

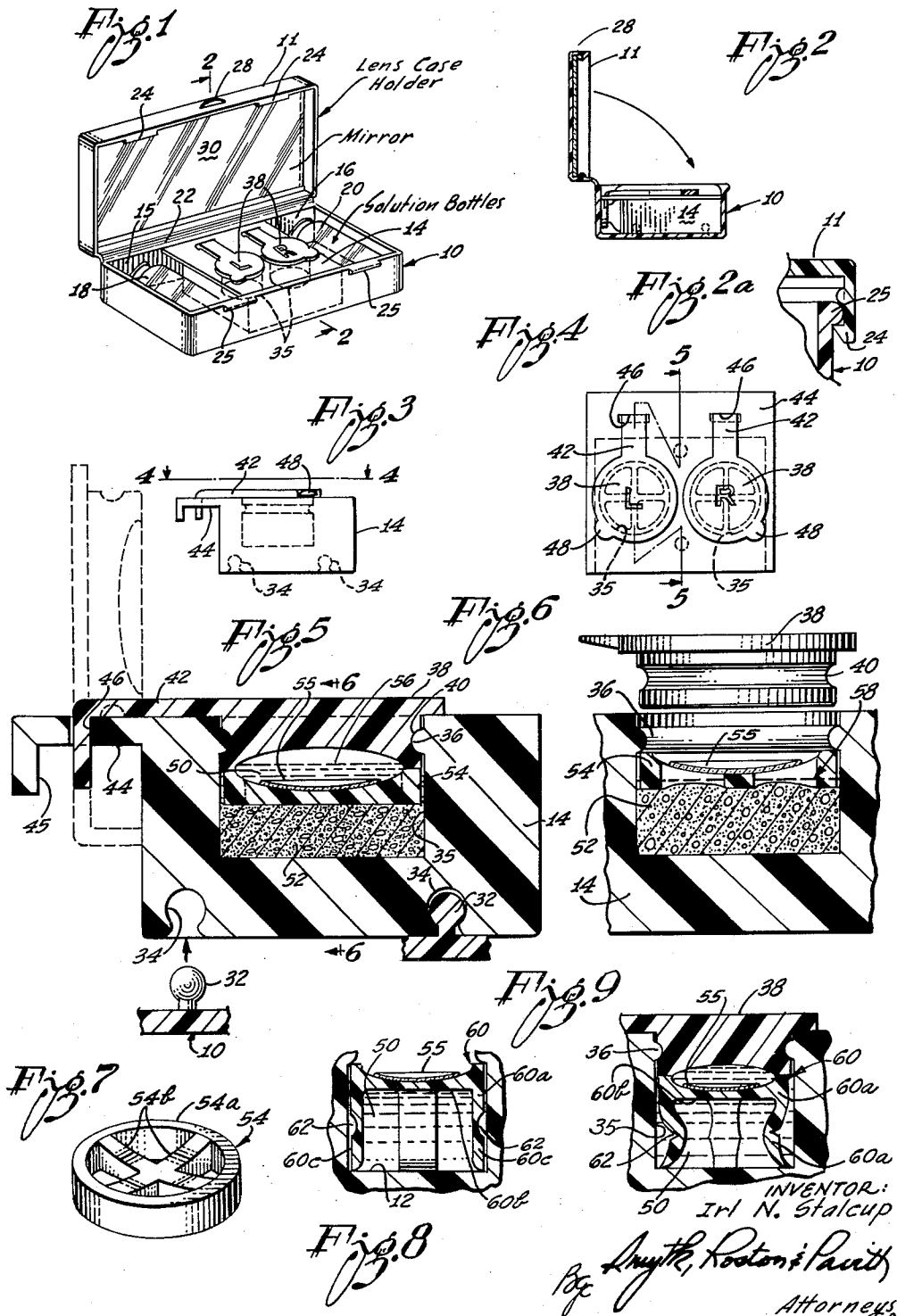
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CONTACT LENS CARRYING CASE

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CONTACT LENS CARRYING CASE

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This invention relates to a container for storing and carrying a pair of contact lenses.

Contact lenses are made of plastic material which tends to dry out and warp. Consequently, contact lenses must be kept moist when not in use, preferably by submersion in an antiseptic solution. When a contact lens is removed from temporary storage for use, it is helpful for the user to apply a drop of a suitable wetting agent to the lens before using the lens. At times, moreover, it may be desirable for the user to employ a small quantity of a liquid prescription to alleviate any minor eye irritations that may occur.

A carrying case for contact lenses should meet these various needs of providing moist, antiseptic storage for the contact lenses, of providing a supply of the wetting agent and of providing a supply of a liquid prescription. In addition, it is helpful to include a mirror for the convenience of the user.

