June 23, 1931. A. PFEIFER 1,811,732

CABINET

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Fig. 1.

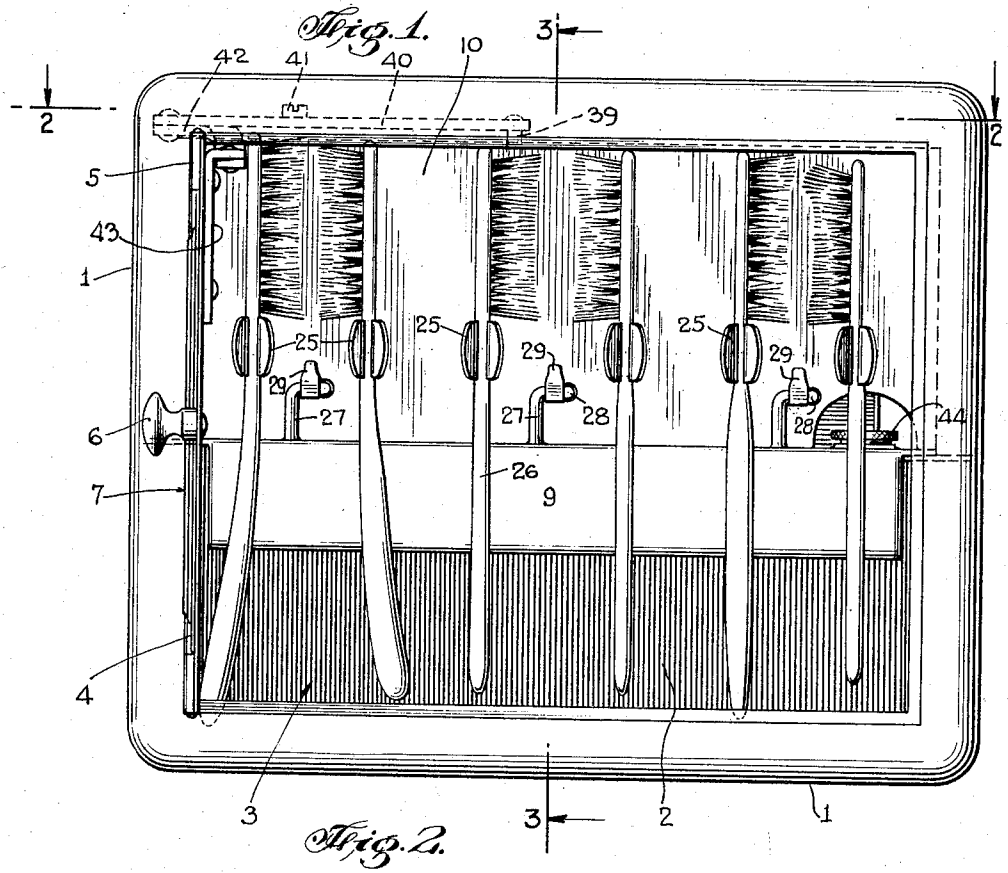
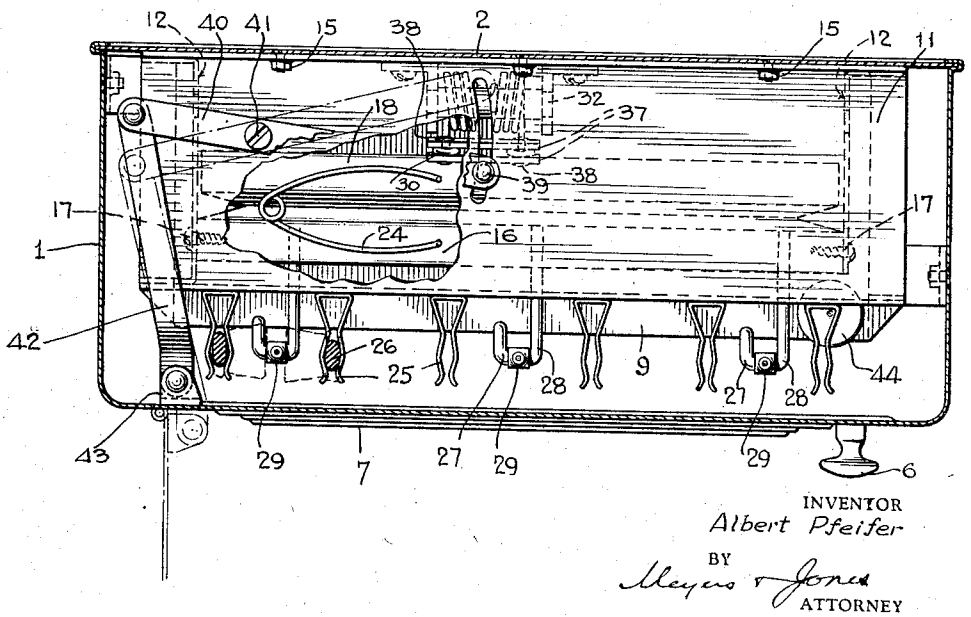


