

No. 722,062.

PATENTED MAR. 3, 1903.

S. WATT.
TWYER FOR CUPOLA FURNACES.

APPLICATION FILED NOV. 28, 1902.

NO MODEL.

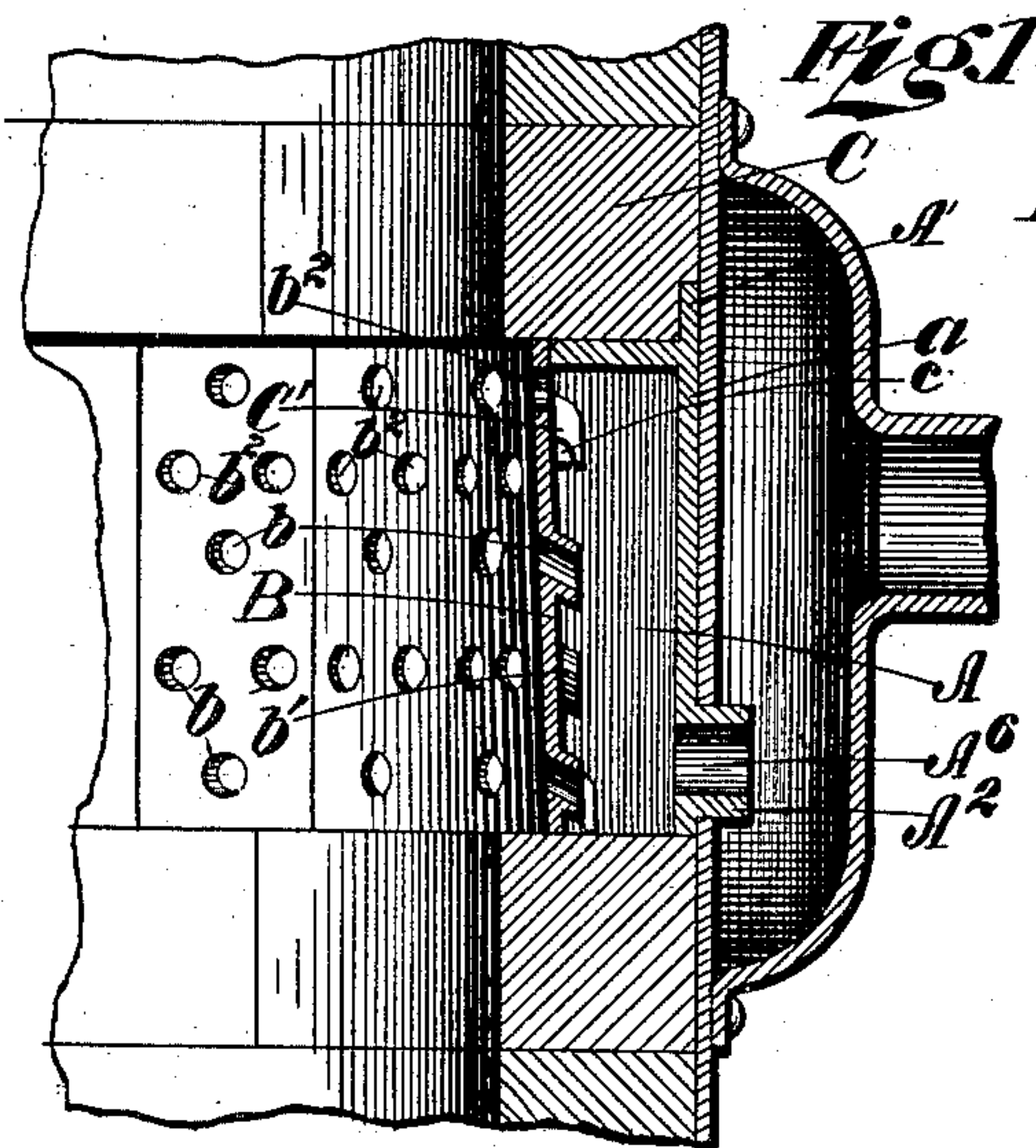


Fig. 2

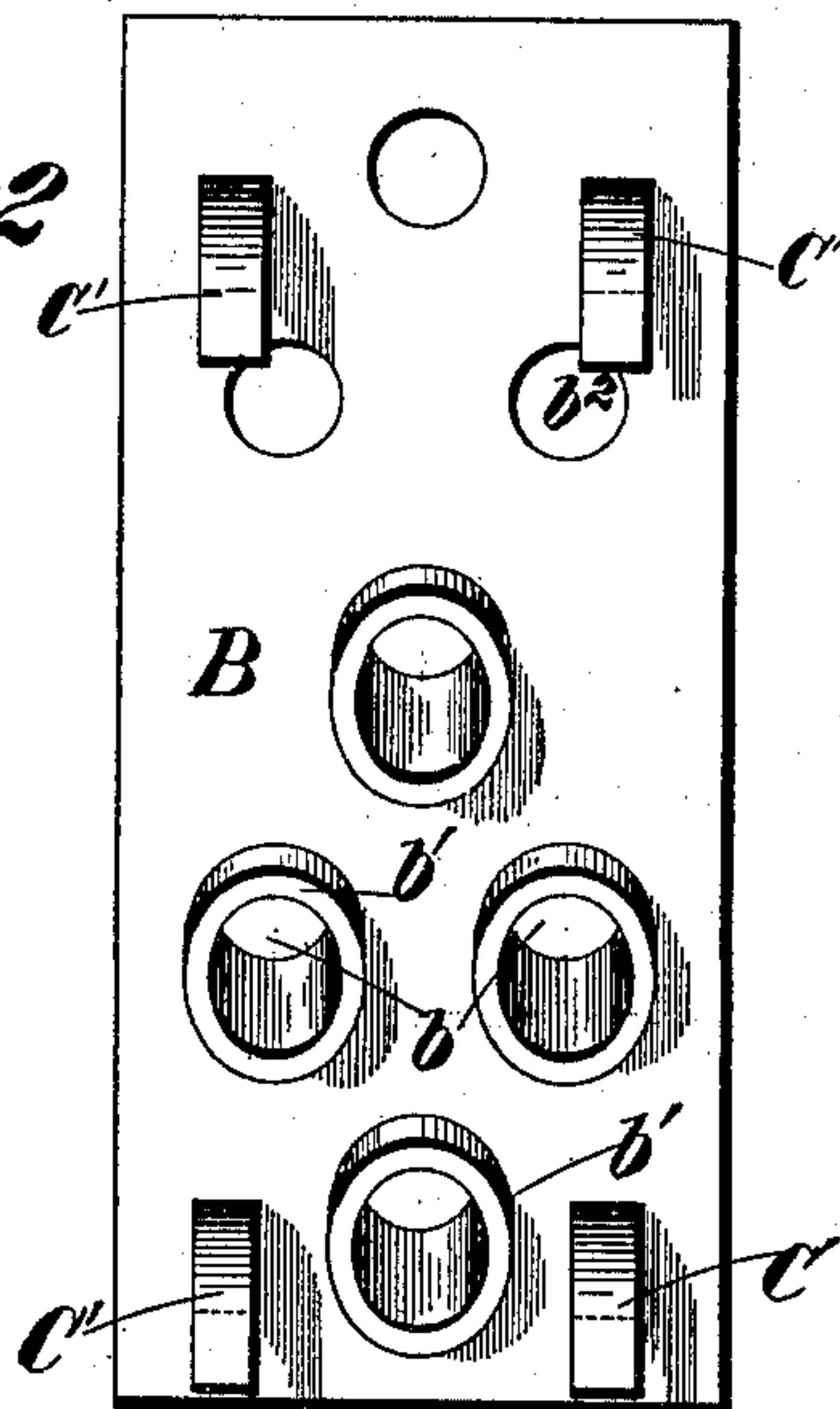


