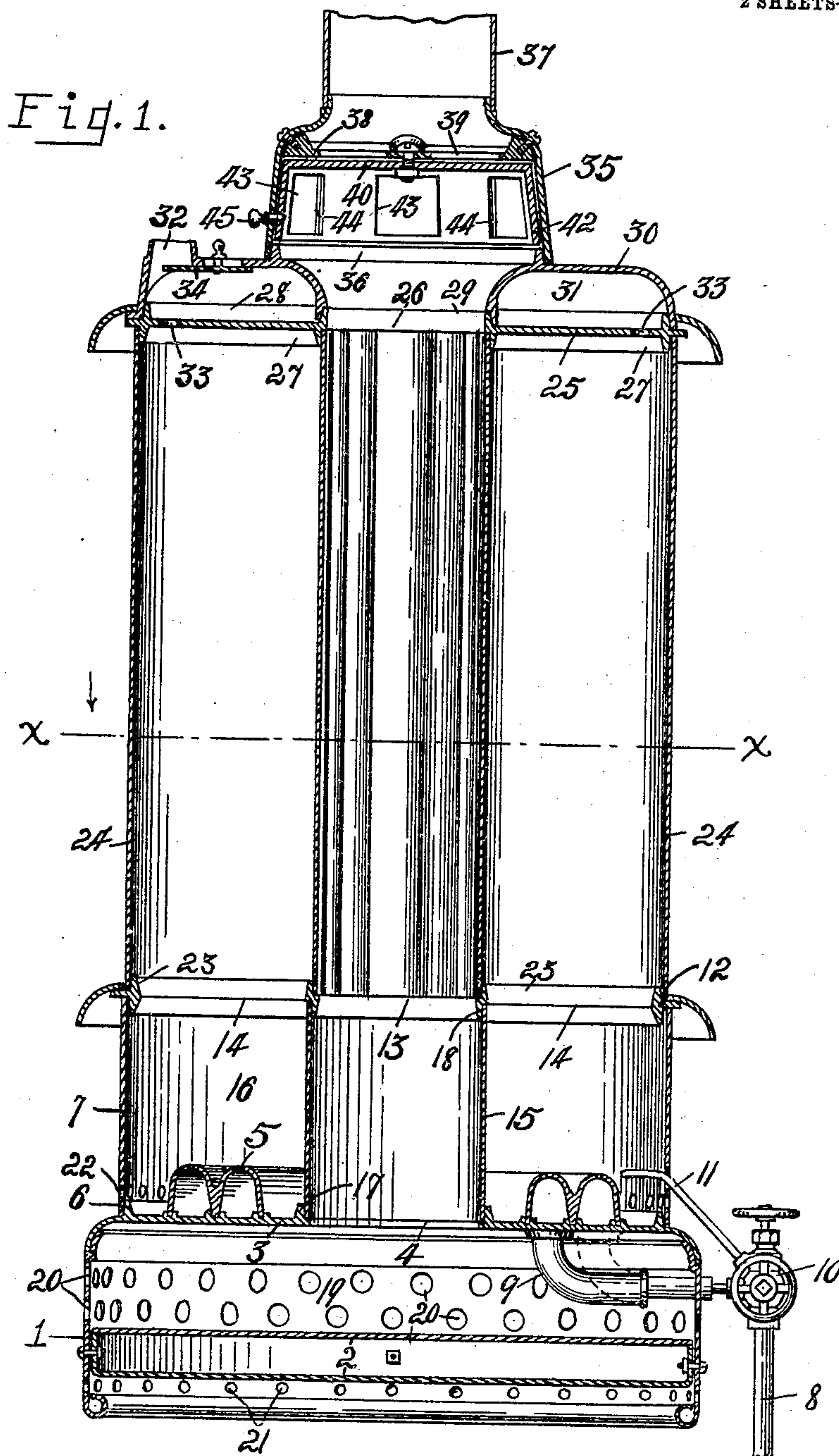


A. C. KLOPPING.
HEATING STOVE.
APPLICATION FILED JULY 23, 1909.

954,741.

Patented Apr. 12, 1910.

