July 7, 1936. O. J. LEINS ET AL 2,046,828

LIGHTING DEVICE

Filed June 20, 1931 2 Sheets-Sheet 1

Fig. 1.

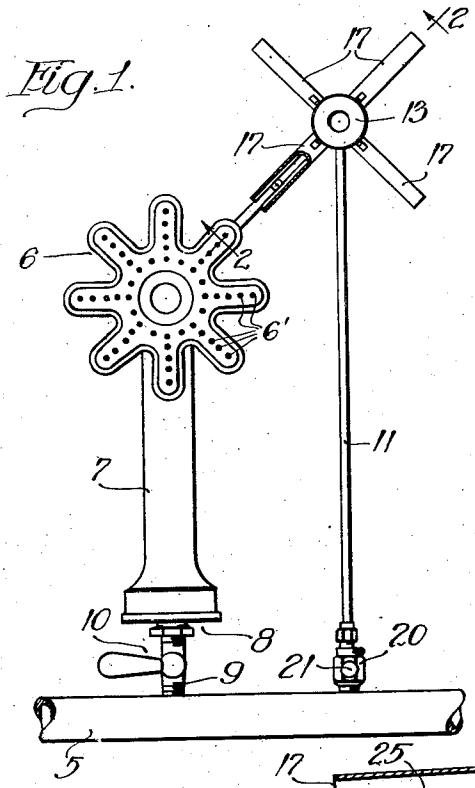


Fig. 2.

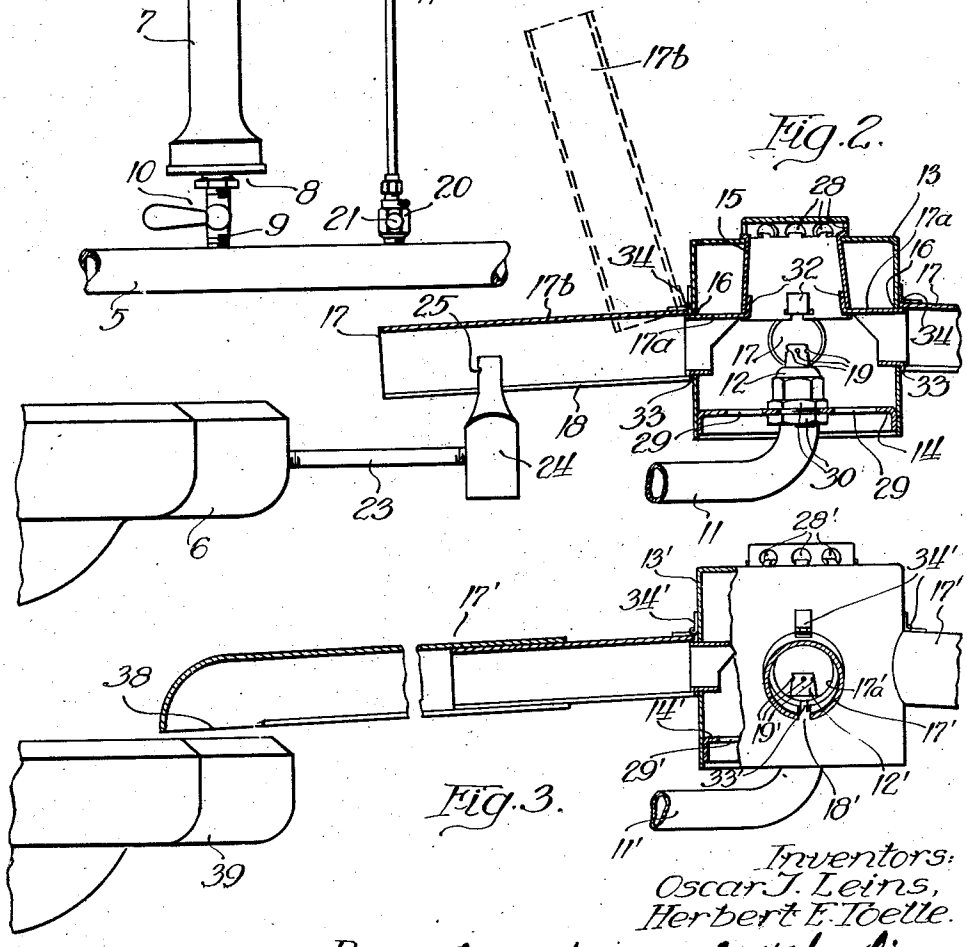


Fig. 3.

