C. R. PELTON AND J. A. HAND.

STERILIZER.

APPLICATION FILED JULY 31, 1920.

1,384,403.

Patented July 12, 1921.

2 SHEETS—SHEET 1.

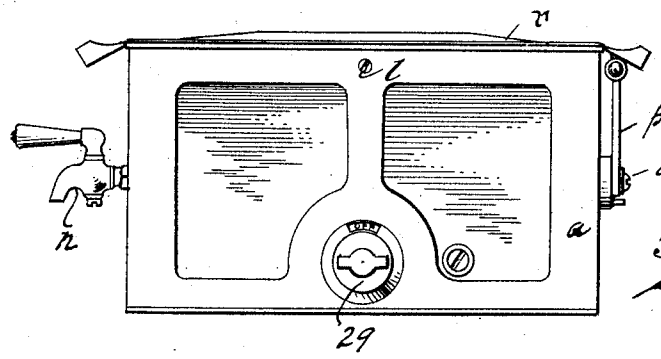

Fig. 1

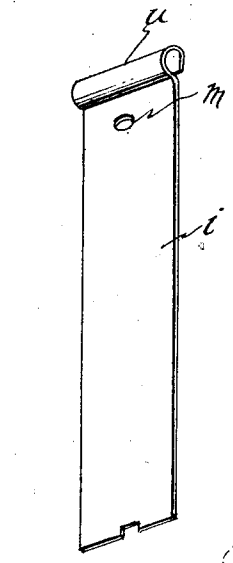

Fig. 6

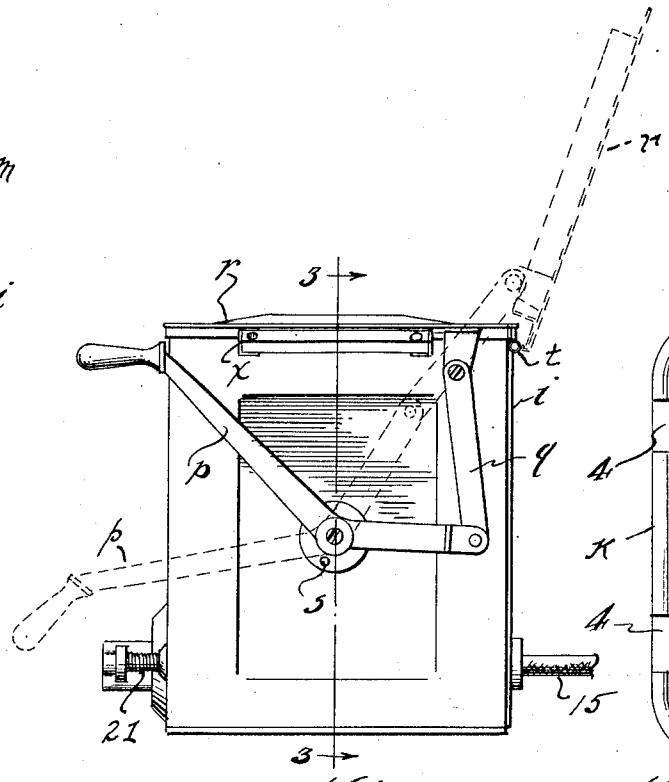

Fig. 2

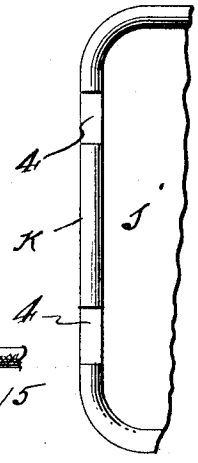

Fig. 7

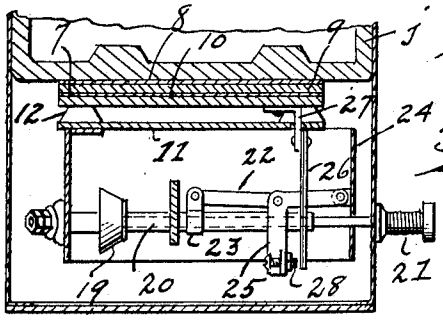

Fig. 8

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2 SHEETS—SHEET 2.