2 SHEETS—SHEET 1.



WITNESSES:

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L. D. Merrick

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By Owen & Owen,
His attys.

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2 SHEETS—SHEET 2.

Fig. 2.

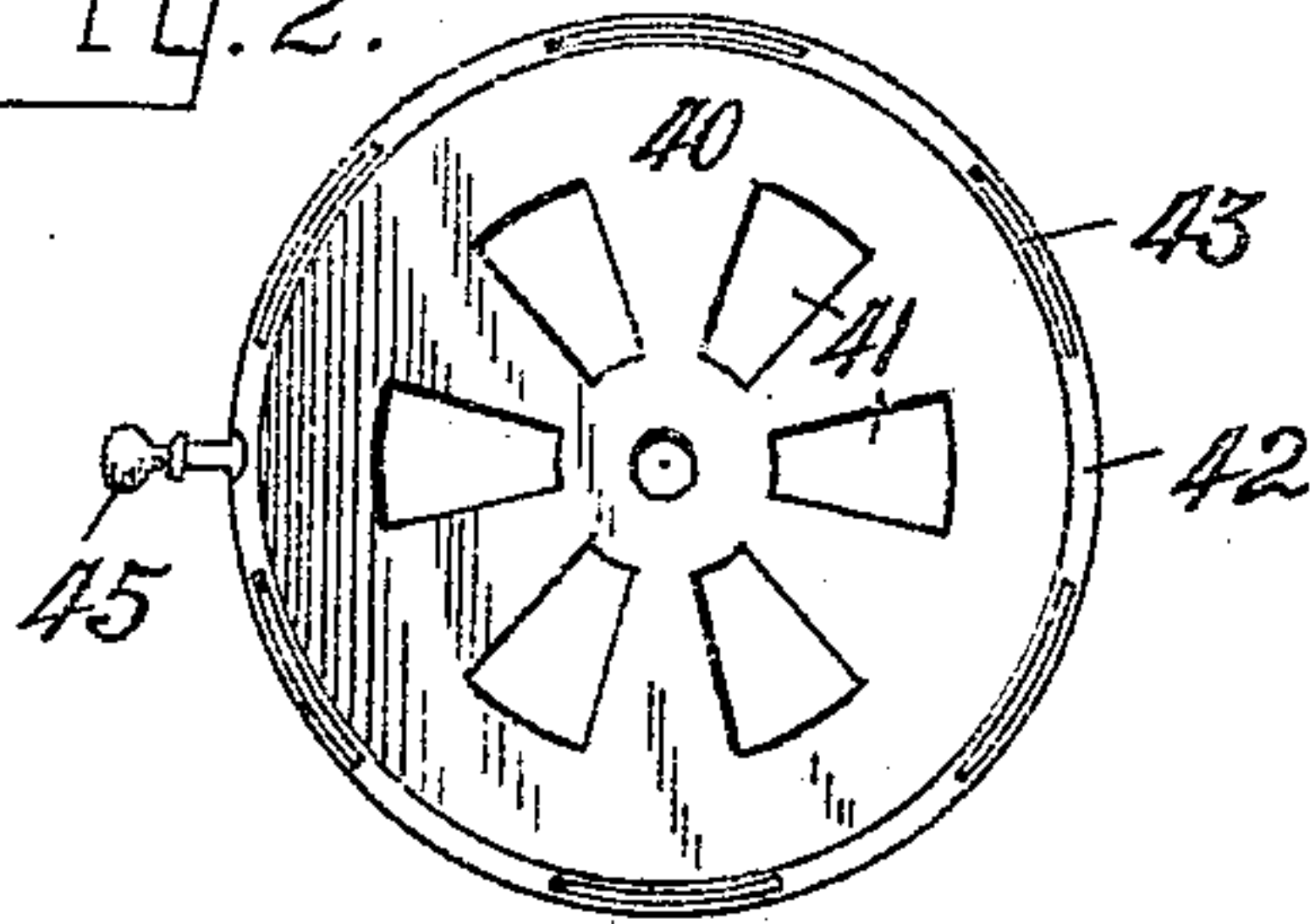


Fig. 3.

