Oct. 29, 1935. T. F. BATES 2,018,651

STERILIZING AND OPERATING INSTRUMENT TRAY

Filed Nov. 12, 1934

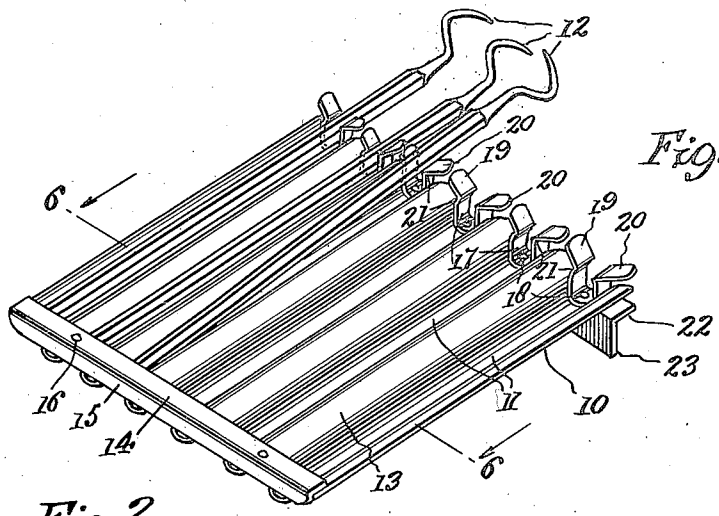

Fig. 1.

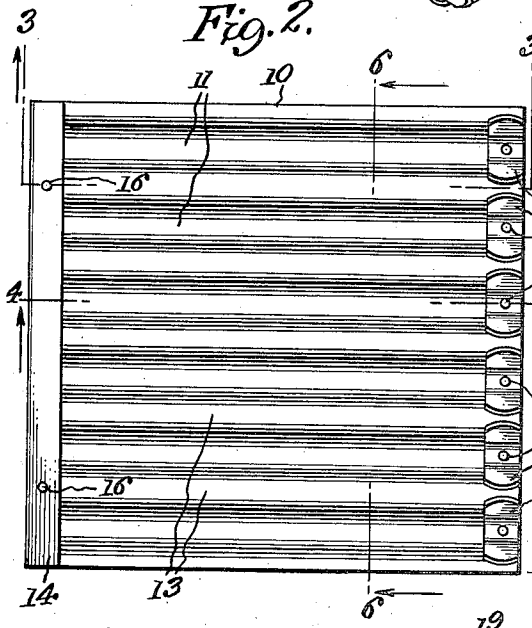

Fig. 2.

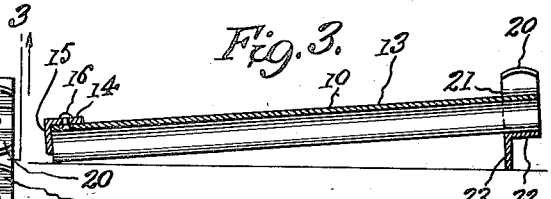

Fig. 3.

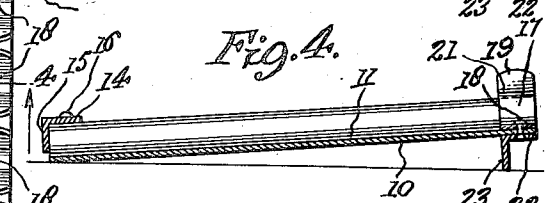

Fig. 4.

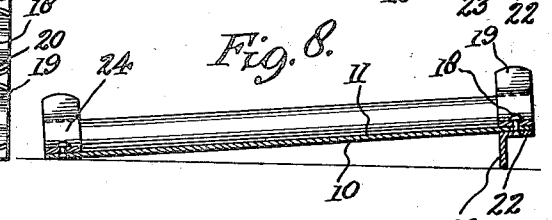

Fig. 8.

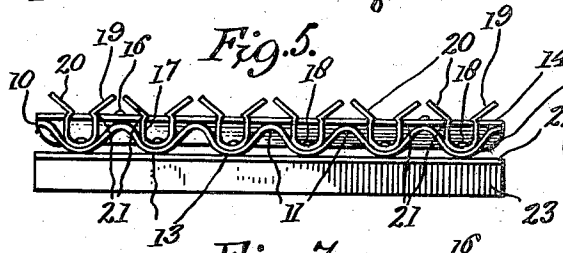

Fig. 5.

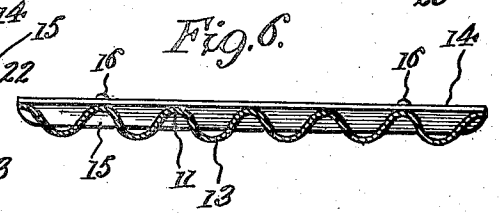

Fig. 6.

