

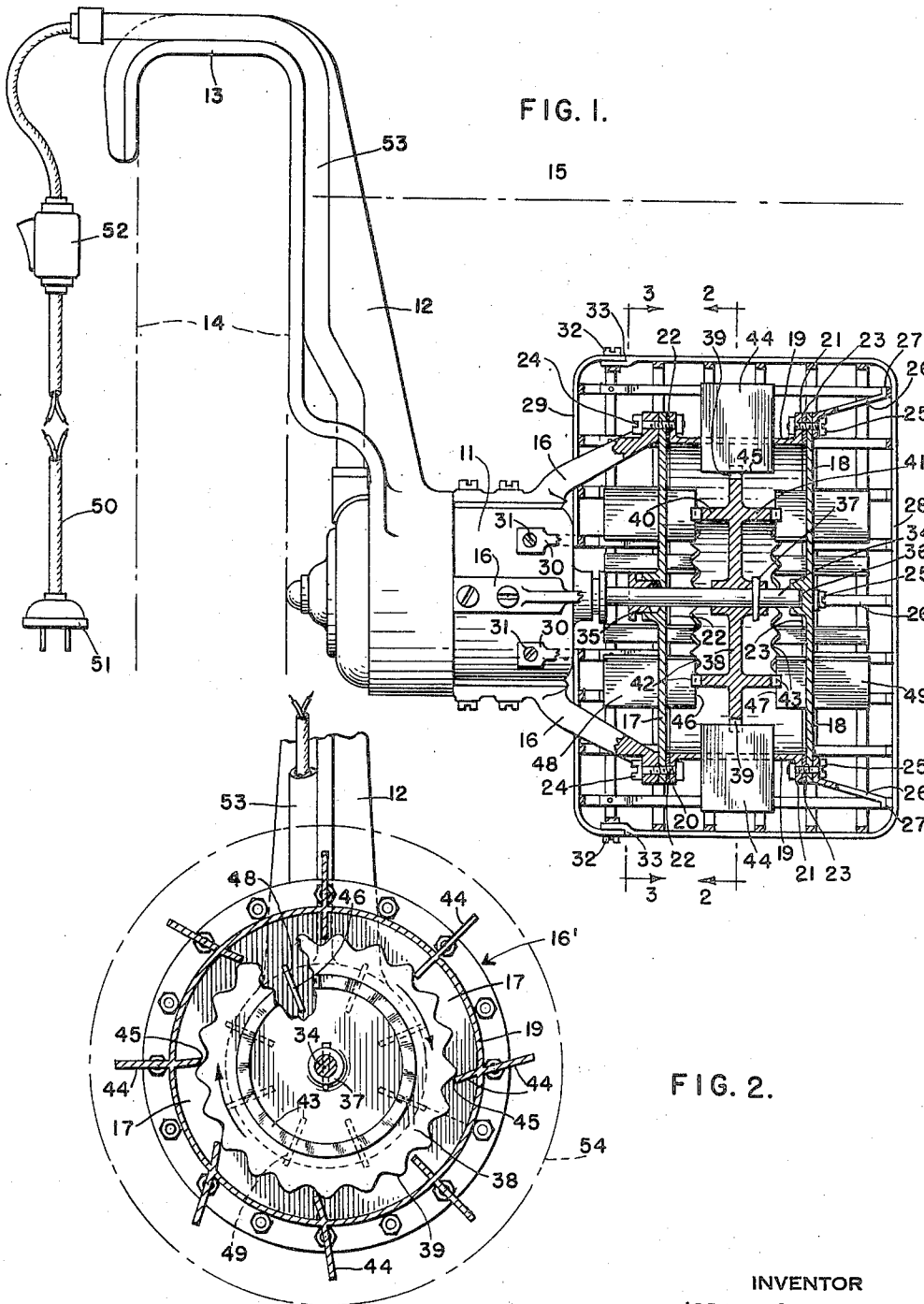
Jan. 17, 1950

I. CHERTOFF
VIBRATING DEVICE

2,495,159

Filed Sept. 16, 1948

2 Sheets-Sheet 1



INVENTOR
ISRAEL CHERTOFF,
BY
Irving Seidman
ATTORNEY

Jan. 17, 1950

I. CHERTOFF
VIBRATING DEVICE

2,495,159

Filed Sept. 16, 1948

2 Sheets-Sheet 2

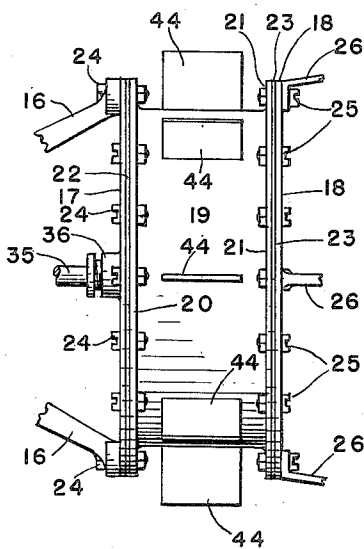
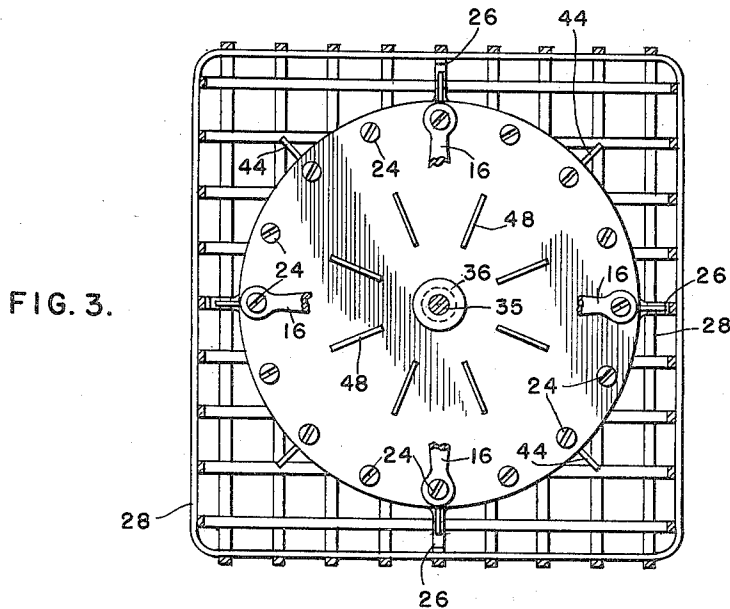


FIG. 4.

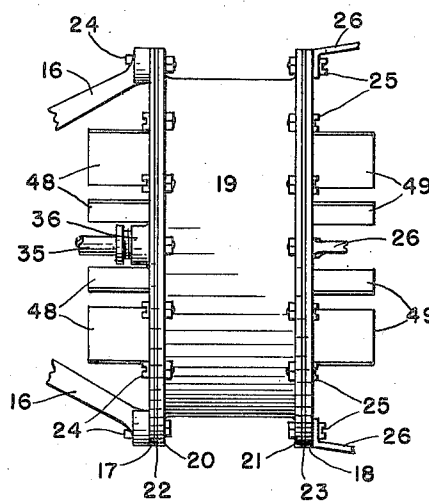


FIG. 5.

INVENTOR
ISRAEL CHERTOFF,
BY
Irving Seidman
ATTORNEY

UNITED STATES PATENT OFFICE

2,495,159

VIBRATING DEVICE

Israel Chertoff, Brooklyn, N. Y.

Application September 16, 1948, Serial No. 49,521

2 Claims. (Cl. 259—1)

1

This invention relates to improvements in a liquid vibrating apparatus and particularly to such a mechanism for producing cavitation of a liquid.

An object of this invention is to provide a vibrator of the character described which is submergible in a cleansing liquid and is capable of producing cavitation of the said cleansing liquid to cleanse clothes or fabrics in the said liquid.

Another object of this invention is the provision, in an apparatus of the character described of a means for readily suspending and submerging the said vibrator in a tub or liquid container.

A still further object of this invention is the provision of an organization in which the constituent elements are so arranged structurally and functionally as to assure improved results with materials and members which may be manufactured at reasonable cost, may be easily assembled and which will be efficient in operation with minimum wear to the parts.

The best embodiment of the invention has been chosen for illustrative purposes, but this embodiment should be viewed as being illustrative only and not as limiting because obviously the invention is capable of other embodiments having revised details of construction, so long as they fall within the ambit of the appended claims.

The invention itself, however, both as to its organization and its method of operation, will best be understood from the following description of a specific embodiment when read in connection with the accompanying drawing, in which:

Fig. 1 is a partial side view and section of the vibrator.

Fig. 2 is a sectional elevation taken approximately along the line 2—2 of Fig. 1 and looking in the direction indicated by the arrows.

Fig. 3 is a sectional view taken along line 3—3 of Fig. 1 and looking in the direction indicated by the arrows.

Fig. 4 is a partial side elevation of a modified form.

Fig. 5 is a similar view showing another modification.

Referring in detail to the parts, 11 designates a motor suspended in a liquid container by means of a bracketed arm 12 secured to the motor casing and formed with a hooked upper end 13 adapted to engage over the rim of a tub or liquid container shown in Fig. 1, by dot-dash lines 14. The dot-dash line 15 indicates the approximate liquid level.

