

(No Model.)

2 Sheets—Sheet 1.

E. HOLM.

FURNACE FOR HEATING SOLDERING COPPERS.

No. 381,782.

Patented Apr. 24, 1888.

Fig. 1.

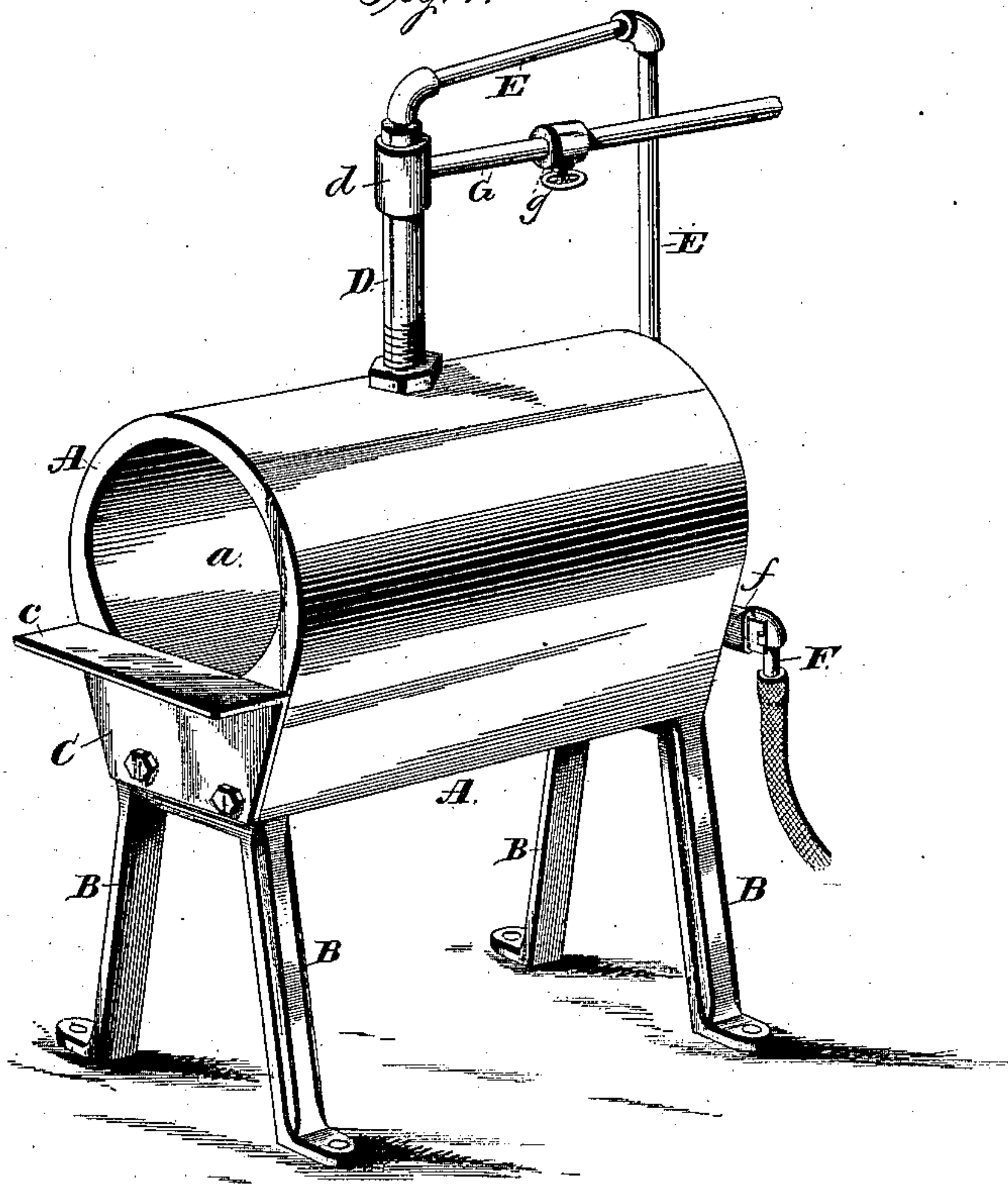
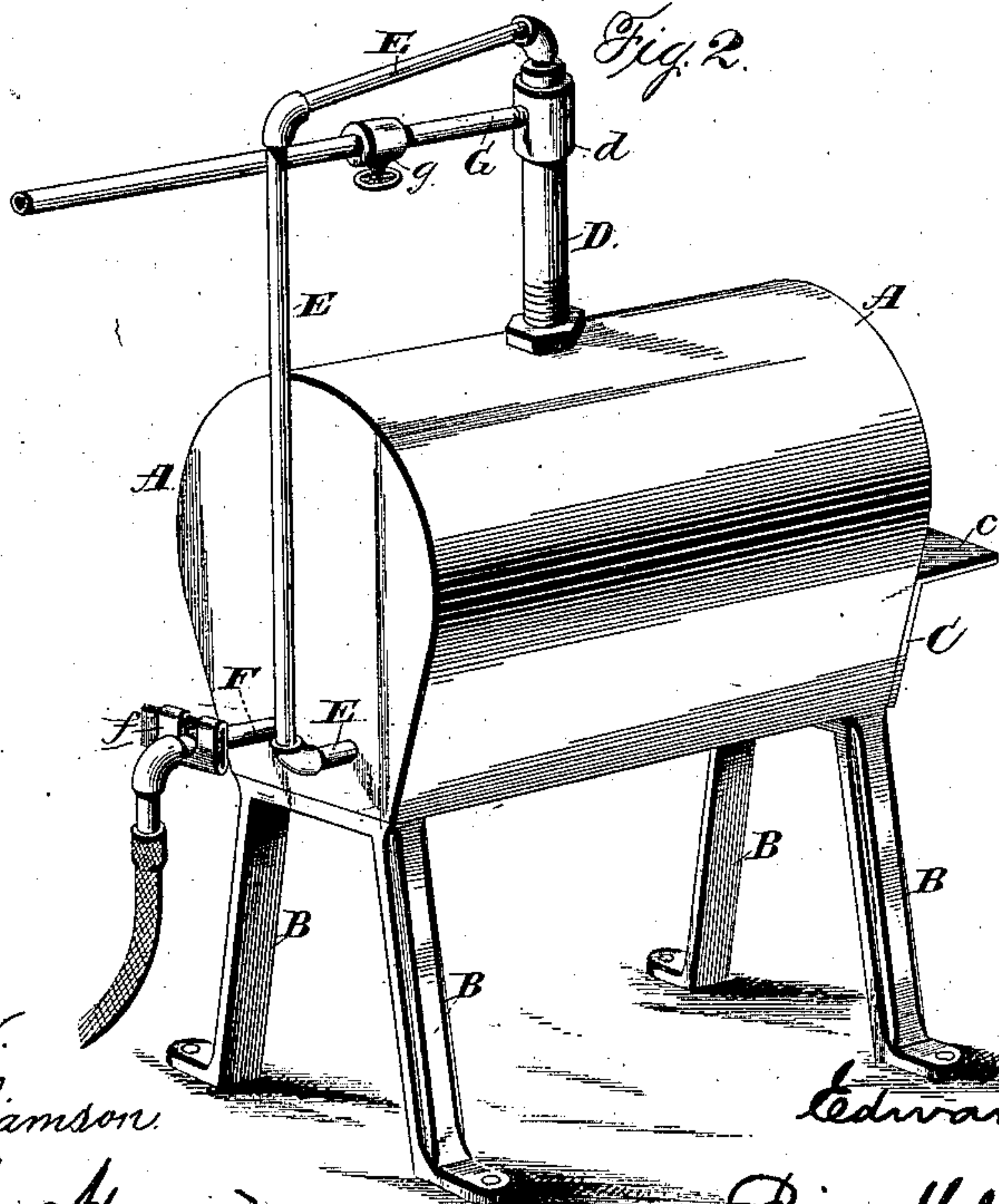


