No. 743,861. PATENTED NOV. 10, 1903.

J. GREGORY.

STOVE AND GRATE THEREFOR.

APPLICATION FILED JUNE 12, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

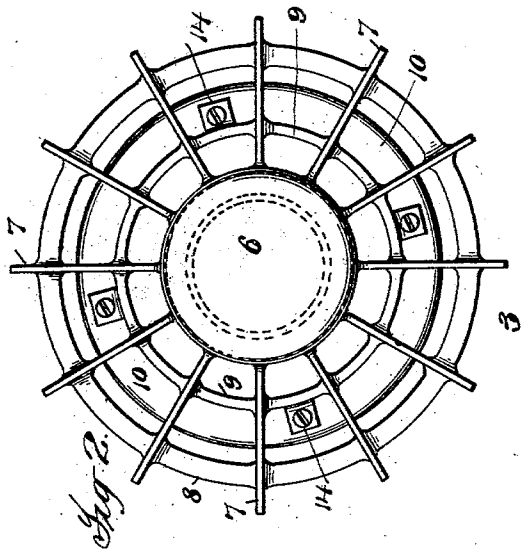


Fig. 2.

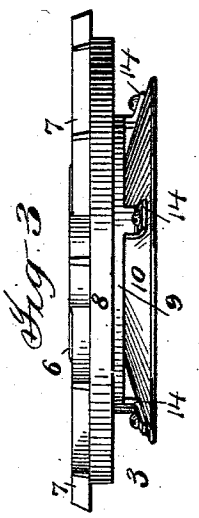


Fig. 3

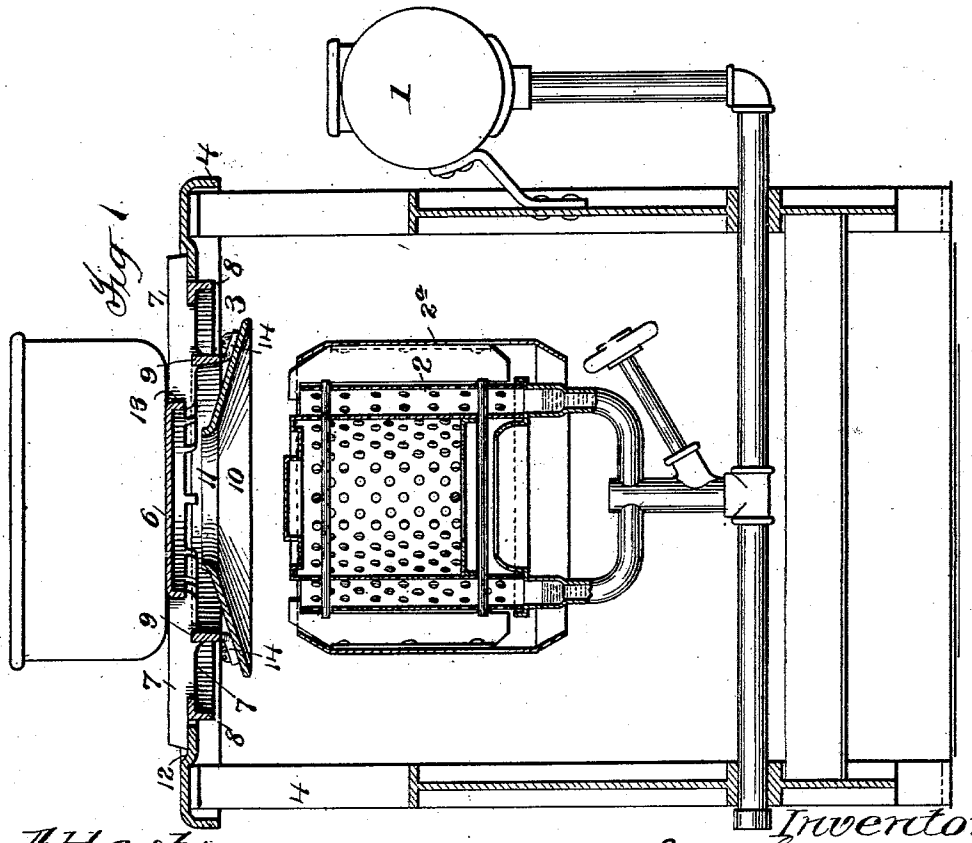


Fig. 1

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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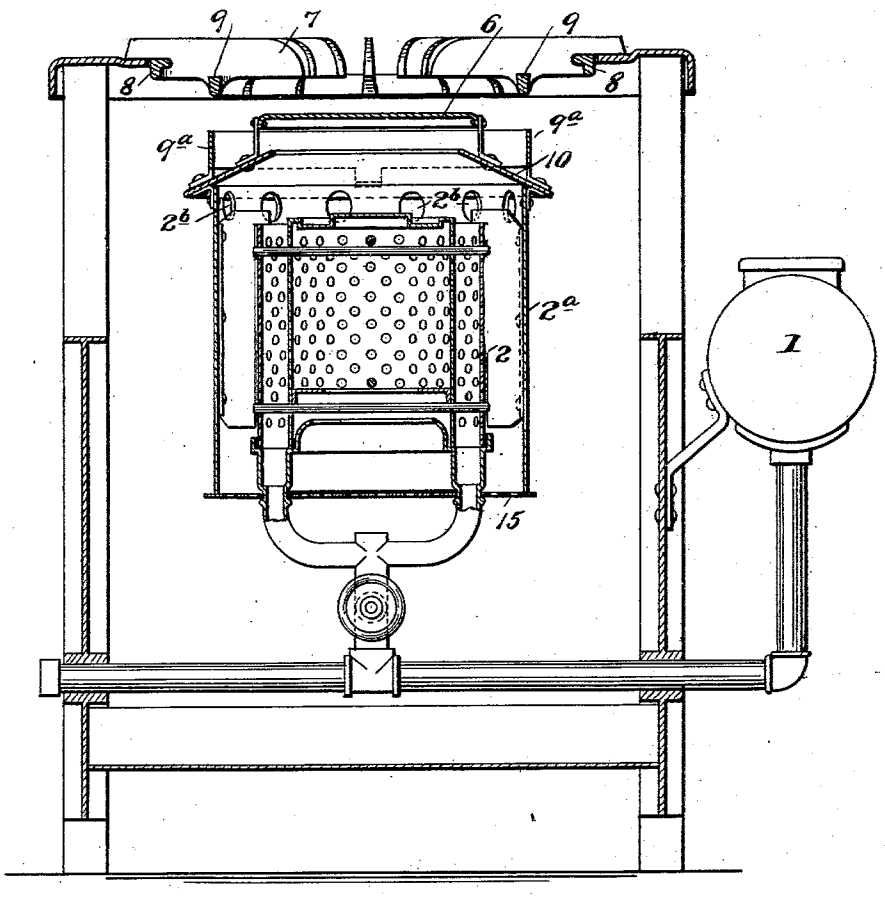
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STOVE AND GRATE THEREFOR.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 4.



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No. 743,861. Patented November 10, 1903.

UNITED STATES PATENT OFFICE.

JOSEPH GREGORY, OF JERSEY CITY, NEW JERSEY, ASSIGNOR TO STANDARD OIL COMPANY OF NEW YORK, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

STOVE AND GRATE THEREFOR.

SPECIFICATION forming part of Letters Patent No. 743,861, dated November 10, 1903.

Application filed June 12, 1902. Serial No. 111,417. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH GREGORY, a citizen of the United States, residing at Jersey City, county of Hudson, and State of New Jersey, have invented certain new and useful Improvements in Stoves and Grates Therefor, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

This invention relates to improvements in cooking-stoves and grates therefor.

The improvements of the present invention have reference particularly to stoves of the class commonly known as "oil" and "gas" stoves, and they will for that reason and for convenience be hereinafter described in detail in connection with stoves of this class, although, as will hereinafter appear, certain features of the invention are applicable to stoves in which wood or coal is used as the fuel.

As cooking-stoves, and particularly oil and gas stoves, are now commonly constructed they are open to the objection that when liquid boils over or is spilled upon the sides of the cooking-receptacle it runs down the sides of the receptacle and then for a certain distance along its bottom until it reaches the lowest point on the latter, when it drops into the chamber beneath, forming the seat of combustion or combustion-chamber. In the case of stoves using wood or coal as fuel this may result in a very unpleasant odor, while in the case of oil and gas stoves the effect is additionally to make the flame flare, with more or less sputtering, which is alarming to the user of the stove, and if inflammable articles be in proximity thereto the flame may ignite such articles. In addition to this if the quantity of liquid falling be considerable it may even extinguish the flame.

