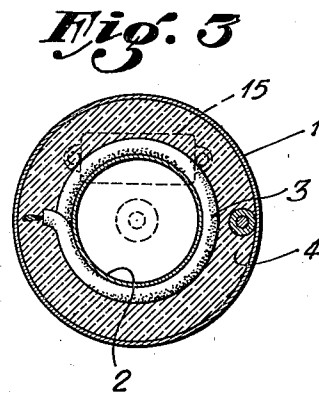
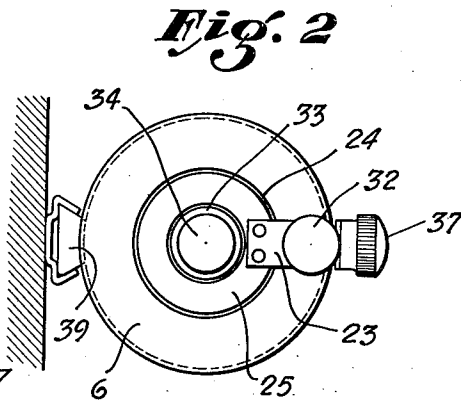
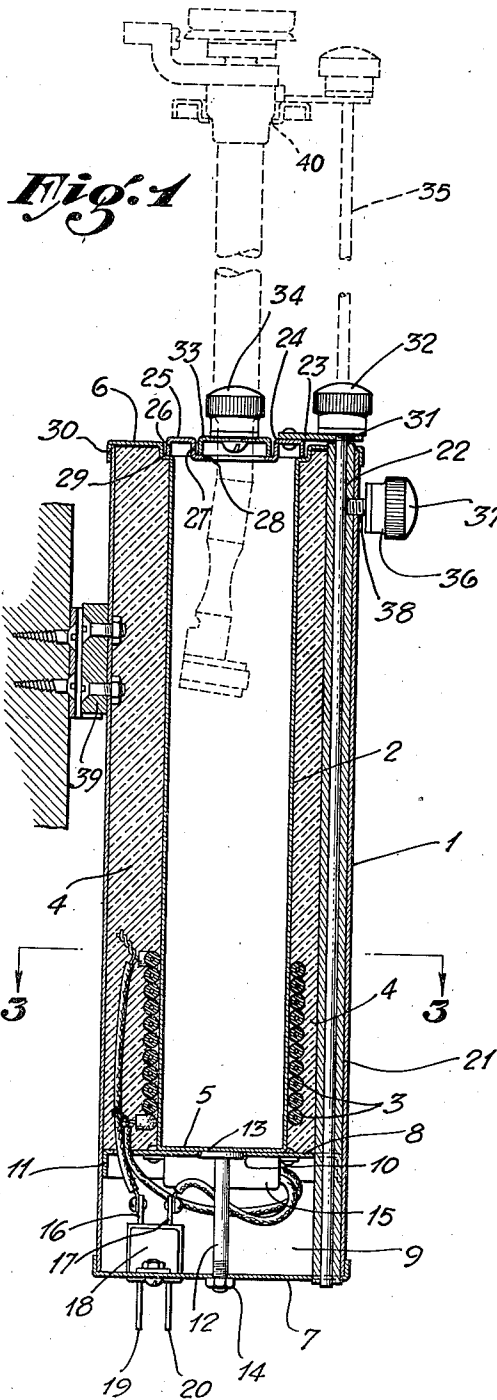


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C. W. JOHNSON
STERILIZER

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STERILIZER

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3 Claims. (Cl. 21—89)

This invention relates to sterilizers, and has for an object the provision of a device adapted to effectively sterilize a dental handpiece.

It is a known fact that the mouth often contains disease germs, particularly such organisms as syphilis and Vincent's infection, together with other types of communicable diseases. Germs of this character readily penetrate mechanisms used in the mouth, and in particular, dental handpieces. It, therefore, becomes highly essential that communicable diseases not be transmitted from one patient to the next due to improper sterilization of the handpiece.

The present invention has for an object the provision of a sterilizer wherein the sterilization of the handpiece is effected not only for the interior thereof, but the exterior shell as well.

