

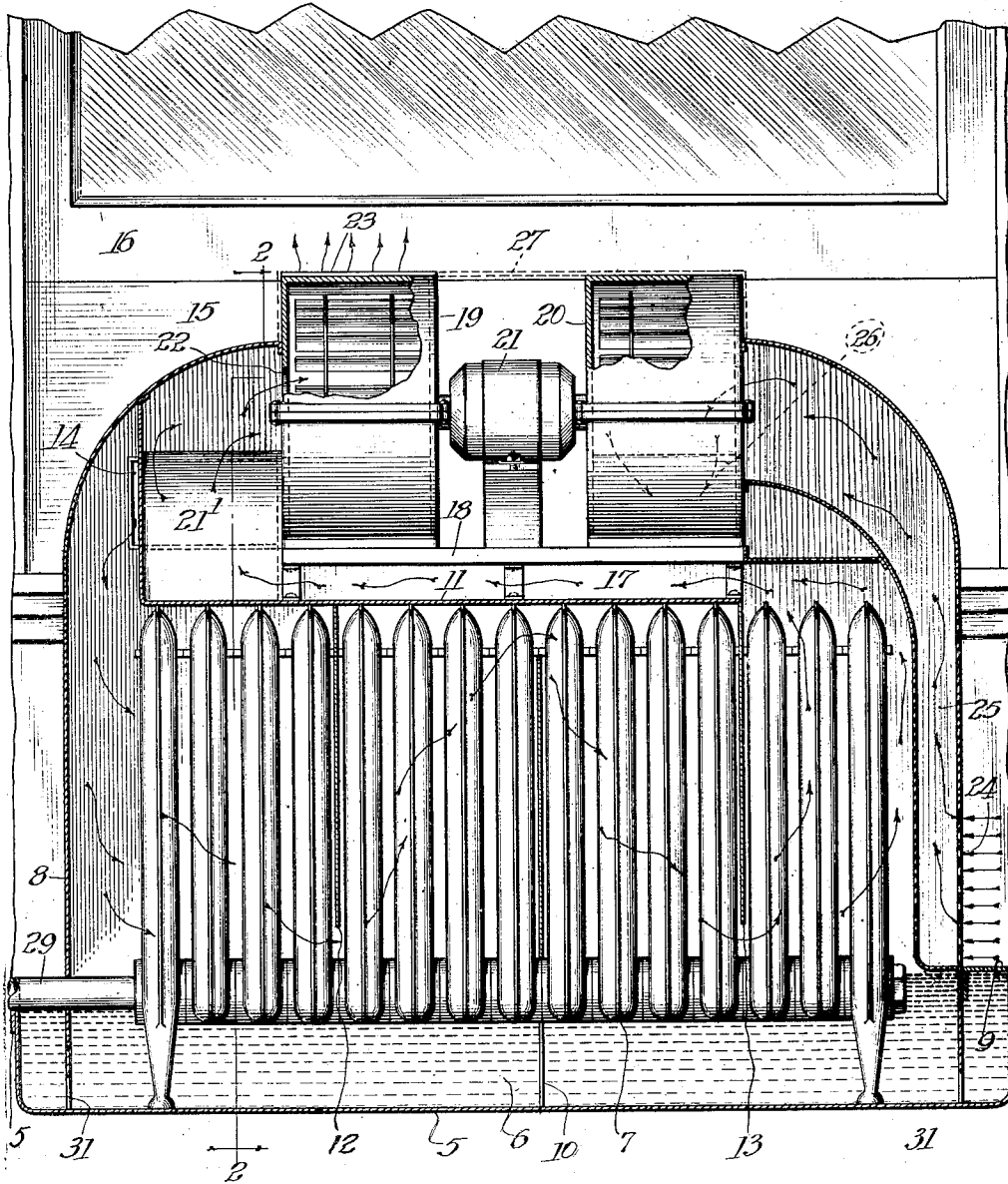
F. BAIN.
AIR CONDITIONING APPARATUS.
APPLICATION FILED DEC. 16, 1913.

1,115,767.

Patented Nov. 3, 1914.

