

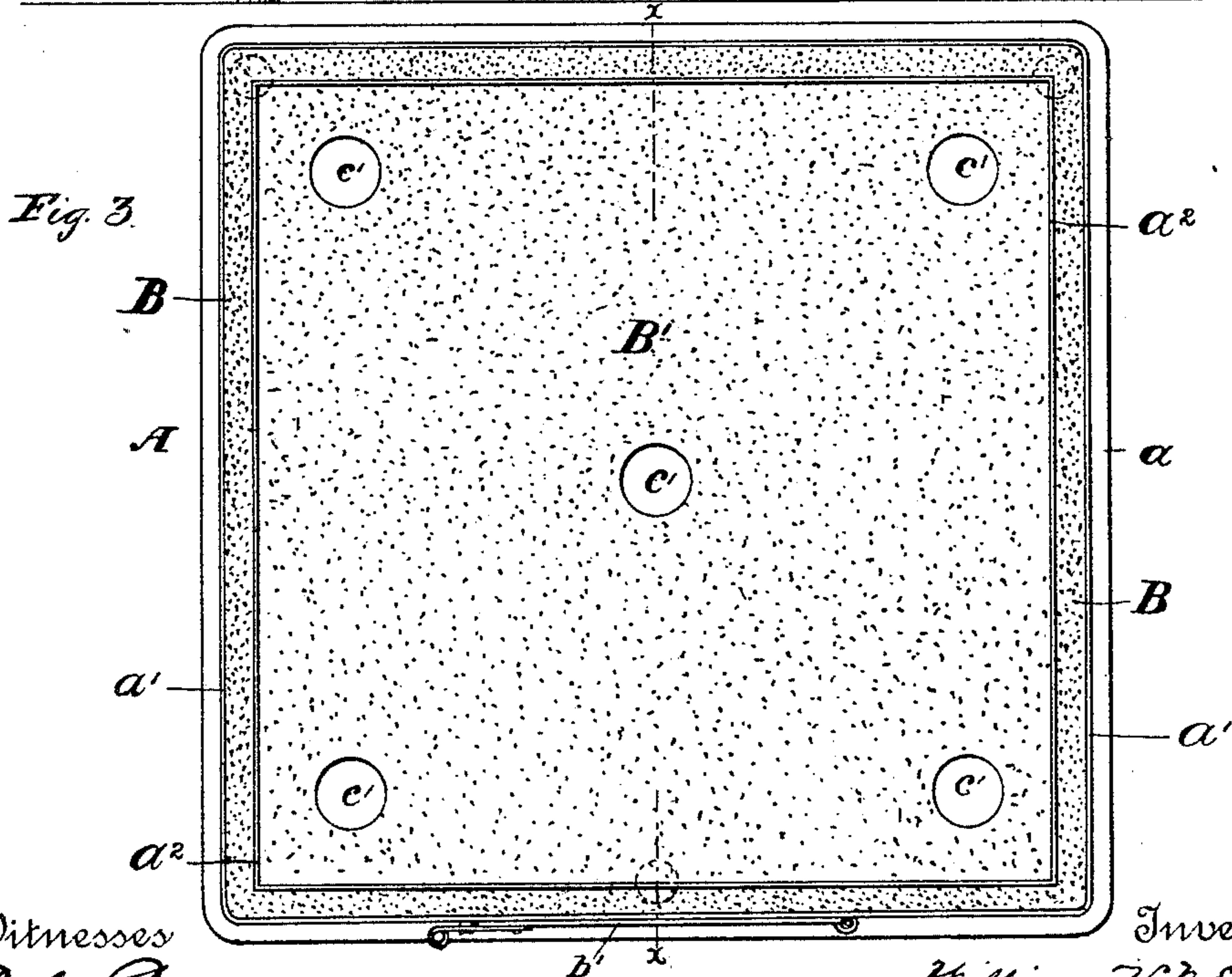
