

J. R. WILLIAMS ET AL

BURNER

FIG. 1

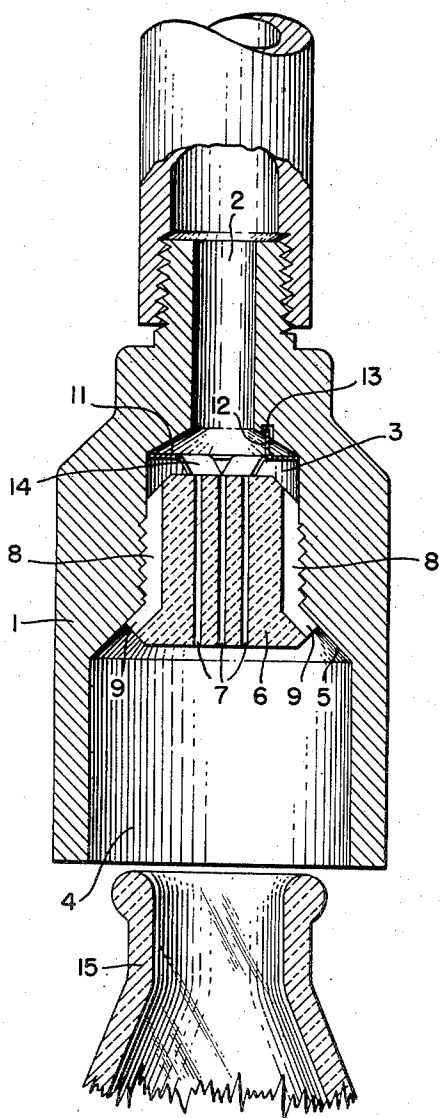
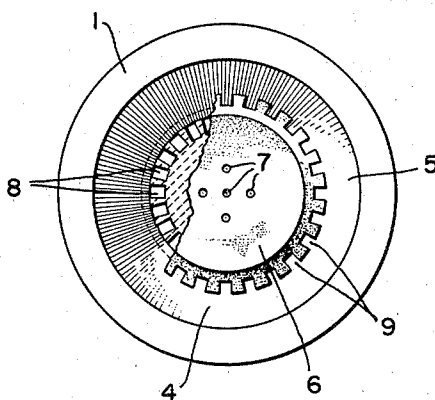


FIG. 2



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BURNER

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2 Claims. (Cl. 158—116)

The present invention relates to burners and more particularly to a torch type gas burner that is particularly adapted for use in the fire polishing of glass bottles, although it can, of course, be used for any purpose where burners of this type are applicable.

It is customary in the manufacture of glass bottles, for example, to heat the mouth of a bottle sufficiently to melt its surface after it leaves the mold. The surface tension of the glass will then cause the surface to become smooth, thereby eliminating sharp and rough edges. The flame produced by prior burners used for this purpose is not capable of rapidly and simultaneously heating both the inside and the outside of the bottle mouth.

It is an object of the invention to provide a torch type burner of general utility, but one that is particularly useful in the fire polishing of glass. It is a further object of the invention to provide a burner which will produce a sharp, hot flame covering a substantial area.

The various features of novelty which characterize our invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, however, its advantages and specific objects attained with its use, reference should be had to the accompanying drawings and descriptive matter in which we have illustrated and described a preferred embodiment of the invention.

In the drawings:

Fig. 1 is a section view through the burners, and

Fig. 2 is a view of the burner looking from the bottom in Fig. 1 showing the distributor partly in section.

Referring to the drawing, the burner is shown as having a cylindrical body 1 that is provided with a fuel supply passage 2, a socket 3 for receiving a fuel distributor, and a cylindrical burner cavity 4. The socket 3 and cavity 4 are joined by an outwardly flaring conical surface 5. Normally the body is made from some heat resisting metal alloy. The exterior of the end through which passage 2 extends is threaded so that the burner can be attached to a suitable support.

