

A. S. KIEFER.
IGNITION DEVICE.
APPLICATION FILED JAN. 23, 1911.

1,060,906.

Patented May 6, 1913

2 SHEETS—SHEET 1.

Fig. 1.

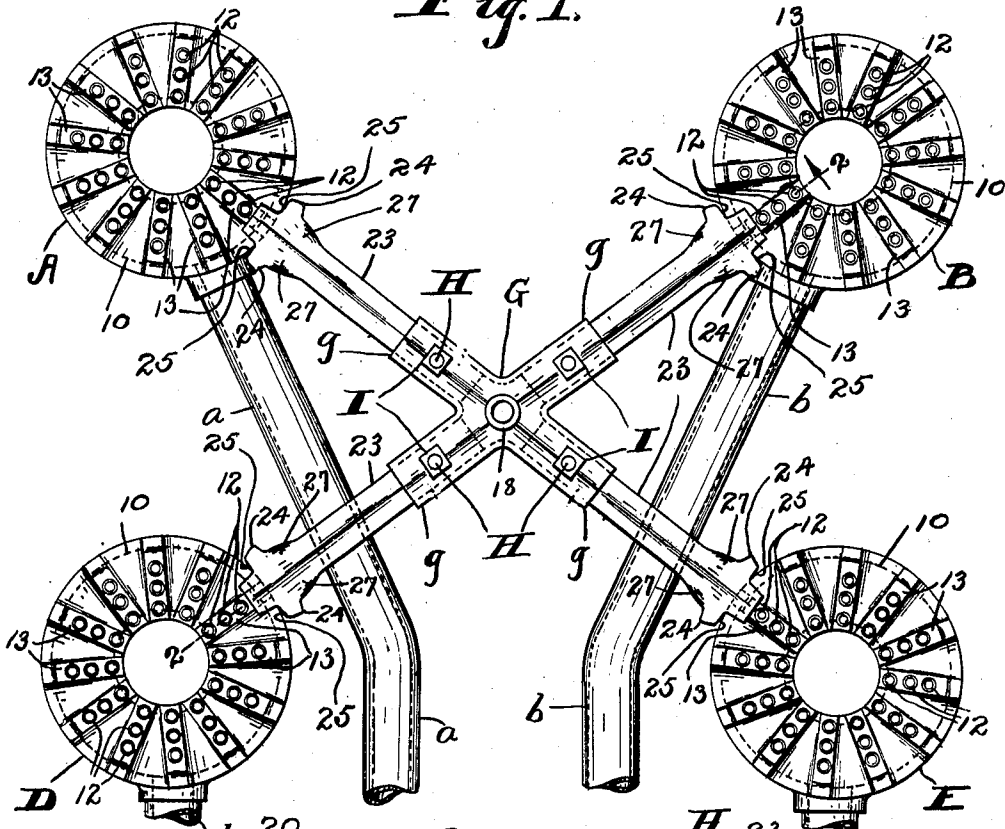


Fig. 2.

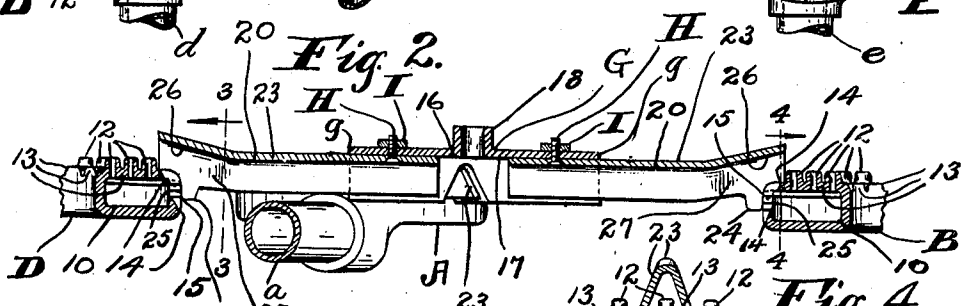


Fig. 3.

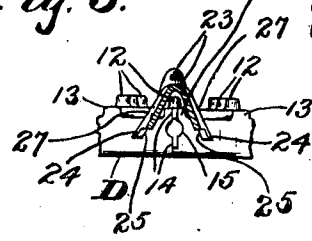
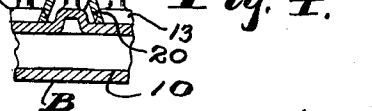


Fig. 4.



