

P. J. MOONEY.
FORAMINOUS FIRE PLATE OR COVER.
APPLICATION FILED NOV. 3, 1908.

946,701.

Patented Jan. 18, 1910.
2 SHEETS—SHEET 1.

Fig. 1.

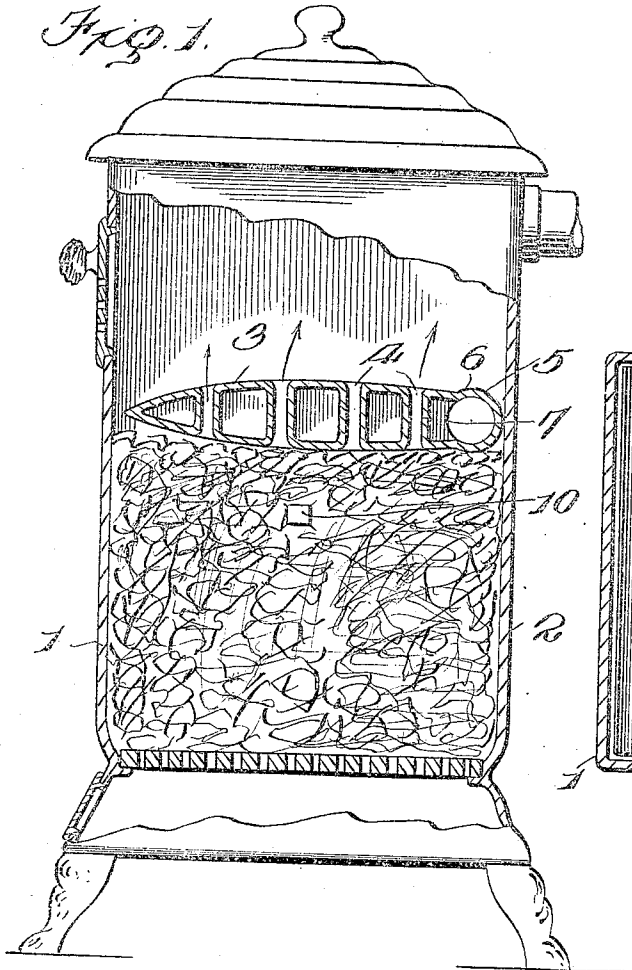


Fig. 2.

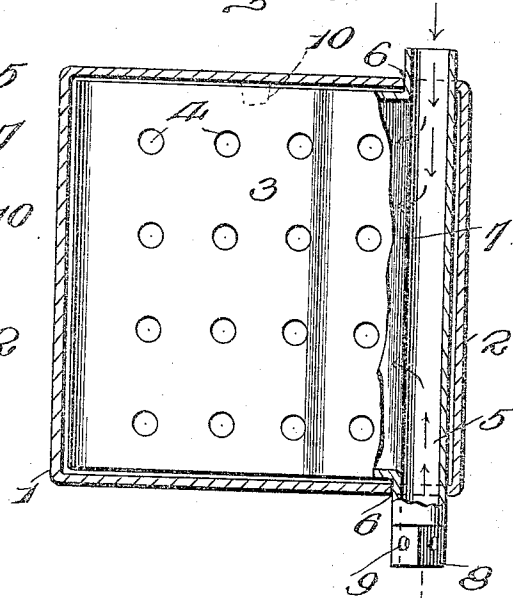
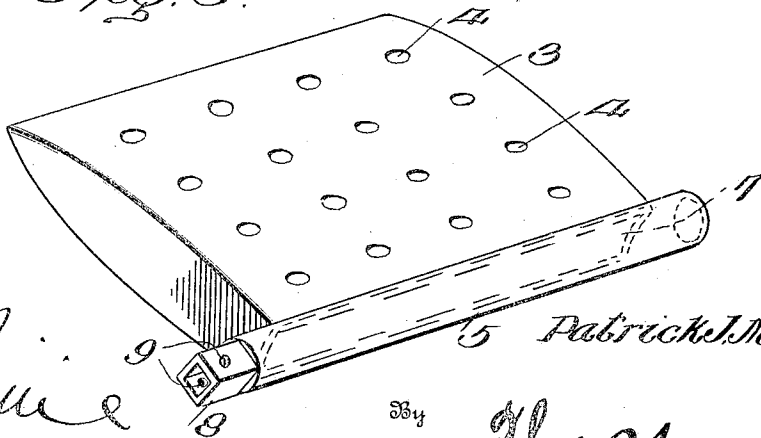


Fig. 3.