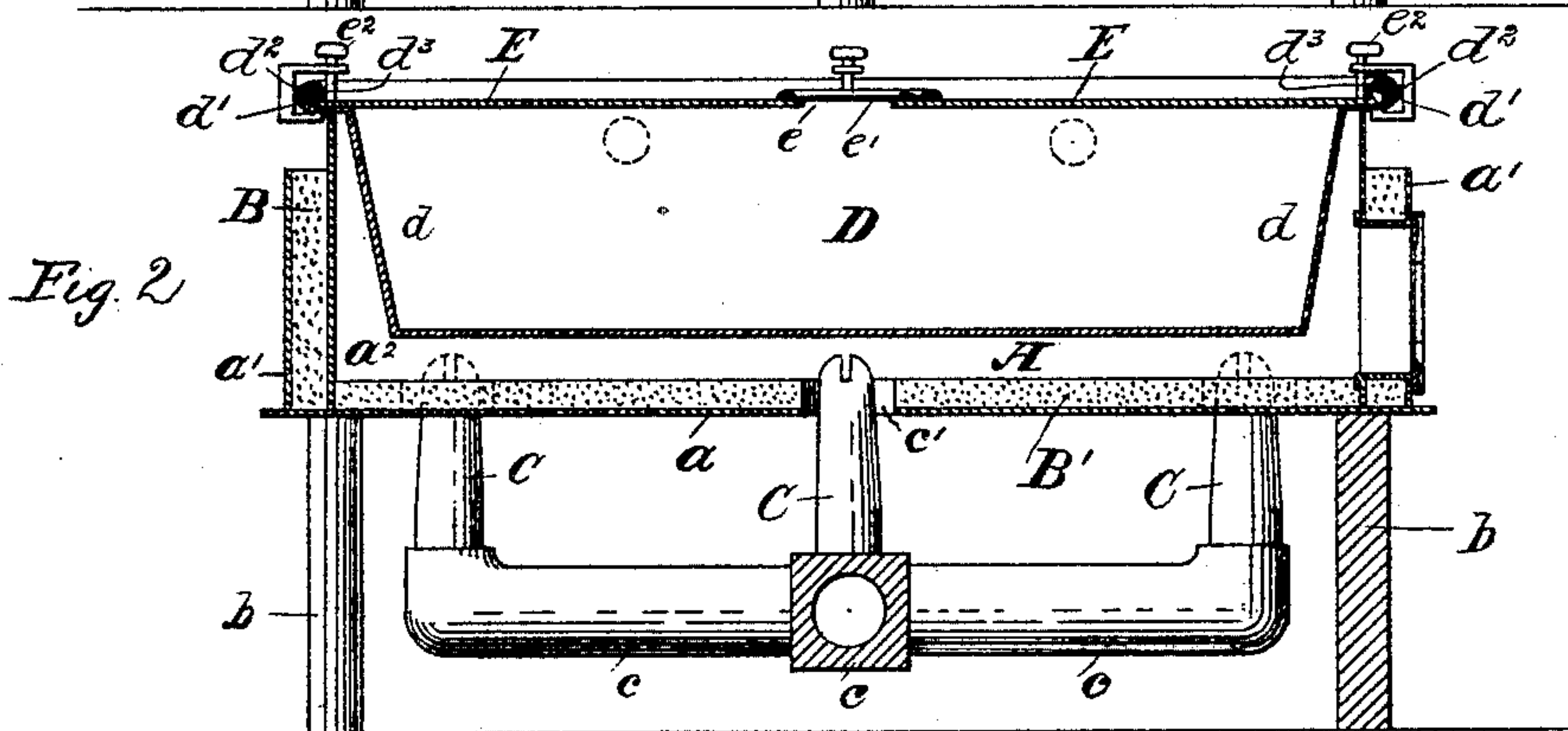
