No. 828,330 PATENTED AUG. 14, 1906.

P. J. MOONEY.

FORAMINOUS FIRE PLATE COVER.

APPLICATION FILED NOV. 21, 1905.

Fig. 1

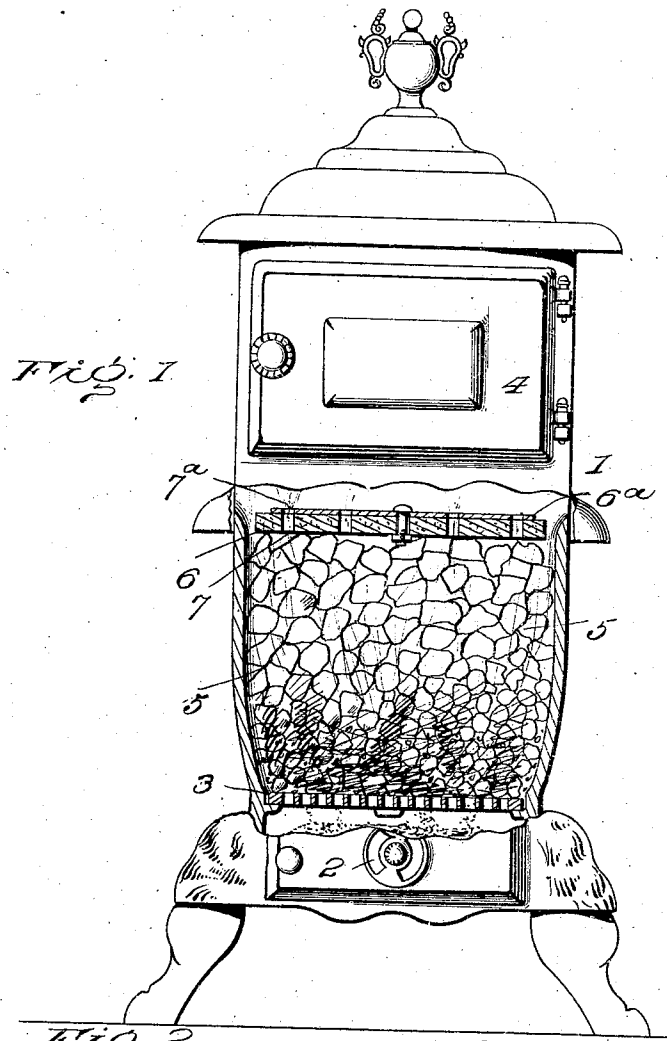


Fig. 2

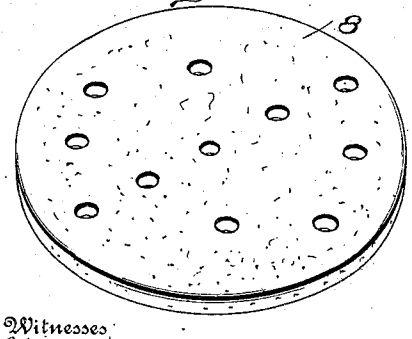
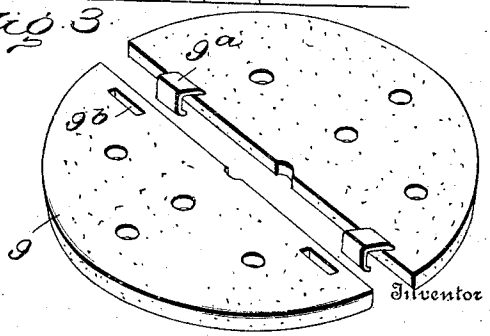


Fig. 3



Witnesses
W. A. Woodson
Jno. Imrie

Inventor
P. J. Mooney.
By R. A. B. Lacey, Attorneys

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

PATRICK J. MOONEY, OF BRAZIL, INDIANA.

FORAMINOUS FIRE PLATE COVER.

No. 828,330 Specification of Letters Patent. Patented Aug. 14, 1906.

Application filed November 21, 1905. Serial No. 288,430.

To all whom it may concern:

Be it known that I, PATRICK J. MOONEY, a 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.

It is universally recognized that a high per cent. of the thermal efficiency of coke, coal, wood, and all the other substances used as fuel for heating and cooking or other purposes is lost or wasted as a result of the incomplete combustion of carbon with oxygen, the carbonaceous oxid or carbon monoxid resulting from this incomplete combustion being ordinarily in the present practice of burning fuel wasted through the outlet-pipe. In view of the fact that the carbon monoxid formed by the incomplete combustion of carbon with oxygen is inflammable it is evident that the thermal efficiency of a bed of coals or other fuel may be greatly promoted if the carbon monoxid were to be completely consumed or burned in the stove or other magazine for the fuel and not wasted to the exterior atmosphere, as is now commonly the case.