Fig. 3

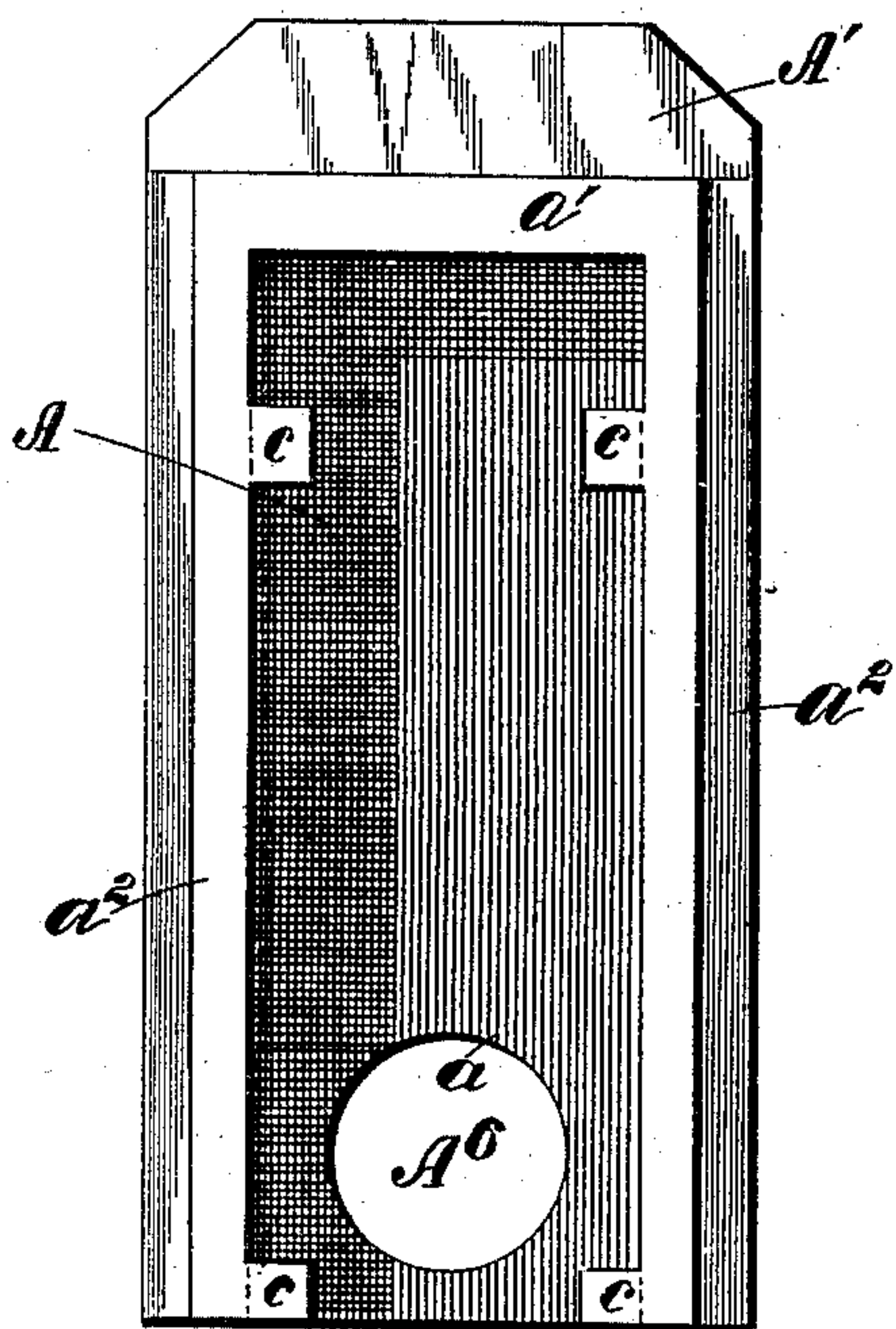
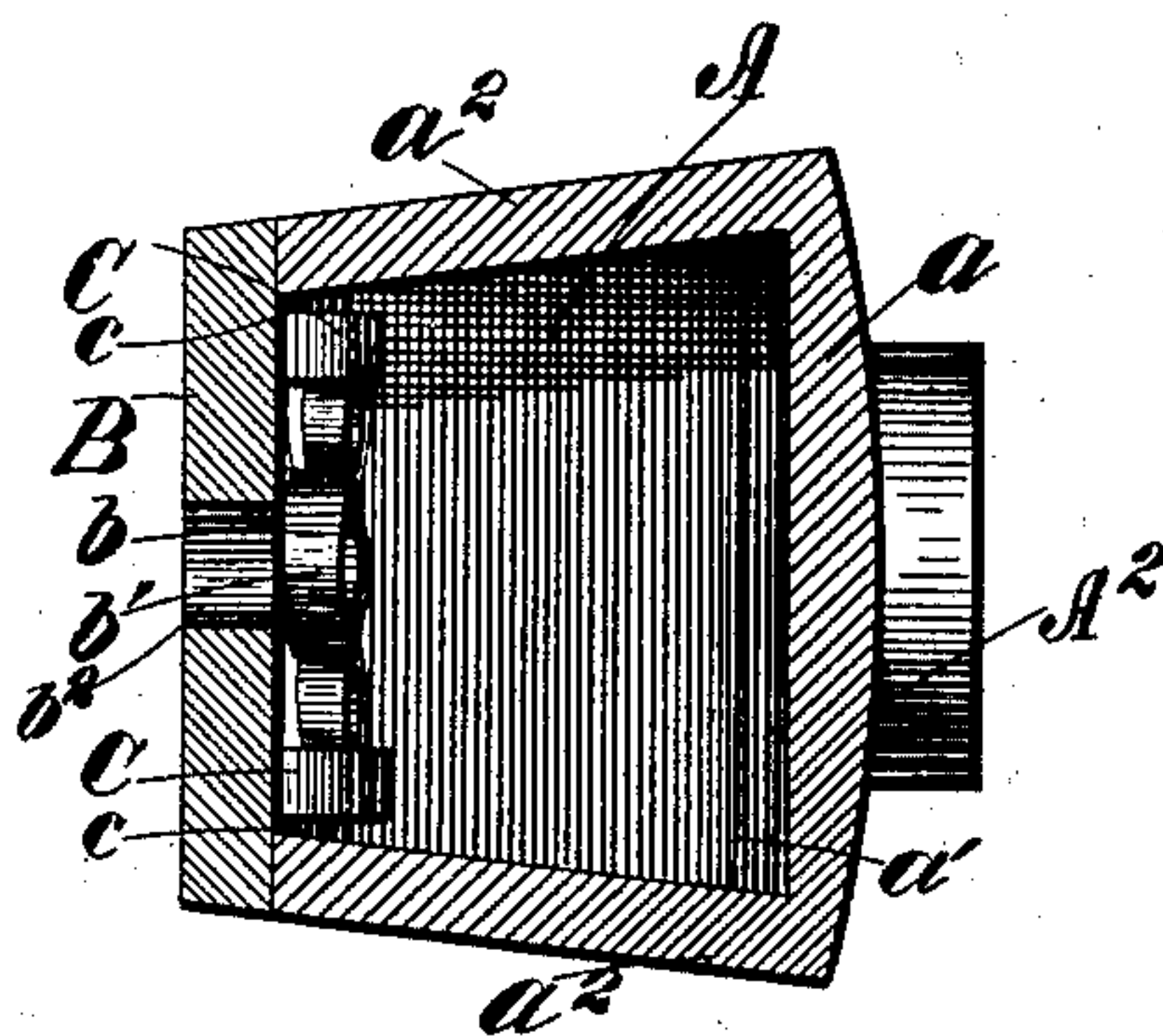