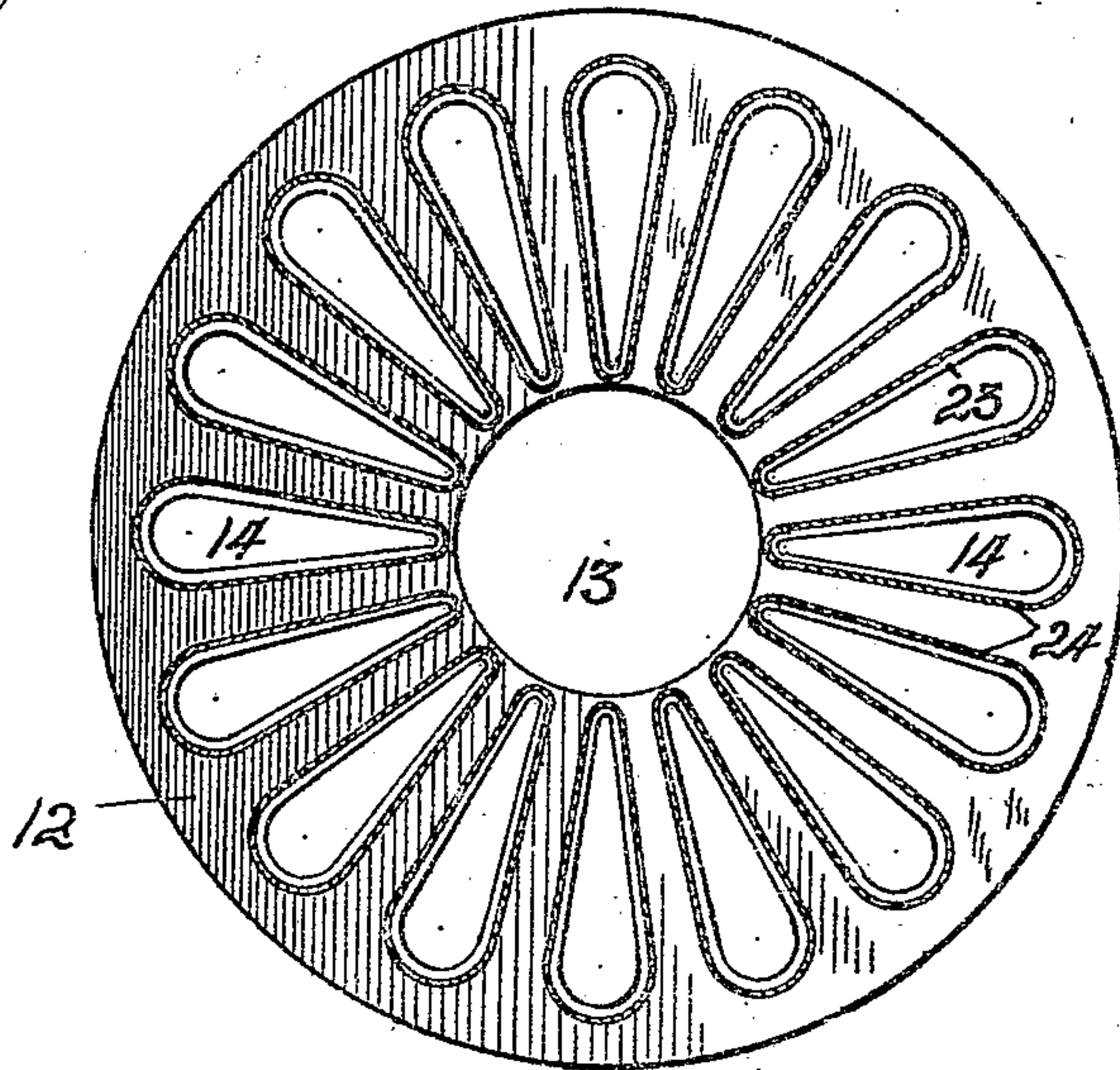
