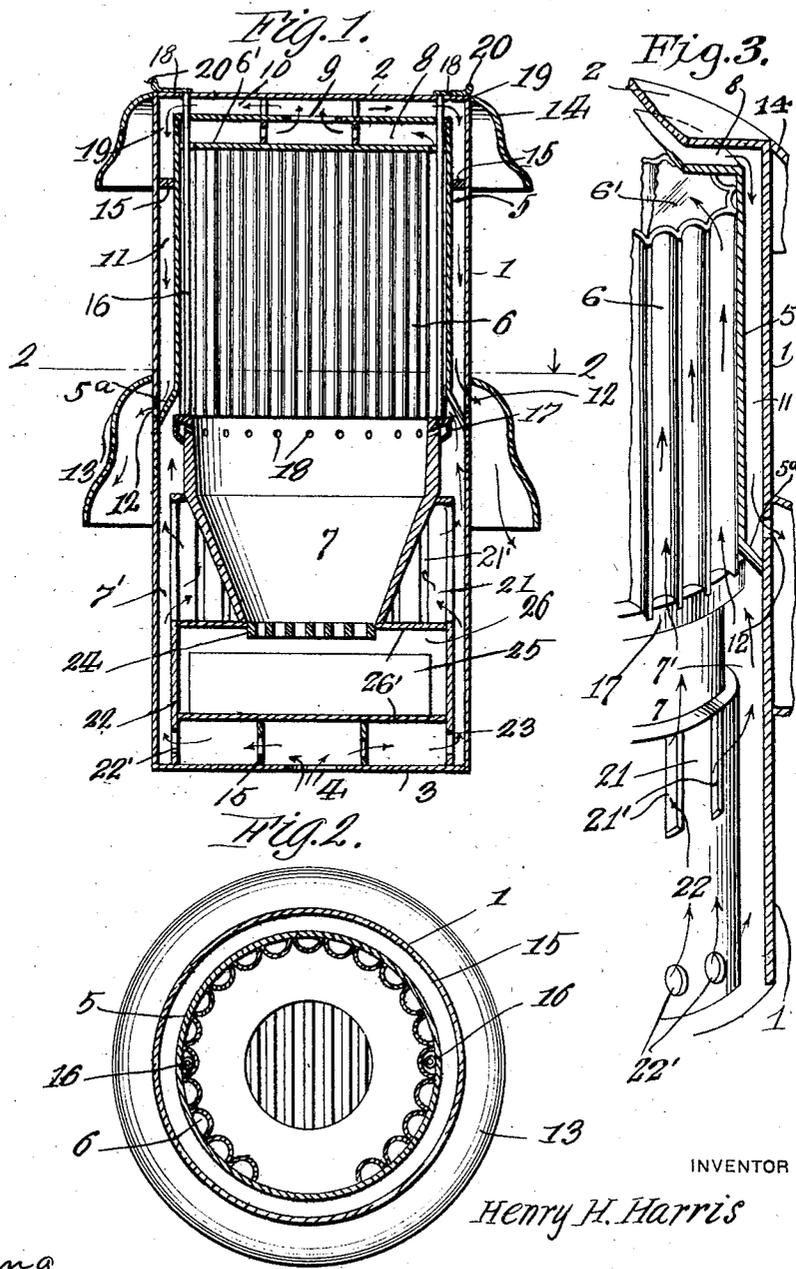


H. H. HARRIS.  
HEATING STOVE.  
APPLICATION FILED DEC. 6, 1918.

1,389,194.

Patented Aug. 30, 1921.



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HENRY H. HARRIS, OF PERU, INDIANA.

## HEATING-STOVE.

1,389,194.

Specification of Letters Patent. Patented Aug. 30, 1921.

Application filed December 6, 1918. Serial No. 265,581.

*To all whom it may concern:*

Be it known that I, HENRY H. HARRIS, a citizen of the United States, residing at Peru, in the county of Miami and State of Indiana, have invented certain new and useful Improvements in Heating-Stoves, of which the following is a specification.

This invention relates to heating stoves, and the primary object thereof is to construct a stove of this character which with a consumption of a minimum amount of fuel will produce a maximum amount of heat.

Another object is to so construct a heating stove that while comparatively small and compact and occupying a small space it has a large area of heat delivering surface.

