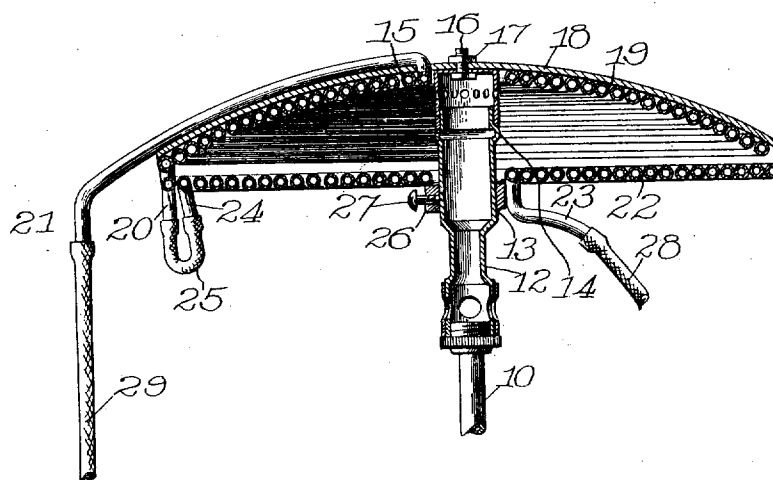


A. T. RONSTROM.
HEATING DEVICE.
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1,018,445.

Patented Feb. 27, 1912.



Witnesses.
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UNITED STATES PATENT OFFICE.

ARVID THOMAS RONSTROM, OF CHICAGO, ILLINOIS.

HEATING DEVICE.

1,018,445.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARVID THOMAS RONSTROM, 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 Heating Devices, of which the following is a specification.

My invention relates to improvements in heating devices, and has for one of its objects to provide a heater for small rooms, such as bath rooms, or small bed rooms, or the like, whereby the temperature of said room may be quickly raised to a comfortable degree, and whereby the same heater may be adapted and arranged for heating relatively small quantities of water, without requiring any tools or extensive skill on the part of the user to change the device from an air heating to a water heating means.

Other objects of my invention will readily become apparent to persons skilled in the art from a consideration of the specification taken in conjunction with the drawing, wherein I have shown a vertical central section of the device with its parts assembled for heating its full capacity of water.

10 is an ordinary gas pipe upon which is screwed, in the usual manner, an ordinary Bunsen burner, 11, such burner comprising a tube contracted as at 12, expanded as at 13, and provided on its upper end with a bead 14, to serve as a shoulder upon which a removable cap 15 is centrally perforated in its head for an attaching bolt 16, held in place by a nut 17. The cap 15 fits over the top end of the burner tube, and rests upon the shoulder, so that by this means the device may be readily and quickly removed from the burner structure. A disk, 18, is centrally perforated and is secured to the cap 15 by means of the bolt 16. To the under side of the disk 18 is secured a spiral coil of small metallic tubing, 19, through which water to be heated is caused to pass. The coil 19 is directly secured to the under side of the disk 18 by any suitable means, as by soldering, or otherwise, and is provided with a free terminal inlet 20, and a similar outlet 21. The coil 19 and the disk 18 together with the cap 15 may be bodily lifted from the burner tube 11. A supplemental coil 22 is composed of a series of convolutions of a similar pipe, and is wound in spiral form, leaving a central opening sufficiently large for the admission of the burner

tube. The convolutions of the supplemental coil 22 may be secured together by solder or by any other suitable or desirable means to hold the coil in a substantially flat plane, as shown in the drawing. The flat supplemental coil 22 is provided with a free inlet terminal 23, and an outlet terminal 24. Obviously when the disk 18 and coil 19 have been lifted from the burner, the supplemental coil 22 may be removed and the disk and coil 19 replaced for use alone.

When the coils 19 and 22 are to be used together, as shown in the drawing, for heating water exclusively, the outlet 24 of coil 22 should be connected to the inlet 20, of coil 19. I have shown a flexible tube 25 for this purpose.

26 is a collar for supporting the coil 22, secured by a screw 27, by means of which coil 22 may be raised or lowered with reference to coil 19, so as to provide a larger or smaller space opening between the peripheries of the respective coils, as a means for compensating for the variation in gas pressure in order to promote heat combustion.

28 and 29 are pieces of flexible tubing connected to the inlet and outlet respectively of the heating coils. The flexible tube connected to the inlet of the heating coil system is preferably connected with the water piping, or other suitable source of water supply, and the flexible tube connected to the outlet of the system is used to fill a receptacle for the hot water.

The use and operation of my device is as follows: As shown in the drawing, the two coils are in proper position with reference to the gas burner 11 for supplying the largest quantity of hot water, or for heating a given quantity to the highest temperature, within the capacity of the device. When the gas is turned on and ignited, it emerges from the perforations in the cap 15, and the hottest portion of the flame is nearest the cap. Therefore, the convolutions of the coil immediately superposed above the flame are heated to a high temperature. As the flame proceeds farther from the burner, it becomes relatively cooler, and the coil surface becomes greater and greater, and therefore, the convolutions near the outside periphery of the coil are not heated to so high a temperature. The products of combustion escape near the peripheries of the respective coils and through the spaces between them. Coil 22 being located below the flame, there

is less quantity of heat absorbed from the burner by it, and therefore the colder water is preferably caused to enter said coil 22 and pass through the various convolutions thereof before it enters the hotter coil 19, the exit of the water being at the hottest part of the hotter coil 19.

My device is especially designed for use for heating small quantities of water, and the air in small areas, and is adapted to be substituted by an ordinary gas burner, but of course it is not limited to such use.

While I have herein described with some particularity a specific construction, for the purpose of a complete disclosure of my invention, it is of course evident that changes may be made in the details of construction, proportion, and style, without departing from the spirit and scope of the appended claims.

What I claim is:

1. In a device of the character described, comprising in part a Bunsen burner consisting of a tube having separate openings at its lower end for admission of air and gas, and a readily separable cap, having a closed end and a perforate side wall for the outflow of combustible mixture, overlying and supported on the other end of said tube, a disk superposed on and secured to said cap, and a spirally coiled pipe underlying the disk and secured thereto.

2. In a device of the character described, comprising in part a Bunsen burner, consisting of a tube having separate openings

at its lower end for admission of air and gas, a readily separable cap having a closed end and perforated side walls for the outflow of a combustible mixture overlying and supported on the other end of said tube, a disk superposed on and secured to said cap, a spirally coiled pipe underlying and secured to said disk, and a second spirally coiled pipe underlying the first coil, and adjustable vertically on the said burner structure with respect to the first said coil.

3. In a device of the character described, comprising in part a Bunsen burner consisting of a tube having separate openings at its lower end for admission of air and gas and outlet openings at its top for heated air and the products of combustion, a disk superposed on and secured to the upper end of said burner above said outlet openings, and a member (22) below said outlet openings inclosing a space between it and the upper disk into which said outlet openings discharge, said disk and member (22) being relatively close together adjacent their peripheries to leave a slight opening for the escape of the heated air whereby the only air entering said space is the dry heated air from said burner, said disk remaining therefore free from sweat.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

ARVID THOMAS RONSTROM.

In the presence of—
FORÉE BAIN,
MARY F. ALLEN.

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