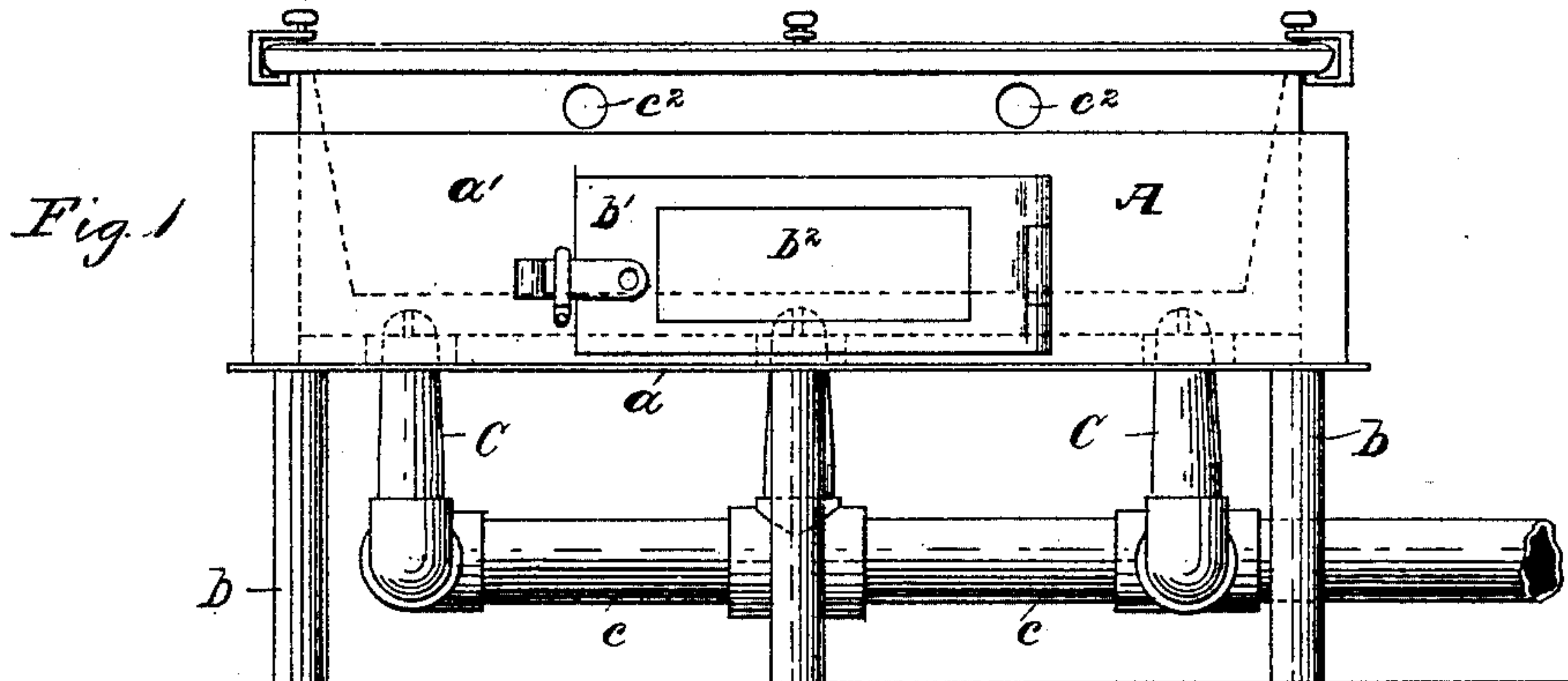
(No Model.)