Another object is the provision of a handpiece sterilizer which is convenient to use, compact in size, easy to operate, and has a distinct psychological appeal to the patient.

The present sterilizer is adapted to utilize an oil brought to a given temperature and the dental handpiece is, through novel mechanism, moved within the sterilizer and immersed in said oil in such a manner that complete sterilization of the handpiece, both interiorly and exteriorly, is accomplished and, in addition, the working parts of the handpiece properly lubricated.

Another object is the provision of a handpiece sterilizer which effectively sterilizes the handpiece and allows all solid debris from said handpiece to be deposited in the bottom of the sterilizer.

Another object is the provision of a handpiece sterilizer wherein the handpiece after being immersed in sterilizing liquid may be held out of said sterilizing liquid so that said liquid may drain back within the sterilizer until the handpiece is to be used.

Further objects include a sterilizer which is efficient, low in cost of up-keep, and attractive in appearance.

With the above mentioned and other objects in view, the invention consists in the novel and useful provision, formation, construction, association, and relative arrangement of parts, members and features, all as shown in a certain embodiment in the accompanying drawing, described generally, and more particularly pointed out in the claims.

In the drawing:

Figure 1 is a vertical sectional view of the improved sterilizer,

Figure 2 is a top plan view of the sterilizer, and,

Figure 3 is a sectional view on the line 3—3 of Figure 1.

Referring now to the drawing, the improved sterilizer includes an outer casing 1 which may be cylindrical in form, an inner casing 2 spaced from the outer casing and concentric therewith, with an electrical coil 3 wrapped about the periphery of the inner casing for a distance upward from the base of said casing, as illustrated. The wire may be of the ordinary resistance type, having an asbestos covering, and further insulation and heat resistance means, such as asbestos wool or ceramic material 4, may be interposed in the annular space included between the outer and inner casings.

The inner casing is provided with a base 5 and with an outwardly flanged annular top 6. The outer casing 1 is provided with a base 7 and with a sub base 8 inward of the casing 1 and spaced from the base 7 to provide a chamber 9. The sub base is formed with a central opening 10 and with an annular flange 11, which flange may be secured to the inner surface of the casing 1. A bolt 12 has the head thereof passed through the opening 10 and secured to the base 5 of the inner casing 2, as shown at 13. The bolt passes through a central opening of the base 7, and a nut 14 is threaded to the bolt externally of the base 7, whereby the base of the inner casing is held in juxtaposition to the sub base 8.

The sub base 8 has secured thereto and within the chamber 9 a thermostat 15, electrical connections being had between the thermostat, the coil 3 and blades 16 and 17 of a connector 18. This connector is secured to the base 7 and is positioned within the chamber 9. The blades 16 and 17 project outwardly from the base 7 as illustrated at 19 and 20, whereby through the medium of a suitable plug receiving said blades, connections may be had with a source of electricity.

Included in the annular space between the outer and inner casings and extending longitudinally of said casings is a tubular guide 21. Received within and extending the length of said tubular guide is a rod 22. Secured to the upper end of said rod is an arm 23, the outer end of which carries the handpiece support 24. This handpiece support is annular in form and in cross-section is provided with an annular flat top portion 25, a peripheral flange 26 at right angles to the portion 25, an inner annular flange 27 at right angles to the part 25, and a flange part 28 substantially at right angles to the part 27. The

part 28 forms a ledge. In this respect, the top 6 of the inner casing 2 is formed with an annular ledge 29 upon which ledge is adapted to rest the flange 26. As shown, the top 6 is formed with a downwardly directed annular flange 30, so that said top is held securely to the outer casing 1. The rod 22 is screw-threaded at 31 to receive a screw-threaded knob 32.

When it is desired to close the inner casing 2, a flanged cover 33 provided with a central knob 34, may rest on the ledge included between the flanges 27 and 28. It is intended that the rod move longitudinally of its guide, as illustrated by the dotted lines in Figure 1 at 35, and said rod may be held elevated at any desired position through the medium of the member 36, which includes a finger-piece or knob 37 provided with a screw-threaded member 38 threaded through the outer casing 1 and the tubular guide 21 so that it may contact with said rod, as shown in Figure 1.