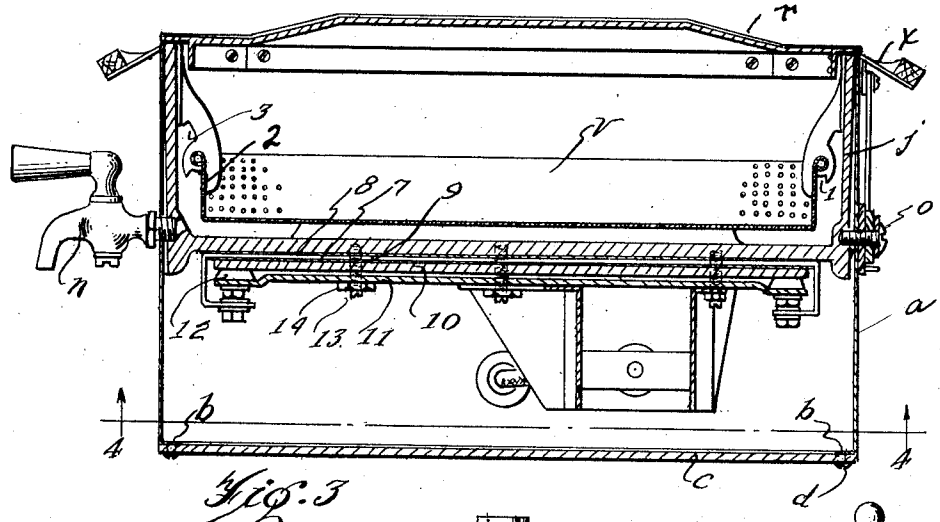

Fig. 3

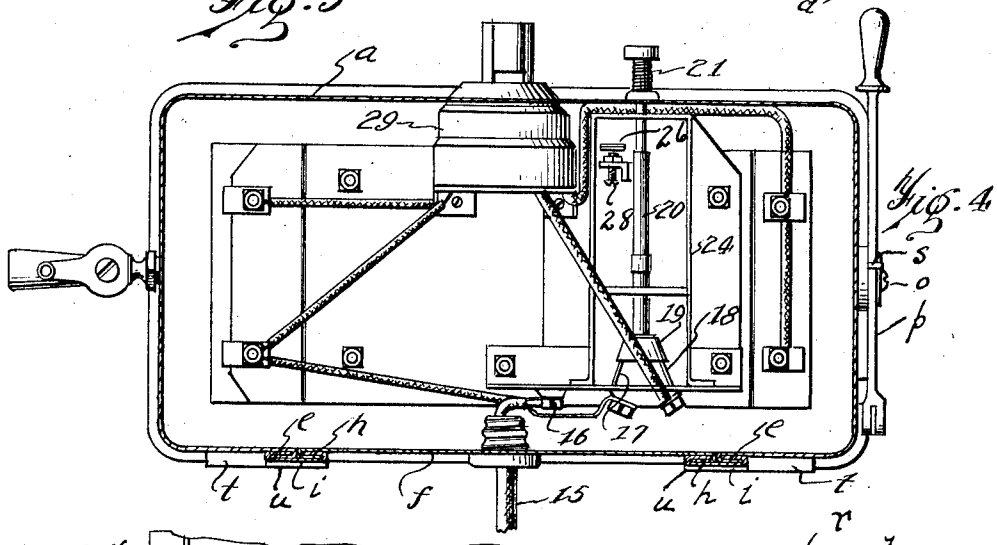

Fig. 4

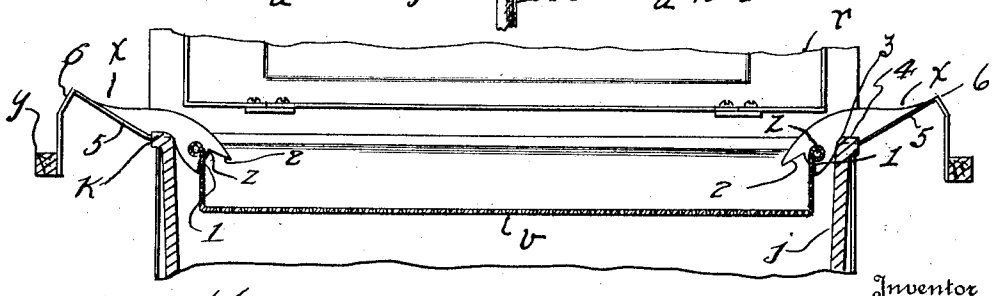

Fig. 5

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CHAUNCEY R. PELTON AND JAY A. HAND, OF DETROIT, MICHIGAN.

