

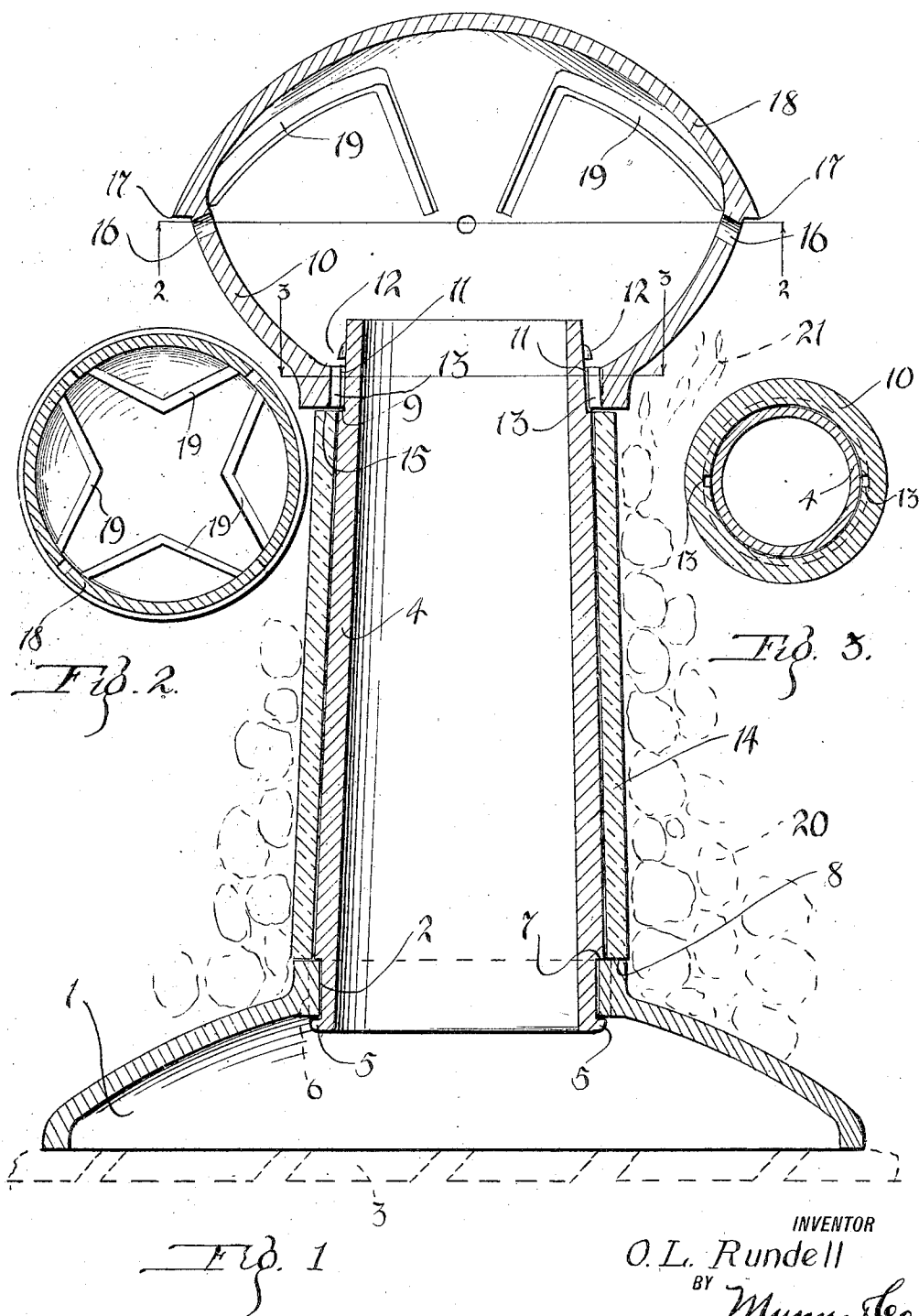
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FURNACE APPLIANCE

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FURNACE APPLIANCE.

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To all whom it may concern:

Be it known that I, ORNAN L. RUNDELL, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Furnace Appliances, of which the following is a full, clear, and exact description.

My invention relates to improvements in furnace combustion appliances, and it consists in the combinations, constructions and arrangements herein described and claimed:

An object of my invention is to provide a device of the character described, in which oxygen is conveyed from the furnace grate to a point above the burning coal, thus assuring the combustion of the gases above the coal.

A further object of my invention is to provide a device of the character described, in which the parts may be readily replaced, if broken, and in which a protective sleeve is provided for that portion in close contact with the hot coals.

Other objects and advantages will appear in the following specification, and the novel features of the invention will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings, forming part of this application, in which—

Fig. 1 is a sectional view of one embodiment of my invention,

Fig. 2 is a sectional view along the line 2—2 of Fig. 1,

Fig. 3 is a sectional view along the line 3—3 of Fig. 1.

