Nov. 8, 1938. W. C. ROE ET AL 2,136,085

INHALATOR

Filed Oct. 19, 1936 3 Sheets-Sheet 1

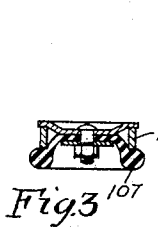


Fig. 3

Fig. 1

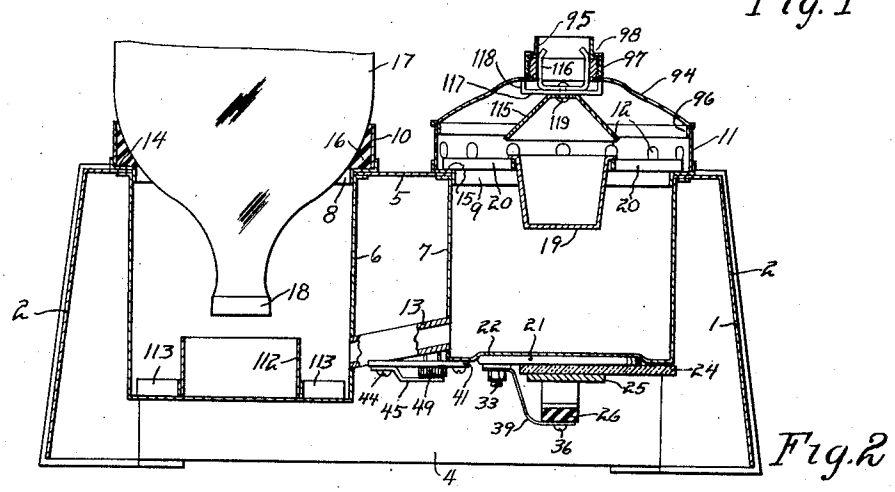


Fig. 2

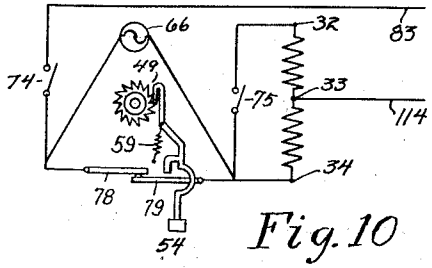


Fig. 10

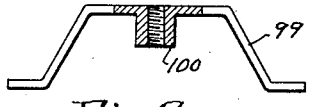


Fig. 9

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INHALATOR

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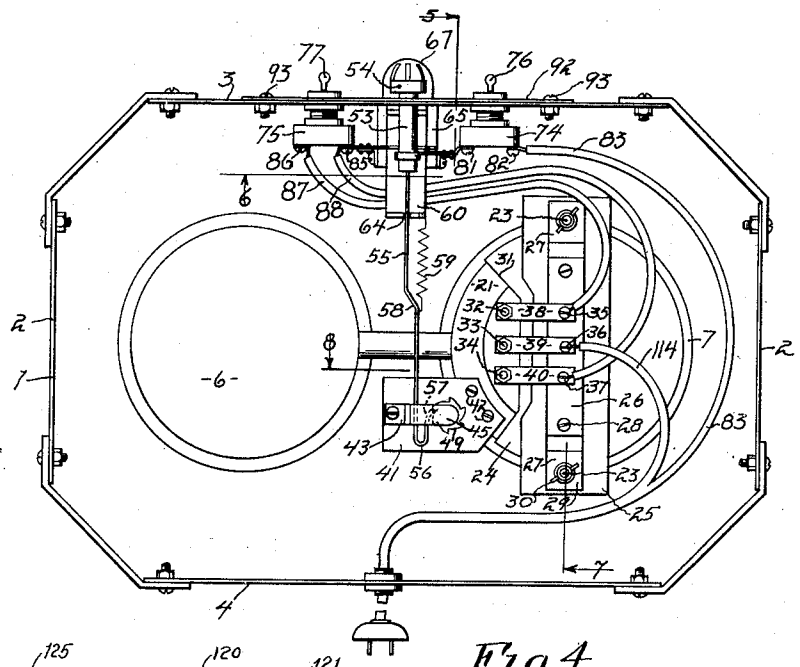


Fig. 4

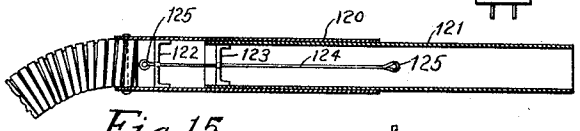


Fig. 15.

