

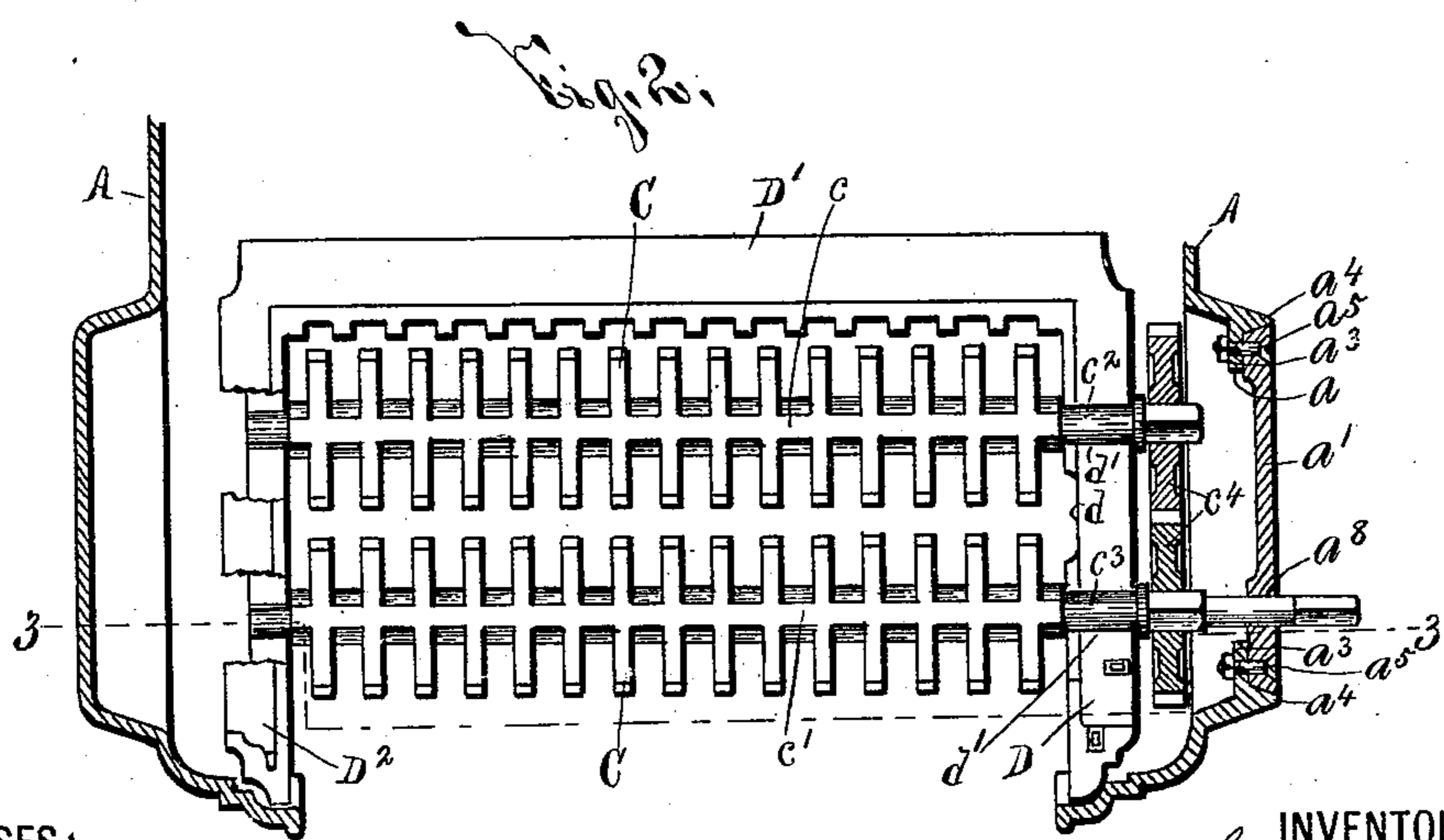