In carrying out my invention, I make use of a metal base 1 having the shape of a concave disk and provided with an opening 2 at its central point. The base 1 is adapted to rest directly upon the grate 3 of a furnace or stove and serves as a collector for warmed air passing up through the grate 3.

A metal tubular member 4 is provided with lugs 5 at its lower and outer edge, by means of which it may be secured in the opening 2 of the base 1. Grooves 6 are provided in the side walls of the opening 2 which permit the entrance of the lugs 5, after which they are turned with respect to the opening 2 in a manner similar to the bayonet type of lock. A shoulder 7 is provided on the outer surface of the tubular member 4 and is arranged to be drawn into close engagement with the upper face 8 of

the base 1 when the lugs 5 are turned to lock the member 4 thereto.

A second shoulder 9 is provided adjacent the upper end of the tubular member 4 and serves as a stop for a metal cap member 10, which is provided with an opening 11 arranged to slip over the end of the tubular member 4. A second pair of lugs 12 is provided adjacent the upper end of the tubular member 4 on the outer surface thereof and function as a means for locking the cap member 10 down upon the shoulder 9. Grooves 13 provide means for admitting the lugs 12 through the opening 11.

A sleeve 14 of fire clay is loosely fitted about the tubular member 4 and provides a means for protecting the member 4 against the action of the hot coals 20 and gases 21 which would otherwise be in direct contact therewith. The sleeve 14 is shorter than the distance between the bottom 15, the cap 10, and the face 8 of the base 1 to allow for the expansion or contraction of the member 4. The tubular member 4 and likewise the sleeve 14 are slightly tapered so that their smaller diameters are at the upper ends. The cap 10 is for the purpose of distributing air which passes up through the tubular member 4 and to this end is provided with four equally spaced apart openings 16 through the walls of the cap 10 and directly beneath the slight overhanging flange 17 of the crown 18 of the cap.

To insure the equal distribution of the warm air passing out through the openings 16, I have provided four equally spaced apart V-shaped ribs 19 on the inner surface of the crown 18 of the cap 10. When the air rising up through the tubular member 4 strikes the under surface of the crown 18, it will be equally distributed and each of the openings 16 will be supplied with substantially an equal volume of the air. The cap 10, the tubular member 4, and the base 1 are all of metal, as described, and preferably of cast iron, since it is easy to cast these pieces and the iron will stand up well against the action of the heat and gases.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. The base 1 is placed directly upon the grate 3 at the center of the fire pit and the tubular member 4 with its protective sleeve 14 is placed so that it extends up through the bed of coals and projects up over the top of the

burning coals. The cap 10 is then secured in place and the device is assembled for operation.

5 Air containing oxygen will pass up through the grate 3 and because of the draft of the grate 3 will rise up through the member 4 and as has been described will be distributed by the ribs 19 and pass out of the cap 10 through the openings 16. Be-
10 cause this air contains oxygen, the gases which might not be entirely consumed by combustion would be entirely consumed. This provides more heat and greatly in-
15 creases the efficiency of the furnace.

I claim:

1. A device of the character described comprising a base having a concave surface adapted to be supported upon a fire grate with its concave surface adjacent said
20 fire grate, said base having an opening centrally located therethrough, a tubular member arranged to be secured in a vertical position on said base and having its lower end in registration with the opening through
25 said base, a heat insulating sleeve disposed concentric said tubular member, and a substantially spherical distributing member removably supported upon said tubular member at its upper end for distributing
30 any gases which may rise through said tubular member from below said grate.

2. A device of the character described comprising a base having a concave surface adapted to be supported upon a fire grate
35 with its concave surface adjacent said fire grate, said base having an opening centrally

located therethrough, a tubular member arranged to be secured in a vertical position on said base and having its lower end in registration with the opening through said base, a heat insulating sleeve disposed concentric said tubular member, and a substantially
40 spherical distributing member removably supported upon said tubular member at its upper end, said distributing member having a plurality of ribs on the ceiling thereof and a plurality of spaced apart openings
45 through its side walls, one for each of said ribs for distributing any gases which may rise through said tubular member from below said grate.
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3. A device of the character described comprising a base having a concave under surface, adapted to be supported upon a fire grate, said base having an opening centrally
55 located therethrough, an upright tubular member removably supported on said base, and in registration with said opening, a fire clay insulating sleeve disposed concentric with said tubular member, and a substantially
60 spherical distributing member removably supported upon the upper end of said tubular member, said distributing member having a plurality of spaced apart ribs on the interior upper wall there-
65 of, and a plurality of spaced apart openings through its side walls, one opening for each of said ribs, whereby gases projected through said tubular member may be equally distributed through said openings
70 in said distributing member.

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