

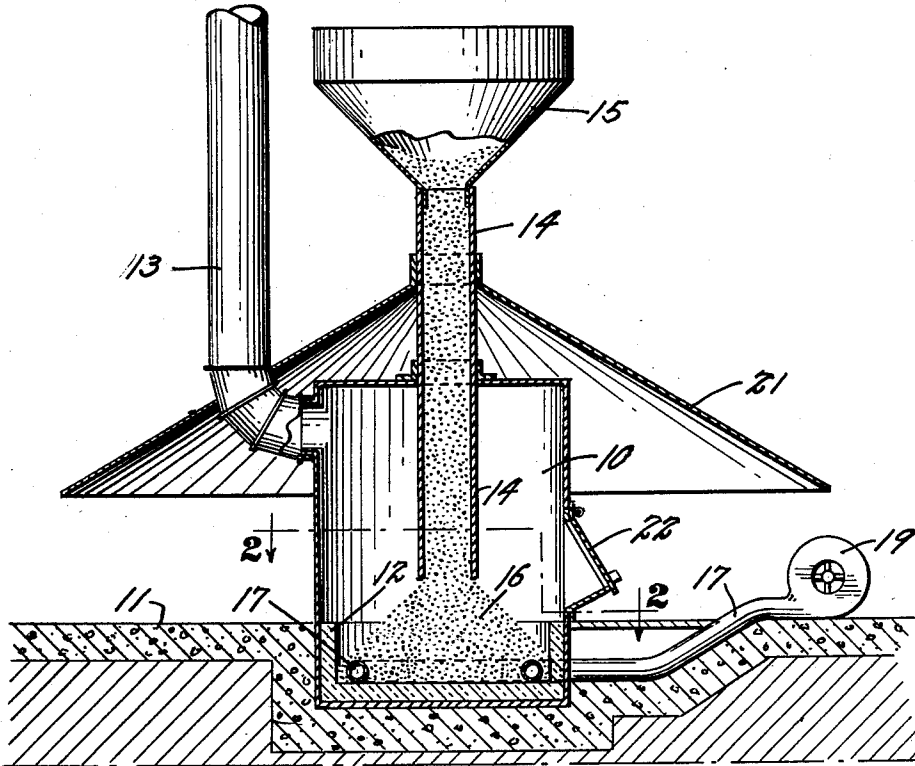
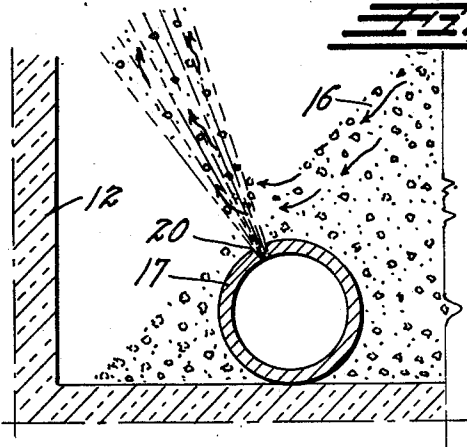
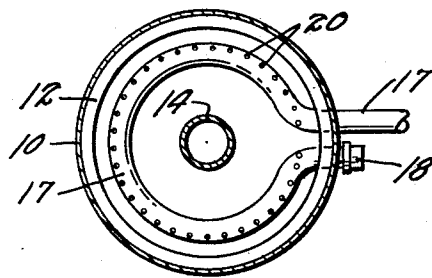
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L. E. PINCKARD

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PULVERIZED FUEL BURNER

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Inventor

LEE E. PINCKARD

By

R. H. Alcott

Attorney

UNITED STATES PATENT OFFICE

LEE E. PINCKARD, OF GOLDEN, COLORADO

PULVERIZED FUEL BURNER

Application filed August 10, 1929. Serial No. 384,978.

This invention relates to a burner for burning pulverized coal, coal dust, sawdust, and other pulverized or powdered fuel. It is more particularly adaptable to a brooder stove and is described and illustrated in this connection in the present application. It is desired to be understood, however, that the particular burner is not limited to this use but can be employed for all heating purposes where it is desired to make use of pulverized or fine fuels.

The principal object of the invention is to provide a pulverized fuel burner in which an air blast will act both to support combustion and to automatically feed the fuel to the fire.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention reference is had to the accompanying drawings which form a part hereof. Like numerals refer to like parts in all views of the drawings and throughout the description.

In the drawings:

Fig. 1 is a vertical section through a brooder stove in which the invention is embodied.

Fig. 2 is a horizontal section through the stove of Fig. 1, taken on the line 2—2, of that figure.

