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ELECTRIC STERILIZER

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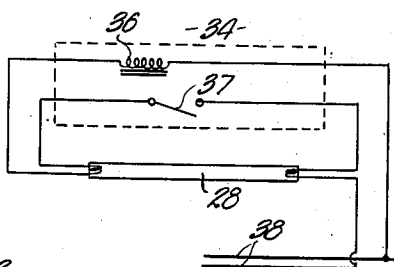
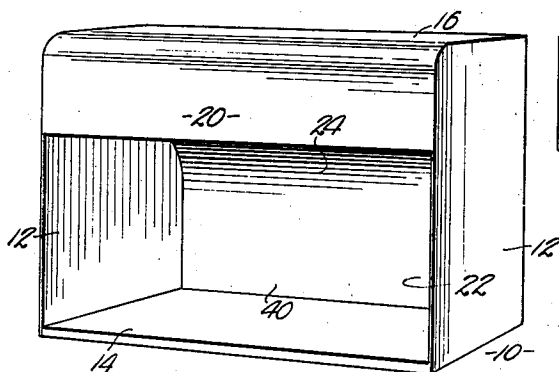


Fig. 1.

Fig. 4.

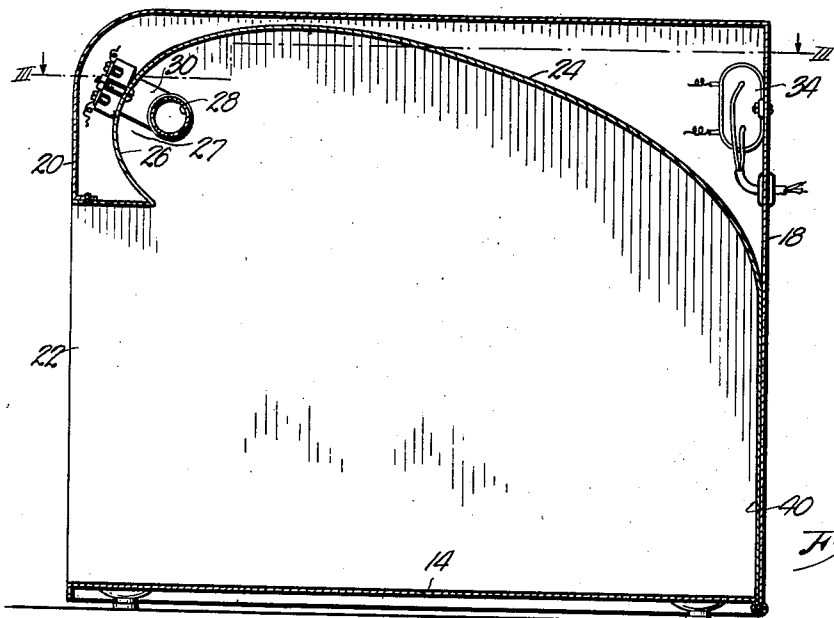


Fig. 2.

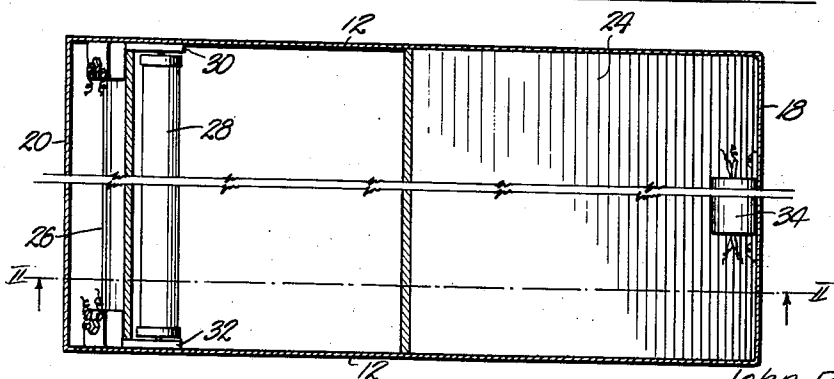


Fig. 3.

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## UNITED STATES PATENT OFFICE

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## ELECTRIC STERILIZER

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6 Claims. (Cl. 250—51)

This invention relates to improvements in electric sterilizers and particularly to the cabinet type wherein the ultra-violet lines of an electric sterilizing lamp are directed to the various surfaces of the object being sterilized.

The principal object of this invention is the provision of a sterilizer having a cabinet provided with a reflector suitable for directing the sterilizing ultra-violet radiant energy toward articles supported within the cabinet.

Other objects are simplicity and economy of construction, also ease and economy of operation.

Reference will now be had to the drawing wherein:

Figure 1 is a perspective view of an electric sterilizing cabinet embodying this invention.

Fig. 2 is an enlarged vertical cross sectional view of the cabinet.

Fig. 3 is a foreshortened horizontal sectional view taken on line III—III of Fig. 2; and,

Fig. 4 is a diagrammatical wiring view.

Throughout the several views like reference characters refer to similar parts and the numeral 10 designates a cabinet having end walls 12, bottom 14, top 16, rear wall 18, and front wall 20. Front wall 20 extends only a short distance downwardly from top 16, thus presenting an opening 22 through which the articles may be inserted into the sterilizing chamber.

The bottom 14 is preferably made of a porcelain lined planar sheet metal plate, which tends to absorb the ultra-violet rays and prevent their radiation from the cabinet through opening 22.

