

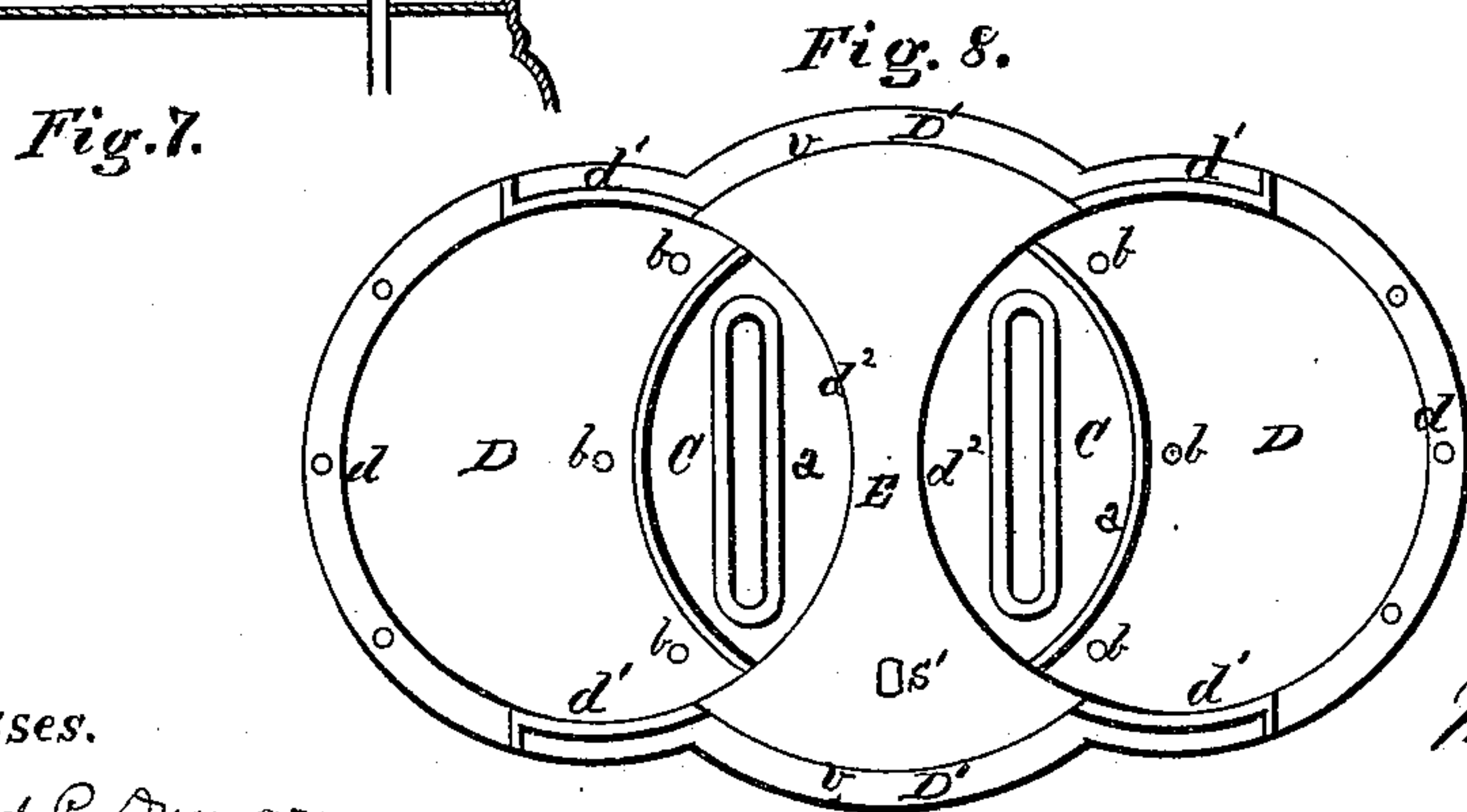
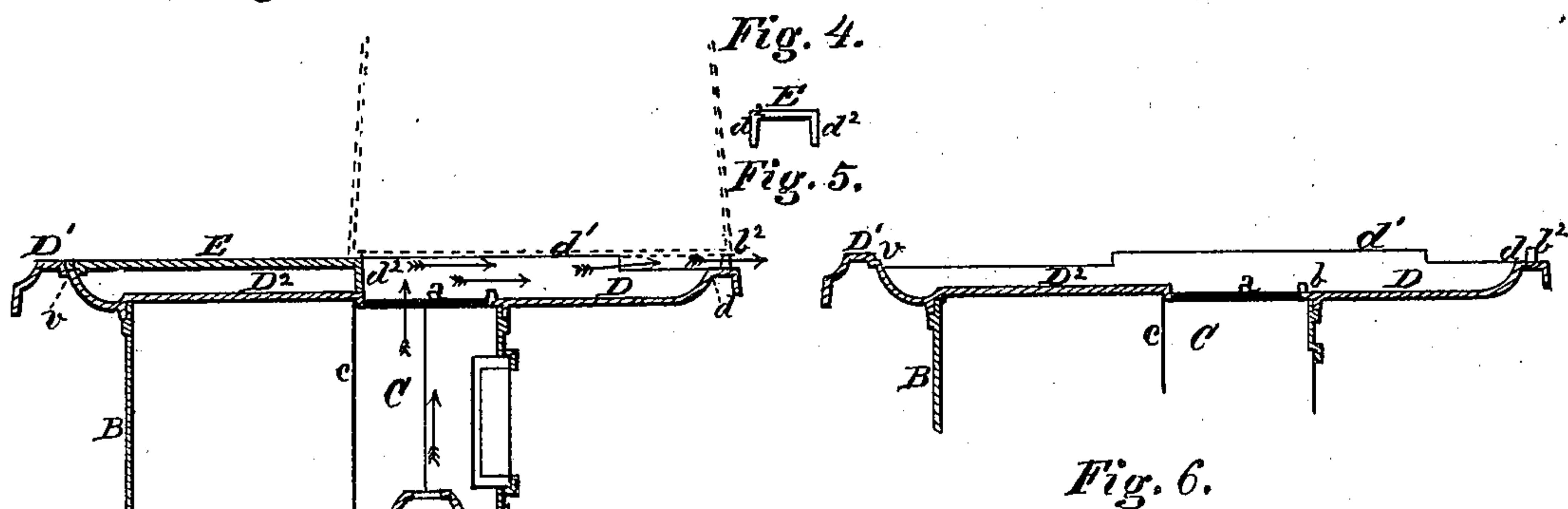
