

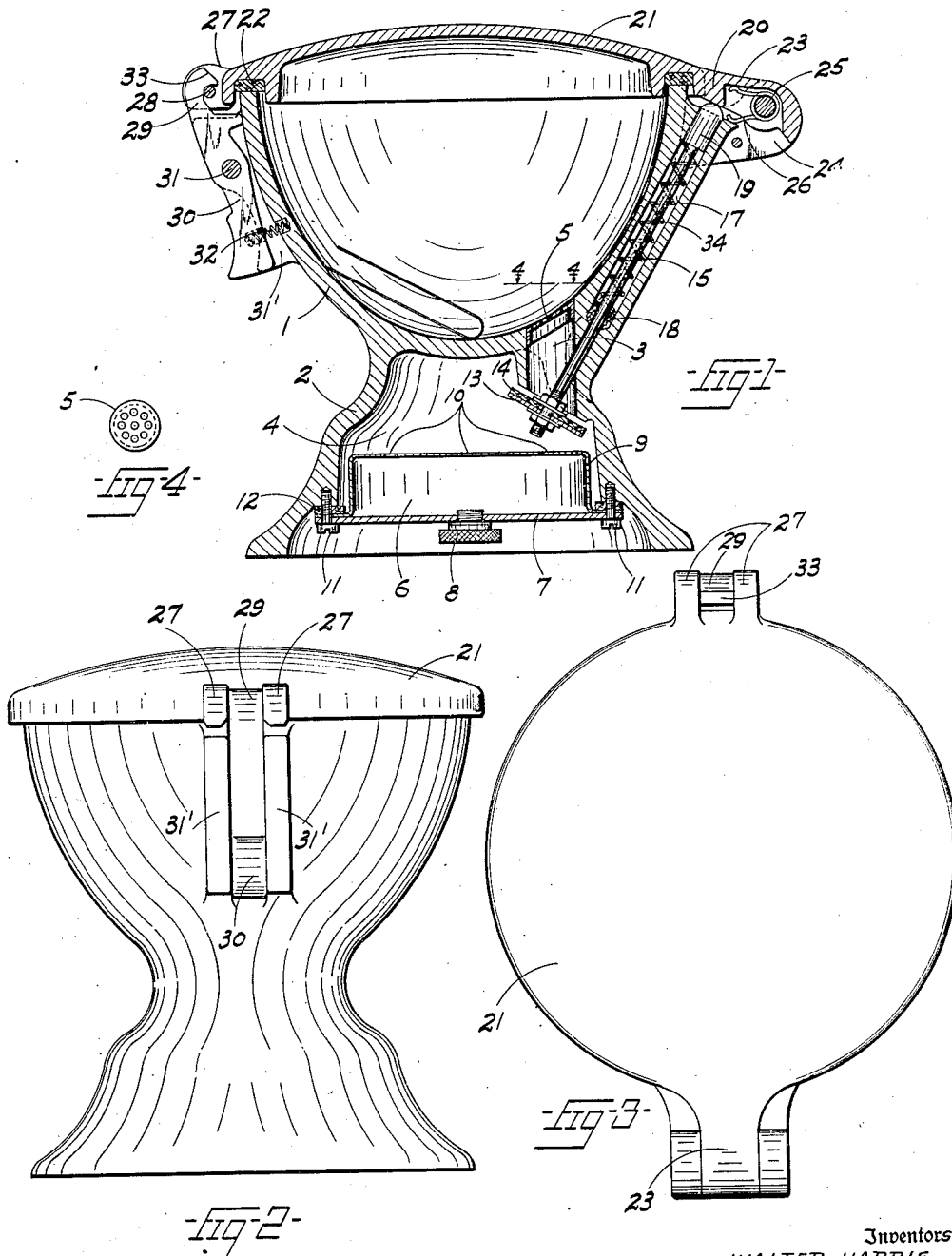
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DRY STERILIZER

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DRY STERILIZER

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This invention relates generally to sterilizers, humidors or the like, and more particularly to a dry sterilizing receptacle adapted to be used for sterilizing hair pins or other articles in barber shops, beauty parlors, etc.