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Filed June 20, 193[illegible] 2 Sheets-Sheet 2

Fig. 4.

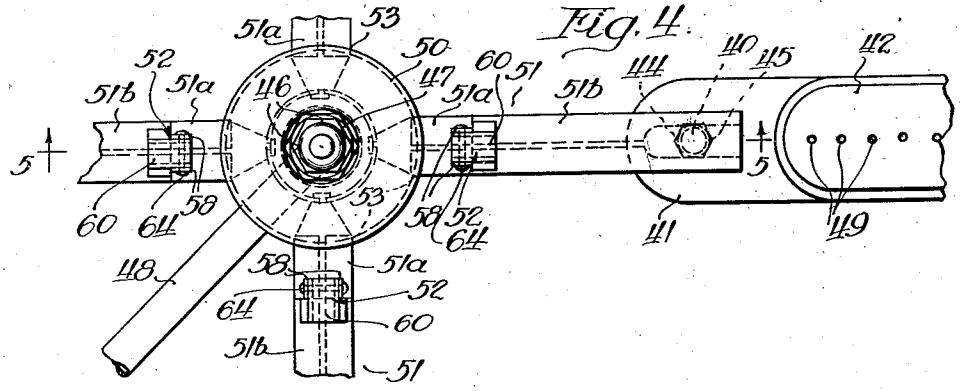


Fig. 5.

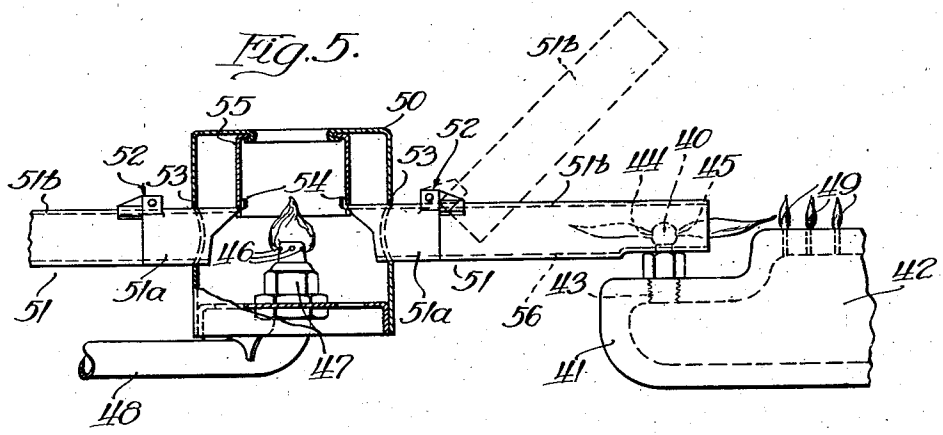
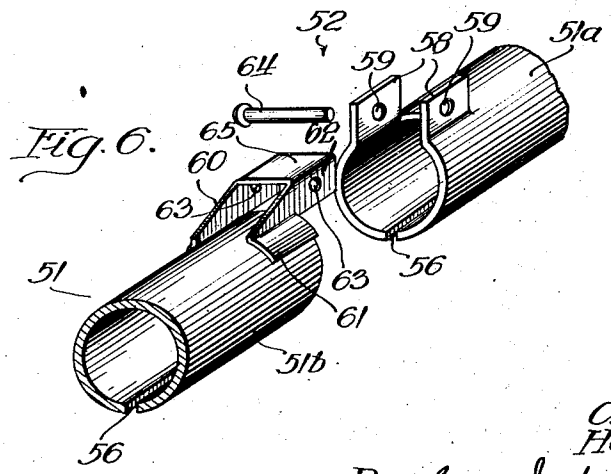


Fig. 6.



