United States Patent [19]

Juris

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[54] **REVOLVABLE FIREPLACE**

[76] Inventor: **Andrew Juris,** 408 E. 3rd St., Cle Elum, Wash. 98922

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[52] **U.S. Cl.** **126/125,** 126/127, 219/279, 219/344

[51] **Int. Cl.** **F24j 3/02**

[58] **Field of Search** ..... 126/120, 121, 125, 127; 219/279, 344; 339/5 P

[56] **References Cited**

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Primary Examiner—William F. O'Dea
Assistant Examiner—Peter D. Ferguson
Attorney, Agent, or Firm—Clarence A. O'Brien; Harvey B. Jacobson

[57] **ABSTRACT**

A double-sided fireplace including a combustible material burning open cavity on one side and an electric resistance heater or gas fired heater on the other side. The combustible material burning cavity is designed to receive solid fuel to be burned and includes an upper portion defining an outlet for smoke and adapted for communication with the lower end of an upstanding smoke plenum or pipe. The electrical resistance heater or gas fired heater cavity also opens outwardly of the fireplace structure but is considerably more shallow than the solid combustible material burning cavity. Also, the entire body of the fireplace assembly is supported from a pedestal for rotation about an upstanding axis, whereby either side of the fireplace assembly may be faced in a given direction. Still further, the fireplace assembly is illustrated and described hereinafter in two forms, a first form comprising a conventional fireplace mounted form and the second form comprising a free standing fireplace assembly.