Fig. 4



WITNESSES

C. Edward Duffey.
James R. Mansfield

INVENTOR

By: Stewart Watt.
Alexander Towill
Attorneys.

UNITED STATES PATENT OFFICE.

STEWART WATT, OF BARNESVILLE, OHIO.

TWYER FOR CUPOLA-FURNACES.

SPECIFICATION forming part of Letters Patent No. 722,062, dated March 3, 1903.

Application filed November 28, 1902. Serial No. 133,009. (No model.)

To all whom it may concern:

Be it known that I, STEWART WATT, of Barnesville, in the county of Belmont and State of Ohio, have invented certain new and
5 useful Improvements in Twyers for Cupola-Furnaces; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this
10 specification.

This invention is an improvement on the twyer shown and described in United States Patent No. 697,301, dated April 8, 1902, granted to myself and F. H. Watt; and the
15 objects of the present invention are to so construct the twyer that its inner or face plate can be readily removed and replaced without manipulation of bolts or screw-fastenings and without disturbing the twyer-
20 fastenings, thereby facilitating the cleaning of the twyers should slag or dirt get therein and facilitating the refacing of the twyer when worn out or when it is desired to change the number or direction of air-jets.

25 Another object is to improve the construction of the body of the twyer so it will be anchored securely in position within the cupola.

The invention therefore consists in the novel construction and combinations of parts
30 hereinafter described and claimed, and the accompanying drawings illustrate the improvements as applied to a segmental form of twyer.

