

No. 747,998.

PATENTED DEC. 29, 1903.

C. R. MORGAN.
CONVERTIBLE STOVE.
APPLICATION FILED MAR. 30, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

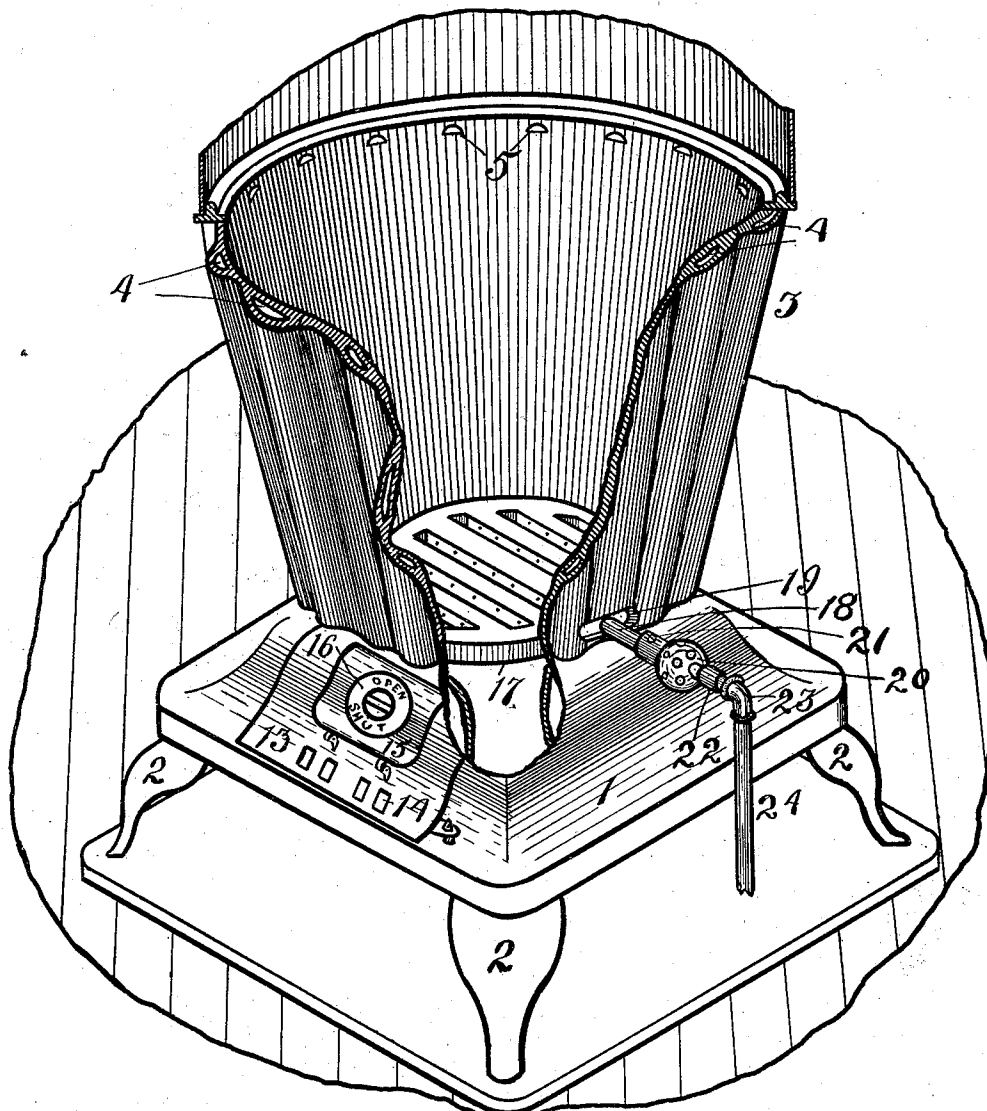


Fig. 1.

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Maude Grisler.
W. E. Good.