4 Claims, 10 Drawing Figures

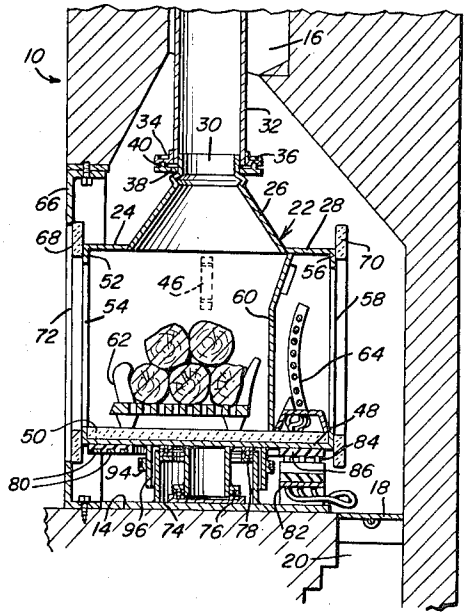


Fig. 1

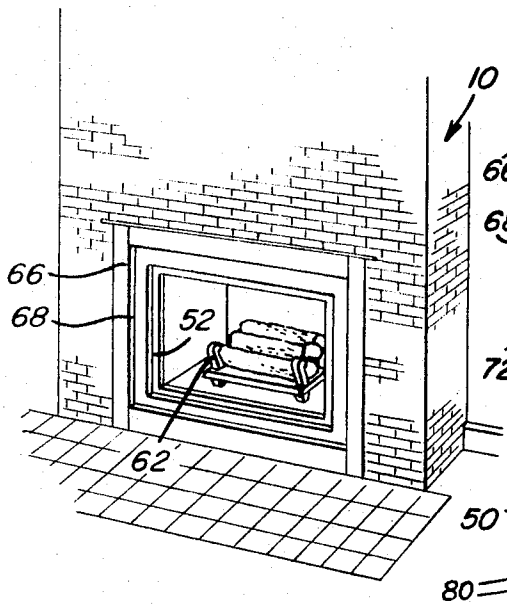


Fig. 2

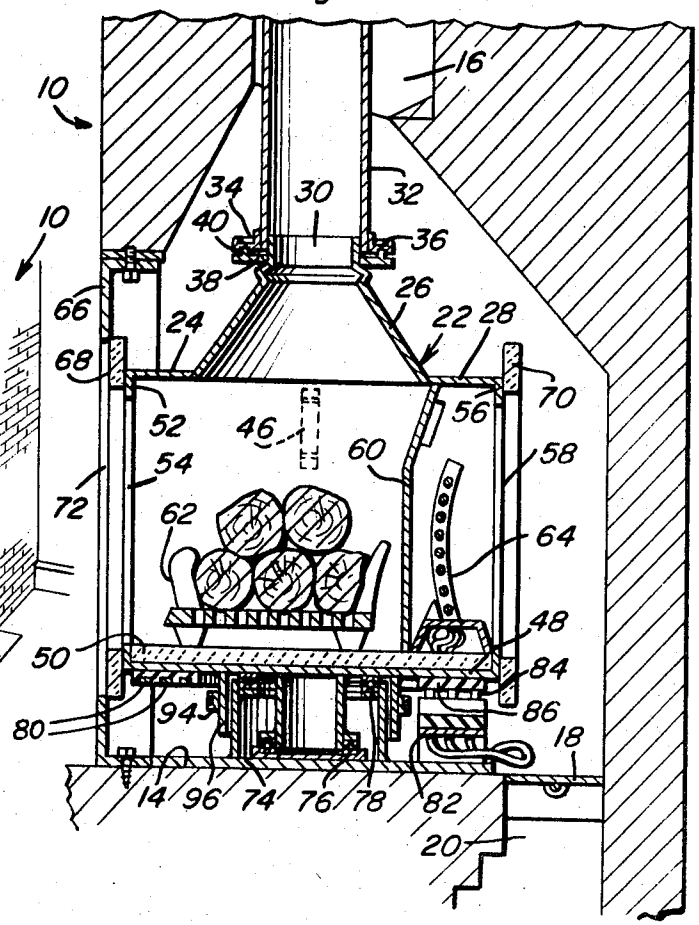


Fig. 3

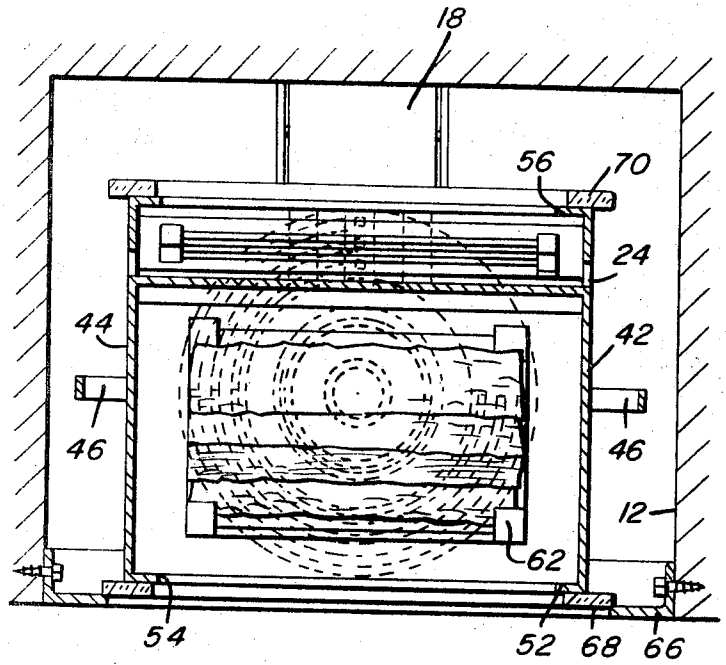


Fig. 4

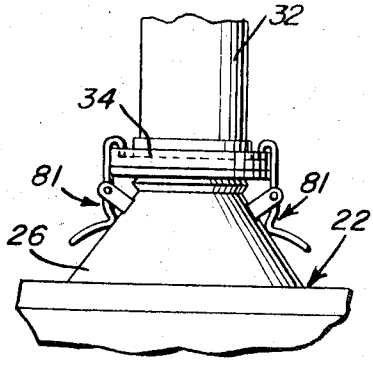


Fig. 5