Fig. 3 is an enlarged detail section through the air blast ring illustrating the feeding action.

The illustrated embodiment of the invention comprises a stove 10 which when employed as a brooder stove is preferably set into the floor 11 of the brooder house. The bottom of the stove 10 is provided with a lining 12 of fireclay or similar heat resisting material and a stack 13 is provided adjacent the upper portion of the stove.

Extending downwardly within the center of the stove 10 is a fuel feed tube 14 provided at its upper extremity with a fuel hopper 15. The bottom of the feed tube 14 is spaced above the bottom of the stove 10 a sufficient

distance so that the fuel can form a natural fuel cone 16 upon the stove bottom. The angle of the side of the fuel cone 16 is equal to the natural angle of repose of the fuel.

A blast ring 17 lies upon the bottom of the stove 10. The blast ring 17 is an annular air pipe terminating at one extremity in a clean-out cap 18 and at its other extremity in a blower 19 of any suitable design. The blast ring 17 is provided with perforations 20 which extend approximately entirely around its periphery. The perforations 20 are preferably positioned to the outside of a vertical center line of the ring as illustrated in Fig. 3, so that they will direct air blasts upwardly and outwardly from the blast ring.

When using the stove for brooding purposes a hover 21 is provided which extends outwardly and downwardly from the upper portion of the feed tube 14 so that it will reflect the heat from the stove 10 toward the floor. It will be noted that the hover is positioned above the stove so that heat arising from the stove top will also be directed toward the floor 11 where it will be more effective in warming the chicks.

A door 22 is provided for access to the interior of the stove should it be necessary to make repairs and clean out clinkers and the like.

Operation

It is desired to call attention to the unique and effective method of operation of the burner. When once ignited the blast from the blower 17 blows the fuel upwardly entirely around the bottom of the fuel cone 16 causing it to burn in the space in the upper part of the stove 10. As the fuel is blown upwardly by the blast from the perforations 20, additional fuel will flow down the sides of the cone 16 from the feed tube 14. Thus, the air blast serves a double purpose. It supplies oxygen for the combustion and it operates to automatically feed fresh fuel from the tube 14.

The blower 19 can be connected in circuit with any suitable thermostat (not shown) so that when the desired degree of heat has been

reached the blower will stop. This will allow the cone of fuel 16 to smoulder and burn internally similar to the spontaneous combustion of slack coal piles. When additional heat is desired the blower again starts and the powdered fuel is again blown upwardly from the sides of the fuel cone 16 to burn in an intense blaze in the top of the stove 10.

A stove constructed according to the disclosures of this invention has been in constant use in a brooder house for the past ten months and has never been ignited since the initial ignition ten months ago. When the blower 19 is stopped the stove 10 becomes so cool that it feels cool to the hand and yet when the blower is started it becomes immediately heated.

While a specific form of the improvement has been described and illustrated herein, it is desired to be understood that the same may be varied within the scope of the appended claims, without departing from the spirit of the invention.

Having thus described the invention, what is claimed and desired secured by Letters Patent is:—

1. A pulverized fuel burner comprising: an annular horizontal perforated pipe; a substantially vertical feed tube terminating concentrically above said pipe a sufficient distance to allow the fuel from said tube to form a natural cone, the edges of which will extend over said pipe, said perforations being directed so as to blow fuel upwardly and outwardly around the edges of said cone; and means for supplying air to said pipe.

2. A pulverized fuel burner comprising: a stove having a top and bottom; a heat resisting lining in the bottom of said stove; a fuel feed tube extending downwardly within the center of said stove and terminating a considerable distance above said lining so that when said tube is filled with fuel it will flow from the lower extremity thereof and form a natural cone in the bottom of said stove; a hopper carried at the top of said fuel feed tube so as to direct fuel therein; and an annular pipe resting in the bottom of said stove provided with perforations, said perforations being formed in the top of said pipe so as to direct air upwardly through the surface of said cone.

3. A pulverized fuel burner comprising: a stove having a top and bottom; a heat resisting lining in the bottom of said stove; a fuel feed tube extending downwardly within the center of said stove and terminating a considerable distance above said lining so that when said tube is filled with fuel it will flow from the lower extremity thereof and form a natural fuel cone in the bottom of said stove; a hopper carried at the top of said fuel feed tube so as to direct fuel therein; an annular pipe resting in the bottom of said

stove and coiling within said cone, said pipe being provided with perforations, said perforations being formed in the top of said pipe and toward the outside periphery of the ring formed by said pipe so that they will direct air blasts outwardly and upwardly through the surface of said fuel cone.

In testimony whereof, I affix my signature.
LEE E. PINCKARD.

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