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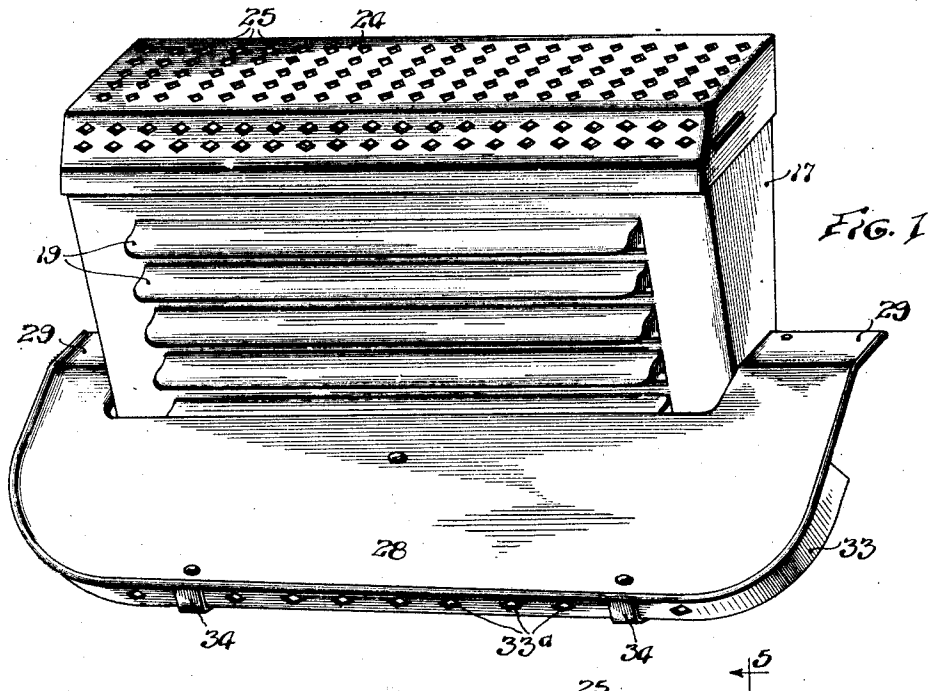
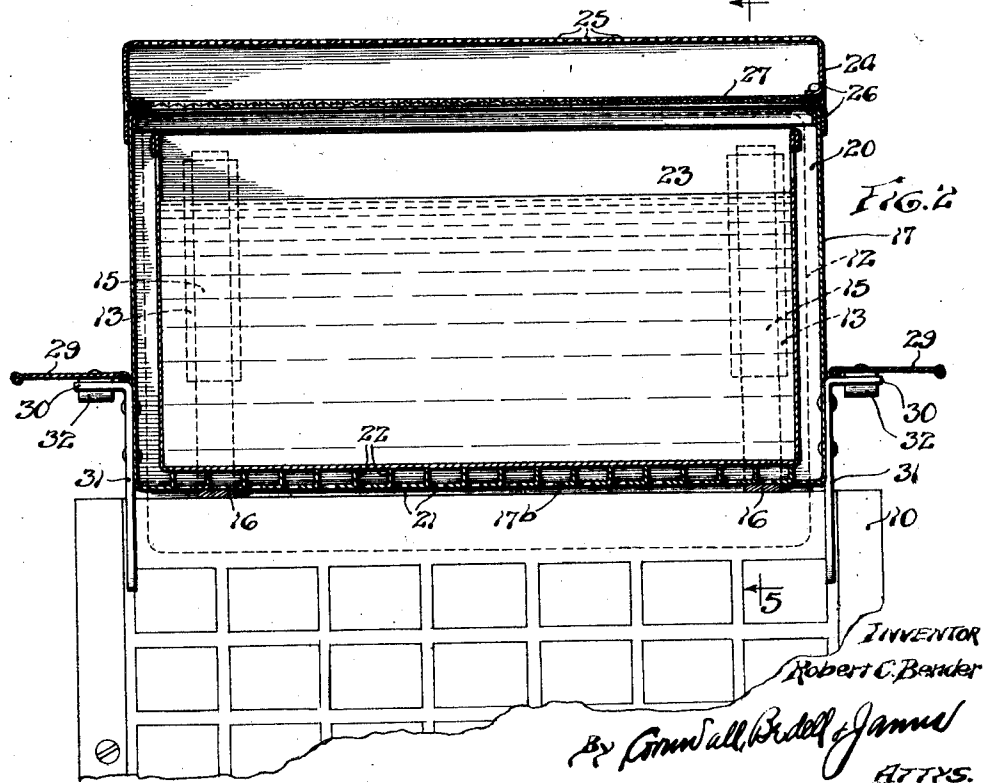
1,668,042