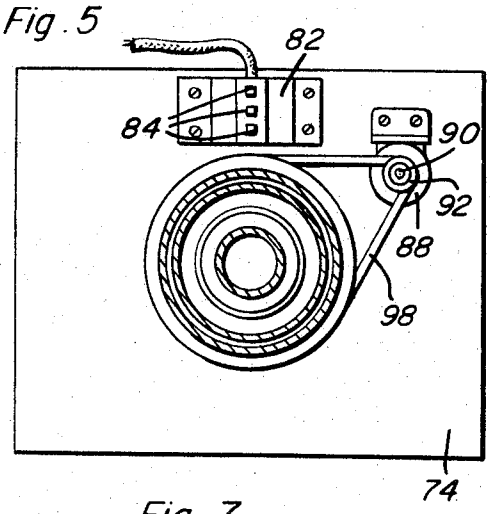


Fig. 6

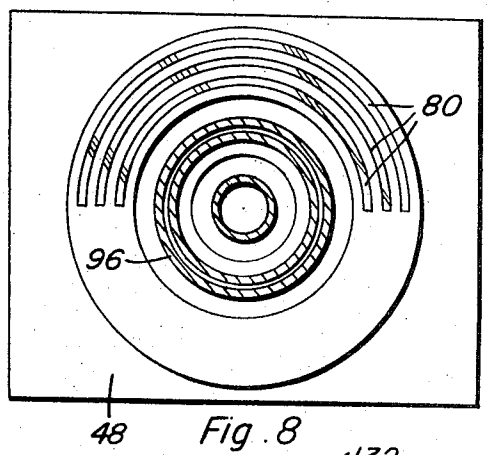


Fig. 7

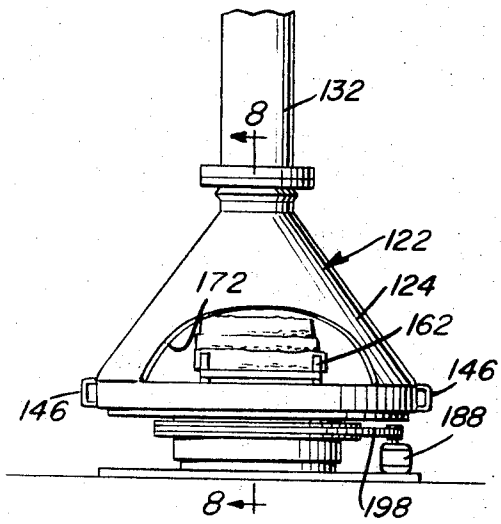


Fig. 8

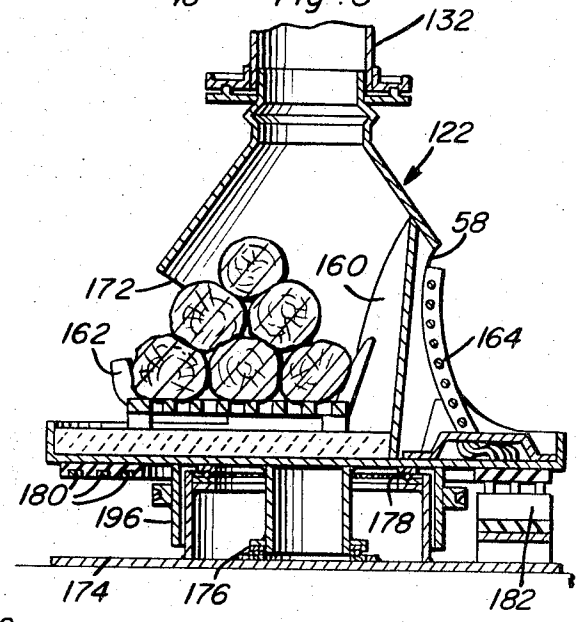


Fig. 9

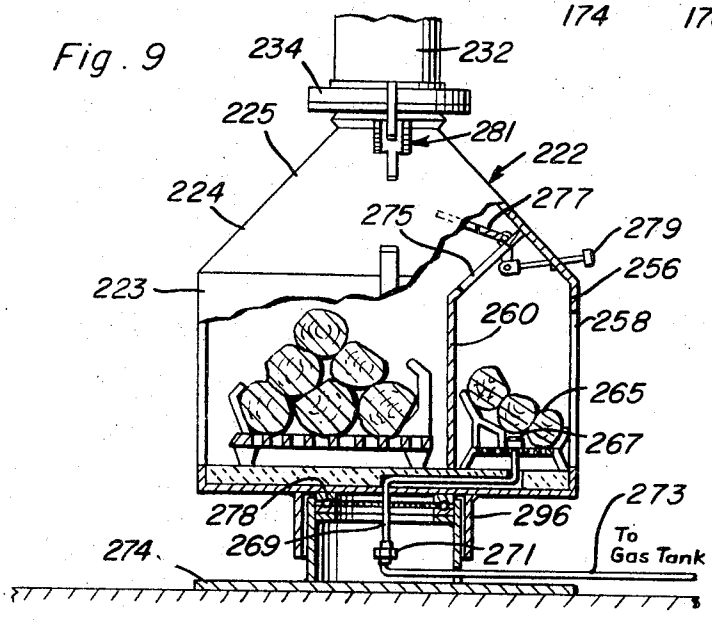
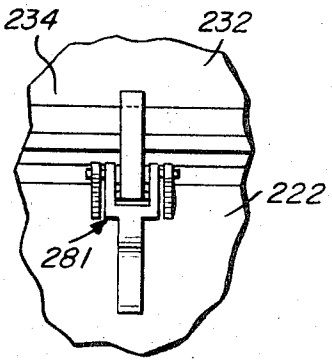


