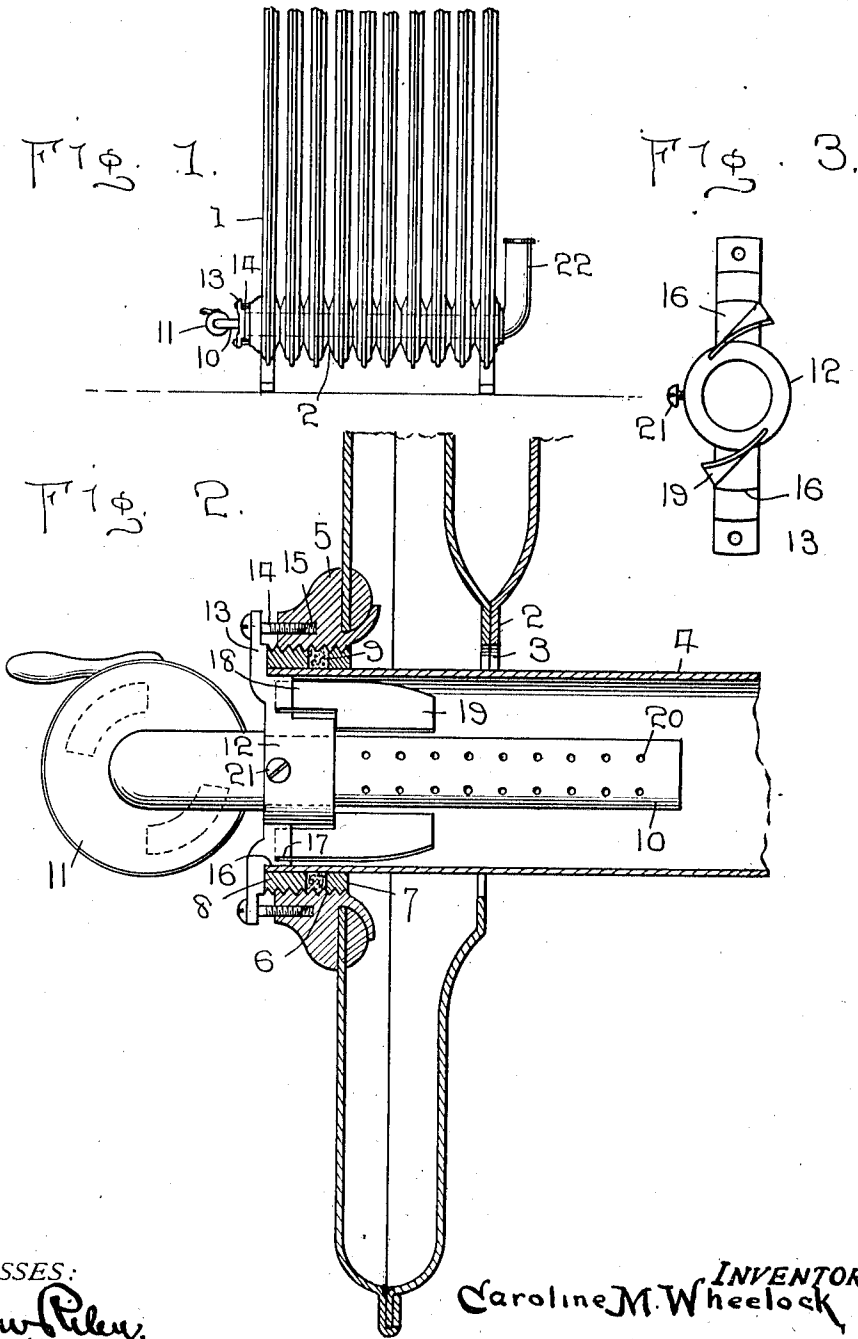


C. M. WHEELOCK.
HEATING DEVICE.
APPLICATION FILED AUG. 21, 1911.

1,020,119.

Patented Mar. 12, 1912.



WITNESSES:
Thos. W. Riley
J. C. Carter

INVENTOR
Caroline M. Wheelock
BY
Carey S. Pryor Attorney

UNITED STATES PATENT OFFICE.

CAROLINE M. WHEELOCK, OF WASHINGTON, DISTRICT OF COLUMBIA.

HEATING DEVICE.

1,020,119.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Application filed August 21, 1911. Serial No. 645,058.

To all whom it may concern:

Be it known that I, CAROLINE M. WHEELOCK, a citizen of the United States, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Heating Devices; 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.

My invention relates to new and useful improvements in heating devices and more particularly to that class adapted to be used in connection with radiators for heating the contents thereof and my object is to provide means for conveying the product of combustion longitudinally through the radiator.

A further object is to provide means for detachably securing the burner in position, and, a further object is to provide means for causing the air and products of combustion to travel in a substantially spiral path when passing through the radiator.

Other objects and advantages will be hereinafter pointed out and set forth in the following specification.