A well known prior art carrying case for this purpose comprises a panel with three flexible loops to hold three cylindrical containers and with two opposite flaps that fold over and snap together to cover the cylindrical containers. One of the containers is a double container with two storage compartments for the two contact lenses. Two screw caps at opposite ends of the double container close the two compartments to confine the lenses submerged in antiseptic liquid. The other two containers are bottles, one of which contains a wetting agent, the other of which contains a liquid prescription.

Such a folding carrying case has numerous disadvantages. The double container is relatively large and requires that the carrying case be relatively bulky. The folding case only incompletely confines the three containers and does not fully protect the containers. It is difficult to incorporate a mirror in such a folding carrying case in a manner that is convenient for the user and in a manner that protects the mirror against breakage. The folding carrying case, moreover, requires considerable fabrication labor that must be included in its cost. Another disadvantage is that the double compartment container for the pair of lenses is awkward to use and only too easily permits spillage and leakage of the antiseptic solution. Care must be taken to keep from misplacing the screw caps and, of course, care must be taken to tighten the screw caps.

The present invention avoids all of these disadvantages by providing a plastic box-like receptacle with a pair of wells for storing the pair of plastic lenses and with storage space for the two bottles containing the wetting agent and the liquid prescription. The box-like receptacle has a cover which snaps shut for confining the two bottles in a safe manner. In addition, it has two inner lids that snap shut to confine the two lenses in liquid in two storage wells in a fluid-tight manner.

The preferred practice of the invention achieves economy in cost and especially in fabrication labor. The plastic box-like receptacle and its cover are made in one piece with a flexible web of the plastic material serving as a hinge for the cover. In addition, the cover and receptacle are molded with integral cooperating latch means for snap action when the lid closes.

The two wells for the two contact lenses are formed in a plastic block which is inserted into the box-like receptacle and is designed for assembly engagement there-

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with with a snap action to minimize assembly cost. As will be explained, further simplicity is achieved by forming the plastic insert block with a pair of apertures corresponding to the two wells by forming the corresponding inner lids with integral angular arms that engage the apertures. The two inner lids are assembled to the plastic body in a hinged manner by simply inserting their angular arms into the corresponding apertures.

One feature of the invention is the concept of providing a resilient absorbent body in each of the two lens wells with the voids of the resilient body containing at least a portion of the corresponding liquid body. Such a resilient body functions as a sponge to reduce the amount of liquid that may be spilled from the well. Preferably, the sponge-like body contains all of the liquid in the well whenever the lid of the well is open.

A further feature of the invention is the concept of arranging such a resilient sponge-like body for compression to submerge the lens in the liquid and for expansion to lift the lens out of the liquid for the user. In the preferred practice of the invention, a cradle for the lens rests on the resilient sponge-like body and when the lid of the well is open the sponge-like body urges the cradle upward against an inner stop shoulder of the well, to hold the lens above the liquid. On the other hand, when the lid is closed it depresses the cradle against the sponge-like body to cause compression of the sponge-like body and submergence of the lens in the liquid. The closed lid is held in its closed position by releasable engagement with the same stop shoulder with a snap action.

The features and advantages of the invention may be understood from the following detailed description and the accompanying drawing.

In the drawing, which is to be regarded as merely illustrative:

FIG. 1 is a perspective view of the presently preferred embodiment of the invention showing the carrying case open;

FIG. 2 is a transverse cross-section taken as indicated by line 2-2 of FIG. 1;

FIG. 2a is an enlarged fragmentary section showing the latch means of the plastic receptacle at the closed position of the cover;

FIG. 3 is an end elevation of the plastic block which is inserted into the carrying case and which provides the two storage wells for the two contact lenses;

FIG. 4 is a plan view of the same block with the two lids of the two wells in closed position;

FIG. 5 is a transverse section of an enlarged scale through one of the wells, taken as indicated by line 5-5 of FIG. 4;

FIG. 6 shows the well in section along a line 6-6 of FIG. 5, with the well open and also shows the corresponding lid in end elevation lifted out of engagement with the well;

FIG. 7 is a perspective view of the lens cradle that is employed in each of the two wells;

FIG. 8 is a fragmentary sectional view of an alternate form of cradle with the lens lifted out of the liquid; and

FIG. 9 is a similar view with the lens submerged.

The structure of the selected embodiment of the invention shown in the drawing includes a box-like container or receptacle 10, with a closure or cover 11. A body or block 14 of plastic material is anchored centrally inside the receptacle and is substantially smaller than the receptacle to define therewith two compartments 15 and 16 to store corresponding bottles 18 and 20. The bottle 18, for example, may contain a wetting agent and the bottle 20 may contain the previously mentioned liquid prescription.