Figure 1 is a central vertical section through
35 one of the twyers as positioned in a cupola; Fig. 2, an inside view of the face-plate thereof detached; Fig. 3, a view of the twyer with face-plate removed. Fig. 4 is a transverse section of twyer.

40 As shown in the drawings, the twyer is illustrated as segmental in general form, so that a series of said twyers can be arranged side by side within the cupola, as described in the aforesaid patent. The size of such
45 twyers and the number thereof necessary to form a complete circle will depend upon the size of the cupola and the nature of the work to be performed and the preference of the constructor. I do not restrict myself to any
50 particular form or dimensions thereof, as the invention is applicable to various forms and sizes of twyer.

Proceeding to describe the specific form illustrated for the purpose of imparting a clear understanding of the invention, the
55 twyer comprises a hollow box-like casting A, having an outer wall a , top a' , and side walls a^2 , but preferably open at bottom and front, the front being closed by a removable plate B. On the upper end and rear side of the
60 twyer is a flange A' , which comes behind the lower portion C of the fire-brick lining of the furnace, which is superimposed on the twyers, as indicated in the drawings. This flange A' materially assists in anchoring the
65 twyer in place, prevents its dropping forward toward the center of the cupola, and maintains the cupola and lining in proper relative positions. The casting A has an air-inlet opening A^6 in its rear side, surrounded
70 by a collar A^2 , which can be connected to the air-blast pipe or chamber.

The plate B is provided with a series of upwardly-directed air-jet openings b , surrounded on the inner face of the plate by collars b' ,
75 which act as short jet-pipes to direct the air upwardly into the cupola. The plate also has a series of smaller horizontal jet-openings b^2 above openings b to admit air laterally into the cupola. The arrangement and construction of the jet-openings are described in
80 the patent aforesaid and are not claimed herein.

The plate B is detachably secured to the casting A by means of the vertically-disposed
85 inwardly and downwardly projecting lugs C' on the back of plate B, adapted to engage horizontally-disposed lugs c , projecting inwardly from the sides a' of the casting A. As shown, there are two pairs of lugs C' on the
90 frame and two similarly-located pairs of lugs c on the casting a . In order to engage the plate with the box, it is only necessary to place the plate against the open front of box, lift it until lugs C' pass above lugs c , then
95 push the plate inward flush against the edges of the box sides and top, and then let the plate drop. In so doing lugs C' catch over lugs c and lock the plate B to the box A in exact position and hold it securely. If the faces
100 or fronts B of the twyer have to be removed because burned out or because it is desired to clean out the openings or remove slag from the twyer or for other reasons, it is only nec-

essary to force the plate B upward, which can readily be done by striking its lower edge with a hammer, so as to force lugs C' above lugs c, when the plate can be removed and
5 cleaned and replaced or another plate substituted therefor.

The described manner of removably attaching the face-plates of the twyer to its body is very simple and effective. I do not,
10 however, restrict myself to the specific formation and arrangement of the interlocking lugs on the box and plate shown in the drawings, as these might be varied within the scope of my invention.

15 Having thus described my invention, what I therefore claim as new, and desire to secure by Letters Patent thereon, is—

1. A twyer for cupola-furnaces comprising an open front casting, a removable front
20 plate, and interlocking lugs on the casting and front plate for securing the latter to the former, substantially as described.

2. A twyer for cupola-furnaces, consisting of a hollow casting having an air-inlet, a detachable front plate provided with jet-apertures, and interlocking lugs on the front plate
25

and casting permitting the front plate to be removed when forced upwardly, substantially as described.

3. A twyer for cupola-furnaces, comprising
30 a hollow casting having a blast-inlet at rear, and lugs on its sides; with a removable front plate having inwardly and downwardly projecting lugs adapted to engage those on the casting, for the purpose and substantially as
35 described.

4. The herein-described twyer for cupola-furnaces, consisting of a hollow casting having an air-inlet, an upstanding anchoring-flange on its top, and projecting lugs on its
40 sides; with a removable front plate having air-jet apertures, and inwardly and downwardly projecting lugs adapted to engage the lugs on the casting to secure the plate thereto, substantially as described.
45

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

STEWART WATT.

In presence of—

G. W. AGAR,

THEO. CHAPPELL.