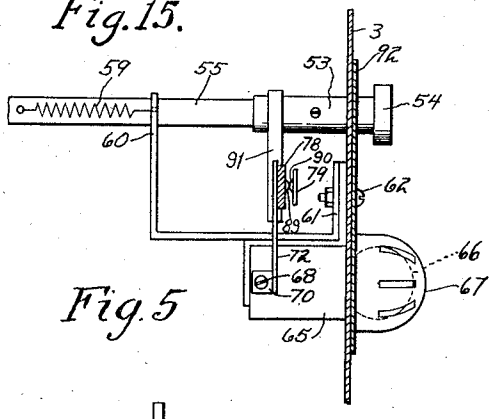


Fig. 5

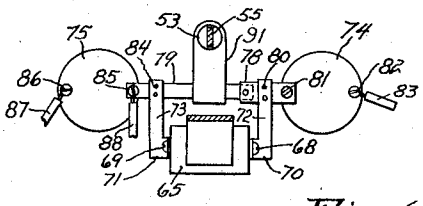


Fig. 6

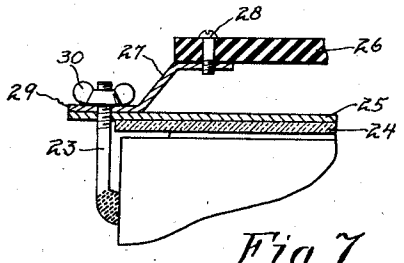


Fig. 7

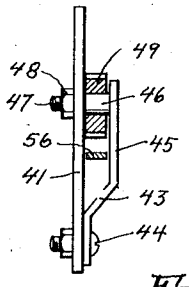


Fig. 8

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Nov. 8, 1938. W. C. ROE ET AL 2,136,085

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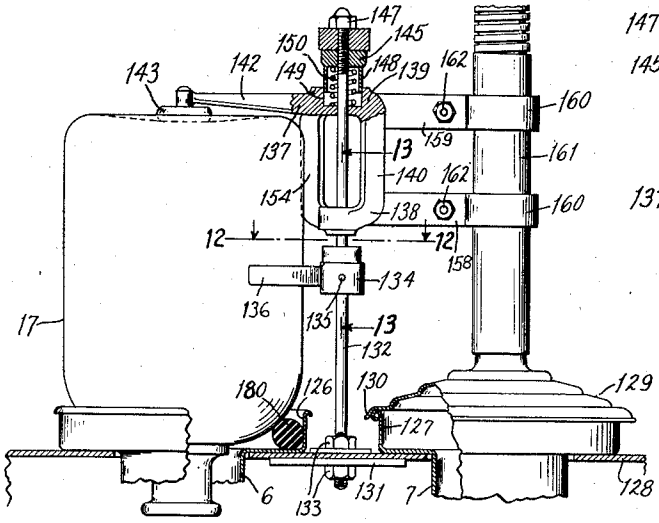


Fig. 11

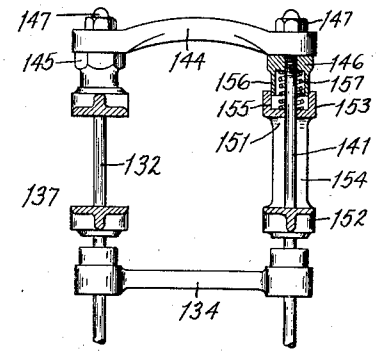


Fig 13.

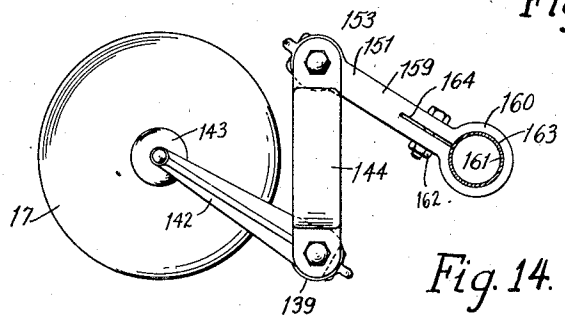


Fig. 14.

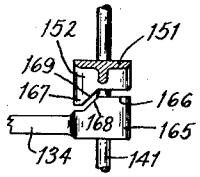


Fig. 16.

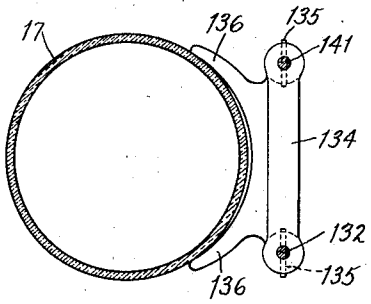


Fig. 12.