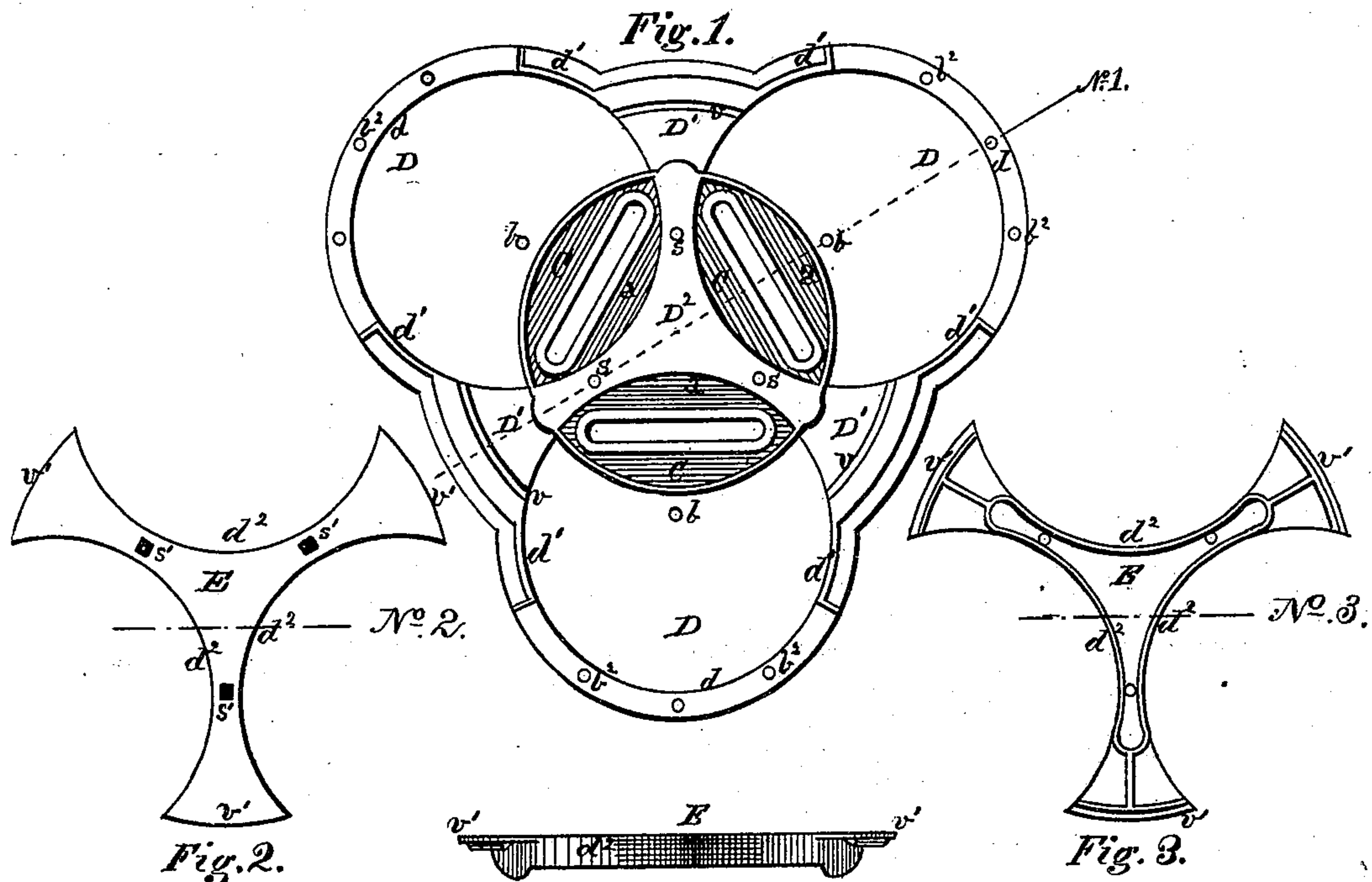
(No Model.)

