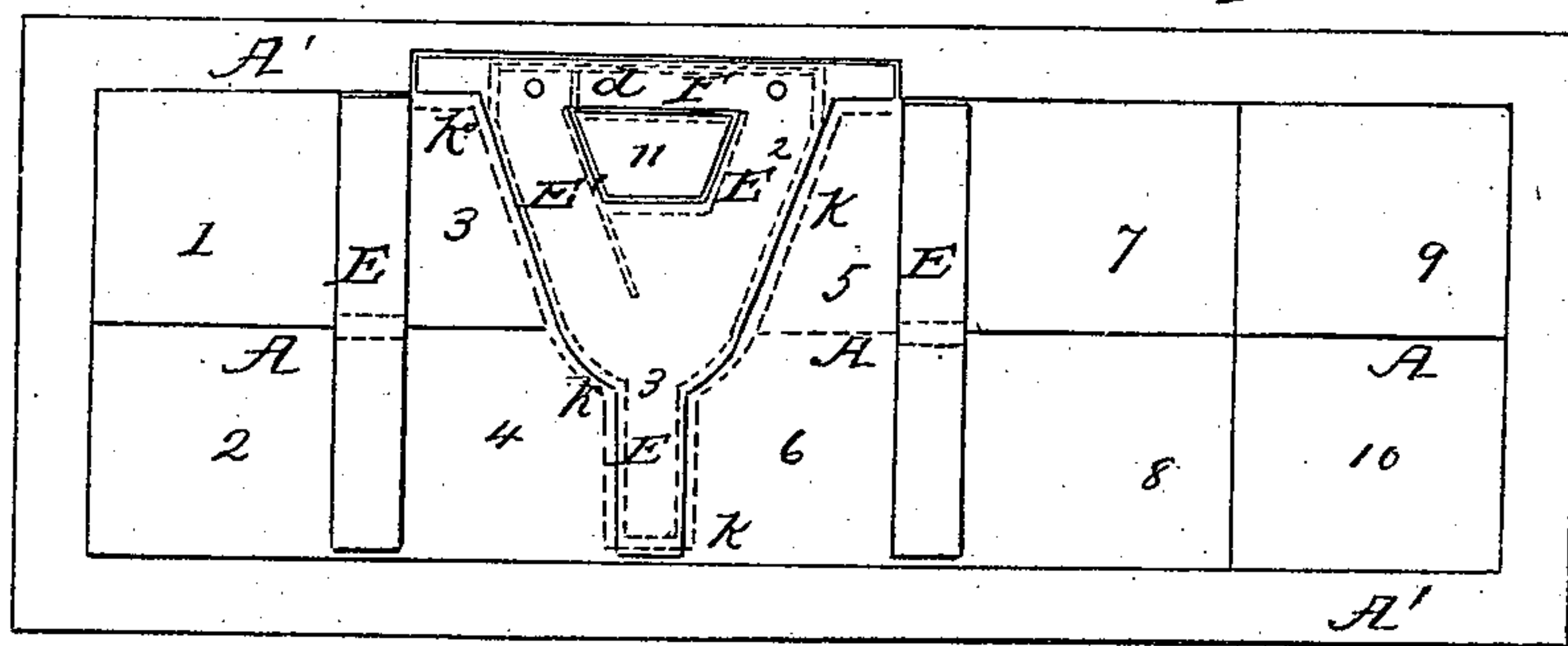


Cooking Stove.

Patented Sept. 16, 1862.