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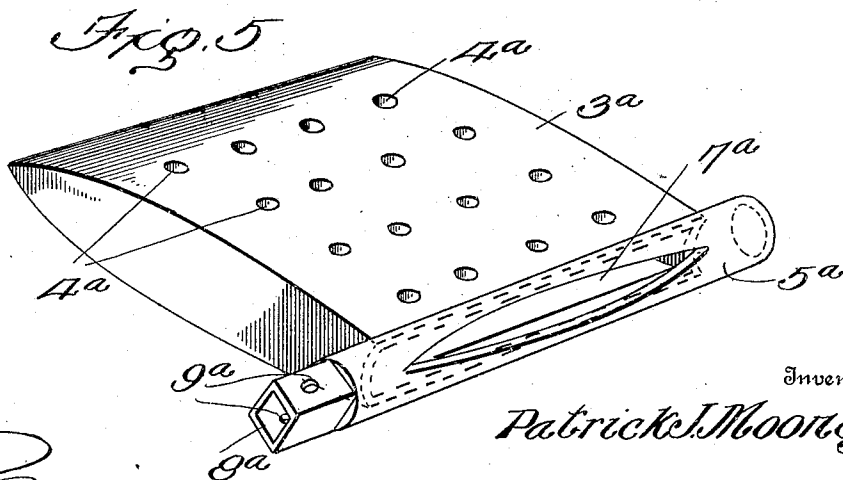
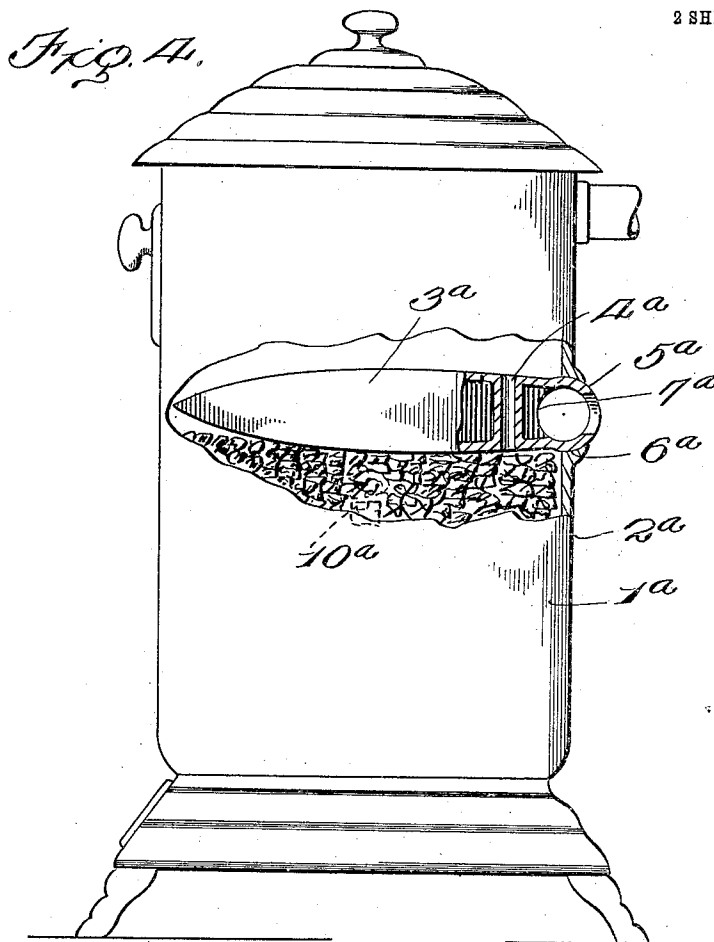
W. A. Mooney, Attorneys

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

PATRICK J. MOONEY, OF BRAZIL, INDIANA.

