Title of the Invention: A liquid dispenser  
Abstract Title: A liquid dispenser

A liquid dispenser having a chamber configured to contain a liquid, the chamber having a dispensing aperture, a liquid dispensing member comprising a dispensing shaft disposed through the dispensing aperture, and a releasable latching mechanism, wherein the liquid dispensing member is configured to move between a retracted position and an extended position in each of which the dispensing member and the dispensing aperture from a liquid-tight seal, the dispensing shaft is disposed through the dispensing aperture in both the retracted position and the extended position, the liquid dispensing member is configured to dispense a portion of liquid transfer portion of the dispensing shaft when the dispensing member is extended towards the extended position and the liquid transfer portion is moved from inside the chamber to outside the chamber, and the latching mechanism is configured to bias the dispensing member into the retracted position when the dispensing member is extended by less than a first threshold extension, and is further configured to retain the dispensing member in an extended position when the dispensing member is extended by more than a second threshold extension.

This international application has entered the national phase early. As it had not been published nor had an international search been conducted at early entry, it is published under section 16 and has been searched under section 17.
A LIQUID DISPENSER

The present invention relates to a liquid dispenser, and more particularly a liquid dispenser suitable for dispensing a hand sanitizing gel.

BACKGROUND

Maintaining clean hands is important within the health-care and catering industries, where sanitizing gel is commonly used. The gel is commonly dispensed from pump-action dispensers of the type that is also commonly used for dispensing liquid soaps, in which depressing a nozzle projecting from the top of a bottle drives the operation of a pump mechanism and causes gel to be dispensed through the nozzle. Typically such pump-action dispensers are free-standing or caged bottles, although smaller portable pump-action dispensers are also known.

Disadvantageously, pump action dispensers are complex and expensive to manufacture. Further, portable pump-action dispensers are vulnerable to accidental discharge when the projecting nozzle is accidentally knocked by a user.

US20100054847 discloses a portable dispenser in which a gel container is provided with a plurality of gel dispensing balls that are captured within apertures in a surface such that they are partially exposed, to enable a user to dispense a large quantity of gel by running the user’s hand across the balls, which rotate to bring new gel to their exposed surfaces.

Disadvantageously the dispenser of US20100054847 is complex and expensive to manufacture. Further, the dispenser is vulnerable to accidental discharge when the dispensing balls are accidentally knocked against by a user, as the exposed sides of balls remain coated in gel.

SUMMARY OF THE DISCLOSURE

According to an aspect of the invention, there is provided a liquid dispenser having a chamber configured to contain a liquid, the chamber having a dispensing aperture, a liquid dispensing member comprising a dispensing shaft disposed through the dispensing aperture, and a releasable latching mechanism, wherein the liquid dispensing member is configured to move between a retracted position and an extended position in each of which the dispensing member and the dispensing aperture form a liquid-tight seal, the dispensing
shaft is disposed through the dispensing aperture in both the retracted position and the extended position, the liquid dispensing member is configured to dispense a portion of liquid onto a liquid transfer portion of the dispensing shaft when the dispensing member is extended towards the extended position and the liquid transfer portion is moved from inside the chamber to outside the chamber, and the latching mechanism is configured to bias the dispensing member into the retracted position when the dispensing member is extended by less than a first threshold extension, and is further configured to retain the dispensing member in the extended position when the dispensing member is extended by more than a second threshold extension.

Advantageously, the extension of the dispensing shaft through the dispensing aperture provides a portion of the dispensing member that is outside the chamber, when the dispensing member is in the retracted position, enables that portion of the dispensing member to be grasped by the user and pulled, to draw the dispensing member into the extended position. Such an arrangement enables particularly convenient, swift and accurate dispensing of the liquid, such as a hand sanitizing gel, to a user. In particular, it facilitates single-handed dispensing of the liquid. For example, the portion of the dispensing member that is outside the chamber, when the dispensing member is in the retracted position, may be grasped between the fingers and thumb of one hand, to draw out the dispensing member.

