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3,379,200

LENS CONTAINER

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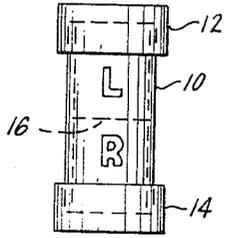


Fig. 1.

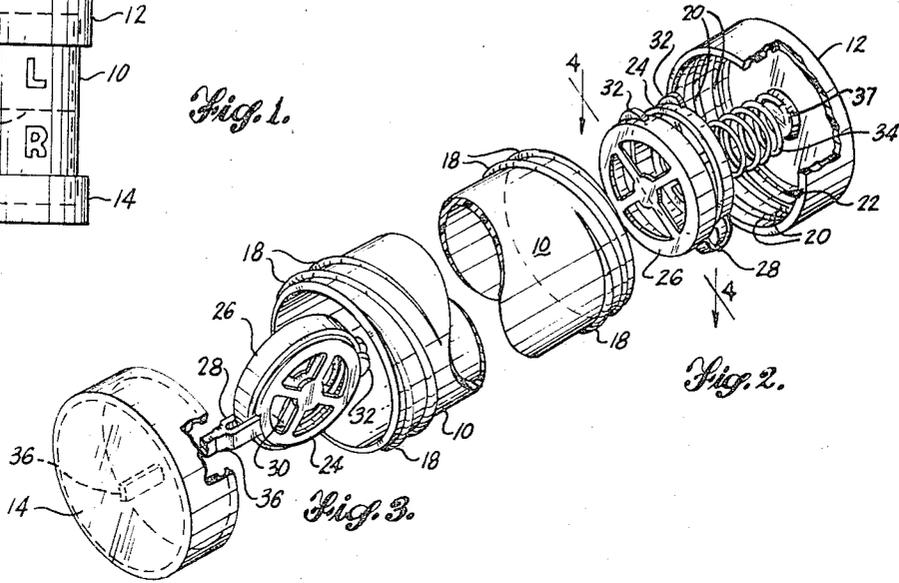


Fig. 2.

Fig. 3.

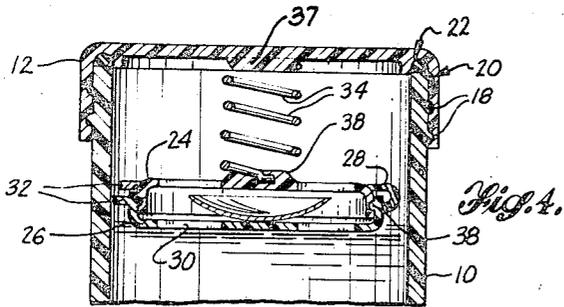


Fig. 4.

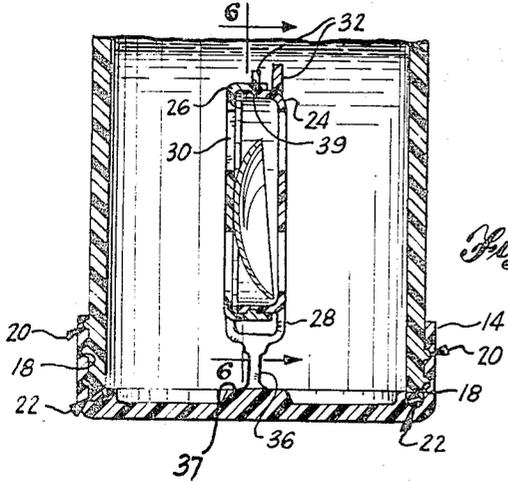


Fig. 5.

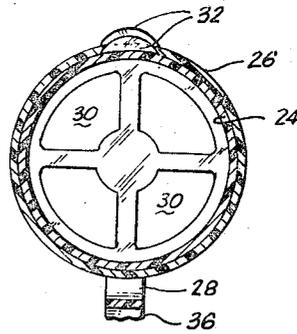


Fig. 6.

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LENS CONTAINER

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ABSTRACT OF THE DISCLOSURE

An open-work basket to receive and enclose a contact lens is flexibly mounted for lateral movement within a fluid-tight container. Agitation of the container moves the basketed lens in fluid and cleanses it.

This invention relates to a lens container and more particularly, to a container adapted for storing and cleansing contact lenses.