The receptacle 10 may be made of any suitable plastic

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material, but high impact styrene is presently preferred. In the construction shown, the receptacle 10 and its closure 11 are molded in one piece, with the closure connected to the receptacle by a flexible web 22 that serves as a hinge for the closure.

It is contemplated that the closure 12 will latch in closed position with a snap action. For this purpose, the closure 11 may be formed with two flexible latch portions 24 as shown in FIG. 1 and the front walls of the receptacle 10 may be formed with two corresponding co-operating latch portions 25.

As shown in FIG. 2a, each of the latch portions 25 on the front wall of the receptacle 10 may be in the form of a short rim bead and each of the latch portions 24 may be shaped to hook over the rim bead. When the latch portions 24 and 25 engage each other, the latch portion 25 abuts a smaller inner rib 26 to limit the closing movement of the closure 12.

Since the high impact styrene that is used for the receptacle 10 and the closure 11 has a certain degree of flexibility, the closure 11 closes with a snap action. The front wall of the receptacle may be flexed inwardly by finger pressure to disengage the two latch portions for opening movement of the closure 11. To facilitate the manual opening of the closure 11, the closure may be formed with a central finger piece 28. A mirror 30 may be mounted inside the closure 12 for the convenience of the user.

The plastic block 14 may be made of polyester and may be anchored in position in the receptacle 10 in any suitable manner. In the present embodiment of the invention, the bottom wall of the box-like receptacle 10 is formed with a pair of spaced, inwardly extending projections 32, which are formed with enlarged heads as shown. The plastic block 14 is formed with a corresponding pair of recesses 34 on its under side to receive the two projections 32 as shown in FIG. 5 and the recesses are formed with entrances that are narrower than the enlargements of the projections 32.

To assemble the plastic block 14 to the receptacle 10, it is merely necessary to position the plastic block with its recesses 34 in register with the projections 32 and then to force the plastic block downwardly to engage the projections with a snap action. It is apparent that when the plastic block 14 is assembled in this manner, the projections 32 cooperate with the recesses 34 to hold the plastic block in the desired central position to form the two adjacent compartments 15 and 16.

The plastic block is formed with two wells 35 to store the two contact lenses respectively. In the construction shown, the two wells 35 are of cylindrical configuration and each is formed with an inner circumferential rib 36 near its upper open end.

Each of the two wells 35 is provided with a suitable lid or cover which releasably engages the inner circumferential rib 36 of the well. In the construction shown, each lid comprises a circular plug 38 of polyester formed with a circumferential groove 40 for releasable engagement with the inner circumferential rib 36. The lid or circular plug 38 has an integral angular arm 42 that is hingedly associated with the plastic block 14.

In this particular embodiment of the invention, the plastic block 14 is formed with a rearwardly extending flange 44 at its upper edge, which flange is formed with a downwardly extending lip 45 for abutment with the back wall of the receptacle 10. The rearward flange 44 of the plastic block is formed with a pair of apertures or slots 46 opposite the two wells 35 and the angular arms 42 of the two lids or circular plugs 38 extend loosely through the two apertures respectively.

To assemble the two lids 38 for the two wells 35, it is merely necessary to insert the flanges of the angular arms 42 into the two apertures 46 in the manner shown in the solid lines of FIG. 5. This construction permits a lid 38 to be turned to the open position shown in dot-

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ted lines of FIG. 5. At its open position, the lid 38 rests in upright position on the upper surface of the plastic block 14. Each of the two lids 38 may be formed with a tongue-like finger piece 48 for the convenience of the user.

Each of the two wells 35 contains a body of antiseptic liquid 50 to keep the two lens moist during storage. Mounted in each of the two wells 35 is a resilient body 52 of absorbent material, preferably cellular material, the voids of which contain a substantial portion of the liquid 50. The resilient body 52 may, for example, be made of sponge rubber or any other suitable resilient foamed plastic.

Resting on each of the resilient bodies 52, and supported thereby, is a suitable cradle 54 to support one of the contact lens, such a lens being designated by numeral 55 in FIGURES 5 and 6. The cradle 54 is of open construction and may, for example, be molded of polyester. In this instance, each cradle 54 has a circular rim portion 54a and integral radial portions 54b. Each of the cradles 54 is of a diameter to fit snugly in the corresponding well 35 below the previously mentioned inner circumferential rib 36 of the well. Since the cradle is flexible, it may be easily inserted to pass through the inner circumferential rib 36 in the assembly of the device.

