July 10, 1928. 1,676,943

J. B. DARGAVEL

HUMIDIFIER FOR CIGAR CASES

Filed Nov. 2, 1925 2 Sheets-Sheet 1

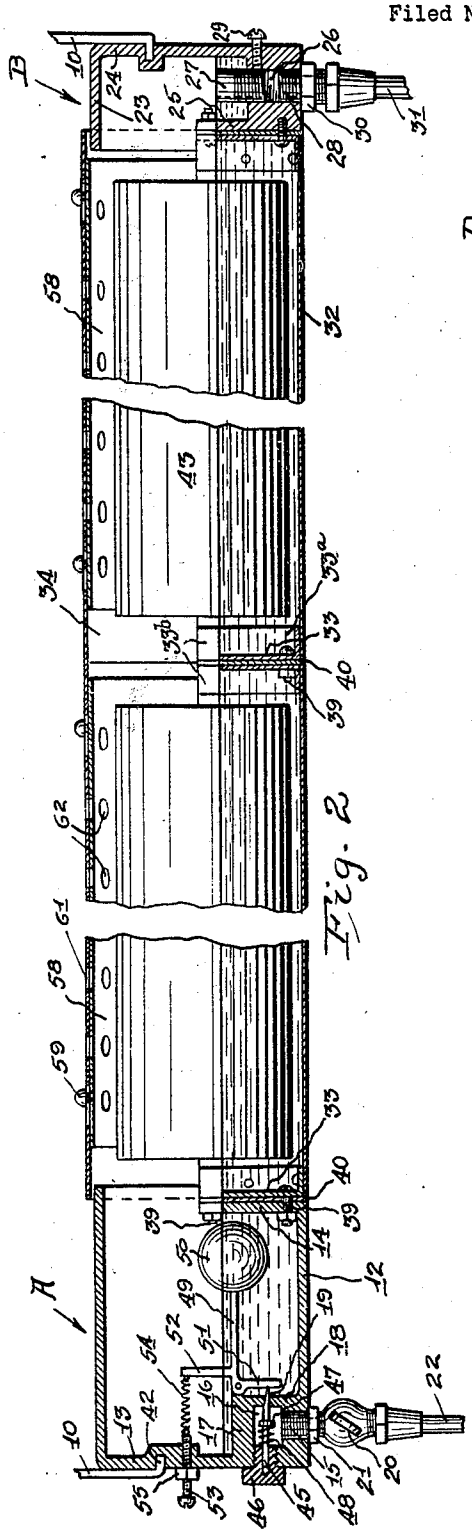


Fig. 2

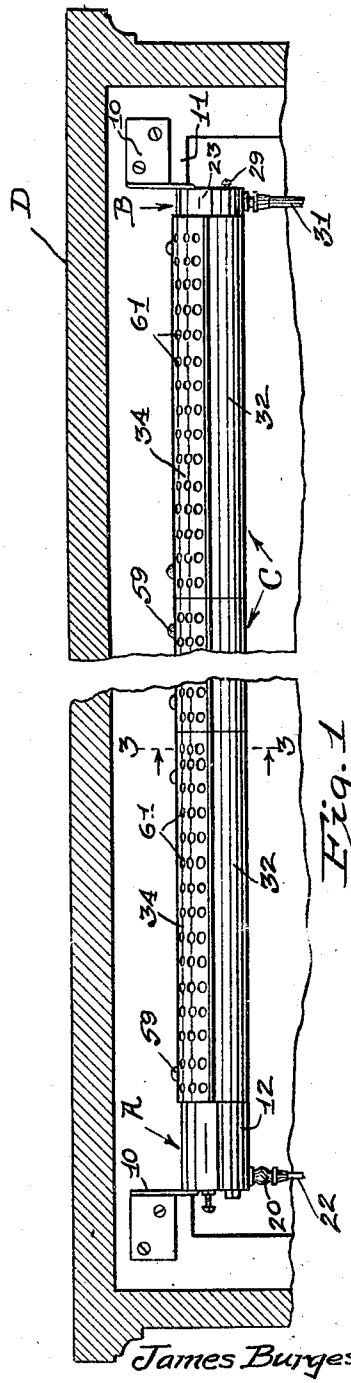


Fig. 1

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Fig. 3

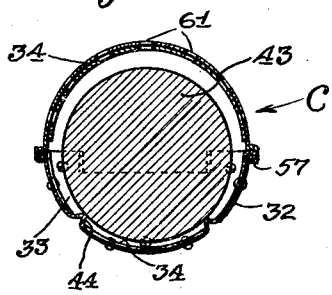


Fig. 6

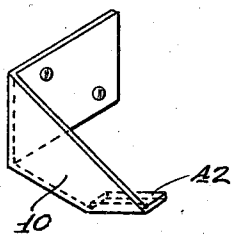


Fig. 5

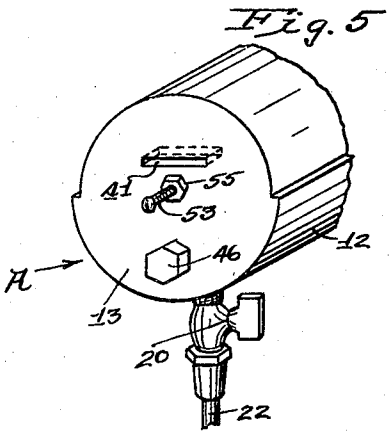
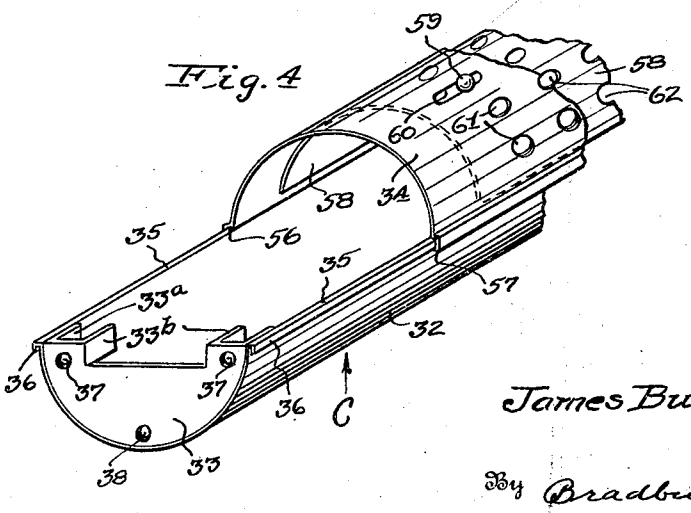


Fig. 4



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UNITED STATES PATENT OFFICE.

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HUMIDIFIER FOR CIGAR CASES.

Application filed November 2, 1925. Serial No. 66,173.

My invention relates to improvements in humidifiers particularly, though not exclusively, for cigar and other tobacco cases.

Devices of the present character are required to be replenished with water from time to time and owing to the usual structures employed, users are called upon constantly to watch the supply of water and, when such supply is low or exhausted, go through disagreeable and, in some instances, burdensome operations to restore the devices to service.

An object of the present invention is to provide a humidifier, which is fed with water by gravity or under pressure from a source of supply thereof and, wherein, means are provided to prevent the device from overflowing.

Another object is to provide a humidifier, which consists of terminal sections and an intermediate section or sections, said sections being joined end-to-end to form a rigid, unitary assemblage of intercommunicating receptacles of desired length and capacity for a given case or cabinet.

A further object is to supply a relatively simple and inexpensive humidifier, the same being capable of elongation with resulting increase in capacity by the addition of intermediate sections, said sections being identical in construction and readily assembled in the building up of the structure.

An additional object is to furnish a sectional humidifier, wherein water is fed from one section to another, each section being supplied with means for trapping accumulations of foreign matter therein, said means also comprising coupler members for said sections.

With the foregoing and other objects in view, which will appear in the following description, the invention resides in the novel combination and arrangement of parts and in the details of construction hereinafter described and claimed.

In the drawings, Fig. 1 is an elevational view of a device embodying my invention, the same being illustrated as installed in a cigar case; Fig. 2 is a longitudinal, vertical central, sectional view of the device; Fig. 3 is a transverse, sectional view taken through one of the intermediate sections of the device, as on the line 3—3 of Fig. 1; Fig. 4 is a fragmentary view in perspective, the same illustrating, in detail, one end of one of the intermediate sections; Fig. 5 is a similar perspective view illustrating the outer end of the terminal feed section of the humidifier, and Fig. 6 is a fragmentary view in perspective of the end of a hanger for co-operation with said section.

