

Feb. 4, 1958

C. H. OSGOOD

2,822,476

STERILIZER

Filed Dec. 26, 1952

2 Sheets-Sheet 1

Fig. 1.

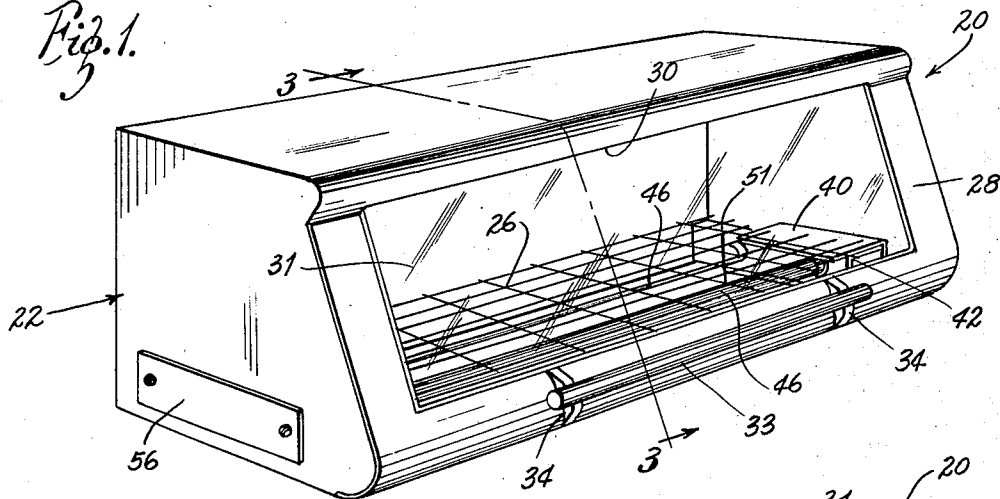


Fig. 2.

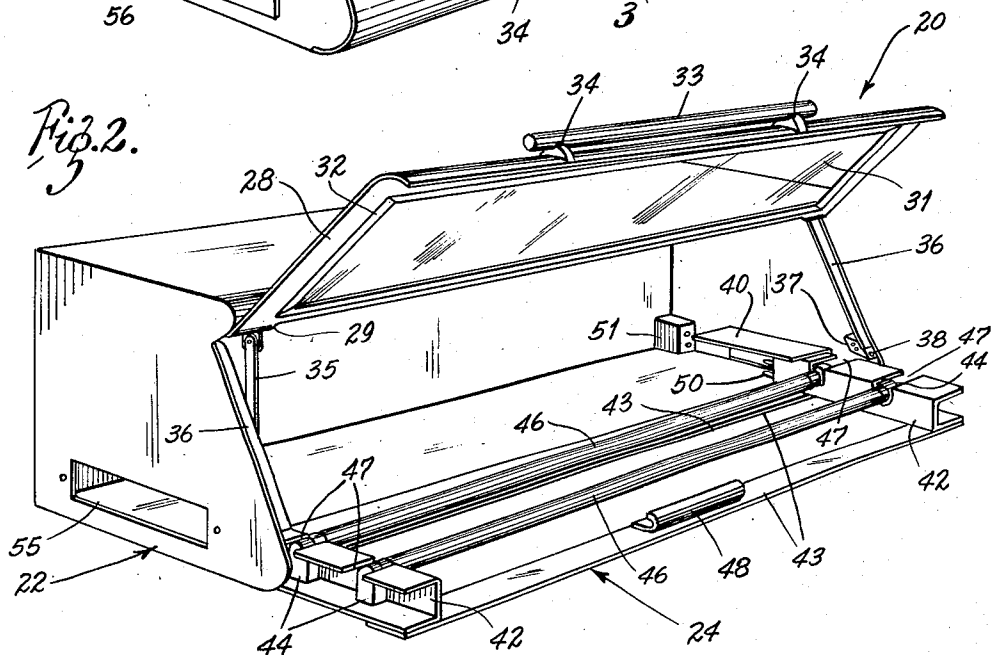
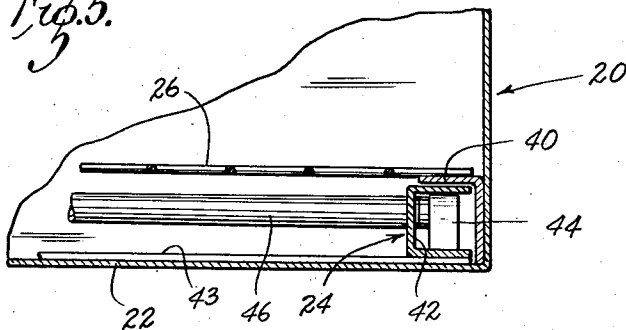


Fig. 5.



