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[56]

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[54] **EYE TREATMENT DEVICE**
6 Claims, 5 Drawing Figs.

[52] U.S. Cl..... **128/36,**
128/65, 128/249
 [51] Int. Cl..... **A61h 1/00**
 [50] Field of Search..... **128/25, 32,**
36, 65, 40, 249

ABSTRACT: An eye treatment device which comprises a housing having battery-operated vibration means therein and an eyecup portion at one end of the housing. The eyecup portion preferably has a removable liner of resilient or cushioning material and is adapted to hold a treating liquid for the eye. The eyecup portion may be integral or detachable from the housing. The device may utilize either an ordinary dry cell battery or a rechargeable battery to actuate the vibrating means.

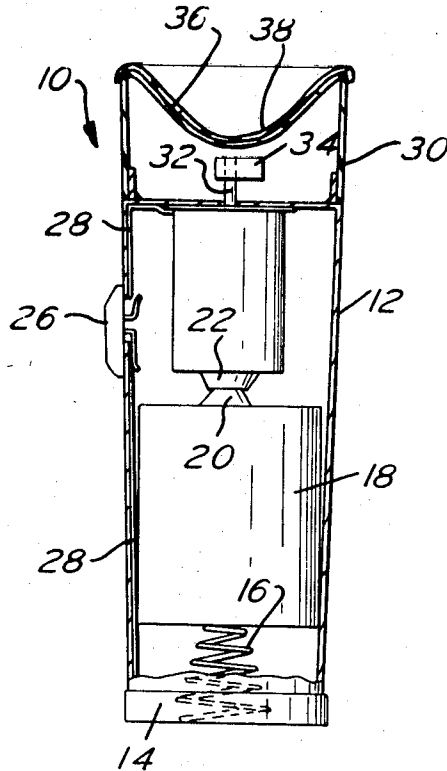


FIG. 1

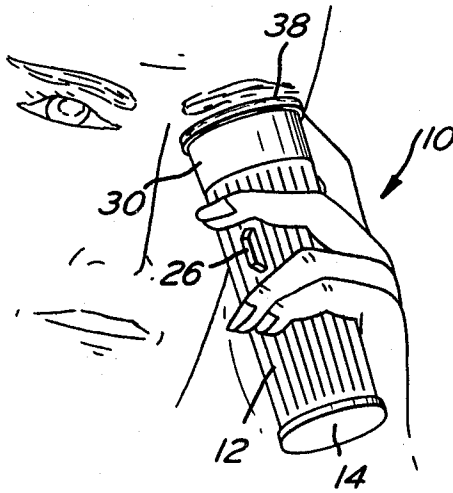


FIG. 2

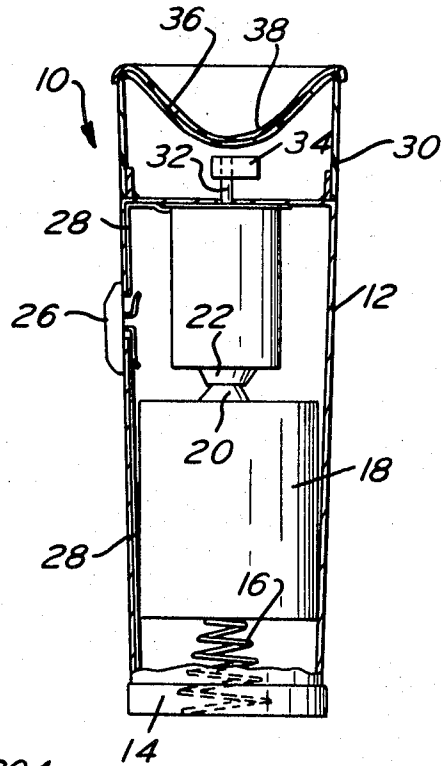


FIG. 3

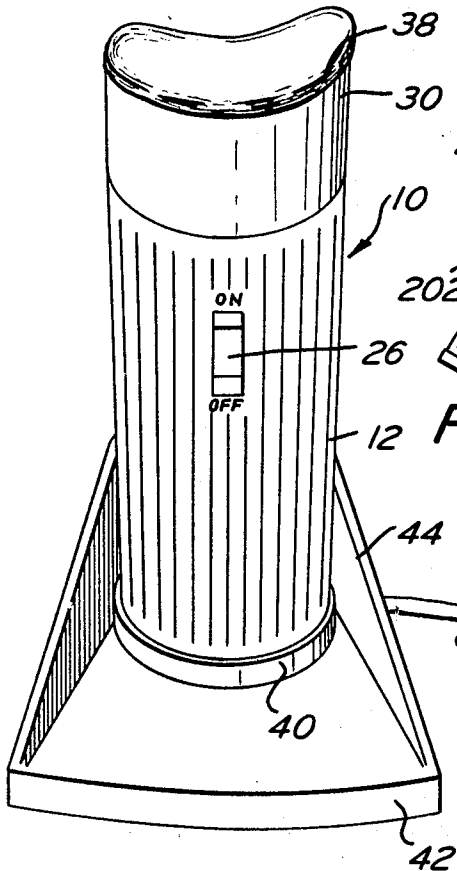


FIG. 5

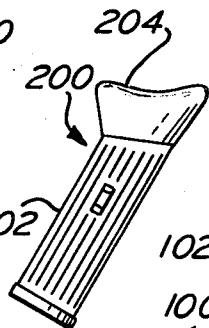
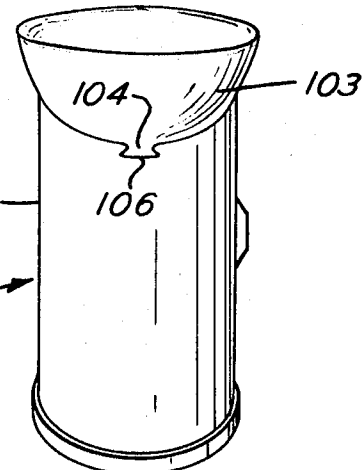


FIG. 4



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EYE TREATMENT DEVICE

This invention relates to an eye treatment device, and it specifically relates to a vibrating device of this type.

It is well known to use an eyecup for bathing the eyes to reduce inflammation and other eye irritations. In order to pass the liquid into the eye, it was originally necessary to tilt the head back and let it flow into the eye. This, however, was not only tedious and tiring but often resulted in spillage if there was any inadvertent movement of the head or the cup. Furthermore, the liquid was not able to gain access to all parts of the eye by merely tilting the cup.

