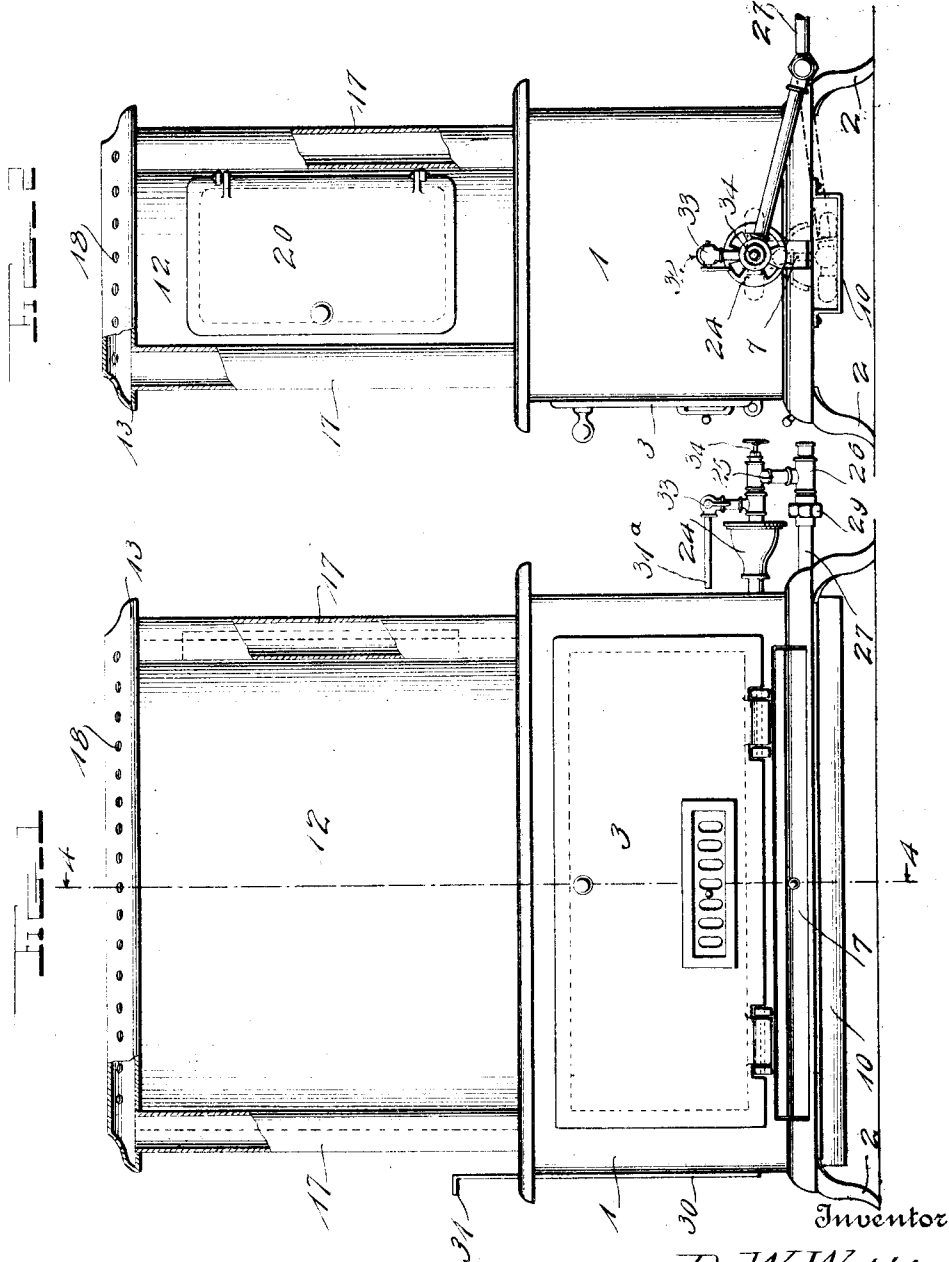


R. W. WILLIS.
COMBINATION GAS, WOOD, OR COAL STOVE.
APPLICATION FILED DEC. 4, 1911.

1,050,586.