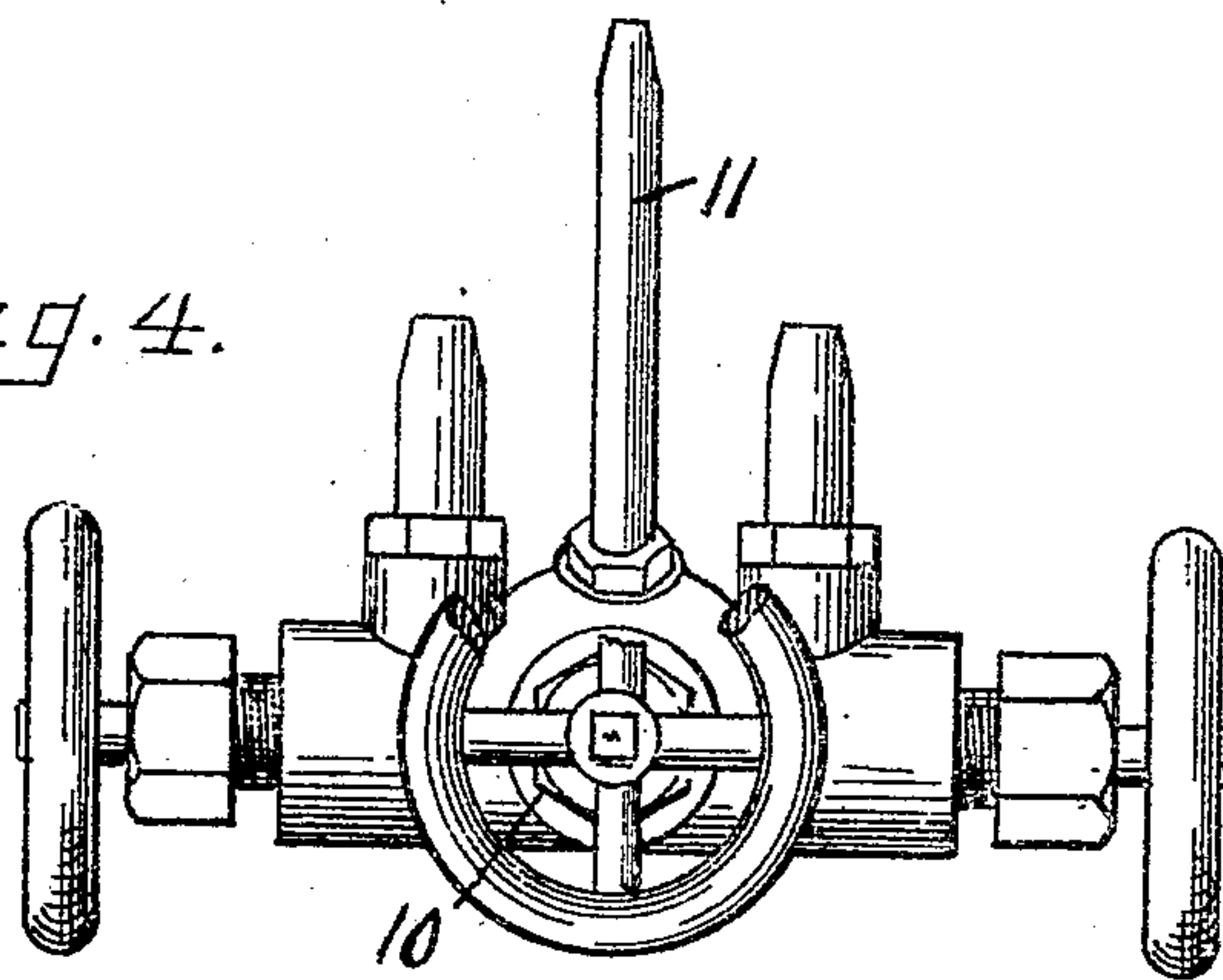


