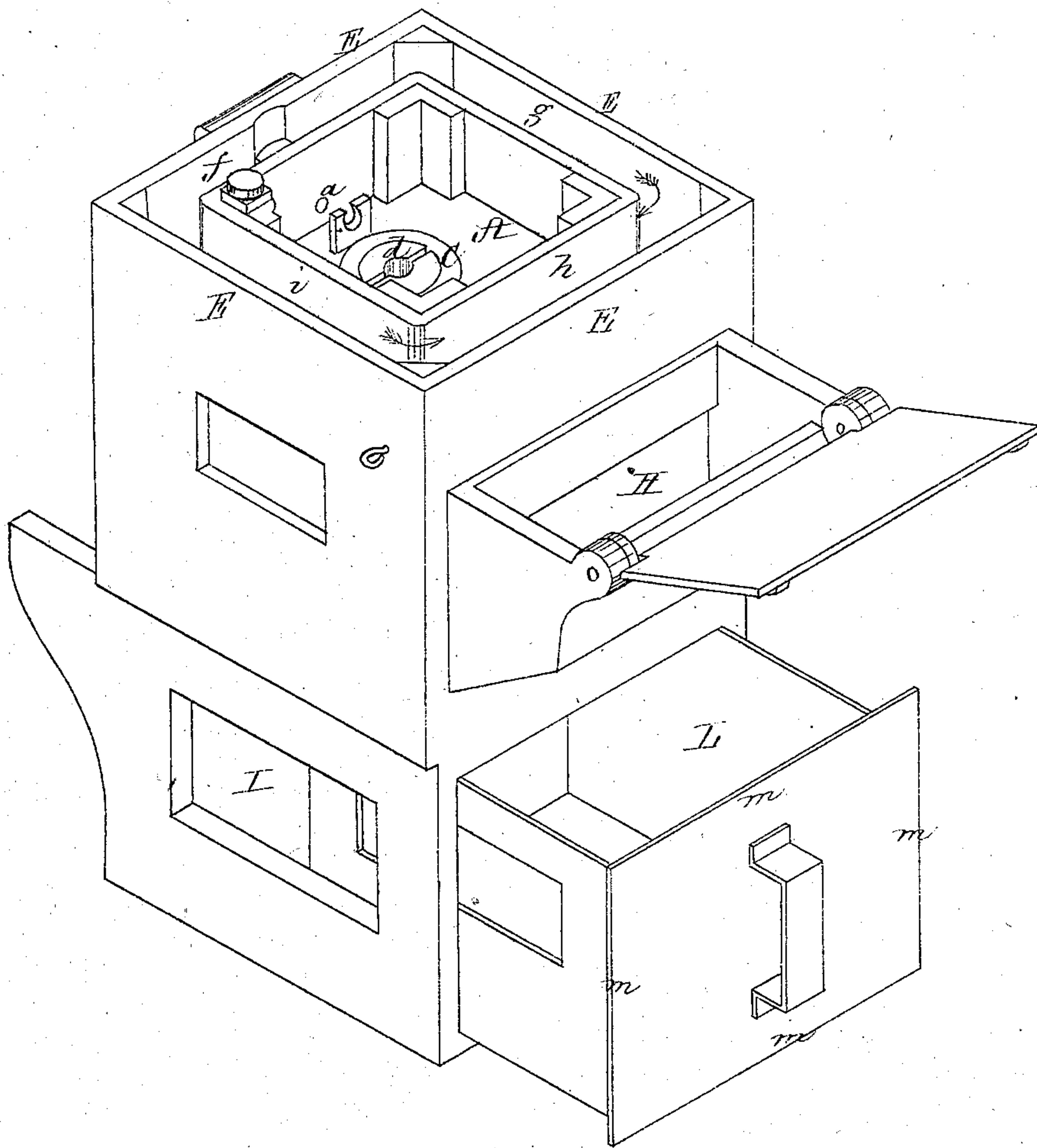
A. C. CONVERSE.

Apparatus for Casting Type.

No. 136,815.

Patented March 18, 1873.

Fig. 1.