Patented Jan. 14, 1913.

3 SHEETS-SHEET 1.



Witnesses

C. E. Hunt

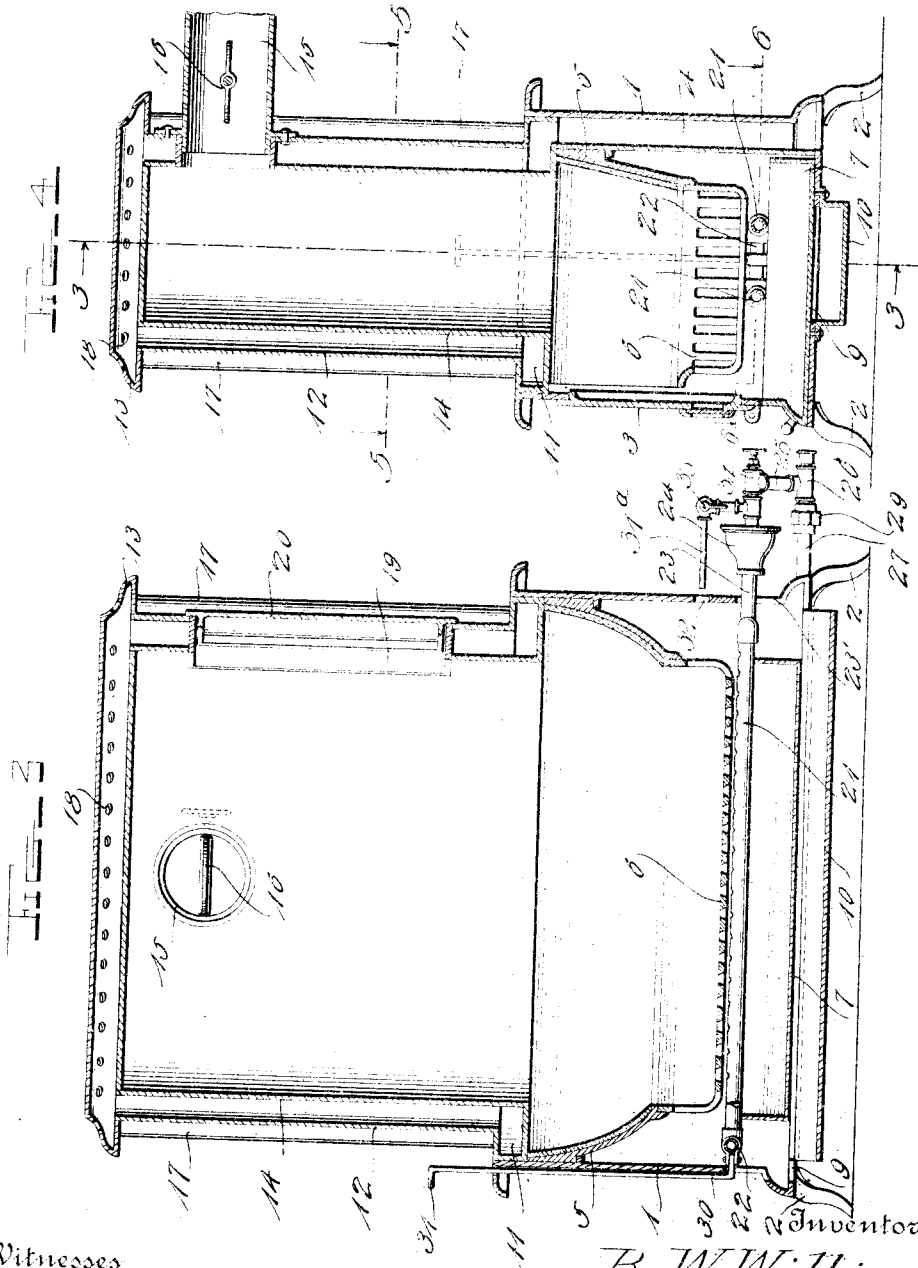
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Witnesses