Further, the dispensing member conveniently returns back to the retracted position. When in both the retracted and extended positions, the liquid-tight seal prevents leakage, such that a controlled volume of liquid is dispensed for each cycle of extension and retraction. The latching mechanism enables the dispensing member to be retained in the extended position, such that the liquid may be collected from the liquid transfer portion with greater convenience.

The latching mechanism may be configured to be disengaged by further extending the latched dispensing member and releasing.

The latching mechanism may be configured to be disengaged by the application of a force to the dispensing member that is directed towards the chamber.

The latching mechanism may comprise a biasing mechanism selected from the group consisting of a compression spring, a tension spring, a torsion spring, and an elastically deformable member.
The biasing mechanism may be configured to bias the dispensing member into the retracted position when the dispensing member is in the extended position.

The biasing mechanism may be configured to bias the dispensing member into the extended position when the dispensing member is extended by more than the second threshold extension.

The dispensing member may have an axis and be configured to rotate about that axis as it is extended from the chamber along that axis.

The dispensing member and the dispensing aperture may be configured not to form a liquid-tight seal between the chamber and the dispensing member when the dispensing member is in an intermediary position between the extended and retracted positions.

The liquid transfer portion of the dispensing member may have a liquid entrapping surface profile.

The liquid transfer portion of the dispensing member may comprise a plurality of liquid retaining grooves disposed along the dispensing member.

The liquid transfer portion of the dispensing member may comprise a deformable material.

The chamber may have a non-dispensing aperture and the dispensing member may be disposed through the non-dispensing aperture.

The non-dispensing aperture and the dispensing member may be configured to form a liquid-tight seal between the dispensing member and the non-dispensing aperture.

The dispensing member may have a first cross-sectional area where it is located within the dispensing aperture in the retracted position, and a second, larger cross-sectional area where it is located within the non-dispensing aperture in the retracted position.

The liquid dispenser may have an attachment feature for securing the dispenser to a user or a fixed object.

The attachment feature may have a clip configured for attachment to an item of a user's clothing.
The clip may be pivotable.

The attachment feature may be an attachment bracket configured for attachment of the liquid dispenser to a table or worktop.

An end of the dispensing member proximate the dispensing aperture, in the retracted position, may have a connection feature suitable for the connection of a further element.

The chamber may have an elliptical cross-sectional shape in a plane perpendicular to an axis of extension of the dispensing member.

**BRIEF DESCRIPTION OF THE DRAWINGS**

Embodiments of the invention are further described hereinafter with reference to the accompanying drawings, in which:

- Figures 1A and 1B show perspective views of a first embodiment.
- Figures 1C, 1D and 1E show cross-sectional views of a first embodiment.
- Figures 2A, 2B, 2C and 2D show cross-sectional views of a second embodiment.
- Figures 3A, 3B and 3C show a perspective view and two cross-sectional views of a third embodiment, and Figure 3D shows a plan view of a corresponding spring.
- Figure 4 shows a perspective view of a fourth embodiment.
- Figures 5A and 5B show cross-sectional views of a fifth embodiment.

**DETAILED DESCRIPTION**

In the described embodiments, like features have been identified with like numerals, albeit in some cases having increments of integer multiples of 100. For example, in different figures, 102, 202, 302, 402 and 502 have been used to indicate a chamber.

Figures 1A to 1E illustrate a first embodiment of a liquid dispenser 100. The dispenser 100 has a chamber 102 having a base 102A and a lid 102B and a liquid dispensing member 104. Figures 1A and 1C show the dispensing member 104 in a retracted position, Figures 1B and 1E show the dispensing member in an extended position, and Figure 1D shows the dispensing member in an intermediate position.
The dispensing member 104 comprises a substantially rigid dispensing shaft located through a dispensing aperture 106 of the chamber base 102A. The shaft has a first shaft portion 104A', a second shaft portion 104A", and a liquid transfer shaft portion 104B between the first shaft portion 104A' and the second shaft portion 104A". The dispensing member 104 has a first end section 104C, that projects outside the chamber 102 when the dispensing member is in the fully retracted position. A helical compression spring 110 surrounds the shaft and engages with a flange 104E on the shaft and the chamber 102 to bias the dispensing member (and shaft) into the retracted position.

