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FURNACE

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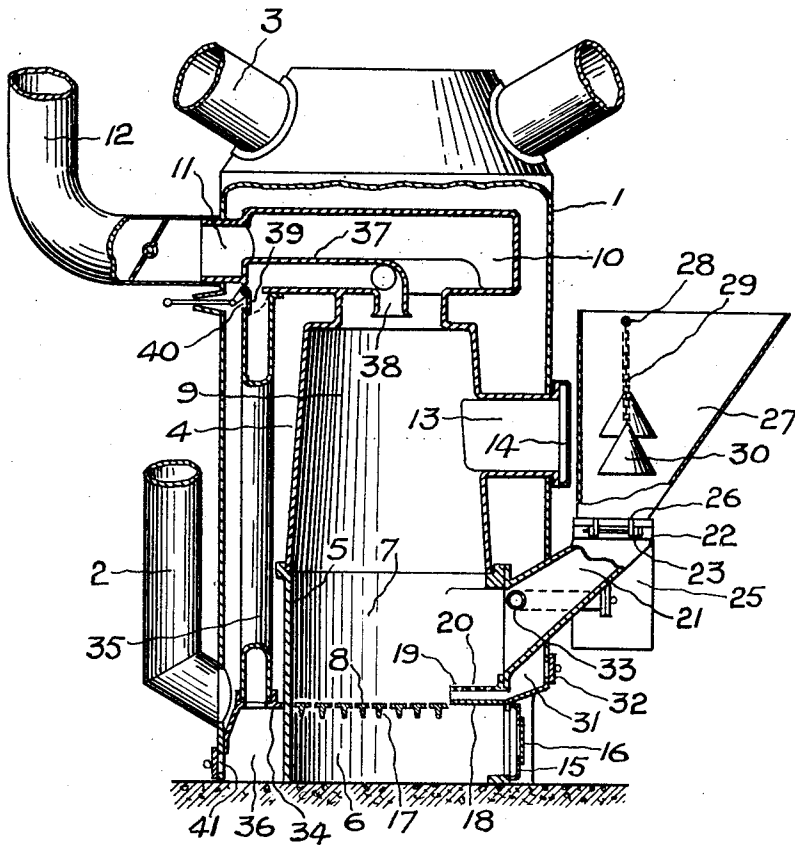


Fig. 1

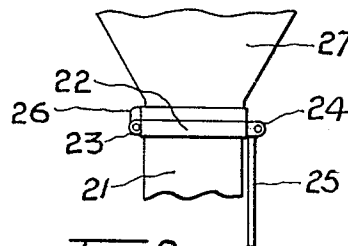


Fig. 2

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FURNACE

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My invention relates to improvements in furnaces which are particularly adapted for hot air heating systems for buildings. The objects of the invention are to provide means whereby sawdust or hog fuel may be used to provide the necessary heat and in the event of such fuel being unavailable that by a simple process the furnace may be converted to the use of coal or other fuel, and also to provide means whereby the bridging of granular fuel in the feed hopper of the furnace is prevented.

The invention consists essentially of a firebox provided with a demountable feed hopper having a plurality of cones freely suspended therein and having a corrugated dead plate associated with its grate whereby air may be admitted horizontally under control, immediately above the grate bars, as will be more fully described in the following specification and shown in the accompanying drawings, in which:—

Fig. 1 is a sectional view of the invention.

Fig. 2 is a fragmentary view of the front of the hopper.

In the drawings like characters of reference indicate corresponding parts in each figure.

The numeral 1 indicates generally a hot air casing of any suitable type which is fitted with the usual cold air return pipes 2 and hot air delivery pipes 3. Within the casing is a furnace body 4 having a base 5 divided into an ash pit 6 and a fire pot 7 by a grate 8. Fitted upon the base 5 is a chambered portion or dome 9 which communicates with a radiator 10 having a smoke outlet 11 connected with a suitable flue, not shown, through a smoke pipe 12.

The chambered portion or dome 9 is provided with a horizontal passage 13 extending through the wall of the casing 1 and fitted with a hinge door 14 through which coal or other fuel is admitted to the fire pot 7. The ash pit 6 is provided with a hinged door 15 having a ventilating grille 16 by which air passing into the ash pit is controlled. The grate 8 consists of a plurality of bars 17 which are preferably of the rocking type, these bars

cover only a portion of the grate area, the remaining portion being fitted with a dead plate 18 which supports a transversely corrugated plate 19 having a plurality of orifices 20 therein. The fire pot 7 is fitted with an inclined passage 21 having at its upper end a horizontally disposed frame 22 provided on opposite sides with pairs of hinge lugs 23 and 24 respectively. To the lugs 24 a door 25 is hingedly connected, which is capable of being swung over to form a closure to the passage 21 and to the lugs 23 further lugs 26 are hingedly connected, which lugs extend from the lower end of the base of a feed hopper 27. A rod 28 extends between opposite side walls of the hopper and forms a support for a plurality of flexible members 29, such as light chains, having at each of their lower extremities an inverted cone 30. The members 29 are of varying length so as to dispose the cones at different distances from the top of the hopper. A chamber 31 is formed below the inclined passage 21 which is fitted with a ventilator grille 32 and communicates with the corrugations of the plate 19 so that air under control may flow therethrough to support combustion on said plate and at the point of juncture of the dead plate 18 and the grate bars 17.

An apertured pipe 33 is fitted transversely of the inclined passage 21 adjacent the fire pot which is adapted to supply air for combustion above the intersection of the corrugated plate 19 and the inclined passage 21.

The heat radiated from the walls of the ash pit 6 is utilized for a dual purpose by providing an annular dividing plate 34 between the casing 1 and the walls of the ash pit 6. From this plate a plurality of vertical tubes 35 are disposed about the furnace body which communicate with the annular space 36 surrounding the ash pit and a horizontal header 37 having a downwardly directed outlet 38 which is adapted to deliver a blast of preheated air downwards onto the top of the fire. At the intersection of the vertical tubes 35 and the header 37 are provided dampers 39 operable by any suitable means which are adapted to close off the communicating passage therebetween or to close openings 40

in the tube communicating between them and the air circulating space between the upper portion of the casing 1 and the furnace body. Openings 41 are provided through the side walls of the casing 1 to admit air to the space 36 to be heated either for use through the hot blast outlet 38 or for admixture with the air entering the casing through the cold air inlet 2.

What I claim as my invention is:

1. In a furnace of the self feeding type having a fire pot fitted with a horizontal barred grate, a dead plate in alignment with said grate, an apertured corrugated plate covering said dead plate, means for feeding fuel across the corrugated plate onto the grate and means for supplying air for combustion between the corrugated and the dead plate.

2. In a furnace of the self-feeding type having a fire pot and an inclined passage communicating therewith, a horizontal barred grate located within the fire pot, a dead plate arranged at one side and in alignment with the grate, an apertured corrugated plate arranged horizontally in a plane with the base of the inclined passage and spaced above said dead plate and substantially coextensive in width with the latter, means for feeding fuel across the corrugated plate onto the grate, and means for supplying air for combustion between the corrugated and the dead plate.

Dated at Vancouver, B. C., this 30th day of July, 1929.

LOUIS SKELDING.