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Patented Nov. 8, 1938

2,136,085

UNITED STATES PATENT OFFICE

2,136,085

INHALATOR

William C. Roe and Mayo E. Roe, Elyria, Ohio, assignors to The Colson Corporation, Elyria, Ohio, a corporation of Ohio

Application October 19, 1936, Serial No. 106,335

2 Claims. (Cl. 128—192)

This invention relates to inhalator apparatus and particularly to inhalator apparatus of the class in which medicated vapor inhalants are produced by heat.

It is among the objects of the invention to provide:

An improved inhalator apparatus generally.

An inhalator apparatus having an improved means for electrically heating liquid and the like to be vaporized.

An inhalator apparatus having an improved electric heater and electric controls therefor.

An inhalator apparatus having an improved inhalant liquid reservoir and mounting therefor.

In an inhalator apparatus, improved means for mounting a vapor inhalant conduit in association with a vapor producing means.

An inhalator apparatus having an improved parts enclosing housing and improved means for manually transporting the same.

An inhalator apparatus having a liquid vaporizing means and a liquid reservoir and improved means for controlling the supplying of liquid from the reservoir to the vaporizing means.

Other objects will be apparent to those skilled in the art to which our invention appertains. Our invention is fully disclosed in the following description taken in connection with the accompanying drawings, in which:

Fig. 1 is a front elevational view with parts broken away of an embodiment of our invention;

Fig. 2 is a longitudinal sectional view of the embodiment of Fig. 1;

Fig. 3 is a fragmentary cross sectional view taken from the plane 3—3 of Fig. 1;

Fig. 4 is a view from below of the embodiment of Fig. 1;

Fig. 5 is a fragmentary sectional view taken from the plane 5 of Fig. 4 and to a larger scale;

Fig. 6 is a fragmentary sectional view taken from the plane 6 of Fig. 4;

Fig. 7 is a fragmentary sectional view taken from the plane 7 of Fig. 4 and to a larger scale;

Fig. 8 is a fragmentary view partly in section, taken from the plane 8 of Fig. 4 and rotated through 90° for clearness;

Fig. 9 is a fragmentary elevational view partly in section, showing separately an element of Fig. 1, the view being taken approximately from the plane 9 of Fig. 1;

Fig. 10 is a diagrammatic view illustrating circuit connections and the mode of operation thereof embodied in the apparatus of the foregoing figures.

Fig. 11 is a view similar to a part of Fig. 1 illustrating a modification;

Fig. 12 is a fragmentary sectional view taken from the plane 12—12 of Fig. 11;

Fig. 13 is a fragmentary sectional view taken from the plane 13—13 of Fig. 11;

Fig. 14 is a top plan view of the parts of Fig. 11;

Fig. 15 is a view illustrating a modification of a conduit nozzle illustrated in Fig. 1; and

Fig. 16 is a fragmentary view similar to a part of Fig. 13 but illustrating a modification.

Referring to the drawings we have shown generally at 1 a housing which in the preferred form illustrated is downwardly open and made from sheet metal and comprises side walls 2—2 and front and rear walls 3 and 4 respectively, the housing having a flat top 5.

A pair of receptacles preferably of sheet metal 6 and 7 depend into the housing from the top 5 being spaced from the lower edge of the housing and opening upwardly through the top 5, the top being provided with large perforations 8 and 9 for this purpose.

Surrounding the perforations 8 and 9 and extending upwardly from the top 5 are collars or flanges 10 and 11 of larger diameter than the receptacles 6 and 7 at their upper ends. The collar 11 is provided with a circular series of perforations 12—12.

At their lower ends, the receptacles 6 and 7 are connected by an inclined pipe 13. The flanges 10 and 11 being of larger diameter than the perforations 8 and 9, provide shoulders 14 and 15 at the open ends of the receptacles. An annular packing of rubber or the like 16 is fitted within the flange 10 resting upon the shoulder 14. A liquid reservoir 17 of inverted bottle form projects at the mouth end 18 thereof into the receptacle 6 and is seated upon the packing 16.

A small readily removable cup 19 for medicine to be evaporated into inhalant is suspended in the upper end of the receptacle 7, the cup 19 preferably being made from sheet metal and having arms 20—20 extending laterally thereof and resting upon the shoulder 15.

