# United States Patent [19]

**Helgeson**

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[54] **PORTABLE CAMP STOVE**


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[73] Assignee: **Raytheon Company,** Lexington, Mass.



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[52] **U.S. Cl.** ..... **126/38**

[51] **Int. Cl.** ..... **F24c 3/14**

[58] **Field of Search** ..... 126/38, 44, 9 R, 25 R, 126/25 A, 275, 265, 266, 19 R



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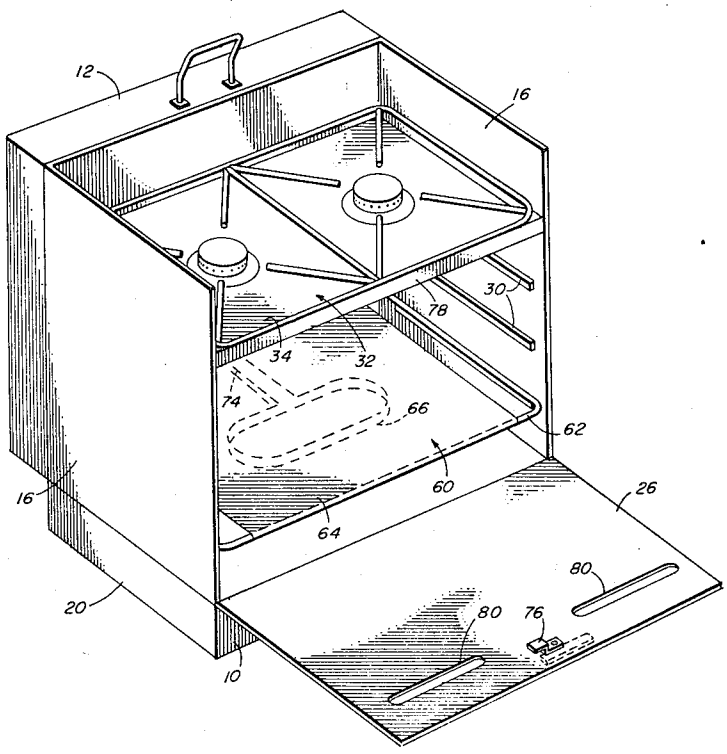
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*Assistant Examiner*—Harold Joyce
*Attorney, Agent, or Firm*—Harold A. Murphy; Joseph D. Pannone; John T. Meany



[57] **ABSTRACT**

A portable camp stove which comprises an arrangement of bottom, back, front and end sections hingedly connected together so as to be assembled in one position of use and to be folded into a compacted relationship for portability, together with gas burners for top cooking and additional gas heating elements for selective broiling and baking operation.