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2 SHEETS-SHEET 2.

Fig. 5.

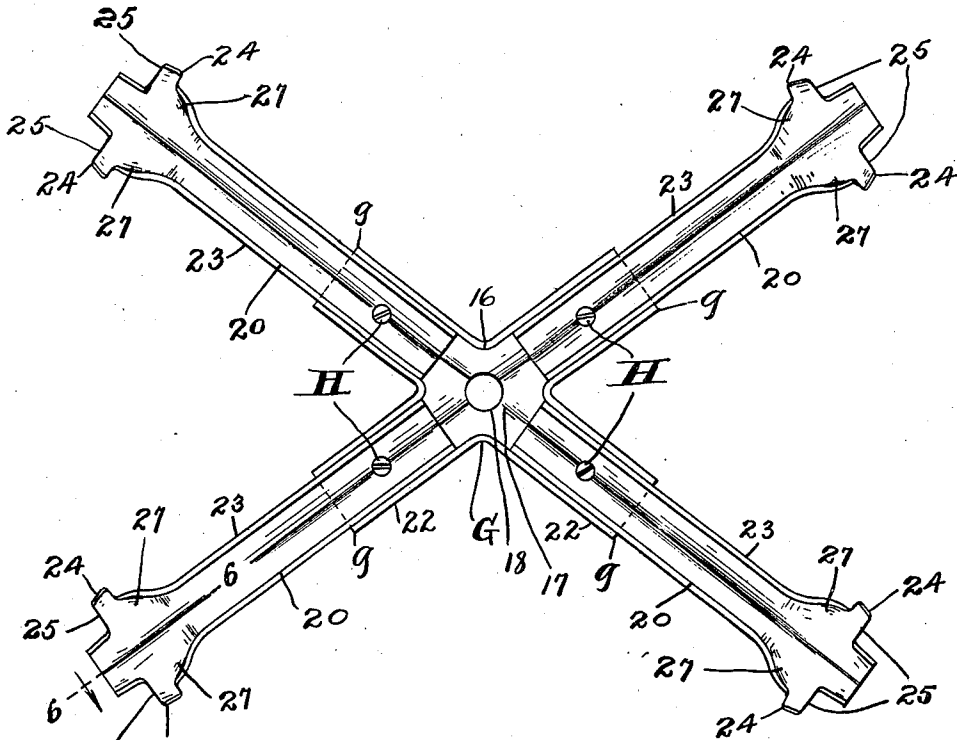


Fig. 6.

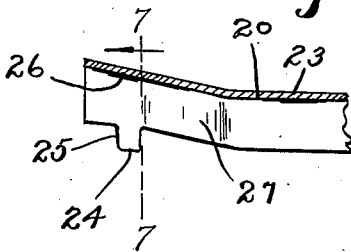
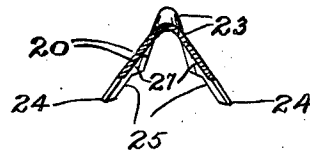


Fig. 7.



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UNITED STATES PATENT OFFICE.

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IGNITION DEVICE.

1,060,906.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed January 23, 1911. Serial No. 604,082.

To all whom it may concern:

Be it known that I, ADAM S. KIEFER, a citizen of the United States of America, residing at Lakewood, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Ignition Devices; and I hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to improvements in ignition-devices, and pertains more especially to an ignition-device whereby, upon having lighted, by the application of an ignition match or otherwise, any one of four top burners which are relatively arranged as the corners of a quadrangular figure, any remaining unlighted burner can be automatically lighted by supplying the burner with gas or fuel.

One object of this invention is to require no match or the like, upon lighting one of the said burners, in lighting any one of the remaining burners, and to avoid reaching over an already lighted burner in lighting one of the unlighted burners.

Another object is to provide an ignition-device of the character indicated which can be readily applied to the top burners of any gas-range.

Another object is to removably support the said ignition-device from the burners to which it is applied.

Another object is to provide an ignition-device of the character indicated which is simple in construction, reliable in its operation and not liable to get out of order.

With these objects in view, and to the end of attaining any other advantages herein-after appearing, this invention consists in certain features of construction, and combinations and arrangement of parts, herein-after described, pointed out in the claims, and illustrated in the accompanying drawings.