2 Sheets—Sheet 1.

W. HAILES.
COAL OIL STOVE.

No. 253,039.

Patented Jan. 31, 1882.



Witnesses.

Richard P. Dumary

Charles Secor

William Hailes

Inventor.

By his atty Alex. Selkirk

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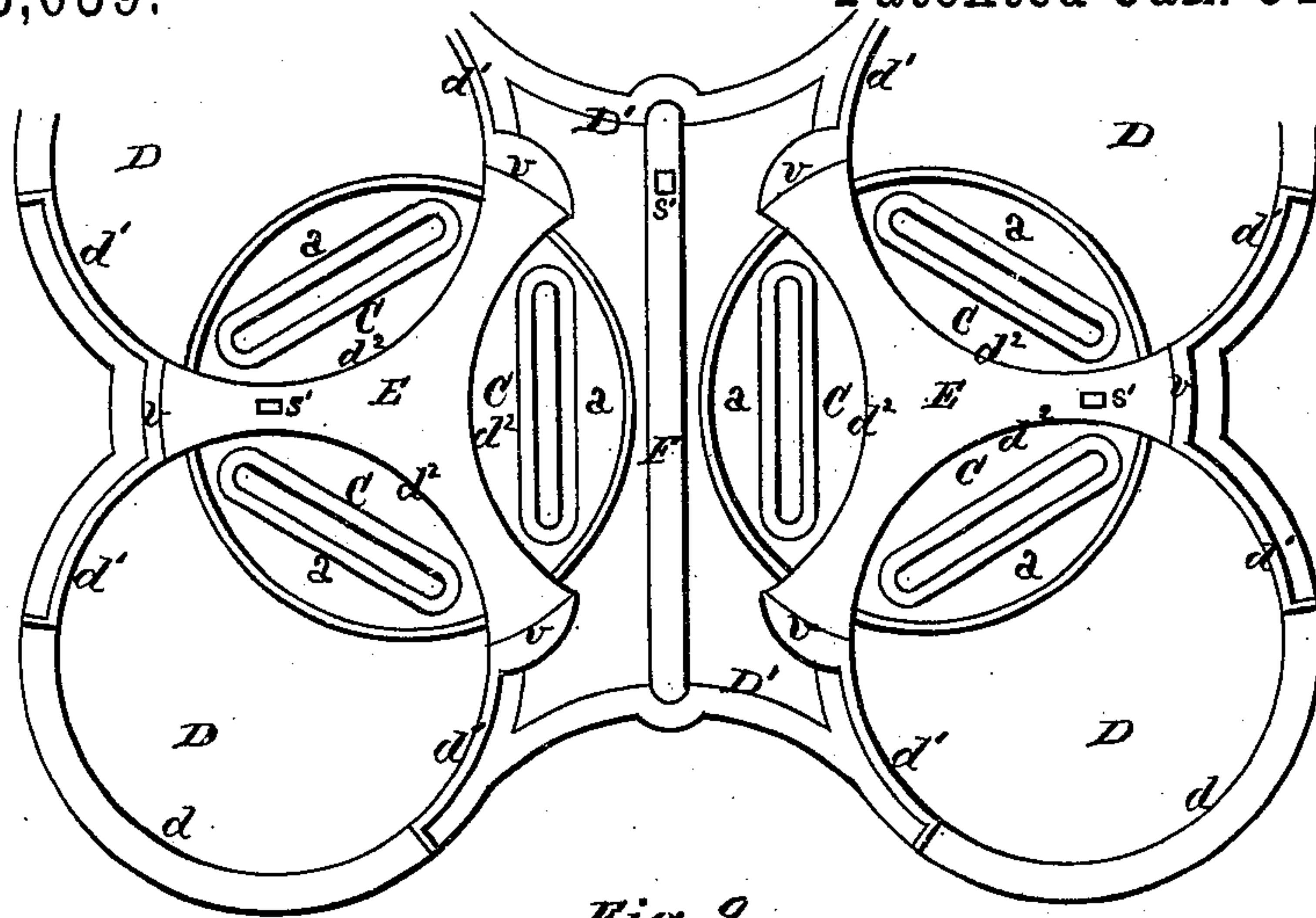


