

June 27, 1967

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3,327,698

CAMP COOK STOVE

Filed Oct. 21, 1965

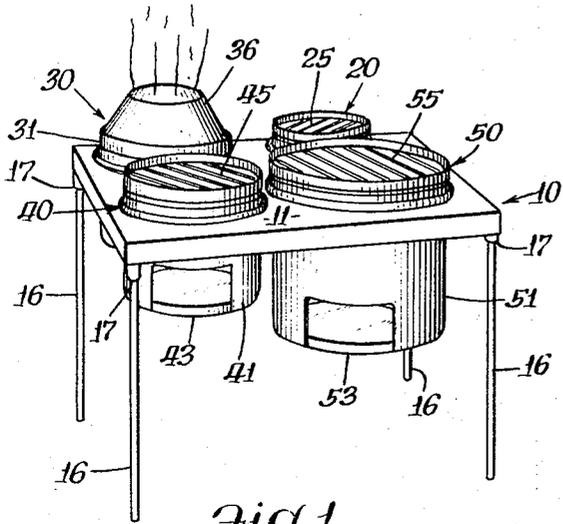


Fig. 1.

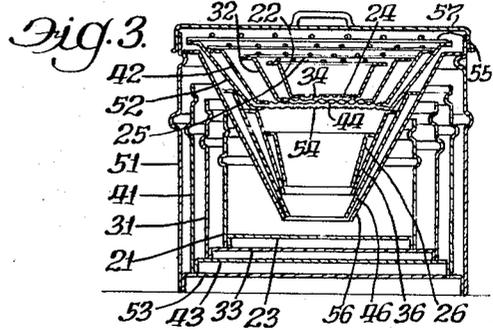


Fig. 3.

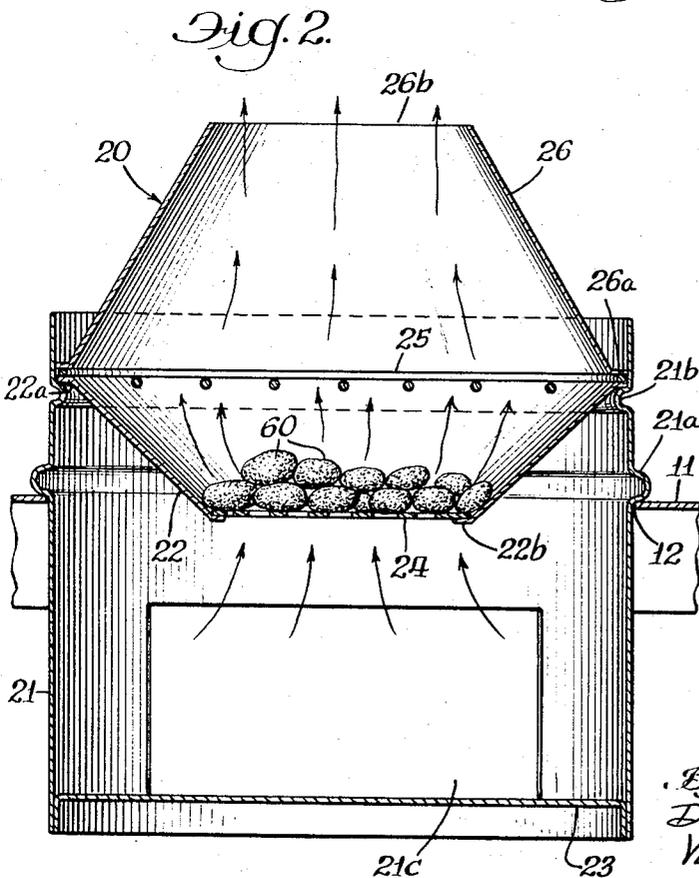
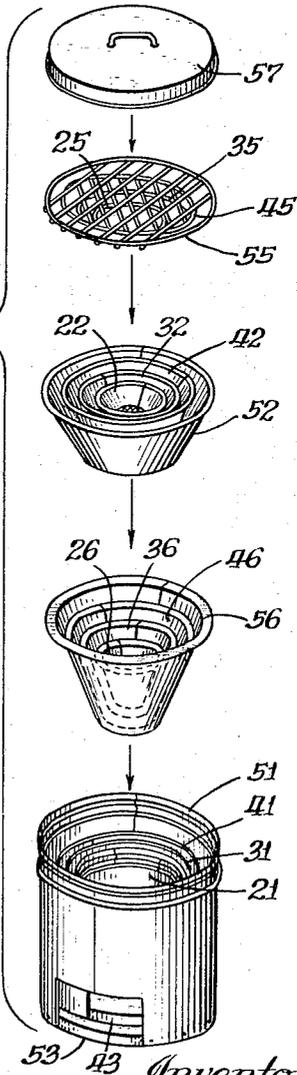