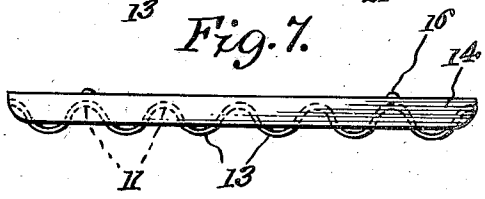

Fig. 7.

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STERILIZING AND OPERATING INSTRUMENT TRAY

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Application November 12, 1934, Serial No. 752,766

6 Claims. (Cl. 206—72)

The present invention relates to improvements in sterilizing and operating instrument trays and relates to an improved tray more particularly for dental and surgical instruments.

An object of the invention is to provide an improved tray for containing a set of instruments in position for cleaning, sterilizing and storage in cabinet drawers, instrument cabinets, etc.

Another object of the invention is to provide an improved tray of non-corrosive metal adapted to hold instruments after the same have been dipped in sterilizing solutions or water, such tray having an arrangement for drainage and for readily receiving and supporting the instruments.

A further object of the invention resides in providing a tray for a variety of instruments in which the instruments may be held securely in the tray or simply allowed to rest therein whereby the same may be easily picked up and replaced in the proper order while operating.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawing, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a perspective view of an improved tray constructed according to the present invention.

Figure 2 is a plan view of the same.

Figure 3 is a section taken on the line 3—3 in Figure 2.

Figure 4 is also a section taken on the line 4—4 in Figure 2.

Figure 5 is a top edge view.

Figure 6 is a section taken on the line 6—6 in Figure 2.

Figure 7 is a bottom edge view and

Figure 8 is a sectional view showing a modification.

Referring more particularly to the drawing, the improved tray is preferably constructed of stainless steel or some non-corrosive metal such for instance as Allegheny metal. A sheet of such metal of relatively thin gauge and of adequate length and breadth for forming the size of tray desired is selected and subjected to a corrugating operation whereby to provide a metal tray base 10 having troughs 11 therein for the reception of the shanks or handles of the instruments indicated at 12. Between the troughs, as shown more particularly in Figure 6, are the crests 13 formed of the corrugated or wave like construction of the base plate 10, such crests forming divisions or partitions between the troughs 11 and maintaining the instruments separate from one another. The corrugated formation will not induce cracks in the metal but will form a smooth undulating structure of an extremely smooth and highly polished surface not conducive to the lodgment of germs.

To one end of the tray is affixed an angle metal strip consisting of flanges 14 and 15. The flange 14 extends across the troughs or pockets 11 and is riveted, as indicated at 16, to crest portions 13 of the base plate 10. The other flange 15, which is turned over at substantially right angles to the flange 14, lies across the ends of the pockets or troughs 11 and acts as an abutment for the heels of the handles of the instruments 12 so as to restrict movement of the instruments in the troughs or pockets.

It will be noted particularly from Figure 7 that the flange 15 is not as deep as the pockets 11 whereby the base portions of the pockets 11 extend beyond the upper edge of the flange 15 thus forming drain ways for the sterilizing solutions or water to drain off from the tray.

At the other end of the tray are elastic loops having constricted necks or collars 17 which necks or collars are secured by rivets or other fastenings 18 in the base portions of the troughs or pockets 11. The necks or collars 17 are of smaller diameter than the diameters of the pockets 11 and such necks or collars have wings 19 and 20 flaring out in divergent relation whereby to guide the instrument through the constricted jaws 21 of such necks. These wings 19 and 20 extend upwardly beyond the plate 10 and they serve as supports for the instruments 12 it being necessary to force the instruments downwardly to expand the jaws 21 before the necks will receive the same.

An angle strip may also be secured beneath the base plate 10 opposite the elastic loops, such strip being composed of flanges 22 and 23. The flange 22 lies along the underneath side of the base plate 10 and is riveted, welded or otherwise secured to the lower portions of the pockets or troughs 11. The flange 23 extends outwardly or downwardly and forms a rest or foot for engaging the table or other supporting surface whereby the tray may be supported at an inclination.

In Figure 8 elastic loops or clips 24 are shown at the bottom of the tray as well as at the top, in which case the angle strip 14, 15 may be dispensed with.

