Nov. 16, 1943. E. H. MUELLER 2,334,345

LIGHTER FOR GAS BURNERS

Filed Aug. 3, 1940

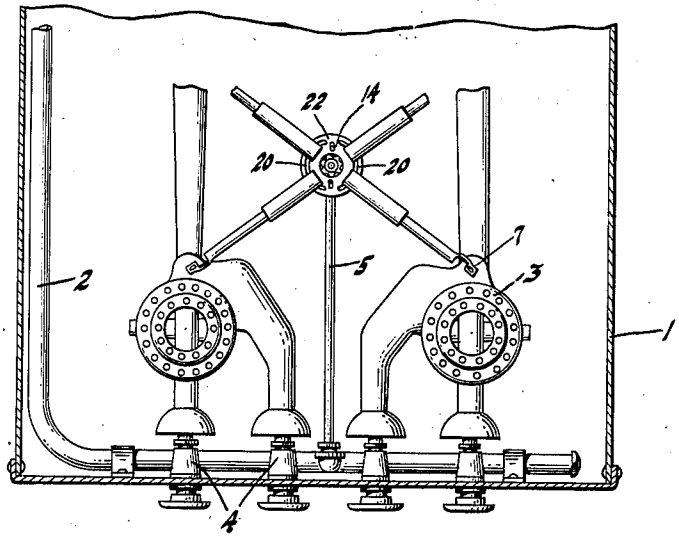


Fig. 1

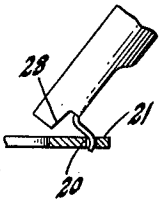


Fig. 6

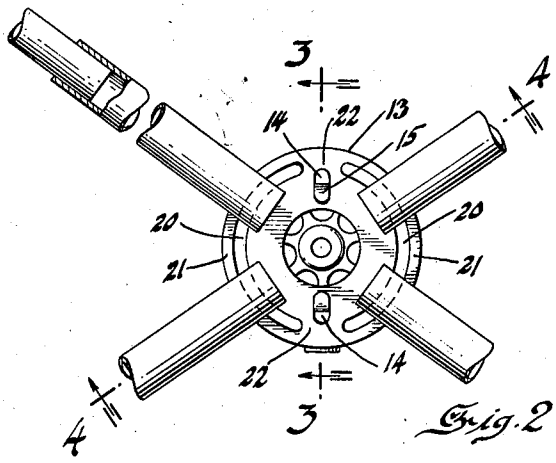


Fig. 2

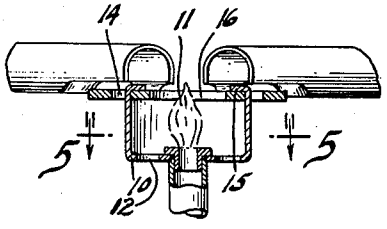


Fig. 3

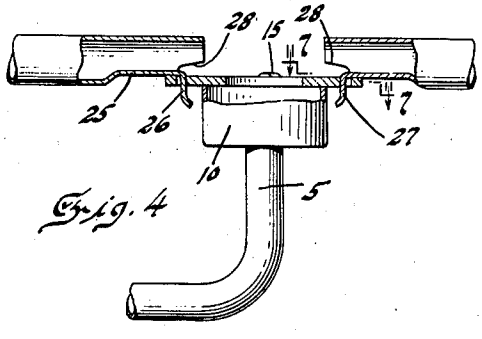


Fig. 4

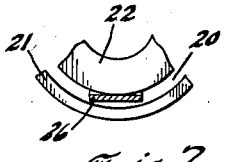


Fig. 7

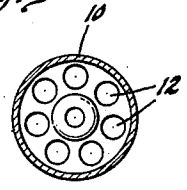


Fig. 5

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LIGHTER FOR GAS BURNERS

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Application August 3, 1940, Serial No. 350,281

1 Claim. (Cl. 158—115)

This invention relates to a lighter for gas burners and particularly to a lighter of the type employing a constantly burning pilot flame with flash tubes extending from the pilot flame to the burners.

Such a lighter usually has the pilot flame more or less centrally positioned relative to a plurality of burners, and the pilot flame usually is disposed within a so-called housing or a supporting structure, which structure may carry the adjacent ends of the flash tubes. This invention is concerned particularly with the provision of a novel arrangement which embodies the so-called pilot flame housing, the supporting structure for the adjacent ends of the flash tubes and a novel flash tube structure which constitutes a coupling means.

Among the objects of the invention is the provision of such an arrangement which can be economically manufactured and supplied to the trade at a low cost, which provides a strong and adequate support and coupling for the flash tube, and which structure can be shipped from the manufacturer in disassembled relation and quickly and easily assembled at the time of installation.

A structure for carrying out the invention is disclosed in the accompanying drawing.

Fig. 1 is a general view illustrating stove burners and lighter structure.

Fig. 2 is an enlarged plan view showing the housing and tube structure and illustrating a portion of a tube in cross section.

Fig. 3 is a cross sectional view taken substantially on line 3—3 of Fig. 2.

Fig. 4 is a partial cross sectional view taken substantially on line 4—4 of Fig. 2.