It was then proposed to provide eyecups with pressure means to force the liquid into the eye. This was not satisfactory because the liquid under pressure could possibly injure the eye and, furthermore, unless a very tight seal was applied around the cup, the liquid would overflow and spill. On the other hand, if the seal was sufficiently tight to prevent spillage, it would adhere to the face because of suction and cause damage when it was attempted to pull it away.

An object of the present invention is to provide an eye-treating device which will eliminate all the aforementioned objections and which will permit easy access of the liquid to all parts of the eye without tilting back of the head and without undue spillage.

Another object of the present invention is to provide an eye-treating device of the aforesaid type which is relatively simple in construction, easy to use, and inexpensive to manufacture.

Other objects and many of the attendant advantages of this invention will be readily appreciated as the same becomes better understood by reference to the following description when read in conjunction with the accompany drawings wherein:

FIG. 1 is a perspective view of a device embodying the present invention, showing it in use.

FIG. 2 is a sectional view of the device of FIG. 1 showing the operational parts thereof.

FIG. 3 is an elevational view of the device when used with a rechargeable battery and when in storage position.

FIG. 4 is an elevational view of a modified form of the device.

FIG. 5 is an elevational view of a modified form of the invention.

Referring now in greater detail to the various figures of the drawings wherein similar reference characters refer to similar parts, there is shown an eye treatment device, generally designated 10, comprising an elongated, tapered, generally cylindrical housing 12 which is hollow and is closed at its lower end by a cap 14. The cap 14 is held in position either by threaded connection with the lower peripheral portion of the housing 12 or by frictional engagement, as shown.