Another object is to provide a stove of this character, the hot air flues of which are so constructed that the stove will never become excessively overheated and consequently the parts exposed to the fire will not burn out thereby prolonging the life of the stove and yet delivering a continuous flow of heated air to the surrounding atmosphere.

Another object is to construct a heating stove with the exits of the flues opening downwardly toward the floor and directly under the foot rail of the stove so that the floor will be kept warm as well as the rail.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 represents a longitudinal vertical section of a stove constructed in accordance with this invention, and

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1.

Fig. 3 is an enlarged fragmentary perspective of the heater with parts thereof broken away to show the interior construction.

In the embodiment illustrated, the stove constituting this invention comprises an outer drum or casing 1 preferably cylindrical in form, although not necessarily so, and which has a closed top 2 and a bottom 3

with a central opening 4 for the entrance of the cool air to the stove.

Arranged within the upper portion of casing 1 and concentric thereto is an inner drum 5, spaced laterally a suitable distance from the outer casing 1 and having a plurality of longitudinally disposed hot air flues 6 arranged on its inner face, said flues being formed by corrugations as is shown clearly in Fig. 2 of the drawings for horizontal partition 6' is arranged within the drum 5 and spaced from the top thereof. The edges of this partition are secured to the upper edges of the tubes or corrugations, but do not close the upper ends of the tubes, and is provided to prevent gases from the fire pot mixing with the air being heated. These flues 6 open at their lower ends into a space or chamber 7' surrounding and extending below the fire pot 7 of the stove and at their upper ends into a chamber 8 formed between the top of the inner drum 5 and the partition 6', and the heated air delivered by said flues passes out of said drum through an opening 9 in its top into a chamber 10 formed at the upper end of the casing 1 and flows downwardly through the chamber or space 11 between drums 1 and 5 and is discharged to the atmosphere through apertures 12 in the casing 1 disposed directly under a downturned hood-like member 13. An obliquely disposed annular partition 5<sup>a</sup> forming the outwardly flaring lower end of drum 5 closes the bottom chamber 11 below the apertures 12 and is arranged to permit air from passage 7' to enter passage ways 6 and operates to direct the down-flowing heated air through said apertures to the surrounding atmosphere. This member 13 is segmental in cross section and operates as a hood or deflector for directing the heated air delivered through the apertures 12 toward the floor so that the floor will be kept warm as will also the rail 13 which is preferably made imperforate and will consequently prove an effective foot warmer.

A similarly shaped heat deflector 14 is carried by the upper end of the casing 1 and operates to deflect the air radiated from the casing downwardly into the room.

Combined bracers and spacers 15 are arranged between the inner drum 5 and the outer drum 1 so that these parts are held securely in operative position against collapse.

Air pipes 16 are arranged at diametrically

opposite points and open at their inner ends into an annular chamber or gas ring 17 which surrounds the fire pot 7, at its upper end and are designed to feed air to the fire.

5 The upper end of the flues 16 are provided with dampers 18, the actuating fingers 20 of which are arranged on the outer face of top 2 of the drum 1 and are designed for controlling the flow of air to the fire.

10 The fire pot 7 is shown mounted on a supporting shell, the upper portion 21 of which is slotted as at 21'. The lower part of the shell is imperforate as at 22 and forms the side walls of the ash pan chamber 26,

15 the top and bottom thereof being provided by spaced horizontal partitions 26'. This chamber 26 is closed air tight, and the fire pot 7 opens therein as shown clearly in Fig. 1, and rests upon the upper horizontal

20 partition 26'. This supporting shell extends to the bottom of drum 1 and thus rests thereon and is provided with openings 22' below the bottom of the ash pan chamber for the passage of air passing

25 through the opening 4 in the bottom of the drum 1. It will thus be seen that the air entering through the opening 4 will pass out through the openings 22' in the lower part of the shell 22 up through the chamber 7'

30 into the slotted portion of the shell, out and up through the passages 6 where it will be heated by contact therewith, and after entering the chamber 8 will pass out through the opening 9 into chamber 10 and down

35 through chamber 11 formed between the inner and outer drums and pass out through the apertures 12 in the surrounding atmosphere.

40 An ash can is shown arranged below the fire pot in the air tight chamber 22, which chamber is disposed below the slotted portion of the shell, and it is equipped with a damper door (not shown) to be used in starting the fire and for removing the can.

