Sept. 14, 1943. S. DUBERSTEIN ET AL 2,329,520

HEATING AND STERILIZING APPARATUS

Filed July 24, 1941 2 Sheets-Sheet 1

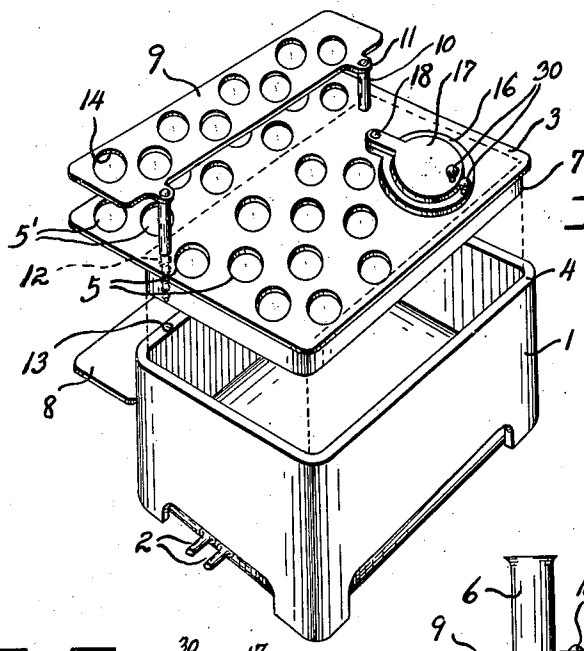


Fig. 1.

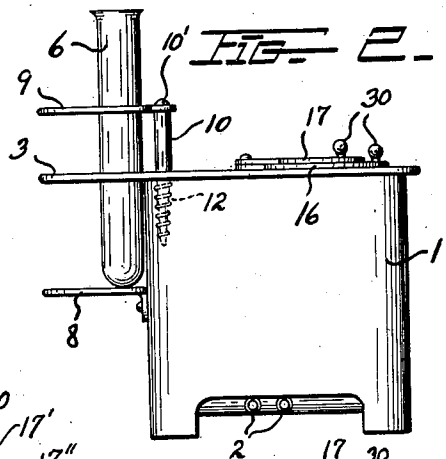


Fig. 2.

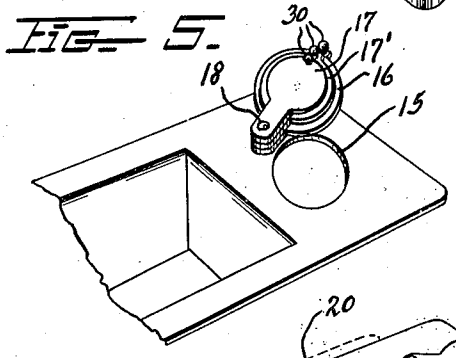


Fig. 5.

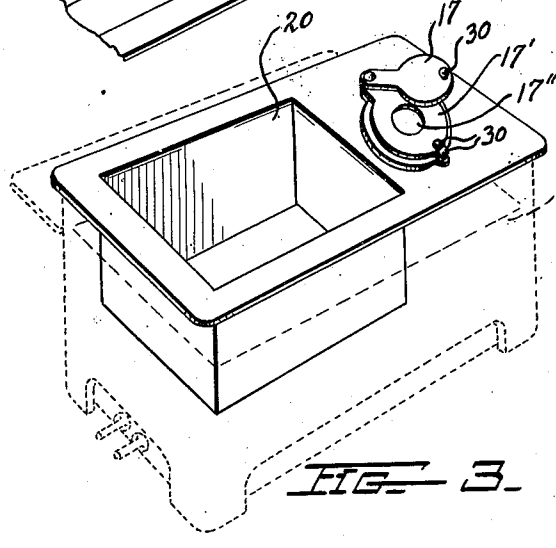


Fig. 3.

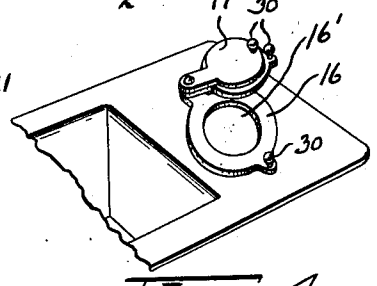


Fig. 4.

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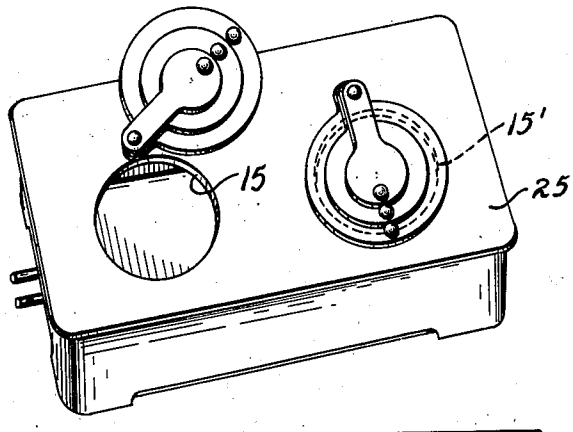


FIG. 6

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HEATING AND STERILIZING APPARATUS

Samuel Duberstein and Nicholas Lawner, Brooklyn, N. Y., assignors to American Sundries Co., Inc., a corporation of New York

Application July 24, 1941, Serial No. 403,852

1 Claim. (Cl. 219—19)

This invention relates to electrically heated water baths or steam sterilizers adapted to be employed in laboratories, doctors' and dental offices for sterilizing instruments, softening and melting plastics, heating chemicals, and the like. Such heaters usually operate on the indirect heating principle, that is, hot water is employed as the intermediary between the instrument being heated and the source of heat, the hot water either heating the instrument by direct or indirect contact or by the steam from the boiling water.