The cradle 54 and the resilient absorbent body 52 are so dimensioned that the resilient body urges the cradle towards an upper limit position against the inner circumferential rib 36 as shown in FIG. 6, the inner circumferential rib serving as a stop shoulder for the cradle. When the lid 38 of the well is forced into its closed position in the well in releasable engagement with the inner circumferential rib 26, the lid depresses the cradle 54 from the position shown in FIG. 6 to the position shown in FIG. 5, thereby lowering the position of the lens 55 in the well.

The volume of the body of liquid 50 is such that when the lid 38 of the well 35 is open and away from the cradle 54 with the cradle in its upper limit position as shown in FIG. 6, the body of liquid has a level 56 that is below the level of the elevated lens 55. Thus, the opening of the lid 38 of the well 35 causes the lens 55 thereon to be automatically lifted out of the liquid 50 for the convenience of the user.

On the other hand, the volume of liquid 50 and the volume and porosity of the resilient body 52 are such that the cradle 54 may be depressed to cause the lens 55 to be submerged in the liquid. It can be seen that the cradle 54 is in the path of the closing movement of the associated lid 38 so that the cradle is automatically depressed to its lower position whenever the lid is closed to its normal position in engagement with the inner circumferential rib 36. The depression of the cradle 54 against the resistance of the resilient body 52 serves both to lower the lens 55 and to raise the level of the liquid 52, the liquid being raised to the level indicated at 58 in FIG. 6. The depression of the cradle 54 compresses the resilient body 52 with consequent expelling of a portion of the liquid out of the resilient body and also with consequent upward displacement of the expelled liquid to the higher level.

The manner in which the invention functions for its purpose may be readily understood from the foregoing description. If both of the two lenses 55 are in storage with the two lids 38 closed as shown in FIG. 1, the two lens are immersed in the liquid 50 in the manner shown in FIG. 5. The resilient lids 38 engage the inner circumferential ribs 36 of the two wells in a fluid-tight manner, to prevent leakage regardless of how the receptacle is handled.

Whenever it is desired to put the two lenses to use, the user opens the closure 11 of the receptacle to expose the two lids 38 as shown in FIG. 1. The user then grasps the finger piece 48 of each of the two lids 38 to raise

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the lid to the open position shown in dotted lines in FIG. 5. The opening of each lid 38 releases the corresponding cradle 54 to permit the cradle to rise to the position shown in FIG. 6, thereby lifting the corresponding lens out of the liquid 50. The open construction of the cradle 54 makes it easy for the user to remove a lens 55 from the liquid.

The user may then place a drop of the wetting agent from the bottle 18 on each lens to facilitate the adherence of the lens to the user's eye. When both of the two lens have been applied in this manner, the two inner lids 38 may be closed and the receptacle closure 11 may be closed to protect the two bottles 18 and 20 and to keep the liquid in the two wells sealed tight until the receptacle is again needed for the storage of the two lenses. If at any time the user desires to use any of the liquid prescription from the second bottle 20, it is a simple matter to open up the receptacle for that purpose.

FIGS. 8 and 9 show how the invention may be modified by substituting a cradle 60 for the previously described cradle 54 and the associated resilient body 52. Here, again, the cradle 60 is of open construction and may, for example, be molded of polyester. The cradle 60 has a circular rim portion 60a, integral radial portions 60b, and a plurality of supporting integral legs 60c that extend downward from the rim portion.

It is contemplated that the cradle 60 will be resiliently contractible in the same general manner as the previously described combination of cradle and resilient liquid absorbent body. For this purpose, the cradle 60 is vertically contractible by flexure of its legs 60c. As shown in FIG. 9, each of the legs 60c may be formed with a central recess 62 on its outer side to give the leg a tendency to bow inwardly in response to vertical loading as may be seen in FIG. 9.

When the lid 38 of one of the wells 35 is open, the cradle 60 in the well holds the lens 55 above the level of the liquid 50. On the other hand, when the lid 38 is closed as shown in FIG. 9, the lid in its closed position depresses or vertically contracts the cradle 60 to submerge the lens 55 in the liquid 50. The lens is submerged not only because the lens is shifted to a lower level but, also, because a greater portion of the cradle is submerged to raise the liquid level by displacement.

My description in specific detail of the selected practice of the invention will suggest various changes, substitutions and other departures from my disclosure, within the spirit and scope of the appended claims.

I claim:

1. In a device for storing a contact lens, the combination of: a storage chamber for containing a body of liquid; means to support the lens in the chamber, said support means being movable between a position for holding the lens above liquid level and an alternate lower position for submerging the lens in liquid; and a resilient body in said chamber having voids for containing liquid, said resilient body being positioned for compression by said support means at the lower position of the support means.