Fig. 9.

Fig. 10.

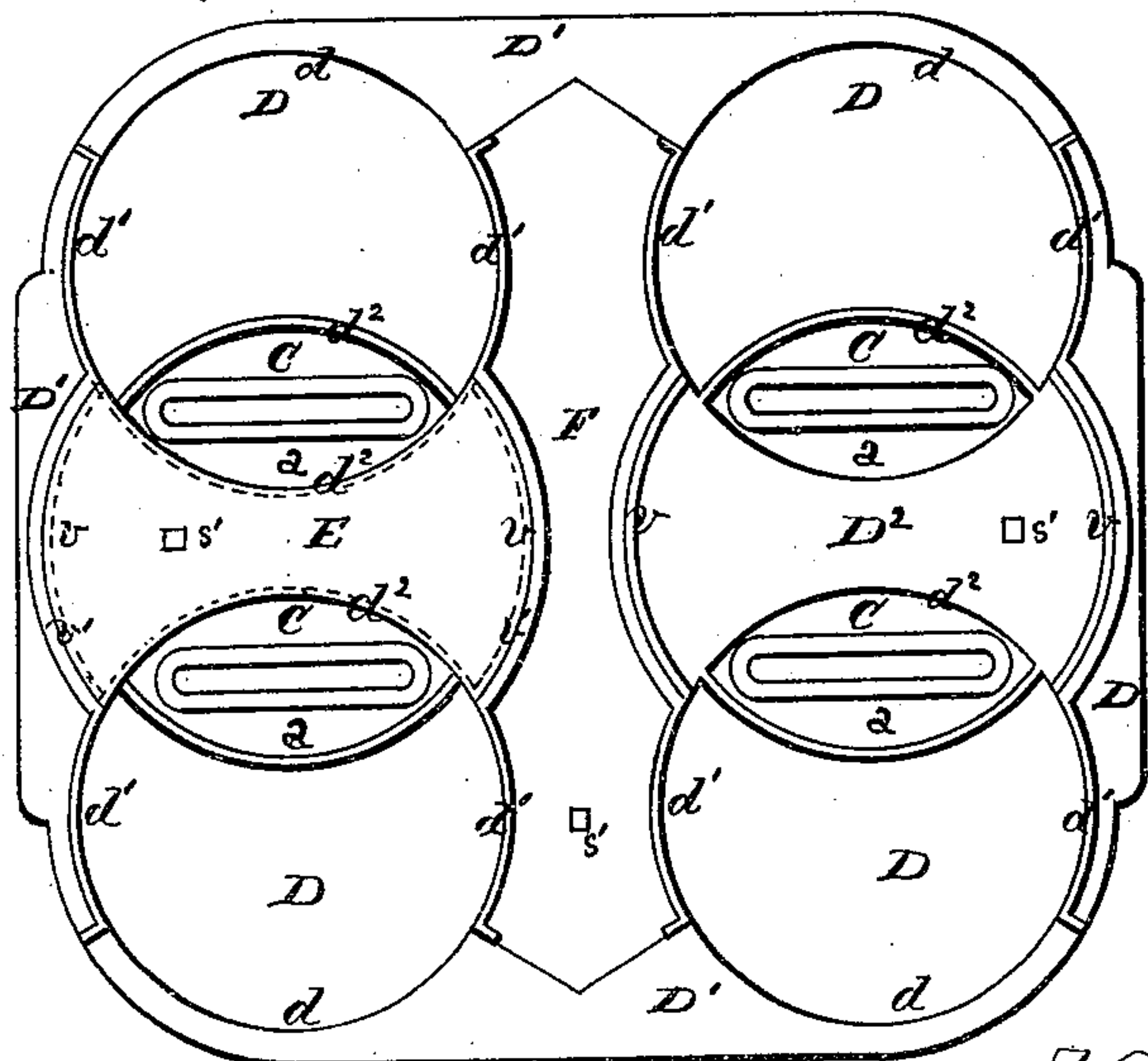
