March 17, 1959 A. J. GIESE 2,877,759

PORTABLE STOVE

Filed March 17, 1955

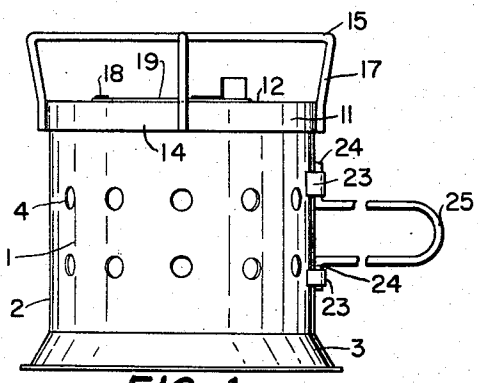



FIG. 1.

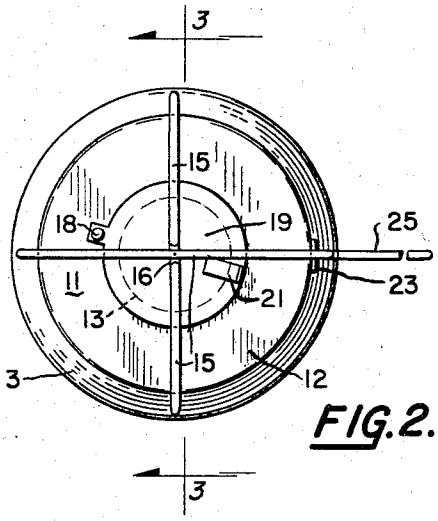



FIG. 2.

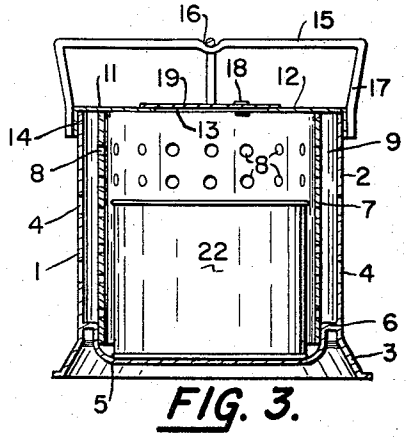



FIG. 3.

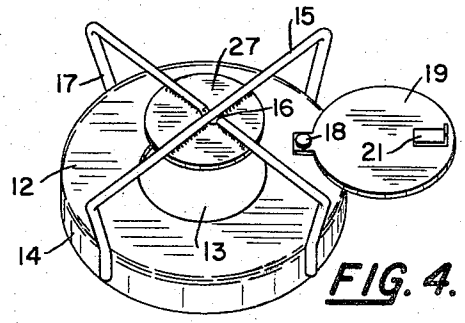



FIG. 4.

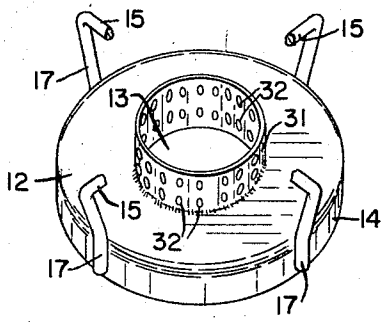



FIG. 5.

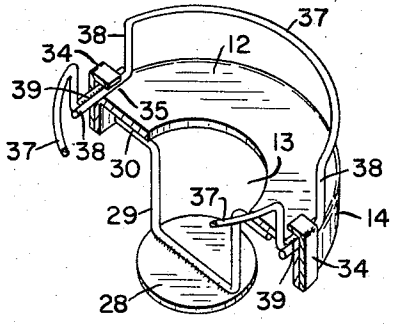



FIG. 6.

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# PORTABLE STOVE

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1 Claim. (Cl. 126—43)

This invention relates to improvements in portable stoves or cookers and particularly to a stove that is designed for outdoor home or camping use for cooking light lunches and the like.

It is an object of this invention to provide a stove of the portable type having increased and improved burning characteristics.