2. In a device for storing a contact lens, the combination of: a storage chamber for containing a body of liquid; a resilient means in the chamber having voids for containing liquid; a cradle for said lens resting on the resilient means, said cradle being movable between a position holding the lens above liquid level and an alternate lower position submerging the lens in liquid; and means to depress the cradle against the resistance of the resilient means to shift the lens from an upper position to a lower position and simultaneously to displace liquid upward to submerge the lens when the resilient means is compressed.

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3. In a device for storing a contact lens, the combination of: a storage chamber for containing a body of liquid; a resilient means in the chamber enclosing space for containing liquid; a cradle for the lens resting on the resilient means; and a lid for said chamber movable from an open position to a closed position, said cradle being in the path of the closing movement of the lid for the lid to depress the cradle against the resistance of the resilient means to shift the lens from an upper position above liquid level to a lower position and simultaneously to compress the resilient means to displace the liquid upward to submerge the lens.

4. In a device for storing a contact lens, the combination of: a storage chamber having a downwardly facing stop shoulder; resilient yielding means in said chamber; a cradle for said lens resting on said yielding means, said yielding means urging said cradle towards said stop shoulder; and a lid for said chamber movable from an open position to a closed position, said cradle being in the path of closing movement of the lid for the lid to depress the cradle against resistance of the yielding means to shift the cradle from an upper position against said stop shoulder to a lower position in the chamber.

5. A combination as set forth in claim 4, in which said stop shoulder is an inner circumferential shoulder in said chamber, and in which said cover has an outer circumferential shoulder to releasably engage said inner circumferential shoulder.

6. A storage case for a pair of contact lens comprising: a receptacle with a closure movable from open to closed position; a pair of wells inside said receptacle; a pair of lids for said wells respectively movable between open and closed positions; resilient means in each of the wells forming space for containing a liquid; and a cradle in each of the wells on the corresponding resilient means to support one of said lens, said cradle being movable from an upper position above liquid level when the corresponding lid is open to a lower position when the corresponding lid is closed with consequent compression of the resilient means for displacing liquid upward to submerge the lens.

7. A combination as set forth in claim 6, which includes means to releasably latch each of said lids in its closed position with the closed lid pressing the corresponding cradle against the corresponding resilient body.

8. A storage case for a pair of contact lenses comprising: a box-like receptacle with a movable closure; a plastic body positioned in said receptacle and forming a pair of wells for containing corresponding bodies of liquid; a pair of lids for said wells respectively movable between open and closed positions; resilient means in each of said wells defining space for containing liquid; and a cradle in each of said wells on the corresponding resilient means to support one of said lens, said cradle being movable from an upper position above liquid level when the corresponding lid is open to a lower position when the corresponding lid is closed with consequent compression of the resilient means for expelling liquid upward to submerge the lens.

9. A storage case for a pair of contact lens comprising: a box-like receptacle with a removable closure, said receptacle being made of plastic material; a body of plastic material in said receptacle, said body having two wells formed therein for said lens respectively; a resilient means in each of said wells to support one of said lenses therein, each of said resilient means defining space for containing a liquid; and a pair of lids for said wells respectively for releasably confining liquid therein.

10. A combination as set forth in claim 9, in which said removable closure is integral with said receptacle and is connected therewith by a flexible web that serves as a hinge for the closure.

11. A storage case for a pair of contact lens comprising: a box-like receptacle with a removable closure, said receptacle being made of plastic material; a body of plastic ma-

terial in said receptacle, said body having two wells formed therein for said lenses respectively, said body of plastic having a rearwardly extending flange adjacent its top surface, said flange having a pair of apertures opposite the pair of wells respectively; resilient means in each of said wells to support one of said lenses therein; and a pair of lids for said wells, respectively, to releasably confine the lenses in the wells in opposition to said resilient means. each of said lids being made of plastic material with an angular extension engaging the corresponding aperture of said pair of apertures for hingedly connecting the lid to the plastic body.

References Cited in the file of this patent

UNITED STATES PATENTS

272,894	Mason	Feb. 27, 1883
729,536	Brown	June 2, 1903
1,855,015	Fraser	Apr. 19, 1932
2,104,456	Friedman	Jan. 4, 1938
2,289,312	Whitesell	July 7, 1942
2,610,017	Lambert	Sept. 9, 1952
2,716,700	La France	Aug. 30, 1955
2,932,383	Fagan	Apr. 12, 1960
2,967,607	Hollinger	Jan. 10, 1961