It is desirable, and in some instances required by law, to provide means for sterilizing hair pins and the like which are used in beauty parlors and barber shops over and over again on different customers. It is evident that in order to insure absolute cleanliness such articles should be thoroughly sterilized between each use.

It is therefore among the objects of our invention to provide an effective dry sterilizing device particularly adapted to sterilize hair pins or other articles. Various types of dry sterilizers have been proposed and used. All of these, with which we are familiar, possess the disadvantage that when the sterilizing chamber is open for the insertion or removal of a hair pin the sterilizing fumes or vapors escape into the atmosphere. This results in a loss of the sterilizing agent and also permits the poisonous fumes to escape into the room.

Formaldehyde or other suitable solutions are commonly used as sterilizing agents in dry sterilizers and it is a further object of our invention to provide a dry sterilizer in which the escape of the sterilizing agent will be prevented when the sterilizing chamber is open and the life of the sterilizing agent thus prolonged. Another object is the provision of a convenient self contained sterilizing unit which contains a minimum number of parts and is entirely automatic in operation; and the provision of a dry sterilizing unit which is of attractive appearance and readily susceptible to economical manufacture.

The above and other objects of our invention will appear from the following description of a preferred embodiment thereof, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical cross section through our improved sterilizer.

Figure 2 is a side elevation of the device shown in Figure 1.

Figure 3 is a plan view of the device shown in Figures 1 and 2.

Figure 4 is a detached top view of the guard member taken on line 4—4 of Figure 1.

Referring now to the drawing, our dry sterilizer includes a generally bowl-shaped receptacle 1 which is mounted on the hollow base 2. As illustrated, the base 2 and the bowl 1 are preferably integrally cast. An aperture 3 extends upwardly from the chamber 4 formed in the inside

of the base 2 into the bowl 1. A perforated guard 5 is disposed in the upper end of the aperture 3 and has its upper surface perforated and preferably shaped to conform to the inner contour of the bowl.

The sterilizing agent, (or suitable humidizing agent, if the device is to be used as a humidor), such as formaldehyde, is contained in the volatile material chamber 6, which is defined by a bottom plate member 7 having a removable filling plug 8, and an upper cover member 9 which is perforated as at 10 to permit the escape of the sterilizing vapors. This container for the sterilizing agent may be held in position in the hollow base of the device by suitable screws 11 and an annular washer 12, of cork or the like, is preferably provided to form a vapor tight seal and completely close off the space 4 in the bottom of the sterilizing device from the atmosphere.

In order to control the passage of the sterilizing vapors from the chamber 4 up through the aperture 3 and through the holes in the perforated member 5 to the bowl or receptacle 1 we provide a disc valve 13. This valve is preferably faced on its upper side with a disc 14 of cork or other suitable material which is adapted to seat upon the lower end of the portion of the casting which defines the aperture 3. The valve disc member 13 is mounted on a valve stem or rod 15 which extends up through a suitable aperture in the casting into an enlarged hole 17. Packing of felt or cork 18 may be disposed around the valve stem to prevent leakage of the sterilizing vapors up into the chamber 17. The upper end of the valve stem 15 is enlarged as seen at 19. This enlarged portion has a sliding fit in the hole 17 and its upper end is preferably rounded at its outer end to afford better operating contact with the cam member 20 which is formed on the under surface of the lid 21.

The lid 21 is provided with an annular groove on its underside in which is disposed the annular washer 22 of cork or other suitable material. An extension 23 on the lid 21 fits over a suitable bracket 24 on the bowl 1 and a pin or shaft 25 extends through the bracket 24 and the extension 23 thus forming a hinge for the lid member 21. A spring 26 is supported by the shaft 25 and has one arm engaging the bowl casting 1 and the other arm engaging the underside of the extension 23 of the lid 21. This spring is designed to normally exert a force sufficient to open, or assist in the opening of, the lid 21 of the sterilizer.

