

J. F. WILLIAMS.
 COMBINED ASH PAN AND BURNER.
 APPLICATION FILED JAN. 18, 1909.

926,531.

Patented June 29, 1909.

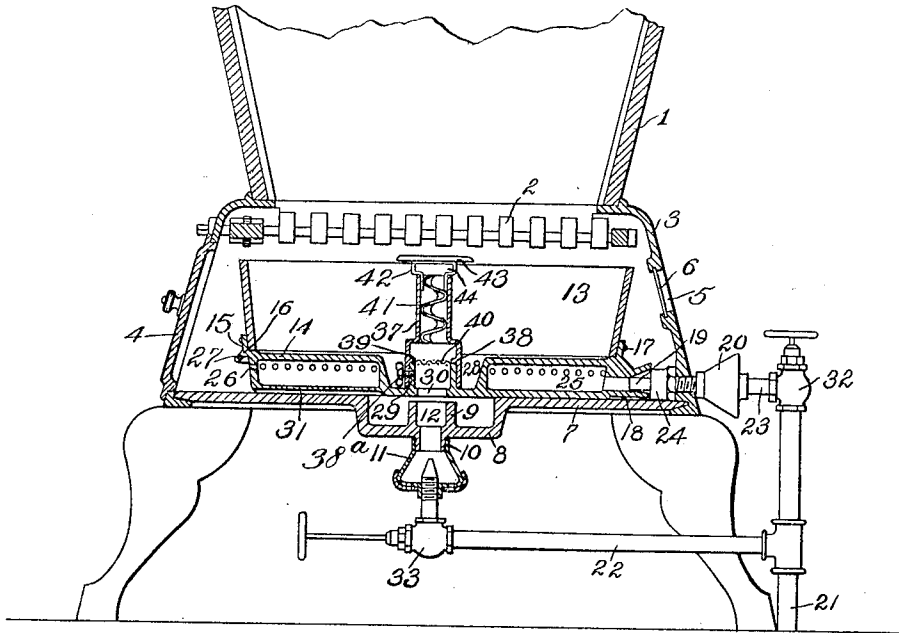


Fig. 1

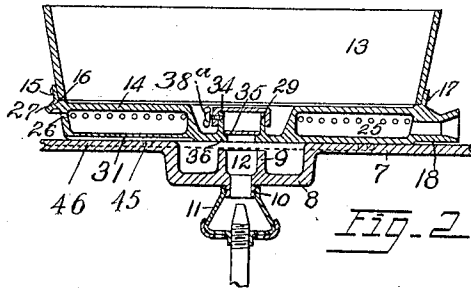


Fig. 2

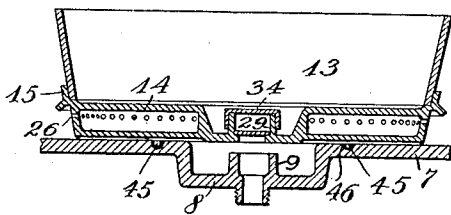


Fig. 4

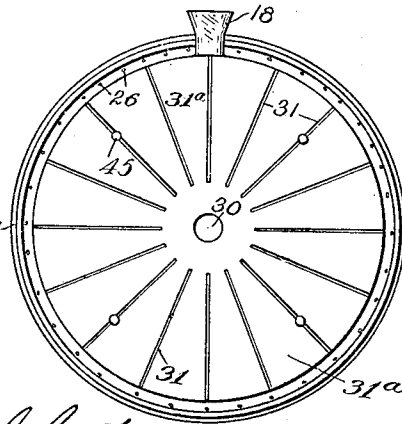


Fig. 3

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UNITED STATES PATENT OFFICE.

JOHN F. WILLIAMS, OF SANDUSKY, OHIO.

COMBINED ASH-PAN AND BURNER.

No. 926,531.

Specification of Letters Patent.

Patented June 29, 1909.

Application filed January 18, 1909. Serial No. 472,791.