The first end section 104C functions as an end stop to the retraction of the dispensing member 104 in the retracted configuration (Figures 1A and 1C). The first end section 104C is provided with a member that is shaped to facilitate grasping by a user, e.g. it is tapered outwards in width, away from the chamber 102, to provide enhanced grip for a user when pulling P the dispensing member 104 into the extended position (Figures 1B and 1E). The dispenser 100 is provided with a connection feature 112 to which a device may be connected to facilitate pulling the dispensing member 104 into the extended position.

The dispenser 100 is further provided with an attachment feature 114 for securing the dispenser to a user or a fixed object. In Figures 1A and 1B, the illustrated attachment feature 114 is a clip for attaching the dispenser to a garment of the user's clothing, e.g. for clipping onto a trouser belt. The clip 114 has a swivel arrangement to enable the chamber 102 to pivot relative to the grasping portion 116 of the clip. Alternatively, for example, the attachment feature (not illustrated) may be for securing the dispenser 100 to a table or other worksurface.

The opposite second end section 104D of the dispensing member 104 at the opposite end from the liquid transfer shaft portion 104B passes through a non-dispensing aperture 120 in the chamber 102 (e.g. an aperture in the lid 102B). The second end section 104D of the dispensing member 104 passes through the non-dispensing aperture 120.

In the illustrated embodiment, the second end section 104D of the dispensing member 104 has the same cross-sectional area as the portion of the dispensing member 104 (e.g. first shaft portion 104A') passing through the dispensing aperture 106. However, in an alternative embodiment (not illustrated), the second end section of the dispensing member may have a larger cross-sectional area than the portion of the dispensing member (e.g. first shaft portion) passing through the dispensing aperture 106, such that when the dispensing member 104 is extended through the dispensing aperture 106, a positive pressure (relative
to ambient) is generated within the chamber 102, which assists with dispensing the liquid onto the liquid transfer portion 104B. Further, when the dispensing member 104 is retracted through the dispensing aperture 106, a negative pressure is generated within the chamber 102, preventing liquid from being dispensed onto the liquid transfer portion 104B, as it is retracted.

Figure 1C shows the rest position of the dispenser 100, in which the dispensing member 104 (and corresponding dispensing shaft) is biased into the retracted position within the chamber 102 by the compression spring 110, with the first end section 104C projecting outside the chamber in the direction for extension of the dispensing member. Travel of the dispensing member 104, in the direction of retraction, is limited by abutment of the first end section 104C against the chamber base 102A. In the retracted position, the dispensing aperture 106 forms a liquid-tight seal with the first shaft portion 104A’. Accordingly, in the retracted, rest position the dispenser is sealed against accidental discharge of liquid from the liquid reservoir 118 in the chamber 102.

In use, the user pulls on the dispensing member 104 (e.g. pulls on first end section 104C) to extend the dispensing member 104 from the chamber 102, and to expose the shaft. As the dispensing member 104 is extended out of the chamber 102, it passes through an intermediate position (Figure 1D) to an extended position (Figure 1E). As the dispensing member passes through the intermediate position, liquid (e.g. sanitizing gel) that is loaded onto the liquid transfer shaft portion 104B and drawn out of the reservoir 118 of liquid in the chamber 102.

When the dispensing member 104 is in the extended position (Figures 1B and 1E) the dispensing aperture 106 forms a liquid-tight seal with the second shaft portion 104A’ preventing the release of further liquid from the reservoir 118. The user collects (e.g. wipes) the dispensed liquid from the shaft (e.g. liquid transfer shaft portion 104B) onto their fingers, in order that the user can re-distribute the collected liquid across their fingers or hands. For example, the liquid dispenser 100 can be used to dispense controlled quantities of hand sanitizing gel for sanitizing a user’s fingers.

The liquid transfer shaft portion 104B may comprise a deformable material, such as a rubber collar around the shaft of the dispensing member 104. The liquid transfer shaft portion 104B may comprise a liquid entrapping profile, such as a dimpled pattern, or an arrangement of parallel and axially separated deformable circular flanges, between which liquid may be received. The liquid transfer shaft portion 104B may provide a leakage conduit (e.g. grooves
running along the length of the shaft) that enables liquid to leak from reservoir 118, out of the conduit, when the dispensing member 104 is in the intermediate position (Figure 1D).