R. C. BENDER

HUMIDIFIER AND DUST COLLECTOR FOR HEATING SYSTEMS

Filed April 2, 1926

2 Sheets-Sheet 1



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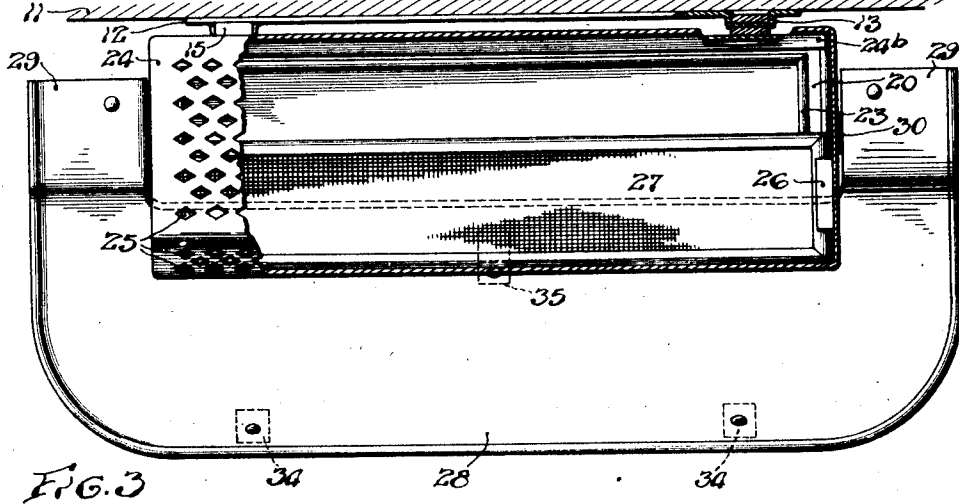
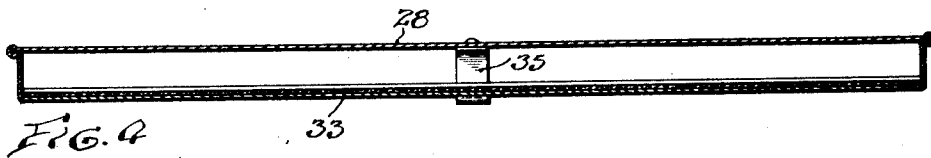
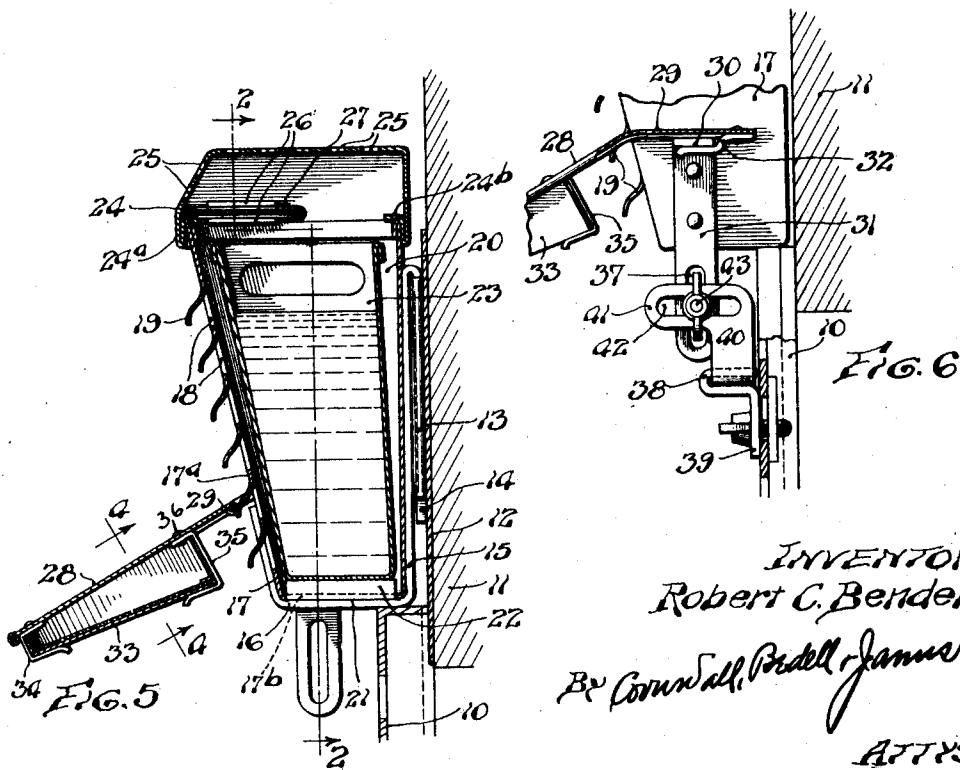
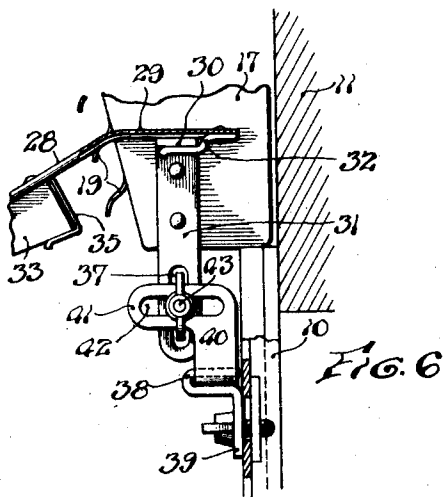
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Filed April 2, 1926