45 It is to be understood of course that the stove herein shown and described may be mounted on any suitable base, not shown, and that it may be ornamented in any suitable or desired manner, the door, not shown,

50 for feeding the fire pot being formed in one side wall of the stove, preferably at the point indicated at 27 and the outlet for the products of combustion may also be connected with the side wall or top of the stove, but as

55 these elements form no part of the invention, it is not deemed necessary to show them.

60 From the above description it will be obvious that the heating surface of the stove constituting this invention has about double the area usually found in stoves of this character and that the heated air being continuously forced out into the room and cool

65 air coming into the flues will prevent them from burning out and at the same time sup-

ply a continuous flow of heated air to the room. Moreover, the continuous taking up of the cool air from the floor not only guarantees a well heated house but insures a healthful atmosphere.

70 It will also be obvious that by constructing the stove as above described and set forth, that a very small quantity of fuel will be necessary in order to produce a large quantity of heat and that the burning of 75 such a small quantity of fuel will prolong the life of the stove in addition to economizing in the cost of the fuel.

80 The foregoing description and the drawings have reference to what may be considered the preferred or approved form of my invention. It is to be understood that I may make such changes in construction and arrangement and combination of parts, materials, dimensions, etc., as may prove expedient and fall within the scope of the claimed 85 invention.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is: — 90

1. In a heating stove, a cylindrical casing having an opening in its bottom, and a closed top, a supporting shell therein spaced from the side walls thereof, its upper end being of skeleton form and having an airtight ash pan chamber below said skeleton 95 portion, the bottom of which is spaced from the bottom of said casing, the space under said chamber communicating with the space between the side walls of said shell and casing, a firepot surrounded and supported by said skeleton shell with its lower end opening into said ash pan chamber, an inner drum mounted on said firepot in the space 100 between it and the casing and with its upper end spaced from the top of said casing and closed except for a central opening, a partition at the lower end of said space, said casing having discharge apertures above and adjacent said partition, a plurality of tubes 110 connecting the space between said casing and the shell and the chamber between said drum and casing, and air supply means for said firepot.

2. In a heating stove, a cylindrical casing 115 having an opening in its bottom and a closed top, a supporting shell therein spaced from the side walls thereof, its upper end being of skeleton form and having an airtight ash pan chamber below said skeleton 120 portion, the bottom of which is spaced from the bottom of said casing, the space under said chamber communicating with the space between said shell and casing, a firepot surrounded and supported by said skeleton shell 125 portion with its lower end opening into said ash pan chamber, a gas ring surrounding the top of said firepot with apertures leading into the pot, an inner drum mounted on said firepot with a space between it and the 130

5 casing and closed at its upper end except for a central opening, an obliquely disposed partition at the lower end of said space, said casing having discharge apertures above and adjacent the lower portion of said partition, tubes extending through the top of said casing and discharging into said gas ring to supply air to the firepot, and tubes connecting the space between said casing and shell and the chamber between said drum and casing.

10 3. In a heating stove, a cylindrical casing having an opening in its bottom and a closed top, a firepot supported in said casing with a drum mounted above it and spaced from the top and side walls of the casing to form an air chamber, a partition adjacent the lower end of said drum forming a bottom closure for said chamber, said casing having apertures adjacent said partition, and conduits carried by said drum connecting the spaces above said partition and the space below it.

15 4. In a heating stove, an outer casing having an opening in its bottom, a fire pot therein, a supporting shell in said casing spaced

from the side walls thereof, the bottom of said shell being spaced from the bottom of said casing to form a chamber communicating with the space between the shell and casing, an ash chamber in said shell, said supporting shell surrounding and supporting the fire pot and having openings therein whereby air between said casing and shell may circulate around the fire pot.

20 5. A heating stove including inner and outer spaced drums, the outer drum being closed at its upper end and spaced from the inner drum, said inner drum having a plurality of channels opening at their upper ends into the space between said drums, a fire pot, an annular chamber surrounding said fire pot and communicating with the interior thereof, and draft flues rising from said chamber and extending through said channels and in the inner and outer drums.

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

HENRY H. HARRIS.

Witnesses:

MAX W. KRAUS,

ROBERT J. LOVELAND.