Fig. 2.



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Fig. 3.

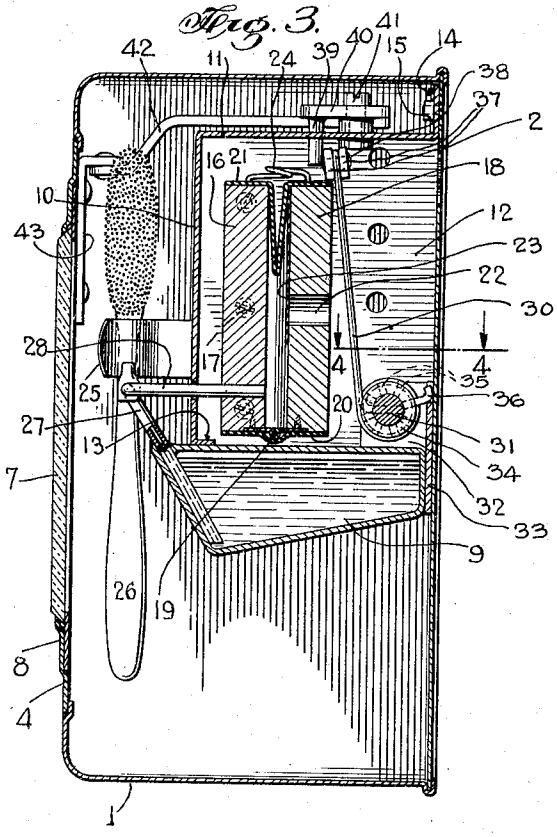


Fig. 4.

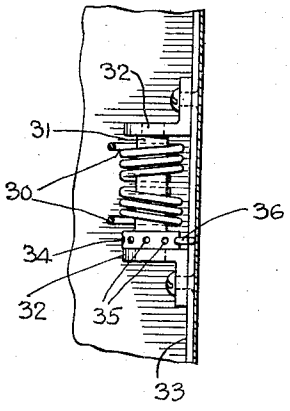
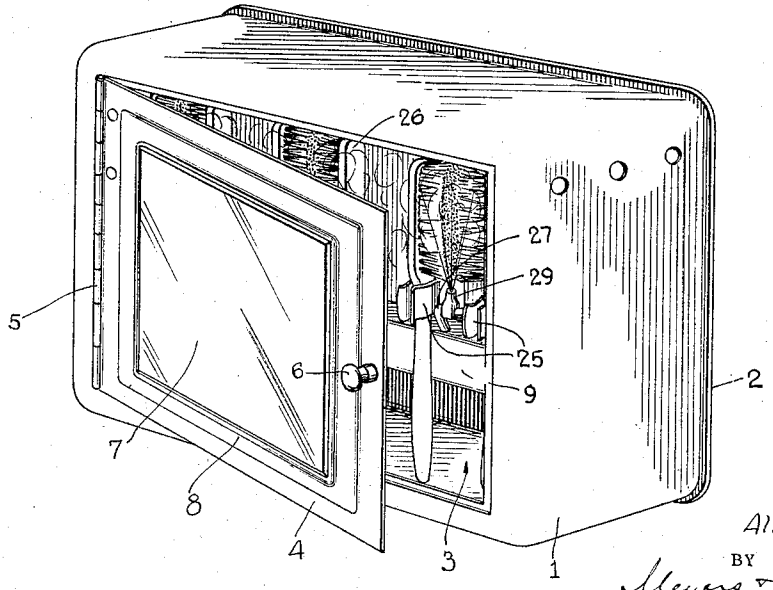


Fig. 5.