Very briefly stated, the invention comprises a container preferably formed as a tube having opposite access openings between which is a chamber to contain a contact lens-cleansing fluid and to receive a pair of basket means each adapted to enclose a contact lens. Each of the access openings to the chamber is closed in a fluid tight manner by a manually removable cap means. Each of the lens enclosing baskets is foraminous or perforated and is laterally movable within the chamber. The baskets are each supported in spaced relation to an adjacent cap closure means by a flexible support member. Lateral movement of the basket respecting the walls of the chamber is produced by shaking the closed container and results in the baskets and their contents being whisked and swished in the cleansing liquid present, whereupon the cleansing liquid enters into and leaves the basket interiors through the perforations in the baskets. The flexible mounting means between the closure cap means and the baskets may take several forms of which a coil spring is one preferred form. Alternately, an end-attached flexible bar or leaf is another form.

It has been a primary object of this invention to provide a container for storing and cleansing contact lenses which is simple and easy to manufacture and which may be effectively used by persons of little or no mechanical ability without fear of subjecting the lenses to injury while at the same time there is facilitation of the lens cleansing action.

Another object of the invention is to provide a container for contact lenses which separates and segregates the lenses from each other so as to eliminate confusion between the appropriate lenses and their relationship to the eyes of the user.

A still further object of the invention is to provide a lens container which includes means permitting whisking and swishing and churning of separated lens enclosing baskets in a lens cleansing solution to the end that more effective and rapid cleaning is possible than with prior devices.

A still further object of the invention is the provision of a lens container and lens holding baskets within the container which may be formed of materials non-abrasive to the delicate contact lenses commonly used.

These and other objects and advantages of this invention will become more apparent during the course of the following description, the same residing in the details of construction and operation of a specific lens container means as more fully described and claimed, all with reference to the accompanying drawings forming a part of this disclosure, wherein like reference numerals refer to like parts throughout the same, and in which:

FIGURE 1 is a vertically disposed view in elevation of a lens container according to the present invention; FIGURE 2 is an exploded fragmentary view in per-

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spective of an end of a lens container showing one form of flexible mount for a lens enclosing basket;

FIGURE 3 is a fragmentary perspective view of an end of a lens container showing an alternate form of flexible mount for the lens enclosing flexible basket;

FIGURE 4 is an enlarged vertical section view of the form of the invention shown in FIGURE 2;

FIGURE 5 is an enlarged vertical sectional view of the form of the invention shown in FIGURE 3; and

FIGURE 6 is a sectional view taken on line 6, 6 of FIGURE 5.

The lens container in the preferred form shown in FIGURE 1 comprises a tubular body 10 having opposed open ends each closed by a cap or other closure means 12, 14 to define with the body 10 a fluid tight chamber. For convenience of the user the body 10 may be inscribed with symbols L and R as shown in FIGURE 1 to indicate that the left lens is to be placed in one end and the right lens in the other end of the container. Obviously alternate symbols may be employed. A liquid level is marked by line 16. Preferably the tube 10 is transparent.

As shown in FIGURES 2 and 3, each end of the tubular body 10 is provided with thread elements 18 and the interiors of the caps 12 and 14 likewise having mating thread elements 20. A seal ring 22 carried by the interior of the cap is disposed between the cap and an end of tube 10 so that a fluid tight joint between the cap and the tube is effected as the cap is screwed tightly in place.

The lens enclosing baskets of both forms of the invention are substantially the same as shown in FIGURES 2 and 4 on one hand and in FIGURES 3, 5 and 6 on the other hand, with the exception that the flexible mounting means are different. Each basket is a two-part structure, having a cup 24 and a mating cap 26 hingedly joined together by a flexible strap hinge 28. Both the cup 24 and the cap 26 are foraminous or perforated by openings to permit the ingress and egress of lens-cleansing fluid. Openings 30, desirably, are as large as possible, yet not so large as to allow a lens to escape or be dislodged from a basket. Paired outstanding tabs or lips 32, one each on cap 26 and cup 24 of the lens enclosing basket, facilitate opening or separating of the two parts of the basket for the insertion or removal of a lens.

It is desirable that the cup 24, cap 26 and the hinge 28, be formed integrally of a plastic material that is both flexible and softer than the material from which the contact lenses are formed. By reason of this relatively greater softness movement of the lens within the basket will not cause abrading or scratching of the lens, and thus damage is avoided.

In FIGURES 2 and 4 the lens basket is shown as being flexibly mounted in spaced relation to the interior of cap 12 by coil spring 34. The end of spring 34 abutting the inner surface of cap 12 is secured to boss 37 and the other end of spring 34 is in a similar manner secured to cup 24 at boss 38. This may be accomplished by imbedding the spring ends in the bosses 36 and 38.

