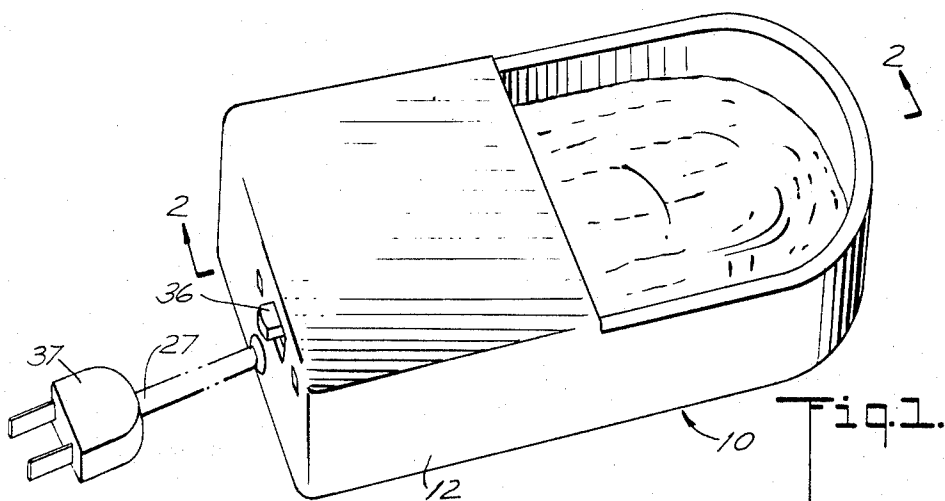
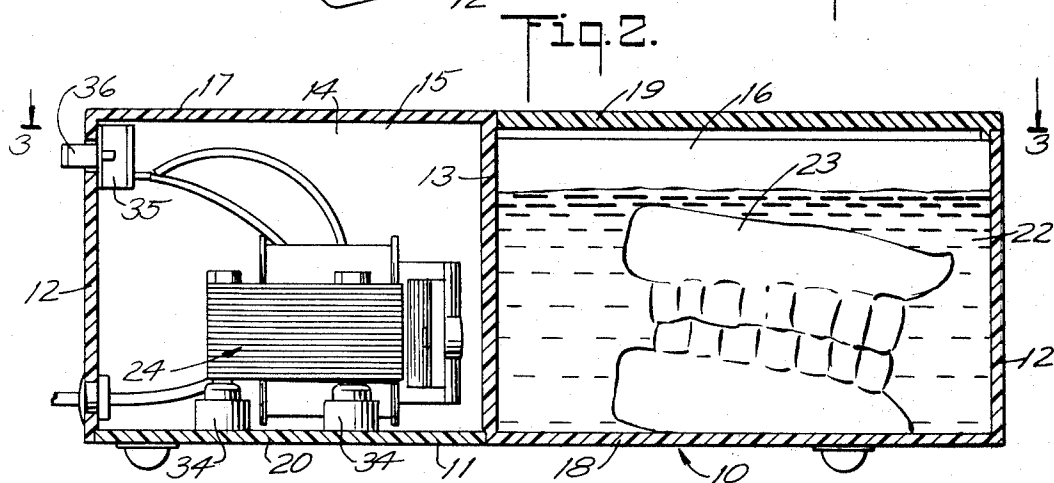
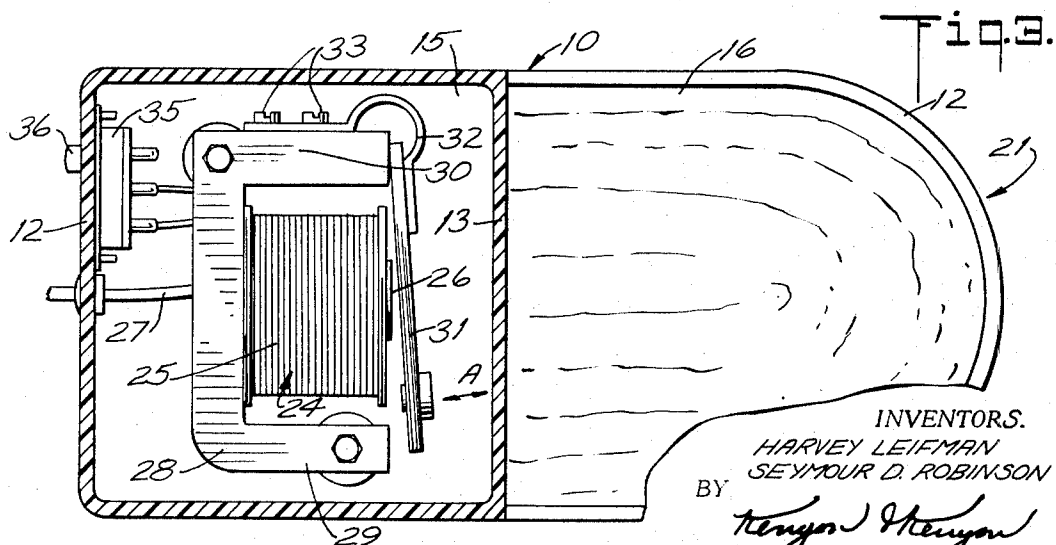