STERILIZER.

1,384,403. Specification of Letters Patent. Patented July 12, 1921.

Application filed July 31, 1920. Serial No. 400,350.

To all whom it may concern:

Be it known that we, CHAUNCEY R. PELTON and JAY A. HAND, citizens of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Sterilizers, of which the following is a specification.

This invention relates to sterilizers and especially to sterilizers for dental instruments, but, of course, it will be obvious that the device may be used for other sterilization.

It has for its object an improvement in sterilizers of this character introducing new features of construction in the arrangement of the basin with respect to the cabinet for better heat insulation; a new and economical way for constructing and assembling together the parts of the outer shell, or casing, and a new and more economical way of fastening the hinges to the casing.

The invention also involves a novel basket construction, permitting the basket that carries the tools to be hung down in the water of the basin or lifted out of the water and supported on the sides of the basin.

Still another feature of the improved sterilizer is the arrangement of the heating element, switches and wiring under the basin.

These and other features will be better understood when the construction is understood in detail.

In the drawings,—

Figure 1 is a front elevation of the improved sterilizer.

Fig. 2 is an end elevation of the same.

Fig. 3 is a vertical longitudinal section through the same.

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 3.

Fig. 5 is a fragmentary vertical section similar to the one shown in Fig. 3, but with the basket in its upper position and the lid open.

Fig. 6 is a perspective of one of the locking strips which bears one of the hinge knuckles.

Fig. 7 is a fragment of one end of the basin viewed in plan.

Fig. 8 is a fragmentary cross section showing the automatic switch.

The outer shell or casing is constructed of sheet metal, a single piece *a* being bent to form front, the two ends and parts of the back (see Fig. 4). The bottom edges are bent in at *b* to form shoulders to receive the cover *c* which is secured thereto by small screws *d*. The ends of the piece *a* are turned back into hooks *e* at the back. A second piece of metal *f* is provided at each end with folds or hooks *h*. The locking strips *i* (Fig. 6) are then slid into lock-seam relation with both sets of meeting folds *e*, *h* to complete the body of the casing or shell.

The basin *j* of the sterilizer is a casting, preferably of some light metal such as aluminum or an aluminum alloy. At the top it is provided with an outwardly projecting rim *k*, arranged to support the basin upon the outer shell. Screws *l* secure the basin and shell together, the screws at the back passing through the holes *m* in the locking strips *i*. The outer surface of the basin is spaced from the shell, as clearly indicated in Fig. 4, to insulate the basin and prevent undue loss of heat and objectionable heating of the outer casing.

At one end of the sterilizer the drain cock *n* screws into the basin and serves also to unite the shell and basin and at the other end the pivot screw *o* for the cover-lifting lever *p* screws into the basin. This cover-lifting lever is connected by a link *q* with the hinged lid *r* and the stop pin *s* is so placed as to stop the lever and link just beyond the center line between the two pivots. Hence the lid cannot fall down, and in fact cannot be put down by pulling upon the lid. It can be easily brought down by operating the lever *p*.

The lid *r* is hinged to the casing by having one knuckle *t* secured to the lid, while the other knuckle is formed at *u* by the end of the locking strip *i* being bent around to form the knuckle. (See Fig. 6.)