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

ROBERT CLIFFORD BENDER, OF ST. LOUIS, MISSOURI.

HUMIDIFIER AND DUST COLLECTOR FOR HEATING SYSTEMS.

Application filed April 2, 1926. Serial No. 99,317.

This invention relates to new and useful improvements in humidifiers and dust collectors for heating systems, and is an improvement upon the device disclosed in my copending application filed December 9, 1925, Serial No. 74,425.

The objects of my present invention are to generally improve upon and simplify the construction of humidifiers and dust collectors of the class described, and to provide a device which can be readily attached in position, presents a neat appearance, and is so constructed that the dust receivers can be readily detached for cleaning purposes.

Further objects of the invention are to provide a humidifier and dust collector which when placed in position does not obstruct the discharge opening of the hot air register and which is provided with a supporting plate adapted to be permanently secured in position behind the frame of the register and can be concealed from view so that when the humidifier is detached therefrom said plate is covered, there being only two small cuts formed in the wallpaper for permitting the ends of the supports to be inserted in the sockets in said plate.

With these and other objects in view, my invention consists in certain novel features of construction and arrangement of parts, hereinafter more fully described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of my improved humidifier and dust collector.

Figure 2 is a vertical cross section taken on line 2—2 of Figure 5, and showing a portion of the hot air register to which it is attached.

Figure 3 is a top plan view partly in cross section of my humidifier and dust collector.

Figure 4 is a vertical cross section taken on line 4—4 of Figure 5.

Figure 5 is a vertical cross section taken on line 5—5 of Figure 2.

Figure 6 is a fragmental side elevation of the lower portion of the humidifier and dust collector and showing modified means for supporting the same.