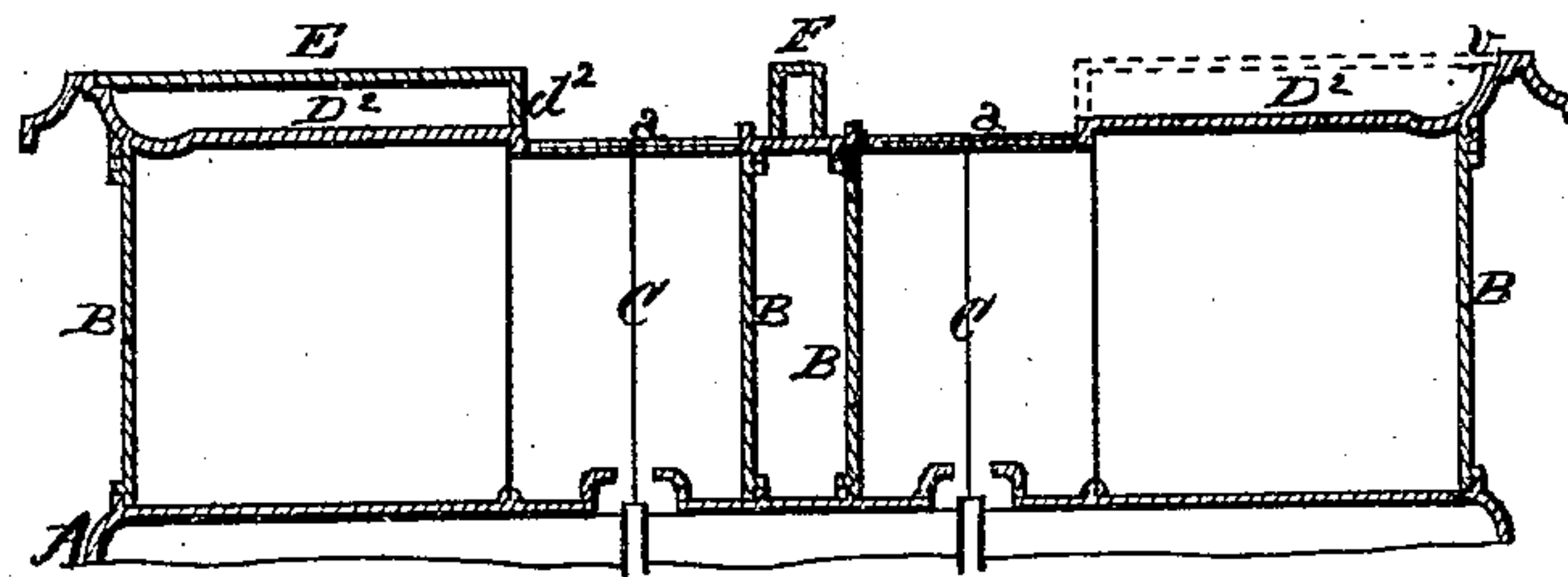