Inventor:
Charles R. Morgan.
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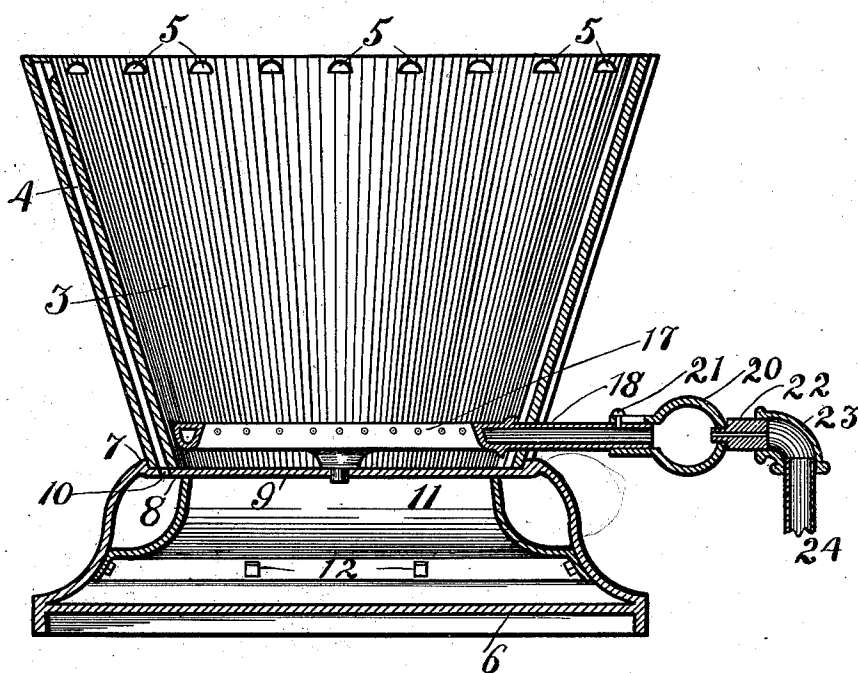


Fig. 2.

*Maudie Grisler.
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UNITED STATES PATENT OFFICE.

CHARLES R. MORGAN, OF AKRON, OHIO.

CONVERTIBLE STOVE.

SPECIFICATION forming part of Letters Patent No. 747,998, dated December 29, 1903.

Application filed March 30, 1903. Serial No. 150,259. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. MORGAN, a citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented a certain new and useful Improvement in Convertible Stoves, of which the following is a complete specification.

This invention relates to improvements in stoves and furnaces for the successful burning of either solid or fluid fuel.

The object of my invention is to provide new devices for the more complete combustion of hard fuel and for the ready and successful handling and control of a fluid fuel when it may be desired.

To the aforesaid objects my invention consists in the peculiar and novel construction, arrangement, and combination of parts hereinafter described, and then specifically claimed, reference being had to the accompanying drawings, forming a part of this specification.

In the accompanying drawings, in which similar reference-numerals indicate like parts in the different figures, Figure 1 is a perspective view of my improved stove or furnace with portions broken away to better illustrate its interior construction; and Fig. 2 a section of the fire-pot in either a stove or furnace, showing the interior construction thereof.

In the drawings, 1 is a hollow box forming the ash-pit, provided with suitable legs 2 for its support. Upon this ash-pit is seated the fire-pot 3, which is made in the form of an inverted frustum of a cone with the smaller end resting upon the ash-pit. The interior of this fire-pot is preferably formed with substantially smooth surfaces and on the outside thereof with corrugations or flutes running longitudinally. Within each of these flutes are hollows or openings 4, terminating near the upper or larger end of the ash-pit and communicating by openings 5 with the interior of the fire-pot.

The sides of the ash-pit 1 are inwardly curved and raised sufficiently above the floor of the ash-pit 6 to give a space for the accumulation of the ashes therein. At the point of union of the ash-pit and the fire-pot there exists a beading or raised ridge 7, which corresponds with the shape of the fire-pot and

serves to retain it in proper location on the ash-pit.

Around the inner upper edge of the ash-pit is an inwardly-extending flange 8, on which the fire-pot is designed to rest, and extending across the opening forming the top of the ash-pit is a slat or bar 9 for a purpose to be stated. In the flange 8 at regular intervals and coincident with the openings 4 in the fire-pot are openings 10. To the inner side walls of the ash-pit is fastened a shield or apron extending around the sides thereof, the lower edge of which is held to the side walls of the ash-pit by bolts 12 and the upper portions of which extend upwardly and inwardly, gradually diverging from the side walls of the ash-pit until they encounter and abut against the under surface of the flanges 8 and form therewith a sufficiently-tight joint for the purposes for which it is intended to be used.

On one side of the ash-pit is a door 13, provided with a grate 14, by which air is admitted to the main inner chamber of the ash-pit. Upon the door 13 is mounted a second door 15, in which is a damper for a purpose to be stated. This door 13 has an interior formation similar to one side of the ash-pit and has on its interior an offset portion integral therewith and substantially coincident with the shape of the apron 11 so that when the door 13 is closed this offset portion will exactly meet and form with the apron 11 a continuous air-chamber extending all around the interior of the ash-pit, but separated therefrom by the apron 11. This door 16 opens into this air-chamber formed by the apron 11. Mounted on the bar 9 is a grate 17, formed in any preferred or desired shape and made up of hollow bars, as shown in the drawings, from the sides of which extend openings for the escape of a fluid fuel.