One of the objects of my invention is to provide an improved means for effecting a complete combustion of the carbonaceous material of which coal and other fuel is so largely composed; and the further object of the invention is to provide a simple device which may be readily applied to any bed of fuel and which in its action will distribute the draft uniformly and will increase the draft and accelerate the process of combustion whenever desired and which will effect, as before stated, the complete oxygenizing of the combustible gases, which will confine such gases until they are thoroughly commingled with the oxygen and consumed, while at the same time will not detract from the draft, but, on the other hand, will materially assist the same, and which will as a result effect improved economies in the consumption of fuel for heating and other purposes.

With this and other purposes in view, as will hereinafter appear as the description proceeds, my invention consists, essentially, of a foraminous plate designed to be held directly upon or in superposed relation to the bed of live coals or other fuel without any material support other than said bed of fuel and preferably spaced slightly from the interior walls of the stove or other magazine containing the bed of fuel.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a side elevation of a heating-stove with parts broken away to show my improved article of manufacture located therein in juxtaposition to the bed of fuel. Fig. 2 is a detail perspective view of one form in which my invention may be embodied. Fig. 3 is a similar view of another form.

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

Referring to the drawings, the numeral 1 designates a stove, which may be of any desired form and construction and which is here portrayed for the purpose of illustration only. It is provided with a lower damper 2, grate 3, and fuel-inlet door 4, all of which may be of any preferred construction or design. 5 designates the bed of fuel. Upon the bed of fuel rests my improved plate 6, which is foraminous, as shown, being in the present instance provided with apertures or orifices 7, which may be of any preferred number, shape, or location with respect to the margin of the plate. The plate 6 is superposed on the bed of fuel and rests directly thereon without other support in the magazine of the stove, and its margin or outer edge is preferably spaced somewhat from the inner wall of the magazine, as shown. In that form of my invention illustrated in Fig. 1 the plate 6 is provided with a superadjacent and contiguous plate 6^a, which is also foraminous and is pivotally mounted with respect to the plate 6, so that as said plates are turned axially with respect to each other the openings 7 and the openings 7^a in the plate 6^a may be regulated with relation to their areas so as to provide more or less openings as may be desired and so as to provide also openings of different sectional areas.

When the bed of coals or other fuel is burning, it is manifest that by placing my improved article of manufacture—namely, the foraminous plate—directly upon the bed of fuel and supported thereby the oxygen entering the magazine below the grate-bars through the damper 2 or in any other man-

ner to thereby gain access to the fuel will be confined to the proper degree by means of the 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, and at the same time such gases and the free oxygen will be distributed by said plate so as to affect all portions of the fuel-bed. Furthermore, the provision of the openings in the plate provides a plurality of drafts, which will act in the nature of suction-orifices to insure the proper combustion, and the carbon monoxid will burn as it issues out of said orifices, which thereby constitute flame-jets. As the fuel is thus burned and the process of disintegration and combustion accelerated by my improved device the latter, as it is supported solely by the fuel-bed, will sink down with said bed, and thereby always maintain its proper position with relation thereto. It will be noted that my improved plate controls the process of combustion and promotes the thermal efficiency of the fuel-bed to a marked degree. It is to be understood that the plate may be composed of any substance or material that is not injuriously affected by the heating and that it may be composed of material which will incandesce or otherwise, as desired. Moreover, the plate precludes harmful contact of the bed of fuel with air, as even if the door 4 of the stove is open above the live fuel the plate will form a covering or blanket for the fire, and it will thus be maintained burning in a subdued manner, and the combustible gases will be consumed and unnecessary exhaustion of the fuel by superfluous air coming in at the door will be prevented.

As shown in Fig. 2, the plate there designated 8 may be of one integral structure instead of two plates pivotally connected together, as shown in Fig. 1, or, as illustrated in Fig. 3, the plate there designated 9 may be constructed in two sections detachably and pivotally connected together by means of lugs 9^a and sockets 9^b, so that said sections may be detached from each other for convenient insertion into the stove, and thus readily connected in operative position. It is to be understood that the plate or cover may be either rigid or flexible, as desired.

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

1. As a new article of manufacture a foraminous plate designed to be superposed on a bed of fuel, for the purpose specified.

2. As a new article of manufacture, a foraminous plate designed to be superposed on a bed of live fuel and to be supported solely thereby said plate being provided with means for regulating the area of its openings.

3. The combination with a stove or the like, of a foraminous plate designed for insertion in said stove, and for superposition upon the fuel therein, said plate being supported directly upon and solely by said fuel whereby it will sink as the bed lowers, and said plate being spaced from the walls of the stove.

4. The combination with a stove or the like of a cover for the fuel-bed, said cover being supported directly upon and by said bed, and being foraminous, as and for the purpose set forth.

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

PATRICK J. MOONEY.

Witnesses:
J. M. MINGEL,
FREDERICK S. STITT.