Jan. 4, 1966 M. L. CLARK 3,227,149

COMBINED COOKING AND HEATING FIREPLACE

Filed July 18, 1963 2 Sheets-Sheet 1

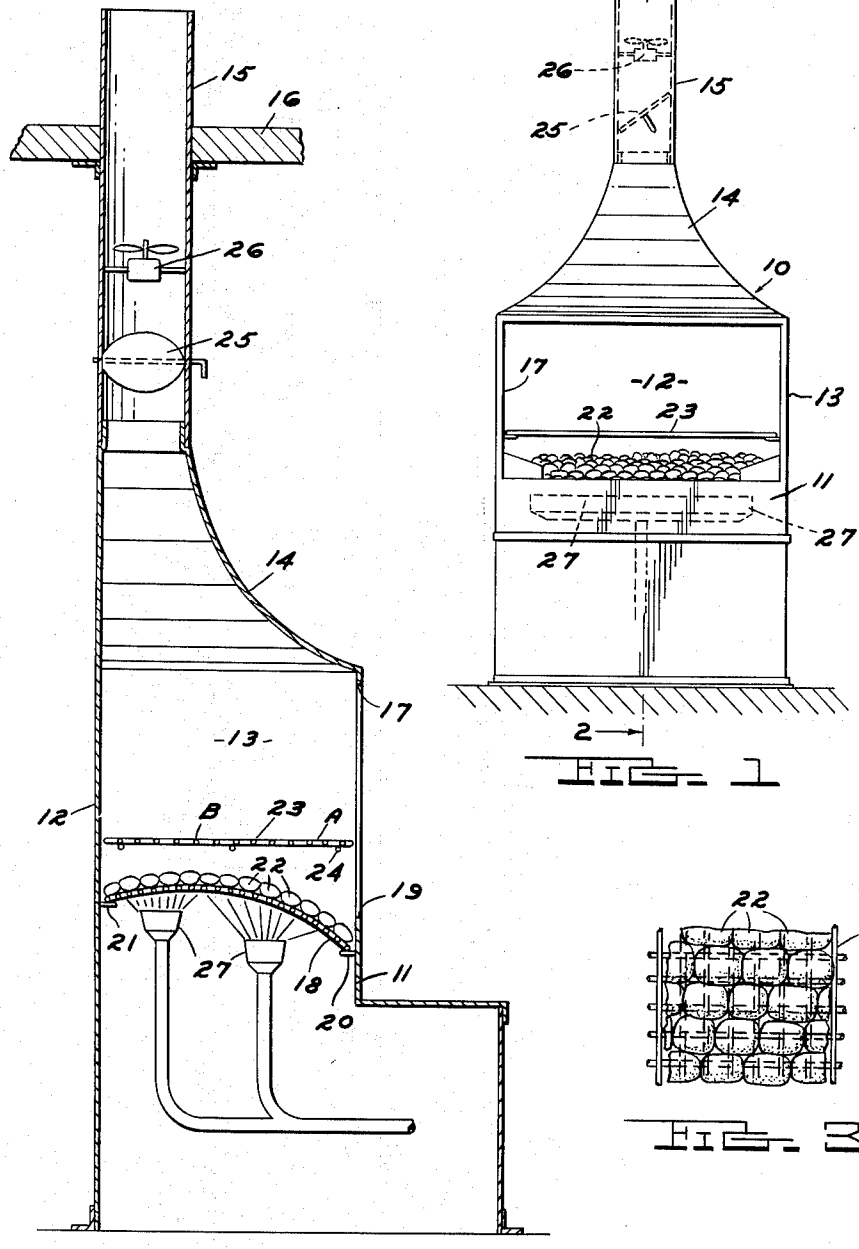

FIG. 2

FIG. 1

FIG. 3

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FIG. 5

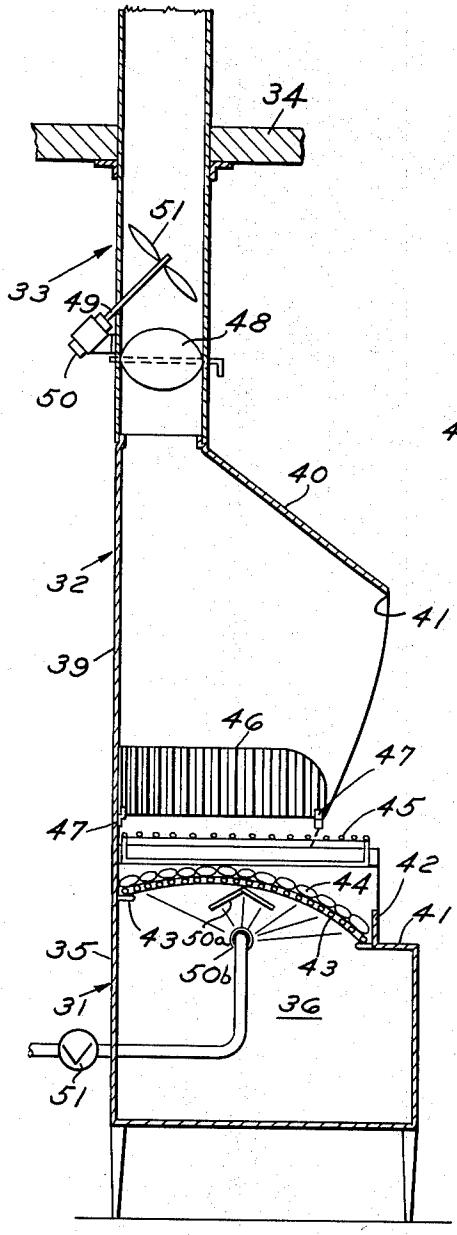


FIG. 4

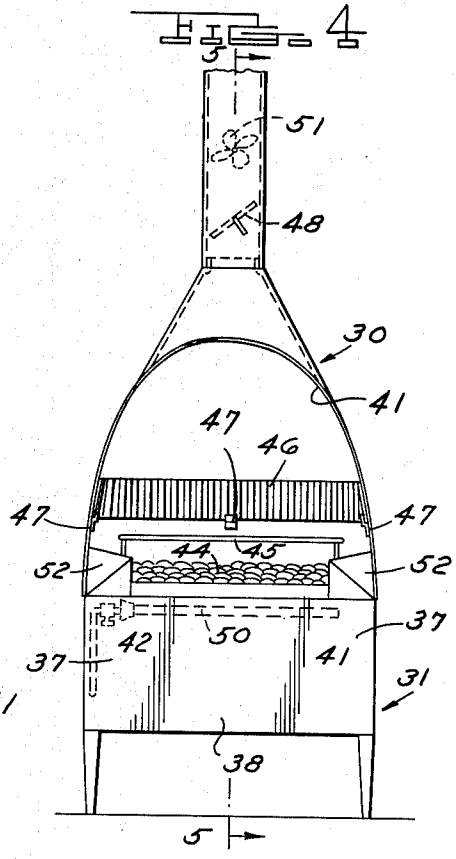
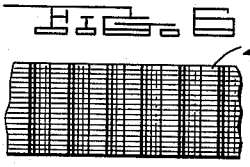


FIG. 6



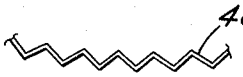


FIG. 7

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United States Patent Office 3,227,149
Patented Jan. 4, 1966

3,227,149

COMBINED COOKING AND HEATING FIREPLACE

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Filed July 18, 1963, Ser. No. 296,128
10 Claims. (Cl. 126—4)

This application is a continuation-in-part of my copending application Serial No. 67,033, filed November 3, 1960, now abandoned.

This invention relates to fireplaces and particularly to fireplaces of the type which are not an integral part of a building.