Fig. 4.



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UNITED STATES PATENT OFFICE.

ADOLPH C. KLOPPING, OF TOLEDO, OHIO.

HEATING-STOVE.

954,741.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed July 23, 1909. Serial No. 509,213.

To all whom it may concern:

Be it known that I, ADOLPH C. KLOPPING, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Heating-Stove; and I do hereby 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to heating stoves of the class particularly adapted for the burning of gas, vapor, or hydrocarbons as a fuel; and has for its object the provision of a highly efficient stove of this character, which is simple and inexpensive in its construction, and provided with a maximum heat radiating surface for a stove of its size, and which is provided with simple and improved means for directing a considerable portion of highly heated air either to rooms above or into the room in which the stove is located.

The operation, construction and arrangement of the parts of the invention are fully described in the following specification, and a preferred embodiment thereof illustrated in the accompanying drawings, in which,—

Figure 1 is a central vertical section of a stove embodying the invention. Fig. 2 is a plan of the rotary hot-air damper in the dome of the stove. Fig. 3 is a section of the stove on the line $x-x$ in Fig. 1, and Fig. 4 is a plan of the three-way burner valve employed with a portion broken away.

Referring to the drawings, 1 designates the base of the stove, which is preferably provided with a spaced double bottom 2 to protect the floor from the heat, and supports a floor casting or member 3 in any suitable manner. The floor 3 is provided with a central opening 4, and surrounding this in spaced relation thereto is the gas-burner 5, which, in the present instance, is of the double ring type. The floor 3 combines with the burner to form the channels thereof, and is provided on its top adjacent to its outer edge with an annular flange 6 around which the base of a casing or drum 7 fits.

Gas is supplied to the separate channels of the burner from a common supply-pipe 8

through the medium of the valve controlled branch pipes 9.

10 designates a three-way valve which controls the gas supply to the burner and the pilot-light 11, which enters the casing 7 at one side of the burner.

Resting at its outer edge on the top of the casing or drum 7 is the casting or ring-like member 12, which has a central opening 13 substantially the size of the opening 4 in the floor or member 3, and is provided around such opening with a plurality of equidistantly-spaced radial openings 14. The contiguous side walls of the openings 14 preferably parallel each other, as shown in Fig. 3, thus providing openings which gradually diminish in width from their outer ends inwardly.

A pipe 15 passes upwardly through the center of the drum 7 and combines therewith to form an annular combustion-chamber 16. This pipe fits at its lower end within a flange 17 at the upper edge of the opening 4 in the member 3 and at its upper end around a flange 18 at the lower edge of the opening 13 in the member 12, thus opening communication through the drum 7 between the air-chamber 19 in the base 1 and the space above the member 12. Cool air is admitted to the air-chamber 19 through holes 20 in its side wall. A circulation of air is also provided below the bottom 2 by the provision of air-holes 21 in the base 1 below such bottom. Air is supplied to the combustion-chamber 16 to support combustion through a row of holes 22 in the bottom of the casing or drum 7.

Rising from each opening 14 with its lower end fitting closely around an upper marginal flange 23 thereof is a pipe 24, which conforms in cross-section to the shape of such opening and combines with the other pipes 23 to form a central vertical air passage above the opening 13 and to support the top plate 25. This top plate is provided with a central opening 26 substantially the size of and in vertical register with the opening 13 and is formed on its bottom around such opening with a set of flanges 27, which coact with the upper ends of the pipes 24 to laterally brace the same.

Mounted on the top-plate 25 and held against lateral movement thereon by flanges 28 and 29 on such plate, is a ring-like shell

30, which combines with the plate 25 to form an annular exit chamber 31 having the exit flue 32 at one side thereof. The burned gases and fumes which rise from the combustion-chamber through the pipes 24 enter the exit-chamber 31 through openings 33 in the plate 25, which openings are preferably restricted in size, as shown, to retard the passage of the heated gases through the pipes 24 so as to more efficiently heat such pipes than would otherwise be the case. The exit of the heated gases of combustion may be further retarded by the provision of a damper 34, which is mounted to slide across the flue opening 32 to restrict the same to a desired extent.

