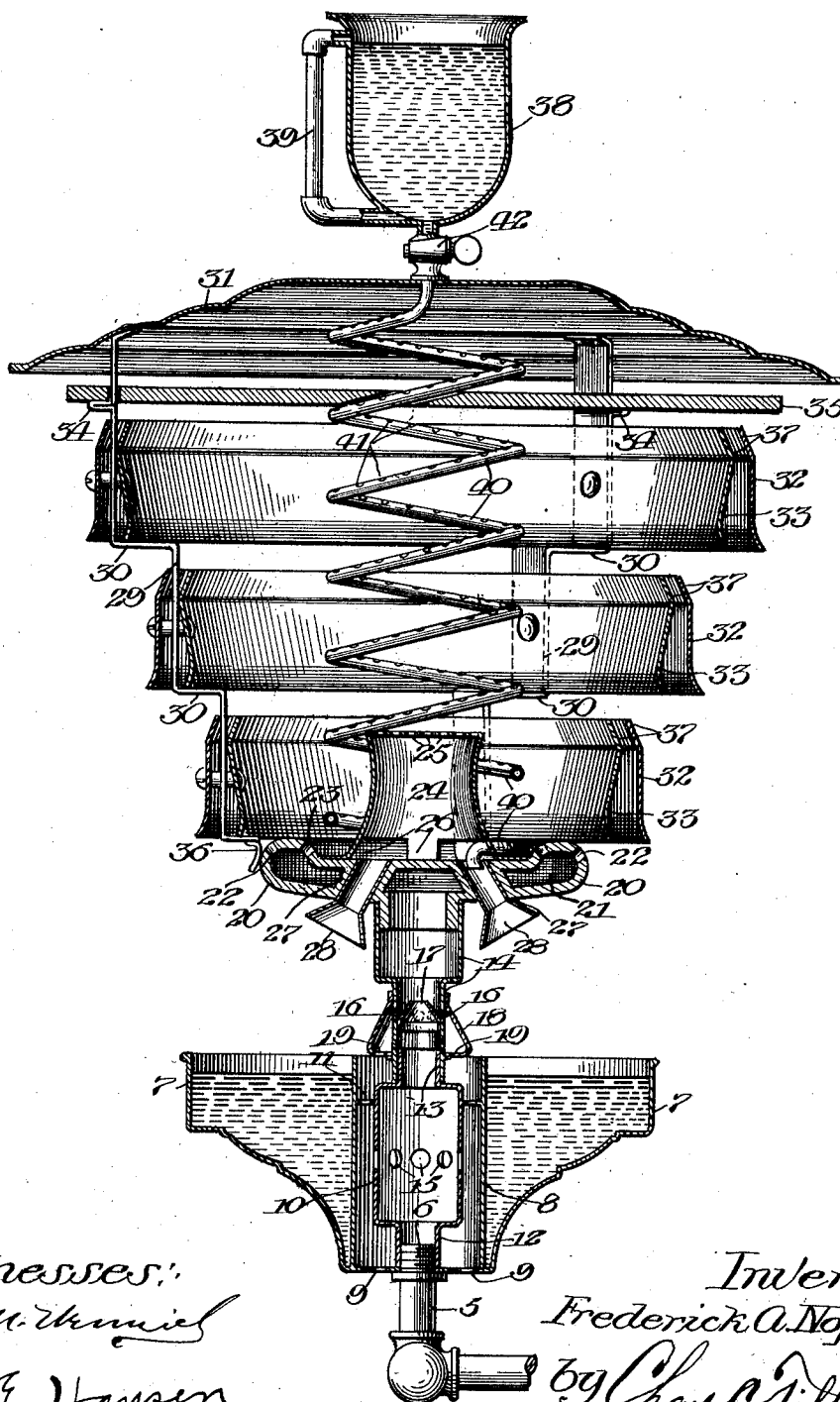


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HEATER.

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1,002,538.

Patented Sept. 5, 1911.



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UNITED STATES PATENT OFFICE.

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HEATER.

1,002,538.

Specification of Letters Patent.

Patented Sept. 5, 1911.