Referring to the drawings it will be understood that my improvement includes two terminal sections A and B, the former a feed section and the latter a drain section. Said terminal sections have disposed between them one or more intermediate sections C. All of the sections going to make up a device are rigidly joined end-to-end, the assembly providing a series of intercommunicating receptacles in unitary form, being suspended from hangers 10 suitably anchored to a rail 11 or other convenient part of a case or cabinet D.

The terminal feed section A includes a cylindrical shell-like body 12 entirely closed at its outer extremity by the wall 13 and traversed at its inner extremity by a segmental coupling plate 14. A nipple 15 threaded through the bottom of the body 12 opens at its upper end into a valve chamber 16 formed in the angle of said bottom and the wall 13 by a top portion 17 and inner wall portion 18, cast integrally with each other and with said bottom and wall. This wall has a small orifice 19 therein permitting of the escape of water from said chamber 16 into the body proper, said orifice providing a needle valve seat for a purpose soon to appear. The nipple 15, fitted with valve 20, is locked in place by means of a nut 21 threaded on said nipple and turned against the bottom of the body 12. Connected with this nipple is a supply pipe 22, which communicates with a source of water supply from which the water is fed by gravity or pressure.

The terminal drain section B, like the feed section A, includes a cylindrical shell-like body 23, closed at its outer extremity by an end wall 24 and traversed at its inner extremity by a segmental coupling plate 25. A threaded bore 26 in the bottom of the body 23 receives two nipples 27 and 28, the former being screwed downward into said bore from the inside of the body 23 and the latter screwed upward into said bore from beneath said body. A lock screw 29, threaded through the end wall 24, secures the nipple 27 against turning, while a lock nut 30, threaded on the nipple 28 engages the underside of the body and keeps said latter

nipple from turning. Connected with the nipple 28 is a drain pipe 31 which may be led to any convenient sewer connection or other place for the disposition of the overflow from the device. Said drain pipe 31, like the feed pipe 22, is preferably soft tubing capable of being easily bent and coupled to standard fittings.

The intermediate sections C being identical a detailed description of one will suffice. A trough shaped body 32 is fitted with segmentally shaped end coupling plates 33 and a longitudinally slidable cover 34 arched and lending cylindrical shape to the section C. The body 32 is made from sheet metal rolled in the form shown, the side edges being strengthened by ribs formed upon turning the margins outwardly and downwardly. The portion 35 of each rib provides a rail and the depending portion a locking flange 36, both of which portions co-operate with cover portions as will later appear. The end coupling plates 33 are identical and may be stamped from sheet metal or cast, as desired. In constructing the same by the stamping process, a sheet metal blank is used, the same resembling the half of a disc cut on the diameter thereof. The margin at the perimeter of this segmental blank is turned on the body at right angles with respect thereto to form an arcuate flange 33^a. Ears 33^b struck from the metal along the straight side of the blank are turned in the direction of the flange 33^a. Between each ear 33^b and the adjacent portion of the flange 34, the plate 33 is formed with an opening, as at 37, a like opening 38 being formed in said plate near the lower edge thereof. The end plates 33 are fitted within the opposite ends of the rolled body 32 in the manner best seen in Figs. 2 and 4, said flanges 33^a being riveted and soldered or otherwise applied to said body 32 to form secure and fluid tight junctions between the same.

The coupling plates 14 and 25 of the terminal sections A and B are likened in outline to the coupling plates 33 of the intermediate sections, said coupling plates 14 and 25 having apertures therein arranged to register with a mating coupling plate 33 of an intermediate section C.

In assembling the device, the coupling plate 14 of the terminal feed section A is bolted face-to-face to a coupling 33 of an intermediate section C, by means of bolts 39 passing through the openings in said coupling plate 14 and the registering apertures 37, 38 in the coupling plate 33, a gasket 40 being spread between said coupling plates to provide a fuel tight joint between said sections. If the device is one of minimum capacity the terminal drain section B is applied to the end of the single intermediate section C opposite the terminal feed section A, the connection being made in the same manner, as above pointed out. If greater capacity is desired, a second or more intermediate sections C may be employed, the connections between intermediate sections being made in the usual manner as the connections between terminal and intermediate sections.