W. V. McKENZIE.

APPARATUS FOR REFINING CAMPHOR.

No. 424,615.

Patented Apr. 1, 1890.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## APPARATUS FOR REFINING CAMPHOR.

SPECIFICATION forming part of Letters Patent No. 424,615, dated April 1, 1890.

Application filed August 24, 1889. Serial No. 321,876. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM V. MCKENZIE, a citizen of the United States, residing at Rahway, in the county of Union and State of New Jersey, have invented a certain new and useful Improvement in Refining Apparatus or Furnaces for Camphor or other Similar Substances, of which the following is a specification.

10 The invention consists in the construction and novel arrangement of parts, as hereinafter set forth.

15 In the drawings, Figure 1 is a front view of the furnace embodying my invention. Fig. 2 is a vertical section on the line  $x x$  of Fig. 3, and Fig. 3 is a top view with the refining-pan removed.

Similar letters of reference indicate like parts in all the figures of the drawings.

20 Referring by letter to the drawings, A designates the furnace, which is here shown as rectangular in form and consisting of the metal bottom  $a$ , the outer metal side walls  $a'$ , and the inner metal side walls  $a^2$ . The walls  $a'$   $a^2$  form a double wall all around the furnace, and in order to better retain heat within the furnace a packing B is placed between the walls. For this packing I prefer to use asbestos, and a thick layer of asbestos B' is spread upon the inner surface of the bottom  $a$ .

30 The furnace may be supported upon legs  $b$ , and it is provided at one side with a hinged door  $b'$ , having a mica panel  $b^2$ .

35 I find gas a suitable means for supplying heat to the furnace, and therefore extend tubes C from the supply-pipes  $c$  through openings  $c'$  in the bottom of the furnace into the space between the bottom of the furnace and the refining-pan, and openings  $c^2$  in the side walls provide a suitable draft. I have here shown five openings  $c'$  for gas-tubes; but it is obvious that a greater or less number may be provided.

45 D designates the refining-pan, of suitable metal, placed within and extending nearly to the bottom of the furnace. The side walls  $d$  of the pan converge downward, so that the heat from the gas-burners will be distributed on all parts of the pan. The upper edges of the walls  $d$  are flanged outward, as at  $d'$ , and upward, as at  $d^2$ . The portions  $d'$  rest upon the upper edges of the furnace-wall  $a^2$ , which

is extended above the wall  $a'$ , and the upturned portion  $d^2$  of the flange serves to retain a packing, as hereinafter set forth. 55

E is a cover for the pan. This cover rests upon the portion  $d'$  of the flange and has its edge slightly turned up to retain the clay or other packing  $d^2$ , as plainly shown in Fig. 2. The cover E has an opening  $e$  through it, which 60 may be closed by a pivoted or sliding cover or valve  $e'$ .

When in use for refining, it is necessary that the pan should be air-tight. Therefore a suitable packing—such as clay—may be placed 65 around the edges of the cover  $e'$ , as well as around the edges of the cover E, and as a further means of holding the cover E against the pressure exerted within the pan I employ clamping-screws  $e^2$  in the manner shown in 70 Fig. 2.

In refining camphor in my apparatus the crude material is placed within the pan and the cover is clamped and sealed in place, as heretofore described, and when the crude 75 camphor is subjected to sufficient heat the refined portion adheres to the inner surface of the cover E, from which it may be scraped when the refining shall have been completed. Before the cover E is removed for the purpose 80 of scraping the camphor therefrom the cover  $e'$  should be opened to allow the escape of gases and harden the camphor in the cover E.

I have here shown a single refining-furnace; but in practice a series of furnaces may advantageously be employed. 85

Having described my invention, what I claim is—

1. In a refining apparatus, the combination, with a heat-supply, of a furnace comprising 90 double side walls, asbestos between said walls, and a bottom having a layer of asbestos and provided with openings for tubes, and a refining-pan extended into the furnace and provided with a cover having a valve to allow 95 the escape of gas when the refining is completed, substantially as specified.

2. In a refining apparatus, the combination, with a heat-supply and a furnace substantially such as described, of a refining-pan having downwardly-converging side walls and outwardly and upwardly turned flange, a cover resting on said flange and having an opening 100 through it, a cover for said opening, and a

packing and holding device for said cover, substantially as specified.

3. In a refining apparatus, the combination  
of a furnace having an opening or openings  
5 in its bottom, a refining-pan extending into  
said furnace nearly to its bottom, and tubes  
for a heat-supply extending through the open-  
ing or openings into the space between the  
bottom of the furnace and the pan, substan-  
10 tially as specified.

4. In a refining apparatus, the combination,

with a heat-supply and a furnace substan-  
tially such as described, of a refining-pan hav-  
ing an outwardly and upwardly turned flange,  
a cover resting on said flange and having a 15  
valve in its top, and a packing and holding  
device for said cover, substantially as speci-  
fied.

WILLIAM V. MCKENZIE.

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