After use, the user releases the dispensing member 104, and the compression spring 110 retracts the dispensing member 104 back to the retracted position (Figure 1A and 1C).

Alternatively, the liquid dispenser may comprise a releasable latching mechanism (not illustrated) that retains the dispensing member (and shaft) in the extended position, until the latching mechanism is disengaged by the user, and the dispensing member is retracted. For example, the latching mechanism may be disengaged by applying pulling the latched dispensing member in an extending direction and releasing. Or, in a further example, an internal feature of the chamber may releasably frictionally engage with the flange on the shaft of the dispensing member when the dispensing member is extended beyond a threshold extension, to retain the dispensing member in that position. The dispensing member may then be retracted by the user pushing the first end section of the dispensing member towards the chamber with sufficient force to overcome the frictional engagement with the flange.

The chamber 102 of the dispenser 100 may be flat sided or oval in section, such that it may more comfortably rest against a user when clipped to a garment of the user’s clothing.

Figures 2A to 2D illustrate a second embodiment of a liquid dispenser 200. In contrast to the liquid dispenser 100 of Figures 1A to 1E, a latching mechanism is illustrated in the liquid dispenser 200 of Figures 2A to 2D. A sliding cam 230 is rigidly connected to the dispensing member 204, which comprises a shaft. Rotational movement of the sliding cam 230 is prevented by slideable engagement with ribs 232 running along part of the length of the inside wall of the chamber 202. A catch 234 is slideably and rotatably engaged around the shaft of the dispensing member 204. The compression spring 210 is engaged between the chamber 202 and the catch 234, and biases the catch away from the dispensing aperture 206. The catch 234 and sliding cam 230 have teeth with a zigzag shape, which are configured to enmesh. However, the catch 234 is configured to engage with the ribs 232 when the catch is remote from the dispensing aperture 206. When the catch 234 is engaged with the ribs 232, the catch is orientated such that the teeth of the catch and sliding cam cannot fully enmesh.

In use, when the dispensing member 204 is extended from the retracted position (Figure 2A) to the fully extended position (Figure 2C), the sliding cam 230 is drawn towards the
dispensing aperture 206, and also pushes the catch 234 towards the dispensing aperture. When the dispensing member 204 is in the fully extended position, the sliding cam 230 remains slideably engaged with the ribs 232, but the catch 234 is no longer engaged with the ribs. Engagement with the sliding cam 230 causes the catch 234 to partially rotate about the shaft of the dispensing member 204, such that the teeth of the catch and the sliding cam become more fully enmeshed. When the dispensing member 204 is released, the spring 210 drives the catch 234 against the ends of the ribs 232, such that the spring is not able to retract the dispensing member 204 within the chamber 202, and the dispensing member 204 remains latched into a latching position in which the dispensing member is slightly less than fully extended. When the dispensing member 204 is pulled a second time, the sliding cam 230 engages with the catch 234 again, causing it to rotate further about the shaft of the dispensing member 204, such that when the dispensing member is released a second time, the catch 234 aligns with the ribs 232. Accordingly, the bias of the spring 210 against the catch 234 causes the sliding cam 230 to be driven away from the dispensing aperture 206, and for the dispensing member 204 to be retracted.

Figures 3A to 3F illustrate a third embodiment of a liquid dispenser 300. The dispenser 300 differs from the dispenser 100 of Figures 1A to 1E by the provision of a spring 310 that toggles between biasing the dispensing member 304, and corresponding shaft, into a retracted position (Figures 3A, 3B and 3E) and an extended position (Figure 3C and 3F). The spring 310 is a cruciform spring, having ends connected to the chamber 302 part way along the length of the chamber body, and having the centre of the cross 340 connected to the dispensing member 304, via spring arms 342. When the dispensing member 304 is in the retracted position (Figure 3B), or no more extended that a first threshold extent, the dispensing member is biased into the retracted position. When the dispensing member 304 is in the extended position (Figure 3C), or no less extended that a second threshold extent, the dispensing member is biased into the extended position. Accordingly, in use, when the user pulls or pushes the dispensing member 304 into the extended or retracted positions, the biasing orientation of the spring 310 toggles between a bias towards retraction and a bias towards extension of the dispensing member 304, which provides a latching mechanism that latches the shaft into the extended position (Figure 3C) and the retracted position (Figure 3B).