Fig. 2.



Witnesses:
Chas. Williamson.
Henry C. Hazard.

Inventor:
Edward Holm, by
Prindle and Russell, his Attys

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Fig. 3.

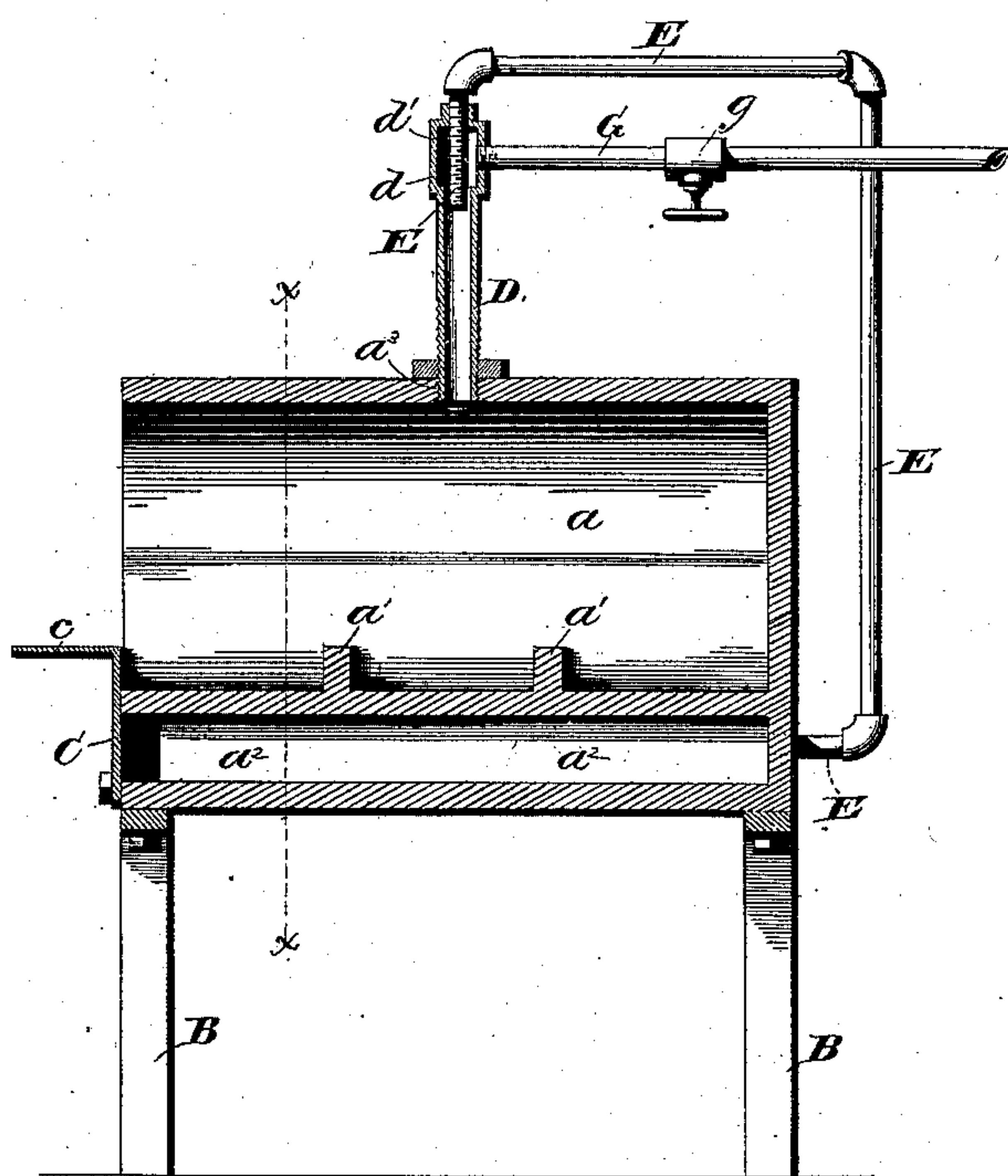


Fig. 4.