An electric heater shown generally at 21 is mounted upon the outer bottom surface of the receptacle 7, by the following means. The receptacle 7 preferably has a recess 22 press formed therein of circular form and the heater 21 is preferably in the form of a disc or annulus unit seated in the recess. Studs 23—23 are secured to the outer wall of the receptacle 7 and project in parallel relation downwardly at opposite sides thereof. A disc or sheet 24 of asbestos or other heat resisting insulation is laid upon the lower surface of the heater 21. A strip of metal 25 is laid on the insulation 24 and telescoped by suitable perforations over the studs 23—23. A terminal panel 26 of insulating material has secured to opposite ends thereof bracket pieces 27—27 or Z-form one foot of the Z being secured to the panel 26 by a bolt 28 and the other foot 29 of the

Z being telescoped, by a suitable perforation therein, over the stud 23. Wing nuts 30—30 on the studs 23—23 clamp the brackets 27, metal strip 25 and insulation sheet 24 all rigidly on the bottom of the receptacle 7 with the heating element 21 pressed firmly against the receptacle.

The insulation sheet 24 is preferably relatively thick and except for a cutaway portion 31 embracing the heater terminals 32, 33 and 34, entirely covers the heating unit and prevents undue radiation or conduction of heat outwardly away from it, and the metal strip 25 securely holds the insulation sheet 24 on the heater.

By means of the Z-form brackets 27—27, the panel 26 is rigidly mounted on and is spaced away from the bottom of the receptacle 6 and from the heater 21.

The heater 21 is preferably of the two-stage type, that is to say, has two heating elements therein having external terminals 32, 33 and 34. The internal construction of the heater is not essential to the present invention and may be a commercial well known form.

The panel 26 has thereon terminal posts 35, 36 and 37 to which the heater terminals are connected by connectors 38, 39 and 40.

A bracket 41 of sheet metal is rigidly secured to the bottom of the receptacle 7, for example, as by rivets 42—42 in spaced relation to the heater 21 and extends laterally from the receptacle preferably in a substantially horizontal plane. The bracket 41 constitutes the base and support of a thermal release device now to be described. A sheet metal arm 43 is secured to the bracket 41 at 44 and has a portion 45 spaced from and generally parallel to the bracket 41. A stem 46 has a reduced diameter portion 47 extending through the bracket 41 and threaded to receive a nut 48 to rigidly mount the stem 46 on the bracket.

A toothed wheel 49 is rotatably mounted on the stem 46 but normally is rigidly secured thereto by solder. As will be understood, when heat from the receptacle 7 conducted through the bracket 41 and to the wheel 49 heats it to a predetermined maximum temperature, the solder will be melted and the notched wheel 49 may turn for a purpose described; and at a lower temperature, the solder will solidify and prevent rotation of the wheel.

The front wall 3 has a perforation therein through which extends inwardly the shank 53 of a reset knob 54. The knob at its inner end is connected to a strip of metal 55 rectangular in cross section, the inner end of which has a loop 56 formed thereon, the end of the loop 57 constituting a pawl engaging the teeth of the wheel 49, the loop 56 being disposed between the arm 45 and the bracket 41. In the intermediate portion of the strip 55, it is offset as at 58 and a tension spring 59 is hooked into the strip inwardly beyond the offset portion 58, the opposite end of the spring being hooked into the leg 60 of a U-shaped bracket, the opposite leg 61 of which is riveted or screwed to the front wall 3 of the housing at 62. The upper end of the leg 60 of the U-shaped bracket 63 is slitted as at 64, the slit straddling the strip 55 to guide the same longitudinally and prevent rotational or twisting movement thereof.

The spring 59 by means of its offset attachment to the strip 55 holds the pawl 57 toward the wheel 49 and into engagement with the teeth thereof and also constantly exerts a forward pull on the pawl and wheel. When the wheel 49 is released by heat, as above described, the strip 55 will be given a forward released movement by the spring 59 for the purpose of operating an electric switch to be described, and during the forward movement of the strip 55, the wheel 49 rollingly supports and guides the pawl end thereof in the nature of a roller bearing also after the wheel 49 has again been locked against rotation by congealing of the solder, the reset knob 54 may be pushed inwardly extending the spring 59 and again engaging the pawl 57 with the teeth of the wheel.

On the inner side of the front wall 3 and immediately under the bracket 63, is mounted the base 65 of a commercial lamp. The bulb proper of the lamp shown in dotted lines at 66 is on the outer side of the wall 3 and covered by a perforated protecting shell 67. On each side of the block-like base which is, as is well known, made preferably from insulating material, terminal screws 68 and 69 are provided which will energize the lamp when current supply mains are attached thereto in the usual manner. In the use which we make of such lamp base, we secure on the base by the screws 68 and 69, sheet metal pieces 70 and 71 comprising uprights 72 and 73.

On each side of the lamp base 65 are mounted switch housings 74 and 75. These are preferably of commercial form and of the single pole tumbler type, and having on the outside of the front wall 3 switch operating levers 76 and 77.

