REPOSITIONABLE FIREPLACE ASSEMBLY

ABSTRACT

The present invention is a freestanding and relocatable fireplace assembly having a unitary body including:

- a base,
- a firebox, and
- a flue,

wherein the fireplace can be assembled from a kit of parts, and once constructed, the fireplace is able to free stand upon its base on any suitable substantially level outdoor surface. A void is created between the bottom of the firebox and the base, which helps to insulate the region of the surface that the fireplace is placed upon, from the heat generated by a fire in the firebox. The bottom of the firebox includes a sloping floor that slopes towards the front of the fireplace, and at least the sidewalls of the firebox slope inwardly. When the fireplace needs to be relocated, it may be moved either as a whole, or in pieces, or is fully disassembled for easier storage and transportation. The fireplace assembly includes attachment means for a variety of accessories that can be used for cooking, heating or drying purposes. The fireplace assembly has at least some of its parts fabricated form a suitable sheet metal, and non-metallic parts may be fabricated from a suitable fire resistant fabric.
REPOSITIONABLE FIREPLACE ASSEMBLY

FIELD OF THE INVENTION

[0001] This invention relates to fireplaces, and in particular to portable and semi-portable fireplace assemblies that have a unitary construction when assembled and are able to deconstructed and/or be moved and located on any suitable level surface, such as a patio or outdoors.

BACKGROUND OF THE INVENTION

[0002] Heating outdoor entertainment areas in homes, such as patios and verandas and backyard entertainment areas is required in many locations for comfort. Camping and other outdoor recreational activities such as fishing may also benefit from localised heating to at least add warmth in the vicinity of the fishermen.

[0003] In camping and other outdoor areas, it is typical to construct a simple open fireplace. This is not feasible and/or desirable in many cases on verandas or patios and outdoor dining and entertainment areas. It may also be unlawful for there to be an open fire. Also it is also often desirable to have the characteristics of a conventional built-in fireplace that might be found in homes or offices all over the world, particularly in the days before modern air-conditioning.

[0004] A more conventional built-in fireplace has a number of benefits, firstly it offers the ability to better control the fuel burn by providing controls such as baffles and other means to control the oxygen supply to the fire and to therefor control the rate of combustion of the fuel. Also there is the ability to control the flow of smoke generated by the fire, away from the vicinity of the fire, and finally the fire is more contained within the fireplace when compared to an open fire.

[0005] A conventional fireplace also can often be accessorized with a variety of attachments that may be used for activities like warming or cooking food, or drying clothes and other items.

[0006] The problem with conventional fireplaces is that they are built into the structure of the home, and are therefore not re-locatable, or portable, enabling them to be taken away on camping or fishing trips, or to be used for outdoor entertainment purposes.

[0007] It is a goal of the present invention to ameliorate at least some of the aforementioned problems.

DISCLOSURE OF THE INVENTION

[0008] Accordingly, the present invention is a freestanding and relocatable fireplace assembly having a unitary body including:

[0009] a base, and
[0010] a firebox, and
[0011] a flue,

wherein the fireplace can be assembled from a kit of parts, and once constructed, the fireplace is able to stand upon any base on any suitable substantially level outdoor surface. A void is created between the bottom of the firebox and the base, which helps to insulate the region of the surface that the fireplace is placed upon, from the heat generated by a fire in the firebox. The bottom of the firebox includes a sloping floor that slopes towards the front of the fireplace, and at least the side walls of the firebox slope inwards. When the fireplace needs to be relocated, it may be moved either as a whole, or in pieces, or is fully disassembled for easier storage and transportation.

[0012] Preferably at least the rear of the firebox is double skinned so that an interstitial void is formed between the skins to thereby provide insulation. Preferably the interstitial void is filled with a suitable material to give at least the rear of the firebox greater heat energy reflectivity of the heat energy produced in the firebox forwardly.

[0013] Preferably the heat energy reflective material used to fill the interstitial void is vermiculite.

[0014] Alternatively the interstitial void is filled with a suitable material to give at least the rear of the firebox greater heat energy absorption and storage within the material, so that the heat energy so stored continues to radiate out of the fireplace for a desired period of time after the fire in the firebox has diminished or died out completely, or been extinguished.

[0015] Preferably the heat absorptive material used to fill the interstitial void is sand.

[0016] Optionally the material used to fill the interstitial void is able to be inserted into the interstitial void after the fireplace has been assembled and placed in a desired location.