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UNITED STATES PATENT OFFICE

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CABINET

Application filed October 31, 1927. Serial No. 230,079.

This invention is an improvement in cabinets, and more particularly in cabinets of the type designed to receive a plurality of articles to be sterilized wherein the sterilization is brought about through the opening and closing of the door to the cabinet.

Cabinets of this character as heretofore constructed, have been provided with apparatus for spraying a sterilizer into the air of the cabinet, but as a rule the apparatus has required a separate operation, and was in no way dependent upon the insertion or removal of the articles to be sterilized.

One of the primary objects of the present invention is the provision of a cabinet, having holders for supporting a plurality of similar articles, such as toothbrushes or the like, in position to be sprayed with a sterilizer, wherein the spray is co-ordinated with the insertion and removal of the article.

Another object is the provision in such mechanism of means for simultaneously treating two articles to be sterilized with the sterilizing solution.

Another object is the provision of spraying mechanism for the sterilizing liquid, operated to eject a spray of the liquid upon two symmetrically arranged articles whenever the door is closed, and operated by the closing movement of the door.

Another object is the provision of an air compressor normally operated to expanded condition, and closed by the movement of the closing door thereby to relieve the opening door from the burden of expanding the bellows.

Another object is the provision of a tank or reservoir for the sterilizing liquid so arranged as to occupy a minimum of room, to be as close as possible to the point where the spray is delivered, and of a nature such that a minimum depth of liquid is needed in the tank, and wherein substantially all of the liquid may be ejected by the spray.

Another object is to so arrange the parts as to enable removal of the spraying apparatus including the tank and the holders for the articles, as a unit, from the cabinet.

Another object is to provide in such a cabinet of a minimum size to contain a selected number of articles for which it is intended, a maximum of space for receiving related articles, such as tubes of toothpaste, and the like.

With these and other objects in view the invention consists in the construction and novel combination of parts fully described hereinafter, illustrated in the accompanying drawings, and pointed out in the claims appended hereto, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims, may be resorted to without departing from the spirit of the invention.

In the drawings forming a part hereof:—

Fig. 1 is a front view of the improved cabinet.

Figs. 2 and 3 are sections on the lines 2—2 and 3—3 respectively, of Fig. 1.

Fig. 4 is a section on the line 4—4 of Fig. 3.

Fig. 5 is a perspective view of the cabinet with the door partially open.

In the present embodiment of the invention, a suitable case is provided, comprising a body 1, and a base 2, the body having an opening 3 at the front thereof, which is normally closed by a door 4, hinged to the casing at one end of the casing as indicated at 5. The door has the usual knob 6 for manipulating the same, and preferably a mirror 7 is arranged on the door, the mirror being held in a frame 8.

As shown in Figs. 3 and 5, the base or bottom 2 of the cabinet is of somewhat greater area than the cross-section of the body, and the said bottom may be provided with suitable openings, for enabling it to be connected to a fixed support, as for instance a wall.

A support for the sterilizing apparatus, and for the articles to be sterilized is arranged within the casing. This support comprises a tank or reservoir 9, and a hood 10 of substantially L-shape in cross section. A hood is connected with the tank, the hood comprising a front wall 10, a top wall 11, ends 12, and flanges 13 and 14 on the respective walls 10 and 11. The flange 13 is inturned, and is secured to the top of the tank 9, the said top being plane and horizontal as shown in Fig. 3. The other flange 14 is outturned, and has

openings for receiving fastening means to connect it to the bottom 2 of the casing, the fastening means in the present instance being bolts and nuts 15 as shown.

An air compressor is arranged within the hood, a bellows in the present instance comprising a fixed member 16 connected to the end walls 12 of the hood by screws indicated at 17, and a movable member 18 which is hinged at its bottom to the fixed member, the hinge being indicated at 19. A flexible covering 20 is arranged over the hinge, and connects the two members of the bellows at the bottom. A similar covering 21 connects the tops of the members; and there are other flexible coverings at the ends, all being arranged to enable opening and closing movement of the bellows.

