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SINGEING BURNER

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Fig. 2

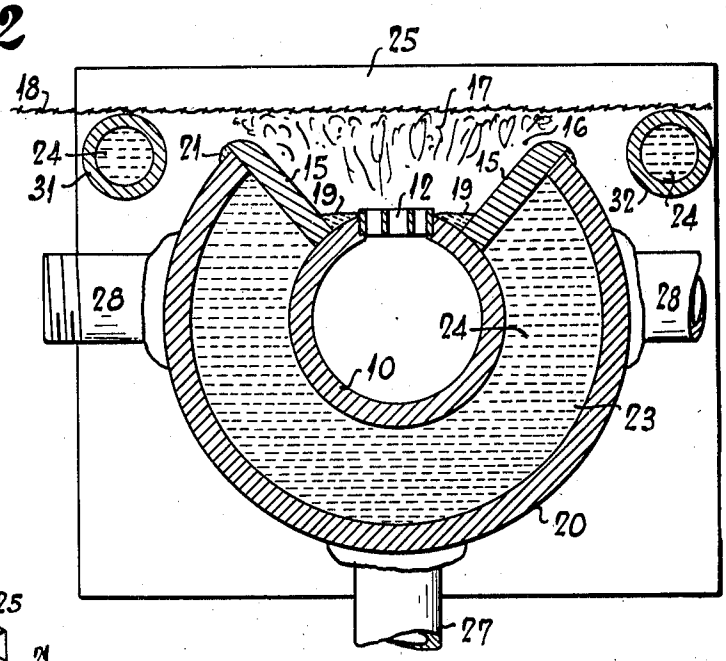


Fig. 1

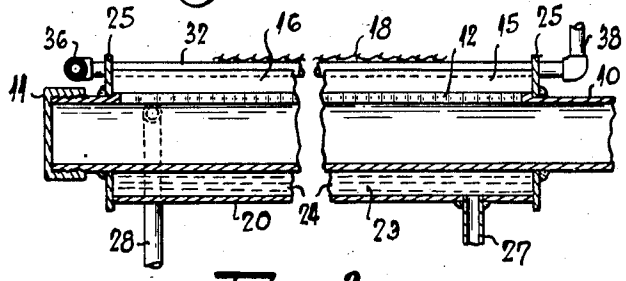


Fig. 3

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SINGEING BURNER

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8 Claims. (Cl. 26—3)

This invention relates to a singeing apparatus for cloth, and the like, and more particularly to an article of this class having improved radiation facilities for preventing over-heating during continued use.

It is an object of this invention to provide a burner having an open-sided combustion chamber in which the singeing flame is adapted to burn and over which cloth to be singed is adapted to pass, in combination with a water jacket disposed adjacent the chamber sidewalls for radiating the excess heat from the burner.

It is another object of this invention to provide an improved singeing apparatus of the class described having a water cooled pipe for holding the moving cloth in spaced relation to the burner during a singeing operation. The water cooled pipes are usually placed in close proximity to the burner, yet a sufficient distance therefrom to hold the fabric in the proper position. By having means for circulating water through the burner jacket and through the cloth guiding pipe, overheating of the apparatus is prevented because the steam therein will serve to modify the heat.

Heretofore singeing burners have given much trouble in warping, due to improper cooling. Burners have heretofore been provided having a water jacket on each side, but this has not prevented warping of the burner. By our improved construction, in which the entire periphery of the burner is evenly cooled, warping has been prevented.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawing in which:

Figure 1 is an isometric view of an improved singeing apparatus;

Figure 2 is an enlarged transverse vertical sectional view taken along the line 2—2 in Figure 1;

Figure 3 is a vertical longitudinal sectional view, with the central portion thereof broken away, and taken along the line 3—3 in Figure 1.

Referring more particularly to the drawing, the numeral 10 denotes a gas fuel supply pipe having a cap 11 which closes one end thereof, said pipe having a longitudinally extending grill 12 in the top side thereof. This grill is adapted to fit in a slot of appropriate size in the pipe 10 and to be fixed in position by any suitable means such as welding, a press fit, or the like. It can be seen by observing Figures 1 and 2 that the grill 12 has perforations therein for dividing the escaping gas as it flows from the pipe 10.

Extending radially from the pipe 10 and from the opposed edges of the grill 12 are plates 15. These plates extend on an upward incline a sufficient distance to form the sidewalls of a U-shaped combustion chamber 16 in which a flame 17 is adapted to burn, said chamber having an open upper side over which passes a piece of material to be signed such as a fabric 18. Plates 15 are secured to the pipe 10 at the opposed edges of the grate 12 by means of weld beads 19; however, it is to be understood that other suitable securing means may be employed without departing from the spirit of the invention (Figure 2).

The pipe 10 has disposed therearound and in spaced relation to its outer periphery, a second pipe 20, said second pipe having an elongated slot in its upper side, and the edges of this slot are secured to the upper outer edges of plate members 15 by any suitable means such as weld beads 21. Suitable plates 25 are welded to each end of the members 15 and 20 and to the plates 25 to close the annular space 23 and to make this space water-tight. After the pipe 20 has been secured in position by weld seams 21, there is provided an annular compartment 23 formed around fuel supply pipe 10 in which a suitable radiation fluid such as water 24 is adapted to be circulated during the operation of the device. Water is conducted into annular space 23 and through the space during the operation of the singeing apparatus by way of an inlet pipe 27. This fluid flows into the lower portion of the compartment and around the gas pipe 10, and then to the other end of the burner assembly where it is expelled by way of pipes 28 leading from each side of outer pipe 20. Pipes 28 extend downwardly and then inwardly to a T 28a, from which another pipe 29 leads. Connected to pipe 29 as at 29a is an inverted U-shaped pipe 30, through which the radiation liquid passes from the singeing unit. It will be noted that the U-shaped pipe 30 extends upwardly above the top of the burner unit so that during normal operation, the liquid will be present in the compartment 23 even if there is insufficient water pressure to cause the fluid to flow, until it is converted into steam. When the operator discovers steam issuing, the machine can be stopped before the burner is damaged.