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UNITED STATES PATENT OFFICE

2,046,828

LIGHTING DEVICE

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Application June 20, 1931, Serial No. 545,818

11 Claims. (Cl. 158—115)

This invention relates to lighting devices for gas burners, particularly to lighting devices of the type comprising a hood having openings in line with the respective burners with a tube or conduit means leading from each opening toward the respective burner.

When a lighting device of this sort is applied to a gas range the tubes or conduit means leading from the hood frequently are positioned, in use, over the burner, or over a torch head, or foot extension on the burner.

It is well known that in the use of gas ranges the burners should be adapted to be cleaned and removed.

The present invention contemplates an improvement for permitting removal of the part of the conduit or tube means which is positioned in use over the burner or over the torch head, foot extension or other burner part from position thereover to permit cleaning and removal of the burner.

The present invention may be used or modified for use with any existing type of lighting device such as the "flash" type of lighting device, or the "gravity" type of lighting device, and the present invention may be employed for removing the tube or conduit means extending to the burner from position over the burner or from position over a torch head, foot extension or other means on the burner. So far as the present invention is concerned the lighting device may be adapted for use with gases having relatively high or any other B. t. u. values, and the gas burners may be provided with non-quenching pilot means or they may be without such means as, for example, in the type of lighter illustrated and described in United States Letters Patent No. 1,747,015, issued February 11, 1930.

The invention is illustrated in the accompanying drawings, in which:

Figure 1 is a fragmentary plan view of an arrangement embodying the present invention;

Figure 2 is a fragmentary partial section taken substantially on the line 2—2 of Figure 1;

Figure 3 is a view similar to Figure 2 showing the invention in connection with a "gravity" type of lighter;

Figure 4 is a fragmentary plan view of another embodiment of the invention;

Figure 5 is a fragmentary partial section taken on the line 5—5 of Figure 4 with the burner and tubes in elevation; and

Figure 6 is an exploded perspective view showing the hinge mounting for the tubes directed toward the respective burners in the device of Figure 5.

Briefly stated, the present invention mounts the tube or conduit directed toward the burner so that it may be raised relative to the torch head to permit cleaning and removal of the burner. Specifically this invention hingedly mounts this tube so that the part of the tube which overlies the burner may be swung away from position thereover. The terms "burner part" and "part of the burner" as used in the appended claims refer and are intended to cover the burner itself or any part on the burner which the tube directed toward the burner overlies and from position over which the tube is removed to permit cleaning and removal of the burner. This "burner part" or "part of the burner" may be the burner as above stated, or a part of the burner, or it may be a torch head, foot extension or other means on the burner and the term is used broadly in that sense.

In Figures 1 and 2 of the accompanying drawings the present invention is illustrated in connection with the type of igniter arrangement illustrated and described in the copending application of Oscar J. Leins, Serial No. 448,603, filed April 30, 1930. The usual gas manifold is illustrated at 5 and one of the gas burners is illustrated at 6. The burner 6 is fed from the manifold 5 by feed pipe 7 to which air is admitted at 8 in the usual manner. Gaseous fuel is fed into the pipe 7 from the manifold 5 by the nozzle pipe 9 in which the usual gas cock 10 is provided.

The igniter comprises a tube 11 leading from the manifold 5 and terminating in a torch head 12 in appropriate proximity to the burner 6. One burner 6 is shown, but it is to be understood that gas ranges commonly embody a number of burners, usually four, and that the torch head 12 may be disposed centrally between such or any other group of burners. A protecting hood 13 is mounted over the torch head 12 upon a flanged perforated collar 14 below the torch head 12, as shown in Figure 2. The hood 13 has a flue 15, opening at the top, and four openings 16, 16 in the circular side wall, each in line with the respective burner on the range. A tube 17 leads from each opening 16 toward the respective burner, and each of these tubes 17 is longitudinally slotted at the bottom thereof, as indicated at 18, to provide for the entry of air.