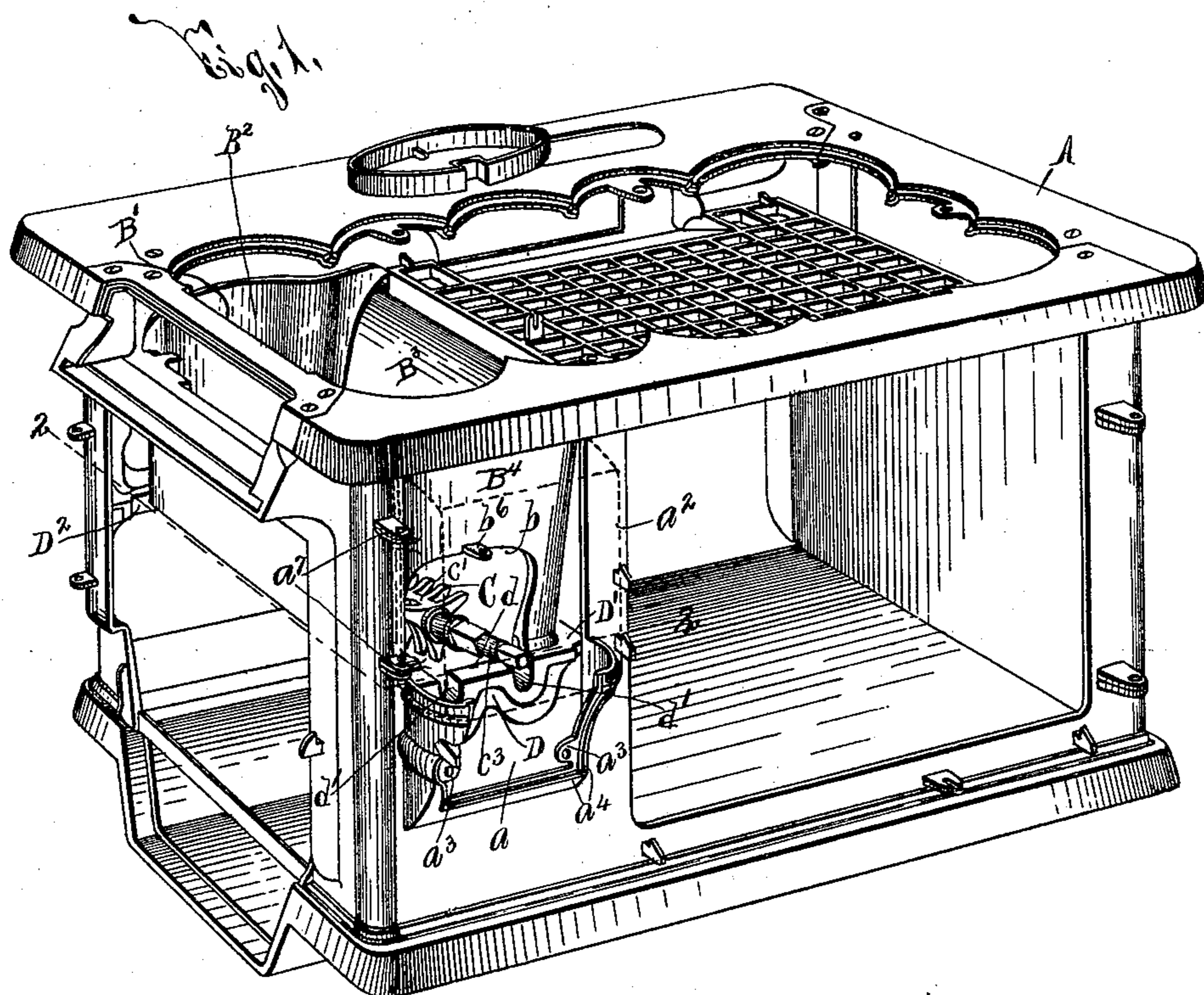
(No Model.)