Figure 4 illustrates a fourth embodiment of a liquid dispenser 400. The dispenser 400 differs from the dispenser 100 of Figures 1A to 1E by the provision of a helical groove 446 on the shaft of the dispensing member 404, a helical groove engagement feature (not shown) of the chamber 402, and a torsional spring 410. The end stop 404C is free to rotate relative to the
shaft of the dispensing member 404, about the axis of the shaft. The groove engagement feature engages with the helical groove 446, such that when the dispensing member 404 is pulled out of the chamber 402, the shaft rotates about its axis. The spring 410 rotationally biases the shaft of the dispensing member 404 into the retracted position through engagement with the groove engagement feature.

Figures 5A and 5B illustrate a fifth embodiment of a liquid dispenser 500. The dispenser 500 differs from the dispenser 100 of Figures 1A to 1E by the arrangement by which the dispensing member 504 is biased into the retracted position relative to the chamber 502. In place of the spring 110, the dispenser 500 has elastically deformable tension elements 550 (e.g. rubber strips) extending from the shaft of the dispensing member 504, which bias the dispensing member into the retracted position.

Although not illustrated, it will be appreciated that the second, third, fourth and fifth embodiments may also be provided with a non-dispensing aperture, through which the dispensing member may be disposed. As discussed in relation to the embodiment of Figures 1A to 1E, the end section of the dispensing member at the opposite end from the liquid transfer shaft portion may passes through the non-dispensing aperture and may have a larger cross-sectional area than the part of the dispensing member that passes through the dispensing aperture.

Although not illustrated in every case, it will be appreciated that all embodiments may be provided with a mechanism to releasably retain the dispensing member in the extended position, when the dispensing member is extended by more than a threshold extension.

The figures provided herein are schematic and not to scale.

Throughout the description and claims of this specification, the words “comprise” and “contain” and variations of them mean “including but not limited to”, and they are not intended to (and do not) exclude other moieties, additives, components, integers or steps.

Throughout the description and claims of this specification, the singular encompasses the plural unless the context otherwise requires. In particular, where the indefinite article is used, the specification is to be understood as contemplating plurality as well as singularity, unless the context requires otherwise.

Features, integers, characteristics, compounds, chemical moieties or groups described in conjunction with a particular aspect, embodiment or example of the invention are to be
understood to be applicable to any other aspect, embodiment or example described herein unless incompatible therewith. All of the features disclosed in this specification (including any accompanying claims, abstract and drawings), and/or all of the steps of any method or process so disclosed, may be combined in any combination, except combinations where at least some of such features and/or steps are mutually exclusive. The invention is not restricted to the details of any foregoing embodiments. The invention extends to any novel one, or any novel combination, of the features disclosed in this specification (including any accompanying claims, abstract and drawings), or to any novel one, or any novel combination, of the steps of any method or process so disclosed.

The reader's attention is directed to all papers and documents which are filed concurrently with or previous to this specification in connection with this application and which are open to public inspection with this specification, and the contents of all such papers and documents are incorporated herein by reference.
CLAIMS

1. A liquid dispenser having
   a chamber configured to contain a liquid, the chamber having a dispensing aperture,
   a liquid dispensing member comprising a dispensing shaft disposed through the
   dispensing aperture, and
   a releasable latching mechanism, wherein
   the liquid dispensing member is configured to move between a retracted position
   and an extended position in each of which the dispensing member and the dispensing
   aperture form a liquid-tight seal,
   the dispensing shaft is disposed through the dispensing aperture in both the retracted
   position and the extended position,
   the liquid dispensing member is configured to dispense a portion of liquid onto a
   liquid transfer portion of the dispensing shaft when the dispensing member is extended
   towards the extended position and the liquid transfer portion is moved from inside the
   chamber to outside the chamber, and
   the latching mechanism is configured to bias the dispensing member into the
   retracted position when the dispensing member is extended by less than a first threshold
   extension, and is further configured to retain the dispensing member in the extended position
   when the dispensing member is extended by more than a second threshold extension.