**11 Claims, 9 Drawing Figures**



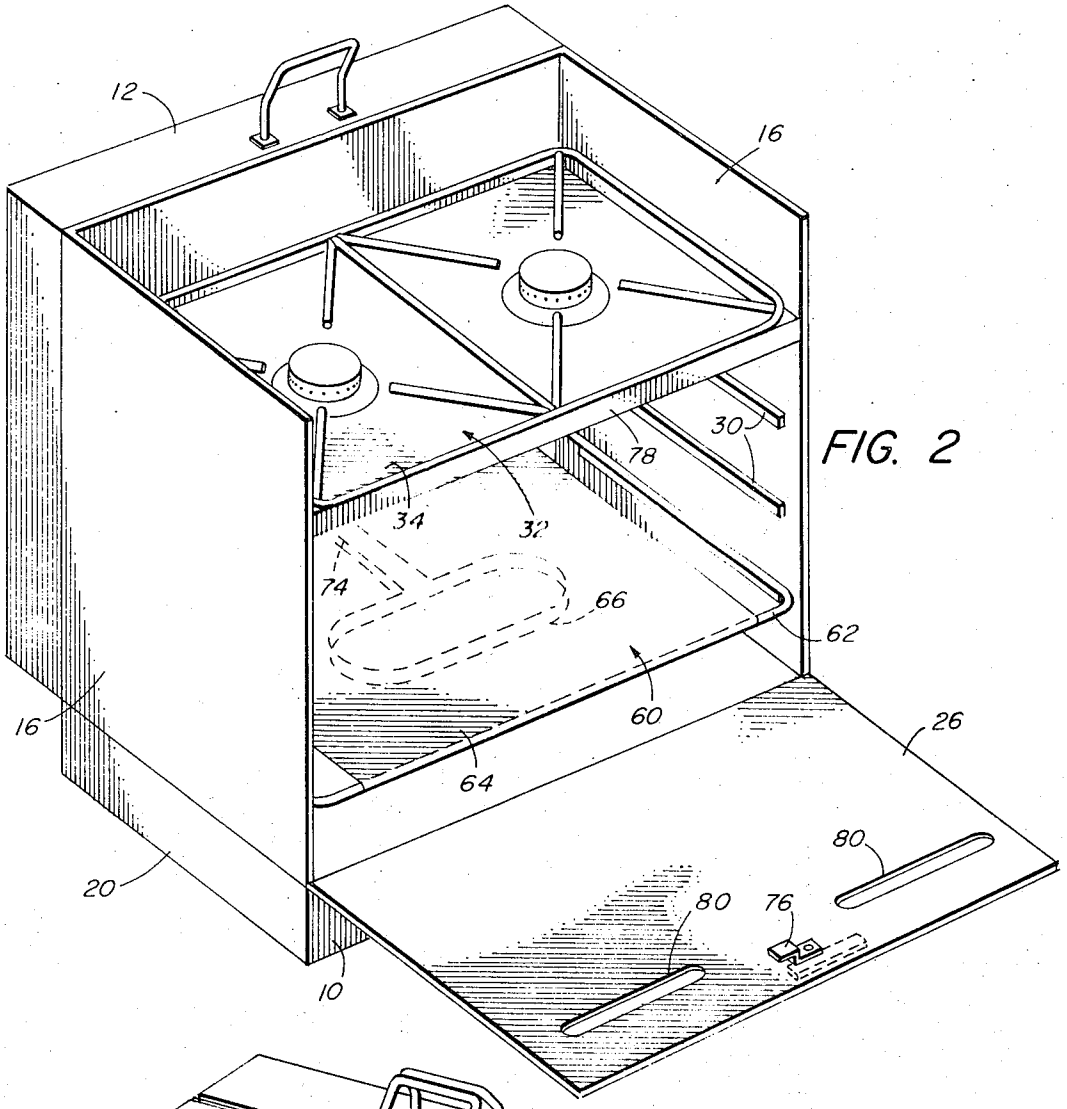



FIG. 2

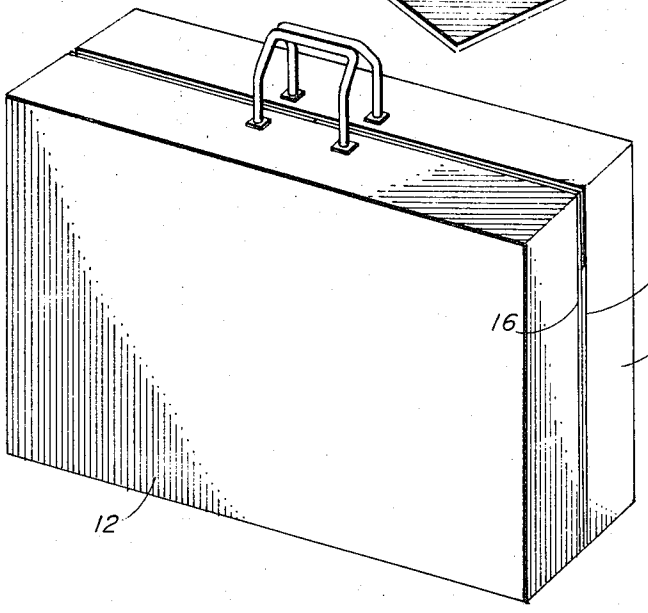



FIG. 1

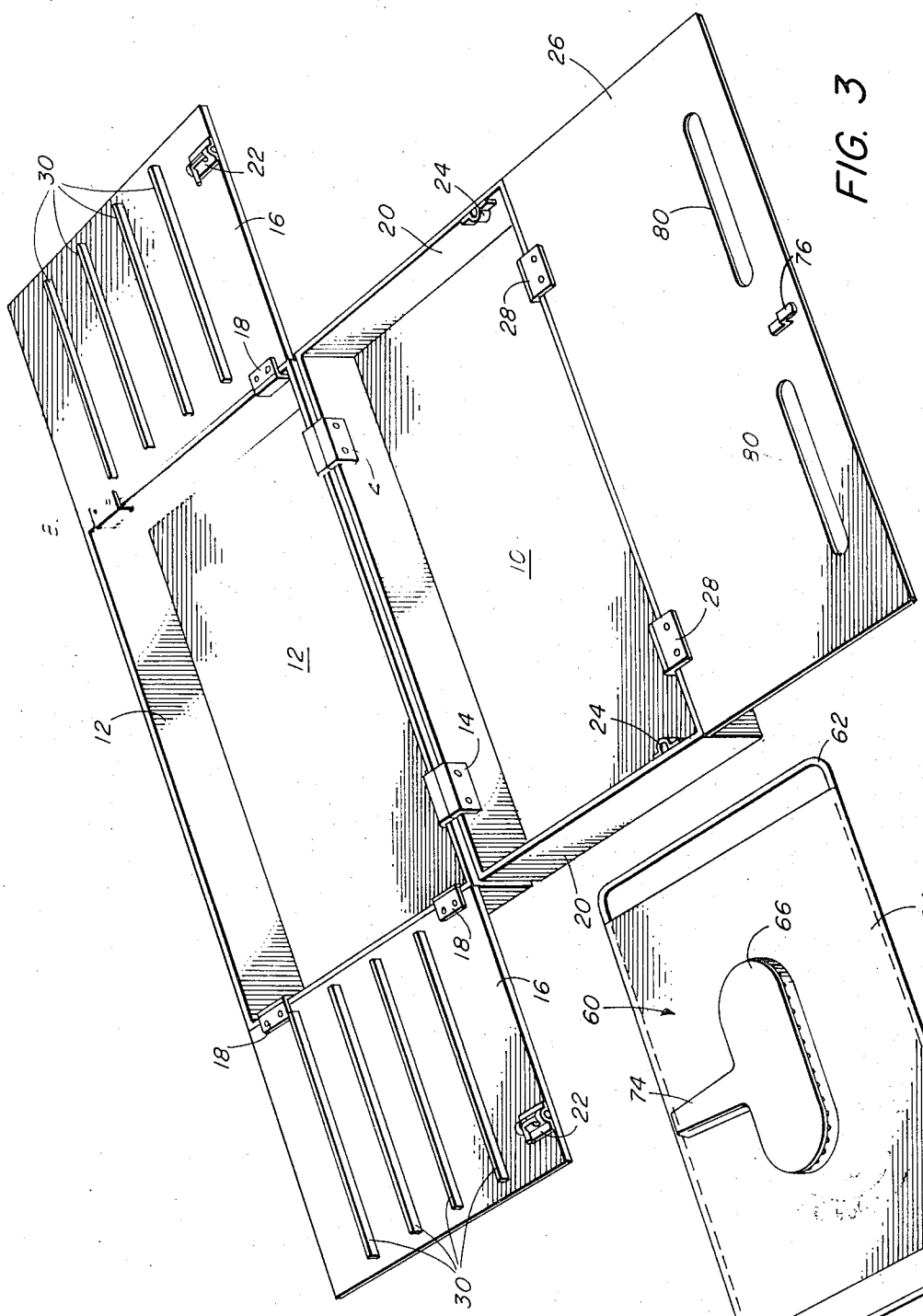

26
30
22
16
20
24
80
76
28
18
80
28
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12
12
14
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62
20
64
66
18
16
60
74
22
30