Fig. 2.

Fig. 4.



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**CAMP COOK STOVE**  
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Filed Oct. 21, 1965, Ser. No. 499,299  
7 Claims. (Cl. 126—25)

## ABSTRACT OF THE DISCLOSURE

A charcoal-burning stove has a plurality of individual cooking units, each of which is demountable and all parts of all units are nestable into a single compact bundle. Each burner unit has a draft intake opening on one side and may be rotated to face the opening into the wind to augment the draft and temporary chimneys are provided to further increase draft.

The present invention relates to an outdoor cooking stove having one or a number of "burners" employing charcoal as the fuel.

Under many circumstances it is desired to have an outdoor cooking stove, which may be provided with a number of burners, for the preparation of the various parts of a meal. Many such stoves are available in types employing highly flammable gases and liquids. Under many circumstances people do not desire to use the flammable gases or liquids. For one thing, it doesn't seem as much like camping out as it does when wood or charcoal is employed as the fuel. Furthermore, many people and groups do not wish to have such flammable fluids around. For example, it is understood that those engaged in scouting do not believe that Boy Scouts should use any flammable fluids either for cooking or for the starting of fires. The danger to children who are less than careful is quite obvious.

Three of the principal problems involved in the use of charcoal-burning stoves are (1) speed and certainty of ignition and development of a hot fire, (2) control of the heat during the cooking process, and (3) fuel economy. The improvements in burner design and construction herein shown and described are directed particularly to these problems.

The principal object of the invention is to provide charcoal-burning apparatus for an outdoor cooking stove which apparatus makes possible the rapid ignition of the charcoal for the development of a hot fire in a short space of time with a minimum amount of kindling materials and charcoal. Another object is to provide a charcoal burner which supplies heat adequate for cooking purposes with a minimum amount of fuel. A further object is to provide such a burner with supplemental means for inducing draft during the ignition and fire development period; also, means for controlling the draft during the cooking period.

A further object is the provision of an outdoor camp stove with a plurality of burners particularly suited for the burning of charcoal briquettes. One feature of the invention is the compactness with which the stove may be packed for transportation and storage. As will be seen from the following description of a specific embodiment, a stove having four burners may be broken down into two compact units for transportation and storage.

Other objects and advantages of the invention include: the cook stove may be made from relatively inexpensive sheet metal and the like using inexpensive and common fabrication procedures; the structure of the invention is so designed that there is practically no opportunity for accidentally starting an unintentional fire in the camping area, the fire being so confined that sparks and embers

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have no opportunity to reach nearby flammable materials; and when the parts are nested together for storage or transportation, those parts which are likely to be blackened with soot and the like are not exposed to soil nearby objects or materials.

Additional objects and advantages will become apparent from the following description taken in conjunction with the drawings in which:

FIG. 1 is a perspective view of a camp cook stove embodying the present invention;

FIG. 2 is an enlarged vertical section through one of the burners of the cook stove and a fragmentary adjacent portion of the supporting table;

FIG. 3 is a vertical section showing the burners nested together for transportation or storage; and

FIG. 4 is an exploded view illustrating the manner in which the burners are nested together for storage.