The use of fireplaces in connection with closed or open areas has been popular because of the aesthetic appearance and the utility of heating and cooking. However, a conventional fireplace which is built as a part of a building has the distinct disadvantage of being high in initial cost. Therefore, in view of the recent popularity of cooking over open fire, it is more common to find the use of portable barbecue grills either inside a home, in a patio area or in a backyard. Both conventional fireplaces and portable barbecue grills have the distinct disadvantages of requiring substantial maintenance, periodic cleaning out of ashes, continued surveillance and replenishing of the fuel. Moreover, the portable barbecue grills obviously have no real heating value but are only useful for broiling foods.

It is an object of this invention to provide a fireplace which is gas fired and which effectively simulates a coal fire.

It is a further object of the invention to provide such a fireplace which is low in cost.

It is a further object of the invention to provide such a fireplace which can be used for heating an area or for broiling foods.

It is a further object of the invention to provide such a fireplace which includes a grill wherein various portions of food, such as steaks, can be simultaneously broiled to varying degrees.

It is a further object of the invention to provide such a fireplace which is particularly suitable for use in a patio or porch area.

It is a further object of the invention to provide such a fireplace which distributes infrared and radiant heat to the area in which the fireplace is positioned.

It is a further object of the invention to provide such a fireplace which can be readily converted from space heating to broiling condition.

In the drawing:

FIG. 1 is a front elevation of the fireplace embodying the invention.

FIG. 2 is a sectional view taken along the line 2—2 in FIG. 1.

FIG. 3 is a fragmentary plan view of a portion of the fireplace shown in FIGS. 1 and 2.

FIG. 4 is a front elevation of a modified form of fireplace.

FIG. 5 is a sectional view taken along the line 5—5 in FIG. 4.

FIG. 6 is a fragmentary elevation of the radiant strip utilized in the fireplace shown in FIGS. 4 and 5.

FIG. 7 is a fragmentary plan view of the radiant strip shown in FIG. 6.

Referring to the drawings, the fireplace comprises a housing **10** which can be made of sheet metal or similar material and includes a front wall **11**, rear wall **12**, and end walls **13**. Housing **10** also includes a converging section **14** that extends upwardly to a stack **15** which, in turn, extends through an opening in the roof **16** of the area in which the fireplace is located. It will be appreciated that the fireplace can be placed in the interior of an

area, such as a house, or in a covered area, such as a patio. Where only grilling is desired, the fireplace can, of course, be placed outdoors.

The front wall **11** of the housing **10** includes a substantially vertical opening **17**. A perforated support **18**, such as a meshed wire construction, is provided within the housing adjacent the lower edge **19** of the opening **17**. Support **18** is curved so that its upper surface is convex and is supported on ledges **20**, **21** in such manner that it extends upwardly and rearwardly from the lower edge of opening **17**. A plurality of briquettes **22** made of a noncombustible material, such as ceramic, are positioned on the support **18** in closely adjacent relationship to one another in a single layer as shown, for example, in FIG. 3. A satisfactory briquette material comprises fire clay containing a material that burns out when the fire clay is fired at a temperature that is elevated so that the resultant product is porous. Such briquettes are made by conventional fire-brick processes, namely, by molding the material in suitably shaped molds and thereafter firing the molded material in a kiln at elevated temperatures such as about 2300° F. A grill **23**, which is substantially flat, is supported in overlying relationship to the support **18** by pins **24** on the end walls **13**. A damper **25** is provided in the stack. In addition, a suction fan **26** is provided in the stack.

Burners **27** are positioned beneath the support **18** and gas, either natural or artificial, is supplied to the burners from a suitable source, not shown. When the burners **27** are ignited, the burning gases extend upwardly through the support **18** and between the ceramic briquettes **22** which produces a flame that simulates the burning of coal and particularly charcoal. Since the support **18** curves upwardly and rearwardly, the fire, when viewed through the opening **17**, gives the effect of a burning fire of coals. I have found that when the burner is set so that high flames pass between the briquettes, the effect of burning coal is achieved. When the burner is set so that the flames are shorter, the effect of a charcoal fire is achieved.