2 Sheets—Sheet 1.

G. H. PHILLIPS.
GRATE.

No. 568,790.

Patented Oct. 6, 1896.



WITNESSES:

H. C. Chase,
L. Schornick,

INVENTOR

George H. Phillips

BY

Hay & Parsons
ATTORNEYS,

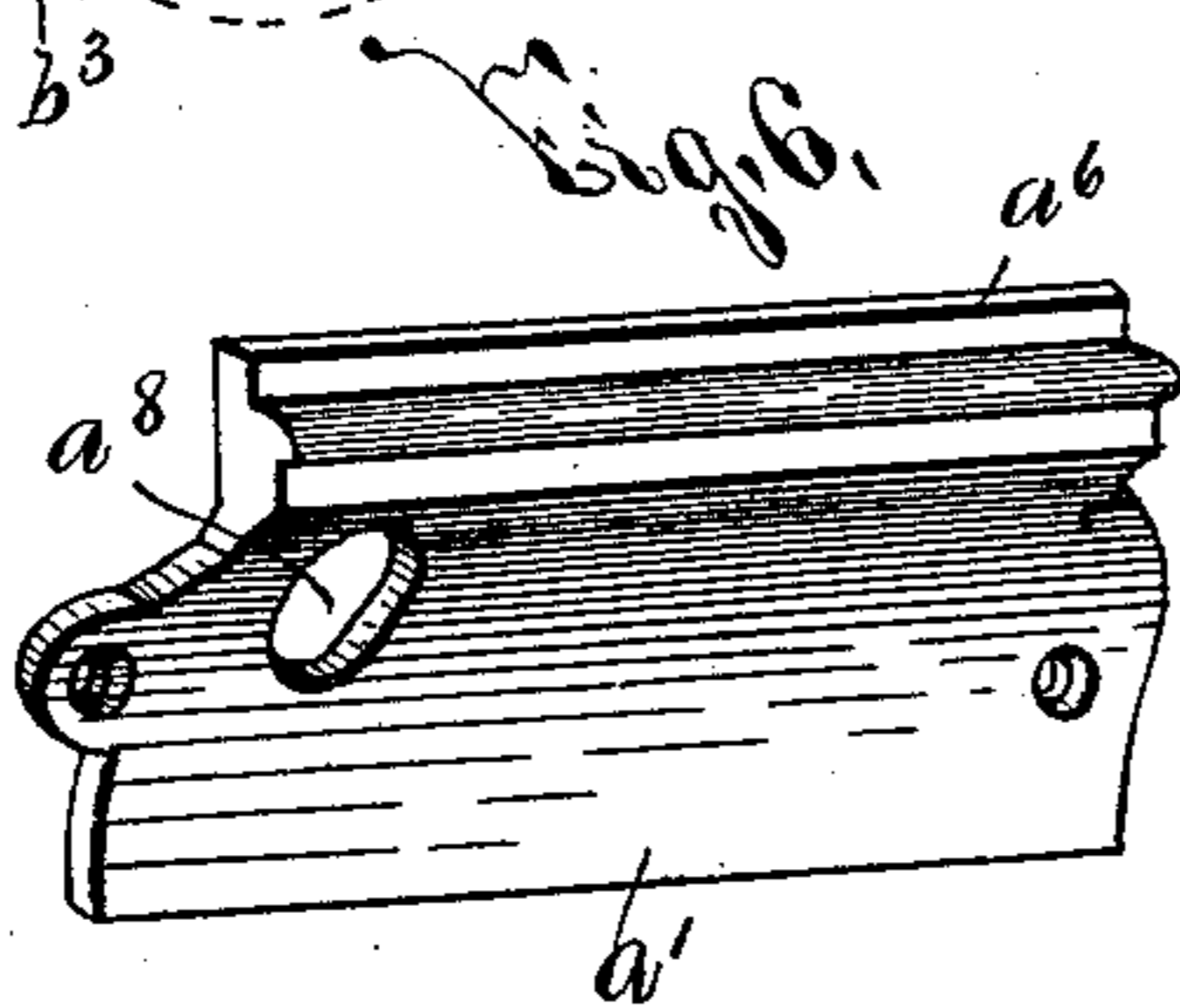