FIG. 3

FIG. 4

FIG. 7

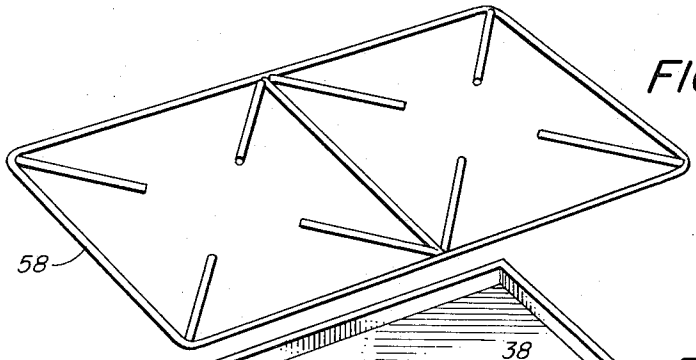



FIG. 5

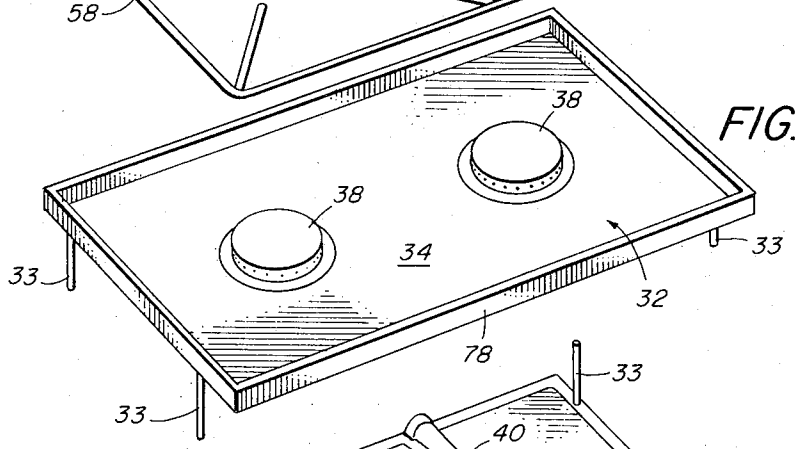



FIG. 6

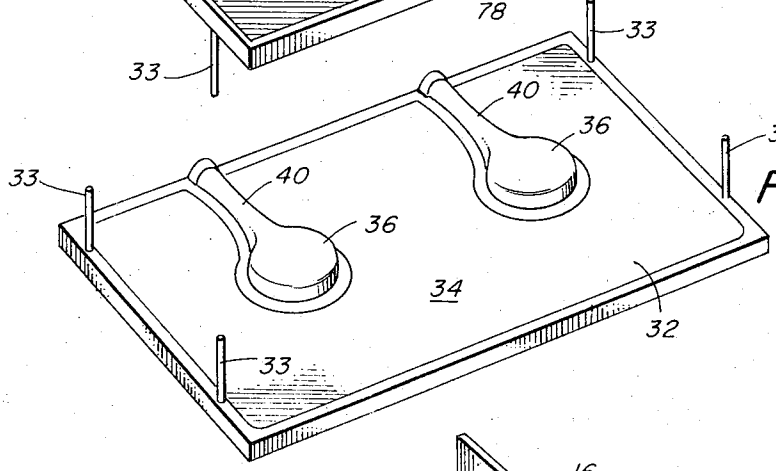



FIG. 8

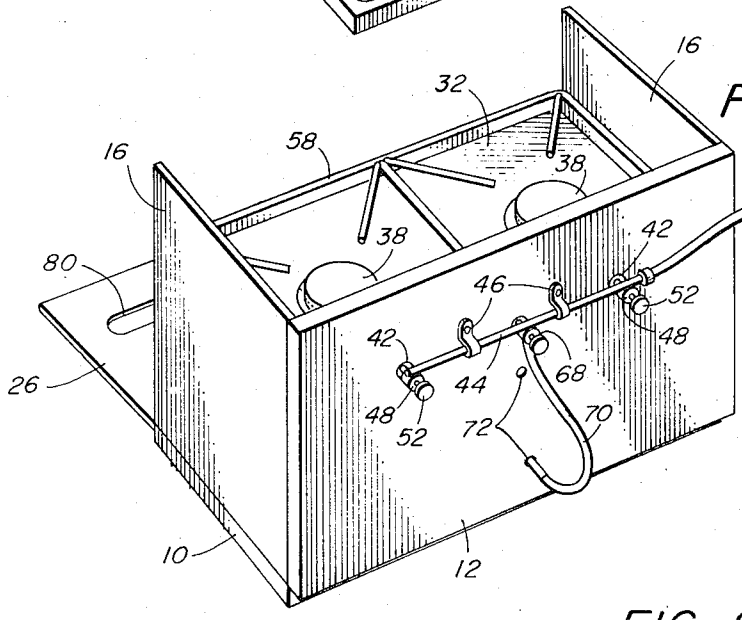
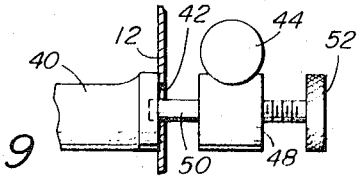



FIG. 9



# PORTABLE CAMP STOVE

## BACKGROUND OF THE INVENTION

Portable camp stoves usually comprise an arrangement of parts which may be separated for breakdown portability and may be assembled for use as a cooking device. Most of such stoves can only be used with burners in the manner known as "top cooking." Others have additional heating units which permit the stove to be used for either broiling or baking, seldom for both. In most cases the stove must be completely broken down into its separate component parts for packing, thus requiring a sometimes difficult and intricate operation in order to assemble the parts in cooperative relation for use.

## SUMMARY OF THE INVENTION

The present invention overcomes the above and other disadvantages of and objections to prior art portable camp stoves by the provision of an arrangement of component parts which are hingedly interconnected so as to be folded into a compact unit for easy portability and to be unfolded and arranged in a predetermined relationship whereby it may be used for selective top cooking, broiling or baking.