Fig. 10



REVOLVABLE FIREPLACE

The revolvable fireplace assembly of the instant invention has been designed to provide a heating unit which may utilize either solid combustible fuel such as logs or coal or be actuated, selectively, by an electrical resistance heater or a gas fired heater. In this manner, either type of heating assembly desired may be actuated.

The main object of this invention is to provide a fireplace which may be utilized to burn conventional solid combustible fuel such as wood or coal and may be alternately actuated either by an electrical resistance heater or a gas fired heater.

Another object of this invention is to provide a fireplace in accordance with the immediately preceding object and which may be constructed either as a free standing fireplace or as a fireplace assembly recessed within a conventional brick or other fireplace opening.

Yet another object of this invention is to provide a fireplace assembly in accordance with the preceding objects and constructed in a manner whereby it is supported for rotation about an upstanding axis, thereby enabling either side of the fireplace assembly to be faced in a desired direction.

A final object of this invention to be specifically enumerated herein is to provide a fireplace assembly which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout.

FIG. 1 is a perspective view of a conventional wall-type fireplace constructed of brick and with a first form of fireplace assembly of the instant invention mounted within the brick fireplace;

FIG. 2 is an enlarged vertical sectional view of the assembly illustrated in FIG. 1;

FIG. 3 is a horizontal sectional view taken substantially upon a plane passing through the vertical center of the fireplace assembly illustrated in FIG. 2;

FIG. 4 is a fragmentary front elevational view of the upper portion of the recessed fireplace assembly illustrating the manner in which the upper smoke outlet therof is rotatably coupled to the lower end of a smoke plenum pipe;

FIG. 5 is a horizontal sectional view taken substantially upon a plane passing immediately beneath the floor of the fireplace assembly illustrated in FIG. 2;

FIG. 6 is a horizontal sectional view taken substantially upon a plane passing closely beneath the floor of the fireplace assembly illustrated in FIG. 2 and as seen from below;

FIG. 7 is a front elevational view of a second free standing form of fireplace assembly constructed in accordance with the present invention;

FIG. 8 is an enlarged vertical sectional view of the fireplace assembly illustrated in FIG. 7 and taken substantially upon the plane indicated by the section line 8—8 of FIG. 7;

FIG. 9 is a side elevational view of a third form of fireplace which is also of the free standing type and with portions thereof being broken away and illustrated in vertical section; and

FIG. 10 is an enlarged fragmentary side elevational view illustrating the manner in which the upper smoke outlet of the fireplace assembly illustrated in FIG. 9 is rotatably coupled to the lower end of an upstanding smoke plenum pipe.

Referring now more specifically to the drawings, the numeral 10 generally designates a conventional form of fireplace structure having a fireplace opening 12 formed therein. The fireplace opening 12 includes a hearth 14 and an upper smoke outlet 16 as well as a pivoted trap door 18 closing the upper portion of a rear ash pit 20.

A first form of fireplace assembly constructed in accordance with the present invention is generally referred to by the reference numeral 22 and includes a generally rectangular housing 24 having a hollow frusto-conical smoke outlet 26 supported from its top wall 28 and opening downwardly into the interior of the housing 24. The upper end of the smoke outlet 26 includes a cylindrical upper end extension 30 which is rotatably telescoped up into the lower end of an upstanding smoke plenum pipe 32 supported within the upper portion of the opening 12 and extending upwardly into the smoke outlet or chimney 16. The lower end of the smoke plenum pipe 32 includes a radially outwardly projecting and circumferential flange 34 having a downwardly opening peripheral groove 36 formed therein and the lower portion of the extension includes a corresponding circumferential flange 38 opposing the flange 34 and including an annular rib 40 which projects upwardly therefrom and is rotatably received in the downwardly opening groove 36.