Referring by numerals to the accompanying drawings, 10 indicates a wall register of the hot air heating system, and interposed between the upper end thereof and wall 11 is the lower end of a plate 12 which extends upwardly a suitable distance above said reg-

ister. This plate is provided with a pair of vertically disposed sockets or seats 13 which are formed by pressing out a portion of said plate and are adapted to receive the vertically disposed downwardly presented ends 14 of supports 15. These supports, which are preferably rectangular in cross section, are rebent downwardly and terminate in upwardly presented hook portions 16 which are adapted to receive the lower end of a casing 17. The front wall 17^a of said casing inclines upwardly and forwardly and is provided with openings 18 which are formed by striking outwardly plates 19 which serve to deflect the air through said openings 18 into the chamber 20 formed by casing 17. The bottom wall 17^b of casing 17 is provided with a series of transverse openings 21 which also serve to admit air into said casing. These openings are preferably formed by striking upwardly portions of the bottom wall 17^b as indicated at 22 whereby said portions act as spacers and space the bottom wall of a water container 23 from the bottom wall 17^b so that air can circulate around said container.

The container 23 is of smaller dimensions than the casing 17 so that the side walls of the former are spaced suitable distance from the side walls of said casing and provides sufficient clearance for the air to pass upwardly therebetween. If desired, the side walls of the container may be inclined inwardly from the walls of said casing so that the air spaces between said walls increase toward the top to allow for the expansion of air and at the same time produce proper circulation thereof through the device.

The top of the casing is closed by a cover 24 the marginal edges of which are rebent upwardly to reinforce said edges and are then bent inwardly and laterally as indicated at 24^b to provide horizontally disposed flanges which when the cover is in position rest on the marginal edge of casing 17 and support said cover therein. The top and front walls of cover 24 are provided with a series of suitable openings 25 through which the air is discharged from the casing into the room. The end walls of cover 24 are provided with inwardly projecting horizontally disposed lugs or ledges 26 which are adapted to receive the ends of a removable screen member or dust collector 27. The width of this screen is less than the width of the cover and said screen is prefer-

ably positioned forwardly adjacent to the front wall of the cover as shown in Figure 5.

Extending forwardly from the lower portion of casing 17 is an apron 28 which projects over the hot air register 10 and is provided with side extensions 29 which extend adjacent to each end wall of casing 17 and rests on horizontally disposed portions 30 of bars 31 which latter are secured to the end walls of casing 17. Each extension 29 has fixed to its underside a forwardly projecting clip 32 which when apron 28 occupies proper position bears against the lower face of portions 30, thereby retaining apron 28 in proper position.

To remove the apron from the casing it is necessary to bring said apron against casing 17 until clips 32 are free of portions 30, whereupon said apron may be lifted upwardly and then withdrawn from position.

The underside of apron 28 is provided with a pocket or dust receiver 33 which opens toward casing 17 and is supported at its outer end by U-shaped clips 34 which latter are fixed to said apron while the forward or inner end of receiver 33 is held in position by a clip 35 which is pivotally secured to said apron by a rivet 36 and may be turned on said rivet to release said receiver so that the latter can be withdrawn from engagement with clips 34. The lower ends of bars 31 project below the lower end of casing 17 and are preferably slotted as indicated at 37. The purpose of the slotted ends of bars 31 is to permit attachment of the humidifier to supporting means 38 as shown in Figure 6. These means are adjustable and comprise member 39 which is adapted to be fixed to the hot air register 10 and is provided in the upper end with a seat for receiving the lower end of member 40. The upper end of member 40 is formed with a horizontally disposed portion 41 having a horizontally disposed slot 42. Portion 41 is adapted to cooperate with the lower end of bar 31 and be clamped thereto by suitable fastening means 43 and the slots 37 and 42 allow adjustment of the relative parts in vertical and horizontal planes. This particular form of support is especially adapted for temporarily attaching the dust collector in position while plate 12 is designed to be permanently secured in position and consequently does not contain the adjustable features of the other form.

The weight of the dust collector and the water container arranged therein is received by the upper end of register 10 on which the lower end of said dust collector rests and plate 12 and supports 15 merely hold the dust collector against displacement.