2 SHEETS—SHEET 1.

Fig 1



Witnesses:
Robert Weir
Attest

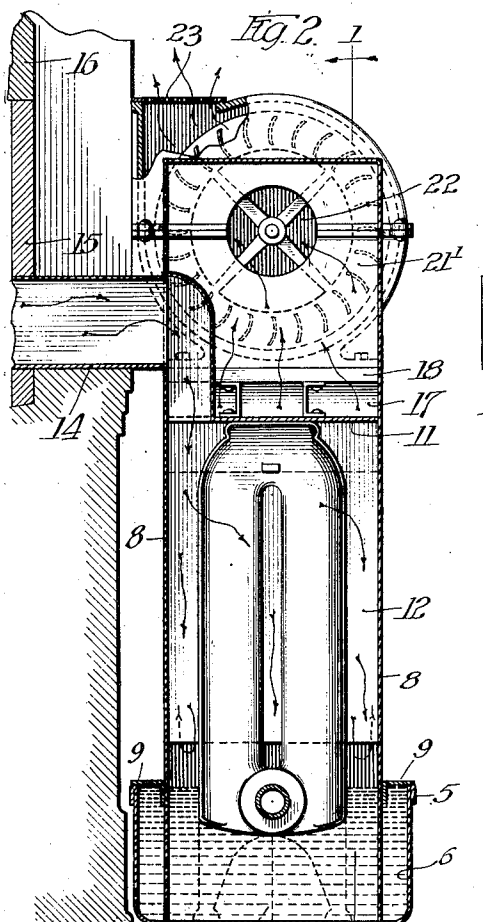
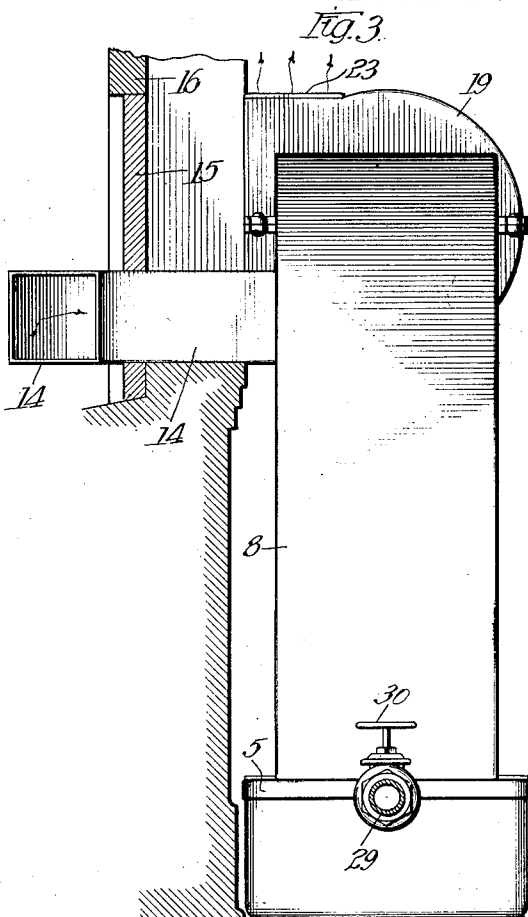
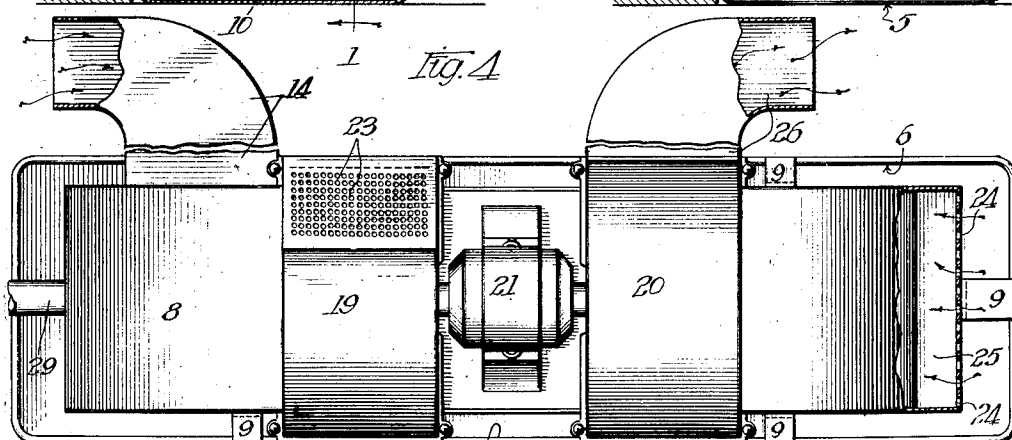
Inventor:
F. Bain
F. Bain & May
Attest

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2 SHEETS-SHEET 2.