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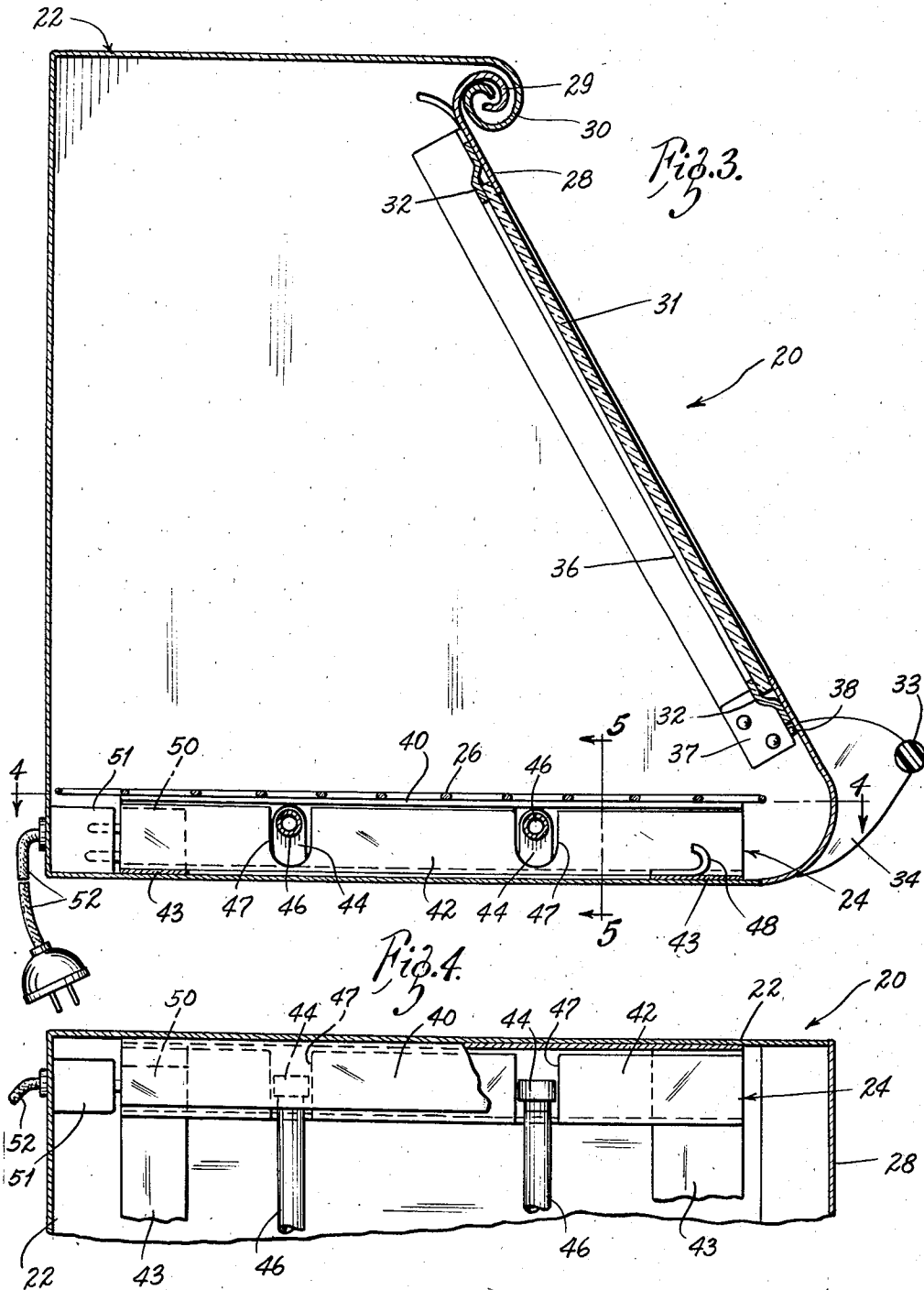
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2 Sheets-Sheet 2