In the said drawings, Figure 1 is a top plan illustrating my improved ignition-device applied to the top burners of a gas-range. Fig. 2 is a vertical section on line 2-2, Fig. 1, looking in the direction indicated by the arrow. Fig. 3 is a vertical section on line 3-3, Fig. 2, looking outwardly. Fig. 4 is a vertical section on line 4-4, Fig. 2, looking outwardly. Fig. 5 is a bottom

plan of my improved ignition-device detached. Fig. 6 is a section on line 6-6, Fig. 5, looking in the direction indicated by the arrow. Fig. 7 is a vertical section on line 7-7, Fig. 6, looking outwardly. Figs. 4, 5, 6 and 7 are drawn on a larger scale than Figs. 1, 2 and 3.

Referring to Fig. 1 of the drawings, A, B, D, and E represent four top heating burners of a gas-range. The said burners are applied to the top (not shown) of the gas-range in any approved manner and are relatively arranged as the corners of a quadrangular figure, and *a, b, d, and e* indicate the pipes for supplying gas or fuel to the interior chamber 10 of the burners A, B, D, and E respectively. Each burner is supplied with fuel through the connected fuel-supply pipes independent of the supply of fuel to the other burners. Each burner is provided at the top thereof with upwardly discharging nozzles 12 which communicate with and form top outlets for the interior chamber 10 of the said burner and from which flames issue upon lighting the burner. The construction and application of heating burners and means for supplying gas or fuel to the said burners are too well known in the art to require further description and illustration in this specification. Preferably however each burner is provided at the top thereof with laterally spaced ridges 13 which are arranged radially of the burner, and the nozzles 12 of the burner are shown formed on the said ridges. Preferably each burner illustrated is provided, at its side which faces the diagonally oppositely arranged burner and preferably in the outer end of a ridge 13 of the burner, with a slot 14 which (see Figs. 2 and 3) extends from the top of the burner vertically through the outer end portion of the said ridge and downwardly from the said ridge into the adjacent side wall of the chamber 10 of the burner and laterally from the said chamber to the exterior of the burner and communicates with and forms a side outlet for the said chamber, and the said slot or side outlet of the burner is preferably enlarged in width, as at 15, (see Fig. 3) centrally between its upper and lower ends.

My improved ignition-device is shown X-shaped in plan, having a body G and the inner sections *g* of four arms having outer

sections 23 arranged to rest on the different burners respectively adjacent the slots or side outlets 14 of the burners. The body G is arranged centrally of the ignition-device and provided interiorly with a chamber 16 which has a top wall 17 (see Figs. 2 and 5) and is in communication at the bottom with the air externally of the body. The body G is provided at the top thereof and centrally with a vertically upwardly projecting flue 18 which forms a heating nozzle or burner as will hereinafter appear.

Each arm *g* of the ignition-device is provided interiorly with a passageway 20 which is preferably substantially triangular in cross-section and gradually enlarged in width downwardly from the top thereof. The said passageway 20 is open at the bottom,—that is, in communication at the bottom of the said arm with the air externally of the arm. Opposite side walls of each passageway 20 therefore diverge downwardly, and the said passageway is open at the outer extremity of the arm in which the passageway is formed and communicates at the inner end of the said arm with the chamber 16 and consequently with the nozzle or flue 18 and with the passageways formed in the other arms of the ignition-device.

The inner section *g* of each arm of the body G of the ignition-device is integral with the said body and straddles the outer section 23 of the said arm. The outer section 23 of each arm of the body G of the ignition-device extends therefore endwise a suitable distance into the inner section *g* of the said arm and extends a suitable distance beyond the outer end of the said inner arm-section *g*. The sections *g* and 23 of each arm of the body G of the ignition-device are secured together in any approved manner, as, for instance, by a suitably applied bolt H and nut I.