Witnesses:
Robert H. Weir
Att. Carlow

Inventor
F. Bain
By F. Bain May
Attys

UNITED STATES PATENT OFFICE.

FORÉE BAIN, OF LA GRANGE, ILLINOIS.

AIR-CONDITIONING APPARATUS.

1,115,767.

Specification of Letters Patent.

Patented Nov. 3, 1914.

Application filed December 16, 1913. Serial No. 806,991.

To all whom it may concern:

Be it known that I, FORÉE BAIN, a citizen of the United States, residing at La Grange, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Air-Conditioning Apparatus, of which the following is a specification.

My invention relates to improvements in air conditioning apparatus, to render it more sanitary, healthful and comfortable for breathing purposes.

One of the general objects of my invention is to provide means, in association with the usual segregated steam or hot water radiator of a heating system—for heating individual rooms,—for cleansing, heating, and humidifying the air to be breathed in such living room or apartment and to take from said room, from a point below the breathing line, the used or vitiated air and return it to the outside atmosphere.

Another and more specific object of my invention is to inclose the ordinary heating radiator in a jacket or casing and to submerge more or less of said radiator in a pan of water whereby to heat and humidify the air, and to cleanse it by directing the course of air, by means of suitable baffle plates, toward and from the water, whereby to eliminate the solid particles of matter, that may be held in suspension in the air, by the frequent changes of direction in its movement.

Other and further objects of my invention will become readily apparent to persons skilled in the art from a consideration of the following description when taken in conjunction with the drawings, wherein—

Figure 1 is an elevation of the device, in section, taken on line 1—1 of Fig. 2. Fig. 2 is a transverse section taken on line 2—2 of Fig. 1. Fig. 3 is an end elevation and Fig. 4 is a plan view.

My apparatus is applied to the ordinary radiator without the necessity of disturbing the steam connections and it consists of a pan 5, adapted to be filled, to a greater or less extent, with water 6, within which the radiator 7 is located. I preferably construct the jacket or casing of two parts, consisting of the pan 5 and the removable portion 8, the water in the pan forming an air seal

between the two parts. The pan 5 projects sufficiently beyond the casing 8 at one end, to permit filling with water and a flanged portion 9 of the casing may overlie the edges and the other end and sides of the pan so as to substantially inclose the pan except at the end where it is to be filled.

Rising from the bottom of the jacket and projecting up to near the top of the radiator is a baffle plate 10, and depending from an upper horizontal wall 11, are baffle plates 12 and 13. These latter plates descend to a point near the bottom of the radiator coils, leaving sufficient room for the air to pass between and under these plates. The arrows on the left side of Fig. 1 show the direction of the incoming air, they also show the direction of the incoming air in Fig. 2. The upper portion of the casing 8 is connected by conduit 14 through a window board 15 with the outside atmosphere. The window board is set under the window 16 in the window casing.

An air conduit 17 for the heated air, is provided between the wall 11 and the base board 18. Upon the latter, the fans 19 and 20 and the driving motor 21 are mounted. The conduit 17 communicates with a chamber 21' located at the left side of the fan and communicates with the eye 22 of said fan. Cold air enters the conduit 14, is drawn into the upper portion of the casing 8, and passes down beyond or below the baffle plate 12 in direction toward the water 6, and then passes upwardly, over the upper end of the baffle plate 10, and again downwardly, under the baffle plate 13, and up again in the right side of the casing 8 into the conduit 17, and then into the chamber 21', communicating with the eye 22 in the fan, and is finally discharged through the aperture 23 located in the upper part of the fan casing and directed toward the ceiling in the area to be heated. The air is thus heated and the moisture arising from the evaporated water 6, is taken up by the air which then becomes sufficiently humidified, and air, having its course changed rapidly and frequently deposits any solid matter that may be held in suspension therein in the pan 5, so that when the air is discharged into the room it is heated, cleansed

and humidified, and is in the best condition for promoting health and contributing to the comfort of the occupants of the room.