[0017] Preferably a flue is included that extends upward from the top of the firebox to a sufficient height to ensure the smoke is directed away from people located in the vicinity of the fireplace.

[0018] Preferably a throat is located at the top of the firebox where the firebox interconnects with the flue.

[0019] Preferably a smoke chamber is formed in the vicinity immediately above the throat in the lowermost portion of the flue.

[0020] Optionally the rear wall of the firebox is hinged at its base so that the angle of the inward slope can be adjusted by a user, and the angular adjustment enables the user to increase or decrease the size of the opening of the throat, and also enables the user to adjust the amount of heat energy either reflected out of the front of the fireplace, or absorbed, by the material used to fill the void in the rear of the firebox.

[0021] Alternatively a throat damper is included that is adjustable by a user, and permits the user to increase or decrease the amount of opening of the throat.

[0022] Preferably the firebox includes means that may be used when a suitable elongate shaped fuel is used, such as firewood, to orientate the fuel into a substantially vertical orientation both before and during combustion so that the burning efficiency of the fuel is optimised.

[0023] Preferably the means include a rack that allows for at least one piece of suitably shaped fuel to be inserted in the spaces between ribs of the rack.

[0024] Optionally the rack is hinged at its base to the bottom of the firebox, and the user is by able to deploy the rack, or to swing it out of the way about the hinge when it is not required.

[0025] Optionally the fireplace assembly includes attachment means that enable a user to optionally attach a selection of accessories to a suitable location on the fireplace assembly. The user is able to select the optional accessory depending on their requirements. Suitable accessories may be food or beverage warming or cooking accessories, and or drying facilities for wet clothes and other equipment such as boots or boiling gear for example.

[0026] In another preferred embodiment the present invention is a freestanding fireplace assembly having a unitary body of sheet metal including:

[0027] a base, and
[0028] a firebox, and
[0029] a flue,

wherein the fireplace can be assembled from a kit of parts, and once constructed, the fireplace is able to free stand upon its
base on any suitable substantially level outdoor surface. The unitary body has an arched profile in plan view. The flat face of the arch profile coinciding with the front of the fireplace, and the curved section of the arch coinciding with the rear of the fireplace. The unitary body includes inwardly sloping sides so that the fireplace has a larger area in plan view at its base than its area in plan view at the top. The base is able to be placed on any level surface, and a void is created between the bottom of the firebox and the base which helps to insulate the area of the level surface that the fireplace is placed upon from the heat generated by a fire in the firebox.

[0030] Preferably the firebox has a corresponding arched profile in plan view.

[0031] Preferably at least some of the parts used in the construction of the assembly are fabricated from a suitable sheet metal.

[0032] Preferably the parts that are not fabricated from a suitable sheet metal are instead fabricated from a suitable fire resistant fabric.

BRIEF DESCRIPTION OF THE DRAWINGS

[0033] FIG. 1 is an isometric view of one preferred embodiment of the present invention.

[0034] FIG. 2 is a front view of one preferred embodiment of the present invention.

[0035] FIG. 3 is a rear view of one preferred embodiment of the present invention.

[0036] FIG. 4 is a right hand side view of one preferred embodiment of the present invention.

[0037] FIG. 5 is a left hand side view of one preferred embodiment of the present invention.

[0038] FIG. 7 shows another preferred embodiment of the present invention including a firebox door.

[0039] FIG. 8 shows another preferred embodiment of the present invention including a two part firebox door.

[0040] FIG. 9 shows a preferred form of the present invention with a deployable fuel rack that can be manipulated into place and allows elongate solid fuel, such as firewood, to be supported in a vertical orientation as it burns.

[0041] FIG. 10 shows a cut away side view of the present invention that reveals one preferred embodiment of the throat damper.

[0042] FIGS. 11 and 12 shows a front and isometric view respectively of another embodiment of the present invention including an optional attachment that enable it to also function as a cooking appliance, such as a pizza oven.

[0043] FIG. 13 shows an exploded isometric view of present invention with the pizza oven attachment included.

[0044] FIGS. 14 and 15 show yet another embodiment of the present invention having a circular profile in plan view.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0045] Turning firstly to FIG. 1, we can see an isometric view of a preferred embodiment of the present invention. In the view we can see a freestanding fireplace 1 with a unitary body. The body has a substantially planar front face 3, and a base 5. As shown, the front face 3 and the left and right hand sides of the fireplace 1 incline inwardly from the base so that the surface area in plan view of the base 5 is larger than the surface area of the fireplace 1 in plan view at the point where it connects to the flue 7.