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STERILIZER

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Application December 26, 1952, Serial No. 328,020

1 Claim. (Cl. 250—51)

The present invention relates generally to sterilizers, and more particularly to a sterilizer of the cabinet type in which ultraviolet rays are applied to drinking glasses, tumblers, cups, saucers, mugs, and other wares.

In brief, the present novel sterilizer unit comprises a cabinet having a full hinged door at one side. Within the cabinet is a removable frame or tray which supports ultraviolet ray lamps in parallel relation across the bottom of the cabinet, the frame being removable for lamp replacement. Removably supported above the lamps is a wire mesh tray for the wares upon which the rays are to be directed for sterilization. A switch is provided for automatically disconnecting the lamps upon opening of the door. A glass pane in the door permits observation without possibility of injury to the eyes of an observer.

Therefore, an object of the present invention is to provide a novel sterilizer unit for the application of ultraviolet rays to drinking glasses and other wares.

Another object is to provide a novel sterilizer unit of the cabinet type incorporating ultraviolet ray lamps which provides ready and safe removal of the lamps for replacement.

Another object is to provide a novel sterilizer unit of the cabinet type having a door for access in which the current to ultraviolet ray lamps is automatically deenergized upon opening of the door for the insertion or withdrawal of glassware or other items.

Other objects are to provide a novel sterilizer of the cabinet type which is of simple yet rugged and inexpensive construction, which has a door that will automatically close upon release by the user within a predetermined range of movement, or remain open to be filled or emptied in an additional range of movement or by provision of a latch, and which is otherwise formed to fulfill the objects and advantages sought therefor.

Still other objects and advantages are apparent from the following description taken with the accompanying drawings, in which:

Fig. 1 is a perspective view of a sterilizer unit constructed in accordance with the teachings of the present invention;

Fig. 2 is a perspective view thereof showing the door in open position, the article supporting tray removed, and the ultraviolet ray lamp supporting frame or tray drawn outwardly;

Fig. 3 is an enlarged cross-sectional view on substantially the line 3—3 of Fig. 1;

Fig. 4 is a cross-sectional view on substantially the line 4—4 of Fig. 3; and

Fig. 5 is a cross-sectional view on substantially the line 5—5 of Fig. 3.

Referring to the drawing more particularly by reference numerals, 20 indicates generally a sterilizer unit incorporating the teachings of the present invention. The sterilizer unit 20 includes a cabinet 22, a removable lamp supporting frame or tray 24, a removable article supporting tray 26, and electrical devices and wiring for energizing lamps supported by the frame 24.

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The cabinet 22 may be made to the configuration shown in the drawings from a blank which is formed and soldered or welded along adjacent edges. A door 28 is formed with a rolled hinge segment 29 at each upper corner which cooperates with a rolled hinge segment 30 formed integral with the cabinet 22. The door 28 includes a glass panel 31 maintained in sealing relation against the rear thereof by longitudinally extending brackets 32 which are welded or otherwise secured thereto. A handle 33 of Lucite or other material is mounted on the front of the door 28 by blocks 34 of wood or other suitable material secured in position by screws. A simple link unit 35 is provided for holding the door 28 in open position.

Door rest members 36 of right-angle cross section are secured by screws, welding or the like to each end of the cabinet 22 adjacent the door opening. A micro-switch 37 is mounted on one member 36 and includes a plunger 38 which is normally maintained in depressed circuit-making position by engagement of the closed door 28. The plunger 38 is spring-biased to extended position for automatically breaking the circuit in which the switch 37 is connected upon opening of the door 28. It is manifest that the door 28 will drop by gravity upon release by an individual when not raised beyond a locked position, or it will remain open for placing of articles to be sterilized or for removing the same when the link unit 35 is set.