2. A liquid dispenser according to claim 1, wherein the latching mechanism is
   configured to be disengaged by further extending the latched dispensing member and
   releasing.

3. A liquid dispenser according to claim 1, wherein the latching mechanism is
   configured to be disengaged by the application of a force to the dispensing member that is
   directed towards the chamber.

4. A liquid dispenser according to claims 1, 2 or 3, wherein the latching mechanism
   comprises a biasing mechanism selected from the group consisting of a compression spring,
   a tension spring, a torsion spring, and an elastically deformable member.

5. A liquid dispenser according to any preceding claim, wherein the biasing mechanism
   is configured to bias the dispensing member into the retracted position when the dispensing
   member is in the extended position.
6. A liquid dispenser according to any one of claims 1 to 4, wherein the biasing mechanism is configured to bias the dispensing member into the extended position when the dispensing member is extended by more than the second threshold extension.

7. A liquid dispenser according to any preceding claim, wherein the dispensing member has an axis and is configured to rotate about that axis as it is extended from the chamber along that axis.

8. A liquid dispenser according to any preceding claim, wherein the dispensing member and the dispensing aperture are configured not to form a liquid-tight seal between the chamber and the dispensing member when the dispensing member is in an intermediary position between the extended and retracted positions.

9. A liquid dispenser according to any preceding claim, wherein the liquid transfer portion of the dispensing member has a liquid entrapping surface profile.

10. A liquid dispenser according to claim 9, wherein the liquid transfer portion of the dispensing member comprises a plurality of liquid retaining grooves disposed along the dispensing member.

11. A liquid dispenser according to any preceding claim, wherein the liquid transfer portion of the dispensing member comprises a deformable material.

12. A liquid dispenser according to any preceding claim, wherein the chamber has a non-dispensing aperture and the dispensing member is disposed through the non-dispensing aperture.

13. A liquid dispenser according to claim 12, wherein the non-dispensing aperture and the dispensing member are configured to form a liquid-tight seal between the dispensing member and the non-dispensing aperture.

14. A liquid dispenser according to claims 12 or 13, wherein the dispensing member has a first cross-sectional area where it is located within the dispensing aperture in the retracted position, and a second, larger cross-sectional area where it is located within the non-dispensing aperture in the retracted position.
15. A liquid dispenser according to any preceding claim, wherein the liquid dispenser has an attachment feature for securing the dispenser to a user or a fixed object.

16. A liquid dispenser according to claim 15, wherein the attachment feature is a clip configured for attachment to an item of a user’s clothing.

17. A liquid dispenser according to claim 16, wherein the clip is pivotable.

18. A liquid dispenser according to claim 15, wherein the attachment feature is an attachment bracket configured for attachment of the liquid dispenser to a table or worktop.

19. A liquid dispenser according to any preceding claim, wherein an end of the dispensing member proximate the dispensing aperture, in the retracted position, has a connection feature suitable for the connection of a further element.

20. A liquid dispenser according to any preceding claim, wherein the chamber has an elliptical cross-sectional shape in a plane perpendicular to an axis of extension of the dispensing member.

21. A liquid dispenser substantially as hereinbefore described with reference to the accompanying description and any one of the Figures.
Amendments to the Claims have been filed as follows

1. A liquid dispenser having
   a chamber configured to contain a liquid, the chamber having a dispensing aperture,
   a liquid dispensing member comprising a dispensing shaft that has a liquid transfer
   portion for dispensing a portion of liquid from within the chamber, and
   a releasable latching mechanism, wherein
   the liquid dispensing member is configured to move between a retracted position
   and an extended position,
   the dispensing shaft is disposed through the dispensing aperture in both the retracted
   position and the extended position,
   in the retracted position and in the extended position the dispensing member and the
   dispensing aperture form a liquid-tight seal,
   the liquid dispensing member is configured to dispense the portion of liquid when the
   dispensing member is extended from the retracted position towards the extended position
   and the liquid transfer portion is moved from inside the chamber to outside the chamber, and
   the latching mechanism is configured to bias the dispensing member into the
   retracted position when the dispensing member is extended by less than a first threshold
   extension, and is further configured to retain the dispensing member in the extended position
   when the dispensing member is extended by more than a second threshold extension.