The torch head 12 has pilot flame openings 19 directed radially in line with the centers of the openings 16, respectively, there being four pilot flame openings 19 for a four burner arrangement

in the illustrated embodiment. At the end of the tube 11 near the manifold 5 a "flash" valve 20 is provided. This valve is of the type well known, which has a constant by-pass and which, when the button 21 is depressed, effects the flow of greatly increased quantity of gas. A pilot light is maintained at the ports 19 by the gas by-passed through the valve 20, and when the burner is to be ignited, its gas cock 10 is opened and the button 21 is depressed to admit the flow of the greatly increased quantity of gas to the lighter, this increased flow causing the pilot flames at the ports 19 to be projected radially outwardly, through the tubes 17, far enough to ignite the particular burner to which gas has been admitted.

Extending from the burner 6 toward the respective adjacent tube 17 is a small tube 23 which carries at its outer end the torch head 24 extending upwardly into the respective tube 17, as illustrated. The torch head 24 has a port 25 drilled in the side thereof and directed toward the burner 6. When the pilot flame from the ports 19 is projected by the depression of the button 21, the gas issuing from the port 25 at the opening of the gas cock 10 is ignited and remains ignited so long as the gas cock 10 is open. Near the top the flue 15 has openings 28 and the collar 14 has openings 29 and is clamped upon the upturned end of the tube 11 at 30.

In the event that liquid, boiling over the sides of a vessel disposed over the burner 6, falls upon the burner, it quenches the flame therefrom by closing the burner openings 6', and this closing of the burner openings 6' increases the pressure within the burner. This increase in pressure causes the projection of the flame from the port 25, over the burner, as indicated in Figure 2, and as soon as the filled burner openings 6' become cleared by the evaporation of the liquid, the gas issuing therefrom is ignited by this temporarily projected flame. As such reignition takes place, the gas pressure within the burner is gradually restored and, accordingly, the flame at 25 gradually recedes to its normal length.

It is to be noted that the torch head 24 extends upwardly into the respective tube 17 and that, in use, the upper wall of the tube 17 overlies the torch head 24 and protects the same against quenching. Each tube 17 comprises a relatively short tube 17a supported on the hood 13 and opening through the respective opening 16 in the side of the hood. The top of the inner end of the tube 17a extends inwardly into the hood beyond the bottom of the inner end of the tube and is secured at 32 to the flue 15. The outer end of the tube 17a may pass through the respective opening 16 and may be provided externally of the hood with a down-turned lip 33. The outer tube 17b which, with the inner tube 17a, makes up each complete tube or conduit 17, is hinged in this particular embodiment to the hood 13 at 34 and is adapted to be swung into and out of alignment with the relatively short tube 17a. The hinge mounting 34 for the tube 17b may be of any suitable or preferred construction, and the hinged end of the tube 17b may telescope over the adjacent end of the tube 17a when the tube 17b is in alignment with the tube 17a as shown in full lines in Figure 2.

In the event that it is desired to remove the burner 6, or in the event that cleaning of, removal or access to the torch head or burner part 24 is desired, the overlying part of the tube 17 is removed from position over the torch head or burner part by swinging the tube 17b upwardly about the hinge mounting 34 as, for example, to the position shown in dotted line in Figure 2 in which position cleaning and removal of the burner is permitted. Detent or latch means may be provided for holding the tube 17b or the respective tubes 17b in raised position, or they may be held in this position manually or otherwise as desired.

It is to be understood that the torch head and lighter arrangement of Figures 1 and 2 may be of the "gravity" type such as illustrated and described in the copending application of Oscar J. Leins, Serial No. 471,180, filed July 28, 1930, by providing the torch head 24 with a second port diametrically opposite the port 25 and directed toward the pilot flame at the ports 19. In that case the "flashing" provision at the valve or coupling 20 may be omitted and this valve may be a coupling for maintaining a constant pilot at the ports 19. When a burner 6 is to be ignited, the cock 10 associated with that burner is opened and gas enters the burner and is ready to be ignited at the burner openings 6'. Gas also passes through the tube 23 to the torch head issuing therefrom in both directions, one stream of gas from the port 25 toward and over the burner 6 and the other stream of gas through the diametrically opposite port above referred to toward and to the pilot flame at 19. The gas which flows toward the pilot flame at 19 is ignited by the pilot flame and the flame is conveyed back to the torch head 24, thus causing a flame to be projected over the burner 6 to ignite the gas issuing from the burner openings 6'.