Witnesses,
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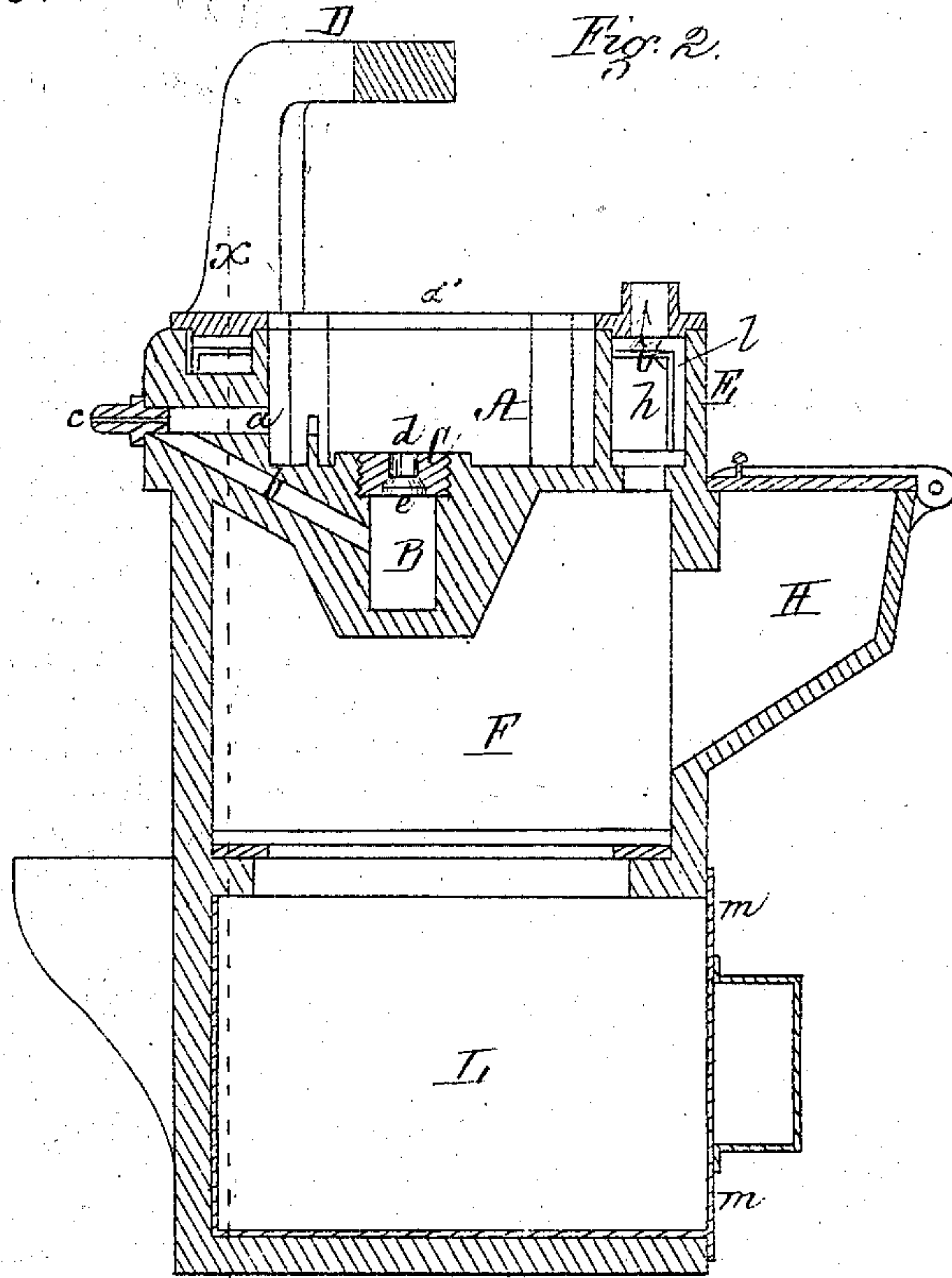


Fig. 4.

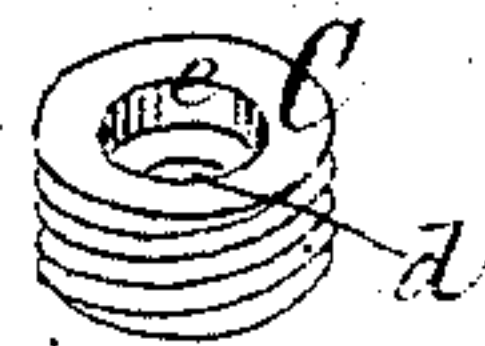


Fig. 3.