A latch device is provided on the opposite side of the lid from the hinge. This latch device in-

cludes a pair of lugs 27 extending outwardly from the lid and connected by a pin 28. The hooked upper end 29 of the latch member 30 is adapted to engage the pin 28 and hold the lid 21 in tightly closed position on the upper edge of the bowl 1. The latch 30 is pivoted on a pin 31 which is suitably supported by lugs or flanges 31' formed on the body of the bowl 1 and a spring 32, normally under compression, tends to hold the latch in position with its upper hooked end 29 engaging the pin 28.

When it is desired to open the bowl 1 to insert or remove an article therefrom it is only necessary to push inwardly on the latch 30 and the spring 26 will open the lid. To close the receptacle the lid is pushed down and the pin 28 will strike the inclined surface 33 of the upper end of the latch 30 causing it to move back until the pin 28 is in position to be engaged by the hook 29.

The cam member 20 is formed on the underside of the lid 21 and is adapted to engage the rounded upper end of the member 19. As seen in Figure 1, the cam 20 has pushed the member 19, the valve stem 15 and the valve 13 downwardly against the force of the valve spring 34, which is disposed around the valve stem 15 in the aperture 17 and is adapted to exert a force tending to maintain the valve 13 seated. As soon as the latch 30 is operated to release the lid 21 and the spring 26 lifts the lid 21, the cam 20 is moved out of engagement with or away from the member 19 and the spring 34 will lift the valve 13 into closed position. As soon as the lid is closed the valve 13 is opened and a free passageway is provided between the chamber 4 and the bowl 1 and the sterilizing fumes and vapors will pass up into the bowl and be available for sterilizing any articles which are placed within the bowl. When it is desired to refill the container 6 with the sterilizing material the plug 8 may be removed and the sterilizing agent poured into its container.

It will be seen from the above description of a preferred embodiment of our device that it is absolutely automatic in operation and that as soon as the lid of the receptacle 1 is opened the sterilizing agent will be completely shut off from communication therewith and, as soon as the lid is closed, a free passage will be provided between the supply of sterilizing agent and the bowl 1. This results in the most economical use of the sterilizing agent and our improved arrangement provides an exceedingly compact, safe and effective dry sterilizer of the type described. The perforated screen member 5 prevents hair pins or other articles dropping down into the sterilizing agent chamber and, by providing the bowl-shaped receptacle 1, flat articles such as hair pins and the like will be supported only at two or three points (see Fig. 1) and the sterilizing agent can freely circulate around them thus giving the most effective sterilizing contact and action.

By forming the receptacle of the proper size and shape and filling the container in the base with water or other suitable material, our apparatus may readily be used as a humidifier for tobacco in various forms. It is intended that the following claims cover such use of our apparatus in addition to its use as a sterilizer. Any suitable material which will give off fumes or vapors may be placed in the container in the base of the device and the term "volatile material" is intended to include all such materials.

Although we have described the illustrated embodiment of our invention in considerable detail it will be understood by those skilled in the art that modifications and variations may be made in the specific apparatus herein shown and described without departing from the spirit of our invention. We do not, therefore, wish to be limited to the exact form shown but claim as our invention all embodiments thereof coming within the scope of the appended claims.