This is achieved by hingedly connecting together a sheet metal framework comprising a base, a back, a front and two opposed sides, there being further provided means for retaining the parts in fixed assembled relation for cooking purposes, and means for adjustably supporting a bake-broil unit in position for selected bake or broil operation. Further means is provided provided for interconnecting a gas supply selectively to top burners of the device and to the additional bake-broil heater unit when in either the bake or broil position.

Means is also provided for rearranging the hinged parts of the device in a folded manner resembling a suitcase capable of holding within it the removable parts of the stove thereby imparting easy portability to the entire assemblage of parts.

## BRIEF DESCRIPTION OF THE DRAWINGS

Other advantages and objectives of the invention will become apparent from the following description taken in connection with the accompanying drawings, wherein:

FIG. 1 is an isometric view of a stove embodying the invention, collapsed and folded for portability;

FIG. 2 is an isometric view of the stove of FIG. 1 opened and arranged for operation;

FIG. 3 is an isometric view of the stove of FIG. 1 completely unfolded prior to being arranged for operation;

FIG. 4 is an isometric view of the under side of the le the peaower heating unit;

FIG. 5 is an isometric view of the top burner unit;

FIG. 6 is an isometric view of the under side of the top burner unit;

FIG. 7 is an isometric view of the vessel support or grate;

FIG. 8 is an isometric view illustrating particularly the rear of the stove shown in FIG. 2 and the gas hookup; and

FIG. 9 is an enlarged elevational view of a valve unit.



## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring more particularly to the drawings wherein like characters of reference designate like parts throughout the several views, there is shown in FIG. 1 the stove of the invention as it appears when collapsed and folded for portability. The stove base **10** and back **12** are rectangular compartments which are hinged together along adjacent long edges as shown in FIG. 3 wherein the parts of the stove are unfolded and arranged to lie flat preparatory to being arranged for use as a stove or oven as depicted in FIG. 2.

The base **10** and back **12** are connected as described by hinges **14**, and a pair of side panels **16** are also hinged as at **18** to the opposite ends of the back **12**. Sides **16** are folded into position between the base **10** and back **12** when the device is arranged as shown in FIG. 1. However, in order to arrange the parts as shown in FIG **2**, the back **12** is raised perpendicular to the base **10**, and the sides **16** are swung forwardly perpendicular to the back **12** and parallel with the side walls **20** of the base **10**. A latch **22** is located on the lower end portion of each side panel **16** and is provided with a pinlike member adapted to engage within a receptacle **24** therefor on the inner side of the respective wall **20** so as to fasten the side panels **16** in the desired upright positions. The latches **22** may be of any type suitable for the purpose.

A door panel **26** is hinged as at **28** to the front of the base **10** and forms the fourth side of the oven compartment.

The inner surfaces of the side panels carry runners **30** on which racks and heating units to be described may be positioned. As seen best in FIG. **2**, for top cooking purposes a burner box **32** is positioned on the uppermost runner **30** so as to be positioned slightly below the upper ends of the side panels **16**. The under side of the burner box carries a number of locating pins **33** which are adapted to be positioned in openings in the top runner. This aids in the rigidization of the entire assembly. The burner box **32** comprises a sheet metal plate or bottom **34** into which integral burner housings **36** (FIG. **6**) are pressed or stamped, or onto which burner housings are fixed. On the upper surface of plate **34** burners **38** are located in overlying relation to the respective housings **36** and in communication therewith. However, the burner units, including housings **36**, may be made in any suitable form as desired.

Each burner housing **36** has a rearwardly extending venturi **40** which terminates at a respective opening **42** in the back **12** (FIG. **8**). Mounted on back **42** is a transversely extending pipe **44** held in place as by clamps **46**, which pipe **44** carries a pair of valves **48**. Valves **48** are located opposite respective openings **42** and each has a short pipe or jet **48** which extends freely into the adjacent end of the venturi **40** (FIG. **9**) so as to provide flow of gas into the venturi from pipe **44** under control of valve **48** by a knurled hand-operated screw **52**. A tank **54** of gas is attached as by hose **56** to one end of the pipe **44** as a source of fuel. Thus by opening one or both of the valves **48**, fuel may be made to flow to one or both of the burners **38**.

A wire-formed or other suitable type of grate **58** is located on the top of the burner box **32** as shown to provide means for supporting cooking utensils over the burners **38**.