Fig. 5 is a sectional view taken substantially on line 5—5 of Fig. 3.

Fig. 6 is a detail view partly in section illustrating the manner of coupling and uncoupling the flash tube with the housing.

Fig. 7 is a view taken substantially on line 7—7 of Fig. 4 showing the coupling relationship.

In Fig. 1 a portion of a gas range is illustrated including a frame or panel 1, a gas supply pipe or manifold 2, burners 3, each controllable by a valve 4; a supply pipe 5 extends to a substantially central location relative to the burners and its inner end is turned upwardly as shown in Figs. 3 and 4 where it may support the housing for the pilot flame.

There is a flash tube extending from the pilot flame to each burner here shown as comprising telescoping tubes, one end of each of which is associated with a burner by a suitably formed spud 7 which may correspond to the arrangement shown in application Serial No. 311,658, filed December 29, 1939. The opposite end of each tube is in proximity to the pilot flame.

On the upper end of the supply pipe 5 is the so-called housing which is preferably in the form of a cup-shaped sheet metal stamping 10 having a central aperture in its bottom portion for fitting on to the end of the pipe 5 as shown in Fig. 3, with the result that the flame 11 is within the cup 10. The bottom may be provided with a plurality of openings 12 for the supply of secondary air to the flame. A support member of flat disc-like form or plate form 13 is seated on top of the cup and it has apertures 14 therein through which tabs or extensions 15, rising from the upper edge of the cup, extend, and these are turned over as illustrated in Figs. 2 and 3 to hold the support in place. This support member has a substantially central opening 16, and the member may extend somewhat inwardly from the periphery of the cup to partially close the cup and to aid in the protection of the pilot flame.

The outer portion of the support extends laterally beyond the walls of the cup and is provided with an arcuate slot arrangement for coupling with the tubes. As shown, the support has two arcuate slots 20 each extending almost 180°, and where there are four burners, two of the flash tubes are coupled with each of the slots. This slot formation results in a relatively narrow outer strip of metal adjacent the edge of the support as shown at 21. By providing two slots connected to the body of the support by the integral metal 22, a strong construction is obtained, but, as indicated above, the slot formation may be provided by a lesser or greater number of slots.

The pilot burner end of each tube as shown in Figs. 3 and 4 has a flattened portion 25 on its lower side and adjacent its end, the purpose of which is to provide a flat section of metal, from which a downwardly projecting finger 26 may be turned. The metal may be bent substantially through 90°, as illustrated, and the lower end of the finger has a bend formation, or curved lip formation, 27. This projection is advantageously positioned back from the end of the tube in order to utilize as much of the metal of the tube as is possible. The flat portion 25 forms no substantial constriction of the tube but merely provides a section of metal with a plane surface so that the finger 26 may be bent therefrom. The end of the tube is cut away somewhat as illus-

trated at 28 to facilitate coupling and uncoupling of the tubes with the support.

In making the assembly, a tube is turned upwardly to an angle similar to that as shown in Fig. 6 in order to insert the curved lip into the arcuate slot as shown. This is feasible because of the cut away part 28. Now by swinging the tube vertically to lower the opposite end, the tube comes into a position as shown in Fig. 4, and the spud end 7 may be associated with the burner. Thus the curved lip underlies the support, and detachment by movement of the tube at right angles to the plane of the support is prevented as the lip engages on the under side of the support. Detachment can only be effected by a reverse of the assembly operation, namely, by tipping the tube to an angular position similar to that shown in Fig. 6.

The width of the finger 26 is preferably quite substantial as shown in Fig. 7 so that it relatively snugly engages in the slot. This prevents pivotal action of the tube relative to the support around the finger as an axis. The width of the finger causes its edges to engage against the walls of the slot so that it cannot turn in the slot. However, the projection may shift bodily in the slot by movement arcuately around the pilot flame as a center, with the result that the tube is maintained in a substantially true radial position, regardless of variation in the location of the burner.

The pilot flame is well protected by the cup as shown in Fig. 3, and indeed the pilot flame need not extend above the level of the support. When gas is supplied to one of the burners such gas is transmitted through the flash tube and out through the end thereof and across the top of the flame and it will be ignited even though the flame is well down within the cup. However, if the flame is of such height as to extend upwardly above the support and within the plane of the tubes, it is only the upper end of the flame which is subjected to the flow of gas, with the result that any tendency to extinguish the flame is minimized.

I claim:

In a lighter for one or more gas burners wherein there is a substantially continuously burning pilot flame and a flash tube extending from the pilot flame to each burner to be lighted, a housing for the pilot flame substantially in the form of a cup, a disc-like supporting member secured to the top of the cup and having a central opening substantially concentric with the flame and partially closing the top of the cup, the outer portion of the supporting member extending radially outwardly of the cup and being provided with one or more concentric arcuate slots, each tube having a flat formation on one side adapted to rest upon the supporting member and having a downward projection provided by a down turned piece of metal of greater width than the slot, arranged to extend through the slot for slidable and non-rotatable connection, the projection having a bend formation on its end for engaging under the supporting member, the projection being engageable and disengageable from the slot by a swinging movement of the tube substantially in a vertical plane.

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