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To all whom it may concern:

Be it known that I, FREDERICK A. NOPENZ, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Heaters, of which the following is a specification.

This invention relates to improvements in a heating apparatus, of the type in which gas is used as fuel, and which can be readily attached to and supplied with gas from an ordinary gas-light fixture, without in any way altering the same, except by removing the gas tip, thus affording a portable heater which is especially adapted for use in heating small rooms, such as bath-rooms, bedrooms, offices, and any part of a house, in the fall or spring of the year, or when the temperature is such as to not require heat for the entire house, but it is desired to heat a certain room thereof, and it consists in certain peculiarities of the construction, novel arrangement and operation of the various parts thereof, as will be hereinafter more fully set forth and specifically claimed.

The principal object of the invention is to furnish a heater of such construction as to produce a maximum amount of heat units from a minimum expenditure of gas used as fuel, and at the same time to afford humid or moist heat, and to practically eliminate the odor from the gas.

A further object of the invention is to provide a heater of the above-named character, which shall be simple and inexpensive in construction, strong, durable and efficient in operation, and which can be readily attached to or removed from an ordinary gas jet.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which my invention pertains, to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which the figure is a central vertical sectional view of a heater embodying the invention.

Referring now to the drawing, the reference numeral 5, designates a portion of a gas light fixture from which the gas tip has been removed and on the upright jet 6, of which is mounted the lower portion of the heater,

which includes a base receptacle 7, for water, which receptacle is provided centrally with a vertical cylindrical portion or inner wall 8, having openings 9, in its bottom for the passage of air. Within the cylinder 8, is located another or inner cylinder 10, which is held at a distance from the cylinder 8, by means of an annular ring 11, located therebetween. The lower portion of the cylinder 10, or mixing chamber, which if desired may be of other shape than cylindrical, is provided with an internally screw-threaded extension 12, to engage the screw-threaded upper portion of the jet 6, which it surrounds. The upper part of the cylinder 10, is provided with an upwardly projecting tubular extension 13, on which the lower portion of the burner-pipe 14, is fitted. The cylinder 10, or mixer is provided between its ends with a series of openings 15, and the burner-pipe 14, is provided just above the vessel 7, with a series of openings 16, for the passage of air. Located within the burner-pipe 14, just below the openings 16, therein, is a conoidal nozzle 17, employed for increasing the draft through the mixer 10, and burner-pipe 14, and surrounding the burner-pipe above and below the openings 16, is a collar 18, which has openings 19, in its lower portion for the passage of air.

Mounted on the upper end of the burner-pipe or tube 14, which end is preferably enlarged as shown, is a burner 20, which by preference is circular in shape and hollow, or in other words, is provided with a cavity 21, between its upper and lower surfaces, from which cavity lead a series of openings 22, and 23, for the escape of the gas from the burner where it may be ignited. As shown, the upper surface of the burner 20, is depressed at its center and located on this depressed portion is an upwardly extended casing or drum 24, which has a perforated top 25, and is provided at its bottom with legs 26, with openings therebetween. Extended through suitable channels 27, in the burner, are a number of downwardly flared tubes 28, for the passage of air, which tubes communicate at their upper end with the interior of the drum 24, and will assist in causing a draft through the same.

In order to provide a great heating surface or area with which the air must come in contact, and in order to produce addi-

tional drafts from those above mentioned, a series of metal rings or bands arranged in pairs of different sizes are supported by and around the burner in the manner as will now be explained. A frame consisting of a number of uprights 29, each having a series of steps 30, and secured at their upper ends to the lower surface of a concavo-convex deflecting plate 31, is employed to support the various pairs of metal bands 32, and 33, which, as shown, are riveted to the uprights 29, of the supporting frame just above the steps 30, thereof, on which steps the inner band 33, of each pair will rest. Between the upper pair of bands and the deflecting plate 31, each of the uprights 29, is provided with an outward extension 34, for the support of a plate 35, which presents its flat surface downwardly. As shown, the inner bands 33, of each pair is spaced at some distance from the outer band thereof, and is inclined upwardly and outwardly toward the outer band, thus forming an annular space with its upper portion contracted, between the bands of each pair, which spaces will afford air-drafts or currents in the operation of the device. The lower ends of the uprights 29, are extended downwardly from the lower edge of the lowermost pair of bands to form clamps 36, to engage the burner 20, and thus hold the bands above and around the same.