For the purpose of securing the device as an entirety to some object, various means may be resorted to, such as for instance the use of a circle clamp provided with a grooved casting to receive a taper-sided lug 39 attached to the sterilizer shell or casing 1. It is preferable to mount the sterilizer on the dental unit within convenient reach of the engine arm. It is also advisable to utilize a swivel connection between the grooved casting and the circle clamp, whereby the sterilizer may be mounted in an upright position. Any means desired, such as a thumb screw, may be utilized for locking the grooved casting to the lug, and thus prevent accidental release of the sterilizer.

The operation, uses and advantages of the invention are as follows:

It is intended that this type of sterilizer should hold a sterilizing oil. This oil is placed within the inner container or casing 2, and maintained at such a heat that when the handpiece is received within said container, the oil does not overflow. The oil is heated when the coil 3 is energized. A definite temperature is maintained for the oil and, in the present instance, 300° to 330° F. has been found satisfactory. When the cover 33 is removed, the handpiece is inserted through the central opening of the handpiece support or collar 24, the handpiece resting upon the ledge of said collar or support, as illustrated in dotted lines in Figure 1, at 40. Any form of handpiece may be utilized, including the straight type, and the handpiece is immersed throughout its length within the sterilizing oil. The handpiece is allowed to remain within the oil from five (5) to ten (10) minutes, to thoroughly sterilize the handpiece both exteriorly and interiorly. After a sterilization for the period of time stated, the handpiece is lifted out of the oil by releasing the screw 38 to permit the rod 22 to be lifted, as shown in the dotted line position of Figure 1, whereupon the screw 38 may be tightened to hold the rod and the handpiece elevated so that the end of the handpiece is just above the top surface of the oil. The exterior surface of the hand-

piece, after the oil has drained therefrom, may be wiped in the ordinary manner, whereupon the handpiece is ready for use. It is sometimes advisable to run the handpiece both forwardly and backwardly while it is immersed in the oil to cause the oil to wash out all debris therefrom, and likewise oil the moving parts.

The sterilizer may be cleaned by removing it from its support, whereupon the old oil may be poured from the inner container or casing, a little flushing oil placed therein, followed by a new supply of the sterilizing oil.

In use, it has been found practical to energize the heating coil upon first entering the office in the morning to bring the oil up to proper temperature. The thermostat will, of course, control the temperature of the oil, with the result that no further attention to the device is necessary. It is important that water should not be allowed to enter the casing 2, or to commingle with the oil; otherwise, steam may form, resulting in an explosion. Therefore, excessive blood or saliva should be wiped from the handpiece before placing the same in the sterilizer.

I claim:

1. A sterilizer for dental handpieces, including an elongated outer casing, an elongated inner casing spaced from the outer casing, an electrical heating coil surrounding the inner casing, said inner casing adapted to hold the sterilizing liquid, and said coil when energized adapted to heat said liquid, an annular cover for said inner casing, and a rod secured to said cover, and guide means for said rod positioned between said casings, whereby a dental handpiece carried by the cover may be immersed within the sterilizing liquid or lifted outwardly therefrom and held in position to drain the liquid.

2. In a sterilizer for dental handpieces, outer and inner concentric casings, a guide included between said casings, a rod movable in said guide, an annular cover carried by said rod and adapted to be positioned over said inner casing, said annular cover adapted to dependingly support a dental handpiece to be received within said inner casing, or to be raised out of said inner casing by said rod, and means carried by one of the casings for locking said rod in a selected position of movement relative to the guide.

3. In a dental handpiece sterilizer, outer and inner concentric casings, the inner casing adapted to house a sterilizing liquid, an elongated guide tube extending throughout the length of said casings and interposed between the casings, a rod receivable within said tube, and an annular cover secured to one end of said rod, said cover adapted to overlie the inner casing; said cover formed with a circular ledge for dependingly supporting a dental handpiece in such position that the said handpiece may be received within the inner casing and immersed in the sterilizing liquid and upon raising the said rod to position said handpiece above the inner casing and permit sterilizing liquid to drain therefrom back within the inner casing.

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