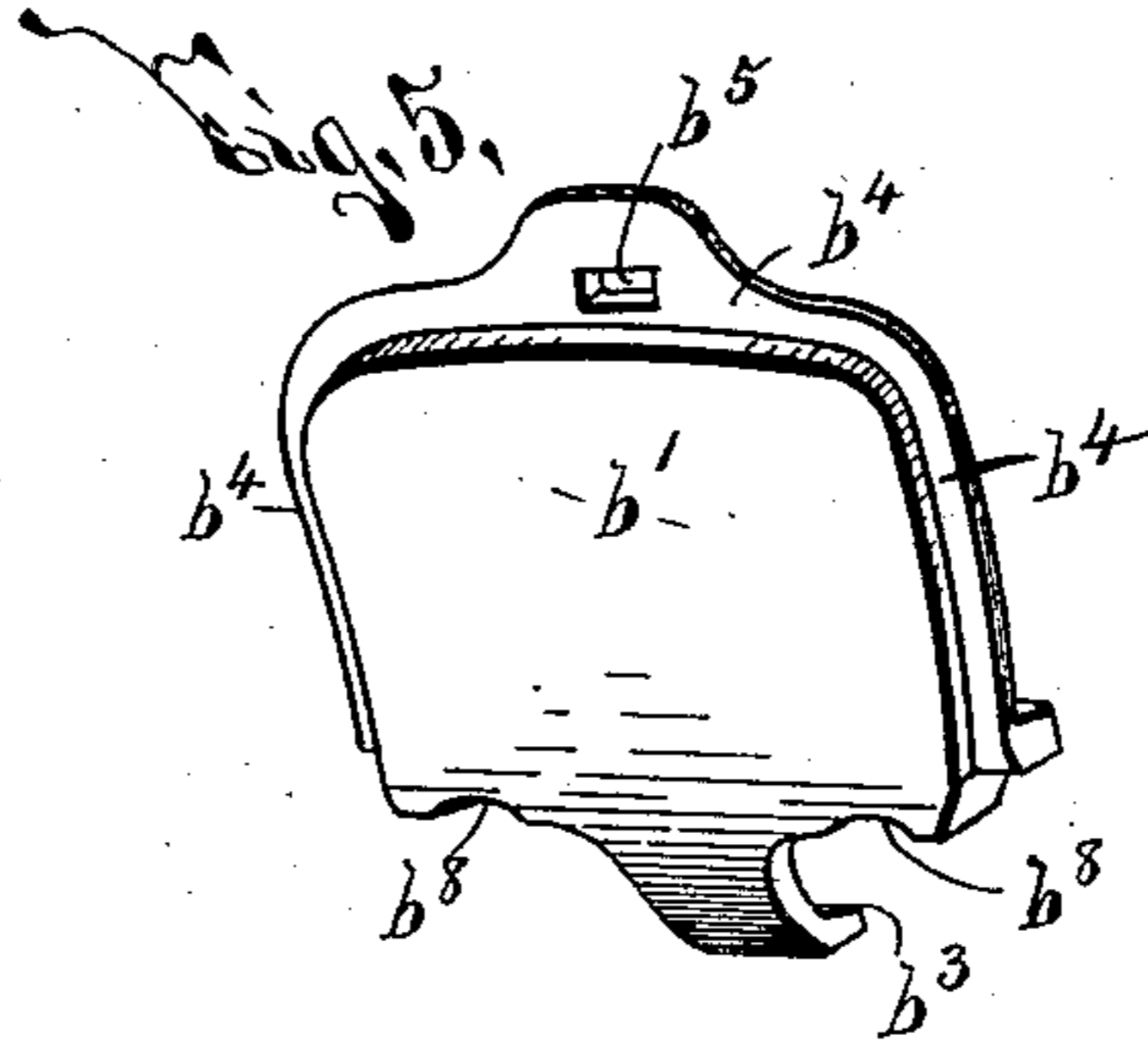
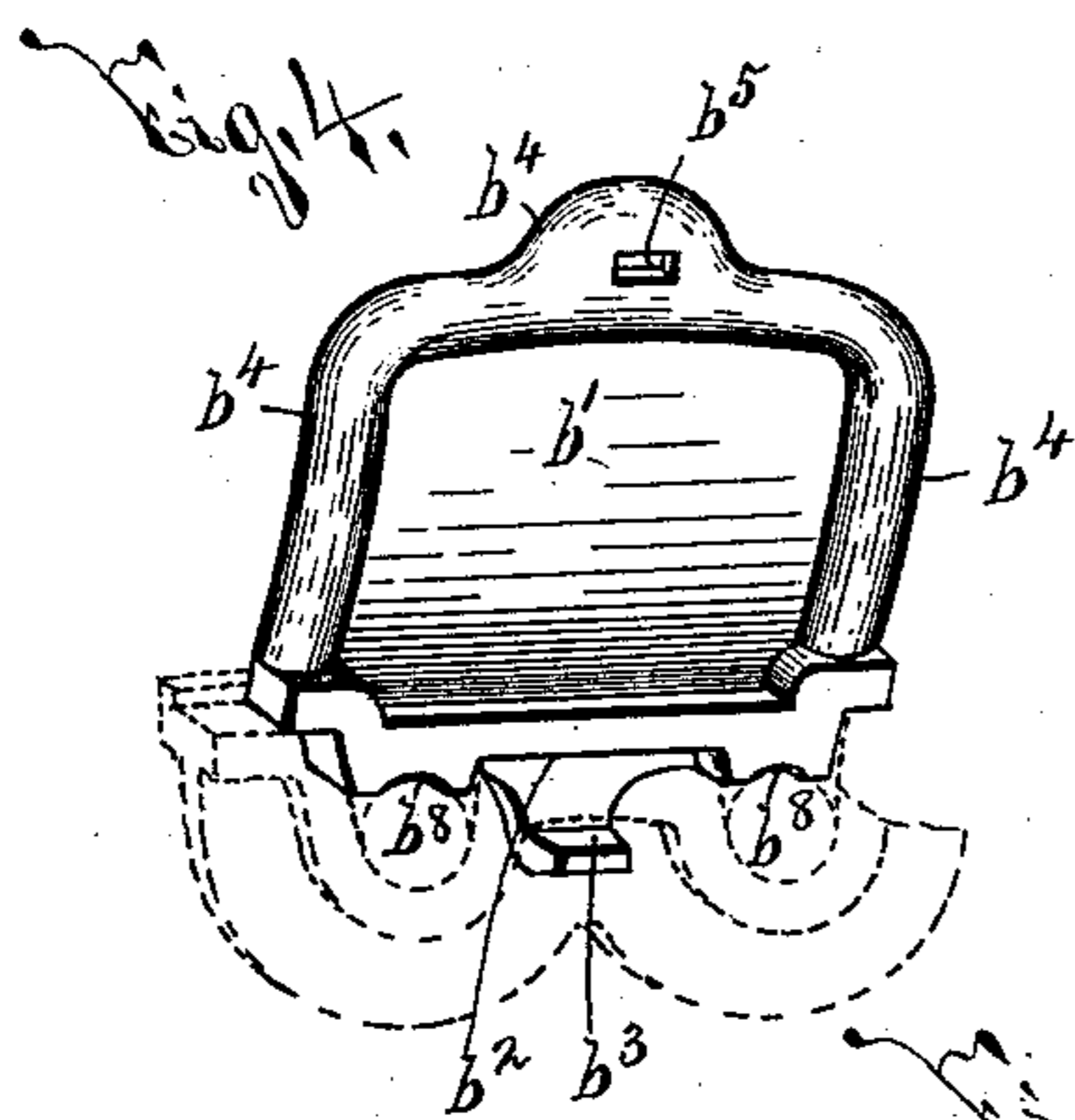
