No. 758,237. PATENTED APR. 26, 1904.

R. A. CULTER.

HOT BLAST AIR FEEDING CENTER TUBE.

APPLICATION FILED JAN. 4, 1904.

NO MODEL.

Fig. 1.

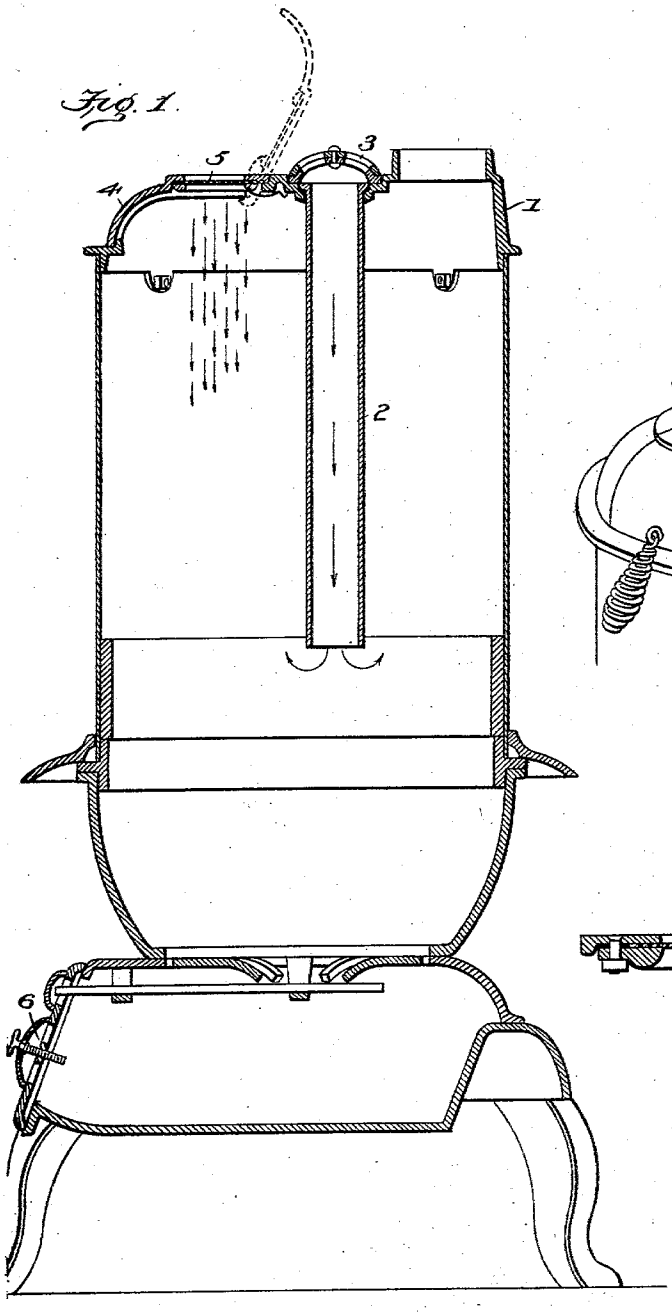


Fig. 2.

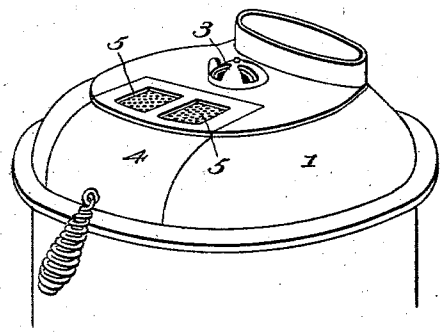
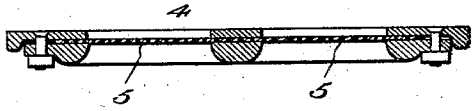


Fig. 3.



Witnesses

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 758,237. Patented April 26, 1904.

UNITED STATES PATENT OFFICE.

RICHARD A. CULTER, OF PEORIA, ILLINOIS.

HOT-BLAST AIR-FEEDING CENTER TUBE.

SPECIFICATION forming part of Letters Patent No. 758,237, dated April 26, 1904.

Application filed January 4, 1904. Serial No. 187,644. (No model.)