Rigidly joined end-to-end the terminal and intermediate sections are hung in unitary assemblage from the hangers 10 which are fastened as by means of screws to a rail 11 or other part of a case D. One hanger 10 releasably engages the terminal section A and the second hanger likewise engages the terminal section B, each terminal section having an elongated socket 41 therein into which the inturned finger 42 of its respective hanger 10 fits.

In each intermediate section, I place a porous clay block 43 or other wick-like vaporizing object, which is held out of contact with the body proper by means of protuberances 44 (Fig. 3) providing seats for the block, said protuberances being formed by denting the body 32 from its underside. Each block 43 is spaced endwise from the end-plates 33 of its respective section C by means of the ears 33^b on said end-plates.

Water admitted to the terminal feed section A, through the pipe 22, flows therefrom into the first intermediate section C and thence on through the remaining intermediate sections, if any, to the terminal section B from which it drains into the drain pipe 31. The waste of water through the drain pipe 31 may be controlled by regulating the inflow of water to the feed section A through manipulation of the valve 20. In atmospheres varying in percentage of humidity, evaporation of water from the exposed parts of the blocks 43 takes place in greater or less degree. The valve 20, therefore, is adjusted to maintain the supply of water under that condition wherein the greatest amount of evaporization takes place.

It will be noted that the coupling plates 14 and 25 of the terminal sections A and B and the coupling plates 33 of the intermediate sections C form wiers over which the water passes and that said wiers form a trap in each of their respective sections. Thus, it will be apparent that the accumulation of foreign matter in each section will be confined thereto, whereby the overflow nipple 27 and pipe 31 will be less likely to be clogged than would be the case were the accumulations of such matter allowed to pass from all of the advance sections into the terminal drain section B. The wiers, formed as explained by said coupling plates gather the foreign accumulations from the water passing thereover, this gathering or skimming effect being maintained at its maximum, by an adjustment of the overflow nipple 27 bringing the top of the same only

slightly above the level of the upper edges of the wiers.

Provision is made to prevent the overflowing of the device, as by the clogging of the drain nipple 27 or pipe 31, should a user omit indefinitely to clean the device of accumulating matter. At the terminal feeding section A and in the chamber 16 is a sliding needle valve 45 tapered to fit the orifice 19 in the wall 18. This needle valve 45 is slidably supported at its butt in a plug 46 and is formed with a shoulder 47 between the butt and tip thereof. A coiled expansion spring 48, encircling the needle valve, is interposed between the plug 46 and said shoulder, said spring acting to close said valve. A pivoted float lever 49, carrying a float 50 at its free end, is supplied near its pivot with a depending lever 51 arranged to engage the tip of the needle valve 45 and with an upright lever 52. Between said upright lever 52 and an adjusting screw 53 threaded in the end-wall 13 is interposed a compression spring 54. Said adjusting screw 53 is locked by a nut 55 in adjusted position wherein the spring 54 is compressed sufficiently to balance the opposing force of the spring 48 and the pressure of incoming water, both of which tend to close the valve 45. Relieved of any extraneous forces the float 50 is free to respond quickly to an endangering rise of the water level in the device and thus responding permits of the closing of the needle valve 45 which cuts off the water supply. Moreover, when further evaporization has taken place, the float 50, in settling, will reopen the valve and permit of the entry of enough water to again cause the valve closing action of said float. This intermittent, automatic action of the float may continue indefinitely, but it will be obvious that the use of the device under such condition is not attended with that effective freshening of the water that is had when the drain is functioning and the float serving only in emergencies to cut off the supply of water.

