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G. W. GRAVES.

IGNITION DEVICE FOR GAS BURNERS.

APPLICATION FILED OCT. 21, 1907.

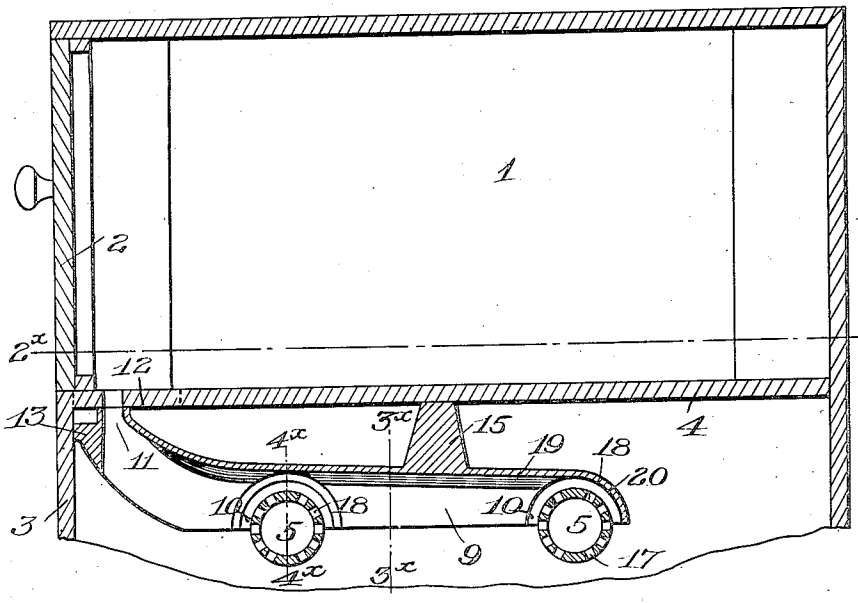


Fig. 1.

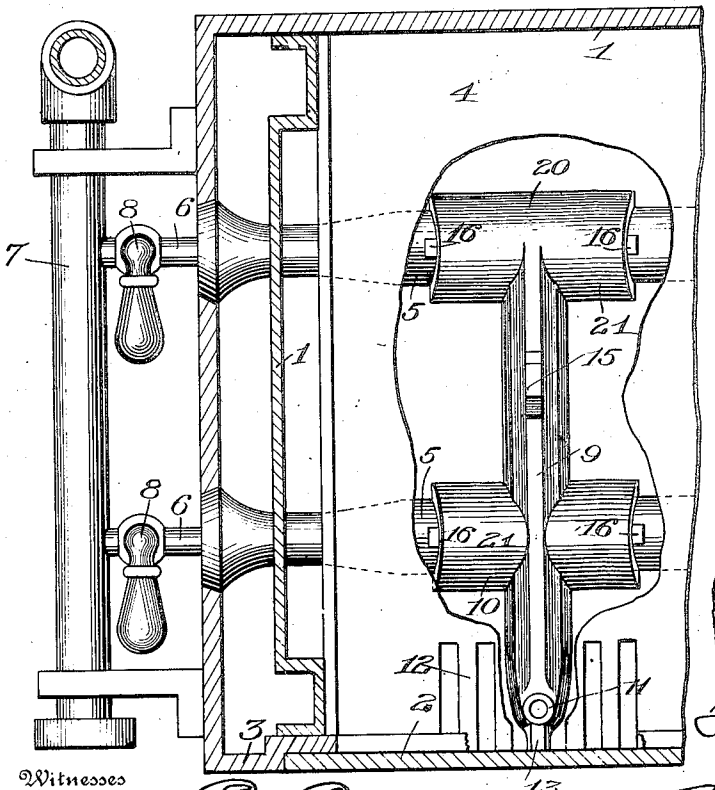


Fig. 2.

Fig. 3.

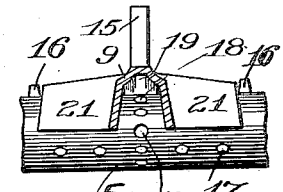
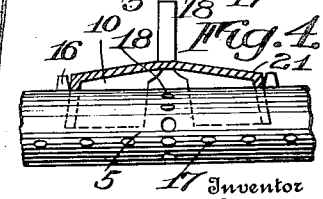


Fig. 4.