When the fireplace is used for heating the interior of an area, the burner can be set for higher flames and the damper **25** can be closed, the damper being designed to cause the heat to be radiated from the fireplace but allowing the products of combustion to go up the stack to the outside. When the fireplace is to be used only for grilling, the burner can be set for low flames, the damper **25** can be opened and the suction fan **26** energized to cause the combustion gases, heat and fumes from broiling to pass more readily upwardly and outwardly through the stack **15**.

In broiling, the use of the flat grill **23** in connection with the curved support **18** permits the simultaneous broiling of portions of food, such as steaks, to varying degrees at the same time. Specifically, if a steak is positioned at the point A, it will be cooked a lesser amount than if it is positioned at the point B in the same amount of time. This addiitonal advantage of the arrangement obviates the necessity of having one person in a party wait for his food to be prepared to the desired degree of cooking while another person's food is already cooked.

It can thus be seen that I have provided a fireplace which is relatively simple in construction and can be manufactured at low cost. The fireplace simulates a coal fire without the disadvantage of maintenance, cleaning of ashes, continued surveillance and replenishing of the fuel that is necessary in a coal or charcoal fire. The support **18** with the briquettes and the gas burner can be provided for installation in an existing fireplace in order to provide a means of creating quickly and easily a fire that realistically simulates a coal fire.

In the form of the invention shown in FIGS. 4–7, the fireplace comprises a housing **30** of sheet metal or similar

material and includes a lower section **31**, an upper section **32**, a stack **33**, the latter extending upwardly through an opening in the roof **34** of the area in which the fireplace is located. As in the previous form of the invention, the fireplace can be placed in the interior of an area, such as a house, or in a covered area, such as a patio, or outdoors.

The lower section **31** of the housing **30** includes a flat vertical back wall **35**, flat vertical side walls at right angles to the wall **35**, and a front wall comprising front side portions **37** inclined forwardly and inwardly and connected to a central vertical portion parallel to the back portion **35**.

Upper section **32** includes a back wall **39** from an extension of back wall **35** and a curved, partly conical front wall **40** which has the front end thereof cut away as at **40** to define an opening for the fireplace.

As shown in FIG. 4, a horizontal ledge **40** extends inwardly from the upper end of the front wall, and a short upstanding plate **42** extends upwardly from the ledge **41**. A perforated support **43**, substantially similar to previously described support **18**, curves upwardly and rearwardly from below the upper edge of the plate **42** and downwardly and rearwardly on to a bar **43**.

A gas burner **50***b*, having substantially the same length as the width of the support **43**, is positioned beneath the support **43** generally centrally between the front and rear edge thereof and vertically above the ledge **41**. A valve **51** permits control of the flames of the burner **50***b*.

A plurality of briquettes **44**, like briquettes **22**, are positioned on the support **43** and closely adjacent relationship to one another in a single layer. A flat wire grill **45** is removably supported in space overlying relation to the support **43**. An inverted V-shaped deflector strip **50***a* is preferably mounted in overlying relation to the strip burner to prevent meat drippings from dropping directly onto the burner.

A radiant reflective strip **46**, having a polished surface, such as an aluminum strip, is removably mounted in a horizontal arc along the back and side walls of the upper section by engagement with clips **47**. As shown in FIGS. 6 and 7, strip **46** is preferably vertically corrugated and provided with scored lines producing a plurality of reflecting surfaces.

Stack **33** is provided with a movable damper **48** and a suction fan **49** having its motor **50** mounted extremely on the stack and its propeller, or fan **51**, mounted internally in the stack. Deflector passes **52** are provided on the ledge **41** at the sides of the lower section **31**.

With the radiant strip **46** in position, the flames passing upwardly through the briquettes **44** provide infrared rays that are reflected by the radiant strip **46** to the interior of the room or area in which the fireplace is positioned to heat the area. The position of the radiant strip **46** in a curved manner tends to cause the infrared heat to be reflected uniformly outwardly into the area.

Thus, the fireplace provides space heating by the normal radiant heat that is carried away from the fireplace due to convection currents of air but, in addition, directs infrared rays outwardly to heat persons or objects in the path of the infrared rays. The fireplace thus can be used outdoors to provide infrared heating.