These switches as well as the lamp housing 65 are well known commercially and are of such form that they may be mounted upon a sheet metal panel such as the front wall 3 as illustrated and it is believed that no further description herein is necessary.

A pair of switch arms 78 and 79 are provided made from sheet metal strip, the arm 78 being rigid and riveted as at 80 to the upper end of the upright 72 and extending therebeyond and being secured under the terminal screw 81 of the switch 74, the other terminal screw 82 thereof being connected to a wire 83.

The switch arm 79 is resilient and is similarly riveted as at 84 to the upper end of the upright 73 and extends therebeyond and is secured under one screw 85 of the switch 75, the other screw 86 thereof being connected to a wire 87. The screw 85 is also connected to a wire 88. The switch arms 78 and 79 overlap each other at their inner ends and have thereon confronting contacts 89 and 90 and the resilience of the arm 79 tends to normally engage its contact with that of the arm 78. The arm 79 is furthermore longer than the arm 78, bridging the greater part of the distance betewen the uprights 73 and 72.

The shank 53 of the release knob 54 has thereon a depending arm 91 of insulating material disposed behind the switch arm 79. When the knob 54 is pushed inwardly to set the thermal release above described, it frees the resilient switch arm 79 and allows it to engage its contact 90 with the contact 89 and they are allowed to remain engaged by the thermal latch 57—49 above described which, as will now be understood, holds the depending arm 91 rearwardly free from the resilient arm 79. The contacts will be engaged before the release pawl engages the wheel 49 so that the contacts will be engaged by the full pressure supplied by the resilient arm 79.

One element of the heater has terminals 32—33 connected to the posts 35 and 36; the other heater element has terminals 33 and 34 connected to the

posts 36 and 37. The post 36 is connected to a line wire 114; the other line wire 83 is connected to the terminal of the switch 74. The wire 87 is connected to post 35 and the wire 88 to post 37. By this arrangement when switch 74 is open current is cut off from the apparatus. When switch 74 is closed and switch 75 open, current flows from line wire 83 through switch 74 to wire 38 and thence through the heater element between the posts 34 and 33 and then to line wire 114. When the switch 75 is also closed, the same circuit is maintained and another circuit is made from terminal 85 of switch 75 through the switch to terminal 86 and thence by wire 87 through the heater element between posts 32 and 33 and thence to line wire 114.

Thus either one heater or both in parallel may be energized; and in either case, all of the current goes through the short circuit around the lamp 66 provided at the switch contacts 89 and 90. Also as will now be apparent if the contacts are opened, the lamp 66 will be placed in series with the heater elements, one or both as the case may be.

This not only illuminates the lamp as a signal, but also by inserting the high lamp resistance in the heater circuits, reduces the heating thereof. Heat is thus maintained at the receptacle 7 so that when liquid is again supplied thereto, and the release device reset and the full heat restored, vaporization of liquid will again begin promptly. Preferably the resistance of the lamp is relatively high compared to the heater elements so that when the lamp is inserted in the heater circuit the current traversing the circuit will be substantially reduced to correspondingly reduce the heating effect of the heating elements to a very low value.

The lamp shield 67, release knob 54 and switch levers 76 and 77 are all preferably projected outwardly through a plate 92 mounted on the outer face of the front wall 3 to give the apparatus a neat appearance, the plate being secured to the front wall by screws 93—93.

A dome 94 provided with a peripheral portion 95 adapted to fit in the flange 11 above the receptacle 7 has secured at its upper central portion a conduit 96 which is preferably of the spiral armored type provided with a nozzle 174 at the outer end out of which inhalant will be discharged in a manner to be described. A collar 97 is provided at the juncture of the conduit 96 with the dome 94 providing a shoulder 98.

Upon the top surface 5 of the housing and between the two flanges 10 and 11 is mounted a bracket 99 having a threaded nut 100 secured thereto. A long rod 101 is threaded at its lower end to the nut 100 and at its upper end has a hand wheel 102 thereon.

A tube 103 is telescoped over the rod between the nut 100 and the hand wheel 102 and in the lower portion thereof adjacent the bracket 99 has an arm integral therewith extending laterally therefrom as at 104 terminating at its outer end in a U-form hook 105 adapted to embrace the conduit 96 and rest on the upper side of the shoulder 98.

Above the arm 104 is another arm 106 extending in the opposite direction therefrom also integral with or integrally secured to the tube 103 and having mounted at its outer end a rubber or like cushioning pad 107 adapted to be engaged with the bottom of the inverted bottle 17 above referred to.

By turning the hand wheel 102, a shoulder 108 on the hand wheel will engage the upper end of the tube 103 and the pad 107 and hook 105 will both be clamped downwardly one upon the bottle and the other upon the dome collar 97 to secure the same respectively upon the housing and over the receptacles 6 and 7.