35 designates a hot-air distributing dome, which is circular in form and rests on the shell 30 around the central opening therein so as to receive the heated air which rises through the opening 26 in the top-plate 25 and the opening in such shell. This dome is held in position on the shell 30 by an annular flange 36 formed thereon, and has its top contracted to fit into a pipe 37 leading to an upper floor. A horizontal diaphragm 38, having openings 39 therein, is mounted in the dome 35, and a rotary disk damper 40 is centrally pivoted to the underside thereof and is provided with openings 41, see Fig. 2, for registering with the openings 39 in the diaphragm. The damper 40 is provided at its edge with an annular depending flange 42 which parallels the side wall of the dome in flush position therewith, and has a series of openings 43 therein adapted to be moved into register with openings 44 in the side wall of the dome. The openings 39 and 41 are so arranged relative to the openings 43 and 44 that when the openings 39 are fully open the openings 44 are fully closed, thus enabling the damper to be positioned to direct all of the hot air in the dome out through the openings 44 into the room or through the openings 39 to the room above. A handle 45 projects from the flange 42 through a slot in the dome to facilitate a movement of the damper.

When the stove is in operation the heated products of combustion pass from the combustion-chamber 16 into the pipes 24 and have a restricted discharge therefrom into the exit-chamber 31 through the small openings 33 in the top-plate 25, and thence leave such chamber by way of the flue 32. The retarded passage of the hot gases through the tubes 24 causes them to become highly heated whereby a very large amount of radiant heat is transmitted therefrom. The cool air, which is drawn into the cold-air chamber 19, becomes highly heated in its upward passages through the pipe 15, the central passage between the tubes 24, and the central openings in the top-plate 25 and shell 30, and on entering the dome 35 may

be directed into the surrounding room or through the pipe 37 to the floor above by a turning of the damper 40—42, or such air may be directed partly into the room and partly to the floor above as desired.

It is apparent that I have provided a heating stove having a maximum amount of heat radiating surface, and in which the full efficiency of the gas or other fuel is utilized, thus enhancing its practicability and commercial value.

I wish it understood that my invention is not limited to any specific construction or arrangement of parts, except in so far as such limitations are specified in the claims.

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

1. In a heating stove, a base, a combustion chamber superimposing such base and having a central air passage therethrough in communication with the interior of the base, a plurality of circularly arranged pipes arising from such chamber with their lower ends in communication therewith, said pipes being elongated radially of the circle formed thereby and gradually increasing in thickness from their inner edges outwardly, whereby the sides of the pipes substantially parallel the adjacent sides of successive pipes, an exit chamber surmounting said pipes and having restricted communication with the upper end of each pipe, and a hot air distributing dome arranged above said chamber, substantially as described.

2. In a heating stove, a base forming a cold air chamber and provided with air inlet means, a combustion chamber superimposing such base and having a central air passage therethrough in communication at its lower end with the interior of the base, a frame supported by the walls of the combustion chamber and having a series of openings therethrough which are circularly arranged around the upper end of said central passage, said openings being radially elongated and increasing in thickness from their inner ends outwardly whereby the walls of the same are disposed radially of said passage-way, pipes arising from said frame with their lower ends in communication with the openings therein, said pipes being in cross-section substantially the shape of said openings and forming a portion of the outer wall of the stove, a plate surmounting the upper ends of said pipes and having openings therethrough in communication with said pipes which materially restrict the exit of products of combustion from such pipe, a ring-like shell cooperating with said plate to form an exit chamber, said shell having an exit therefrom and a hot air distributing dome surmounting said shell and being in communication with the passage through the combustion chamber.

3. In a heating stove, a base having a cold
air chamber therein provided with perfo-
rated walls, a combustion chamber super-
imposing said base and having a central ver-
5 tical air passage therethrough in communi-
cation with said cold air chamber, a plural-
ity of tubes rising from the upper portion
of said combustion chamber in communica-
tion therewith and arranged around the
10 upper end of said air passage to form a ver-
tical air space in register with said passage,
an annular exit-chamber surmounting said
tubes and having restricted communication
with each, and forming a central passage in
15 communication with the passage between

said tubes, a dome superimposing said cham-
ber and in communication with such central
passage, said dome having openings therein,
a delivery pipe leading from one of said
openings, and a damper associated with said 20
dome for controlling the discharge of air
from the dome through said openings.

In testimony whereof I have hereunto
signed my name to this specification in the
presence of two subscribing witnesses.

ADOLPH C. KLOPPING.

Witnesses:

C. W. OWEN,

T. D. MERRICK.