In the accompanying drawings which are made a part of this application, Figure 1 is a detail elevation of a radiator showing the heating arrangement attached thereto. Fig. 2 is an enlarged detail sectional view through the radiator showing the manner of attaching the heating mechanism, and, Fig. 3 is an end elevation of the support for the burner and means for causing the air and products of combustion to travel in a spiral path.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates the radiator sections which may be constructed in the usual or any preferred manner and 2 indicates the joints at the lower ends of the radiator by means of which the various sections are secured together and a passage for the water provided from one section to the other.

Extending longitudinally of the radiator and through the openings 3 provided by the joints 2 is a tube 4, the ends of which extend through bushings 5 carried by the outer sections of the radiator, the interior of said bushings having threads 6 with which engage the threads of rings 7 and 8,

the rings 7 being positioned adjacent the inner ends of the bushings while the rings 8 are employed for binding suitable packing 9 between the rings and around the tube 4, thus forming a complete seal around the tube and obviating any possibility of a leak at this point.

Extending into the tube 4 from one end thereof is a burner 10 which may be constructed in any preferred manner, but preferably circular in cross section, gas or similar combustible substances being conveyed into the burner from any suitable source and passing through a mixer 11 attached to the projecting end of the burner. The burner is held in position within the tube through the medium of a collar 12, said collar having arms 13 radiating therefrom through the outer ends of which extend screws 14, the inner ends of the screws being engaged with openings 15 in the bushing to hold the collar in alinement with the axial center of the tube. The arms 13 are provided in their length with shoulders 16 which engage the inner face of the tube 4 and prevent lateral movement of the collar, and in these shoulders are formed slits 17 which project at an angle to the trend of the arms and receive the inner reduced ends 18 of wings 19. In the present instance I have shown but two wings, but it will be clearly understood that additional wings may be provided around the collar if found necessary. The object of the wings is to cause the air entering through the end of the tube to travel in a spiral path through the tube and to accomplish this result the wings are constructed of more or less flexible material so that they can be readily shaped to cause the air to travel in a twisting or spiral path, this action also causing the products of combustion to travel likewise, thus throwing the products of combustion to the outer parts of the tube and confining the same against the inner surface thereof, thus obtaining the greatest possible heat from the same. The amount of curvature given the ends of the wings depends entirely upon the density of the air entering the end of the tube and in view of the flexible nature of the material of which the wings are composed, the curvature may be increased or decreased to accommodate the same to the class of air entering the tube, thus creating a proper combustion within the tube. The burner 10 is provided with a

plurality of ports 20 through which the gas escapes, said ports being arranged in series around the burner and by positioning the wings adjacent the burner as shown, the air entering the end of the tube will gather the blaze and carry the same in a whirling motion through the tube as well as thoroughly mix the air with the blaze. The burner is held against rotating movement in any suitable manner, as by means of a set screw 21 which passes through the wall of the collar and binds against the face of the burner. The opposite end of the tube from that occupied by the burner has attached thereto a pipe 22 and if desired said pipe may be extended into a flue or through the wall of the building and any suitable means may be employed to control the passage of the products of combustion through the tube.

This device can be used for producing either a hot water heat or a steam heat, the former by substantially filling the radiator with water, leaving but a nominal space at the upper ends of the sections for expansion, while in producing the latter a less amount of water is placed in the radiator or only enough to extend a short distance above the tube in which the burner is placed and in view of the manner in which the products of combustion travel through the tube the water in either instance will be rapidly and thoroughly heated. It will further be seen that but a small amount of gas or other heating medium will be required to retain the contents of the radiator in a heated condition and that the heating arrangement can be attached to any make or size of radiator at a minimum expense.

What I claim is:—

1. In a heating device the combination with a tube and supporting means therefor, of a burner entering said tube, a collar surrounding and positioning the burner in the

tube, arms radiating from the collar and having shoulders to engage the interior of the tube, said shoulders having slots therein, means to attach the outer ends of the arms to the tube supporting means, and wings positioned around the burner and between the burner and tube and having one of their ends engaged with said slots, the opposite ends of the wings being curved to cause the flame from the burner to pass through the tube in a substantially spiral path.

2. In a heating device the combination with a tube, means to support the same, and a burner, of a collar to receive said burner, arms radiating from the collar and having shoulders to engage the interior of the tube, said arms having openings adjacent their outer ends, and screws extending from the tube supporting means and engaging said openings in the arms to secure the collar in position.

3. In a heating device the combination with a tube, means to support the same, and a burner, of a collar to receive said burner, arms radiating from the collar and having shoulders to engage the interior of the tube, said arms having openings adjacent their outer ends, screws extending from the tube supporting means and engaging said openings in the arms to secure the collar in position, and wings carried by said arms and extending longitudinally of and around said burner, the free ends of said wings being curved to cause the flame from the burner to pass through the tube in a substantially spiral path.

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

CAROLINE M. WHEELLOCK.

Witnesses:

HARRY G. KIMBALL,
F. C. PARK.