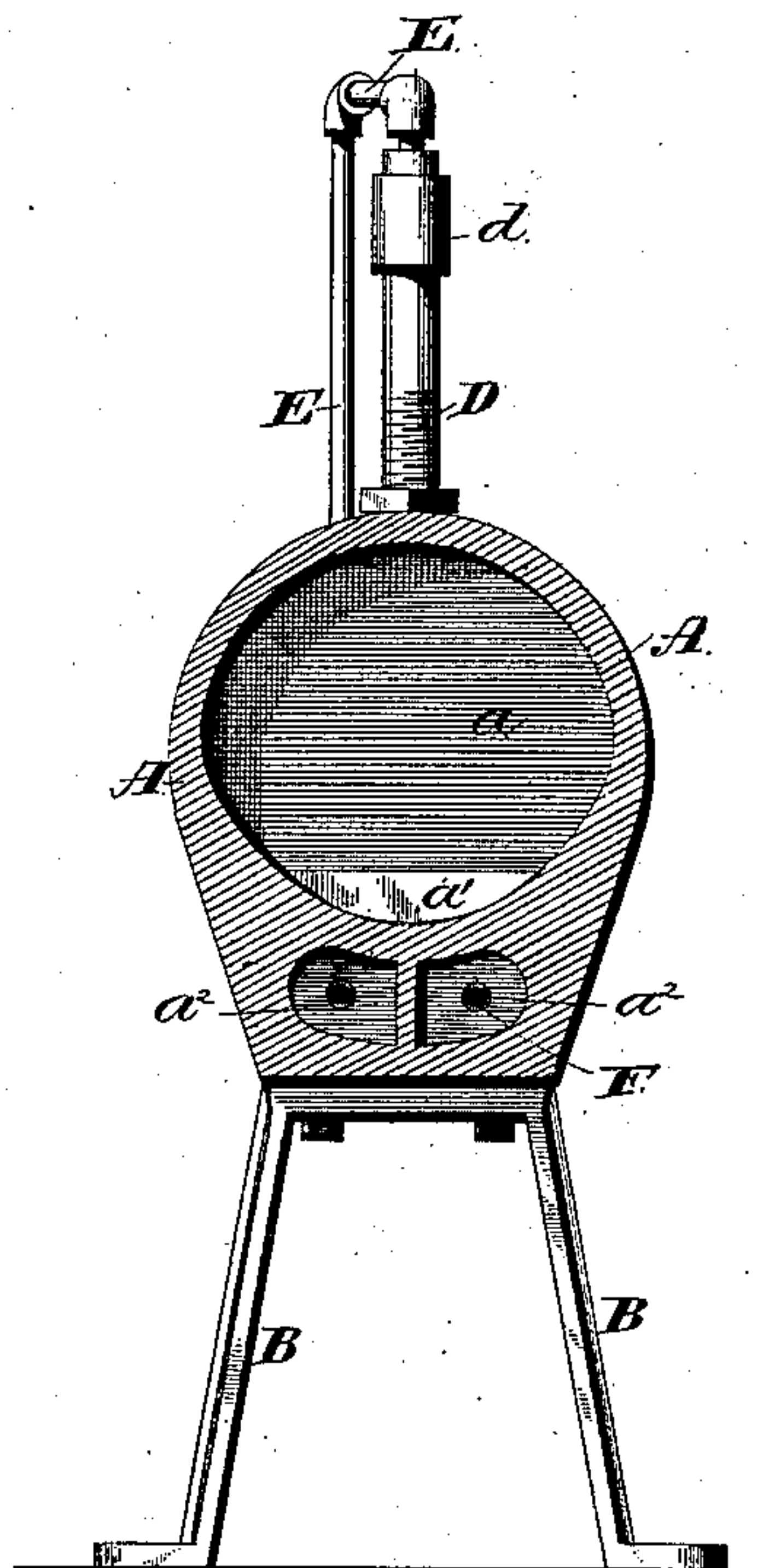


Fig. 5.