Although the following disclosure offered for public dissemination is detailed to ensure adequacy and aid understanding, this is not intended to prejudice that purpose of a patent which is to cover each new inventive concept therein no matter how others may later disguise it by variations in form or additions or further improvements. The claims at the end hereof are intended as the chief aid toward this purpose; as it is these that meet the requirement of pointing out the parts, improvements, or combinations in which the inventive concepts are found.

FIG. 1 illustrates the over-all cook stove comprising a table designated generally by the numeral 10, a small burner generally 20, a medium small burner generally 30, a medium large burner generally 40, and a large burner generally 50. Table 10 has a sheet metal top 11 with four openings therein, each of a size to receive one of burners 20, 30, 40 and 50. Except for size, all of the openings correspond to opening 12 which receives burner 20 (FIG. 2). The table top 11 is supported at a suitable height by means of four legs 16 detachably held in four corner sockets 17. Alternatively, legs 16 may be foldable in the manner of a conventional card table. The term demountable is used herein to refer to legs which can be detachably mounted in sockets as are legs 16 in sockets 17 or are foldably connected to the table top in the manner of a card table.

Burner 20 will be described with respect to FIG. 2. It comprises a cylindrical shell 21 which is mounted in opening 12 with its cylindrical axis vertically oriented. An external bead 21a serves to support the cooking unit by resting on the top 11 of the table. An internal bead 21b serves as a support for a fire pan 22. In addition, beads 21a and 21b add substantial rigidity to the sheet metal shell 21. The bottom of the shell is closed by a base 23 forming a part of the shell. A draft opening 21c is provided in a side of shell 21 immediately above base 23.

Fire pan 22 is in the form of an inverted truncated cone. The base of the cone terminates with an outwardly extending flange 22a while the top of the truncated cone terminates with an inwardly extending flange 22b. Across the top and secured to flange 22b is a fire grate 24. Flange 22a rests on internal bead 21b to support the fire pan in shell 21. Resting on flange 22a is a cooking grate 25. Resting on grate 25 is a truncated conical chimney 26 having a base flange 26a and an open top 26b.

Except for size of the various components, the remaining burners 30, 40 and 50 correspond in structure to that described for burner 20. Thus, burner 30 includes a shell 31 having a base 33, a fire pan 32, a fire grate 34, a cooking grate 35 and a chimney 36. Medium larger burner 40 comprises a shell 41 with a base 43, a fire pan 42, a fire grate 44, a cooking grate 45 and a chimney 46. Large burner 50 comprises a shell 51 with a base 53, a fire pan 52, a fire grate 54, a cooking grate 55 and a chimney

56. In addition, the large burner 50 has a lid or cover 57.

To start a fire, some starting material is laid over fire grate 24 and charcoal briquettes 60 are deposited on the starting material. A very satisfactory starting material is torn, waxed cardboard milk cartons, although paper and, if desired, a few splinters of wood may be used. Grate 25 and chimney 26 are put in place as illustrated in FIG. 2. One may reach in through opening 21c and light the starting material through grate 24. Thus, the ignition flame is applied at the bottom of the burner for flaming upwardly through the fuel. The construction of the burner is such that the charcoal starts quickly and readily with only a small amount of starting material. The bottom part of shell 21 forms a draft tube as does chimney 26, so that the chimney effective for inducing draft to accelerate development of the fire extends from the bottom of shell 21 to the top of temporary chimney 26. Air is drawn forcefully through opening 21c and grate 24 to fan the fire. When the charcoal 60 is well started, chimney 26 is removed and the burner then is ready to be used for cooking purposes. The removal of chimney 26 eliminates the forced starting draft so the charcoal may burn at a normal rate for cooking. Grilling may be performed directly on cooking grate 25 or suitably sized cooking pans may be supported on grate 25 to heat the contents of those pans.

In starting the fire, and if any wind is blowing, the forced draft may be further augmented by turning opening 21c toward the direction from which the prevailing wind is coming. When the fire has developed to an extent such that reduction of draft is desirable, the shells, e.g. 21, may be rotated in table top 11 so that openings, e.g. 21c, face away from the direction from which the prevailing wind is coming.