In the use of the device, the instruments will

occupy the tray in substantially the position shown, the troughs or pockets receive the handles of the instruments, the heels of the handles being forced downwardly across the flange 15 while the upper portions of the instrument handles are pushed down within the necks 17 of the elastic loops. In performing this operation the handles will encounter the wings 19 and 20 forcing same apart until such handles pass inwardly within the jaws 21; whereupon the inherent resiliency of the metal will cause the neck 17 to contract about the handles and the constricted jaws 21 will close preventing the ready withdrawing of the handles so that the tray may be carried upright or in an inverted position without likelihood of the instruments falling out of the tray. The instruments are removed by grasping the portions thereof extending beyond the tray and forcibly lifting the same from the tray which will cause the jaws 21 to spring apart thus letting the handles escape from the elastic loops. These loops grasp the instruments and hold them firmly in place for cleaning, sterilizing and storing. By withdrawing the instruments from the loops they may be permitted to rest upon the wings 19 and 20, as shown in Figure 1. From this position they are easily picked up and replaced in proper order while operating.

Such trays will keep the instruments at all times in proper order and save much time in sorting. The trays protect the sharp edges by holding the instruments securely apart. These trays are much lighter than porcelain trays and are unbreakable, more compact, sightly and will last indefinitely. The trays may be made to hold various numbers of instruments to suit the sets or convenience of the operator. The loops may be shaped so as to grasp different forms of dental and surgical instruments and support them while operating. These trays may be useful for equipping all instrument cabinets and drawers, students' cases, visiting cases or bags, hospitals, infirmaries, nurses and for supplying with sets of instruments for sale. The strip of metal 22, 23 secured under the front edge of the tray acts to reinforce and strengthen the corrugated construction along with the lower strip 14, 15. The flange 23 also acts as a leg to elevate the front of the tray which is an advantage in operating. This elevation may be regulated by the length of the leg 23; moreover this construction will greatly stiffen the tray yet leaving it lighter than a thick bar would do.

Referring more particularly to Figure 8, in case the tray is intended for double-ended instruments, the elastic loops would be used at both ends of the tray instead of the angled strip 14, 15.

It will be noted that the corrugated construction lends itself well to flatness in the tray and that the height of the tray from the supporting surface is not greatly in excess of the diameter of the handles of the instruments. Of course the tray is not so long as the instruments and the construction admits of holding the instruments relatively close together whereby the construction is compact.

It will be obvious that various changes may be made in the construction, combination and arrangement of parts, which could be used without departing from the spirit of my invention and I do not mean to limit the invention to such details except as particularly pointed out in the claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent of the United States is:

1. An improved sterilizing and operating instrument tray comprising a thin corrugated base plate having pockets to receive the handles of instruments, and means at one end of the plate extending downwardly of the peaks of the corrugations and having a depth less than the depth of the pockets for retaining the instruments in said pockets.

2. An improved sterilizing and operating instrument tray comprising a thin flat base plate having pockets therein for receiving the handles of instruments, and an L-shaped reinforcing strip secured across one end of such pockets with one leg thereof at right angles to the length of the pockets and acting as an abutment for the heels of the handles.

3. An improved sterilizing and operating instrument tray comprising a corrugated base plate forming pockets for receiving the handles of instruments, a reinforcing strip having a flange secured across the open sides of the pockets and fastened to the base plate, said strip having a flange folded over upon the open ends of the pockets but being shallower than the pockets are deep whereby not to interfere with drainage, and resilient loops in the pockets at the other end portion of the tray for releasably grasping the handles of the instruments.

4. An improved sterilizing and operating instrument tray comprising a corrugated plate adapted to receive the handles of instruments in the corrugations thereof, and an L-shaped strip secured to an end of the plate with one leg thereof engaging over the peaks of the corrugations and extending inwardly of the adjacent end of the plate, the other leg of the strip closing one one end of the pockets formed by the valleys of the corrugations, said other leg having such a construction as to permit draining of liquid from said pockets.

5. An improved sterilizing and operating instrument tray comprising a corrugated plate adapted to receive the handles of instruments in the corrugations thereof, an L-shaped strip secured to an end of the plate with one leg thereof engaging over the peaks of the corrugations and extending inwardly of the adjacent end of the plate, the other leg of the strip closing one end of the pockets formed by the valleys of the corrugations, said other leg having such a construction as to permit draining of liquid from said pockets, and means secured to the underside of the plate for holding the plate at an angle relative to the horizontal.

6. An improved sterilizing and operating instrument tray comprising a corrugated plate adapted to receive the handles of instruments in the corrugations thereof, an L-shaped strip secured to an end of the plate with one leg thereof engaging over the peaks of the corrugations and extending inwardly of the adjacent end of the plate, the other leg of the strip closing one end of the pockets formed by the valleys of the corrugations, said other leg having such a construction as to permit draining of liquid from said pockets, and a second L-shaped strip secured to the underside of the plate for holding the plate at an angle relative to the horizontal.

THOMAS F. BATES.