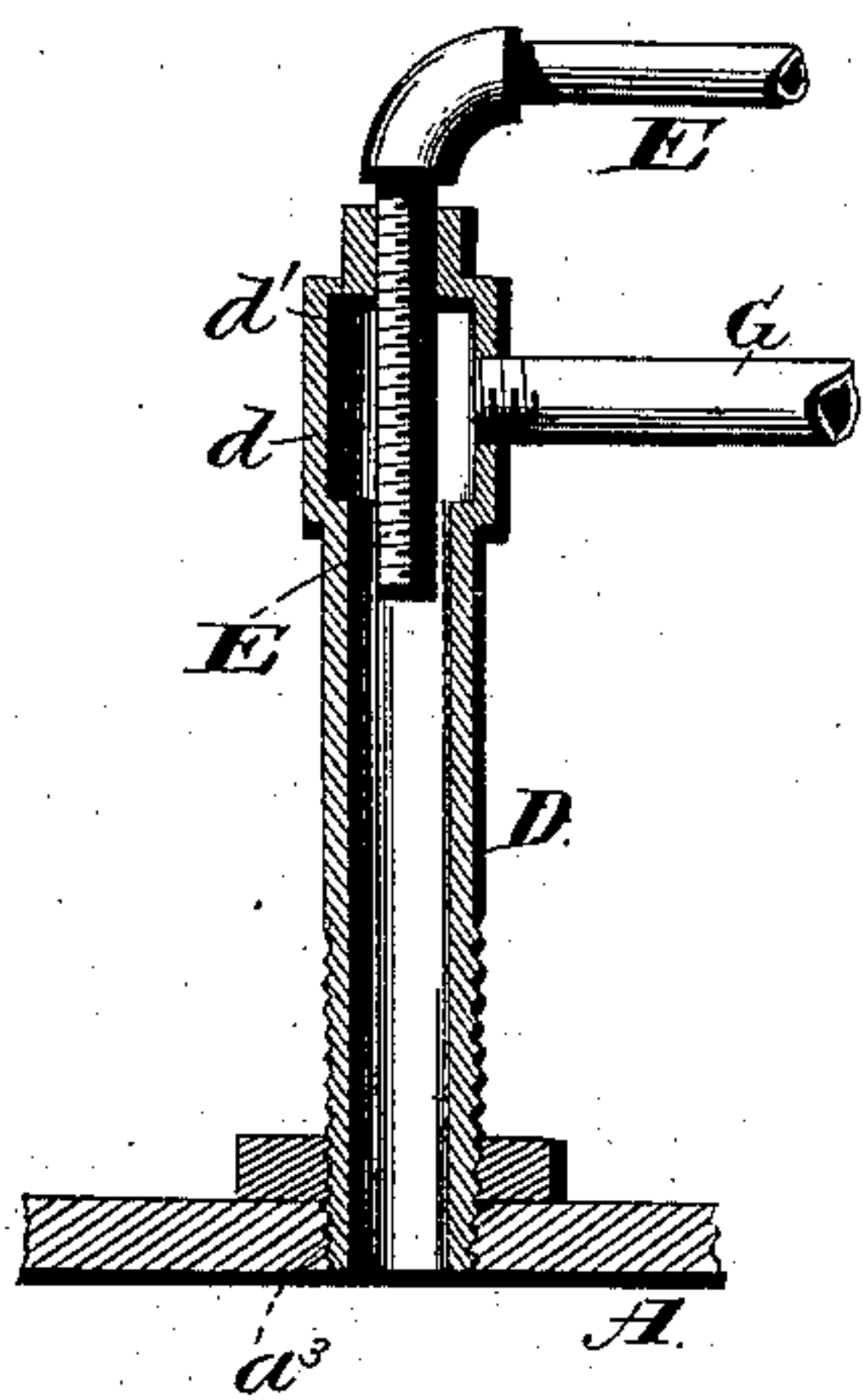


Fig. 6.