From the grate 17 extends a tubular handle 18 through a slotted opening 19 in the side of the fire-pot. On the end of this tubular opening is a mixer 20, perforated for the admission of air and retained in place on the tubular handle by a set-screw 21, passing through a slot in the cylindrical portion of the mixer 20. Into the rear of the mixer extends a nipple 22, provided with a shoulder which abuts against the mixer and forms

therewith a sufficiently-tight joint to prevent the escape of a fluid fuel passing through the nipple 22. Upon the end of the nipple 22 is an elbow 23 and service-pipe 24, adapted to supply fluid fuel from any source therefor.

This furnace or stove is primarily designed for the burning and consumption of solid fuel; but, if it is desired, provision is made, however, for the perfect consumption of a fluid fuel by means of the grate just described.

The operation is as follows: In case a fluid fuel is designed to be burned a suitable supply is turned into the service-pipe 24, which passes through the nipple 22 into the mixer 20, wherein it is mixed with a desirable quantity of air, and from thence it flows through the tubular handle 18 into the grate 17 and is ignited in the ordinary common manner. If for any reason the supply of fluid fuel fails, the service-pipe is closed by any suitable means, as a cock or valve, and a fire of common solid fuel built upon the upper surface of the grate in the ordinary manner. The openings for the exit of gas from the burner being on the sides of the bars constituting the grate 17, little or no dust or ashes deposits in these openings to render the successful use afterward of a fluid fuel. In the combustion of the solid fuel air may be admitted into the ash-pit to pass up through the fire built on the grate 17 by opening the damper 14 in the door 13 until the fire has become well started, at which time the damper 14 may be closed and the damper 16, opening into the air-chamber formed by the apron 11, may be opened, which allows air to pass into and around through the tubular opening and up through the openings 10 into the vertical openings 4 and out through the orifices 5 at or near the level of the top of the solid fuel then burning in the fire-pot.

The distribution of air by means of the vertical tubes formed in the sides of the fire-pot and the exit of air from the orifices 5 into the fire-pot cause a perfect, even, and economical combustion of solid fuel, allowing sufficient air into the fire-pot to cause a complete burning of combustible material placed in the fire-pot to be consumed.

The invention thus described furnishes a successful device for the consumption of solid fuel and which may be replaced at any time without inconvenience or change of mechanism for the use of fluid fuel.

Should it be necessary at any time while burning solid fuel to shake or agitate the grate with the object of removing the ashes from the fire-pot, it is readily done by loosening the set-screw 21 and sliding the mixer 20 forward toward the fire-pot and from engagement with the nipple 22. The mixer 20 is then grasped by hand and the grate rotated

on its axis on the bar 9 until the ashes have been removed, this motion being permitted by the slotted opening 19.

What I claim, and desire to secure by Letters Patent, is—

1. The combination with a stove or furnace normally adapted for burning solid fuel, of a fire-pot provided with upright longitudinal tubes cored in the side walls thereof, the upper ends whereof are arranged to enter the interior of said fire-pot, an ash-pit situated below said fire-pot and arranged to sustain it, an air-chamber within said ash-pit but separated therefrom arranged to communicate with the lower ends of said longitudinal tubes, substantially as shown and described.

2. The combination with a stove or furnace of an ash-pit, an air-chamber embraced within the outlines of said ash-pit but separated therefrom, a door to afford access to the interior of said ash-pit, an apron on said door arranged with said door to form a section of said air-chamber, a second door on said main door to permit the entrance of air to said air-chamber, a fire-pot arranged to rest on said ash-pit provided with upright longitudinal tubes in the side walls thereof, placed to communicate with the said air-chamber at the bottom and with the interior of said fire-pot at the top.

3. The combination in a stove or furnace of an ash-pit having around the interior side walls a tubular compartment, a main door to said ash-pit communicating with the main interior of the ash-pit provided with means for the admission of air to the main portion of the ash-pit, and an auxiliary door on said first-named door with means to permit air to enter the tubular compartment.

4. The combination in a stove or furnace normally adapted for burning solid fuel of an ash-pit, an air-chamber extending around the outer edges of said ash-pit within the normal outlines thereof, a door to permit access to the interior of said ash-pit provided with suitable devices for forming a section of said air-chamber, means on said door to permit the entrance of air to said air-chamber, a fire-pot mounted on said ash-pit provided with cored longitudinal openings in the side walls thereof, the lower ends of said openings communicating with said air-chamber and the upper ends with the interior central portion of said fire-pot.

In testimony that I claim the above I hereunto set my hand in the presence of two subscribing witnesses.

CHARLES R. MORGAN.

In presence of—

C. E. HUMPHREY,
MAUDE ZWISLER.