[0046] The flue 7 may optionally be permanently attached to the unitary body of the fireplace 1, or alternatively, where more portability is required, the flue portion 7 may be easily detachable from the unitary body.

[0047] A firebox 9 is situated a distance up from the base 5. The underside of the floor 11 of the firebox and the walls of the unitary body below it form a void. The void aids in reducing the amount of heat energy that is transmitted to the surface that the freestanding fireplace 1 is placed upon. A plurality of vents 13 may be optionally included to also aid in reducing any heat energy build up in the void.

[0048] The sidewalls 15 of the firebox may be substantially vertical, or they may incline inwardly from the floor 11 of the firebox. At the rear of the firebox 9 is the rear wall 17. In the preferred embodiment, the rear wall 17 inclines inwardly, and has a curved profile. The floor 11 of the firebox may also slope downwardly from the rear wall 17 to the front face 3. In this embodiment, there are a series of transverse retaining bars 19. These mitigate the risk of any burning fuel rolling out of the firebox during operation.

[0049] In its most basic form of the preferred embodiment, the opening of the firebox on the front face 3 is not covered.

[0050] Preferably the unitary body of the fireplace 1 is constructed out of a suitable sheet metal material that can withstand the rigors of repeated operation for many years. It is a goal of using this type of construction to make a freestanding fireplace that is sufficiently light and potentially substantially flat packable, so that prefabrication of the components are easy to manufacture and handle, and the logistics associated with getting a unit from the factory to the customer is also simpler and more cost effective. It is also possible using this form of construction, to enable at least a modicum of disassembly capability, so that at the end of use, when the fireplace 1 has sufficiently cool, at least the flue portion can be detached from the unitary body portion to allow for easier transport to or from a campsite, or other type of recreational area.

[0051] FIG. 2 shows a front view of a preferred embodiment of the present invention. In this embodiment, we can see that the sidewalls 15 are substantially vertical.

[0052] Turning to FIG. 3, we are shown a rear view of the preferred embodiment of the present invention. In this view, we can see the rear curved portion 21 of the unitary body. Also, we can see the additional side wall 13 that help reduce the amount of heat build-up in the void under the floor of the firebox to protect the portion of the surface that the fireplace 1 is sitting upon.

[0053] Turning to FIGS. 4 and 5, we can see the right hand side and left hand side of the unitary body respectively. These views show that preferably the rear of the fireplace 1 remains substantially vertical, and does not incline.

[0054] Turning to FIG. 6, we are shown a bottom view of the preferred embodiment of the present invention. It can be seen that the base 5 of the fireplace 1 is the perimeter, and the space defined by the front, rear, side walls and the underside of the floor 11 of the firebox creates a void that reduces the heat energy that reaches the surface upon which the fireplace is standing.

[0055] In FIG. 7 we are shown an alternative embodiment of the present invention. In this embodiment, a door 23 (shown in dashed lines) is placed over the opening of the firebox 9. The door 23 is attached to a suitable cable 25 which extends upwardly and runs around a series of pulleys 29. A counterweight 27 is attached to the other end of the cable 25.
The weight of the counterweight 27 is selected to substantially balance the weight of the door 23 and its associated assembly, thereby making it relatively effortless to raise the door 27, thereby enabling a user to access the interior of the firebox 9.

[0056] Yet another alternative embodiment of the present invention is shown in FIG. 8. In this embodiment, the door 23 is split into two parts, 23a and 23b respectively. Only the upper portion 23a is attached to the cab 25, series of pulleys 29 and the counterweight 27. Optionally the bottom portion 23b of the door 23 is removable to give easier access to the floor 11 of the firebox 9. For example, to remove ashes.

[0057] FIG. 9 shows yet another embodiment of the present invention, a rack 31 is attached to the floor 11 of the firebox 9. The rack 31 may be detachable with the rack 31 of the firebox 9.

[0058] An alternative embodiment is also shown in FIG. 9. In this embodiment, the rack 31 is hingedly attached to the floor 11 of the firebox. This enables a user to swing the rack out of the way when it is not required. Rack 31 is attached to shaft 33 which extends out through a sidewall of the unitary body. A lever 35 is attached to the shaft 33 and allows a user to manipulate the position of the rack 31.