Fig. 1



E *G* *H* Fig. 2

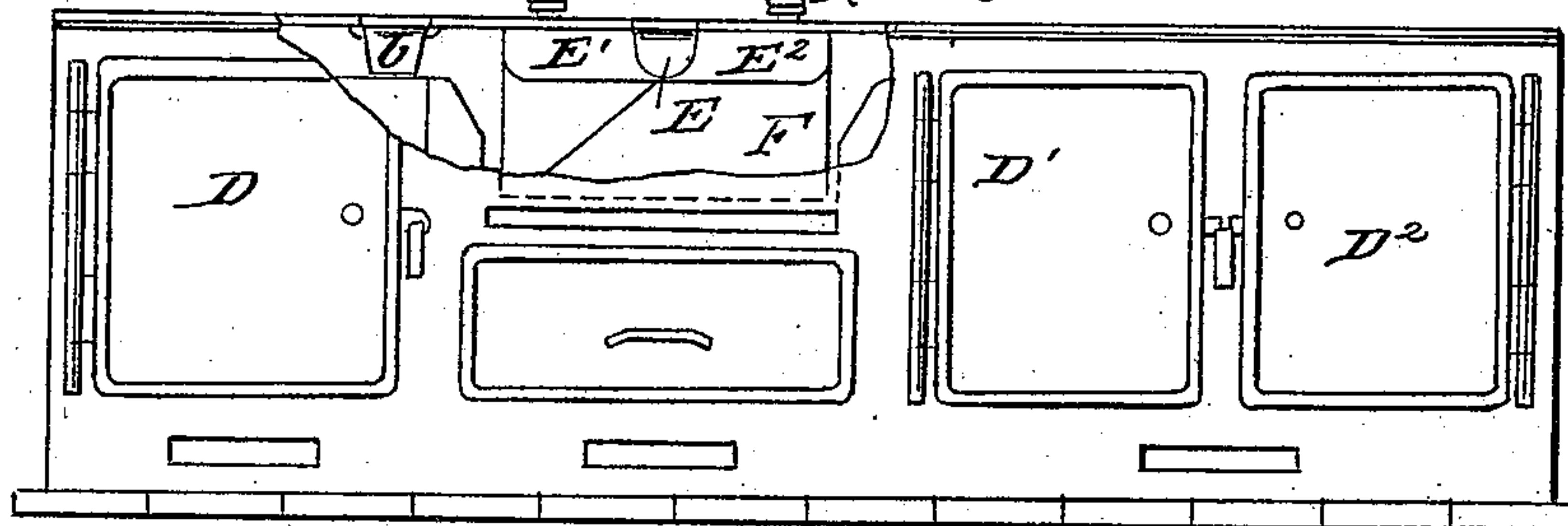


Fig. 3.