Since the blocks 43 are rather unsightly in themselves, I supply the intermediate sections C with the previously mentioned covers 34. These covers 34, like the bodies 32 of said sections are semi-circular in cross section, the same being rolled from sheet metal and beaded at their edges as seen in Figs. 3 and 4. Each bead provides a rider portion 56 to rest on the corresponding rail portion 35 of the companion body 32 and further provides a cover retaining portion 57 underreaching the locking flange 36 depending from said rail portion. Inside of each cover and corresponding with the curvature thereof is a slide 58, the same being hung from finger pieces 59 movable in slots 60 cut in the cover. Apertures 61 formed in the cover 34 correspond with apertures 62 in the slide 58. Said apertures register with each other in one extreme adjustment of the slide 58, but fail to register in the reverse extreme adjustment thereof. Thus, it will be apparent that the humidifying effect of a device may be varied, as desired, within the capacity thereof by appropriate adjustment of the slides 58. The covers 34 may be slipped onto their respective sections C by passing the same over one or the other of the terminal sections A, B, before the device is suspended from the hangers 10.

Changes in the specific form of my invention, as herein disclosed, may be made within the scope of what is claimed without departing from the spirit of my invention.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A humidifier comprising a plurality of sections joined end to end, each section comprising a receptacle adapted to hold a vaporizing object, coupling plates at the ends of each section, means for causing water to flow successively from one receptacle to the adjoining receptacle, said plates forming wiers between the sections to trap in each section accumulation of foreign matter therein.

2. A humidifier comprising a plurality of sections joined end to end, each section comprising a receptacle adapted to hold a vaporizing object, coupling plates at the ends of each section, means for causing water to flow successively from one receptacle to the adjoining receptacle, said plates forming wiers between the sections to trap in each section accumulation of foreign matter therein, and opposed stop members on the coupling plates ef each section for spacing the vaporizing objects from the plates.

3. A humidifier comprising an assembly of inter-communicating receptacles joined end to end, said receptacles being adapted to conduct water from one to the other and to support individual vaporizing objects therein, said receptacles being constructed with end plates forming wiers for trapping the accumulation of foreign matter in each of said receptacles.

4. An elongated assembly of sections comprising inter-communicating receptacles joined end-to-end, the intermediate sections providing holders for vaporizing objects, means for feeding water into one terminal section, and means for draining water from the other terminal section, said draining means being adjustable to regulate the water level within the device.

5. An elongated assembly of sections comprising inter-communicating receptacles joined end-to-end, the intermediate sections providing holders for vaporizing objects, means for feeding water into one terminal section, means for draining water from the other terminal section, and a float device

within said first terminal section for cutting off the supply of water thereto.

6. An elongated assembly of sections comprising inter-communicating receptacles joined end-to-end, each section comprising a trough-like body of sheet metal and end-plates at the extremities thereof, and means for securing together the abutting end-plates of said sections, the longitudinal margins of each body being turned to form strengthening ribs.

7. An elongated assembly of sections comprising inter-communicating receptacles joined end-to-end, each section comprising a trough-like body of sheet metal and end-plates at the extremities thereof, means for securing together the abutting end-plates of said sections, the longitudinal margins of each body being turned to form strengthening ribs providing rails, and a sliding cover for each body, each cover being formed with rider portions bearing upon said rails.

8. An elongated assembly of sections comprising inter-communicating receptacles joined end-to-end, each section comprising a trough-like body of sheet metal and end-plates at the extremities thereof, means for securing together the abutting end-plates of said sections, the longitudinal margins of each body being turned to form strengthening ribs providing rails, a sliding cover for each body, each cover being formed with rider portions bearing upon said rails and also formed with apertures therein, and a sliding closure for each apertured cover, each closure having apertures therein arranged to register with the apertures in its respective cover in one position of the closure.

9. An elongated assembly of sections comprising inter-communicating receptacles joined end-to-end, each section comprising a trough-like body of sheet metal and end-plates at the extremities thereof, means for securing together the abutting end-plates of said sections, the longitudinal margins of each body being turned to form strengthening ribs providing rails, and a sliding cover for each body, each cover being formed with rider portions to bear upon said rails, and with cover retaining portions slidably co-operating with said rails.

10. An elongated assembly of sections comprising inter-communicating cylindrical receptacles joined end to end, semi-circular abutting end plates attached to each of said sections, said end plates having the metal thereof severed along a line parallel with the diameter of said end plates and bent outwardly therefrom to form opposed ears serving to hold vaporizing objects mounted in said receptacles spaced from said end plates and forming therebetween wiers for conducting water from one receptacle to the other and for trapping the accumulation of foreign matter in each of said sections.

In testimony whereof, I have signed my name to this specification.

JAMES BURGESS DARGAVEL.