The member 18 of the bellows has one or more openings 22, which are normally closed by a flap valve 23 on the inner face of the member. The arrangement is such as to enable the free passage of air into the bellows when it is expanded, but to prevent the escape of air when it is contracted. The bellows members are normally constrained toward open position by a spring 24. This spring is substantially U-shaped as shown in Fig. 2, the body thereof having a coil, while the arms are connected to the respective members of the bellows.

A plurality of holders 25 is supported on the wall 10, each of the said holders being constituted by a pair of spring clips, and each holder is adapted to support, in the present instance, a toothbrush 26, with the handle depending below the holder, and with the brush above the holder. Preferably the holders are even in number, six in the present instance, and the articles are arranged with the surfaces to be sterilized adjacent, as clearly shown in Fig. 1.

A discharge pipe 27 leads upwardly from the front of the tank between each pair of holders 25. As shown, each pipe is the liquid conduit of an atomizer, the air conduit indicated at 28 leading from the bellows through the fixed member to a connection with the spray nozzle 29 of the atomizer. The arrangement is such that when air is forced through the pipe 28, liquid is drawn through the pipe 27, and sprayed through the nozzle 29.

The bellows, as previously mentioned, is normally moved to open position by the spring 24. It is contracted or compressed by a pair of similar springs 30. As shown in Figures 3 and 4, each spring bears at one end against the top of the member 18 of the bellows, while the other end has a coil encircling a shaft 31 held in angle brackets 32 on a plate 33 secured to the rear wall of the tank 9, and extending above the wall as shown. One end of the shaft has secured thereto a wheel 34 provided with radial openings 35, in which may be inserted a pin 36, to hold the shaft against the turning movement of the spring coils. Referring to Figure 4, it will be seen that the ends of the springs pass through openings in the shaft, and the arrangement of the coils is such as would turn the shaft from left to right. However, the pin restrains this movement, and by engaging it with different openings, the tension of the spring may be nicely adjusted.

The end of each spring remote from the shaft has an eye as shown in Figures 2 and 3, and the eyes are arranged between a pair of plates 37, rivets 38 or the like being passed through the plates and through the eyes to connect the parts. A pin 39 depending from the end of a lever 40 bears against the front plate 37. The lever is pivoted at 41 to the wall 11, and the outer end is connected by a link 42 with the door 4, the link engaging an angle bracket 43 on the inner face of the door.

It will be evident from the description that whenever the door is opened, the bellows will be opened, to draw in a supply of air through the opening 22. The opening of the bellows is assisted by the spring 24. As soon as the door is released, the spring 30 bearing against the depending pin of the lever 40 operates the lever to close the door, and operates the bellows to discharge the air, which must pass through the air pipes 28 of the atomizers. The discharging air carries with it a spray of liquid in the tank 9, and this spray is discharged onto the articles supported by the holders, in the present instance onto the bristles of the brushes. It will be evident that whenever the door is opened to insert or remove an article, the spray will be operated.

Referring to Fig. 3, it will be noticed that the tank is relatively shallow, and that the bottom inclines downwardly toward the front. It will also be noticed that the front wall inclines rearwardly and downwardly, and that the pipes 27 lie along this inclined front wall and extend to the bottom of the tank at the deepest portion thereof. This arrangement enables with a height of cabinet no greater than necessary to contain the articles, a relatively large space for the reception of allied articles, such as dentrifices. The arrangement also brings the supply of the liquid as close as possible to the point of discharge.

A filling opening closed by a plug 44 is provided in connection with the tank, to enable the contents thereof to be removed, and the end walls 12 of the support, as well as the end walls of the casing body, having openings as shown for ventilation. It will be understood that the cabinet may be of any desired material, and it may be of any preferred shape. The exterior thereof may be suitably ornamented, if desired.

