

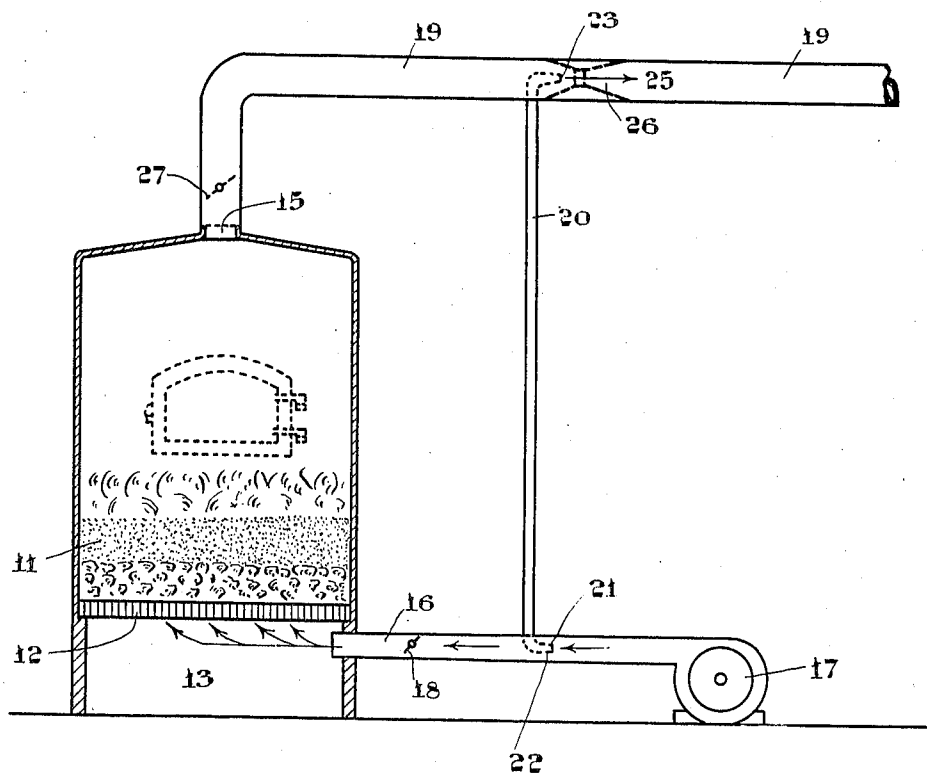
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F. J. FRIEDMAN

FURNACE EQUIPMENT

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INVENTOR

F. J. FRIEDMAN

BY *F. H. H. H. H. H. Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

FERDINAND J. FRIEDMAN, OF MONTREAL, QUEBEC, CANADA.

FURNACE EQUIPMENT.

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This invention relates to new and useful improvements in furnace equipment and is particularly adaptable to furnaces burning pea coal or screenings, and the object of the invention is to provide a forced draft equip-
ment of simple construction which will assist in withdrawing the heavy discharge of gases while blowing up a smouldering fire of pea coal or screenings.

Another object is to provide a forced draught equipment, which will quickly and efficiently liven up a smouldering closely banked or packed fire, without danger of explosion due to the rapid accumulation of gases in the furnace when using bituminous coal, pea coal or screenings.

In burning bituminous, pea coal or screenings in furnaces, difficulty has been encountered in withdrawing the enormous amount of gas which accumulates within the furnace when blowing up a smouldering fire and accidents have occurred due to the explosion of said gases.

In my invention, I provide means for tapping some of the air supplied by an under grate forced draught blower to increase the draught in the furnace above the fire, so that the products of combustion may be quickly withdrawn from the furnace.

In the drawings, I have shown a partial sectional elevation of my improved forced draught equipment.

Referring more particularly to the drawing, 11 designates a furnace of the usual construction having a grate 12, an ash pit 13, a fire pot 14, and smoke outlet 15. Connected to the furnace by means of the blast pipe 16 is the blower or fan 17, which may be operated from a source not shown. The blast pipe 16 is connected to the furnace below the grate and may be provided with a gate valve 18 to regulate the flow of air therethrough. A smoke or gas discharge pipe 19 is provided between the furnace smoke outlet 15 and the chimney (not shown). Between the blast pipe 16 and the smoke pipe 19, an air duct or pipe 20 is provided, the lower end 21 of which is situated within the blast pipe 16 and bent towards the blower, as designated at 22. The upper end 24 of the pipe is positioned within the smoke pipe 19 and may be provided with a nozzle 23. The discharge from the nozzle is in the direction of the arrow 25. A Venturi tube 26 may be fitted within the

pipe 19 in close proximity to the end of the nozzle 23, to increase the efficiency of the draught through the pipe 19 in the well known manner. A damper or wing valve 27 may be placed in the pipe 19 to regulate the discharge of gases from the furnace.

In the drawing, I have shown the device in its simplest form, but it will be readily understood that modifications may be made in the construction without departing from the spirit of the invention.

In operation the device is very simple. To liven up a smouldering fire of closely packed pea coal or bituminous coal, the blower is set in operation and a continuous blast of air is driven through the pipe 16. Some of the air is driven into the furnace through the ash pit under the fire, which is packed on the top of the grate, while the rest of the air passes through the air duct or pipe 20, through the nozzle 23 and direct to the chimney, not shown. This construction creates a draught in the pipe 19 to withdraw the gases from the furnace above the fire, thereby preventing accumulation of said gases to such an extent that an explosion might occur. It also assists in drawing the air delivered to the underside of the fire through the closely packed coal, thereby increasing the efficiency of the furnace. To further assist the efficiency of the device, the Venturi tube is fitted in close proximity to the air duct.

Having thus described my invention, what I claim is:—

The combination of a furnace having a grate and an outlet pipe for the products of combustion, an air blower having an air discharge pipe leading into the lower part of the furnace to supply air thereto at a point immediately below said grate, and a separate conduit having one terminal entering said air discharge pipe and the other terminal entering the aforesaid outlet pipe of the furnace, the said terminals of the conduit being directed substantially at right angles to the intermediate portion thereof to extend, respectively, toward the blower housing and toward the exit end of the aforesaid outlet pipe, said conduit being of smaller cross section than the air discharge and outlet pipes.

In witness whereof I have hereunto set my hand.

FERDINAND J. FRIEDMAN.