3,386,706

Filed Jan. 5, 1967



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3,386,706

DENTURE BATH

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Filed Jan. 5, 1967, Ser. No. 697,494
2 Claims. (Cl. 259—72)

ABSTRACT OF THE DISCLOSURE

Denture cleaning apparatus having two side by side compartments with a separating partition, one containing liquid and a curved end wall and the other containing vibratory means, which arrangement generates mechanical shock waves through the liquid and through the side walls and bottom of the second compartment, whereby denture plates placed in the liquid compartment are cleaned.

This invention relates to denture cleaning apparatus and more particularly to cleaning apparatus utilizing sonic energization of a liquid medium.

Heretofore, attempts have been made to define various vibratory methods for cleaning dentures and the like to provide mechanized means in substitution for manual cleaning methods. However, not only have the prior devices involved relatively complicated apparatus, but in addition the reliability of operation, required maintenance and unsatisfactory results have resulted in poor consumer response thereto.

It is an object of the present invention to provide a relatively simple, reliable and highly effective denture cleaning device which is trouble-free and having novel sonic transmission properties.

Briefly, apparatus constructed in accordance with the principles of the present invention in one embodiment comprises an elongated housing having a bottom, side walls and an intermediate transverse partition which separates the interior of the housing into first and second liquid-tight, side-by-side compartments. The first compartment has a top member thereover enclosing the same and a removable bottom portion. The bottom and side wall of the second compartment are curved at the end thereof to define a generally semi-circular end section of the compartment. The second compartment has a removable top member and is adapted to hold cleaning liquid and denture plates therein.

The first compartment contains electromechanical vibratory means disposed therein on the aforementioned removable bottom portion. The vibratory means is disposed at a spaced position from the partition and transmits sonic vibrations against the partition by compressive air waves and transmit sonic vibrations by mechanical means through said side wall and bottom into the second liquid-containing compartment to direct successive out-of-phase mechanical shock waves through the liquid into the second compartment in a plurality of directions including substantial components upwardly from said bottom and inwardly from said side walls toward the center of the radius of curvature thereof and with substantial reflected components from said partition.

Other objects and features of the invention will become apparent in the following description and claims and in the drawings, in which:

FIG. 1 is an isometric view of the apparatus with the cover of the liquid-containing compartment removed;

FIG. 2 is a longitudinal section taken along line 2—2 of FIG. 1; and

FIG. 3 is a fragmentary section taken along line 3—3 of FIG. 2.

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Referring now to the drawings, the denture bath is referred to generally by reference numeral 10 and is comprised of a bottom 11, upstanding side wall 12, and transverse partition 13 dividing the interior 14 of housing 10 into first and second compartments 15, 16, respectively.

Compartment 15 has a top or cover portion 17 preferably integrally formed with the housing 10 and similarly, compartment 16 has a bottom portion 18 integrally formed with the side walls 12 and partition 13 in a similar manner. Preferably, although not necessarily, the entire housing, including cover portions, may be molded of any suitable durable plastic material.

Compartment 16 has a removable top member or cover 19 and bottom portion 20 of compartment 15 is separately formed and may be removed for access to the interior as will be hereinafter described.