FORAMINOUS FIRE PLATE OR COVER.

946,701.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed November 3, 1908. Serial No. 460,853.

To all whom it may concern:

Be it known that I, PATRICK J. MOONEY, citizen of the United States, residing at Brazil, in the county of Clay and State of Indiana, have invented certain new and useful Improvements in Foraminous Fire Plates or Covers, of which the following is a specification.

This invention comprehends certain new and useful improvements in foraminous fire plate covers such as that described and claimed in my prior Letters Patent of the United States, #828,330, granted to me August 14, 1906.

The invention covered by that patent consists of a foraminous plate or cover designed to be easily applied to any bed of fuel for the purpose of uniformly distributing and increasing the draft, the said device effecting the complete oxygenizing of the combustible gases, and confining the gases until they are thoroughly commingled with the oxygen and consumed, while at the same time not detracting from the draft but on the other hand materially assisting the same, and as a result effecting improved economies in the consumption of fuel for heating and other purposes.

In the ordinary use of a foraminous fire plate cover where soft coal or similar fuel is used, a large portion of the gas that is generated from the volatile combustible matter in the fuel passes up through the foramina of the fire plate, unlighted, at a low temperature, causing the fire plate to remain comparatively cool while this gas predominates in the gaseous mixture burning above the fire plate. The generating of this gas lasts until the fuel bed and fire plate (both of which remain in a stationary position in the early stages of consumption of the fuel) have settled to say about $\frac{1}{3}$ of the original depth of the fuel bed, but, when the fuel reaches a state when it is almost wholly composed of carbon, the temperature of the fire plate increases more rapidly and, owing to the high degree of heat to which the fire plate is subjected, causes deterioration thereof when the carbon is burning.

Recognizing these conditions, my present invention contemplates means for producing

a circulation of cool air through the interior of the fire plate, so as to have a cooling effect thereon, aiding it to resist the deleterious effects of the fire while both the volatile combustible matter and also the carbon, are burning.

The invention also has for its object, an improved construction of foraminous fire plate cover so arranged as to admit of being easily and quickly applied to the fuel bed, and as easily removed therefrom for the purpose of replenishing the fuel or any other purpose. And the invention also has for its object, means for checking the downward movement of the fire plate at a definite point, as the fuel is consumed and settles.

With these and other objects in view, the invention consists in certain arrangements, constructions and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings in which:

Figure 1 is a vertical sectional view of a stove embodying the improvements of my invention, parts of the stove being shown in side elevation; Fig. 2 is a horizontal sectional view through the fire pot of the stove; Fig. 3 is a perspective view of the fire plate cover detached. Fig. 4 is a side elevation of a stove, partly broken away to illustrate a modification; and, Fig. 5 is a perspective view of the said modified form.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to the drawings, and more particularly to Figs. 1, 2, and 3, the numeral 1 designates the fire pot of a stove, the fire pot being of any desired or conventional construction or design, but being shown as rectangular in the present instance.

2 designates the rear wall of the fire pot.

My improved foraminous fire plate cover 3 is preferably of a truncated wedge shape, and is hollow, as clearly illustrated in the drawing and is formed with a plurality of foramina 4 which extends vertically there-

through to form passages through which the volatile combustible matter in the fuel passes, mixed with the oxygen entering the magazine or fire pot of the stove below the grate bars or in any other manner to gain access to the fuel, it being understood that in operation, the oxygen will be confined to a proper degree by means of said plate and will thoroughly commingle with the fuel and with the combustible gases evolved, and will thereby result in the complete combustion of the fuel, while at the same time such gases and free oxygen will be distributed by said plate so as to effect all portions of the fuel bed.