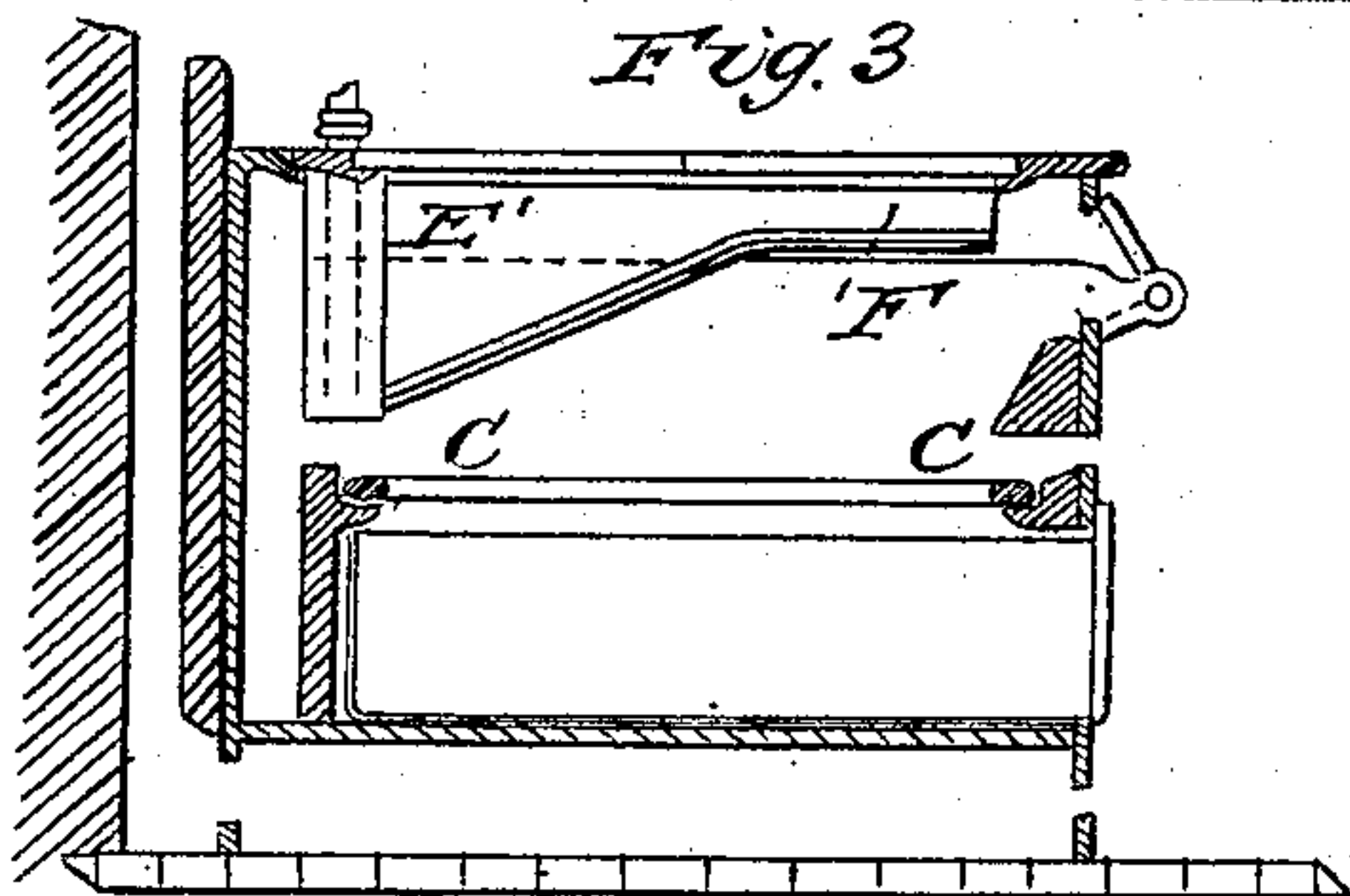


Fig. 4

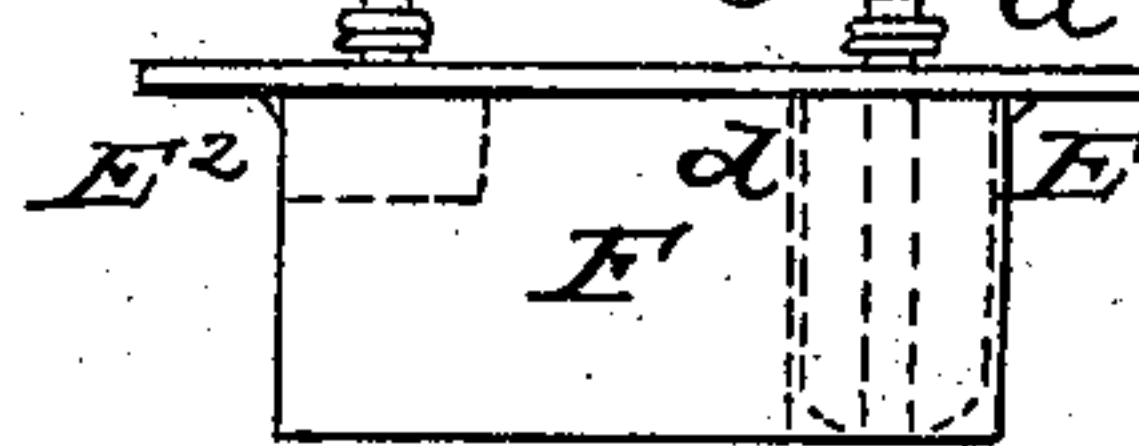
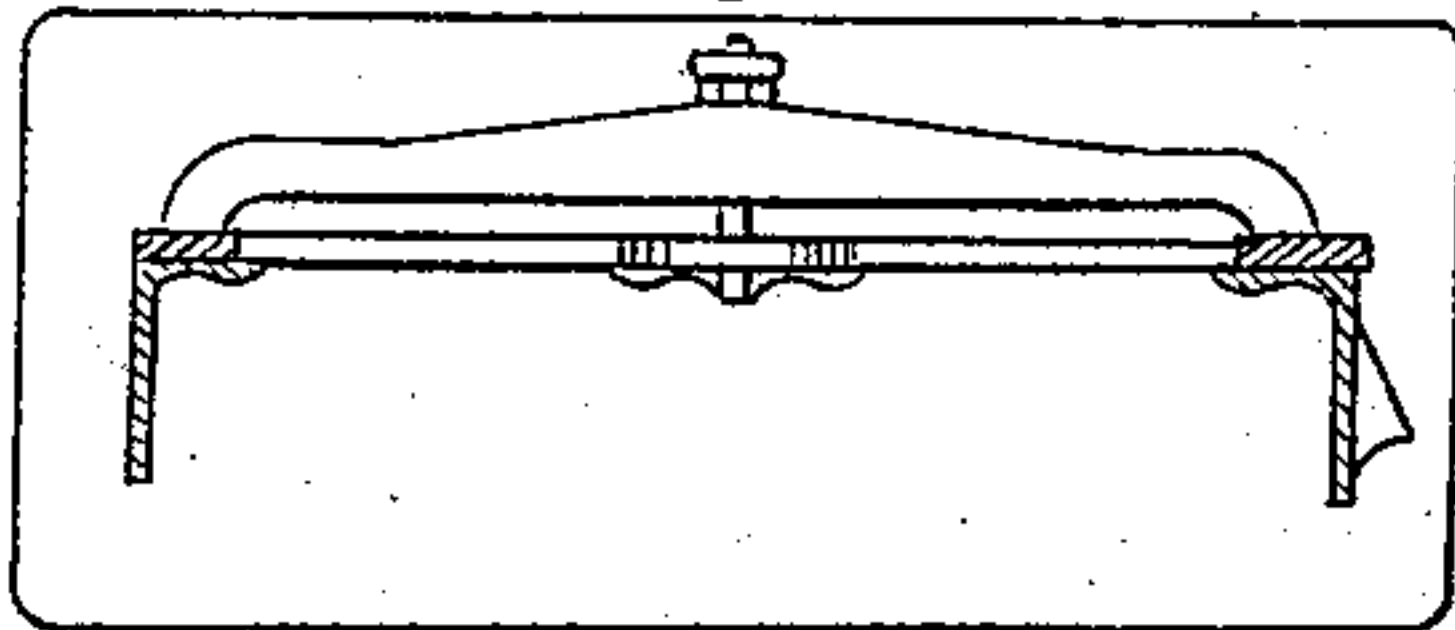