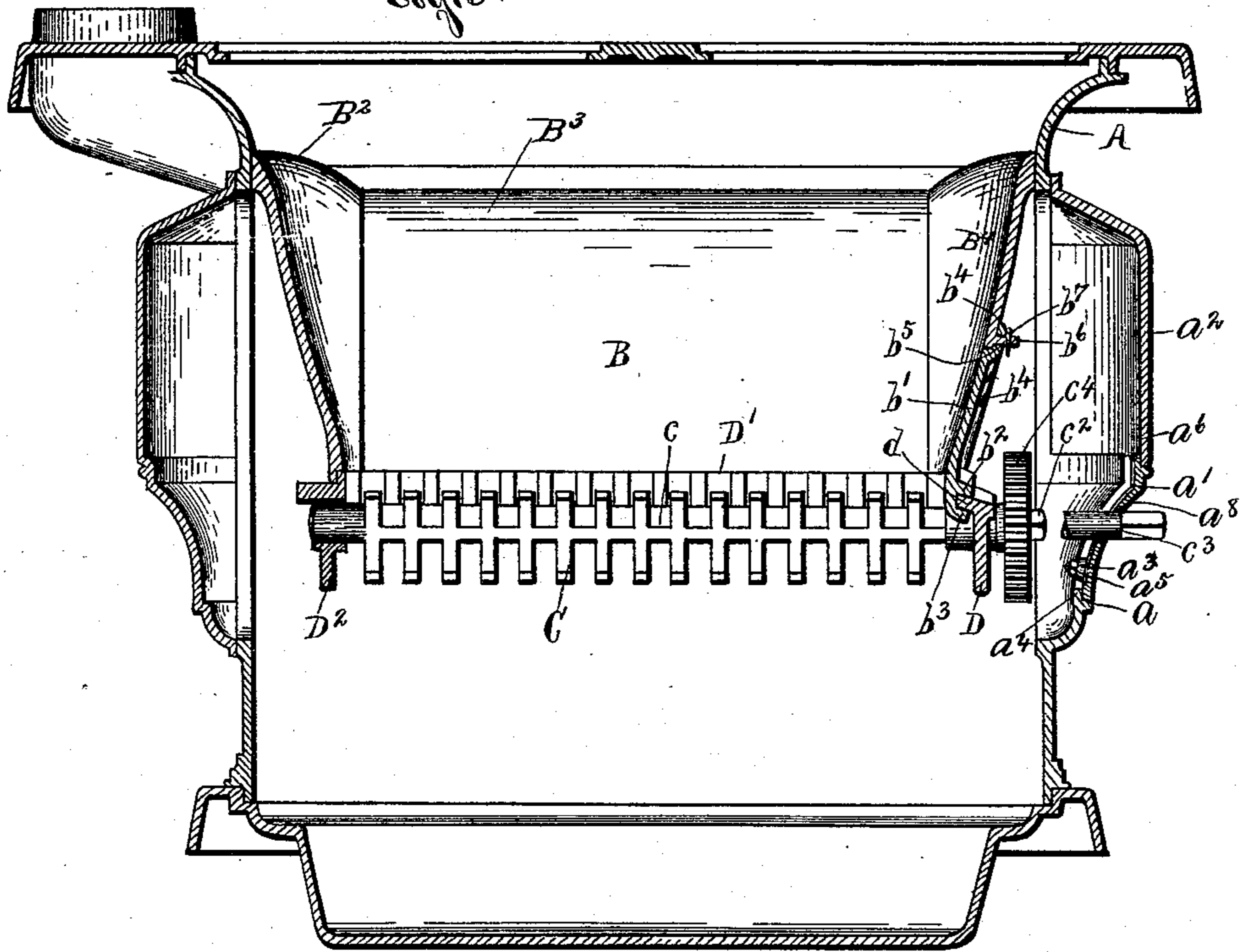
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2 Sheets—Sheet 2.