E. Allen

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Inventor
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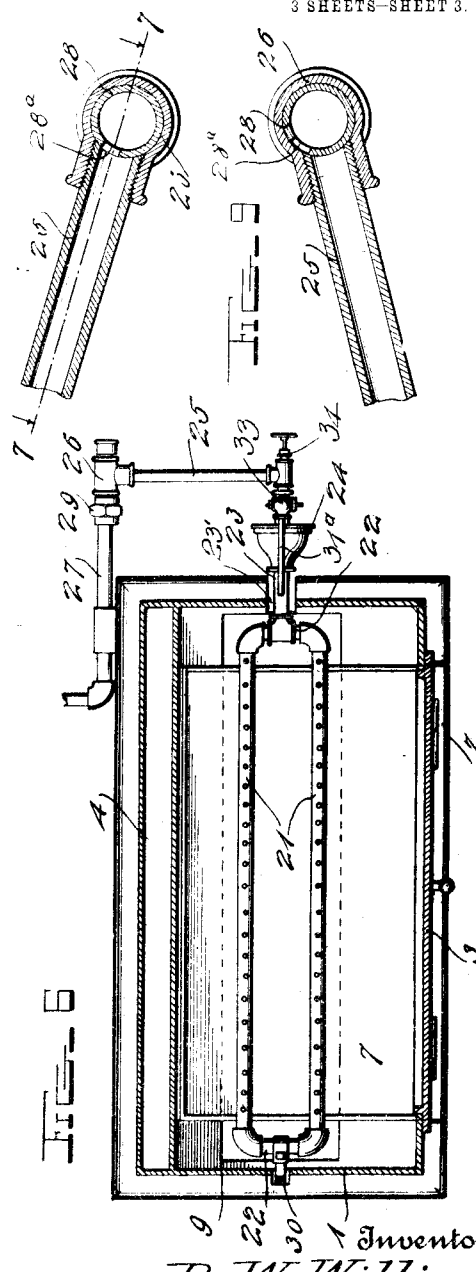
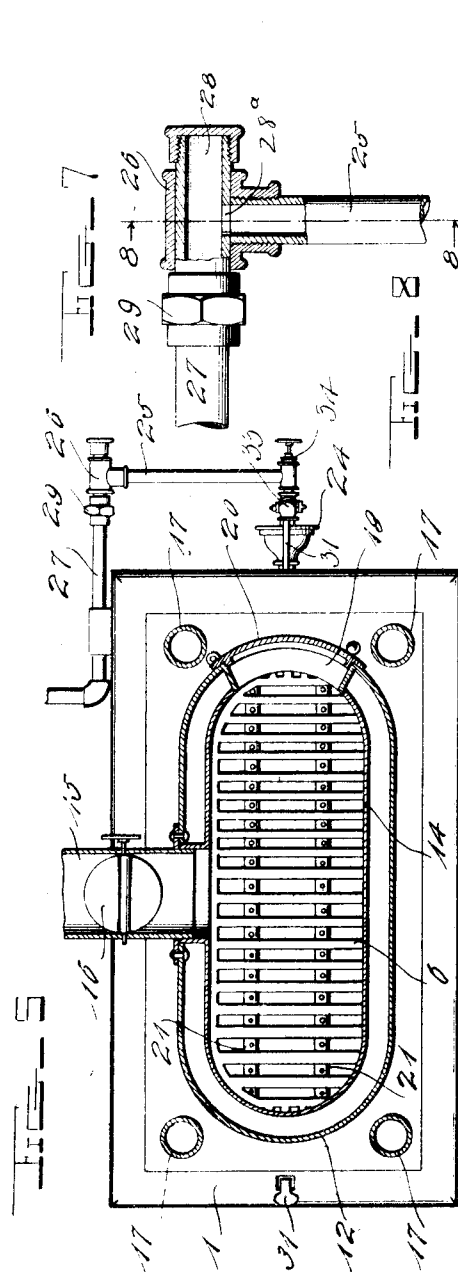
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3 SHEETS-SHEET 3.