For baking or broiling, there is provided a bake-broil burner unit **60** (FIGS. **2** and **4**) which is removably mounted on the runners **30.** Unit **60** comprises a wire-like frame **62** upon which is disposed a sheet metal plate **64** carrying a burner **66** on the under surface thereof. Burner **66** may be of any suitable form such as, for example, the structure shown and described in U.S. Pat. Application Ser. No. 229,424 filed Feb. 25, 1972 and assigned to the present assignee.

The unit **60** will be located on an upper runner, with the burner **66** facing downwardly, when the oven is to be used for broiling purposes. However, when baking is to be done the burner unit **60** will be located on the bottom runner **30** with the burner **66** facing downwardly as shown in FIG. **2,** and heated air will then flow upwardly by convertion between the ends of plate **64** and the ends of the frame **62.**

To provide fuel for the burner **66,** a third valve **68** is mounted on pipe **44** and has connected to it one end of a flexible hose **70,** the opposite end of which is adapted to be inserted within a selected one of a pair of openings **72,** depending upon whether the unit is located in the upper broiling position or the lower baking position, the hose **70** thus carrying gaseous guel which may be made to flow into the venturi **74** of the burner **66.**

The door panel **26** is provided with a suitable latch **76** for engagement with a downwardly extending portion of a flange **78** on the burner box **32.** Door **26** is also provided with suitable vents **80** for exit of combustion products.

From the foregoing it will be apparent that a novel portable camp stove has been achieved in accordance with the objectives of this invention. However, it is to be understood that various modifications and changes may be made in the structures shown and described without departing from the spirit of the invention as expressed in the accompanying claims. Therefore, all matter shown and described is to be interpreted as illustrative and not in a limiting sense.

I claim:

**1.** A collapsible stove comprising a base, a back hinged to one end of the base, a pair of side panels hinged to respective ends of said back, means for detachably securing said side panels to respective sides of said base to define therewith an oven compartment, a top burner unit removably carried within the upper portion of said oven compartment, a bake-broil unit removably positioned in a selected upper or lower area of the oven compartment, and means for connecting a supply of gaseous fuel to said units irrespective of their adjusted positions in the oven compartment.

**2.** A collapsible stove comprising a base section and a back section hinged together for movement into adjacent spaced parallel positions or alternatively into positions perpendicular to one another, a pair of side sections hinged to respective ends of one of said base and back sections for movement alternatively into positions parallel with or perpendicular to said section to which they are hinged, means for detachably securing said side sections when in said perpendicular positions to the other of said sections for defining therewith an oven compartment, top burner means located in the upper portion of the oven compartment, second burner means removably positioned within said oven compartment below the top burner means at selected different bake-broil operating locations therein, and connecting means for connecting a supply of gaseous fuel to both of said burner means irrespective of the positions thereof in the oven compartment.

**3.** A collapsible stove as set forth in claim **2** wherein said side sections carry opposed pairs of supports on the inner surfaces, and said top burner means is positioned on one of said pairs of supports.

**4.** A collapsible stove as set forth in claim **2** wherein said top burner means includes at least one burner housing and a venturi extending from said housing toward one of said sections, said one section is provided with an aperture adjacent said venturi, and said connecting means comprises a conduit functionally interconnected to said venturi adjacent said aperture.

**5.** A collapsible stove as set forth in claim **4** wherein said one section is said back section.

**6.** A collapsible stove as set forth in claim **2** wherein said second burner means includes a burner unit removably positioned within the oven compartment at a selected level below the top burner means.

**7.** A collapsible stove as set forth in claim **6** wherein said side panels carry opposed pairs of supports on the inner surfaces, and said second burner means is positioned selectively on one of said pairs of supports.

**8.** A collapsible stove as set forth in claim **6** wherein said second burner means includes a burner housing and a venturi extending from said burner housing toward one of said sections, said one section is provided with a plurality of apertures disposed for adjacent alignment with said venturi at the different selected locations of the second burner means in the oven compartment, and said connecting means comprises a conduit functionally interconnected to said venturi adjacent the adjacent aperture.

**9.** A collapsible stove as set forth in claim **8** wherein said one section is said back section.

**10.** A collapsible stove as set forth in claim **6** wherein said back section is provided with apertures adjacent each of said burner means, a tube carrying a valve positioned adjacent the apertures which are associated with said top burner means, and conduit means connecting said valves and tubing to a source of fuel.

**11.** A collapsible stove as set forth in claim **10** comprising an additional valve carried by said tubing, and a flexible hose having one end attached to said additional valve, with its other end being adapted to be functionally interconnected with said second burner means.

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