Another object of the invention is to provide a stove of the type described that completely burns the fuel contained therein without smoking or tarnishing the cooking utensils.

A further object of the invention is to provide a portable stove having various attachments such as a wind breaker, a snuffer, and a baffle for improving the burning characteristics and simplifying the use of the stove.

Other objects and advantages of the invention will become apparent upon considering the following detailed description in conjunction with the drawings wherein like numerals represent similar parts throughout and wherein:

Figure 1 is an elevational view of my improved stove in assembled relation and including one form of the top portion;

Figure 2 is a top view of the stove shown in Figure 1;

Figure 3 is a sectional view taken along the lines 3—3 of Figure 2;

Figure 4 is a perspective view illustrating a second embodiment of a top portion that may be used with my stove;

Figure 5 is a perspective view of a third form of a top portion; and

Figure 6 is a fourth form of a top portion.

The stove or heater and cooker according to this invention comprises essentially a casing proper, a liner or combustion element, a source of fuel and one of the five top portions shown in the drawing. Preferably, the entire structural parts of the stove are made of cold rolled or hot rolled steel.

Now referring particularly to Figures 1, 2, and 3, the stove generally represented by numeral 1 includes a hollow elongated casing structure 2 of substantially cylindrical configuration with an outwardly directed hollow flange or base 3 for supporting the stove in an upright position. Throughout its periphery or elongated length at desired spaced intervals there are provided draft perforations 4 and adjacent the base 3 and within the casing 2, a U-shaped or saucer-shaped receptacle-like partition 5 having a circular flange 6 is integrally mounted by welding or the like the latter to the interior of the casing 2. A liner 7 or combustion element, also of cylindrical configuration, is detachably mounted, as shown, by a friction fit on partition 5 and the liner is provided with draft perforations 8 throughout its elongated length at spaced intervals. The liner 7 fits into the partition 5 and is centralized therein with respect to casing 2 to form the annular space 9. Other means for supporting the liner 7 centrally of the casing 2 could be provided by those skilled in the art. It will be noted that,



as shown assembled, the top of the liner extends to a height substantially equal to and coextensive with the height of casing 2 and this is important as will become apparent.

The top portion 11 of Figures 1 and 2, as well as the modified forms thereof illustrated in Figures 4, 5 and 6, consist of a circular flat plate 12 completely closed or solid except for a central aperture or recess 13 and by means of a downturned annular flange 14 the portion 11 is detachably mounted by a friction fit on casing 2. The imperforate part of plate 12, when in position, forms a substantial air or gas seal with casing 2 and liner 7 as will be observed by reference to Figure 3. Welded to flange 14 and upstanding from plate 12 are crossed U-shaped members 15 which form the grill or support for a cooking utensil such as a coffee pot, frying pan or the like. If desired, the members 15 may be soldered or welded at their point of crossing, as at 16, to increase the rigidity and durability thereof and preferably the legs 17 of each member diverge upwardly and outwardly from casing 2 to increase the area of support or grill.

Pivoted to the plate 12 at 18 is a snuffer consisting of a circular plate or disk 19 slightly greater in diameter than recess 13 and having a handle 21 whereby the snuffer may be pivoted to a position shown in Figure 3 or that of Figure 4 for the purpose of covering or leaving open aperture 13. Supported by the partition 5 within the liner 7 is any suitable source of heat or cooking fuel, such as a candle or other solid combustible, but preferably canned heat is employed such as the can 22 of Sterno heat. On the exterior of casing 2 are provided spaced apart sockets 23, such being integral with casing 2, for supporting the angled legs 24 of a generally U-shaped stove handle 25. Since handle 25 is constructed of flexible steel, upon squeezing the handle the legs may be removed from sockets 23 so that the member 25 may be utilized for other purposes, such as positioning of the fuel medium 22 relative to the stove when the top portion 11 is removed.