In the operation of my device, the air upon being discharged from the hot air register 10 rises upwardly and a portion there-

of enters casing 17 through opening 17^b while some of the air enters the casing through openings 18. The hot air circulating through casing 17 heats the water contained in the container 23. The vapor given off by the water mixes with the air in the chamber formed in cover 24. The dust particles laden with moisture are deposited on the screen 27 so that only pure air will be discharged through the openings 25. Some of the air will be deflected by apron 28 into the receiver 33 causing the dust particles to settle therein while the air will be discharged through openings 33^a.

I claim:

1. A humidifier and dust collector for hot air heating systems comprising in combination with the wall register an open top casing provided with a plurality of openings for admitting hot air thereinto, a water container arranged in said casing and spaced from the walls thereof, a perforate cover for closing the top of said casing, and supports adapted to be secured above said register and provided with seats for removably receiving said casing.
2. A humidifier and dust collector for hot air heating systems comprising an open top casing provided in its walls with a plurality of openings for admitting air thereinto, a water container arranged in said casing and spaced from the walls thereof, a perforate cover for closing the upper end of said casing, and a dust receiver removably arranged in said cover, said dust collector being of less width than the width of said cover.
3. A humidifier and dust collector for hot air heating systems comprising an open top casing provided with a plurality of openings for admitting hot air thereinto, a water container arranged in said casing and spaced from the walls thereof, a perforate cover for closing the top of said casing, and a screen disposed in said cover and forming a dust receiver, said screen being of smaller dimensions in one direction than said cover to permit air in said casing to enter said cover.
4. A humidifier and dust collector for hot air heating systems comprising an open top casing provided in its front wall and bottom wall with openings for admitting hot air thereinto, a water container arranged in said casing and spaced from the walls thereof, a removable perforate cover for closing the upper end of said casing, portions extending inwardly from the end walls of said cover, and a screen extending longitudinally of said cover and having its ends in detachable engagement with said portions, said screen being adapted to receive the dust particles from the air admitted into said cover.
5. A humidifier and dust collector for heating systems comprising an open top casing provided in its bottom wall with openings, the edges of which are turned up-

wardly into said casing, a water container arranged in said casing and resting on the upwardly turned edges of said openings, thereby spacing the bottom of said water container from the bottom of said casing and permitting air to enter said casing through said openings, a perforate cover for closing the upper end of said casing, and supports adapted to be secured in position above a hot air register and provided with seats for removably receiving said casing.

6. A humidifier and dust collector for hot air heating systems comprising an open top casing provided with a plurality of openings for admitting hot air therinto, a water container arranged in said casing and spaced from the walls thereof, a perforate cover for closing the top of said casing, supports adapted to be secured above said register and provided with seats for removably receiving said casing, and an apron extending forwardly from the front wall of said casing and removably attached thereto.

7. A humidifier and dust collector for hot air registers comprising a casing provided with perforate walls, a water container arranged in said casing and spaced from the walls thereof, means for supporting said casing above a hot air register, and an apron plate extending forwardly from the lower portion of said casing and overhanging said hot air register, said apron being provided

on its underside with an inwardly opening dust pocket.

8. In a device of the class described, the combination with a casing, of a plate adapted to be fitted against the wall and have its lower end clamped between the hot air register frame and said wall, upwardly disposed open top seats formed in said plate, and support bars having their upper ends rebent downwardly to removably engage said seats and having their lower ends bent horizontally and then upwardly to removably receive the lower end of said casing and rest on the upper end of said register.

9. In a device of the class described, the combination with a casing having perforate walls and provided with a water container, of an apron extending outwardly from the front wall of said casing and adapted to overhang the hot air register with which said casing is associated, projections secured to the end walls of said casing and projecting laterally therefrom, said apron being provided with extensions resting on said projections, and clips secured to the underside of said extensions and adapted to engage said horizontal projections and retain said extensions in engagement therewith.

In testimony whereof I hereunto affix my signature this 30th day of March, 1926.

ROBERT CLIFFORD BENDER.