The wall of socket 3 is threaded to receive a distributor member 6 that is preferably made of a refractory ceramic material, although it could be made of a suitable metal if desired. This member is provided with a plurality of centrally disposed and axially extending fuel passages 7 that are arranged substantially concentric with the axis thereof. Member 6 is provided on its periphery with a plurality of axially extending channels 8 which cooperate with the wall of the socket to form a ring of small fuel passages adjacent to the periphery of the socket and combustion chamber. It will be noted that the passages formed by channels 8 bend radially outward at 9 at an angle to the axis which is substantially parallel to conical surface 5. Member 6 is provided with an enlarged end which locates the portions 9 with respect to surface 5 when member 6 is threaded into socket 3.

A lock washer 11 is used to prevent the distributor member from coming loose in the socket. This washer is provided with a tang 12 received in a hole 13 in the

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body and a plurality of tangs 14 that engage the bottom of the member.

In the operation of the burner a supply of combustible fuel mixture is supplied from a suitable source through passage 2 to the space in socket 3 beyond the end of member 6. At this point the fuel spreads to pass through passages 7 and the passages formed by channels 8 and the walls of the socket. As the fuel is discharged into the burner cavity it is ignited. Since all of the passages are substantially the same size the flames will be substantially the same length. The fuel coming from the ends 9 of channels 8 is directed toward the inner wall of the burner cavity and tends to bounce back from the wall. By the time the flames leave the cavity they have merged into a single hot flame that extends across the entire mouth of the burner cavity. Ordinarily the fuel mixture will be supplied under enough pressure so that the flame projects slightly beyond the end of the burner body.

When the burner is being used for the fire polishing of glass bottles, for example, a bottle is placed in front of the mouth of the burner as shown at 15 in Fig. 1. Flame from the burner will sweep over the entire upper surface of the bottle, and rapidly bring the surface thereof to the proper temperature. The character of the flame produced polishes the inside surface of the bottle end as well as the top end outside thereof. This is apparently due to the plurality of small diameter flames that emanate from passages 7. These flames project into the bottle, and apparently produce an action that causes a circulation of hot gases, as well as flames, from the interior of the bottle, over the end, and down the outside thereof. This sweeping effect produces a superior polishing job.

It will be apparent from the above description that we have invented a burner that can be used for many purposes in addition to the purpose that has been specifically described. The burner produces a hot, controlled flame of substantially the area of the burner cavity that can be directed accurately toward the work to be heated.

While in accordance with the provisions of the statutes, we have illustrated and described the best form of embodiment of our invention now known to us, it will be apparent to those skilled in the art that changes may be made in the form of the apparatus disclosed without departing from the spirit and scope of the invention as set forth in the appended claims, and that in some cases certain features of our invention may be used to advantage without a corresponding use of other features.

What is claimed is:

1. In a burner, the combination of a cylindrical, one piece burner body having formed in axial alignment therein a central opening comprising a fuel passage, a socket and a cylindrical burner cavity, said cavity being of a larger diameter than said socket and being connected therewith by a section having a conically flaring wall of a predetermined length the outer end of which meets and is the same diameter as in the inner surface of said burner cavity, said socket being provided with screw threads on its inner surface, a distributor member composed of a cylindrical body of material having an enlargement on one end projecting outwardly from the body at the same angle to its axis as the angle of said flaring wall section to the axis of said burner body, said member being provided with a plurality of axial passages extending therethrough, said member also being provided on its surface and the surface of said enlargement with a plurality of axially extending grooves, and a screw thread matching the screw thread in said socket on the cylindrical portion of its surface, said member being threaded into said socket with the enlargement thereof bearing against said flaring wall section and being of such a size that it terminates intermediate the length of said flaring wall section, whereby said grooves and the surface of said

socket and said flaring wall section form passages extending from said fuel passage to said burner cavity.

2. The combination of claim 1 including means received in said socket and engaging a wall thereof and said distributor member to restrain movement of said member in said socket.

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