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A. M. RAWLS

ALCOHOL FLAME INTENSIFIER

Filed April 3, 1922

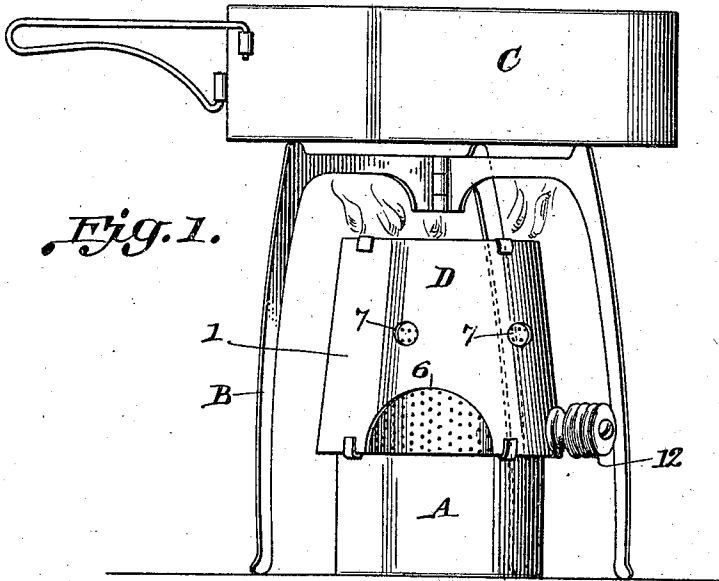


Fig. 1.

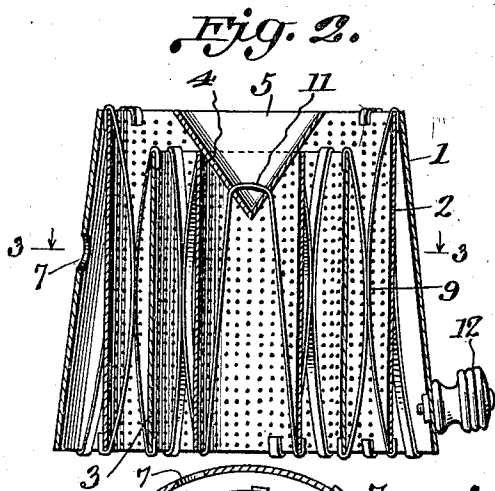


Fig. 2.

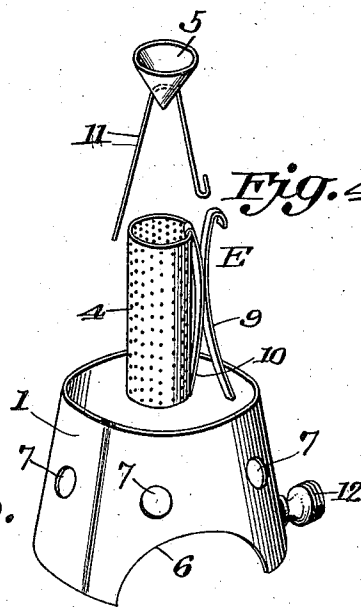


Fig. 4.

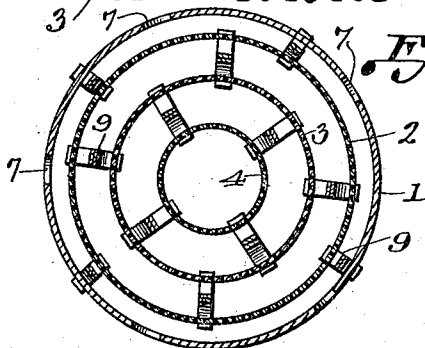


Fig. 3.

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UNITED STATES PATENT OFFICE.

ARCHIE MARTIN RAWLS, OF DIXON, ILLINOIS.

ALCOHOL-FLAME INTENSIFIER.

Application filed April 3, 1922. Serial No. 549,042.

To all whom it may concern:

Be it known that I, ARCHIE MARTIN RAWLS, a citizen of the United States, and resident of Dixon, in the county of Lee and State of Illinois, have invented certain new and useful Improvements in Alcohol-Flame Intensifiers, of which the following is a specification.

My invention relates to a burner adapted to be used in connection with a can of solid alcohol or similar fuel which is commonly consumed in the receptacle in which it is sold.

An object of my invention is to produce a burner which may be placed on the top of the open can and will greatly intensify the flame and result in an increased production of heat.

Another object of the invention is the provision of such a burner that will be simple and cheap in its manufacture but efficient in operation.

Another object is the provision of novel means for holding the parts of the burner in proper position while permitting the same to be readily assembled and handled as a unit.

Other objects will be apparent from the following detail description and the appended claims.

In the drawings:

Figure 1 is a perspective view of the burner in operative position.

Figure 2 is a vertical section through the burner.

Figure 3 is a horizontal section on the line 3—3 of Fig. 2.

Figure 4 is a view of parts of the burner separated but indicating the means of assembling the parts.

In Figure 1 is shown the can A of solid alcohol or similar fuel, the usual tripod B supporting a container C which is to be heated, and the burner D in operative position.

The burner is formed of an outer frustro-conical sheet metal shell 1, and a series of cylindrical perforated sheet metal shells 2, 3 and 4. These are placed within the frustro-conical shell 1 and spaced therefrom and from each other as shown. An inverted cone 5 of imperforate sheet metal is placed with its apex within the top of the cylinder 4, and this cone closes the top of this cylinder and acts as a flame spreader.

