

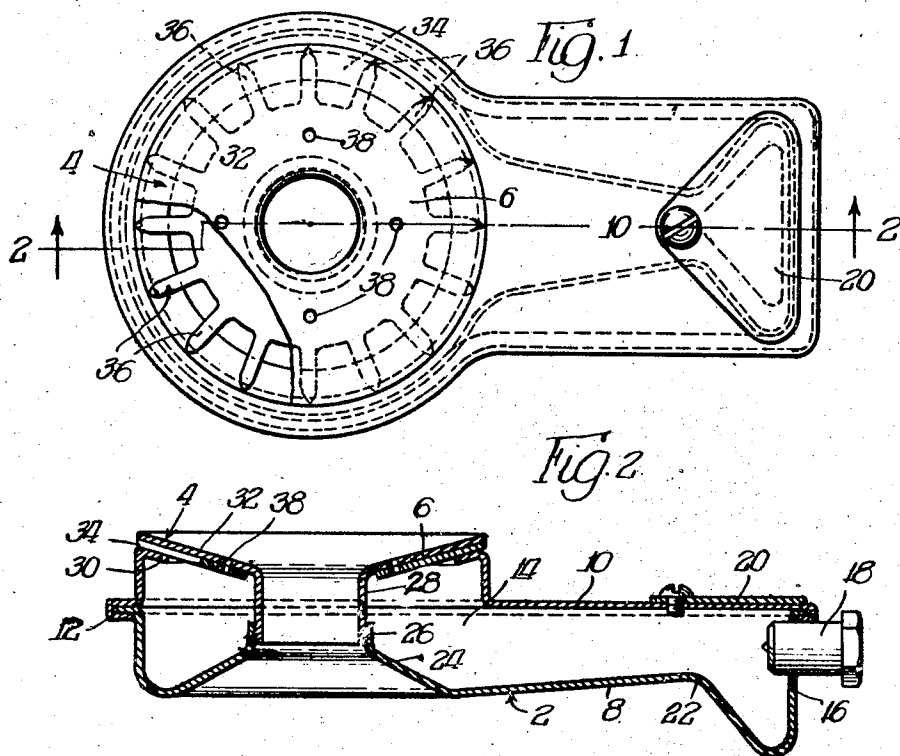
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GAS BURNER CONSTRUCTION

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2 Claims. (Cl. 158—99)

The present invention relates to gas burners and to novel methods of making the same.

Among the objects of the present invention is to provide an improved gas burner for stoves and the like which can be fabricated at low cost and which may be easily and readily assembled to provide a completed product with efficient burning characteristics, as well as to provide a structure which lends itself to novel procedures and methods in the manufacture and assembly of the parts thereof.

At the present time gas burners of the type herein under consideration have been preferably formed, because of ease in securing certain metals, to include a cast iron base and an aluminum cap constituted by a die casting formed on its lower surface with a plurality of alternately arranged protuberances and depressions which, in cooperative relation with the base, provide rather accurately formed escapement ports for gas flowing from the mixing chamber in the base into the environment of the said cap. Aluminum lends itself readily to such die casting operations, but due to the limited supply of such material at the present time due to priority given to certain types of articles for national defense purposes, it has been found desirable to look to other metal sources for the formation of such gas burners which will operate with the same degree of efficiency as the burners of the past and which can be fabricated without complicated manufacturing procedures.

It is therefore an object of the present invention to provide a novel gas burner of such construction that the same may be readily and easily fabricated from available metals and which is accurately formed to provide the degree of efficiency to which the trade has become accustomed in this particular field. In one of the aspects of the present invention the novel structure involved embraces a gas burner of multi-part construction including a base and a cap with an interposed element having parts thereof cut out to provide, when in assembled relation with the cap and base, accurately formed gas escapement ports communicating with a mixing chamber of the said device.