2. A liquid dispenser according to claim 1, wherein the latching mechanism is
   configured to be disengaged by further extending the latched dispensing member and
   releasing.

3. A liquid dispenser according to claim 1, wherein the latching mechanism is
   configured to be disengaged by the application of a force to the dispensing member that is
   directed towards the chamber.

4. A liquid dispenser according to claims 1, 2 or 3, wherein the latching mechanism
   comprises a biasing mechanism selected from the group consisting of a compression spring,
   a tension spring, a torsion spring, and an elastically deformable member.

5. A liquid dispenser according to any preceding claim, wherein the biasing mechanism
   is configured to bias the dispensing member into the retracted position when the dispensing
   member is in the extended position.
6. A liquid dispenser according to any one of claims 1 to 4, wherein the biasing mechanism is configured to bias the dispensing member into the extended position when the dispensing member is extended by more than the second threshold extension.

7. A liquid dispenser according to any preceding claim, wherein the dispensing member has an axis and is configured to rotate about that axis as it is extended from the chamber along that axis.

8. A liquid dispenser according to any preceding claim, wherein the dispensing member and the dispensing aperture are configured not to form a liquid-tight seal between the chamber and the dispensing member when the dispensing member is in an intermediary position between the extended and retracted positions.

9. A liquid dispenser according to any preceding claim, wherein the liquid transfer portion of the dispensing member has a liquid entrapping surface profile.

10. A liquid dispenser according to claim 9, wherein the liquid transfer portion of the dispensing member comprises a plurality of liquid retaining grooves disposed along the dispensing member.

11. A liquid dispenser according to any preceding claim, wherein the liquid transfer portion of the dispensing member comprises a deformable material.

12. A liquid dispenser according to any preceding claim, wherein the chamber has a non-dispensing aperture and the dispensing member is disposed through the non-dispensing aperture.

13. A liquid dispenser according to claim 12, wherein the non-dispensing aperture and the dispensing member are configured to form a liquid-tight seal between the dispensing member and the non-dispensing aperture.

14. A liquid dispenser according to claims 12 or 13, wherein the dispensing member has a first cross-sectional area where it is located within the dispensing aperture in the retracted position, and a second, larger cross-sectional area where it is located within the non-dispensing aperture in the retracted position.
15. A liquid dispenser according to any preceding claim, wherein the liquid dispenser has an attachment feature for securing the dispenser to a user or a fixed object.

16. A liquid dispenser according to claim 15, wherein the attachment feature is a clip configured for attachment to an item of a user's clothing.

17. A liquid dispenser according to claim 16, wherein the clip is pivotable.

18. A liquid dispenser according to claim 15, wherein the attachment feature is an attachment bracket configured for attachment of the liquid dispenser to a table or worktop.

19. A liquid dispenser according to any preceding claim, wherein an end of the dispensing member proximate the dispensing aperture, in the retracted position, has a connection feature suitable for the connection of a further element.

20. A liquid dispenser according to any preceding claim, wherein the chamber has an elliptical cross-sectional shape in a plane perpendicular to an axis of extension of the dispensing member.

21. A liquid dispenser substantially as hereinbefore described with reference to the accompanying description and any one of Figures 2A to 3F, 5A and 5B.
Application No: GB1209010.6  Examiner: Mrs Judith Peake
Claims searched: 1-21  Date of search: 29 June 2012

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

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Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC:

Worldwide search of patent documents classified in the following areas of the IPC
A45D; A47K; B65D

The following online and other databases have been used in the preparation of this search report
Online: WPI, EPODOC
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