An irregularly curved reflector 24, substantially elliptical in vertical cross section with its major axis extending rearwardly and downwardly from the upper, forward portion of the cabinet, serves as a reflector of the ultra-violet rays in a downwardly direction. A highly polished aluminum plate has proven to be a very suitable material for producing the reflector plate 24, since it will not absorb the ultra-violet lines and is a good reflector of the radiant energy.

By referring to Fig. 2, it will be noted that the portion of the reflector of greatest curvature 26 is at its forward end and that it produces a recess 27 in which is longitudinally positioned an electric sterilizing lamp tube 28. This lamp is constructed to emit ultra-violet lines of 2537 angstrom units and is now in general use as a sterilizing means. Lamp holders 30 and 32 positioned respectively at opposite ends of the lamp tube, serve to support the lamp in fixed position relative to reflector 24.

Secured to the rear wall 18 of the cabinet,

above reflector 24, is a reactor 34 having a choke coil 36 and knife switch 37. This reactor is connected with the lamp electrodes, as clearly shown in Fig. 4. Other forms of circuits now in general use, might also be used to energize lamp tube 28 through the usual house circuit lines 38 carrying a 60 cycle 110 volt current.

In the operation of this device, the articles to be sterilized are placed within the cabinet on bottom member 14 and tube 28 is energized. Direct radiant energy will be directed against certain surfaces of the article, while those portions of the surface of the article not receiving the direct lines, will receive reflected ultra-violet rays from reflector 24, thus insuring a thorough sterilization of the article.

It will be noted that the tube is so positioned relative to the reflector 24 and opening 22, that no direct ultra-violet rays will pass through said opening, furthermore, the lower portion 40 of the reflector is substantially planar and parallel with the rear wall 18, thus insuring a general downwardly and forwardly reflection of the ultra-violet rays therefrom.

It is very apparent that the present sterilizing apparatus is simple and inexpensive in construction; that articles of various shapes and sizes may be thoroughly sterilized with a minimum amount of energy on the part of the operator; and at an extremely low consumption of electrical current.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A sterilizing apparatus comprising a cabinet having a front opening extending upwardly from the bottom thereof to a line adjacent and spaced apart from the top of the cabinet; a substantially partial elliptical shaped reflector positioned in the upper portion of said cabinet with its major axis extending rearwardly and downwardly to the rear of the cabinet and having a downwardly extending planar section disposed adjacent the rear wall of the cabinet; and an electric ultra-violet ray lamp positioned within said cabinet adjacent the front portion of said reflector and above said front opening whereby all the direct and indirect ultra-violet rays are reflected downwardly toward the bottom of said cabinet.

2. A sterilizing apparatus comprising a cabinet having an opening in the front wall thereof extending upwardly from the bottom thereof to a line spaced apart from the top of the cabinet; a substantially elliptical shaped, aluminum re-

flector positioned in the upper portion of said cabinet with its major axis extending rearwardly and downwardly toward the rear of the cabinet; and an electric ultra-violet ray lamp positioned within the front portion of said reflector and above said front opening whereby all the ultra-violet direct and indirect rays are reflected downwardly toward the bottom of said cabinet.

3. A sterilizing apparatus comprising a rectangular cabinet having its major front portion open to permit free access to the cabinet and having a planar bottom member made of a material that absorbs the ultra-violet rays, a sheet of ultra-violet reflecting material curved in one direction only to present a reflector of substantially elliptical vertical sectional shape with a depending planar section reaching to said bottom, an elongated electric lamp positioned in the upper forward part of said cabinet above said front opening whereby direct ultra-violet rays emitted therefrom will be directed away from said open front and toward said bottom and said sheet reflector, whereby a minimum of ultra-violet rays escape through said open front.

4. A sterilizing apparatus comprising a cabinet having a relatively large opening in its front wall extending upwardly from the bottom to a line adjacent and spaced downwardly from the top thereof, a reflector comprising a sheet of material positioned and shaped to form a recess in the front portion of said cabinet above said front wall opening and to extend rearwardly and downwardly below said front opening to a point adjacent the bottom of the receptacle, an elongated electric lamp disposed substantially parallel with said front wall and positioned at the front of said cabinet in said recess above said opening whereby no direct light rays therefrom will pass through said front opening and whereby substantially all light rays from said lamp and from

said reflector will be directed toward the bottom of said cabinet.

5. A sterilizing apparatus comprising a cabinet having an opening in its front wall extending upwardly from the bottom to a line adjacent and spaced downwardly from the top thereof, a reflector comprising a sheet of material positioned with its one edge at the upper edge of said opening and curved in one direction forwardly and rearwardly to form a substantially elliptical curve with the major axes thereof, extending rearwardly and downwardly from said front wall and having the lower portion of said sheet material of planar shape disposed in a substantial vertical position, an elongated electric lamp disposed substantially parallel with said front wall and positioned in said cabinet above said opening whereby no direct light rays therefrom will pass through said front opening and whereby all light rays from said lamp and from said reflector will be directed toward the bottom of said cabinet.

6. A sterilizing apparatus comprising a rectangular cabinet having an open front, a sheet of polished aluminum curved in one direction only to present a reflector of substantially partial elliptical, cross-sectional shape with a depending planar section, one end of said reflector being positioned adjacent the front and upper portion of said cabinet while the planar portion thereof is substantially contiguous with the vertical back wall of the cabinet; an elongated electric lamp positioned substantially parallel with the front of said cabinet and within said reflector above said front opening whereby all the light rays from said electric lamp will be directed from said lamp and from said reflector downwardly toward the bottom of said cabinet.

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