Fig. 11.

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UNITED STATES PATENT OFFICE.

WILLIAM HAILES, OF ALBANY, NEW YORK.

COAL-OIL STOVE.

SPECIFICATION forming part of Letters Patent No. 253,039, dated January 31, 1882.

Application filed January 24, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HAILES, of the city and county of Albany, and State of New York, have invented certain new and useful
5 Improvements in Coal-Oil Stoves and Ranges, of which the following is a specification.

My invention relates to improvements in the top portions of coal-oil stoves or ranges or similar stoves employing fluid or gaseous fuel, in
10 which a top plate surmounting the combustion-chambers is provided with openings for the escape of the hot products of combustion in a vertical direction, and with lateral extensions having side flanged rims and adapted to hold
15 vessels partly over said openings and partly over said extensions, and a division-piece which will prevent the hot products of combustion from commingling as they escape from said openings, and compel the several individual
20 volumes of products of combustion to have an independent discharge and an effective action on different vessels.

The objects of my invention are to provide means by which an operator may at will compel
25 the hot products of combustion from two or more burners to be discharged separately and independently beneath as many vessels as there are burners and operate on the bottoms of said vessels in their entire area of surface
30 without being affected by the outer atmosphere. I attain these objects by means of the devices illustrated in the accompanying drawings, (in two sheets,) in which similar letters of reference refer to similar parts throughout
35 the several views.

Figure 1 represents a top view of a three-burner coal-oil stove embodying a portion of my improvements. Fig. 2 is a top view of one of the division-plates employed in the practice of
40 my invention. Fig. 3 is a view from the lower side of the same. Fig. 4 is a side elevation of the same. Fig. 5 is a cross-sectional view of the same, taken at lines Nos. 2 and 3 in Figs. 2 and 3. Fig. 6 is a sectional elevation of the
45 upper portion of a stove, taken at line No. 1 in Fig. 1, with the division-plate illustrated in Figs. 2, 3, and 4 removed. Fig. 7 is a sectional elevation taken at line No. 1 in Fig. 1, with said division-plate in place. Fig. 8 is a
50 top view of a stove employing two burners and illustrating a portion of my invention. Fig. 9

is a plan view of a six-burner stove or range illustrating other improvements. Fig. 10 is a sectional elevation of the same, and Fig. 11 is a plan view of a four-burner stove or range embodying my improvements.

In the drawings, A represents the base of the stove. (Oil-chamber not shown.)

B is the combustion chamber section, containing the combustion-chambers C C and the
60 deflecting cones or caps over the wick-tubes. Each of said combustion-chambers is separated from the other by division-plates c, which division-plates, with the walls of the combustion-chamber section opposite the same, form
65 the walls of said combustion-chambers. These division-plates are employed in numbers corresponding with the number of burners employed in the stove or range. All the above-described parts are old and require no particular description. The upper end of the combustion-chamber section is surmounted by top
70 plate D D D' D' D², which top plate is provided with as many openings a a as there are burners or combustion-chambers in the stove
75 or range. These openings are preferably made with the form shown in Figs. 1, 8, 9, and 11, although they may be rectangular or of other form, as may be selected. This top plate has
80 as many of its portions D D extended outward laterally from openings a a as there are burners, each burner having its own laterally-extended top-plate portion. The portions D' D'
85 D² of said top plate form a web for holding the laterally-extended portions D D in connection with each other. The central portion, D², has
90 its upper surface on a plane above the plane of the upper surfaces of the laterally-extended portions D D, as shown in Figs. 6, 7, and 10. Projecting from the upper surfaces of the portions D D are supporting pins or bosses b b,
95 the upper ends of which are about in the same plane with the upper surface of the portions D², and operate with the same for supporting a vessel placed over a group or groups of burners or combustion-chambers when arranged as in Figs. 1, 8, or 9, and 11.

The marginal rims d d of the laterally-extended portions D D are made to curve upward from the plane of the horizontal upper
100 surfaces of said extended portions to a short distance above the plane of the upper surface

of the portion or portions D^2 . The side portions of these upturned marginal rims are provided with flanges or strips $d' d'$, which extend upward to a short distance above the upper plane of surface of said upturned marginal rims, as shown in Figs. 6 and 7. Projecting from the marginal edges $d d$ are supporting pins or bosses $b^2 b^2$, the upper ends of which pins terminate on a plane with the plane of the upper surface or edge of the side flanges or strips, $d' d'$, as shown in the same figures. Made in the portions $D' D'$ of this top plate are seats $v v$, (shown in Figs. 1, 6, 7, 10, and 11,) which seats receive the division-plate E. These seats are preferably made on curved lines, as shown.

Removable division-plates E, Figs. 2, 3, 7, 8, 9, 10, and 11, are provided and arranged with the top plate for preventing the hot products of combustion from each of a group of burners from commingling together, and their side edge portions, $d^2 d^2$, form removable continuations to the rims or flanges $d' d'$ of the laterally-extended portions $D D$ of the top plate, and they also operate as supplemental extensions of the wall or division pieces $c c$ of the combustion-chambers $C C$ when said removable division-plate is placed in position on the top plate, as shown in Figs. 7, 8, 9, 10, and 11. These removable division-plates are so constructed that their upper surfaces (when said plates are in position on the top plate) will be on the same plane with that of the upper edges of the side flanges or rims, $d' d'$, of the lateral extensions $D D$, and on a plane above that of the upper surface of the marginal rims $d d$ of said lateral extensions, as shown in Figs. 7 and 10.

If selected, guiding pins $s s$ may be provided on the portions D^2 of the top plate to hold the said removable division-plate from shifting, and lifting-holes s' are also provided in said division-plate, by which, with the aid of a lifting-iron, the said plate may be removed or replaced, as may be selected or required.