One of the important improvements is the basket construction. *v* designates the basket. The handles are formed by two arms *x* of peculiar construction connected by a wooden cross bar. Before the basket mesh is bent over the rod *z*, the arm *x* is threaded on the rod *z* that forms the rim of the basket. Each bar is provided with a cut-away portion at the end forming an outer shoulder 1 and an inner shoulder 2. The arm is notched at 3 to fit in the recesses 4 in the rim of the basin (see Fig. 7). The strip forming the arm is twisted at 5 and bent right angularly at 6 to form

a rest which allows the tray or basket to rest deep in the basin, as shown in Fig. 3, the rest 6 engaging in the recesses 4 of the basin rim. The inner shoulders 2 engage inside of the basket or tray and hold it firmly to prevent swaying. The basket or tray may be lifted out of the water and hung in the lifted position by grasping both handles, lifting and turning the handles outwardly and engaging the notches 3 of the arms over the basin rim at the notches 4, as shown in Fig. 5. The outer shoulders 1 engage against the outside of the basket and hold the same firmly, preventing any swaying.

The heating unit is clamped directly to the bottom of the basin, the element itself being between two strips of mica insulation 7 and 8. The element is designated 9 and may be of any approved construction such as a thin nickel-chromium band wire wound in a spiral around strips of mica. This detail is no part of the invention and hence is not detailed in the drawings. The insulation and element are held between two steel plates 10 and 11 and the bottom of the basin. The plate 11 is spaced from the plate 10 by the turned-over legs 12 at the corners. Threaded studs 13 screw into the bottom of the basin and nuts 14 clamp the plates, insulation and heating element in place.

Now as to the wiring and switches: 15 designates the cord for connection with any electrical supply fixture. One wire from this cord goes to the post 16 and the other to the spring contact 17 of the automatic switch. The other contact 18 of the switch is insulated from the contact 17. 19 is a copper bridging connection between the contacts in the form of a frusto-conical cup carried on the end of a stem 20 normally urged to break the switch by the spring 21. The action of the spring 21 is resisted and the switch held closed by the toggle levers 22 (Fig. 8), one pivotally supported by the band 23 on the stem 20 and the other supported by the switch hanger 24 clamped to the bottom of the basin with the plates 10 and 11. The one lever is provided with an extension 25 forming in effect a bell crank. 26 is a thermostat of metals of different coefficients of expansion riveted to angle bracket 27 in turn riveted to the inner plate 10. 28 is an adjusting screw on the extension 25. In the position shown in Fig. 8 the switch is closed and is held closed because the toggle arms are on their center line or just over. The toggle cannot be broken by pulling in the direction of the center line, so the spring 21 cannot act until the toggle is broken at the knee. This is accomplished by the thermostat when the sterilizer becomes too hot. The thermostat bows and hardly contacts the screw 28 when the delicate toggle is broken and the spring 21 snaps the switch open. The thermostat performs no appreciable work in throwing the switch. It merely releases the spring which does the work. The thermostat is never under stress until the sterilizer heats up and it lightly contacts the screw 28. We do not claim the automatic switch in this application because its specific construction is a different invention from the subject matter of the other claims. It is made the subject of a separate application.

A hand-operated switch 29 serves to put in circuit one, two or three coils of the heating element to vary the amount of heat, but as the details of this are no part of the invention, they are not shown. This switch also cuts off the current where desired.

What we claim is:

1. In a sterilizer, a basin provided with a cover, a basket, and handle arms for hanging the basket solely from the basin in an upper and in a lower position, and in the latter position with the cover closed upon the basin.

2. In a sterilizer, a basin, a basket, and handles pivoted to the basket and adapted to hook over the upper edge of the basin in a plurality of positions to hold the basket in a plurality of positions in the basin.

3. In a sterilizer, a basin provided with recesses in its rim, a basket, handles pivoted to the basket and provided with arms having rests and notches, the latter alternately engaging the recesses of the rim to hold the basket in two alternative positions in the basin.

4. In a sterilizer, the combination of a basin, a basket, handles provided with arms pivoted to the basket and having means for engaging the basket in an upper and lower position in the basin and also having shoulders for engaging the basket to prevent it from swaying.

5. In a sterilizer, the combination of a basin, a basket, handles provided with arms pivoted to the basket, the arms being notched on the under sides to hook over the rim of the basin to hold the basket in lifted position and the arms being bent at a substantial right angle to hook over the edge of the basin to hold the basket in its lower position with respect to the basin.

In testimony whereof we affix our signatures.

CHAUNCEY R. PELTON.
JAY A. HAND.