The cap 14 supports a coil spring 16 which is retained under compression by a battery 18. The battery 18 may be of the rechargeable or nonrechargeable type and is provided with a contact 20 adapted to engage against a contact 22 on an electric motor 24. A switch button 26 is provided on the housing 12 and is connected by wires 28 to the motor 24 in the usual manner.

A hollow cap 30 is integrally connected to the top of the housing 12, and into the space therein extends the motor shaft 32. A plate 34 is eccentrically mounted on the shaft 32. As the shaft 32 rotates, the eccentric motion of the plate 34 causes an imbalance which, in turn, causes the cap 30 to vibrate.

The cap 30 is closed at its upper end by a concave wall 36 which forms a basin or cup. A disposable liner 38 is releasably seated within the cup 36 and is retained thereon by its inherent resilience or by any other desired means. The liner 38 may be made of rubber, polyurethane foam, or any other

desirable material.

In use, the cup 36 is filled with the treating liquid and is held against the eye. The switch button 26 is then moved to close the circuit to the battery and the device is caused to vibrate. This vibration permits the liquid not only to reach the eye but to provide a gentle washing action.

The device 10 may also be used without liquid. In that case, it is used as a massage device for the eye.

If it is desired to utilize a rechargeable battery, the cap 14 may be replaced by a charging ring of the standard type as shown at 40 in FIG. 3. All other parts of the device of FIG. 3 are the same as in FIG. 2. The ring 40, however, is seated in the standard charging socket in the base 42 of the standard type of charging stand 44. This is the storage position of the device when not in use.

In FIG. 4 there is shown a modified form of the device wherein the device, generally designated 100, comprises a cylindrical housing 102 which is provided with all the same functioning parts as shown in FIG. 2. However, instead of an integral eyecup portion, as at 30 in FIG. 2, there is provided a separable cup, indicated at 103. The cup 103 is provided with a lug 104 which is adapted to frictionally snap into a socket 106 formed in the convex upper end of the housing 100. Although not shown, a disposable liner, similar to liner 36, may be inserted in the cup 102. In addition, the cup 103 may be otherwise connected to the housing 102, as, for example, by screw threads, a bayonet slot connection, removable pins, etc.

In FIG. 5 there is shown a modified form of the device, generally designated 200, wherein the housing 202 is the same as the corresponding housing 12 of FIG. 1 and includes the same internal and external structure and parts. The only difference in this device is that the cup portion 204 is angularly offset from the housing 202. This permits easier manipulation of the device when applied to the eye.

The housings 12 and 102 and 202 may be made of plastic, metal or any other desirable material and may be provided with any desirable color.

An important feature of this invention is the fact that the vibration causes the formation of miniature geysers, up-standing wavelets. The entire pattern of these standing wavelets exhibits a rotary motion which has a whirlpool-type effect that is useful in the removal of accumulated dusts and films in the eye.

I claim:

1. An eye treatment device comprising a cylindrical housing, a drive means in said housing, a switch electrically connected to said drive means, a vibratory means operatively connected to said drive means, a hollow cap mounted on one end of said housing, said cap forming an unspaced extension of said housing, said vibratory means being positioned within said hollow cap, said cap having a cup-shaped recess, defined by an arcuate inner wall, and said inner wall defining one end of said hollow cap in overlying relationship to said vibratory means.

2. The device of claim 1 wherein a removable liner is positioned in said cup-shaped recess.

3. The device of claim 1 wherein said vibratory means is a plate eccentrically mounted on the motor shaft of an electrical motor comprising said drive means, said plate being positioned on said shaft adjacent to and underlying said cap.

4. The device of claim 1 wherein said cap is releasably connected to said housing.

5. The device of claim 1 wherein said drive means is an electrical motor operatively connected to a removable electrical battery within the housing.

6. The device of claim 1 wherein said housing is provided at the end opposite said cap with an electrical charging ring adapted to coact with a charging socket on a charging stand.