In Fig. 3 the present invention is illustrated in connection with the "gravity" lighter illustrated and described in United States Letters Patent No. 1,747,015, issued February 11, 1930. In this case the outer end of the lighter tube 17' which extends from the hood 13' mounted over and protecting the torch head 12' on the upturned outer end of the lighter tube 11', is provided at its outer end with a downwardly opening mouth 38 which overlies the burner 39 to receive gas from the burner openings when the cock associated with the burner is opened and to convey the flame from the torch head 12' to the burner. In this case when the burner 39 is to be ignited, the cock associated with that burner is opened and gas enters the burner ready to be ignited at the burner openings. The gas upon entering the burner passes up through the burner openings and those burner openings over which the mouth 38 of the tube 17' is positioned cause gas to flow up through the mouth 38 and into the tube 17'. This gas entering the tube 17' by opening the burner flows through the tube 17' to the pilot flame at the ports 19' of the torch head 12' where this gas is ignited by the pilot flame at the ports 19' and the flame is conveyed back to the burner 39 to ignite the gas issuing from the burner openings. As in the preceding embodiment, each tube 17' comprises an outer tube hinged at 34' and adapted to be swung into and out of alignment with the supplementary inner tube for the purposes previously described. In this case the tube 17' comprises a pair of telescoping sections, slidingly engaged whereby the tube 17' may be extended and retracted.

In the embodiment of Figures 4 and 5 the torch head 40 is mounted upon a foot extension 41 integral with the burner 42. The torch head 40 has a depending nipple 43 opening through the top of the foot extension 41, the hollow interior of which

extension 41 is in open communication with the interior of the burner 42. The upper end of the torch head 40 has diametrically opposite ports 44 and 45, one directed toward the pilot flame at the ports 46 of the torch head 47 on the lighter tube 48, and the other directed toward the burner openings 49.

In this case the lighter tube which extends from the hood 50 mounted over and protecting the torch head 47 toward the respective burner 42 is designated in its entirety at 51. The tube 51 comprises an inner relatively short tube section 51*a* and an outer supplementary tube section 51*b* hinged at 52 to the outer end of the tube section 51*a* and adapted to be swung into and out of alignment with the inner tube section 51*a* for the purposes previously explained. The relatively short tube section 51*a* has fixed support on the hood 50 extending through the openings 53 in the hood, which opening is directed toward the respective burner. The top of the inner end of the tube 51*a* extends inwardly into the hood beyond the bottom of the inner end of the tube and is secured at 54 to the flue member 55. The longitudinal air slot in the bottom of the tube 51 is indicated at 56 and in use the outer end of the tube is positioned over the foot extension 41 with the torch head 40 extending up through an opening in the bottom of the tube and into the interior of the tube below the top wall thereof.

The hinge mounting 52 in the embodiment of Figures 4 and 5 is illustrated in Figure 6 and comprises a pair of ears 58 struck up from the top of the outer end of the tube 51*a* and apertured at 59. A bracket 60 riveted, welded or otherwise suitably attached at 61 to the top of the adjacent end of the tube section 51*b* has an extension 62 which overhangs the adjacent end of the tube section 51*a* and is apertured at 63. In assembly the tube section 51*b* is applied endwise to the tube section 51*a* which registers the apertures 63 with the apertures 59, and the pivot pin 64 is inserted through these registering apertures and headed or otherwise secured in place to hingedly mount the tube section 51*b* on the outer end of the tube section 51*a*. The top 65 of the bracket 60 serves to cover the opening formed in the adjacent end of the tube section 51*a* by striking the ears 58 up therefrom and the end of the bracket may be closed to complete this closure if desired. The extension or overhang of the pivotal mounting enables the tube sections to be brought together endwise into abutting relation without interfering with the swinging movement of the outer tube section 51*b*.

It is understood that the present invention is not to be limited to the precise details illustrated and described.