In order to hold the cloth 18 in spaced relation to the burner 12 and also in spaced relation to the top edges of inclined plates 15, suitable pipes 31 and 32 are provided, said pipes being

positioned on each side of the edges of the burner mouth and substantially parallel to the longitudinal axis thereof. The pipes **31** and **32** are supported by plates **25** and are connected together by a short pipe **36**. In actual operation the water enters a pipe **37** and then passes through pipe **31** into pipe **36** and then through pipe **32**. From the pipe **32**, the water passes into an inverted U-shaped pipe **38**. The loop in pipe **38** serves the same purpose as the loop in pipe **30**, namely, to normally maintain a supply of water within the pipes **31** and **32** when there is insufficient pressure to cause the water to flow. In other words, the U-shaped pipes **30** and **38** serve as stops to prevent water from flowing out of the system by gravity.

The flow of water through pipes **27** and **37** is controlled by any suitable means such as hand valves **41** and **42** respectively. Although the city water supply may be employed as a means for causing a liquid to flow through the pipes **27** and **37**, we have shown an independent unit comprising a pump **43** driven by motor **44**. The pump draws fluid from any suitable source into pump **43** by way of an inlet pipe **45** and then expels the fluid by way of a pipe **46** to force the same into the pipes **31**, **32**, and compartment **23**.

Attention is called to the fact that for sake of clear disclosure the strip of cloth material **18**, which travels over the burner unit, does not extend the entire length of the burner. In operation the entire width of the burner is usually covered, however, in the present instance, the width of the material has been diminished in order to show the structural features of the apparatus.

In the drawing and specification, there has been set forth a preferred embodiment of the invention and although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being defined in the claims.

We claim:

1. A burner for singeing cloth and the like comprising a tubular member for conducting gas and having a flame slot in one side thereof, a spaced wall extending from one edge of said slot around said tubular member and in spaced relation thereto to the other edge of said slot thereby forming a compartment around the periphery of said tubular member from one edge of the slot to the other edge of the slot, and means for conducting a cooling liquid through said compartment.

2. A burner for singeing cloth and the like, comprising a tubular member for conducting gas having an elongated flame slot extending longitudinally thereof, a pair of divergent sidewalls extending respectively from opposed edges of said slot, and a spaced jacket extending from the outer edge of one of said sidewalls around said tubular member to outer edge of said other sidewall thereby forming a compartment extending around the periphery of said tubular member, and means for conducting a cooling liquid through said compartment.

3. A singeing burner for singeing cloth and the like comprising a gas pipe having an elongated flame slot extending longitudinally thereof, a substantially radially disposed plate extending from each longitudinal edge of said slot, a second pipe of substantially greater cross-sectional area than the first pipe and having an elongated slot extending longitudinally thereof, said second pipe having its inner periphery disposed in spaced relation to the outer periphery of said first pipe and having the opposed longitudinal edges of its associated slot secured respectively to said radially disposed plates, thereby forming a compartment around said first pipe, and means for conducting a cooling liquid through said compartment.

4. A singeing burner for singeing cloth and the like, comprising a tubular member having an elongated flame slot extending longitudinally thereof, a pair of diverging sidewalls extending respectively from opposed edges of said slot, and a spaced jacket extending from one of said sidewalls around said tubular member to said other sidewall thereby forming a compartment around the periphery of said tubular member, and means for conducting a radiation fluid through said compartment.

5. Singeing apparatus for cloth and the like, comprising an elongated burner, having a sidewall extending upwardly from each longitudinal edge thereof, thereby forming a U-shaped combustion chamber, the bottom of which is the top of the burner and the sides of which are said sidewalls, a conduit for supplying fuel to said burner, and a spaced jacket enclosing the outer surfaces of said sidewalls and the sides and bottom of said burner thereby forming a radiation compartment and means for conducting a radiation fluid through said compartment.

6. A singeing burner comprising an elongated hollow member having a trough extending longitudinally along the upper side thereof and forming a combustion chamber, a gas pipe extending through the member in spaced relation to the inner walls of the member to thus form a chamber for a cooling agent, the top of the gas pipe closing the bottom of the trough and having a plurality of perforations therein for the escape of gas for ignition into the combustion chamber.

7. A singeing burner comprising inner and outer concentrically disposed pipes, the smaller pipe having a plurality of perforations longitudinally disposed along the upper side thereof for the escape of a gas, the outer pipe having a longitudinally disposed slot therein disposed above the perforations in the inner pipe, plates secured to the inner pipe and to the outer pipe at the edges of the slot, thus forming a combustion chamber, and means for passing a cooling liquid through the space between the pipes.

8. A singeing burner having a combustion chamber with a gas feed pipe forming the bottom of the chamber, and a continuous jacket, the outer wall of which is spaced from and surrounds all portions of the gas feed pipe except that portion which forms the bottom of the combustion chamber.

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