Fig. 5



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ROYAL E. DEANE, OF NEW YORK, N. Y.

IMPROVEMENT IN COOKING STOVES OR RANGES.

Specification forming part of Letters Patent No. 36,455, dated September 16, 1862.

To all whom it may concern:

Be it known that I, ROYAL E. DEANE, of the State, city, and county of New York, have invented a new and useful Improvement in Cooking-Ranges; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, which form part of this specification.

Cooking-ranges employed in hotels, steam-boats, and refectories are more disposed to injury by the heat than those of any other class, from their large size, the amount and intensity of the heat, and the necessity of its uninterrupted continuance, and this always results (unless some means be used to prevent) in the sagging down by its own weight of that part of the top of the range immediately over the fire, eventually falling in entirely. This is particularly the case with ranges such as have no pot-holes, but use a "hot plate" or metal top divided for convenience into a number of sections or plates, but no part of which top is removable for the ordinary cooking utensils, such, when used, being placed on such hot plate, which is always kept at a red heat. A prominent example of such a range is that known as "Harrison's European Range," and is the kind I have chosen to illustrate the construction, adaptation, and use of my improvement in the annexed drawings. The smaller plates or sections constituting the top or hot plate aforesaid are commonly sustained by narrow and long sections extending across the top, being flush therewith, and herein termed "cross-bars," excepting immediately over the fire, where they are found impracticable, being destroyed in very short time by the intense heat. The only means heretofore employed to support the top over the fire with approximate success consists of a disk sustained by a bolt or rod attached to said disk and to an arch or "bridge" the traves of which rest on the extreme front and rear of the range, or to a beam overhead, while the other plates or sections rest on a rim of said disk. This is a very indifferent support in practice, as the rim of the disk turns off in a short time and the disk must be replaced and renewed, involving loss of time, inconvenience, and expense. Such fixtures also interfere with a free prosecution of the culinary operations and otherwise unnecessarily incumber the top.