We claim:

1. In combination, a burner, a lighter tube, a hood on said tube in appropriate proximity to the burner, a torch head within the hood, a conduit leading from the hood and overlying a part of the burner, said conduit comprising a plurality of supplementary tubes, and a hinge mounting comprising a lug on one of said tubes, and a bracket associated with another of said tubes for permitting swinging of the overlying part of the conduit away from position over the burner part, one of the tubes of said conduit extending inwardly into the hood and opening toward the torch head.

2. In combination, a burner, a lighter tube, a hood on said tube in appropriate proximity to the burner, a torch head within the hood, a tube having fixed support on the hood and opening at one end through the wall of the hood, said tube extending inwardly into the hood and opening toward the torch head, a second tube leading from said first tube and overlying a part of the burner and means hingedly mounting one end of said second tube adjacent the outer end of said first tube, and in endwise abutting relation thereto.

3. In combination, a burner, a lighter tube, a hood on said tube in appropriate proximity to the burner, a torch head within the hood, a tube having fixed support on the hood and opening at one end through the wall of the hood, said tube extending inwardly into the hood and opening toward the torch head, a second tube leading from said first tube and overlying a part of the burner, means hingedly mounting one end of said second tube adjacent the outer end of said first tube, said hingedly mounting means comprising lug means struck up from the end of one tube and a bracket mounted on the adjacent end of the other tube and pivoted to said lug means.

4. In a device of the class described, a hood, a flue member disposed within and opening through the top of the hood, a relatively short tube opening through the side of the hood with the top of the inner end of the tube extending inwardly into the hood beyond the bottom of the inner end of the tube and having a projecting portion secured to the flue member, and a supplementary tube hinged at the outer end of the inner tube and adapted to be swung into and out of alignment with the inner tube.

5. In a device of the class described, a hood, a relatively short tube supported on and extending within the hood, said tube opening through the side of the hood, and a supplementary tube, means for hingedly mounting said supplementary tube on the hood for swinging said tube into and out of alignment with said inner tube.

6. In a device of the class described, a hood, a relatively short tube supported on and extending within the hood, said tube opening through the side of the hood, and a supplementary tube hinged at the outer end of said first tube and adapted to be swung into and out of alignment with said first tube, the hinged mounting of said supplementary tube overhanging one of said tubes to permit said tubes to be brought into endwise abutting relation without interfering with the swinging movement of said supplementary tube.

7. In combination, a burner, a lighter tube, a hood on said tube in appropriate proximity to the burner, a torch head within the hood with means for maintaining a pilot flame, a conduit leading from the hood and overlying a part of the burner, means for causing said pilot flame to be propagated in the direction of said burner, and hinge means mounting said conduit for movement relative to the torch head, said hinge means being supported on said hood.

8. In combination, a burner, a fuel supply therefor, a lighter tube, a hood on said tube in appropriate proximity to said burner, and having an opening directed toward said burner, a torch head within the tube for maintaining a pilot flame, a conduit leading from the hood opening and overlying a part of the burner, flashing means for causing said pilot flame to extend radially through said conduit to ignite said burner, and hinge means mounting said conduit for movement relative to the torch head,

said hinge means being so disposed that said conduit has abutting engagement about said opening when in normal position.

9. In combination, a burner, a lighter having a torch head provided with means for maintaining a pilot flame, a tube supported entirely on said torch head and extending into a position such that the outer end thereof is overlying a part of the burner, and means mounting said tube so that it may be raised relative to the torch head to permit cleaning and removal of the burner.

10. In combination, a burner, a lighter tube, a hood on said tube in appropriate proximity to the burner, a torch head within the hood, a conduit leading from the hood and overlying a part of the burner, said conduit comprising a plurality of supplementary tubes supported entirely at said hood, and a hinge mounting forming a horizontal pivot for permitting swinging of the overlying part of the conduit away from position over the burner part.

11. In combination, a burner, a lighter having a torch head provided with means for maintaining a pilot flame, a tube supported entirely at its inner end on said torch head and, in its operating position, having its outer end disposed adjacent to but independent of the burner in such relation thereto as to prevent ready removal of the burner, and means mounting said tube so that it may be raised relative to the torch head to permit cleaning and removal of the burner.

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