The tube 103 may be provided with a third arm 109 extending laterally therefrom and then upwardly as at 110 and provided at its upper end with a handle substantially over the center of the apparatus whereby it may be transported from place to place.

It will, of course, be understood that by loosening the hand wheel 102, the hook 105 and pad 107 will both be released and the tube 103 may then be rotated on the rod 101 to displace the pad 107 and hook 105 from their positions over the apparatus whereby the bottle may be removed to give access to the interior of the receptacle 6 or to replace an empty bottle with a full one; and whereby the dome 94 and conduit 96 may be removed to give access to the interior of the receptacle 7.

For purposes to be described, we may in some cases provide in the bottom of the receptacle 6 a cup or hollow cylinder 112 of sheet metal having fingers 113—113 extending laterally therefrom to center it in the receptacle 6.

In the general operation of the apparatus above described, inhalant medicine is placed in the cup 19. A bottle 17 of water is then placed in inverted position as illustrated and seated on the packing 16 and water therefrom will flow downwardly into the receptacle 6 and out of the receptacle 6 through the conduit 13 into the receptacle 7 until the level in the receptacle reaches the neck 18 of the bottle.

The switch lever 76 is then operated to close the electric circuit and current flows through one or both of the heating elements of the heater 21 according to the position of the switch 77 and heats the liquid in the receptacle 7. Vapor is thus formed which passes upwardly over and around the cup 19 heating the same and vaporizing the medicine therein, and the medicated vapor thus formed passes upwardly and out through the conduit 96 where it may be applied in a well known manner. Air will enter through the perforations 12—12 to maintain a free flow and to dilute the inhalant, and to lower its temperature. As this process goes on it will be noted that the medicine vapor rising out of the cup 19 and being at the center of the rising column of vapor diffuses into the water vapor from the inside outwardly, and the air entering from the outside diffuses into the vapor from the outside inwardly. The maximum of uniformity of the mixture and constancy of temperature of the inhalant vapor results.

The evaporation of water in the receptacle 7 causes the level thereof to fall and when it reaches the end of the conduit 13 opening into the receptacle 6, the release of air into receptacle 6 will cause water to flow from the receptacle 6 through the conduit 13 into the receptacle 7 to restore the level therein. The water in the receptacle 7 is thus automatically kept at substantially constant level and because it is kept at a constant level, it is possible to utilize only a shallow depth of water in the heating receptacle 7. The rate of generation of steam and the temperature thereof are therefore kept constant.

If the supply of water should become exhausted, all of the water will be evaporated out of the receptacle 7 and then the temperature of the receptacle will rise to an excess value and the heat

thereof will be conducted therefrom along the bracket 41 and will release the toothed wheel 49 whereupon the spring 59 will retract the pawl 57 and the arm 91 will move the resilient switch arm 79 forwardly and withdraw its contact 90 from engagement with the contact 89. Due to the spring 59 the contacts will be separated with a snap action. As will be observed, the uprights 76 and 77 connected to the terminal screws 68 and 69 of the lamp and the switch arms 78 and 79 when their contacts are engaged, form a short circuit around the lamp but when the contacts are disengaged as above mentioned, the lamp is inserted in the circuit in series with the heating elements of the heater 21 and the lamp will be illuminated, and will function as a signal that the water supply is exhausted so that an attendant may operate the switch arm 76 to turn off the current from the heater, or may replenish the supply of water. The supply of water in the bottle 17 is visible and when the water therein falls below the visible level, the empty bottle may be replaced with a filled bottle. The quantity of water in the receptacle 6 will be sufficient to continue the supply to the heating receptacle 7 while the bottle is being changed. Thus there will be no interruption of the vapor flow.

By arranging the conduit 13 on an inclination upwardly into the receptacle 7, the sudden rush of water therethrough into the receptacle 7, when the flow takes place, will prevent or greatly reduce the swirling of water in the receptacle 7 which we have found will occur if water from a conduit such as the conduit 13 is supplied directly inwardly or radially to the receptacle 7, and thus the heating of the water in the receptacle 7 and the vaporization thereof will be more uniform because of the inclination of the conduit 13. The inclination of the conduit 13 furthermore prevents a back flow of hot water into the supply receptacle 6.

Also we have found that the discharge of water from the bottle 17 into the receptacle 6 tends to cause the water to be forced in violent impulses through the conduit 13 and we have found that this may be prevented by providing a baffle or baffles in the bottom of the receptacle 6 adjacent the inner end of the conduit 13; and we have found that a baffle in the form of the cup 112 above referred to will function efficiently to prevent such surges of water through the conduit 13.