Witnesses

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UNITED STATES PATENT OFFICE.

ROBERT WADE WILLIS, OF SAPULPA, OKLAHOMA.

COMBINATION GAS, WOOD, OR COAL STOVE.

1,050,586.

Specification of Letters Patent.

Patented Jan. 14, 1913.

Application filed December 4, 1911. Serial No. 663,622.

To all whom it may concern:

Be it known that I, ROBERT WADE WILLIS, a citizen of the United States, residing at Sapulpa, in the county of Creek and State of Oklahoma, have invented certain new and useful Improvements in Combination Gas, Wood, or Coal Stoves; and I do 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.

This invention relates to improvements in combined gas, wood or coal burning heating stoves.

The object of the invention is to provide a stove of this character having an improved construction and arrangement of a gas burner which may be readily shifted to operative and inoperative positions thus permitting the stove to be quickly and easily converted from a gas to a wood or a coal burning stove.

With this object in view the invention consists of certain novel features of construction, and the combination and arrangement of parts as will be more fully described and claimed.

In the accompanying drawings; Figure 1 is a front view of my improved stove; Fig. 2 is an end view of one end thereof showing in full and dotted lines the operative and inoperative positions of the burner; Fig. 3 is a vertical section on the line 3—3 of Fig. 4; Fig. 4 is a transverse section on the line 4—4 of Fig. 1; Fig. 5 is a horizontal section on the line 5—5 of Fig. 4; Fig. 6 is a similar view on the line 6—6 of Fig. 4 showing more particularly the construction and arrangement of the burner and the gas supply pipe of the stove; Fig. 7 is an enlarged detail sectional view through the gas supply pipe for the burner taken on the line 7—7 of Fig. 8 and showing the construction of the gas control valve which is automatically opened and closed by the shifting of the burner, illustrating the valve in open position; Fig. 8 is a sectional view of the same on the line 8—8 of Fig. 7; Fig. 9 is a similar view showing the parts in closed or inoperative position.

My improved stove comprises a hollow base 1, which may be of any suitable shape but is here shown and is preferably of substantially rectangular oblong form and is supported at a suitable elevation by feet 2. In the front side of the base is arranged an

opening which is closed by a hinged door 3. In the rear side of the base 1 is arranged a cold air inlet passage 4 which extends the entire length of the base as clearly shown in Figs. 4 and 6 of the drawings. In the main portion of the base is arranged a fire box 5 in which is secured a suitable form of grate 6, the front, bottom, and ends of which are formed of grate bars, while the rear side thereof is solid. In the base below the fire box and grate and slidably engaged with the bottom of the base is an ash pan 7, said pan being adapted to be drawn out through the front side of the stove below the door 3. In the bottom of the base is arranged a central longitudinally disposed opening 9 through which a burner hereinafter described is adapted to be raised and lowered to operative and inoperative positions. Below the opening in the bottom of the base is arranged a burner support 10 in which the burner rests when in an inoperative position.

The top of the base 1 is in the form of a flat horizontally disposed air chamber 11 with which the cold air passage 4 at the rear side of the base connects. To the top of the air chamber 11 is connected an upwardly extending air heating and radiating drum 12 the upper end of which is connected with a flat heat discharging chamber 13. Arranged in the drum 12 is a centrally disposed heating drum 14 the lower end of which extends through the air chamber 11 and connects with an opening through the bottom of said chamber whereby said drum connects with the upper end of the fire box. Connected with the rear side of the upper end of the dome 14 and passing out through the adjacent side of the drum 12 is a smoke flue or pipe 15 in which is arranged a suitable draft damper 16.