The arrangement of the arms *g* of the ignition-device relative to the burners to which the said device is shown applied is such that the outer end portion of each sectional arm *g* extends over the upper end of the slot or side outlet 14 of the adjacent burner and straddles the outer end of a ridge 13 of the said burner and rests on the top of the burner at the sides of the said ridge, as shown in Figs. 2 and 4. Hence an adequate communication is established between each passageway 20 and the side outlet 14 of the adjacent burner, and opposite downwardly diverging side walls of the said passageway are arranged at opposite sides respectively of the upper end of the said outlet and preferably enlarged downwardly, as at 24 at each side of the said outlet so as to overlap the adjacent side of the said burner (see Figs. 1, 2 and 3) and form two shoulders 25 which are arranged at opposite sides respectively of the said outlet and

face in the direction of the outer extremity of the said passageway and abut against the said burner.

By the construction hereinbefore described it will be observed that the ignition-device is removably mounted on the burners shown and satisfactorily held in place at the outer ends of its arms *g* relative to the said burners without interfering with the removability of the ignition-device from the burners.

To adequately receive any flame issuing into the outer end of the passageway 20 in each arm *g* from the side-outlet 14 of the adjacent burner when the said burner is lighted the top wall 26 (see Figs. 2 and 6) of the outer end portion of the said passageway slopes upwardly in the direction of the outer extremity of the said arm and over the upper end of the said side-outlet which is in communication with and discharges into the said passageway, and opposite side walls of the said passageway bulge laterally and outwardly, as at 27, a short distance from the said extremity of the said arm to there widen the said passageway and thereby amply accommodate any flame or gases issuing into the said passageway and prevent the said flame or gases from spreading or escaping to the outer side of the said arm at the bottom of the passageway.

By the construction hereinbefore described it will be observed that upon lighting one of the burners shown, merely supplying gas or fuel to any other burner will result through the medium of my improved ignition-device in lighting the last-mentioned burner. The provision of the centrally located nozzle or flue 18 positively renders my improved ignition-device reliable in its operation. The nozzle or flue 18 formed between adjacent ends of the passageways 20 not only creates a draft during the operation of any burner from the side outlet 14 of the said burner along the passageway 20 communicating with the said outlet to the said nozzle or flue but also creates a suction in the passageways 20 communicating with the side outlets 14 of the other burners in the direction of the said nozzle or flue. A flame obviously issues from the nozzle or flue 18 whenever one or more burners are lighted, and the said nozzle or flue therefore forms an additional heating burner. I would also remark that the body G and the arm-sections *g* formed on the said body preferably depend below the arm-sections 23, as shown in Fig. 2, so that there is no liability of any flame or gases spreading or escaping to the outer sides of the last-mentioned arm-sections, at the inner ends of the said arm-sections, and it is obvious that the communication of the chamber 16 and the passageways 20 at the bottom thereof with the air externally of the

ignition-device affords an adequate supply of oxygen to any flame within the said chamber and passageways for supporting combustion.

What I claim is:—

1. The combination, with a plurality of top burners of a gas-range, each of said burners having an interior fuel-chamber and a fuel-outlet communicating with the chamber at one side of the burner and discharging laterally of the burner, of an ignition-device having a central chamber and a flue communicating with and discharging upwardly from the said central chamber, said ignition-device also having laterally and outwardly projecting arms which are spaced circumferentially of the said flue and are each provided interiorly with a passageway which extends longitudinally of the respective arm and is open at the outer extremity of the arm, which passageway is in communication with the aforesaid central chamber, the passageways in the different arms being alined at the outer ends of the arms with the aforesaid outlet of the different burners respectively.

2. The combination, with a plurality of top burners of a gas-range, each of said burners having an interior fuel-chamber and a fuel-outlet communicating with the chamber at one side of the burner and discharging laterally of the burner, of an ignition device having a central chamber, and laterally and outwardly projecting arms which are spaced circumferentially of the said central chamber and are each provided interiorly with a passageway which extends longitudinally of the respective arm and is open at the outer extremity of the arm, which passageway is in communication with the aforesaid central chamber, each arm having side walls, and the passageways in the different arms being alined at the outer ends of the arms with the aforesaid outlet of the different burners respectively and being in communication at the bottom of the passageways with the air externally of the arms.