The opposite side walls 42 and 44 of the housing 24 include upper outstanding handles 46 and the housing 24 includes a bottom wall 48 having a panel of fireproofing material 50 secured over its upper surface.

The front wall 52 of the housing 24 has an opening 54 formed therein and the rear wall 56 of the housing 24 has an opening 58 formed therein. Also, the interior of the housing 24 includes a transversely extending upstanding partition 60 spaced approximately three-quarters of the depth of the housing 24 from the opening 54 and one-quarter of the depth of the housing 24 from the opening 58.

A wood or coal burning grate 62 is disposed in the housing 24 between the front wall 52 and the partition 60 and an electrical resistance heater 64 is disposed within the housing 24 between the rear wall 56 and the partition 60.

The opening 12 of the fireplace 10 includes a partial framework 66 disposed therein and the front and rear walls 52 and 56 of the housing 24 include somewhat flexible and resilient outwardly projecting sealing frames 68 and 70 supported therefrom and which are sealingly engaged with the peripheral portions of the framework 66 defining the central opening 72 therein when the front and rear walls 52 and 56 are registered with the opening 72.

The floor or hearth 14 of the fireplace 10 has a mounting base or plate 74 of the fireplace assembly 22 supported therefrom and the central portion of the base includes concentric cylindrical enclosed thrust and journal bearings 76 and 78 by which the housing

24 is rotatably supported from the mounting plate 74 for angular displacement about an upstanding axis concentric with the center axis of the smoke plenum pipe 32. Also, the underside of the bottom wall 48 of the housing 24 includes three concentric semi-circular contact rings 80 supported therefrom with their centers of curvature coinciding with the axis of rotation of the housing 24 and the electrical resistance heater 64 is electrically connected to the contact rings 80 in any convenient manner. Of course, the contact rings 80 are supported from the front portion of the bottom wall 48. In addition, a terminal body 82 is supported between the mounting plate 74 and the bottom wall 48 at the rear of the opening 12 just forward of the ash pit 20 and includes three brushed 84 electrically contacting the rings 80 when the housing 24 is registered with the opening 72, the rings 80 being recessed within an insulative ring 86 with which the brushes 84 are in contact when the housing 24 is rotated to a position with its front side registered with the opening 72 in the manner illustrated in FIG. 2. Of course, the terminal body or box 82 is suitably electrically connected to any available source of electrical potential (not shown).

From FIG. 5 of the drawings it may be seen that an electric motor 88 is supported from the mounting plate 74 and includes a rotatable output shaft 90 upon which a pulley 92 is mounted. The pulley 92 is aligned with a pulley structure 94 carried by a depending cylindrical shield 96 supported from the bottom wall 48 and an endless flexible belt 98 drivingly connects the pulley 92 to the pulley structure 94, whereby the housing 24 may be rotated about its upstanding axis of rotation upon actuation of the motor 88.

If it is desired, the housing 24 may be rotated either by the motor 88 or manually through the utilization of the handles 46.

With attention now invited more specifically to FIGS. 7 and 8 there will be seen a second form of fireplace assembly referred to in general by the reference numeral 122 and which is similar in many respects to the fireplace assembly 22 and has the parts thereof corresponding to similar components of the fireplace 22 designated by similar numerals in the 100 series.

The basic difference between the fireplace assembly 122 and the fireplace assembly 22 is that the housing 124 of the fireplace 122 is of truncated cone-shaped design. However, the housing 124 includes opposite side handles 146 corresponding to the handles 46, a partition 160 corresponding to the partition 60, bearings 176 and 178 corresponding to the bearings 76 and 78, a terminal block 182 corresponding to the terminal block 82, contact rings 180 corresponding to the contact rings 80 and a motor 188 and drive belt 198 corresponding to the motor 88 and drive belt 98. In addition to the difference in the shape of the housing 124, the fireplace assembly 122 is of the free standing type and the mounting plate 174 thereof may be suitably anchored in any position on a floor surface. Also, rather than the smoke plenum pipe 132 being mounted within the smoke passage 16 of the chimney assembly 10, the smoke passage pipe 132 may depend directly downwardly from and pass upwardly through the ceiling of a room in which the fireplace assembly 122 is mounted.