Having described the structure of Figures 1, 2 and 3, let us assume that the unit 1 is positioned by the handle 25 adjacent an outdoor fireplace for the purpose of boiling water or the like. If the can 22 is not in place, on partition 5, the handle 25 may be detached from its usual position and used to place can 22 on the partition 5. Thereafter, the portion 11 is positioned as in Figure 1, but with the snuffer pivoted to open the recess 13 and the source of fuel 22 is lighted and the pot or other cooking utensil containing the water position on members 15 and directly above the recess 13. Primary flame and combustion gas travel upwardly towards recess 13 and the plate 12 above space 9 causes a blocking of gas traveling in space 9 and hence a secondary burning. This secondary burning results in a blue flame traveling towards and through the recess 13 which greatly increases the efficiency of the unit and results in increased heat being applied to the water pot. The structure of plate 12 whereby space 9 is covered at its top is critical and is believed to be one of the important factors involved in causing improved and speedier cooking.

The air or gas seal brought about by imperforate plate 12 is believed to be one of the principal contributing factors in providing a clean hot fire completely devoid of smoke and odor and, of course, the draft perforations 4 and 8 provide a sufficient circulation of air through the liner 7 and casing 2 and assure the proper operation and burning of the fuel 22.

The modified top portion of Figure 4 includes a baffle 27 consisting of a circular plate or disk approximately the size of recess 13 and integrally attached to the under-

side of joint 16. This baffle 27 acts as a breaker to throw the gas back down into unit 1 and functions to better distribute the flame.

In Figure 6 the baffle breaker is shown as a circular disk 28 depending from plate 12 and positioned within the liner 7. A U-shaped structure 29 having extensions 30 is welded to the plate 12 as well as disk 28 to support the latter in place and the snuffer 19 may also be employed with this modified top portion. The top portion of Figure 6 is the same as that of Figure 1 except that the members forming the grill are readily detachable as a unit from plate 12. Welded to the flange 14 are upstanding angle members 34 forming with plate 12 sockets 35, said members 34 and sockets 35 being diametrically opposed. The support or grill comprises two substantially half round members 37 spaced upwardly, when attached to plate 12, by means of legs 38 joined together integrally by welding or the like at 39. The support is of resilient metal so that by compressing it may be readily attached and detached from plate 12 by snapping the legs to and from sockets 35. It should be mentioned that the combined approximate diameter of half rounds 37 is slightly less than the interior diameter of casing 2 whereby the support may be positioned, when not in use, within the casing and frictionally held therein. This is advantageous in having available a compact camping stove and yet one where the parts may be readily assembled.

Finally, a top portion 11 provided with a wind breaker consisting of a hollow cylindrical member 31 is illustrated in Figure 5, said breaker being preferably integrally secured to plate 12 and having in its periphery a plurality of spaced draft perforations 32. With this form of top portion the snuffer 19 is not employed.

Having described only typical preferred embodiments of this invention, it is to be understood that variations and modifications may be made by those skilled in the art that fall within the scope of the appended claim.

What is claimed:

A portable stove comprising a substantially cylindrical hollow casing having a base for supporting the stove in upright position and means for closing the bottom of the stove, a substantially cylindrical elongated hollow



liner, means for supporting the liner in an upright position centrally within and spaced from the casing with the top of the liner and casing being substantially coextensive whereby an elongated annular space is formed between the liner and casing, said casing and liner having a plurality of spaced draft perforations provided therein, a source of fuel supported within the liner and a top portion detachably engageable with the casing, said top portion including a substantially flat plate a part of which is engageable with the tops of the liner and casing for forming a substantial gas and air seal for the space and a part of which extends inwardly towards the vertical axis of said liner and is provided with a central aperture considerably smaller than the diameter of said liner, said top portion further including support means spaced above said flat plate for supporting receptacles to be heated, and a solid substantially flat baffle of circular configuration and of a size substantially equal to the central aperture and positioned beneath said aperture in substantial alignment with but spaced from said central aperture, a substantial U-shaped member integrally secured to said top portion and depending therefrom for supporting said baffle, said support means including a pair of substantially half round members having downwardly extending legs welded together to form a unit and means extending from said top portion for detachably receiving said legs whereby said round members are supported vertically above and spaced from the top portion.

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