[0059] The function of the rack 31 is to orientate elongate solid fuel, such as firewood, so that it stays predominately vertical while it burns. This allows the fuel to burn more efficiently and generate less smoke.

[0060] The flue 7 is sufficiently long to ensure that any smoke rising out of the firebox is directed away from any people in the vicinity of the fireplace.

[0061] A smoke chamber (not shown) is located above the throat at the top of the firebox 9. The chamber is defined as the lowermost portion of the flue that sits immediately atop the throat. Preferably there are optional throat opening control means that enable a user to increase or decrease the opening of the throat.

[0062] Turning to FIG. 10, we can see one preferred embodiment of a suitable throat opening control means in the form of a throat damper 37. The smoke chamber 39 is also shown as a lower portion of the flue 7 encircled by a dotted line.

[0063] Because the unitary body is constructed out of sheet metal, it is possible to include a double skin construction, at least partially in the vicinity of the firebox 9. The interstitial void created can be either left empty, allowing an air gap to provide basic insulation. Alternatively the interstitial void can be filled with a suitable material. Some materials enhance the reflectivity of heat energy impinging upon the wall surface. Such a material suitable for that purpose is vermiculite. In another embodiment, it may be desirable to have the wall absorb more heat energy, so that at least a portion of the fireplace body is capable of radiating heat for a period of time, even after the fire has died down, or gone out, or been extinguished. A suitable material for this purpose would be a suitable sand.

[0064] In another alternative embodiment, the rear wall 17 of the firebox 9 is hinged at its base so that the angle of the inward slope can be adjusted by a user, and this allows the area of the opening of the throat to be increased or decreased, and also allows the user to be able to adjust the amount of heat energy that directly impinges upon the rear wall, and thereby increases the rate of energy absorption, or reflection of energy by the rear wall of the firebox out of the front of the fireplace.

[0065] As mentioned previously, the fireplace assembly can also have a variety of attachments included in it for a variety of purposes. Suitable attachments may be convenient for users to hang out wet items such as articles of clothing for drying. The attachment may enable the user to adjust the position of the items being dried so that that are in the most ideal region for drying without scorching. Other attachments include cooking assemblies that enable food and/or beverages to be cooked or warmed prior to consumption. An example of an attachment is shown in FIGS. 11 through to 13. In these views we are shown a preferred embodiment of a pizza oven that can be used in association with fireplace assembly. The pizza oven is itself able to be assembled from a kit of parts, and dis-assembled when not required for easier storage and transportation.

[0066] The pizza oven attachment shown includes a lower chamber 41 that includes the fire, or at least the smoldering embers of the fire. Lower chamber 41 is created by the removably attachable fascia assembly 45 which is removably attached to the fireplace via attachment tabs 43. A horizontal plate 47 is removably attached to the fascia assembly 45 and the transverse retaining bars 19. The horizontal plate has a plurality of vents 49. Incorporated in it to allow for ventilation and increased heat energy flow. A pair of ceramic heat bricks 51 are then placed on top of, and supported by the horizontal plate 47. Optionally a second layer can be created by the addition of upper housing 53. The upper housing 53 includes a flat top 55, and the flat top also includes a plurality of vents 57. A second pair of ceramic heat bricks 59 can then be placed atop the flat top 55. In this arrangement there may be two cooking zones, or alternatively, depending on the types of bricks used, the lower zone could be used for cooking and the upper zone could be used for warming.

[0067] FIGS. 14 and 15 illustrate another embodiment of the invention. In this arrangement, the fireplace has a circular profile when viewed in plan view. The firebox 9 is open and the fire is contained within the circular ribs 61. The central pillar of the fireplace has an inclined sidewall 15 as shown. The fireplace includes a truncated conical shaped hood 63. The flames and heat travel upwardly and are captured within the void 65 created under the conical shaped hood 63. In one embodiment, at least a portion of the inner space 67 of the central pillar is filled with a suitable filling to provide either enhanced heat energy absorption or enhanced heat energy reflectivity. In another form of the invention, at least a portion of the sidewall 15 is double skinned, and the interstitial void thereby created can be filled with the reflective or absorptive material. The conical hood 63 is supported by a series of "stand-offs" (not shown), and these create an annular opening 69 that provides a pathway for the flow of air and smoke to the flue 7. Typically the width of the annular opening 69 is about 50 mm. The upper portion of the central pillar 71 has vertical sidewalls. The upper portion 71 is able to slide upwardly or downwardly in the direction of the arrows as indicated on FIG. 15, independently of the central pillar, or the conical hood 63. The position of the upper portion 71 is controlled by a foot pedal 73. The foot pedal is connected to a central shaft 75. By operating the foot pedal 73, the width of the annular opening can be reduced from 50 mm down to zero, thereby blocking off the flue.