Another object within the purview of the present invention is to provide a novel gas burner of the type herein disclosed which is of multi-part construction including a cap and base having complementary seating surfaces and an interposed ring member seating accurately with said surfaces and being provided with cut-out sections forming

accurate gas escapement ports communicating with the mixing chamber of the said device.

Still a further object of the present invention is to provide a novel gas burner of multi-part construction as above exemplified, wherein the ring member forming the gas escapement ports in the assembled structure may be of different thicknesses and the cut-out sections formed in any desired manner so that the said ring members of varying construction may be interchangeably assembled with the cap and base to provide for gas escapement ports of varying characteristics in order to adapt the said gas burners to different types of gas and for varying flow characteristics.

The present invention includes as an object the provision of a novel gas burner of multi-part construction as hereinabove set forth wherein the cap, as well as the ring member interposed between the cap and the base, may be constructed to provide for inner and outer gas escapement ports.

The present improvement lends itself admirably to the provision of accurately formed gas escapement ports by the use of an intermediate ring member between a cap and base of sheet metal.

The present invention also has as an object the provision of a gas burner of multi-part construction in which both the cap assembly and the base are formed from sheet metal by a stamping operation.

Still further, the present invention has as an object the provision of novel methods whereby the gas burner structures hereinabove identified are assembled.

Other objects, features, capabilities and advantages are comprehended by the invention, as will later appear and as are inherently possessed thereby.

Referring to the drawing:

Figure 1 is a top plan view of a gas burner made in accordance with the present invention;

Figure 2 is a view in cross-section taken in the planes represented by lines 2—2 of Figure 1 of the drawing.

Referring now more in detail to the drawing.

a gas burner embodying the novel improved structure according to the present invention is shown as being completely assembled from metal stampings, the main parts of which comprise a base 2, a cap 4 and an interposed spacer ring member 6. The base 2 is of multi-part construction including the lower and upper parts 8 and 10 secured together by means of a seam 12 to provide mixing chamber 14 formed at one end with an opening 16 to receive a conventional gas feeding orifice 18, the said base 2 being provided

immediately above the said orifice 18 with an adjustable air shutter 20 to admit of regulated quantities of air into the chamber for mixing with the gas introduced through the orifice 18. Furthermore, the said base 2 is provided with a Venturi throat as at 22 which is located immediately adjacent the orifice 18 and the air shutter 20. The lower part 8 adjacent the end opposite the opening 16 is formed with the inwardly disposed annular wall 24 which is threaded as at 26 to receive the threaded cylindrical tubular part 28 of the cap 4 providing the central flue for the burner. The upper part 10 which completes the mixer tube assembly formed by the base 2 includes an inwardly disposed annular flange 30 having its upper surface rather accurately formed to provide proper seating relation with the interposed ring member 6 of the cap assembly.

The cap member 4 is formed from a single sheet of metal to include the centrally disposed cylindrical or tubular part 28 and the outwardly diverging conical shaped apron 32, the lower surface of which is substantially smooth to provide a proper seating surface for the ring member 6. This ring member 6 is of annular conical structure adapted to seat with the under and top surfaces of the apron 32 and flange 30, respectively, when the cap assembly is connected to the base through the threaded engagement as at 26. The ring member 6 is provided with cut-out sections as at 34 radially extending inwardly from the outer periphery or marginal edge of the said ring member to provide openings between the fingers 36, which fingers seat with the apron 32 and flange 30 whereby the openings 34 provide accurately formed gas escapement ports communicating with the mixer chamber 14. Furthermore, the apron 32, and the ring member 6, have cut-out metal sections to form aligned openings 38 at or adjacent the inner marginal edge of the ring member 6 and disposed adjacent the central flue formed by the tubular part 28 to provide proper depth for the inner gas escapement ports communicating with the mixing chamber 14.