2

Attached to and extending from the motor 11 are bracket arms 16 which support a drum like housing 16'. The said housing comprises inner and outer drum head members 17 and 18 respectively which are joined by a circular wall member 19 which is formed with flanges 20 and 21. Gaskets 22 and 23 are disposed between the drum head members 17 and 18 and the flanges 20 and 21 respectively. Bolts 24, engage through the outer ends of the bracket arms 16, the drum head member 17, gasket 22 and flange 20 to support and secure the said parts together. Similar bolts 25 engage through the flange 21, gasket 23, drum head member 18 and brackets 26 and secure said parts together. The said brackets 26 are secured at their outer ends 27 to a cage 28 which encircles the vibrator mechanism and is designed as a guard to keep the operating mechanism of the vibrator free of any clothes or obstacles which may be contained in the tub or clothes container.

The said cage 28 may be disconnected from its inner section 29 which is in turn attached to the motor 11 by means of laterally projecting arms 30 and screws 31. Screws 32 at a joint 33 and the bolts 25 engaging said brackets 26 are removed to disconnect the outer portion of the cage 28.

A motor shaft 34 extends from the motor 11 through a packing 35 upon the drum head member 17 to a bearing 36 in the drum head member 18. Secured upon the said shaft 34, by means of a pin 37, there is a rotor element 38, the outer periphery of which is serrated as at 39 and is formed with annular flanges 40 and 41 having serratures 42 and 43 upon their respective edges. At intervals along the periphery of the said circular wall member 19, there are radially aligned vanes 44 which extend through the said circular wall member 19 and are integrally formed therewith. The inner edges 45 of the said vanes 44 are adapted to engage the serratures 39 upon the outer periphery of the said rotor element 38, during the revolution of the rotor.

The said serratures 42 and 43 formed upon the annular flanges 40 and 41 respectively are adapted to engage the inner ends 46 and 47 of vanes 48 and 49 respectively when the said rotor 38 revolves.

A conductor cable 50 with regulation plug 51 and switch 52 passes through a conduit 53 which leads along the bracket or suspending arm 12 to the motor 11 and affords a means for conducting electric current to the motor.

3

In use, the apparatus is suspended over the edge of a tub or container (Fig. 1) and submerged in liquid within the container. When the current is turned on, the motor will rotate at high speed to give rotation to the rotor 38 whereupon the serratures 39 upon the periphery of same will successively contact and release the edges 45 of the vanes 44 causing rapid vibrations to the circular wall 19 and said vanes 44.

Similarly, the laterally extending vanes 48 and 49 will vibrate by contact with the serratures 42 and 43 respectively and transmit their vibrations to the liquid. The vibrations thus imparted to the said circular wall and vanes will produce cavitation of the liquid within which the apparatus is submerged. When the liquid is saponified and fabrics to be cleansed are also submerged in the liquid the cavitation of the liquid produced by the vibrations will create vacuums about the fabrics and create a cleansing effect thereon.

A modified form shown in Fig. 4 provides the vanes 44 upon the circular wall only omitting the laterally projecting vanes 46 and 47 which extend through the said drum heads 17 and 18 as shown in Figs. 1 and 2. Fig. 5 shows a modified form wherein the vanes 44 are omitted and the vanes 46 and 47 are included. Other means besides the forms shown may be provided to set up a vibratory motion to produce cavitation of the liquid and the apparatus may be applied wherever cavitation of a liquid is desired.

A cage of square form is shown in Figs. 1 and 3. The outer periphery of the cage, however, may be of circular formation as indicated diagrammatically by dot-dash line 54 in Fig. 2.

I claim:

1. An apparatus for producing cavitation in a cleansing liquid within a container, comprising a

4

suspending frame adapted to be partially submerged in said cleansing liquid, a motor upon said suspending frame, a drum secured upon the casing of said motor and adapted to be submerged in said cleansing liquid, the shaft of said motor extending into said drum, vanes extending outwardly and inwardly through the peripheral wall of said drum, a rotor member having a serrated peripheral edge secured to the said extended motor shaft within the said drum and adapted, when rotated, to engage the inner edges of said peripheral vanes, annular flanges extending from the said rotor member and having serrated outer edges, laterally disposed vanes upon the said drum extending inwardly and outwardly therefrom and engaging the serrated edges of said annular flanges upon the rotor when said rotor rotates, and means for conducting a source of electrical energy to the said motor.

2. An apparatus for producing cavitation in a cleansing liquid within a container as defined in claim 1 including a two-part protecting cage, one part being secured to the casing of said motor and the second part being removably attached to the first mentioned part.

ISRAEL CHERTOFF.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,481,500	Bright	Jan. 22, 1924
1,981,031	Davis	Nov. 20, 1934
2,093,898	Taplin	Sept. 21, 1937
2,174,348	Damond	Sept. 26, 1939
2,258,921	Young et al.	Oct. 14, 1941