We claim:

1. In a device of the type described, a receptacle supported on a hollow base, said hollow base forming a chamber for a volatile material, walls defining an aperture extending from said hollow base into said receptacle, a valve adapted to close the end of said aperture disposed in the volatile material chamber, a valve stem carrying said valve and extending out of said base, spring means disposed outside of said base and engaging said valve stem for normally maintaining said valve in closed position, a hinged lid for said receptacle, means on said lid adapted to move said valve into opened position when said lid is in closed position and to permit said spring to close said valve when said lid is in opened position, and a perforated guard member in said aperture adapted to prevent articles deposited in said receptacle from dropping into said aperture.
2. In a device of the type described, a receptacle supported on a hollow base, a volatile material container in said base, walls defining an aperture extending from said hollow base into said receptacle, a valve adapted to close the end of said aperture disposed in the hollow base, a valve stem carrying said valve and extending out of said base, packing means around said valve stem at the point of exit from said base, spring means tending to maintain said valve in closed position, a hinged lid for said receptacle, means on said lid adapted to move said valve into opened position when said lid is in closed position and to permit said spring means to close said valve when said lid is in open position.
3. In a device of the type described, a receptacle supported on a hollow base, a volatile material container in said base, walls defining an aperture extending from said hollow base into said receptacle, a valve adapted to close the end of said aperture disposed in the hollow base, a valve stem carrying said valve and extending out of said base, packing means around said valve stem at the point of exit from said base, spring means tending to maintain said valve in closed position, a hinged lid for said receptacle, means on said lid adapted to move said valve into opened position when said lid is in closed position and to permit said spring means to close said valve when said lid is in open position, and a perforated guard member in said aperture adapted to prevent articles deposited in said receptacle from dropping into said base.
4. In a sterilizing device of the type described, a receptacle supported on a hollow base, means in said base for containing a volatile sterilizing agent and permitting the escape of vapor therefrom into said hollow base, walls defining a passageway for said vapor from said base to said receptacle, a valve member disposed in said hollow base and adapted to close the lower end of said passageway, a valve stem carrying said valve at its lower end and extending through the wall of said base upwardly to adjacent the top of said receptacle, walls forming an enclosure

around said valve stem, packing means around said stem in said enclosure adjacent the bottom thereof, a spring in said enclosure normally maintained in compression and extending between said packing and the upper end of said valve stem whereby a closing force is imparted to said stem and valve, a lid for said receptacle hinged at a point adjacent the upper end of said stem, and a cam surface on said lid adapted to engage the upper end of said stem and push downwardly thereon to open said valve when said lid is closed.

5. In a sterilizing device of the type described, a receptacle supported on a hollow base, means in said base for containing a volatile sterilizing agent and permitting the escape of vapor therefrom into said hollow base, walls defining a passageway for said vapor from said base to said receptacle, a valve member disposed in said hollow base and adapted to close the lower end of said passageway, a valve stem carrying said valve at its lower end and extending through the wall of said base upwardly to adjacent the top of said receptacle, walls forming an enclosure around said valve stem, packing means around said stem in said enclosure adjacent the bottom thereof, a spring in said enclosure normally maintained in compression and extending between said packing and the upper end of said valve stem whereby a closing force is imparted to said stem and valve, a lid for said receptacle hinged at a point adjacent the upper end of said stem, a cam surface

on said lid adapted to engage the upper end of said stem and push downwardly thereon to open said valve when said lid is closed, and spring means for exerting an opening force on said lid.

6. In a sterilizing device of the type described, a receptacle supported on a hollow base, means in said base for containing a volatile sterilizing agent and permitting the escape of vapor therefrom into said hollow base, walls defining a passageway for said vapor from said base to said receptacle, a valve member disposed in said hollow base and adapted to close the lower end of said passageway, a valve stem carrying said valve at its lower end and extending through the wall of said base upwardly to adjacent the top of said receptacle, walls forming an enclosure around said valve stem, packing means around said stem in said enclosure adjacent the bottom thereof, a spring in said enclosure normally maintained in compression and extending between said packing and the upper end of said valve stem whereby a closing force is imparted to said stem and valve, a lid for said receptacle hinged at a point adjacent the upper end of said stem, a cam surface on said lid adapted to engage the upper end of said stem and push downwardly thereon to open said valve when said lid is closed, spring means for exerting an opening force on said lid and a latch for maintaining said lid closed.

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