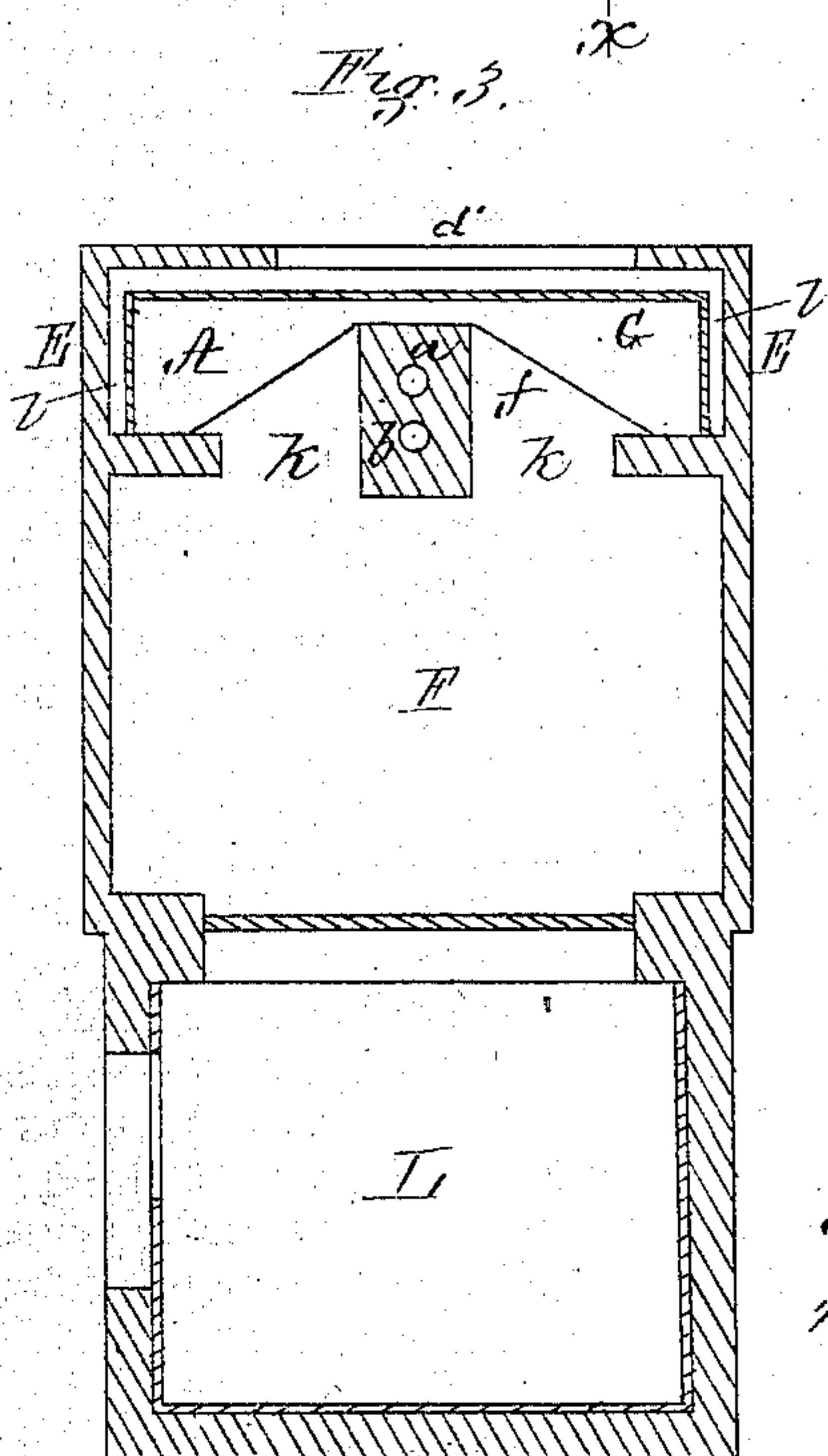
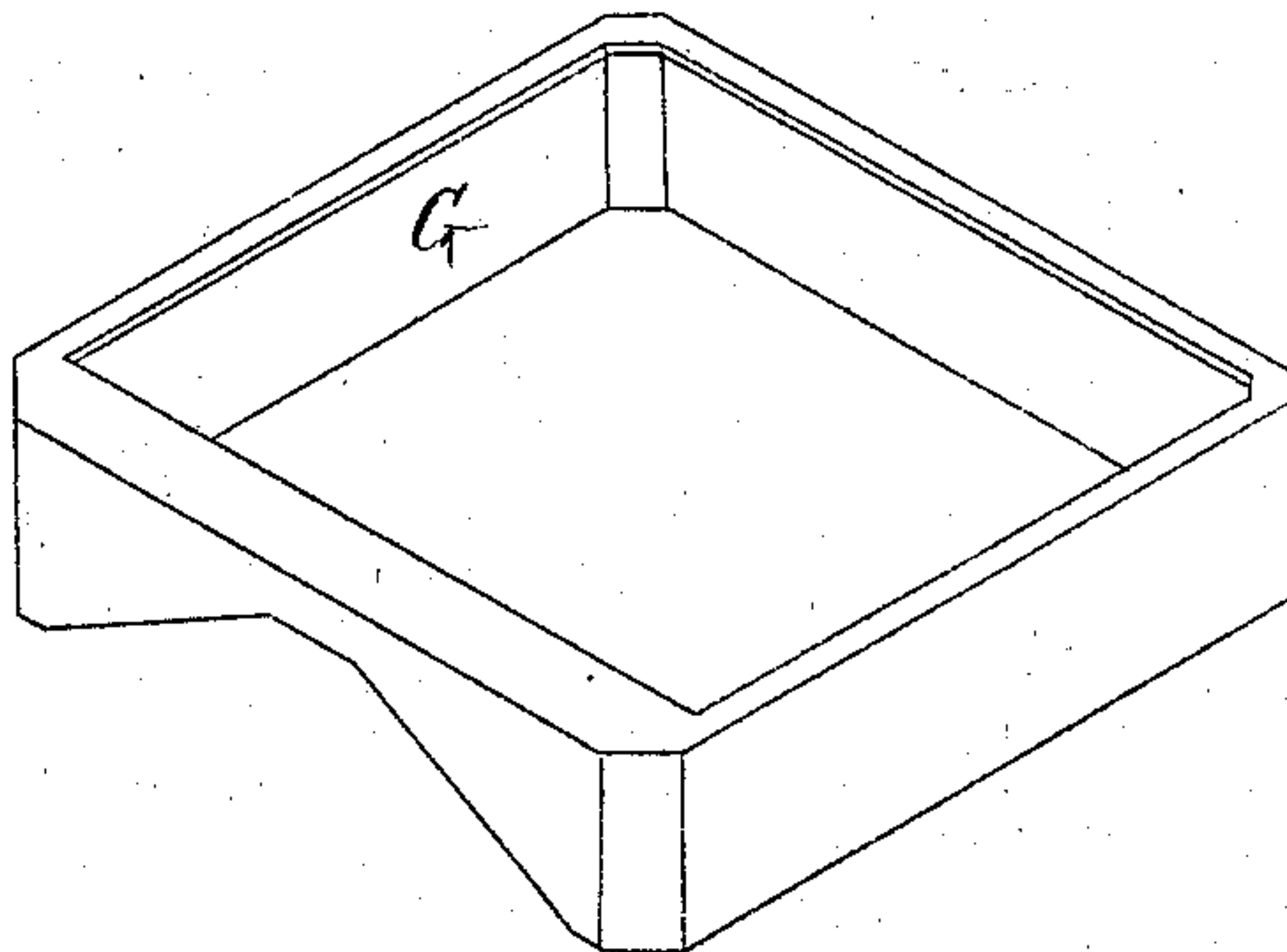