Obviously, the grill **45** is preferably removed during heating of the area to not only provide heating of the area but produce the unobstructed illusion of a natural coal or charcoal fire. When it is desired to provide flames only for broiling, the radiant strip **46** is removed.

In both forms of the invention shown and described, the fireplace simulates a coal fire without the disadvantages normally inherent in such a fire. Even upon close surveillance, it is practically impossible to distinguish the flame of the fireplace from a coal fire.

I claim:

1. In a fireplace, the combination comprising
a housing having a forwardly facing opening,
a perforated support within the housing,
said support extending substantially horizontally,
a plurality of briquettes of noncombustible material loosely positioned in a layer on said support,
said support being so positioned that the majority of said briquettes are above the lower edge of said opening,
a grill mounted within said housing in spaced relation to and overlying said support,
gas-fired burner means spaced beneath said support within said housing,
a stack overlying said grill for withdrawing combustion gases from said housing,
damper means in said stack and suction means in said stack,
said damper means and said suction means being adapted to be selectively operated for utilizing said fireplace for heating and for broiling foods.

2. In a fireplace, the combination comprising
a housing having a wall with a substantially vertical opening therein,
a perforated support within the housing,
said support having an upper convex surface which extends upwardly and rearwardly from adjacent the lower edge of the opening in said housing,
said support extending substantially horizontally,
a plurality of briquettes of noncombustible material loosely positioned on said support,
said support being so positioned that the majority of said briquettes are above the lower edge of said opening,
a flat grill mounted within said housing in spaced relation to and overlying said support,
gas-fired burner means spaced beneath said support within said housing,
a stack overlying said grill for withdrawing combustion gases from said housing,
damper means in said stack and suction means in said stack,
said damper means and said suction means being adapted to be selectively operated for utilizing said fireplace for heating and broiling of foods.

3. In a fireplace, the combination comprising
a housing having a wall with a substantially vertical opening therein,
a perforated support within the housing,
said support having an upper convex surface which extends upwardly and rearwardly from adjacent the lower edge of the opening in said housing,
said support extending substantially horizontally,
a plurality of briquettes of noncombustible material loosely positioned on said support,
said support being so positioned that the majority of said briquettes are above the lower edge of said opening,
a flat grill mounted within said housing in spaced relation to and overlying said support,
gas-fired burner means spaced beneath said support within said housing,
said housing having a stack overlying said grill for withdrawing combustion gases from said housing,
damper means in said stack and suction means in said stack,
said damper means and said suction means being adapted to be selectively operated for utilizing said fireplace for heating and broiling of foods.

4. In a fireplace, the combination comprising
a sheet metal housing having substantially vertical front, rear and end walls,
said front wall with a substantially vertically extending opening therein,
said housing having a stack on the upper end thereof including a converging front section extending up-

wardly and rearwardly from the upper edge of the front wall,
a wire mesh support mounted within said housing,
said support being curved to provide an upper convex surface which extends upwardly and rearwardly from adjacent the lower edge of the opening in the front wall,
said support extending substantially horizontally,
a plurality of briquettes of noncombustible material loosely disposed in a generally single layer on said support such that the majority of said briquettes are above the lower edge of said opening,
a flat grill removably mounted within said housing in spaced relation to and substantially overlying said support,
and horizontally spaced gas-fired burners positioned beneath and in spaced relation to said support within said housing,
said stack being provided with damper means and suction means each of which can be selectively operated.

5. In a fireplace, the combination comprising
a sheet metal housing having a front wall with a substantially vertically extending opening therein,
said housing having a stack on the upper end thereof,
a perforated support mounted within said housing,
said support being curved to provide a front half portion which extends upwardly and rearwardly from below the lower edge of the opening in the front wall and a rear half portion which extends generally horizontally from the front half portion to the rear of the housing,
a plurality of briquettes of noncombustible material loosely disposed in a generally single layer on said support such that the majority of said briquettes are above the lower edge of said opening,
a substantially horizontally extending flat grill removably mounted within said housing in spaced relation to and overlying said support,
and gas-fired burners positioned beneath and in spaced relation to said support within said housing,
said stack being provided with damper means and suction means of which can be selectively operated.