I further provide in the stove or range a second removable division-plate, F, Figs. 9, 10, and 11, for preventing the hot products of combustion from one group of burners from commingling with those of a neighboring group. The said division-plate is made to have its upper surface on the same plane with that of the upper surfaces of the division-plates E, Figs. 9, 10, and 11, and is made to extend downward to the top surface of the top plate of the stove, so that all communication from one group of openings $a a$ to the other below the upper surface of said division-plate will be cut off.

It will be readily understood that this division-plate is in all cases to be so constructed and arranged that it will extend from the top surface of the middle portion of the top plate to a plane with the top surfaces of the division-plates E, and that its form of configuration is not essential, more than to give to said plate strength and render it applicable to modified

forms of arrangement of groups of burners—as, for instance, to the forms of arrangement shown in Figs. 9 and 11.

It will also be readily understood that both classes of division-plates E and F may be made flanged, as shown in Figs. 3, 5, 7, and 10, or be made solid, or with skeleton form, as may be selected.

It will be further understood that the division-plates E are to keep separate and prevent the commingling of the hot products of combustion from each burner of a group from all the others of the same group, while the division-plates F are to keep the hot products of combustion from all the burners of one group from those of another and adjoining group.

In some cases I prefer to make the flanged strips $d' d'$ with the division-plate F when the arrangement of the openings $a a$ of the combustion-chambers $C C$ of a group are made to be similar to that shown in Fig. 11; yet this is not essential; but if it be selected to make the flanged strip d' with division-plate F, I would also make with said division-plate seats v , (shown by dotted and full lines in Fig. 11,) so that the said division-plate will be adapted to support one of the ends, v' , of the division-plates E, as shown in the same figure.

Lifting-holes are provided in plate F for receiving a lifter for convenience of operation in removing and placing said plate in position.

Having described the construction of the parts of my improved stove or range, I will proceed to describe the manner of its operation.

To better describe my improvements I have illustrated my improvements by the drawings relating to a single group of burners and drawings relating to duplicated groups. I will therefore describe the operations of the different parts by first referring to those had from a single group of burners with my improvements and next to those had from the duplicated groups of burners with my improvements.

When the division-plate E is removed from the stove and a single vessel is placed over the group of burners, arranged as in either Fig. 1 or Fig. 8, the hot products of combustion escaping from the combustion-chambers $C C$ through openings $a a$ will commingle together and rise up against the bottom of such vessel and quickly heat the same, as heretofore in the old modes of construction and arrangement of parts; but when said division-plate is placed in position with its ends $v' v'$ resting in seats $v v$ of the top plate, with its upper surface on the same plane with the upper surface of the flange-strips $d' d'$, rearward walls c of each combustion-chamber C will be made in fact extended vertically to a distance equal to the vertical extension of the said division-plate, and the hot products of combustion from the said chambers will be prevented from commingling together, and the stove will be adapted then to receive as many separate or single vessels as there are burners or individual combustion-chambers C , and each single vessel placed over such separated and

individual combustion-chamber will be supported in part by the marginal upper surface of said division-plate, and in another part by the supporting-bosses $b^2 b^2$, made with the marginal rims of the laterally-extended portions D D of the top plate, as indicated by dotted lines in Fig. 7, and a horizontal flue beneath the vessel, leading from the combustion-chamber C outward, will be formed by the bottoms of said vessels and the extended portions of the top plate, and the hot products passing from the openings $a a$ of the combustion-chamber will be made to move horizontally from said openings (after acting on the portions of the bottoms of the vessels over the same) in contact with the entire surface of the bottoms of said vessels.

The flange-strips $d' d'$ operate to prevent the hot current from escaping from beneath the vessel before their passage to the extremities of the extensions D D, while the upturned or marginal edges d of said extensions will cause the hot products to move in the highest plane and fully in contact with the bottoms of the vessel over said extensions. The said extensions should in all cases be made to continue outward past the terminating ends of the flange-strips $d' d'$, so that the heated currents will be fully protected from contact with the outer atmosphere while on their passage from the openings $a a$ to the outer edges of the bottoms of said vessels.