It will be obvious that any preferred con-

struction of air compressor may be used instead of the bellows, this arrangement being shown as a convenient type. It will also be obvious that the springs 30 might be connected directly to the movable member of the compressor, thus operating to expand as well as to contract the compressor. The spring 24, however, takes some of the load from the door. The sterilizing apparatus, including the article supports, is removable as a unit from the cabinet.

What is claimed as new is:—

1. In combination, a cabinet having a door, a sterilizing apparatus including a plurality of atomizers, a tank, and a bellows common to all of the atomizers to operate the same, a plurality of article supports for each atomizer, mechanism operated by the opening and closing of the door to operate the bellows, the last named means including a relatively weak spring normally operative to open the bellows, and a relatively strong spring operative to close the bellows and the door and compressed by the opening of the door.

2. In combination, a cabinet, a sterilizing unit including a plurality of atomizers, a tank having a sterilizing liquid, an air compressor for operating the atomizers, and a plurality of supports for articles to be sterilized, the atomizers being arranged between pairs of adjacent articles to simultaneously spray said articles, the cabinet having a door, and a common means normally operative to close the door and to operate the air compressor.

3. In combination, a cabinet, a sterilizing unit including a plurality of atomizers, a tank having a sterilizing liquid, an air compressor for operating the atomizers, and a plurality of supports for articles to be sterilized, the atomizers being arranged between pairs of adjacent articles to simultaneously spray said articles, a spring to close the door and to operate the air compressor, and tensioned by the opening of the door.

4. In combination, a cabinet, a sterilizing unit including a plurality of atomizers, a tank having a sterilizing liquid, an air compressor for operating the atomizers, and a plurality of supports for articles to be sterilized, the atomizers being arranged between pairs of adjacent articles to simultaneously spray said articles, and means to operate the air compressor, the tank relatively shallow, the bottom thereof inclining downwardly and the front wall rearwardly to a junction with each other, whereby the deepest part is at the front, the atomizers extending into the deepest part.

5. In combination, a cabinet having a door, a sterilizing apparatus including a plurality of atomizers, a tank, and a bellows common to all of the atomizers to operate the same, a plurality of article supports for each atomizer, and mechanism operated by the opening and closing of the door to operate the bellows, a hood enclosing the bellows and resting upon the tank, the supports for the articles being on the front wall of the hood.

6. In combination, a cabinet for tooth brushes, and the like, having a door and including a plurality of sets of supports for brushes, the members of each set designed to hold the brushes with their bristles adjacent, an atomizer between the supports of each set positioned with respect to the supports to spray upon the bristles of the brushes, a common tank for spraying liquid for all the atomizers, and means operated by the closing of the door to operate the atomizers.

7. In combination, a cabinet for tooth brushes, and the like, having a door and including a plurality of sets of supports for brushes, the members of each set designed to hold the brushes with their bristles adjacent, an atomizer between the supports of each set positioned with respect to the supports to spray upon the bristles of the brushes, a common tank for spraying liquid for all the atomizers, and means operated by the closing of the door to operate the atomizers, said means including a bellows supported on the tank, the tank supporting the atomizers, and a hood for the bellows secured to the tank, said hood carrying the supports, and the hood having means to detachably connect the parts to the cabinet.

8. A sanitary cabinet of the class described, comprising a housing adapted to be attached to a wall, and having an opening and closing door, a liquid spray device located within the cabinet, means also within the cabinet for removably supporting a plurality of brushes with their bristles facing each other and in the path of the sprayed fluid, a tank for the fluid, and means operated by the movement of the cabinet door for causing the sprayed fluid to be projected through the spray device onto the bristles of the supported brushes.

9. A sanitary cabinet of the class described, comprising a housing adapted to be attached to a wall and having an opening and closing door, a plurality of spraying devices located within the cabinet, means also within the cabinet for removably supporting a plurality of brushes to be sterilized, said supporting means arranged to support the brushes in pairs with the bristles of each pair of brushes adjacent each other and with a spraying device common to each pair of brushes, and means operated by the movement of the cabinet door for causing the spraying fluid to be projected through the several spraying devices and onto the bristles of the plurality of supported brushes.

Signed at New York, in the county of New York and State of New York this 28th day of October, A. D. 1927.

ALBERT PFEIFER.