With attention now directed more specifically to FIG. 9 of the drawings there will be seen a third form of fireplace assembly referred to in general by the reference numeral 222 and which also includes components corresponding to some of the components of the fireplace 22 and which are designated by corresponing numerals in the two hundred series. The fireplace assembly 222 includes a housing 224 including a generally cylindrical lower portion 223 and a truncated cone-shaped upper portion 225. The upper portion 225 is also connected to a depending smoke plenum pipe 232 corresponding to the pipe 132 and the assembly 222 includes a partition 260. However, in lieu of an electrical resistance heater such as the heater 64 of the fireplace assembly 22 or the electrical resistance heater 164 of the fireplace assembly 122, the fireplace assembly 222 includes a gas fired heater 265 including a gas burner 267 to which a supply of gas is ducted by means of a gas delivery line 269 including a vertical portion concentric with the axis of rotation of the housing 224 and provided with a rotatable coupling 271 connecting the vertical portion 269 to a gas supply line 273. Also, the upper portion of the partition 260 includes an exhaust gas outlet 275 selectively closable by means of a hinged damper 277 operable by means of a reciprocal knob 279 supported from the rear wall 256 of the housing 224 immediately above the rear opening 258.

The fireplace assembly 222 includes a mounting plate 274 corresponding to the mounting plate 174 and the housing 224 is supported for rotation from the mounting plate 274 by means of a combined thrust and journal bearing 278. Finally, the truncated upper portion 225 of the housing 224 is clamped in adjusted rotated position relative to the lower end of the smoke plenum pipe 232 by means of opposite side over-center clamp assemblies 281 supported from the upper portion 225 of the housing 224 and engageable over the flange 234 corresponding to the flange 34. Also, from FIG. 4 of the drawings it will be noted that the fireplace assembly 22 includes similar opposite side over-center clamp assemblies 81 supported from opposite side portions of the truncated cone-shaped smoke outlet 26 and engageable over the flange 34 to assist in maintaining the housing 24 in adjusted rotated position.

It may of course be understood that the fireplace assemblies 22 and 122 may house a solid fuel burning fire in the front side thereof or be actuated by means of electrical resistance heaters 64 and 164 housed in the rear side of the housings 24 and 124. However, instead of the rear side of the housing 224 being provided with an electrical resistance heater, the gas fired heater 265 is provided.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. In combination, a fireplace defining a hollow housing including a bottom wall, upstanding peripheral side wall portions projecting upwardly from said bottom wall and an upper smoke outlet opening defining an upper closure portion interconnecting the upper portions of said peripheral side wall portions, an upstanding transverse partition in said housing dividing the interior of the latter into front and rear chambers, solid combustible fuel support means in said front chamber and supplemental heating means disposed in said rear

chamber, said side wall portions including front and rear openings opening into said front and rear chambers, a base, said housing being supported from said base for rotation relative thereto about an upstanding axis, an upper upstanding smoke pipe, and rotary coupling means rotatably connecting said smoke outlet opening to the lower end of said smoke pipe for rotation of the latter relative to the former about a second upstanding axis coinciding with the first mentioned axis, said partition isolating said rear chamber from said smoke outlet opening, said supplemental heating means comprising an electrical resistance heater, said base and housing including coacting brush and contact means operative to establish a rotatable electrical connection between said base and housing for said electrical resistance heater, said brush and contact means including means operating to automatically interrupt said electrical connection when said housing opening is rotated to a predetermined angular position relative to said base.

2. The combination of claim **1** including motor means drivingly connected between said base and housing operable to selectively rotate said housing relative to said base.

3. The combination of claim **1** wherein said housing side wall portions in which said front and rear openings are formed are generally parallel and disposed normal to radii of said axes, a permanent wall structure having a fireplace opening formed therein, said base and housing being recessed behind said wall with said housing registered with said fireplace opening, and resilient heat resistant frame-like seal means carried by and extending about said front and rear openings and alternately engageable with the portions of said permanent wall structure defining said fireplace opening when said housing is rotated to alternately register said front and rear openings with said fireplace opening.

4. The combination of claim **1** including vertically spaced large and small diameter combined thrust and journal bearings, rotatably supporting said housing from said base for rotation about said upstanding axis.

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