Witnesses

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IGNITION DEVICE FOR GAS-BURNERS.

No. 896,987. Specification of Letters Patent. Patented Aug. 25, 1908.

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To all whom it may concern:

Be it known that I, GEORGE W. GRAVES, of New York, in the borough of Manhattan and State of New York, have invented certain new and useful Improvements in Ignition Devices for Gas-Burners; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of the specification, and to the numerals marked thereon.

My present invention relates to gas stoves of the type wherein the burners are hidden or rendered more or less inaccessible for lighting purposes by the radiating surface or portion of the stove beneath which they are arranged, or in other ways, and it has for its object to provide a cheap and efficient device applicable to most types of stoves now in use by the aid of which a plurality of burners may be simultaneously or independently ignited with safety by the operator from a readily accessible point.

To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings: Figure 1 is a longitudinal sectional view of the oven portion of a gas range showing an ignition device as applied to an oven burner. Fig. 2 is a horizontal section on the line $2^{\times}$—$2^{\times}$ of Fig. 1, showing the burners and attachments, portions of the oven bottom being broken away to show a top plan view of the ignition device, Fig. 3 is a transverse section of the ignition device taken on the line $3^{\times}$—$3^{\times}$ of Fig. 1, and Fig. 4 is a similar view taken on the line $4^{\times}$—$4^{\times}$.

My present invention is particularly, though not exclusively, adapted to gas ranges of the type described and shown in a patent granted to me and another as joint inventors and dated April 22, 1902, No. 698,009, which type embodies a construction wherein explosions due to escaping gas are prevented in the oven by arranging the ignition opening of the burners within the oven chamber so that the door thereof must be first opened before the match can be applied. I have, therefore, illustrated in the drawings an oven and adjoining portions of a stove of conventional design wherein 1 indicates the oven chamber to which access is had through a door 2, located in the range front 3, the bottom or floor plate which constitutes the surface from which heat is radiated being indicated by 4. Arranged beneath this plate and below the oven are the burners 5 which may be of any desired construction, those illustrated being of the usual tubular form, extending transversely of the range or parallel to the front thereof and provided with apertures 17 for the emission of the gas. The burners are supplied with gas emitted from the pipes 6 leading from a main supply 7, the flow of gas being controlled by cocks 8, all of which parts may be arranged as desired.

The ignition device or lighter comprises an inverted U shaped shell 9 adapted to extend in a transverse direction above the burners 5, its lower open side forming a channel for collecting the upwardly rising gas emitted from the burner and directing it to a suitable point where it may be ignited. The rear end of the channel is closed by a downwardly extending lip 20, and at the rear end of the shell and also at a point above the forward burner are laterally projecting wings 21 which form extensions of the channel and serve to collect the gas passing outwardly from a plurality of the apertures 17 and to direct it into the main channel of the shell. To facilitate the flow of the gas along the channel the side walls of the latter are tapered, the wings are inclined and the upper edge of the channel or top of the shell is also inclined upwardly toward its forward end where the shell curves upwardly and surrounds a restricted opening 11 forming the terminus of the gas collecting channel which communicates with the interior of the oven at the forward end of the chamber through an aperture provided in the floor plate 4. At this point in the oven bottom it is desirable to locate a series of apertures, or provide a small grating 12, as shown in Fig. 2, of sufficient dimensions to enable an operator to view the burners to ascertain whether or not they are properly lighted and also to inspect the height of the flame.

The shell 9 constituting the igniting device is adapted to be located between the oven bottom and the burners and to be supported by the latter, and to this end the tips of the wings 21, which project downwardly, are provided with semi-circular recesses 10 fit-

ting the upper halves of the burners, and projecting upwardly from the shell at a point intermediate its ends is a lug 15 which coöperates with the oven bottom 4 to prevent the device from being disengaged from the burners. At its forward end the shell is also provided with a lug 13 which abuts against the adjacent surface of the front wall 3. The displacement of the device in a direction longitudinally of the burners is prevented by lugs 16 cast integrally with the burner tubes and arranged thereon in position to engage the ends of the wings 21.