G. H. PHILLIPS.
GRATE.

No. 568,790.

Patented Oct. 6, 1896.



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C. Schornick,

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George H. Phillips,

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Wey & Parsons,

ATTORNEYS

UNITED STATES PATENT OFFICE.

GEORGE H. PHILLIPS, OF GENEVA, NEW YORK.

GRATE.

SPECIFICATION forming part of Letters Patent No. 568,790, dated October 6, 1896.

Application filed April 16, 1895. Serial No. 545,872. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. PHILLIPS, of Geneva, in the county of Ontario, in the State of New York, have invented new and useful Improvements in Stoves, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to that class of stoves in which the grate is removable through openings formed in the side walls of the stoves; and the object of the invention is to so construct the parts that the side wall or brick of the combustion-chamber will be normally locked against movement by the removable door closing the opening therein.

To this end the invention consists in certain peculiarities in the construction, arrangement, and combination of the several parts, substantially as hereinafter described, and particularly pointed out in the subjoined claims.

In describing this invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is an isometric view of the greater portion of a stove. Fig. 2 is a horizontal section taken on line 2 2, Fig. 1. Fig. 3 is a vertical section taken on line 3 3, Fig. 2. Figs. 4 and 5 are isometric views of opposite sides of the plate or section for closing the opening in the wall of the combustion-chamber, and Fig. 6 is an isometric view of the plate or section for closing the opening in the wall of the inclosing shell.

A represents the inclosing shell, partly illustrated, and B the combustion-chamber, formed, as usual, by the bricks B¹, B², B³, and B⁴, of a stove of any suitable form, size, and construction. Adjacent side walls of the shell A and the end bricks B⁴ of the combustion-chamber B are formed with openings a and b, respectively, which are alined with each other for permitting the outward endwise passage therethrough of a suitable grate C, supported beneath the chamber B. The opening a is closed by a removable plate or section a' and a door a², and the upper portion of the opening a, closed by the door a², is of greater width than the lower portion thereof. The lower ends of the upright edges of the opening a and the lower edge thereof are formed

with engaging shoulders a³ a⁴, arranged at an angle with each other, and the side edges and lower edge of the plate a' are engaged with the shoulders a³ a⁴. The opposite ends of the plate a' are removably secured to the adjacent portion of the shell A by suitable fastening means a⁵, and the upper edge of the plate a' is formed with an engaging shoulder a⁶. The door a², which is of any desirable construction, is preferably hinged to ears a⁷, projecting from the frame A, and its lower edge engages the outer face of the shoulder a⁶ of the plate or section a'.

The opening b is closed by a plate or section b', formed at its lower edge with separated lateral shoulders b² b³ for engaging the upper and lower faces of an inwardly-extending shoulder d upon a lateral arm D of a support D', arranged beneath the combustion-chamber B. The side and top edges of the plate or section b' are formed with engaging shoulders b⁴, lapping upon the adjacent edges of the opening b, and the top portion of said plate b' is provided with an aperture b⁵. A lug b⁶ projects from the outer face of the wall of the chamber B above the opening b and is passed through the perforation b⁵, and a suitable fastener, as a pin b⁷, is engaged with the outer end of the lug b⁶ and operates to hold the upper portion of the plate b' in operative position.

The grate C, previously mentioned, is also of any desirable form, size, and construction, and preferably consists of substantial parallel bars c c', having corresponding ends formed with spindles journaled in a lateral arm D² of the support D' and its opposite ends provided with spindles c² c³, journaled in grooves d', extending downwardly from the top face of the arm D. The spindles c² c³ are connected by suitable gears c⁴ for rotating both simultaneously and are held in their normal position by the plate b', which is preferably formed with grooves b⁸ for receiving their upper portions. The spindle c³ is formed with an elongated extremity which projects through an aperture a⁸ in the removable plate or section a', and is detachably engaged by a shaking lever (not illustrated) for rotating the grate-bars. When removing my improved grate, the door a² is opened and the plate a' is removed, the fastener b⁷ is withdrawn from operative position, the lower edge of the plate b'

is forced inwardly for disengaging the same from the arm D' , and the plate b' is then removed through the opening a . The adjacent ends of the grate-bars are then engaged for moving the same endwise and disengaging their opposite ends from the arm D^2 , whereupon said grate-bars may be withdrawn through the openings b a .