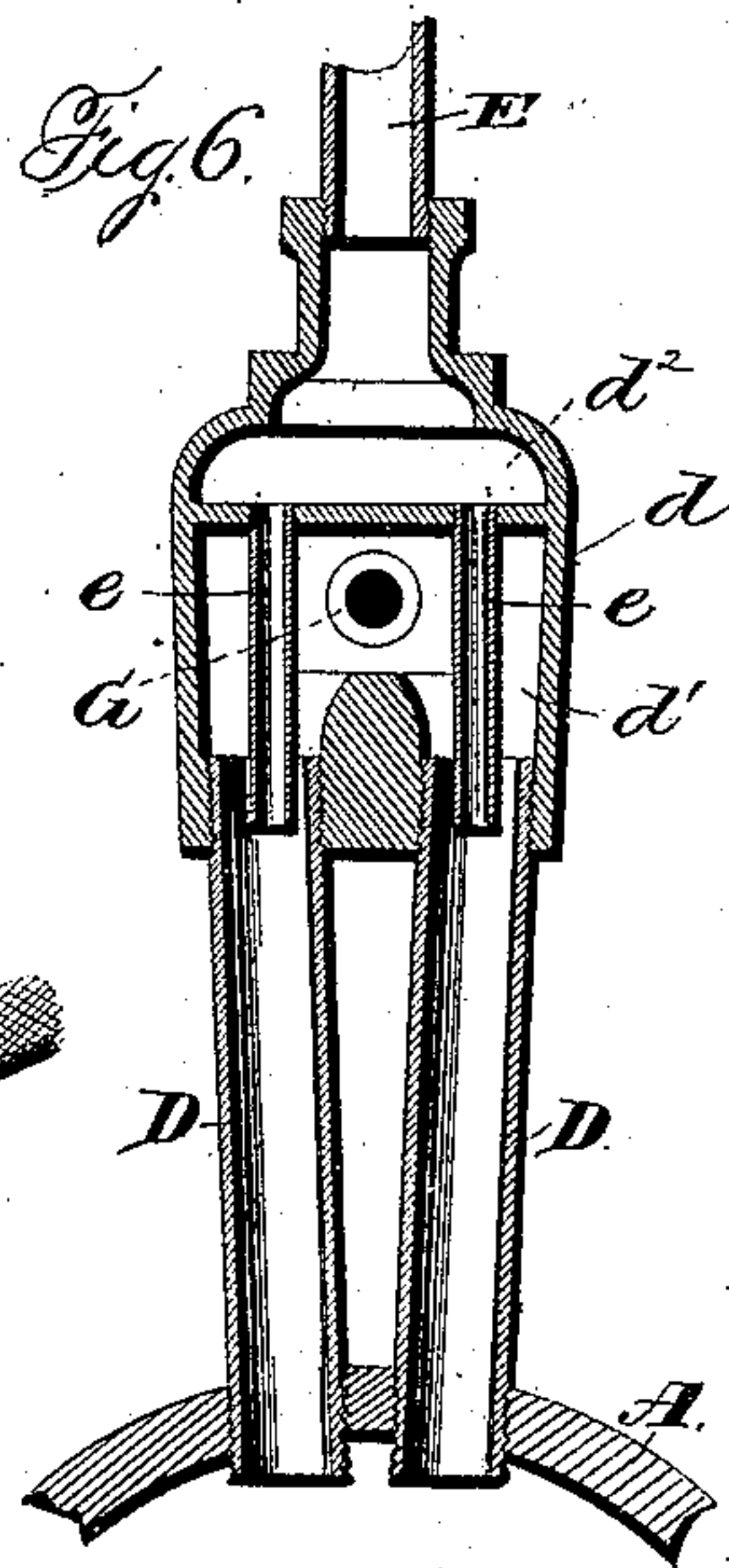
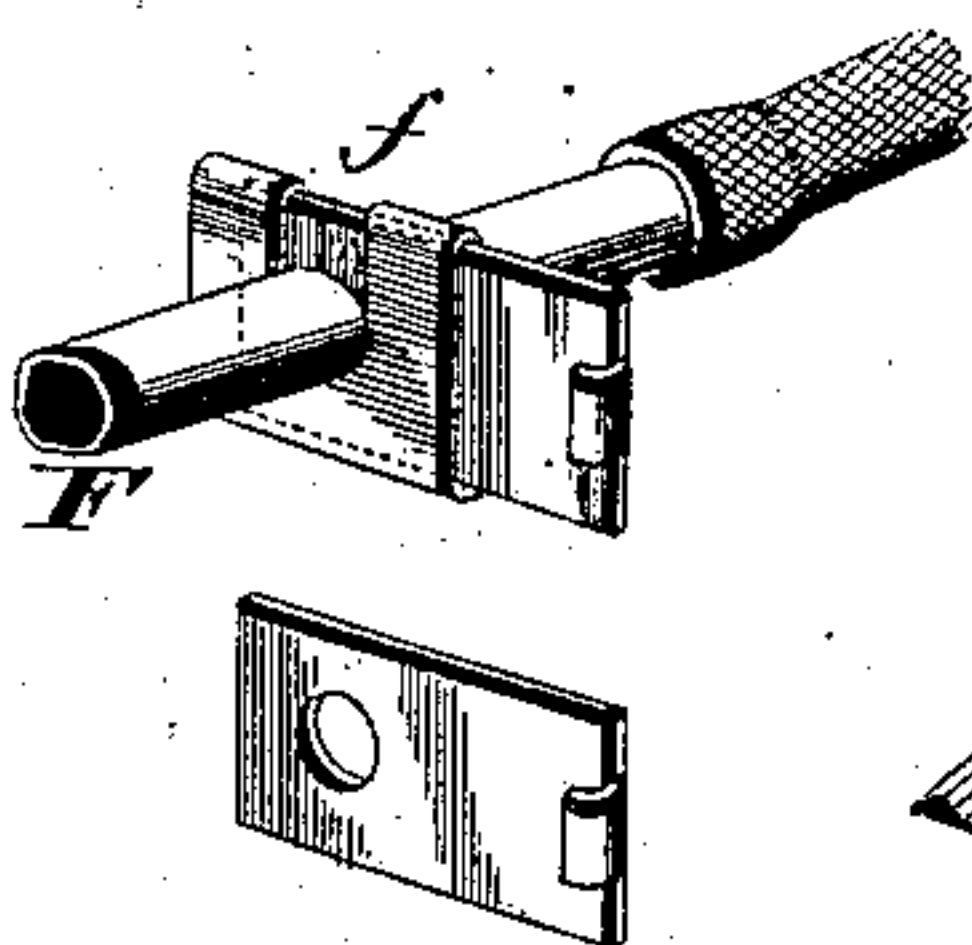