To all whom it may concern:

Be it known that I, JOHN F. WILLIAMS, a citizen of the United States, residing at Sandusky, in the county of Erie and State of Ohio, have invented a certain new and useful Improvement in Combined Ash-Pans and Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to a combined ash pan and gas burner, and more particularly to an ash pan and burner which may be employed in connection with stoves adapted to burn both solid and gaseous fuel.

More limitedly, the invention consists of a combined burner and ash pan which may be conveniently inserted into and removed from its place in the ash pit without disturbing the arrangement or construction of the associated parts; the invention also consists of the cooperating features of the burner and of the stove and gas supply ducts which will enable my device to subserve its double purpose as a burner and ash pan, retaining the advantageous features of both the pan and the burner without sacrificing the efficiency of either.

Generally speaking, the invention may be defined as consisting of the combinations of elements embodied in the claims hereto annexed and illustrated in the drawings forming a part hereof, wherein—

Figure 1 represents a vertical sectional view through the lower part of a stove having my invention applied thereto; Fig. 2 represents a sectional detail of the combined ash pan and burner, with the central burner in inoperative condition; Fig. 3 represents a bottom plan view of the combined ash pan and burner; and Fig. 4 a sectional view taken at right angles to Figs. 1 and 2.

Describing the parts by reference characters, 1 represents the lower portion of a stove adapted for the burning of solid fuel, as coal, and provided with a grate 2 of ordinary construction. 3 denotes the ash pit of the stove, which may be also of ordinary construction, having downwardly flaring sides and provided with a door 4 at the front thereof and with an opening 5 provided with a closure 6 of mica or similar transparent material, permitting inspection of the interior of the ash pit and of the burner therein. The bottom of the ash pit is provided with a plate 7 constituting a closure therefor, said plate having a plane upper surface except as

to the central portion thereof, where it is provided with a depressed portion 8 forming with its vertical side wall a downwardly-projecting chamber. The chamber formed by the depression is provided with an upwardly projecting nipple 9 extending nearly to the level of the upper surface of plate 7 and also with a downwardly projecting nipple 10 which is provided with an external thread for the reception of a mixer 11. The nipples 9 and 10 may be conveniently cast with the plate 8 and together form a passageway 12 communicating with the mixer.

On top of plate 7 there is mounted my combined ash pan and burner 13. The upper portion of the combined ash pan and burner is of ordinary construction, having upwardly flared side walls, the upper perimeter of which is of sufficient extent to receive the ashes discharged from the grate 2. The bottom of the ash pan is formed mainly by a burner 14, shown as annular in shape, the outer portion of said burner being provided with an upwardly projecting flange 15 within which the lower edge of the pan 13 fits, such pan resting on an outwardly projecting flange 16 formed with the burner. The ash pan 13 may be secured to the flange 15, as by means of rivets 17.

The burner 14, as previously stated, is of the annular type, having a peripheral inlet connection 18 projecting therefrom adapted to receive the nipple 19 of a gas-and-air inlet projecting through the lower end of the ash pit, opposite the door 4, said gas-and-air inlet communicating with a mixer 20 located outside and preferably at the rear of the stove. The inlet connection 18 is flared at its outer end to insure its receiving the end of the nipple 19 in sliding the pan and burner into place in the stove. 21 denotes a gas-supply pipe having a valve-controlled branch 22 communicating with the mixer 11 and a second valve-controlled branch 23 communicating with the mixer 20. The gas-and-air inlet which projects through the rear wall of the ash pit has threaded thereon a nut 24 which serves as a stop for the combined ash pan and burner and enables the same to be properly positioned both with reference to the ash pit and with reference to the gas-and-air inlet when being inserted into the ash pit.