It is the object of the present invention to overcome these objections and to provide a structure in which such liquid as may be spilled upon or boil over the sides of the cooking-receptacle will be prevented from falling into the flame or upon the combustion-chamber.

In the accompanying drawings, Figure 1 is a sectional elevation of an oil-stove equipped with the present improvements. Fig. 2 is a detail in plan view of the grate. Fig. 3 is a side elevation of such grate; and Fig. 4 is a view similar to Fig. 1, illustrating a modification which will be hereinafter described.

Referring to said drawings, and particularly to Figs. 1, 2, and 3, 1 represents the oil-reservoir, which communicates in the usual way with the combustion-chamber of the stove, comprising a vaporizer and burner 2 and an outer inclosing casing 2^a, while 3 represents the grate, and 4 the frame, of the stove. The grate 3 consists of radial grate-bars 7 and outer and inner annular grate-bars 8 9, and it is supported in position upon the stove by a ring 12 resting upon the upper edge of the frame 4 and upon which in turn the outer ends of the radial grate-bars 7 rest, as shown in Fig. 1. The grate 3 is also provided with a central plate 6 of a size to permit the passage of the flame around it and into contact with the cooking-receptacle and is also provided beneath said plate with an annular plate or shelf 10, having a central flame-opening 11, there being a suitable air space or opening between plates 6 and 10 and also between plate 10 and the combustion-chamber. The plate 6 preferably extends slightly above the upper edge of the grate-bars 7 8 9, so as to act as the support for the cooking-receptacle. This arrangement of plate 6 may be departed from, however, as while it is desirable that such plate should serve as a support for the receptacle its principal function is that of shielding or protecting the burner and combustion-chamber from such liquid as may be spilled upon or boil over the sides of the cooking-receptacle by preventing such liquid from dropping from the bottom of the receptacle into or onto the burner or combustion-chamber. With this latter function in view I construct the support 6 in the form of a solid or imperforate plate, as shown, so that should any liquid be spilled upon or boil over the sides of the receptacle and travel thence (as it will) along the bottom of the receptacle it will either be arrested by the outer edge of the plate 6 or, if not arrested thereby, be caught upon the upper surface thereof and speedily evaporated or caused to pass out-

wardly over the edge of the plate as it collects on the upper surface thereof. If the under side of the plate 6 were, like the bottom of a cooking-receptacle, substantially flat or plain, the liquid thus arrested by or passing outwardly over the edge of the plate would of course travel inwardly along the bottom of the plate 6 until it reached the lowest point thereon, whence it would drop into or onto the burner 2. This inward movement of the liquid along the bottom of the plate 6 is prevented, however, by providing the plate 6, at or near the edge thereof, with a depending portion or curtain 13, the lower end of which, as will be observed, extends below the bottom face of the plate 6. The result of this construction of the plate 6 is that the liquid arrested by or passing outwardly over the edge thereof will travel down the depending portion or curtain 13 and be prevented by such depending portion or curtain from traveling inwardly along the bottom of the plate, the liquid thus collecting on the depending portion or curtain 13 dropping therefrom onto the stove-support outside the casing 2^a of the combustion-chamber or being delivered to the cone-shaped plate or shelf 10 provided beneath it, this plate or shelf 10 being downwardly and outwardly inclined and acting as a catcher and deflector for the liquid dropping from plate 6 and from which the liquid drops to the support upon which the stove happens to be mounted. The plate or shelf 10 is of such width and so arranged with relation to the curtain 13 of plate 6 that its inner edge extends inside the depending portion or curtain 13 of plate 6 and its outer edge extends beyond or outside the casing 2^a, with the result that all the liquid dropping from the plate 6 will be caught by the plate or shelf 10 and be deflected thereby downwardly and outwardly to its outer edge, whence it will drop outside the casing 2^a of the combustion-chamber.

As the plate 6 will have a tendency as the flame impinges against its under side to spread the flame outwardly and away from the cooking-receptacle, the inner annular bar 9 of the grate is in the construction shown arranged so as to act as a flame-deflector for directing the flame thus spread outwardly by plate 6 inwardly and upwardly toward the cooking-receptacle. For this purpose the grate-bar 9 is arranged in line with the opening or space between plates 6 and 10 and is provided with a vertical inner face terminating a short distance below plate 6 and its depending portion or curtain 13, as shown, the lower edge of said bar being also below the inner edge of plate or shelf 10, so as to prevent the passage between it and said plate or shelf of the flame when spread outwardly by plate 6.