Fig. 7.



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UNITED STATES PATENT OFFICE.

EDWARD HOLM, OF CHICAGO, ILLINOIS.

FURNACE FOR HEATING SOLDERING-COPPERS.

SPECIFICATION forming part of Letters Patent No. 381,782, dated April 24, 1888.

Application filed May 18, 1886. Serial No. 202,519. (No model.)

To all whom it may concern:

Be it known that I, EDWARD HOLM, of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Gas-Burning Fire-Pots or Furnaces for Heating Soldering-Coppers; and I do hereby declare that the following is a full, clear, and exact description of the said invention, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my furnace from the front. Fig. 2 is a like view of the same from the rear. Fig. 3 is a vertical central section upon a line passing from front to rear. Fig. 4 is a vertical section upon line x of Fig. 3. Fig. 5 is an enlarged vertical section of the burner used for combining the air and gas for consumption in the furnace. Fig. 6 is a like view of a double burner for use in large furnaces, and Fig. 7 is a perspective view of the wind-gate as combined with and separate from the air-pipe.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to enable soldering-coppers and other similar articles to be easily, quickly, and economically heated; and to such end my said invention consists in the apparatus employed, substantially as and for the purpose hereinafter specified.

In the carrying of my invention into practice I employ a furnace, A, which is constructed from cast metal and has the general form shown, its upper portion being semi-cylindrical and its lower portion having a flat bottom with upward and outward diverging sides. Said furnace is preferably supported by four legs, B and B, that have such length as to raise it to the desired height.

Within the furnace A is provided a chamber, a , which in cross-section has a nearly cylindrical form, is permanently inclosed at one end and open at its opposite end, and across its bottom has two ledges, a' and a' , that are shown in Figs. 3 and 4. Below said chamber a are two chambers, a^2 and a^2 , that have substantially the same length as the former, are arranged parallel with the same and with each other, and have the form in cross-section seen in Fig. 4. Said chambers a^2 and a^2 are inclosed at their front ends by means of a plate, C, that extends

across and is secured upon the end of said furnace, and at its upper edge is provided with a flange, c , that extends horizontally forward upon a line with the upper edges of said ledges a' and a' . At the front ends of said chambers a^2 and a^2 the intervening metal is removed for a short distance, so as to cause them at such point to connect with each other, as shown in Fig. 3.

Secured within and extending upward from an opening, a^3 , at the upper side and center of the furnace A is a pipe, D, that at its upper end is provided with a lateral enlargement, d , which interiorly forms a chamber, d' , that is about one-third larger than the interior of said pipe. At its upper end said chamber is inclosed, and through the same passes downward a pipe, E, which exteriorly has about one-half the diameter of the interior of said pipe D and extends a short distance into the upper end of the same.