End section 21 of compartment 16 is semi-circular in plan view as shown in FIG. 3 and has the side wall 12 similarly curved and said compartment 16 is adapted to hold denture cleaning liquid 22 and denture plates 23 as shown in FIG. 2. Removable cover 19 is appropriately formed at its edges (not shown) for being removable, yet when put in place, capable of remaining in place over the compartment when the apparatus is in use.

Affixed to bottom 20 in compartment 15 is electro-mechanical means 24 for supplying sonic vibrations to the liquid-containing compartment 16. The mechanics of apparatus 24 is conventional including the coil member 25 being wound upon metallic core 26 and being supplied alternating current through lead 27. Metallic U-shaped frame 28 carries core 25 intermediate of its sides 29, 30. Vibratory member 31 is mounted by flexible arcuate member 32 to side 30 of frame 28 by means of screws 33. The entire vibratory means 24 is anchored by conventional means such as screw members 34 to bottom 20 of compartment 15. Switch means 35, including actuating button 36 extending externally of partition 12, is provided for turning the electrical power on and off.

In operation, the cleaning liquid 22 and denture plates 23 are placed in compartment 16 and cover 19 firmly placed thereover. The electrical plug 37 is inserted into electrical outlet means (not shown) and switch member 36 moved to the "on" position thereby causing vibratory means 24 to operate. Vibratory member 31 is caused to move back and forth in the direction of arrow A (FIG. 3) and the movement of member 31 is limited so that it does not come into physical contact with partition 13, but transmits vibrations thereto by compressive air waves. In addition, the vibrations of the apparatus 24 convey through bottom 11 vibratory motion into compartment 16 to cause successive waves to be generated in liquid 22 to provide cleaning action against dentures 23. The vibrations through bottom 11 are transferred to side walls 12 of liquid-containing compartment 16 and the side walls 12 act as a time-delay mechanism relative to the vibrations transmitted through partition 13. All vibrations in the liquid 22 converge at the center of curvature at different time intervals so that by means of out-of-step vibrations, the motion of the generated shock waves becomes diffused throughout the liquid and the dentures 23 are swept by a succession of pulses at different points and at different angles. Thus, there are provided compressive and de-compressive waves in the confined area and a criss-cross of successive waves is set up by the vibrations transmitted through bottom 11 and those set up through partition 13. In the above-described fashion vibrations are generated to pass through the liquid 22 at varying speeds.

Thus, novel means are provided giving exceptional cleaning results, far superior to those provided by any device in the prior art. While one embodiment of the invention has been shown and described herein, it is to be

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understood that certain changes and additions may be made by those skilled in the art, without departing from the scope and spirit of the invention.

What is claimed is:

1. Denture cleaning apparatus comprising an elongated housing including a bottom, sidewalls and a transverse partition separating the interior of the housing into first and second liquid tight side-by-side compartments, said first compartment having a top member enclosing the same and a removable bottom portion, the bottom and sidewall of said second compartment being curved to define a generally semi-circular end section thereof, a removable top member in said second compartment, said second compartment being adapted to hold cleaning liquid and a pair of denture plates, electromechanical vibratory means disposed within said first compartment and at a spaced position from said partition for transmitting sonic vibrations by compressive air waves against said partition and by mechanical means through said sidewalls and bottom into said second compartment to direct mechanical shock waves through the liquid in said second compartment in a plurality of directions including substantial components upwardly from said bottom and inwardly from said sidewalls toward the center of the radius of curvature thereof.

2. Denture cleaning apparatus comprising an elongated housing including a bottom, sidewalls and a transverse

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partition separating the interior of the housing into first and second liquid tight side-by-side compartments, said first compartment having a top member enclosing the same and a removable bottom portion, the bottom and sidewall of said second compartment being curved to define a generally semi-circular end section thereof, a removable top member in said second compartment, said second compartment being adapted to hold cleaning liquid and a pair of denture plates, electromechanical vibratory means disposed within said first compartment on said removable bottom portion and at a spaced position from said partition for transmitting sonic vibrations by compressive air waves against said partition and by mechanical means through said sidewalls and bottom into said second compartment to direct successive out of phase mechanical shock waves through the liquid in said second compartment in a plurality of directions including substantial components upwardly from said bottom and inwardly from said sidewalls toward the center of the radius of curvature thereof.

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