It will be observed by reference to the drawing that the pairs of bands are progressive in size from the lower one upwardly, and so arranged that the upper or contracted part of the passage ways formed by the slightly inturned portions 37, of the bands of each pair will direct the air-drafts inwardly from the lower pair to the one just above the same, and so on throughout the series. Mounted on the deflecting plate 31, is a vessel 38, which may be provided with a sight-gage 39, so that the amount of water contained in the vessel 38, may be ascertained. Leading from the vessel 38, through an opening in the deflector 31, is a pipe-coil 40, which is provided in its upper surface with perforations 41, for the escape of vapor formed in the pipe-coil 40, as the water from the vessel 38, passes therethrough. The lower portion of the pipe-coil 40, surrounds the drum 24, and the lower end of said pipe is extended into one of the tubes 28, so that the water which may be discharged from the pipe-coil will be caused to pass through the tube 28, and to fall into the vessel 7, in which it will be evaporated and taken up by the air as it ascends.

From the foregoing, and by reference to the drawing, it will be clearly understood and readily seen that when the parts are assembled as shown in the drawing, and above set forth, gas may be turned on

through the fixture 5, from whence it will pass through the cylinder or mixer 10, and through the nozzle 17, and into the burner 20, in which passage it is apparent that air will be drawn into the mixer 10, through the openings 15 therein, and air or vapor or moisture from the water contained in the receptacle 7, will be drawn into the burner-pipe 14, through the openings 19, in the hood 18, and through the openings 16, in said burner-pipe, thus causing a thorough commingling of air and gas to be discharged from the openings 22 and 23, in the burner 20, at which points or openings, it may be ignited and allowed to burn. During the burning of the gas, the flames of which will surround the hood 24, it is apparent that currents of air will be caused to pass through the tubes 28, into the hood and out through the perforations in its top, and at the same time as the heat ascends within the series of bands, it is apparent that currents of air will be drawn upwardly through the spaces between the bands of each pair and caused to strike the protecting plate 35, which shields the deflecting plate 31, from the direct action of the heat. By this construction, it is apparent that a great quantity of air from which the oxygen has not been consumed, will be caused to pass through the passage ways therefor, and commingle with the heat, and itself heated by reason of contact with the bands and with the protecting plate 35, from the periphery of which, air and heat will pass upwardly into the cavity of the deflector 31, and from the same outwardly into the room.

It is obvious that as the vessel 7, contains a quantity of water, that the same will be evaporated and vaporized and absorbed by the air and heat, and that if additional moisture is required, water may be turned on, by means of a valve 42, in the pipe-coil leading from the vessel 38, on the top of the device, and allowed to pass through said coil, in which it will be vaporized and allowed to escape through the openings 41, therein.

From the above description of my improvements, it will be understood that the device is susceptible of considerable modification without materially departing from the principles and spirit of the invention, and for this reason I do not desire to be understood as limiting myself to the precise form and arrangement of the several parts of the device as herein set forth in carrying out my invention in practice.

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

1. In a heater, the combination with a gas burner having communication with a supply of gas, of a number of pairs of metal bands supported above the same and one above the

other, the bands of each pair being separated to form spaces for separate air currents and being successively of greater diameter than the adjacent lower pair, and a deflector mounted above said pairs of bands.

2. In a heater, the combination with a gas-burner having communication with a supply of gas, of a number of pairs of metal bands supported above the same and one above the other, the bands of each pair being separated to form air passages, a deflector mounted above said pairs of bands, a vessel on the deflector, and a pipe-coil leading from said vessel to the burner and having perforations.

3. In a heater, the combination with a gas-burner having communication with a supply of gas, of a number of pairs of metal bands supported above the same one above the other, the bands of each pair being separated to form separate air passages, a deflector mounted above said pairs of bands, a liquid containing vessel mounted below the burner, another vessel mounted on the deflector, and a pipe-coil leading from said upper vessel through the deflector within the bands and having perforations.