The burner 14 comprises, in addition to the flanges 15 and 16 and the connection 18, the gas-and-air distributing chamber 25. This distributing chamber is provided in its

outer periphery with the burner orifices 26, said burner orifices being located below a downwardly extending flange 27 projecting preferably from the flange 16. At its central portion, the burner 14 is provided with a recess 28, the bottom of which is substantially flush with the bottom of the chamber 25. The plate forming the bottom of the recess 28 is provided with a nipple 29 projecting upwardly from a central aperture 30, said aperture registering with the bore 12 of nipples 9 and 10. Nipple 29 extends upwardly substantially as far as the upper surface of the burner 14 and forms part of a central burner which may be employed for the purpose of igniting fuel carried by the grate 2 for the purpose of starting the fire in the stove or for heating in moderate weather.

It will be observed that the central portion or depression of burner 14 is smaller in area than the chamber formed within the central depression of the bottom plate 7. As will appear by reference to the drawings, the burner 14 rests on the bottom plate or ridges 31 and is provided beneath its lower surface with passageways 31^a which project radially from the central portion of the burner to the outer periphery thereof and form fuel passages whereby gas and air discharged into the central recess through the plate 8 may be discharged at the outer periphery of burner 14 and be ignited there beneath the flange 27. When employed in this manner, the valve 32 will ordinarily be closed and the valve 33 opened and the upper end of nipple 29 will be closed by a cap 34 as well as by a plate 35 adapted to rest upon a ledge 36 at the bottom of nipple 29. However, the mixer 11 and the nipples thereabove and the passageways 31^a provide means for supplying air to the grate and to the flames issuing from the burner orifices 26 when the valve in the branch supply 22 is closed.

When it is desired to use a central burner for the purpose of kindling a fire on the grate 2 or for heating, as in moderate weather, the cap 34 and plate 35 are removed and a burner superstructure is applied to the nipple 29. This burner superstructure comprises a burner tube 37, the lower end whereof is adapted to fit more or less closely the exterior of nipple 29. The lower portion of the burner tube is preferably enlarged, as shown at 38, to receive the nipple 29, and such enlargement is provided between the top and bottom thereof with an inwardly projecting rib or flange 39 adapted to clamp a screen 40 between itself and the top of said nipple. The contracted portion 37 of the burner tube is provided with a spiral rib 41 extending therearound for the purpose of thoroughly intermingling the gas and air flowing there-through as well as assisting in preventing the "flashing back" of the flame within the burner tube. The burner tube is provided

at its upper end with a spreader plate 43 beneath which the mixture of gas and air is discharged through one or more slots 44. A set screw 38^a clamps the burner tube to the nipple 29 and enables the pan to be emptied without disarranging the burner parts.

With the apparatus constructed as described, the operation will be as follows: When it is desired to use my device simply as an ash pan, it will be in the form shown in Fig. 2, with the central burner out of commission and with the central opening closed by the plate 35 and cap 34. In this condition, it will operate as an ordinary ash pan to receive the ashes discharged from the grate and prevent the same from dropping through the central portion of the ash pan and may be conveniently removed through the stove door 4 and its contents emptied in the usual manner. In reinserting the device in the stove, care need be taken only to see that the connection 18 receives the nipple 19, the nut 24 having been so adjusted as to secure the proper relation between the top of the ash pan and the grate. If it is desired to use my device as a burner for the purpose of heating a stove, either alone or in conjunction with solid fuel, it is only necessary to open the valve 32 and ignite the gas at the orifices 26 which are nearest the door 4. The flange 27, which overhangs the orifices 26, insures the ignition of the gas at all the orifices of burner 14 and protects said orifices from any ashes that may drop from the grate and fail to enter the pan. If desired to augment the heat thus supplied, or to employ a smaller amount of heat, as the case may be, the valve 33 will be opened and gas will then flow through the radial passageways 31^a and may be ignited beneath the flange 27, either by the gas burning at orifices 26 or, in case gas is not being supplied through said orifices, by the application of a match or taper beneath the flange 27. If desired to use the central burner, as for the purpose of lighting the solid fuel on the grate 2, it will be necessary only to remove plate 35 and cap 34 and apply to the nipple 29 the burner superstructure shown in Fig. 1. The mixture of gas and air from the mixer 11 will then pass upwardly and be burned at the slot 44 beneath the grate. As a convenient means for insuring a proper relation between the burner connection 18 and the nipple 19 when the combined burner and pan is inserted in place, the bottom of the pan and burner is provided with short lugs 45 adapted to enter longitudinal slots 46 in the plate 7.