To all whom it may concern:

Be it known that I, RICHARD A. CULTER, a citizen of the United States, residing at 1005 Hamilton street, Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Hot-Blast Air-Feeding Center Tubes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In stoves in which a hot air-blast feed is used the air is fed to the combustion-chamber by a register-controlled downdraft center tube depending from the top plate of the stove and terminates a short distance above the fire-pot and the fuel is fed through an opening in the top down outside of the hot-blast air-feeding tube. A lift-cover closes the feed-opening, and the quick closing of the register in the tube is often followed by an explosion or what is known as "puffing," which is caused by the unconsumed gas and smoke in the combustion-chamber. The purpose of my improvement is to prevent this puffing and explosion by maintaining a perpetual feeding of air through a group or groups of perforations in the lift-cover into the combustion-chamber outside of the downdraft-tube, whereby the combustion of the smoke and gases is rendered so complete that explosions will be prevented.

The accompanying drawings illustrate my improvement in Figure 1, which is a vertical section of a stove with a hot-blast air-feeding center tube; and Fig. 2 shows in perspective the top of the stove, the registered inlet for the center downdraft air-feeding tube and the lift-cover for feeding the coal having panels of perforated tin for feeding air into the combustion-chamber outside of the hot-blast air-feeding tube. Fig. 3 shows a horizontal section of the perforated lift-cover.

The body of the stove is of sheet-steel supported by a suitable base and closed at the top by a plate which has the usual collar for the smoke-pipe. Centrally in the top plate 1 is suitably fitted an air-feeding tube 2, which terminates above the fire-pot and delivers a hot blast directly upon the fuel, so as to fan it to a flame and to consume the ignited gases. The cold air entering at the top of this center downdraft-tube is caused to be highly heated in its down passage and becomes a hot blast as it is delivered directly upon the bed of coals, uniting with and burning the gases and oxygen. A register-cap 3, fixed on the top plate, covers and controls the inlet-opening of this air-feeding tube to cut off the supply of air. A lift-cover 4 is provided in the top plate at the front, and instead of being solid, as heretofore, I provide it with panels 5, of perforated tin, the perforations being quite small and close together, affording perpetual feeding of air directly into the combustion-chamber down the outside of the center air-feeding tube, so that there is a constant feeding of air through the perforations of the lift-cover which serves to consume the excess of gases and smoke in the combustion-chamber, and thereby prevent explosion and puffing. In connection with this constant air-feed there is a controllable feeding of air through the center air-feeding tube to maintain a bright fire. The perforated tin forms a pair of panels in the lift-cover and are suitably secured on its under side, and without these perforations should the register in the tube be closed suddenly with a hot fire it is very apt to produce an explosion.

The stove has the usual draft-valves 6 in the ash-pit; but these base-valves are only opened to admit air to maintain the fire after the gases and smoke are consumed and the coals are in an incandescent condition and in the nature of coke, and when the base-valves are open the air-inlet end of the downdraft air-feeding tube is closed by its cap-register. In supplying air to the fire through the grate at the same time there is a perpetual feeding of air directly into the combustion-chamber from the perforations in the top-lift cover, which not only serves to promote combustion, but has proved a perfect success as a preventer of puffing and explosions in the combustion-chamber. It is important to note that the perforations in the lift-cover causes the air to pass into the combustion-chamber in a great number of streams which quickly mingle with the gases and smoke and turn them into flame

and that it is the pressure of this constant down air-feed that prevents smoke or gas from passing up through the perforations into the room, the atmospheric pressure being at all times active through these perforations.

While I have described and shown the top-lift cover having panels of perforated sheet metal for feeding air constantly into the combustion-chamber, obviously the perforations may be made in panels in the cover itself for the same purpose, and while I prefer to use sheet-tin for the set-in perforated panels obviously the panels may be made of perforated sheet-mica or other suitable material. In feeding the stove the lower valves should be closed.

I claim—

1. In a heating-stove and in combination, a fire-pot, a grate, a valve-controlled air-feeding tube opening at the top of the fire-pot and a top-lift feed-door having undampered perforations whereby a controllable air-supply is delivered directly upon the fire-bed and a perpetual air-supply is delivered within the upper part of the combustion-chamber to prevent explosions.

2. In a heating-stove, and in combination, a fire-pot, a grate, a valve-controlled air-feeding tube opening at the top of the fire-pot, a top-lift feed-door having openings and a panel provided with perforations secured to the under side of the door as a cover for said openings.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

RICHARD A. CULTER.

Witnesses:

ALBERT V. CULTER,

JAMES C. FOX.