[0068] Typically all the parts of the fireplace assembly are made from a suitable durable steel material, however at least some of the parts may be assembled from a suitable fire
resistant material for easier disassembly, and to reduce the weight of the stored fireplace assembly for easier transportation and handling.

[0069] While the above description includes the preferred embodiments of the invention, it is to be understood that many variations, alterations, modifications and/or additions may be introduced into the constructions and arrangements of parts previously described without departing from the essential features or the spirit or ambit of the invention.

[0070] It will be also understood that where the word “comprise”, and variations such as “comprises” and “comprising”, are used in this specification, unless the context requires otherwise such use is intended to imply the inclusion of a stated feature or features but is not to be taken as excluding the presence of other feature or features.

[0071] The reference to any prior art in this specification is not, and should not be taken as, an acknowledgment or any form of suggestion that such prior art forms part of the common general knowledge.

1. A freestanding and relocatable fireplace assembly having a unitary body including:
   a base, and
   a firebox, and
   a flue, wherein the fireplace can be assembled from a kit of parts, and once constructed, the fireplace is able to free stand upon its base on any suitable substantially level outdoor surface, and a void is created between the bottom of the firebox and the base which helps to insulate the region of the surface that the fireplace is placed upon, from the heat generated by a fire in the firebox, and wherein the bottom of the firebox includes a sloping floor that slopes towards the front of the fireplace, and at least the sidewalls of the firebox slope inwardly, and when the fireplace needs to be relocated, it may be moved either as a whole, or in pieces, or fully disassembled for easier storage and transportation.

2. A fireplace assembly as defined in claim 1 wherein at least the rear of the firebox is double skinned so that an interstitial void is formed between the skins to thereby provide insulation.

3. A fireplace assembly as defined in claim 2 wherein the interstitial void is filled with a suitable material to give at least the rear of the firebox either greater heat energy reflectivity or greater heat energy absorption, depending on the type of material selected by the user to fill the void, and when a heat energy reflective material is selected, the heat energy is absorbed and stored in the material, and the stored heat energy is able to radiate out of the fireplace for a desired period of time after the fire in the firebox has diminished or died out completely, or been extinguished.

4. A fireplace assembly as defined in claim 3 wherein the heat energy reflective material used to fill the interstitial void is vermiculite, and the heat energy absorptive material used to fill the interstitial void is sand.

5. A fireplace assembly as defined in claim 4 wherein the flue extends upwardly from the top of the firebox to a sufficient height to ensure the smoke is directed away from people located in the vicinity of the fireplace.

6. A fireplace assembly as defined in claim 5 wherein a throat is located at the top of the firebox where the firebox interconnects with the flue, and a smoke chamber is formed in the vicinity immediately above the throat in the lowermost portion of the flue.

7. A fireplace assembly as defined in claim 6 wherein the rear wall of the firebox is hinged at its base so that the angle of the inward slope can be adjusted by a user, and the angular adjustment enables the user to increase or decrease the size of the opening of the throat, and also enables the user to adjust the amount of heat energy either reflected out of the front of the fireplace, or absorbed, by the material used to fill the void in the rear of the firebox.

8. A fireplace assembly as defined in claim 7 wherein the firebox includes a rack that is hingedly connected and can be swung into proper orientation with the firebox so that it can be used when a suitable elongate shaped fuel is used, such as firewood, to orientate the fuel into a substantially vertical orientation between the ribs of the rack, both before and during combustion, for as long as possible, so that the burning efficiency of the fuel is optimized, and when the rack is not needed, it can be swung out of the way about the hinge.

9. A fireplace assembly as defined in claim 8 wherein attachment means are included that enable a user to optionally attach a selection of accessories to a suitable location on the fireplace assembly, and the user is able to select the optional accessory depending on requirements such as food or beverage warming or cooking, and/or drying for example.

10. A fireplace assembly as defined in claim 9 wherein at least some of the parts used in the construction of the assembly are fabricated from a suitable sheet metal.

11. A fireplace assembly as defined in claim 10 wherein the parts not fabricated from a suitable sheet metal are instead fabricated from a suitable fire resistant fabric.