6. In a fireplace, the combination comprising
a housing having a forwardly facing opening,
a perforated support within the housing,
said support extending substantially horizontally,
a plurality of briquettes of noncombustible material loosely positioned in a layer on said support,
said support being so positioned that the majority of said briquettes are above the lower edge of said opening,
a grill mounted within said housing in spaced relation to and overlying said support,
gas-fired burner means spaced beneath said support within said housing,
a stack overlying said grill for withdrawing combustion gases from said housing,
damper means in said stack and suction means in said stack,
said damper means and said suction means being adapted to be selectively operated for utilizing said fireplace for heating and for broiling foods,
and a reflective strip positioned within said housing in overlying relationship to said grill for reflecting heat outwardly of said housing.

7. In a fireplace, the combination comprising
a perforated support disposed within said fireplace,
said support having an upper convex surface which extends upwardly and rearwardly from the lower front area of said fireplace,
said support extending substantially horizontally,
a plurality of briquettes of noncombustible material loosely disposed in a shallow layer on said upper convex surface of said support so as to substantially cover the same,

and adjustable gas-fired burner means spaced beneath said surface of said support for selectively supplying sufficient quantities of flame which in passing through said briquettes simulate charcoal or coal fires,
and a reflective strip positioned within said housing in vertically spaced relationship to said grill for reflecting heat outwardly of said housing.

8. In a fireplace, the combination comprising
a sheet metal housing having a front wall with a substantially vertically extending opening therein,
said housing having a stack on the upper end thereof,
a perforated support mounted within said housing,
said support being curved to provide a front half portion which extends upwardly and rearwardly from below the lower edge of the opening in the front wall and a rear half portion which extends generally horizontally from the front half portion of the rear of the housing,
a plurality of briquettes of noncombustible material loosely disposed in a generally single layer on said support such that the majority of said briquettes are above the lower edge of said opening,
a substantially horizontally extending flat grill removably mounted within said housing in spaced relation to and overlying said support,
and gas-fired burners positioned beneath and in spaced relation to said support within said housing,
said stack being provided with damper means and suction means of which can be selectively operated,
and a reflective strip positioned within the said housing in vertically spaced relationship to said grill for reflecting heat outwardly of said housing.

9. The combination set forth in claim **8** wherein said strip comprises an arcuate vertically corrugated length of material having a highly reflective surface.

10. In a fireplace, the combination comprising
a perforated support disposed within said fireplace,
said support having an upper convex surface which extends upwardly and rearwardly from the lower front area of said fireplace,
said support extending substantially horizontally,
a plurality of briquettes of noncombustible material loosely disposed in a shallow layer on said upper convex surface of said support so as to substantially cover the same,
and adjustable gas-fired burner means spaced beneath said surface of said support for selectively supplying sufficient quantities of flame which in passing through said briquettes simulate charcoal or coal fires,
and a reflective strip positioned within said housing in vertically spaced relationship to said grill for reflecting heat outwardly of said housing,
said strip comprising an inwardly curved length of material having a highly reflective surface.

References Cited by the Examiner

UNITED STATES PATENTS

12,491	3/1855	Smith et al.	126—120
436,656	9/1890	Gibbons	126—92
438,749	10/1890	Elwood	126—92
701,100	5/1902	Stewart	126—92
1,085,265	1/1914	Jones	126—92 X
1,216,848	2/1917	Schmidt	126—92
1,736,241	11/1929	Aird	126—92
2,535,707	12/1950	Vezey	126—299 X
2,629,315	2/1953	Schaar.	
2,633,071	3/1953	Erickson.	
2,790,434	4/1957	Del Francia	126—92 X
2,821,975	2/1958	Thulman	126—120
2,915,960	12/1959	McClellan	126—25 X
2,933,080	4/1960	Adey	126—25
3,090,373	5/1963	Yagley et al.	126—41

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