From the chamber d' the pipe E extends upward, rearward, downward, and then forward, and has its lower end extended into and connected with the rear end of one of the chambers a^2 and a^2 , while from the rear end of the other of said chambers a pipe, F, extends to and is connected with a means for furnishing air under pressure. At a point near its connection with the furnace said pipe F is provided with a wind-gate, f , of usual construction, by which the passage of air to said chamber a^2 is controlled.

A pipe, G, extending from one side of the chamber d' to a gas-supply and provided with a valve, g , for controlling the passage of gas through the same, completes the apparatus, the operation of which is as follows, viz: Air is admitted through the pipes F and E into the pipe D, and gas from the pipe G is permitted to pass into the chamber d' , from whence it is drawn into said pipe and becomes thoroughly mixed with the air contained therein.

From the lower end of the pipe D the mixture of gas and air passes into the chamber a , when, being ignited, it impinges upon the soldering-coppers, which are placed upon and supported by the ledges a' and a' and the shelf c . By properly proportioning the air and gas a flame may be produced which will possess great heating capacity and but slight illumi-

nating properties, while by varying the quantity of the combustible mixture the quantity of heat may be increased or diminished, as required.

5 After the furnace has been used for a short time, its lower portion will become heated, and the air passing through the chambers a^2 and a^2 will have its temperature correspondingly raised, so as to cause it to become a hot blast.
 10 Such heating of the air involves no increased consumption of gas, but, on the contrary, materially lessens the quantity required for accomplishing a given amount of work, while by the passage of air through the lower portion
 15 of the furnace the temperature of the latter is at such point kept at a much lower point than would otherwise be practicable and the durability of the furnace materially increased.

The construction described is sufficient for
 20 heating of soldering-coppers weighing from four to eight pounds; but for use with heavier coppers more heat will be required, and for such purpose is provided the double mixing device shown in Fig. 6, in which the chamber
 25 d' is enlarged laterally and at its lower end opens into two pipes, D and D, that connect it with the chamber a of the furnace, as before. The upper end of the enlargement d' contains a chamber, d^2 , that constitutes an extension of
 30 the interior of the pipe E, and from such chamber two pipes, e and e , extend downward through the chamber d' into the pipes D and D below the same. Said pipes e and e have a considerably less diameter than the interior of
 35 said pipes D and D, so that between the contiguous sides of each is left an annular space, as in case of the single device shown in Fig. 5. The gas supply pipe G connects with one side of the chamber d' , and the operation of the
 40 double device is precisely the same as that hereinbefore described, except that it will supply twice the quantity of the combustible mixture, and the capacity of the apparatus will be correspondingly increased.

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

1. As a means for heating soldering-coppers, an apparatus in which are combined a furnace
 50 for mixing gas and air and admitting such

mixture through the upper side of the furnace into the heating-chamber, and mechanism for forcing air under pressure through a passage in said furnace immediately below said heating-chamber and thence into the mixing device, substantially as and for the purpose
 55 specified.

2. As a means for heating soldering-coppers, the combination of a furnace which is provided with a combustion-chamber, a device for mixing gas and air and causing the same when
 60 ignited to pass downward to and impinge upon the bottom of such combustion-chamber, and a pipe or conduit for conveying air under pressure to the mixing device, which is in
 65 part formed within said furnace immediately beneath said combustion-chamber, substantially as and for the purpose shown.

3. The hereinbefore-described apparatus for heating soldering-coppers, consisting of the
 70 furnace provided with a combustion-chamber and beneath the same with a passage or chamber for heating air, a pipe for conveying air under pressure through the air-heating passage or chamber into the upper side of the
 75 combustion-chamber, a pipe for furnishing a supply of combustible gas, and a device for mixing such gas with the air before the latter passes into said combustion-chamber, said parts being combined to operate in the manner
 80 and for the purpose substantially as set forth.

4. The hereinbefore-described apparatus for heating soldering-coppers, composed of the furnace provided with the combustion-chamber having the supporting-ledges and supporting-shelf, and having beneath said combustion-chamber an air-heating passage or chamber, a pipe for conveying air through
 85 said passage or chamber and delivering the same into the upper portion of said combustion-chamber, mechanism for forcing air under pressure into said air-pipe, a pipe for furnishing combustible gas and a device for mixing
 90 such gas with the air in the air-supply pipe, substantially as and for the purpose shown and
 95 described.

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Witnesses:

ALBERT H. ADAMS,
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