Also within the cabinet 22 and secured by screws, welding or the like to the ends thereof are cover members 40 of angle cross section which support the article tray 26.

The removable frame 24 is of simple construction and includes opposed and spaced apart channel members 42 which are welded or otherwise secured to straps 43. If preferred, the straps 43 may be replaced by a tray of diamond design stainless steel. Lamp sockets 44 of conventional design are secured by bolts or the like to each channel member 42, as shown, and removably receive well-known ultraviolet ray lamps 46. Notches 47 are formed in the upper flanges of the channel members 42 for the ready reception of the lamps 46. A handle member 48 is welded or otherwise secured to the surface of the front strap members 43. A male plug 50 is secured to the undersurface of the top flange of each channel member 42 at the rear thereof for engagement with a female plug 51 mounted in the cabinet as shown. An electrical cord 52 is connected to the plugs 51. The switch 37 is connected by wiring not shown to one plug 51. Wiring between the sockets 44 and plugs 50 is omitted, being conventional.

It is clear that the frame 24 with its lamps 46 may be readily inserted into the cabinet 22 with the members 40 as a top guide so that the electrical plugs 50 and 51 engage for energization of the lamps 46. This construction affords easy replacement of a burned-out or broken lamp 46 and renders cleaning of the floor of the cabinet 22 easily accomplished. The members 40 protect the sockets 44 and electrical wiring from drippings from ware being sterilized.

The article supporting tray 26 rests on the horizontal flanges of the angle members 40, and may be readily inserted and removed with the supported articles thereon.

A service hatch 55 is provided at one end of the cabinet 22 closed by a cover 56 which may be screwed in position to cover the opening or a snap-on plate may be provided. A hatch 55 may be provided at the other end as well.

In using the present novel sterilizer unit 20, drinking glasses, cups, mugs and the like are disposed on the article supporting tray 26 in upside-down position for ultraviolet ray treatment within the cabinet 22 so that they may be removed without placing the hands upon the rims thereof. Articles may, of course, be removed from the tray 26

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without removing it from the cabinet 22, or the tray 26 may be removed together with all of the supported articles.

The cabinet 22 is preferably made of diamond design stainless steel rather than plain or polished sheets, since experiments have shown that this material gives better reflections of the rays from the lamps than do plain or polished metal sheets. Direct and reflected rays are utilized. As mentioned, the glass panel in the door 28 affords visibility, but protects the eyes of the observer since the rays from the ultraviolet ray lamps neither reflect from nor penetrate through glass. The hands and arms of a user are automatically protected from the rays of the lamps, since the lights are deenergized upon opening of the door 28 through action of the micro-switch 37.

It is apparent that there has been provided a sterilizing unit which fulfills the objects and advantages sought therefor.

It is to be understood that the foregoing description and the accompanying drawing have been given by way of illustration and example. It is also to be understood that changes in form of the elements, rearrangement of parts, and substitution of equivalent elements, which will be obvious to those skilled in the art, are contemplated as within the scope of the present invention which is limited only by the claims which follow.

What is claimed is:

A sterilizer unit comprising: a cabinet having bottom, side, and top walls; one wall being open and having a door movably attached thereto for opening and closing actions; opposite flanges projecting from the side walls a

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short distance above the bottom wall of the cabinet; a removable frame of substantially the size of the bottom wall, to support disinfecting lamp tubes extending across the frame, the frame having end parts designed to receive the end elements of the tubes, the spacing of the flanges above the bottom wall being sufficient to enable the frame to be slid into place beneath the flanges, the flanges overlying the ends of the tubes to protect them; a plug and socket electrical connecting means, one part of which is secured to the wall of the cabinet adjacent the bottom thereof and the other part of which is attached to a back part of the frame, so that when the frame is inserted into place below the flanges, the plug and socket parts will be readily engaged to provide for bringing electrical energy to the lamps; an article supporting tray of open-work construction substantially the size of the bottom of the cabinet, adapted to be removably inserted into the cabinet and to have its opposite ends supported on the flanges; and reflecting surfaces on the inside of the cabinet to direct rays from the lamps over articles on the tray.

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