According to our invention, we have devised a removable top or cover for such a sterilizer so that one base or container may be employed with different types of top plates to adapt the same for a variety of uses.

Another object of the invention is to improve upon top plates of such instruments, whereby different size containers or beakers may be accommodated.

Referring to the drawings,

Fig. 1 is a perspective view of our sterilizer with one form of top plate lifted above the same to show its construction.

Fig. 2 is an end view of the form of the invention shown in Fig. 1, with the top plate in place and showing a test tube in the reserve rack.

Fig. 3 is a perspective view showing an alternative form of top plate.

Fig. 4 is a similar view of the same, showing the rotatable lids positioned to receive a larger beaker than in Fig. 3.

Fig. 5 is a similar view showing a still different position of the lids or closures for a still larger beaker.

Fig. 6 shows a still further form of top plate designed for a plurality of large beakers.

The main or base portion of our invention may be similar to that shown in our prior Patent No. 2,230,238, dated February 4, 1941, for Sterilizers, and is shown as a rectangular box portion 1 constructed of porcelain or the like, with an electrical heating element (not shown) in the base thereof, the electric plug terminals being shown at 2. The top plate 3 is shown as in the form of a main plate adapted to rest on and extend over the top edge 4 of the box 1 and is provided with a plurality of apertures 5 adapted to receive one or more test tubes 6, or the like, for heating in the hot water contained in the box 1. Plate 3 may be provided with a downward extension or flange 7 adapted to fit snugly within the rim of the box so as to hold the same in place.

The plate also preferably extends rearwardly beyond the box, where it is provided with additional apertures 5' that receive test tubes 6 when not in use. For this purpose a base plate 8 may be secured to the back of the box to support the test tubes, and also a spaced upper plate 9 may be mounted on hollow posts 10 rising from the rear of the plate 3. The plate 9 is shown as having ears 11 clamped between the heads 10' of set screws 12 passing through said posts. Preferably, the screws extend downwardly through the top plate and enter apertures 13 in the back wall of the box 1, which are preferably lined with soft metal so that the screws may be threaded therein. Plate 9 is provided with apertures 14 to register with apertures 5' to thereby keep the test tubes erect.

Plate 3 may also be provided with a much larger aperture 15 for use with beakers or containers larger than test tubes. Said aperture is normally closed by one or more lids or closures 16 and 17 pivoted to one side of the aperture by a common pin 18. The top lid 17 is smaller and closes the aperture 15' in the larger lid 16, while the aperture 15 is still larger but is closed by the combined action of lids 16 and 17. This construction will be made clear by reference to Figs. 3, 4 and 5, showing similar constructions except that in the latter case three different lids are employed instead of two, as shown in Fig. 1. As shown in Fig. 5, when all of the lids 17, 17' and 16 are moved to an open position, the aperture 15 is able to receive the largest size beaker. With smaller beakers in use, the larger ring lid 16 only is closed, the aperture 16' of which is somewhat smaller than the aperture 15, the external diameter of ring 16 being of course somewhat larger than aperture 15. For beakers still smaller, the ring lid 17' is closed, the aperture 17'' of which is still smaller, while if it is desired to close entirely the aperture, all lids are closed as shown in Figs. 1 and 2 and the right hand side of Fig. 6. Each lid is shown as provided with a knob 30 for turning it about the common pivot pin 18.

If it is desired to use the water bath for melting or softening plastics or for dry sterilization, the top portion 3 is removed and is replaced by a metallic portion such as shown in Fig. 3. In this case a downwardly extending metal reservoir or dry well 20 is provided in the top which extends downwardly below the normal water level 21 in the water bath. Therefore, articles to be heated may be placed in this container and at the same time kept dry. The container 20 is shown as shorter than the box 1 so that one end

may be provided with a normally closed aperture 15 for the purposes above described.

Fig. 6 shows a still different form of the invention having a top plate 25 provided only with large apertures 15 and 15' which may be closed at will by a plurality of lids having various size apertures, as described in connection with the preceding figures.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having described our invention, what we claim and desire to secure by Letters Patent is:

An indirect heater for test tubes and the like comprising a container for water, a heater therein, a cover for said container having a plurality of apertures therein over the container, a rearwardly extending portion on said cover also having apertures therein beyond the rear wall of the container, a plate secured to said cover in spaced relation above said extension and having apertures registering with said other apertures in said extension, and a rest secured to the rear of said container under said extension, whereby test tubes when not in use may be held vertical by the registering apertures in said cover and plate and supported by said rest.

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