The grate thus described, with its plate 6 and plate or shelf 10, may be formed in a variety of ways without departing from the invention, broadly considered; but I prefer to make the several parts integral, with the exception of the plate 10, as shown in the drawings, the plate 6 and grate-bars 7, 8, and 9 being formed in a single casting of iron, with the plate 10 secured thereto by means of lugs 14 cast upon the grate-bar 9 and bolted to plate 10.

As before stated, it is preferred to arrange the plate 6, as shown in Figs. 1, 2, and 3, so that it will serve as the support for the cooking-receptacle; but it may be so arranged as not to perform this function without departing from the present invention, broadly considered, as illustrated in Fig. 4, which will now be described. In the organization illustrated in this figure of the drawings the plate 6 and liquid-catcher and deflecting-plate 10, instead of being borne by the grate 3, as in the preceding figures, are supported from the burner-casing 2^a, the plate 6 being bolted to plate 10 and the latter in turn bolted to the upper edge of casing 2^a, which is provided with suitable air-passages 2^b. In this organization also the annular grate-bar 9 is not utilized as a means for deflecting the flame inwardly and upwardly toward the receptacle after it leaves the under side of plate 6, an annular plate 9^a being provided for this purpose, which is bolted to plate or shelf 10. In an organization such as this, with the plate 6 and plate or shelf 10 detached from the grate 3, such plates 6 and 10, as well as the annular flame-deflecting plate 9^a, will preferably be formed of sheet metal.

In the organization illustrated in Fig. 4 also the lower end of the burner and vaporizer 2 below the combustion-chamber and the lower end of the burner-casing 2^a are partially closed by an air screen or retarder 15, consisting of a perforated plate the function of which is to retard the entrance of air into the burner and vaporizer and the burner-casing and to thus cause it to enter in a steady and uniform manner.

What is claimed is—

1. A cooking-stove provided with a combustion-chamber, an imperforate plate arranged above said chamber for shielding it from liquid from the outside of a cooking-receptacle, and a downwardly and outwardly inclined liquid-deflector having a flame-opening and arranged between the combustion-chamber and plate with a suitable opening between it and the latter, the inner edge of said deflector being inside the edge of the plate and the outer edge thereof extending beyond the combustion-chamber and so shaped as to cause the liquid deposited thereon to drop therefrom at a point outside the combustion-chamber, substantially as described.

2. A cooking-stove provided with a combustion-chamber, an imperforate plate arranged above said chamber for shielding it from liquid on the outside of a cooking-receptacle, and a downwardly and outwardly inclined liquid-deflector having a flame-opening and arranged between the combustion-chamber

and plate with a suitable opening between it and the latter, said plate having at or near its outer edge a depending portion or curtain for preventing liquid running inwardly under the plate, and the inner edge of said deflector being inside said depending portion or curtain and the outer edge thereof extending beyond the combustion-chamber and so formed as to cause the liquid deposited thereon to drop therefrom at a point outside the combustion-chamber, substantially as described.

3. A cooking-stove provided with a combustion-chamber, a grate having an imperforate plate arranged above said chamber for shielding it from liquid from the outside of a cooking-receptacle, and a downwardly and outwardly inclined liquid-deflector having a flame-opening and arranged between the combustion-chamber and plate with a suitable opening between it and the latter, the inner edge of said deflector being inside the edge of the plate and the outer edge thereof extending beyond the combustion-chamber and so shaped as to cause the liquid deposited thereon to drop therefrom at a point outside the combustion-chamber, substantially as described.

4. A cooking-stove provided with a combustion-chamber, a grate having an imperforate plate arranged above said chamber for shielding it from liquid on the outside of a cooking-receptacle, and a downwardly and outwardly inclined liquid-deflector having a flame-opening and arranged between the combustion-chamber and plate with a suitable opening between it and the latter, said plate having at or near its outer edge a depending portion or curtain for preventing liquid running inwardly under the plate, and the inner edge of said deflector being inside said depending portion or curtain and the outer edge thereof extending beyond the combustion-chamber and so formed as to cause the liquid deposited thereon to drop therefrom at a point outside the combustion-chamber, substantially as described.