One feature of the invention that contributes toward the obtaining of maximum usefulness from a small amount of charcoal is the manner in which the charcoal is forced together by the shape of the fire pan. The truncated conical sides of fire pan 22 cause the charcoal to slide toward the center and thus keeps the fire pushed together. To achieve such effect, it is necessary that the area of the base of the truncated cone (as represented by the internal opening defined by flange 22a) be from 2.5 to 7.5 times as large as the area of the top of the truncated cone (where it meets flange 22b). Also, the height of the truncated cone should be from 25% to 100% of the diameter of the top thereof. This is not only important to the maintenance of the proper slope of the sides but also to obtain the proper spacing between a minimum fire and the cooking grate 25.

FIGS. 3 and 4 illustrate how compactly the burners can be packed for storage or transportation. First, the four shells 21, 31, 41 and 51 nest together. Within them is then received the four chimneys 26, 36, 46 and 56. On top of the chimneys are packed the four fire pans 22, 32, 42 and 52, all nested together. Immediately under lid 57 are the four cooking grates 25, 35, 45 and 55. Nested together in this way, the stove, with legs demounted, may easily be carried in, for example, the trunk of a car.

I claim:

1. A charcoal-burning stove comprising a horizontal supporting panel having a circular opening therein, a cylindrical shell having an open top and closed bottom extending through said opening, said shell being provided with a draft opening on one side only near the bottom thereof, an inverted truncated conical fire pan having a charcoal grate at the small end thereof arranged in said shell near the top thereof, and a cooking grate in said shell above said fire pan, said shell having means extending outwardly therefrom to rotatably support said shell in said supporting panel whereby said shell may be ro-

tated to orient said draft opening therein with respect to the wind at the location of said stove.

2. A charcoal-burning stove comprising a horizontal supporting panel having a circular opening therein, a cylindrical shell having an open top and closed bottom extending through said opening, said shell being provided with a draft opening near the bottom thereof, an inverted truncated conical fire pan having a charcoal grate at the small end thereof arranged in said shell near the top thereof, a cooking grate in said shell above said fire pan, and a chimney demountably arranged at the top of said shell to provide temporary increased draft during the starting of the charcoal fire.

3. A charcoal-burning stove comprising a horizontal supporting panel having a circular opening therein, an exposed vertical cylindrical shell having an open top and closed bottom extending through said opening, said shell being provided with a draft opening on one side only near the bottom thereof, an inverted truncated conical fire pan having a charcoal grate at the small end thereof arranged in said shell near the top thereof, a cooking grate in said shell above said fire pan, and a chimney demountably arranged at the top of said shell to provide temporary increased draft during the starting of the charcoal fire, said shell having means extending outwardly therefrom to rotatably support said shell in said supporting panel whereby said shell may be rotated to orient said draft opening therein with respect to the wind at the location of said stove.

4. A system comprising a plurality of charcoal-burning cooking units capable of being individually disassembled and collectively nested for storage in a single compact bundle, each cooking unit comprising an elongated shell open at its top end and closed at its bottom end but having a draft opening in the side thereof near the bottom end, an inverted truncated fire pan demountably supported within said shell near the top thereof, a fire grate extending across the bottom of said pan, and a cooking grate resting upon the top of said pan, said shells, fire pans, and grates of the plurality of cooking units respectively being of similar shape and differing in size sufficiently to permit nesting of the plurality of shells, nesting of the plurality of fire pans, and nesting of the nest of fire pans within the nest of shells to form the compact bundle.

5. A system in accordance with claim 4 wherein the shells are cylindrical and the fire pans are conical.

6. A system in accordance with claim 4 wherein each shell is provided with an external bead adapted to engage the periphery of a hole in a horizontal panel for supporting said shell therein and an internal bead above said external bead for supporting the fire pan within said shell.

7. A system in accordance with claim 4 wherein each cooking unit also includes a truncated temporary chimney supported upon the fire pan, the chimneys of the plurality of cooking units being of similar shape and differing in size sufficiently to permit nesting of the plurality of chimneys and nesting of the nest of chimneys between the nest of shells and the nest of fire pans in the compact bundle.

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