The parts of the gas burner as described may be readily fabricated by stamping a metal sheet to form the various parts of the assembly which, in the case of the cap and spacer members, are cut to provide suitable apertures or openings forming gas escapement ports in the assembled structure. The parts with which the ring member seats are so formed as to provide accurate gas escapement ports for efficient burning characteristics of the gas burner.

In assembling the device as above described, the base may be formed from the two parts shown and with the inwardly disposed flange 30 accurately bent to provide a proper seating surface for the cap assembly. The cap assembly is first formed by shaping the cap member as disclosed, after which the ring member, which has likewise been suitably formed by a stamping operation, may be assembled in seating relation to the under surface of the apron 32, after which the same may be secured thereto in operative relation as by welding or the like. Apertures providing the gas escapement ports 38 may be drilled or otherwise formed through the apron 32 and the ring member 6. After the cap assembly has been formed, the same may be threaded into the base as at 26 into proper seating relation with the inwardly disposed flange 30 to form the completed structure.

As will be clearly appreciated from the above description, the ring member 6 may be of any thickness, and the sections forming the gas escapement ports in the assembly proper may be cut to any size or shape as desired. Accordingly, ring members varying in the particulars specified may be introduced interchangeably between the cap and base members. This is of particular advantage where it is desired to change the burning characteristic of any gas burner, and further provides for selectivity in any gas burner of the present construction by the mere expedient of having a supply of ring members of various sizes and designs.

While I have herein described and upon the drawing shown an illustrative embodiment of the invention, it is to be understood that the invention is not limited thereto but may comprehend other constructions, arrangements of parts, details and features without departing from the spirit of the invention as set forth in the appended claims.

I claim:

1. A gas burner formed from sheet metal and comprising a supporting base and a cap assembly mounted thereon, said supporting base being of two-part construction wherein said parts form an annular chamber and a laterally extending mixing chamber in communication therewith, one of said parts being formed with a bottom wall providing the bottom for said burner and having an upwardly extending flue-forming wall part disposed centrally of said annular chamber, said part also being provided with upstanding wall parts forming the outer walls for said annular chamber and said mixing chamber, the other of said parts being constituted by wall parts providing a connection to said first part and forming a continuation of the outer wall of said annular chamber and a top wall for said mixing chamber, said last-named part also providing a seat for said cap assembly, means providing a connection between the parts of said supporting base in a plane substantially defining the top of said mixing chamber, said cap assembly comprising a member of dish-shaped formation having a central securing part adapted to be connected to said flue forming wall part of said base to provide an upwardly extending opening through said burner, said assembly further including a spacer ring member interposed between said seat and said first-named member of said assembly and being formed with marginal openings forming escapement ports at the outer margins of said burner, said cap and ring member having a series of aligned openings disposed inwardly of said outer wall of said chamber and providing inner escapement ports for said burner.

2. A gas burner formed from sheet metal and comprising a supporting base and a cap assembly mounted thereon, said supporting base being of two-part construction wherein said parts form an annular chamber and a laterally extending mixing chamber in communication therewith, one of said parts being formed with a bottom wall providing the bottom for said burner and having an upwardly extending flue-forming wall part disposed centrally of said annular chamber, said part also being provided with upstanding wall parts forming the outer walls for said annular chamber and said mixing chamber, the other of said parts being constituted by wall parts providing a connection to said first part and forming a continuation of the outer wall of said an-

nular chamber and a top wall for said mixing chamber, said last-named part also providing a seat for said cap assembly, a seam joint providing a connection between the parts of said supporting base in a plane substantially defining the top of said mixing chamber, said cap assembly comprising a member of dish-shaped formation having a central securing part adapted to be connected to said flue forming wall part of said base to provide an upwardly extending opening through said

burner, said assembly further including a spacer ring member interposed between said seat and said first-named member of said assembly and being formed with marginal openings forming escapement ports at the outer margins of said burner, said cap and ring member having a series of aligned openings disposed inwardly of said outer wall of said chamber and providing inner escapement ports for said burner.

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