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALFRED C. CONVERSE, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN APPARATUS FOR CASTING TYPE.

Specification forming part of Letters Patent No. 136,815, dated March 18, 1873.

To all whom it may concern:

Be it known that I, ALFRED C. CONVERSE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Apparatus for Casting Type, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing making part of this specification, in which—

Figure 1 is a perspective view of my apparatus for casting type, some portions of the top being removed. Fig. 2 is a longitudinal central section. Fig. 3 is a vertical section on the line *xx* of Fig. 2. Fig. 4 is a perspective view of the plug which fits into the top of the metal-chamber, (inverted.) Fig. 5 is a perspective view of the lining placed in the passage between the melting-pot and its casing.

My invention consists in a draft-flue so placed that the currents of air are concentrated and the heat of the fire intensified around or near the passage leading to the orifice through which the melted type-metal is discharged, whereby a regular flow of the molten liquid is rendered certain without the delay and difficulty incident to the old construction, where the draft was greatest opposite the discharge-orifice, and in which, to produce the temperature requisite for insuring the proper discharge, the metal in the pot opposite the outlet was overheated, and consequently deteriorated, the amount of fuel consumed also being much greater. My invention also consists in a casing surrounding the metal-pot, and separated a suitable distance therefrom, to form the requisite passages or flues; and, in connection with the above, my invention also consists in a lining placed within the passage between the metal-pot and the casing, and extending over the draft-flue, to prevent the external radiation of the heat; and my invention also consists in extending the lining around the passage between the metal-pot and its casing to still further prevent the external radiation of the heat.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawing, A is the metal-pot, into which the blocks of type-metal to be melted