The apertures 17 of the burners from which the flame jets are emitted, arranged on the under sides of the tubes, are sufficient to supply the necessary gas to the channel of the igniting device, but if desired those portions of the burners lying immediately beneath the shell may also be provided with openings in their upper sides as indicated at 18, communicating directly with the channel, a series of such openings being preferably arranged circumferentially of the tubes at these points.

In practice the top wall of the shell is provided with a longitudinally extending centrally arranged groove 19 forming the top of the channel in the shell which leads to and terminates at the opening 11, the general arrangement of the parts being such as to give the chamber a slight upward course in this direction so that a comparatively small amount of gas passing into the top of the channel will be sufficient to enable the burners to be properly lighted.

In operation the cock 8 controlling the gas in the burner which it is desired to light, or all of them, are turned on and the oven door opened. The gas filling the burner tubes will quickly escape through the burner apertures into the interior of the shell 9 and by reason of its slight specific gravity rise and concentrate in the narrow portion 19 of the channel from whence it will flow immediately in a column to the forward opening 11 and thence upwardly into the oven. When a match is applied at this point combustion instantly takes place throughout the column extending the flame throughout the length of the lighter shell and simultaneously igniting the jets flowing from any of the burner apertures 17.

As before stated, I do not limit the use of the lighter to an oven burner of the type shown, although it is a useful adaptation as the floor plate 4, may be considered the heat radiating surface and the igniting device as leading to any convenient and desirable point for the purposes described.

The igniting device may be conveniently cast in a single piece and readily applied to many different forms of stoves heretofore constructed.

I claim as my invention:

1. An ignition device for burners for gas stoves having one or more burners, comprising a tubular shell open on its under side forming a narrow gas collecting channel adapted to extend over all of said burners, said shell being provided with a restricted opening in its upper side at one end of the channel.

2. The combination with a gas range comprising a plate forming a radiating surface and burner tubes arranged thereunder having gas jet openings, of an igniting device comprising a tubular shell arranged transversely above the burners, said shell having an open lower side, the walls of the shell being provided with recesses adapted to receive the burners and also provided with a restricted opening in its upper side near one end.

3. The combination with a gas range comprising a plate forming a radiating surface, burner tubes arranged thereunder having gas jet openings and provided with spaced lugs at corresponding points on each burner and a front plate abutting the floor plate, the latter being provided with an opening adjacent the front plate, of an igniting device comprising a tubular shell open on its under side throughout its length and arranged transversely of the burner tubes between the lugs thereon, the walls of the shell being recessed at their points of contact with the burners, said shell being provided with a restricted aperture in its upper side registering with the aperture in the floor plate.

4. As an article of manufacture, a device for igniting the oven burners of a gas range, comprising a shell adapted to be arranged above said burners having an open channel for collecting gas escaping from the burners and conducting it to a point removed from the burners, said channel being provided with an opening through which said gas may be ignited.

5. The combination with a gas range having an oven chamber, a bottom therefor provided with a grated opening at its forward edge and burners located beneath said bottom, of an igniting device arranged above the burners comprising a top wall and depending side walls provided with recesses fitting the upper sides of the burners, the forward end of the device being located beneath said grating and provided with an aperture arranged in its top wall.

6. As an article of manufacture, a device for igniting the oven burner of a gas range, comprising a shell having a channel therein open at one end, wings extending laterally from the shell above the burners and serving to collect gas emitted therefrom and direct it into the channel, and a lug projecting upwardly from the shell and adapted to engage the oven bottom.

7. As an article of manufacture, a device for igniting the oven burner of a gas range,

comprising a shell adapted to be supported by the burners having a top wall and depending side walls, the latter converging toward the former and said top wall inclining upwardly toward its forward end and at said end being provided with a discharge orifice leading from the channel and of restricted dimensions relatively thereto.

8. The combination with a gas range having an oven chamber, a bottom plate therein provided with an opening at its forward edge and two oven burners located beneath the plate, of an igniting device comprising a shell having a top wall and depending side walls resting upon the burners, said top wall inclining upwardly toward its forward end and provided with an aperture located beneath the opening in the bottom plate, an upwardly projecting lug on the shell engaging said plate and lugs on the burners engaging the side walls of the shell.

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Witnesses:
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