The fan 20 draws the air from a point 5 near the floor of the apartment into the perforated wall 24 of the casing and into the conduit 25 directly into the eye of the fan 20. It is then discharged from the fan through the conduit 26 into the open atmosphere. It 10 will be observed, by looking at Fig. 4, that the incoming air is taken from one direction and the air from the exhaust fan is discharged in to the atmosphere in the opposite direction so that notwithstanding the close 15 proximity of the two conduits the air will not mix and therefore fresh air will always be drawn into the chamber continuously and vitiated or used air will be discharged into the atmosphere and given a direction of motion 20 away from the point of intake. The fans 19 and 20 are practically of the same capacity so that the air pressure within the room need not necessarily be changed as substantially the same quantity of air will be 25 exhausted from the room that is drawn into it.

In a practical exemplification of my invention the air contained in an office room 15 feet square is delightfully conditioned 30 by the use of a motor requiring not more than 60 watts to operate both fans and therefore the continuous silent operation of the device, and the expense thereof, is not a serious objection to its use. A cover 27, shown 35 in dotted lines, may be employed if necessary to inclose both the fans and the motor. If the air of the room becomes laden with too great a quantity of moisture it is only necessary to permit the water to be evaporated 40 below the heated portions of the radiator to reduce the humidity of the air. The pipe 29 is the means for conveying steam or hot water to the radiator 7 and a valve 30 may be placed outside of the casing 8 and 45 used as usual for controlling the admission of the heating medium to the radiator. Openings 31 may be made in the bottom part of the casing 8 so that water poured into the pan 5 from outside of the casing 8 50 will readily pass thereinto.

While I have herein shown a single embodiment of my invention for the purpose of clear disclosure, it is manifest that changes may be made therein, within the 55 scope of the appended claims, without departing from the spirit of my invention.

Having described my invention, what I claim is:—

1. In a device of the character described, 60 the combination with an ordinary air heating segregated radiator, of a casing inclosing said radiator; a conduit connecting said casing with the outside atmosphere; a pan for water to be contained in said casing, and

a fan for drawing the air through said casing 65 over the water and discharging it into the room.

2. A device of the character described, in combination with an ordinary air heating segregated radiator, of a casing inclosing 70 said radiator; a conduit connecting said casing with the outside atmosphere; baffle plates dividing said radiator into sections to change the direction of the air; a pan for water to be contained in said casing and a 75 fan for drawing the air through said casing over the water and discharging it into the room.

3. A device of the character described, in combination with an ordinary air heating 80 segregated radiator, of a two part casing, comprising a water pan and a separable, vertically extending part inclosing said radiator; a conduit connecting said casing with the outside atmosphere and a fan for drawing 85 the air through said casing and over the water and discharging it into the room.

4. A device of the character described, in combination with an ordinary air heating segregated radiator, of a casing inclosing 90 said radiator; a conduit connecting said casing with the outside atmosphere; a fan for drawing air through said casing and discharging it into the room; another fan connected with the outside atmosphere for discharging 95 air from the air heated area or room and a motor for driving both fans.

5. A device of the character described, in combination with an ordinary air heating segregated radiator, of a two part casing 100 comprising a water pan and a separable vertically extending part inclosing said radiator; a conduit connecting said casing with the outside atmosphere; a fan for drawing air through said conduit over the water and 105 discharging it into the area to be heated; another fan connected with the outside atmosphere for discharging air from the air heated area and a motor for driving both fans mounted within said casing. 110

6. A device of the character described, the combination with an ordinary segregated room heating radiator, of a two part casing, one part comprising a water pan, the other part extending over the radiator having its 115 open end within said pan thereby to water seal said opening; a conduit connecting said casing with the outside atmosphere, and a fan supported above the radiator for drawing air into said casing, over the water and 120 discharging it into the room.

7. In a device of the character described, the combination with an ordinary segregated room heating radiator, of a two part casing, one part comprising a water pan, the 125 other part extending over the radiator, having an open end within said pan, thereby to water seal said opening; a conduit con-

necting said casing with the outside atmosphere; a fan, supported above the radiator for drawing air into said casing over the water and discharging it into the room; another fan, similarly situated, having a conduit extending below the breathing line of the room and communicating with the outside atmosphere, for discharging the vitiated

air from the room, and a motor for driving both fans.

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

FORÉE BAIN.

In the presence of—

STANLEY W. COOK,

MARY F. ALLEN.