My herein improvement is designed to provide a durable and permanent support for the hot plate, (or plates,) preserve the same from injury by the heat of the fire below, free the top of the range from any and all unnecessary obstructions, while economizing and equalizing the heat, reducing the radiation, and avoiding the loss attendant thereon. With these objects in view I have one, two, or more cross-bars arranged over the fire, cast hollow, communicating with each other, and provided with suitable receiving and discharge pipes to cause a flow of water through them as channels. Where required I adapt them by varying the form to the three-oven and similar ranges. I connect them or not, as circumstances indicate, with a water-back, and provide them with flanges or ledges to support the plates adjacent thereto.

The nature of my said invention, therefore, consists in the combination, with the hot plate, of a channel or channels by the same being cast with such hot plate, or a part thereof, on the under side of such plate, so as to be interposed between the plate and the fire, and furnished with proper induction and eduction pipes, to provide for the circulation of water in said hot plate, making a durable and efficient water-heater, substantially as hereinafter described; also, in the form and arrangement of such channel or channels, in combination with a three-oven range, as herein set forth, for the purpose of effecting a more equal division of the heat, as herein described, between the greater and the lesser number of ovens, substantially as hereinafter specified.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same more particularly.

Referring to the annexed drawings, wherein the marks of reference correspond in all the figures, (and which shows a three-oven Harrison range,) Figure 1 is a plan view of the range, showing my improvement, as seen from the top. Fig. 2 is a front elevation with part of the front wall of the range removed. Fig. 3 is a sectional view showing the improvement as it would appear were the single oven at the left removed. Fig. 4 is a water-back. The improvement (which is attached thereto) is seen in dotted lines. Fig. 5 shows a device most commonly resorted to to support the hot plate.

A in the several figures is the hot plate. B

is the fire-box. C is the grate. D D are the ovens. E E are cross-bars for sustaining the plates 1 2 3, &c., and with said plates and the border A' constitute the top or hot plate. Said cross-bars are supported at each end by the border A', and at their mid-length by feet b, standing on the ovens.

E', E², and E³ is a cross-bar having somewhat the form of a tripod, as seen in Fig. 1. It has a channel or channels cast on the under side corresponding to the several branches E' E² E³. These are seen in front view in Fig. 2, and one side is shown in Fig. 3. Said cross-bar is connected with the water-back F, and its channels aforesaid open therein, so as to communicate freely therewith. A rear view of the water-back is given in Fig. 4, where the channels are dotted. A partition, d, in the interior, Figs. 1 and 4, dotted, compels the water to perform the circuits of all the channels before discharging at the egress pipe H.

One branch of the channel E' is deeper than the others, being carried down at the rear end to the bottom of the water-back F. The object is to divert the flame and heat to the right, so that most of the heat will pass over the two ovens D' D², while the remainder, passing over and around the single oven, suffices for that; but where there is an even number of ovens or oven-space on each side of the fire I make the channels about the same depth. The channels have ledges k around the sides and in the opening occupied by the plate 11, and the plates 3, 4, 5, 6, and 11 rest thereon. The presence and circulation of water in the channels prevent the ledges from being damaged by the heat, and this part of the range is thus rendered as durable as any other, if not more so.

I generally use a water-back in connection with the channels, though it is by no means necessary. Compared with a water-back as a water-heater the channels are far superior, being situated principally over the center of the fire. They are directly in contact with the hot flames, and the latter are always more powerful for heating than the live coals, which are mostly depended on to heat the water-back; hence the latter when used is only auxiliary.

The channels and cross-bar may have other forms than that shown in Fig. 1; but I consider this form well adapted to the main purposes—viz., of maintaining and heating a body of water in or under the hot plate over the hottest part of the fire, effectually preserving the top of the range from destruction, and leaving the capacity of boiling-surface substantially unchanged.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with the hot plate, of a cross-bar having a channel cast therewith on the under side thereof, so as to be interposed between the fire and the hot plate, of which said bar forms a part, and provided with induction and eduction pipes, as specified, for the purpose of circulating and maintaining water within the hot plate, and heating the water while preserving the said plate from injury by the heat; also, the form and arrangement of channel or channels, as set forth, in combination with a three-oven range, or the equivalent thereof, substantially as described.

ROYAL E. DEANE.

Witnesses:

CHAS. S. DAY,
JOEL E. ROGERS.