It will be observed that the plate or door b' is attached at one end to the end brick B^1 , which in ordinary constructions is always movable vertically, and has at its other end such engagement with the arm D that such vertical movement is prevented. Said plate thereby serves to permit removal of the grate-bars through the opening b in said end brick and also locks the end brick to the rigid support D for the adjacent ends of the grate-bars and prevents up and down movement of said ends of the grate-bars. This is an important advantage peculiar to my invention. It will also be observed that the opening b in the end wall or brick B^1 of the combustion-chamber is of sufficient height to permit one grate-bar to be raised above the other while being withdrawn and the bars to be withdrawn separately, and, further, that when the door b' is opened or removed the grate-bars may be withdrawn without necessitating any disturbance of the bed plate or support D' or the lining or bricks B^1 B^2 B^3 B^4 .

The operation of my invention will be readily apparent to one skilled in the art upon reference to the foregoing description and the accompanying drawings, and it is obvious that it permits ready removal of the grate.

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

1. In a stove, the combination of an inclosing shell, having an opening in its wall, the combustion-chamber, having its end wall or brick formed with an opening alined with that in the wall of the shell, a rigid support for the grate-bars, and a plate or door for normally closing the opening in said end wall or brick, said plate or door detachably engaging the support and locking the end wall or brick thereto and thereby preventing vertical movement of said brick and grate-bars, substantially as described.

2. In a stove, the combination of an inclosing shell, having an opening in its wall, the combustion-chamber, having its end wall or brick formed with an opening alined with that in the wall of the shell, a rigid support having a lateral arm formed with a groove for the contiguous end of the grate-bar and with a shoulder adjacent thereto, and a plate or door for normally closing the opening in the end wall or brick of said combustion-chamber, said plate or door being attached at one end to the said end wall and having its other end formed with lateral shoulders receiving said shoulder of the lateral arm between them, substantially as described.

3. In a stove, the combination of an inclos-

ing shell having an opening in its wall and provided with engaging shoulders arranged at an angle with each other and projecting from the lower ends of the upright edges and the lower edge of the opening, a plate or section for normally closing the lower portion of the opening having its lower and side edges engaged with said shoulders, the plate or section being provided with an aperture there-through and having its opposite ends removably secured to the adjacent portion of the wall and its upper edge provided with an engaging shoulder, a door for closing the remaining portion of the opening having its lower edge engaged with the outer face of said shoulder, substantially as described.

4. In a stove, the combination of an inclosing shell having an opening in its wall, a plate or section for normally closing a portion of the opening provided with an aperture there-through and having its opposite ends removably secured to the adjacent portion of the wall and its upper edge provided with an engaging shoulder, a door for closing the remaining portion of the opening having its lower edge engaged with the outer face of said shoulder, a combustion-chamber having an opening in its wall alined with the former opening, and a removable plate or section for normally closing the latter opening, substantially as specified.

5. In a stove, the combination of a combustion-chamber having an opening in its end brick, a support beneath the combustion-chamber, and a plate or section for normally closing the opening and locking the end brick against vertical movement, said plate or section having its lower edge provided with a shoulder for engaging the support, substantially as and for the purpose specified.

6. In a stove, the combination of a combustion-chamber having an opening in its end wall, a lug projecting from the outer face of said wall above the opening, a support beneath the combustion-chamber having its upper edge formed with an inwardly-extending shoulder, a plate or section for normally closing the opening having its lower edge provided with separated shoulders for engaging the upper and lower faces of the former shoulder and its upper part provided with an aperture for receiving said lug, whereby said door serves also to lock the end wall against vertical movement, and a fastener for engaging the lug and holding the section or plate in its normal position, substantially as and for the purpose described.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Geneva, in the county of Ontario, in the State of New York, this 16th day of March, 1895.

GEORGE H. PHILLIPS.

Witnesses:

WM. J. MOOR,
GEO. F. ANNAS.