The outer sheet metal frustro-conical

member 1 has a cut out 6 at each side adjacent the bottom, and about half way between the top and bottom has several spaced openings 7. The cut outs 6 and the openings 7 provide the necessary supply of air to the burner.

The frustro-conical member 1 and the cylindrical members 2, 3 and 4 are all assembled and held together by means which will now be described. A narrow strip of sheet metal of the desired length is split lengthwise except for a short distance at its center. The two parts are now folded together with the uncut portion acting as a hinge. The outer ends are then bent outward and the device takes the form shown in Figure 4 and designated as a whole by the reference character E. The device is seen to resemble two bowed strips 9 and 10 back to back, which are joined at their centers.

As best illustrated in Figure 2, these devices E are used to fasten together adjacent cylinders 4 and 3; 3 and 2; and the cylinder 2 with the frustro-conical member 1 in the following fashion. For example the strip that is placed between the cylinders 3 and 2 has the top and bottom of the strip 10 bent over the edges of the cylinder 3 while the top and bottom of the strip 9 is bent over the edges of the cylinder 2. Preferably four of these devices are used between each two cylinders, and it will be seen that they not only hold the cylinders together but space them properly and evenly from each other. The strips placed between the different pairs of cylinders are preferably staggered.

The cone 5 is held in proper position by a wire which passes through the cone 5 near its apex and has its lower ends bent upon the outside of the cylinder 4, thus drawing down the cone firmly against the top of the cylinder 4. The device is provided with a handle 12 of any desired character.

The outer cylinder 2 is nearly in contact with the frustro-conical member 1 at the top, but is spaced considerably therefrom at the bottom, and the cylinders 2, 3 and 4 are about equidistantly spaced. The cylinders 3 and 4 are somewhat shorter than the cylinder 2 and member 1, and the tops thereof are lower than the tops of the cylinder 2 and member 1. The cone 5 has its upper end about level with the top of the cylinder 2.

The operation of the device will be clear from the foregoing description. An ordinary can of solid alcohol or "canned heat" is used, the top removed, and the alcohol 5 lighted. The device is then placed immediately upon the top of the can. The flame will pass up between the various cylinders forming substantially a complete cone of flame. The combustion will be better than 10 if the alcohol is merely burned in the can and a much hotter blaze will be obtained. The article to be heated may be placed directly upon the top of the burner, although it is preferable to support it by a tripod or 15 similar means slightly above the top of the burner as shown in Figure 1.

All of the parts are preferably made of sheet metal of rather light weight for the sake of simplicity of manufacture and lower 20 costs. The device is not necessarily limited to this material. Furthermore, although I have shown and described my preferred form of fastening the cylinders together, it is obvious that other means might be em- 25 ployed without affecting the operation of the device. The size of the device may be varied, and different sizes of cones 5 may be substituted if found advisable, and this cone may in some cases extend above the 30 top of the outer cylinder. Other obvious modifications will occur to any one skilled in the art, and it is understood that the invention is limited only by the scope of the appended claims.

I claim as my invention:

1. A burner for fuel receptacles having an open top comprising an outer sheet metal frusto-conical member, three cylindrical perforated sheet metal members concentrically arranged within the outer member, 40 an inverted cone shaped flame spreader closing the top of the inner cylindrical member, and means for holding the parts in operative relation to each other.

2. A burner for fuel receptacles having an open top comprising an outer sheet metal member, a plurality of perforated sheet metal members symmetrically arranged within the outer member all of said mem- 50 bers being open at the bottom, a flame spreader at the top of the inner member, and means for holding the parts in operative relation to each other.

3. A burner for fuel receptacles having 55 an open top comprising an outer sheet metal

member, a plurality of perforated sheet metal members arranged within the outer member all of said members being open at the bottom, a flame spreader at the top of the inner member, air admission openings in the outer member, and means for holding the 60 parts in operative relation to each other.

4. An alcohol burner comprising an outer frusto-conical sheet metal member, a plurality of concentric perforated sheet metal combustion tubes within said member, 65 an inverted conical flame spreader having its apex within and closing the top of the inner cylindrical member, means for holding the members in operative relation, and means for admitting air through the outer 70 member.

5. The combination with an open top fuel receptacle of a burner adapted to be placed on the top thereof and comprising an outer 75 sheet metal member, a plurality of perforated combustion tubes within the outer member said tubes being open at the bottom, a flame spreader at the top of the inner combustion tube, and means for hold- 80 ing the members in operative relation to each other.

6. The combination with an open top fuel receptacle of a burner adapted to be placed on the top thereof and comprising an outer 85 sheet metal member, a plurality of concentric perforated combustion tubes within said member, an inverted conical flame spreader closing the top of the inner combustion tube, and means for holding the members in op- 90 erative relation to each other.

7. The combination with an open top fuel receptacle of a burner adapted to be placed on the top thereof and comprising an outer 95 sheet metal member, a plurality of cylindrical perforated combustion tubes within said member, a flame spreader closing the top of the inner combustion tube, means for admitting air through the outer member, and means for holding the members in op- 100 erative relation to each other.

8. A fastening device for concentric combustion tubes comprising two bowed metal strips back to back and connected by an in- 105 tegral part, the ends being adapted to be bent over the edges of the tubes.

In testimony whereof, I have hereunto subscribed my name.

ARCHIE MARTIN RAWLS.