are placed. B is a cylindrical metal-chamber extending down below the center of the bottom of the metal-pot, and into which the liquid flows through a horizontal passage, *a*, leading from the metal-pot, and thence down an inclined passage, *b*, the lower end of this passage opening into the metal-chamber at a point below the bottom of a plunger (intended to be placed therein) when it has completed its downward stroke. The upper end of the passage *b* terminates in the horizontal passage *a*, which it intersects; the outer end of the passage *a* is provided with a nipple, *c*, through which a jet of liquid metal is ejected into the type-mold (not shown) on the descent of the plunger, a valve of well-known construction being employed in the horizontal passage *a* to open the orifice in the nipple on the downward stroke of the plunger, and to close it on its ascent to prevent the metal from passing out of the nipple as it runs through the horizontal passage *a* down the inclined passage *b* to supply the metal-chamber. C is a circular metal plug (I prefer cast-iron) provided with a screw-thread on its outer surface, which snugly fits into a corresponding thread in the interior of the top of the metal-chamber B, the extent of the surface between the two being sufficient, and the parts being fitted so accurately together that the passage of the liquid metal between them on the descent of the plunger is rendered impossible. Through the center of the plug C is made a circular opening, *d*, for the reception of the piston-rod, which is intended to pass up vertically through a guide, D, extending diagonally over the top of the metal-pot. The size of the opening *d* corresponds exactly to that of the piston, and remains this size a little less than one-half the depth of the plug, from which point this opening communicates with an enlarged opening, *e*, by which construction the liquid metal is not only prevented from passing up between the piston and the interior of the plug, but the rod itself is prevented from "sticking" and wearing away the plug. Surrounding the metal-pot A is a casing, E, removed therefrom a distance sufficient to form passages or flues *f g h i*, having the closely-fitting cover *d'*, a draft-flue, *k*, on each side of the horizontal passage *a*, being made to communicate with the inside of the top of the furnace F under

the metal-pot, by which construction the draft is concentrated and the heat of the fire intensified at this point to insure the ready flow of the molten liquid from the nipple or discharge-orifice; whereas by the old construction the draft was greatest opposite this point, and a difficulty was experienced in obtaining the high degree of heat necessary to cause the liquid to flow readily, and the metal in the pot remote from the nipple was overheated and thereby deteriorated. The smoke and products of combustion, after passing up the openings *k*, are carried through the passages *f g h i* in the direction of the arrows up the flue in the chimney. *G* is a continuous lining extending around the passages *f g h i*, and also over the openings in the draft-flue, for the purpose of preventing, in a great measure, the outward radiation of the heat from the apparatus. To still further prevent the radiation of heat I fill the space *l* between the lining and casing with ashes or other non-conducting substance. *H* is a hopper or receptacle for the coal or other fuel used in the furnace. As this hopper is connected with or forms a part of the apparatus, and is inclined down toward and opens into the fire, the fuel is partially heated before it enters therein, and is in a measure self-feeding. *I* is the ash-pit, the sides and front of which are so constructed as to be readily closed, and the opening in the back may be closed by the ash-pan *L*, which is provided with flanges *m* so as to snugly fit over the opening to the ash-pit, by which means the draft may be regulated and con-

trolled as desired, and the external air may be somewhat heated before entering the fire; whereas in the old style of apparatus, the ash-pit being only partially or imperfectly closed, the cold air entered in such quantities as to lower the temperature of the air in the furnace.

Instead of the plug *C* being screwed into the top of the metal-chamber, it may be shrunk therein so as to remain permanently in place; or the metal-pot may be cast with a solid projection, which may be bored out at the top for the piston and then enlarged below to form the metal-chamber.

Claim.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The arrangement of the draft-flues *K K* so as nearly to surround the passage *a*, through which the molten metal flows and is ejected, substantially as and for the purpose described.

2. A casing, *E*, in combination with the metal-pot *A* and the cover *d'*, substantially as described, for the purpose set forth.

3. A lining, *G*, extending over the flues *k* and around the flues *f g h i*, in combination with the metal-pot *A* and casing *E*, as and for the purpose described.

Witness my hand this 26th day of June, A. D. 1872.

ALFRED C. CONVERSE.

In presence of—

N. W. STEARNS,

W. J. CAMBRIDGE.