The construction above described, while possessing great advantages in connection with the ordinary types of heating stoves, is simple and economical of production and may be applied to existing types of stoves with a minimum of alteration.

While I have shown a circular ash pan and

a main burner of corresponding shape, the shape shown is for the purpose of illustration only. The upwardly flaring sides of the ash pan protect the burner orifices 26 from any ashes that may fall into the ash pit, and this shape of pan, combined with the location of the main burner orifices and the shape of the ash pit, constitute a very efficient construction for heating the lower portion of the stove.

Having thus described my invention, what I claim is:

1. The combination, with an ash pit, of a fluid fuel supply leading thereto, a removable ash pan, a burner carried thereby and arranged to be brought into operative relation with respect to said supply when the ash pan is in operative position in the ash pit.

2. The combination, with an ash pit, of a fluid fuel supply pipe projecting into said pit and provided with an adjustable stop thereon, a removable ash pan, a burner carried thereby and having an inlet connection adapted to receive said pipe and abut against said stop when the ash pan is in its operative position within the ash pit.

3. The combination, with an ash pit, of a fluid fuel supply leading thereto, a removable ash pan, a burner carried thereby, said pan being slidably supported in said ash pit and having an inlet connection, and means for guiding said ash pan to cause the inlet connection and fluid fuel supply to be brought into operative relation.

4. The combination, with an ash pit, of a fluid fuel supply leading thereto, a removable ash pan, a burner carried by said ash pan and arranged within the same and having an inlet so arranged as to be brought into operative relation with respect to said supply when the ash pan is in its operative position in the ash pit.

5. The combination, with an ash pit, of a fluid fuel supply leading thereto, a removable ash pan having in the central portion thereof an upwardly projecting nipple, a burner tube removably secured to said nipple, and a cap for said nipple, the fluid supply being so arranged as to be in operative relation to said nipple when the ash pan is in its operative position in the ash pit.

6. The combination, with an ash pit having a bottom plate provided with a depressed portion, a fluid fuel supply leading to such depressed portion, a removable ash pan, and a burner therefor and carried thereby, said

burner having an inlet adapted to be brought above the depressed portion of the bottom plate and in operative relation to the supply when the ash pan is in operative position in the ash pit.

7. The combination, with an ash pit, of a pair of gas supply pipes leading thereto, a removable ash pan, a pair of burners carried thereby and each having an inlet arranged to be brought into operative relation with one of said gas supply pipes when the ash pan is in operative position in the ash pit, and valves for said pipes.

8. The combination, with an ash pit and a grate thereabove, of a fluid fuel supply pipe leading to the ash pit, a removable ash pan, a burner carried thereby and having an inlet arranged to be brought into operative relation with respect to said supply when the ash pan is in its operative position in the ash pit, and means overhanging the burner discharge to protect the same from ashes discharged from the grate.

9. The combination, with an ash pit, of a fluid fuel supply leading thereto, an ash pan, a burner carried thereby and having an inlet, and a stop arranged to arrest the movement of the ash pan in the ash pit and cause the burner inlet and supply pipe to be brought into operative relation to each other when the ash pan is in operative position within the ash pit.

10. As a new article of manufacture, an ash pan having an upwardly flaring side, and a fluid fuel burner combined therewith and provided with burner discharge orifices located beneath such upwardly flaring side.

11. As a new article of manufacture, an ash pan and a fluid fuel burner carried thereby, said pan having an upwardly flaring side, the burner having orifices adapted to discharge beneath said side, and a flange projecting downwardly from said side and overhanging said orifices.

12. The combination, with an ash pit having upwardly converging sides, of an ash pan having upwardly flaring sides, and a burner carried by said pan and adapted to discharge beneath its sides.

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

JOHN F. WILLIAMS.

Witnesses:

J. B. HULL,
BRENNAN B. WEST.