The lens-enclosing basket is shown throughout the drawings as a flat cylinder and somewhat disc-like. The baskets are smaller than the cross section of the receptacle. By reason of this relationship, when the container in its closed condition is shaken manually the lens basket is caused to vibrate or swing on its flexible mount 34 laterally of the axis of the receptacle. When there is a lens-cleansing fluid present in the container, the lateral movement of the basket will cause the basket and its contents to be swished and whisked in the fluid. The fluid enters the basket through the openings 30 and swirls around and about the contained contact lens, washing the same rapidly and thoroughly.

In FIGURES 3 and 5 the lens-enclosing basket is shown mounted in the axis of the container flat-wise or parallel relative to that axis. In other words, the disc-like basket is in effect on end or upright to the container axis rather than transverse as previously described. In such disposition the flexible leaf or web 36 secured at its ends between the basket and boss 37 within cap 14, constitutes the mount. In this instance, the whisking and swishing action is produced by the flexure of the flexible column or mount 36, upon the container being shaken. As before described the lens-cleansing fluid enters and leaves the two-part lens basket through openings 30.

While it is preferable that both the lens baskets of a pair be either mounted as shown in FIGURES 2 and 4 or as shown in FIGURES 3 and 5, it is obvious that a particular lens container could have one of the lens baskets mounted as in FIGURE 2 and the other as in FIGURE 3. This would further serve to indicate which lens is in a particular end of the container. For example, the left lens could be placed in the basket which is mounted normal to the axis of the container and the right lens could be placed in the basket which is mounted flat-wise or parallel to the axis of the container.

A particular advantage of the invention is that the lens basket is carried by the cap. When the cap is removed from the container, by reason of the baskets being supported by either flexible mount 34 or 36, they are out in the open and easily accessible to the user when the cap is removed. The two parts of the basket may easily be separated and the lens inserted or removed without interference by other parts of the apparatus.

It is desirable that the cap 26 fit the cup 24 quite closely. In a conventional manner indicated at 39 there is shown an interfitting groove and rib arrangement whereby the parts may be snapped together and will stay closed, thus, precluding inadvertent opening of the basket and the exposure or displacement of the lens.

It will also be apparent that the foregoing recited objects have been accomplished and that a useful and very effective container has been disclosed to accomplish those objects. The foregoing description is considered illustrative only of the invention. Modifications and changes will readily occur to those skilled in the art. Therefore it is desired and intended not to limit the invention to the exact construction and operation of the lens container set forth and shown. Accordingly all modifications and alterations as properly fall within the spirit and scope of the claimed invention, having due regard to the application of the principle of equivalency, are intended to be covered by this patent.

What is claimed is:

1. A lens container for use in conjunction with contact lenses, comprising:
 - means forming a receptacle for receiving at least one lens to be immersed in a cleansing liquid placed in said receptacle, said means including an access opening for the insertion and removal of a cleansing liquid and such a lens;
 - removable cap means adapted to close the access opening in fluid tight manner; and
 - a perforated basket flexibly mounted on said cap to be laterally movable within the receptacle when such cap is closing such access opening, said basket being adapted to enclose a lens.

2. The structure according to claim 1 in which the lens-enclosing basket is disc-like and is disposed normal to said receptacle axis.

3. The structure according to claim 1 in which the lens-enclosing basket is disc-like and is disposed in alignment with said receptacle axis.

4. The structure according to claim 1 in which the basket is flexibly mounted by a flexible column secured at one end to the inner surface of said cap means and at its other end to said lens-enclosing basket.

5. The structure according to claim 4 in which the flexible column comprises a spring secured at its ends between the cap means and the basket.

6. The structure according to claim 4 in which the flexible mount comprises a leaf spring secured at its ends between the cap means and the basket.

7. A lens container for use in conjunction with contact lenses, comprising:

sleeve means forming a chamber having oppositely located access openings for the insertion and removal of a pair of such lenses;

a pair of removable cap means, each forming a fluid tight closure for one of the access openings;

a perforated lens basket flexibly mounted on each of said cap means to be disposed within the chamber when such cap is closing an access opening; and said lens baskets each being adapted to enclose and contain a contact lens and being movable laterally within the container chamber and cleansing fluid contained therein on the application of a shaking force being applied to the container.

8. A container for contact lenses comprising:

an elongated, hollow, open-ended body, defining a lens receiving and cleansing-fluid containing chamber;

end closure means detachably mounted respectively on the open ends of said body;

a perforated lens-containing basket disposed inward of each closure means in spaced apart relation thereto; said lens-containing baskets being laterally movable within the body chamber; and

flexible means connecting each said perforated lens basket to an adjacent end closure permitting lateral movement of said basket when a shaking force is applied to the container whereby the lens basket and its contents are whisked and swished in a lens-cleansing fluid contained in the body and the same is caused to flow through the basket and act upon the lenses.

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