In Fig. 9 the stove is represented as having the division-plates E E and F in position. When said plates are in position, as shown in said figure, the outermost ones of each group of combustion-chambers C may be employed separate from the others, while the two adjoining and central ones may be employed to heat a single vessel sitting over said two. When it is selected to heat but two vessels the division-plates E are to be removed and the division-plate F is to remain in place, as shown, and the vessels are each to be set over its respective group of burners. When selected a single vessel may be heated by one of the group of burners, while two outermost burners of the other group may each be employed to heat a separate vessel. When one of the division-plates E is removed and the middle division-plate, F, also is removed, an oblong vessel may be heated by the united action of all the burners of one group and the single burner of the other group. When both division-plates E E are removed and the middle division-plate, F, is also removed, a single vessel, adapted by reason of its form and size to cover both groups of burners, may be heated by the united action of the burners of both groups.

In Fig. 11 the stove or range is represented as having one of its division-plates E removed and another similar division-plate and also the middle division-plate, F, in place. In this modification of my improvements illustrated in said figure the middle division-plate, F, is shown to have its sides toward each group of burners

provided with flange-strips $d' d'$, as before stated. When but one of the division-plates E is used and the middle division-plate, F, is also in place, a similar vessel placed over the group of burners not separated will be heated by the action of both burners of the group, while the burners of the other group may be used singly for heating each a separate vessel. When both the division-plates E E and the middle division-plate, F, are removed, a single vessel—preferably an oblong one, like a wash-boiler—may be heated by the operation of the burners of both groups.

I am aware that it is not new in coal-oil stoves to provide with each burner of a group an individual combustion-chamber which terminates with an opening made in a common top plate surmounting the combustion-chamber section of the stove. Such a form of construction I do not claim as my invention, as it will not provide means for preventing the hot products of combustion escaping from the several top-plate openings from commingling together, and will not operate as a means for causing each combustion-chamber to have an independent lateral discharge of its hot products in a direction away from the discharge-openings of the combustion-chambers of the other burners of the same group, as the object of this invention is to provide means to enable the operator at will to cause the hot products from any or all the combustion-chambers to have separate and independent discharges from their respective openings in such a manner as to effectually prevent a commingling of the hot gases and the passage of the same in a horizontal direction from the group of discharge-openings in horizontal flues formed by extensions of the top plate and the bottoms of vessels placed over the same.

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

1. In a coal-oil stove or range having two or more burners, each situated in a combustion-chamber, the combination, with said combustion-chamber and a top plate provided with openings $a a$, of a division-plate arranged on the top plate and adapted to keep each volume of the hot products escaping from each burner through said openings separate from the others, so that each volume will operate independent of the other without commingling, substantially as set forth.

2. In a coal-oil stove or range, the combination, with an opening, a , serving as a discharge-opening from a combustion-chamber provided with a burner, of a top plate having an extension, D, arranged horizontally and laterally off from one side of said opening, flange-strips $d' d'$, and a plate, E, operating to extend the opposite side of said opening a vertically to a line on a plane with said flange-strips, whereby the hot products from the combustion-chamber will be compelled to pass in a horizontal direction from said opening to the outer ex-

tremity of said extension, for the purpose set forth.

3. In a coal-oil stove or range having two or more burners, situated each in an independent combustion-chamber, the combination, with a top plate provided with openings *a a*, and lateral extensions *D*, leading from the same, of flange-strips *d' d'*, made with the sides of said extensions, and division-plate *E*, having its upper surface on a plane with the upper edge surface of said flange-strips, whereby each volume of the hot products of combustion from the several burners will be preserved, separated, and made to pass horizontally over an individual lateral extension to the extremity of the same, in the manner and for the purpose set forth.

4. In a coal-oil stove or range having two or more burners, each situated in an individual combustion-chamber, the combination, with a top plate provided with openings *a a* and laterally-extended portions *D D*, of flange-strips *d' d'*, made with opposite sides of said extensions, upwardly-curved marginal rims *d*, extended outward past said flange-strips and terminating on a plane below the upper edge surface of the same, and the division-plate *E*, situated between openings *a a*, and having its

upper surface on a plane with said flange-strips, whereby the volume of hot products of combustion from each burner will be made to move horizontally in a flue formed between each of said extensions and the bottom of a vessel placed over the same and in close contact therewith, as set forth.

5. In a coal-oil stove or range having groups of burners in which each burner of a group is provided with an individual combustion chamber, the combination, with the same and a top plate provided with openings *a a* for discharging the hot products of combustion, and lateral extensions *D D*, leading horizontally from said openings and having their opposite sides provided with flange-strips *d' d'*, of removable division-plates *E*, separating the discharge-openings of the combustion-chambers of each burner of a group, and plate *F*, separating the discharge-openings of one group of combustion-chambers from the other, whereby a variety of operations may be had with vessels of different sizes, substantially as set forth.

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Witnesses:

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