4. In a heater, the combination with a gas-burner having communication with a supply of gas, of a number of pairs of metal bands supported above the same one above the other, the bands of each pair being so arranged with respect to one another as to form separate air passages contracted toward their upper ends, and a deflector mounted above said pairs of bands.

5. In a heater, the combination with a gas-burner having communication with a supply of gas, of a number of pairs of metal bands supported above the same one above the other, the bands of each pair being arranged with respect to one another so as to provide separate spaces contracted toward their upper ends for the passage of air, a deflector mounted above said pairs of bands, and a protecting plate mounted between the upper pair of bands and the deflector.

6. In a heater, the combination with a gas-burner having communication with a supply of gas, of a number of pairs of metal bands supported above the same one above the other, the bands of each pair being arranged with respect to one another to form separate air passages contracted toward their upper ends, the bands of the lower pair being of less diameter than those of the bands adjacent above the same, and a deflector mounted above said pairs of bands.

7. In a heater, the combination with a gas-burner having communication with a supply of gas, of a drum mounted on the upper portion of the burner, a number of pairs of metal bands supported above the burner and one above the other, the bands of each pair being separated to form spaces

for separate air currents and being successively of greater diameter than the adjacent lower pair, and a deflector mounted above said pairs of bands.

8. In a heater, the combination with a gas-burner having communication with a supply of gas and provided with channels through its body, of a drum mounted on the upper portion of the burner, a number of pairs of metal bands supported above the burner and one above the other, the bands of each pair being separated to form spaces for separate air-currents, a deflector mounted above said pairs of bands, a vessel mounted on the deflector, and a pipe-coil leading from said vessel through the deflector and having perforations.

9. In a heater, the combination with a gas-burner having communication with a supply of gas and provided with channels through its body, of a drum mounted on the upper surface of the burner, a number of pairs of metal bands supported above the burner and one above the other, the bands of each pair being separated to form spaces for separate air currents, a deflector mounted above said pairs of bands, a protecting plate mounted between the deflector and the pair of bands adjacent thereto, a vessel mounted on the deflector, a pipe-coil leading from said vessel through the deflector and having perforations, and a liquid containing vessel mounted below the burner.

10. In a heater, the combination with a gas-fixture, of a vessel mounted thereon and having a centrally located cylinder provided with openings in its bottom, a perforated mixer located in said cylinder, a burner pipe mounted on the upper portion of the mixer and having perforations, a nozzle located in said pipe below the perforations therein, a collar surrounding the pipe above and below the perforations therein and having openings in its lower portion, a burner mounted on said pipe, a number of pairs of bands supported above the burner, the bands of each pair being separated to form spaces for separate air currents, and a deflector mounted above said pairs of bands.

11. In a heater, the combination with a gas-fixture, of a vessel mounted thereon and having a centrally located cylinder provided with openings in its bottom, a perforated mixer located in said cylinder, a burner pipe mounted on the upper portion of the mixer and having perforations, a nozzle located in said pipe below the perforations therein, a collar surrounding the pipe above and below the perforations therein and having openings in its lower portion, a burner mounted on said pipe, a number of pairs of bands supported above the burner, the bands of each pair being separated to form spaces for separate air currents, a deflector mounted above said pairs of bands, a vessel mount-

ed on the deflector, a pipe-coil leading from said vessel through the deflector and having perforations.

12. In a heater, the combination with a
5 vessel adapted to be mounted on a gas-fixture,
of a cylinder centrally located in said vessel
and provided with openings in its bottom, a
perforated mixer located in said cylinder, a
burner pipe mounted on the upper portion
10 of the mixer and having perforations, a nozzle
located in said pipe below the perfora-

tions therein, a collar surrounding the pipe
above and below the perforations therein
and having openings in its lower portion, a
burner mounted on said pipe, and a pair of 15
bands supported above and around the
burner and separated one from the other to
provide a passage for currents of air.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."