Thus, by the joint and several actions of the inclined conduit 13 and the cup-form baffle 112, when the syphoning action occurs, water will be supplied to the receptacle 7 in uniform increments with the minimum of agitation and maintained therein at a substantially constant depth, and therefore the vaporization of water in the receptacle 7 will take place substantially continuously and uniformly from the start until the entire contents of the bottle 17 have been vaporized.

In the operation of the apparatus above described, medicated vapor inhalant flows through the conduit 96 and is discharged from the nozzle 174 and due to the flexibility of the conduit 96 may be directed, as desired. The inhalant, being vapor, will condense in small quantities thereof on the inside of the conduit 96 and will flow backward by gravity. To prevent such condensation from falling from the inner end of the conduit into the medicine cup 19, which as preferred, is disposed centrally under the conduit 96, the following means is provided. An inverted hollow cone-shaped sheet metal shed 115 is supported on the dome 94 over the cup 19. The shed 115 is detachably secured to the dome by a U-form upwardly open resilient clip 116 secured at its closed end to the apex of the shed 115 and formed so that when it is telescoped into the lower end of the conduit 96 as shown in Fig. 2, it will wedgingly engage the conduit wall and support the shed 115 centrally of the conduit. The vaporized medicine rising out of the cup 19 will flow outwardly radially and around the lower edge of the shed 115 and thence mingled with the water vapor and the air as above described will flow upwardly over the shed 115 and into the conduit 96; and in order to insure that there will be a flow passageway above the shed 115, a spacing element 117 is provided at the top of the shed 115, preferably in the form of a transverse strip having upwardly extending prongs 118 engageable at their upper ends with the dome 94. Preferably the clip 116, spacing elements 117 and the apex of the cone-shaped shed 115 are all secured together by a rivet 119.

As shown in Fig. 1, the nozzle 174 may be a tube of fibre, hard rubber or metal or the like of a convenient length to insure the directing of the medicated vapor in the desired direction. In Fig. 15 is shown another form of nozzle which is telescopable to adjust the length thereof. This nozzle consists of an outer tube 120 secured to the conduit 96 and an inner tube 121 telescopable therein. To prevent completely withdrawing the inner tube 121 or outwardly telescoping it too far, any suitable means may be provided. As shown in Fig. 15, a preferred means comprises a transverse bar 122 in the inner end portion of the tube 120 and a like transverse bar 123 in the inner end of the inner tube 121, the bars having aligned perforations therein and a wire 124 in the aligned perforations having heads 125—125 formed on the opposite ends thereof. When the inner tube 121 is withdrawn to a predetermined distance, the heads 125 will be engaged with the bars 122 and 123 and stop further outward telescoping movement. When this arrangement is used, the conduit 96 may be of relatively short length in the flexible portion thereof.

In Figs. 11 to 14 inclusive is illustrated another form of mechanism for detachably mounting the bottle 17 and dome 94 in working position. In this form, the receptacles 6 and 7 have at their upper ends, portions of enlarged diameter 126 and 127 whereby the receptacles may rest and be supported upon the sheet metal top 128 of the main housing.

The dome indicated in this form at 129 has a relatively shallow depending flange 130 peripherally thereof resting upon the upper rolled edge of the portion 127. The bottle 17 rests upon a sealing packing 180 which is preferably of circular cross section for convenience of manufacture lodged on the inside of the enlarged diameter portion 126.

A reinforcing plate 131 is provided on the inside of the top 128 and a pair of vertical posts 132—141 are secured in forwardly and rearwardly spaced relation by being projected through the cup and the plate and secured by nuts 133—133 on opposite sides thereof.

At a suitable point above the top 128, a bridging member 134 connects and stiffens the post 132, the post passing through suitable perforations therein and the bridging member secured thereto by pins 135—135 projected therethrough and through the posts. The bridging member

134 has a pair of arms 136 projecting laterally therefrom toward the bottle 17 and formed to embrace the side of the bottle. When a bottle 17 is being put into place in inverted position, on the apparatus, and its lower open mouth end is inserted into the receptacle 6 and the bottle engages the packing 180, the bottle may be rocked toward the arms 136—136 and they will position it in vertical position without further care on the part of the operator.

Illustrated generally at 137 is a bottle clamp comprising spaced heads 138 and 139 connected by a vertical connecting element 140, the heads having aligned perforations by which the bottle clamp 137 is rotatably and vertically movable on the post 132. An arm 142 extends laterally from the upper head 139 and has mounted on the outer end thereof a rubber pad 143 disposable over the center of the bottle bottom.