5. A cooking-stove provided with a combustion-chamber, an imperforate plate arranged above said chamber for shielding it from liquid on the outside of a cooking-receptacle, a liquid-deflector having a flame-opening and arranged between said chamber and plate with a suitable opening or space between it and the latter and with its surface in line with the plate so as to catch liquid dropping therefrom, and a flame-deflector in line with the opening or space between said plate and liquid-deflector for directing the flame upwardly, substantially as described.

6. A cooking-stove provided with a combustion-chamber, an imperforate plate having a depending portion or curtain and arranged above said chamber for shielding it from liquid on the outside of a cooking-receptacle, a liquid-deflector having a flame-opening and arranged between said chamber and plate with a suitable opening or space between it and the latter and with its surface in line with the plate so as to catch liquid dropping therefrom, and a flame-deflector in line with the opening or space between said plate and liquid-deflector, for directing the flame upwardly, substantially as described.

7. In a cooking-stove, the combination with a combustion-chamber, of means for shielding it from liquid on the outside of a cooking-receptacle comprising a liquid-deflector having a flame-opening in line with the chamber and an upper member for delivering such liquid to the liquid-deflector, said liquid deflector and upper member having a suitable opening or space between them, and a flame-deflector in line with said opening or space for deflecting the flame upwardly, substantially as described.

8. In a cooking-stove, the combination with a combustion-chamber, of means for shielding it from liquid on the outside of a cooking-receptacle comprising a liquid-deflector having a flame-opening in line with the chamber and an upper member adapted to engage the receptacle for delivering such liquid to the liquid-deflector, said liquid-deflector and upper member having a suitable opening or space between them, and a flame-deflector in line with said opening or space for deflecting the flame upwardly, substantially as described.

9. A grate provided with a central imperforate plate having a depending portion or curtain and below said plate with a liquid-deflector having a central flame-opening, and arranged in line with the plate so as to catch liquid dropping therefrom, substantially as described.

10. A grate provided with a central imperforate plate and below said plate with a liquid-deflector having a central flame-opening and with a flame-deflector in line with the opening or space between the plate and liquid-deflector, said liquid-deflector being arranged in line with said plate so as to catch liquid dropping therefrom, substantially as described.

11. A grate provided with a central imperforate plate having a depending portion or curtain and below said plate with a liquid-deflector having a central flame-opening and with a flame-deflector in line with the opening or space between the plate and liquid-deflector, said liquid-deflector being arranged in line with said plate so as to catch liquid dropping therefrom, substantially as described.

12. A grate provided with a central imperforate plate and below said plate with a downwardly and outwardly inclined liquid-deflector having a central flame-opening and arranged in line with said plate so as to catch liquid dropping therefrom, substantially as described.

13. A grate provided with a central imper-

forate plate having a depending portion or curtain and below said plate with a downwardly and outwardly inclined liquid-deflector having a central flame-opening and arranged in line with said plate so as to catch liquid dropping therefrom, substantially as described.

14. A grate provided with a central imperforate plate and below said plate with a downwardly and outwardly inclined liquid-deflector having a central flame-opening and with a flame-deflector in line with the opening or space between the plate and liquid-deflector, said liquid-deflector being arranged in line with said plate so as to catch liquid dropping therefrom, substantially as described.

15. A grate provided with a central imperforate plate having a depending portion or curtain and below said plate with a downwardly and outwardly inclined liquid-deflector having a central flame-opening and with a flame-deflector in line with the opening or space between the plate and liquid-deflector, said liquid-deflector being arranged in line with said plate so as to catch liquid dropping therefrom, substantially as described.

16. A grate provided with a central imperforate receptacle-supporting plate having a depending portion or curtain and below said plate with a liquid-deflector having a central flame-opening and arranged in line with said plate so as to catch liquid dropping therefrom, substantially as described.

17. A grate provided with a central imperforate receptacle-supporting plate having a depending portion or curtain and below said plate with a downwardly and outwardly inclined liquid-deflector having a central flame-opening and arranged in line with said plate so as to catch liquid dropping therefrom, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOSEPH GREGORY.

Witnesses:
W. H. KENNEDY,
T. F. KEHOE.