It is to be understood that the plate cover 3 is supported by the fuel bed, and that it will swing down with said bed and thereby always retain its proper position with relation thereto, and that the provision of the orifices in the plate provides a plurality of drafts which will act in the nature of suction orifices and insure the proper combustion, the carbon-monoxid being burned as it issues out of said orifices, thereby constituting flame-jets. In order to provide means whereby this plate may be easily applied to the fuel bed and as readily removed therefrom, and also in order to admit cool air into said plate so that it may be circulated therein, the plate is secured at one end to a laterally extending shaft or axis 5 which is journaled in bearings 6 formed on or secured in any desired way to the rear wall 2 of the fire pot. This shaft or axis 5 is hollow or tubular and is preferably open throughout its length and is formed contiguous to the fire plate or cover 3 with an elongated opening 7 establishing communication between the interior of the shaft and the interior of the fire plate, so that cool air may be freely admitted through the shaft and in to the fire plate so as to circulate therein, and tend to maintain the fire plate at a relatively low temperature. The said shaft or axis 5 may be formed with a square end 8 or the like so that a tool such as a wrench may be applied thereto for the purpose of swinging the plate up when it is desired to replenish the fire or in swinging the plate down to rest upon the fuel. Also, if desired, such end of the shaft may be formed with transversely extending openings 9 for the reception of a poker or the like for the same purpose.

10 designates lugs or projections that are formed on and secured within the fire pot to the opposite side walls thereof, in order to limit or check the settling of the fire plate at the desired elevation.

In the modification of my invention, illustrated in Fig. 4 and Fig. 5, 1^a designates a stove body, 2^a the rear wall of the fire pot, and 3^a the modified form of the fire plate or

cover, which is hollow as indicated in Fig. 4, and which is formed with openings or passages 4^a similar to the openings 4 before described. In this modified form of the fire plate or cover, the hollow shaft 5^a thereof is journaled in the rear wall 2^a as indicated at 6^a in such position as to expose a portion of said shaft to the atmosphere, the shaft being provided with a slot 7^a which extends longitudinally, as shown, and which is formed so as to extend through both walls of the shaft, as clearly illustrated in Figs. 4 and 5 so as to permit the air to enter the shaft not only at the end thereof, but directly through the slot 7^a and then circulate through the hollow fire plate or cover 3^a. In this modification also, the shaft is formed with a non-circular end 8^a and with openings 9^a, and the fire pot of the stove is formed with lugs or projections 10^a designed to limit or check the settling of the fire plate at the desired elevation.

From the foregoing description, in connection with the accompanying drawings, it will be seen that I have provided a very simple construction of foraminous fire plate cover which not only possesses the advantageous features set forth more fully in the specification accompanying my prior patent No. 828,330, but it also possesses the additional advantages in that it provides means for conveniently placing the fire plate in position, and removing it therefrom; while in operation means are provided for the circulation of cool air so as to reduce to a minimum degree the injurious effects of the high temperature caused by the burning fuel.

It is to be understood that my improved foraminous fire plate cover is so constructed that it does not admit the air from its interior to the interior of the fire pot, but that the air entering the shaft 7 or shaft 7^a merely circulates within the hollow wedge shaped body which forms the fire plate and does not obtain access to the fuel bed.

Having thus described the invention, what is claimed as new is:

1. The combination with a fire pot provided with bearing openings and on its interior with stop lugs in a plane below said openings, of a hollow fire plate provided with a shaft adapted to be journaled in said openings and arranged to rest upon the fuel bed and swing downwardly as the fuel bed sinks, said plate being formed with foramina extending therethrough and with independent means for permitting a circulation of air in through said shaft to the interior of the fire pot, all around the walls of the foramina, the stop lugs being arranged to limit the downward sinking movement of the fire plate.

2. The combination with the fire pot of a

stove, of a hollow shaft journaled therein
with a portion exposed to the exterior of
the stove and formed in such portion with
a slot and a hollow foraminous fire plate
5 secured to said shaft and formed with an
opening establishing communication be-
tween the interior of the fire plate and the
interior of the shaft, whereby cool air may

be passed into the fire plate directly through
the slot and opening.

In testimony whereof I affix my signature
in presence of two witnesses.

PATRICK J. MOONEY. [L. s.]

Witnesses:

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IGNATIUS JARBOE.

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