The air chamber 11 is connected at each corner with the heat discharging chamber 13 at the upper end of the drum 12. In the upper end and sides of the heat discharging chamber 13 are arranged heat discharging passages 17 through which the heated air passes to the surrounding atmosphere. By thus arranging the air chamber 11 and the drum 12 it will be seen that the cold air entering the chamber 11 through the passage 4 passes upwardly from said chamber through the space between the drum and the dome 14 and is thus thoroughly heated by contact with the hot sides of the drum and is discharged in a heated

condition through the discharge openings 18 in the chamber 13 forming the top of the drum. The heat conducting tubes 17 also conduct the air heated in the corners of the chamber 11 to the discharging chamber 13, thus increasing the heating capacity of the stove. In one end of the drum 12 and dome 14 is formed a fuel supplying opening 19 through which wood or coal is supplied to the fire box when this kind of fuel is used. The opening 19 is closed by a door 20 which is preferably hinged to one side of the drum as shown.

In addition to the fire box and grate for burning coal or wood the stove is further provided with means whereby the same may be heated by gas. The gas heating mechanism as shown comprises a pair of burner tubes 21 which are disposed longitudinally in horizontal parallel relation in the base of the stove and are connected together at their ends by short connecting pipes 22. To the connecting pipe at one end of the tubes 21 is a short gas conducting pipe 23 which passes out through a slot 23' in the adjacent end of the base and is connected to a suitable air mixing device 24. The air mixing device 24 is connected to the forward end of a gas conducting pipe 25 which extends back and is connected with a sleeve 26, forming one member of a rotary valve arranged on the adjacent end of the gas supply pipe 27. The inner member of the valve is in the form of a tube 28 closed at its outer end and connected at its inner end by a coupling 29 to the end of the gas supply pipe, said tube having formed in one side thereof a gas discharging passage 28^a with which the end of the gas conducting pipe 25 is adapted to be brought into register when the burner is swung upwardly to an operative position and which is closed by the sleeve 26 when the burner is swung downwardly to an inoperative position, thus automatically closing the valve and cutting off the supply of gas. The sleeve 26 fits sufficiently tight around the tube 28 as to be frictionally held in adjusted position, the friction between said tube and sleeve being sufficient to hold the burner connected with the sleeve in raised position.

The burner composed of the connected tubes 21 is lifted to an operative position beneath the grate 6 by means of a lifting rod 30 which is connected to the end of the tubes opposite to the supply end thereof and which extends upwardly through a suitable

opening in a flange of the top of the base and which is provided on its upper end with a handle 31 whereby the same may be manipulated to raise and lower the burner as shown in full and dotted lines in the drawings. It will be understood that when the burner is shifted to operative and inoperative positions that the ash pan is first removed so that the latter will not interfere with the shifting of the burner, and to insure the burner being reliably held in raised position said pan may be inserted thereunder as shown in Fig. 3. In connection with the burner, I employ a suitable pilot light 31^a connected to the outer end of the gas conducting pipe 23 and extending to within a suitable distance from the base and opposite to a hole 32 in the end of the base through which the flame from the pilot light will shoot and ignite the burner. The pilot light is provided with a valve 33 and in the outer end of the gas conducting pipe 23 is a cut off valve 34.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation. Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as claimed.

Having thus described my invention, what I claim is:

A heating stove having a hollow base with an opening in its bottom through which a burner may be raised and lowered, a grate arranged in said base, a burner support arranged below said opening, a removable ash pan in said base over said opening, a vertically movable burner adapted to be housed in said support when in lowered inoperative position, a pipe rigidly connected with said burner and extending through one wall of said base, a gas supply pipe, a valved connection between said supply pipe and burner pipe, and means for lifting and lowering said burner.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBERT WADE WILLIS.

Witnesses:

ADA JONES,

JAMES A. BOYD.