The tops of the posts 132 and 141 are connected by a preferably upwardly bent handle 144. The handle is clamped between nuts 145 and 146 threaded on the posts 132 and 141 respectively and nuts preferably acorn nuts 147—147 on the upper ends of the posts. The handle 144 is thus rigidly connected to the posts and to the casing top 128 and affords a convenient scheme for transporting the apparatus by hand.

The lower side of the nut 145 has a skirt 148 depending therefrom and telescoped into a recess 149 in the head 139 and a coiled spring 150 telescoped on the post 132 abuts upon the bottom of the recess and upon the nut tending to resiliently force the bottle clamp 137 as a whole downwardly.

To operate the bottle clamp 137, the arm 142 or the connecting element 140 may be manually grasped and elevated on the post 132 against the tension of the spring 150 to elevate the pad 143 from the bottle and the clamp 137 may then be rotated on the post 132 to remove the pad 143 laterally from the bottle and the clamp 137 may then rest on the bridging member 134, the lower head 138 of the clamp engaging the bridging member. When the bottle has been replaced by a fresh or filled one, then by the reverse of the above operations, the pad 143 may be elevated and rotated around over the bottle and then will be depressed into pressure engagement with the bottle bottom by the spring 150.

Upon the other post 141 is mounted a conduit support 151 generally similar to the bottle clamp 137 comprising lower and upper heads 152 and 153 rotatable and longitudinally movable on the post 141 and connected by a connecting element 154, the lower head 152 adapted to rest on the bridging member 134. The upper head 153 has a recess 155 and the nut 146 has a skirt 156 telescoped thereinto and a spring 157 is disposed around the post 141 and within the recess and skirt to exert resilient downward thrust on the conduit support 151 as a whole.

The conduit support 151 has two arms 158 and 159 projecting laterally respectively from the heads 152 and 153 and having at their outer ends loops 160—160 having large aligned perforations 163 therein through which a tubular portion 161 of the vapor conduit joined to the center of the dome 129 is telescoped. The tube 161 is rigidly clamped in the loops 160—160 by bolts 162—162, the perforations 163 opening into slots 164 in the arms to facilitate the clamping action.

By this construction the dome 129 by its conduit 161 is rigidly connected to the conduit support 151. By raising the support against the compression of the spring 157, the flange 130 on the dome 129 will clear the upper edge of the large diameter portion 127 and then it may be rocked laterally on the post 141 to give free access to the interior of the receptacle 7 for the purposes hereinbefore described in connection with the other forms.

And when the dome is again rotated back into position over the receptacle 7, and the support 151 is released, the spring 157 will hold the dome firmly on the upper open end of the receptacle.

As will be clear from the foregoing description, in this form, the mounting means for the dome 129 and for the bottle 17 may be operated separately and independently one of the other.

In the modification shown in Fig. 16, the bridging member 134 on the head 165 thereof secured to the post 141, has an elevated surface 166 thereon. The under side of the head 152 of the conduit support 151 has a corresponding abutment 167 on its underside. When the support 151 is in the position illustrated and described above in connection with Figs. 11 to 14, the abutment 167 and the surface 166 will occupy the position illustrated in Fig. 16. When, however, the support 151 is rotated as above described to remove the dome 129 laterally, the abutment 167 will be rotated around the post 141 and will be disposed over and may rest upon the surface 166 to support the abutment in elevated position. To this end, the head 165 and the head 152 may be provided with mutually engageable inclined camming surfaces 168 and 169 which will assist in elevating the abutment 167 when the head 152 is rotated.

A like construction may be provided for the other support 137.

Having thus described our invention which is herein illustrated, we contemplate that numerous and extensive departures may be made from the embodiments herein illustrated and described, but without departing from the spirit of our invention.

We claim:

1. In an inhalator apparatus, a housing, a pair of spaced receptacles having upwardly open ends adjacent the top of said housing, the first of said receptacles adapted to receive a bottle reservoir in an inverted position to receive liquid therefrom, the second of said receptacles adapted to receive a vapor collector and discharge conduit, a medicant container suspended in the open end of said second receptacle, means for supplying liquid to said second receptacle from said first receptacle comprising a conduit extending in an upwardly inclined plane from said first receptacle to said second receptacle whereby a comparatively small volume of liquid is maintained in said second receptacle, electrical heating means associated with said second receptacle for vaporizing the liquid supplied thereto and for heating the medicant container, and means for admitting air into said vapor collector to mix with the heated vapors therein.

2. The apparatus specified in claim 1 together with thermal responsive means to render the electrical heating means ineffective upon failure of the liquid supplying means.

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