3. The combination, with a plurality of top burners of a gas-range, each of said burners having an interior fuel-chamber and a fuel-outlet communicating with the chamber at one side of the burner and discharging laterally of the burner, of an ignition-device having a central chamber and laterally and outwardly projecting arms which are spaced circumferentially of the said central chamber, each arm being provided interiorly with a passageway and having side walls, which passageway extends longitudinally of the arm and is open at the outer extremity of the arm and in communication with the aforesaid central chamber, the passageways in the different arms being alined at the outer ends of the arms with the aforesaid outlet of the different burners respectively

and being in communication at the bottom of the passageways with the air externally of the arms, and the passageway in each arm having a lateral and outward enlargement at a point in suitable proximity to the outer extremity of the said arm. 70

4. The combination, with a plurality of top burners of a gas-range, each of said burners having an interior fuel-chamber and a fuel-outlet communicating with the chamber at one side of the burner and discharging laterally of the burner, of an ignition-device having a body which is arranged centrally of the ignition-device and has an interior chamber, which body has a top wall provided with an upwardly discharging flue communicating with the last-mentioned chamber, said ignition-device also having laterally and outwardly projecting arms which are spaced circumferentially of the said body, each arm being provided interiorly with a passageway which extends longitudinally of the respective arm and is in communication with the last-mentioned chamber, the passageways in the different arms being open at the outer ends of the arms and alined at the said ends of the arms with the aforesaid outlet of the different burners respectively. 75 80 85 90

5. The combination, with a plurality of top burners of a gas-range, each of said burners having an interior fuel-chamber and a fuel-outlet communicating with the chamber at one side of the burner and discharging laterally of the burner, of an ignition-device having a body which is arranged centrally of the ignition-device, which body has a top wall and an interior chamber which is in communication at the bottom of the chamber with the air externally of the chamber, said ignition-device also having laterally and outwardly projecting arms which are spaced circumferentially of the said body, each arm being provided interiorly with a passageway which extends longitudinally of the arm and is in communication with the last-mentioned chamber, said arm comprising a section which is integral with the aforesaid body and having another section which is straddled by and removably secured to the first-mentioned and straddling arm-section, and the said straddling arm-section and the aforesaid body depending below the said straddled arm-section, the passageways in the different arms being arranged at the outer ends of the arms and alined at the said ends of the arms with the aforesaid outlet of the different burners respectively. 95 100 105 110 115 120

6. The combination, with a plurality of top burners of a gas-range, each of said burners having an interior fuel-chamber and a fuel-outlet communicating with the chamber at one side of the burner and discharging laterally of the burner, of an ignition-device 125 130

having a central chamber and spaced arms which overlap the different burners respectively at opposite sides respectively of the aforesaid side outlet of the respective burner, each arm being provided interiorly with a passageway which extends longitudinally of the arm and communicates at the outer end of the arm with the side outlet of the adjacent burner and also communicates with the aforesaid central chamber.

7. The combination, with a plurality of top burners of a gas-range, each of said burners having an interior fuel-chamber and a fuel-outlet communicating with the chamber at one side of the burner and discharging laterally of the burner, of an ignition-device having a central chamber and spaced arms which rest on the different burners respectively at opposite sides respectively of the aforesaid side outlet of the respective burner, each arm being provided interiorly with a passageway which extends longitudinally of the arm and is alined at the outer end of the arm with the side outlet of the adjacent burner, said passageway being also in communication with the aforesaid central chamber.

8. The combination, with a plurality of top burners of a gas-range, each of said burners having an interior fuel-chamber and a fuel-outlet communicating with the chamber at one side of the burner and discharging laterally of the burner, which outlet extends downwardly from the top of the burner and is enlarged in width centrally between its

upper and lower ends, of an ignition-device having a central chamber and spaced arms which extend adjacent the different burners respectively, each arm being provided interiorly with a passageway which extends longitudinally of the arm and communicates at the outer end of the arm with the side outlet of the adjacent burner and also communicates with the aforesaid central chamber.

9. The combination, with two spaced gas burners each having projecting arms and provided with gas-jet orifices, of a flame conductor extending from an arm of one burner to a similar arm of the other burner and provided at its ends with fingers projecting at the sides of the burner arms and cooperating with the burners to hold said conductor in place.

10. The combination, with two top burners of a gas-range, of a flame-conductor extending from one burner to the other burner, which flame-conductor is loosely mounted on and free to be removed upwardly from the burners and provided with means cooperating with the burners to hold said flame-conductor in place relative to the burners.

In testimony whereof, I sign the foregoing specification, in the presence of two witnesses.

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Witnesses:

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N. L. McDONNELL.