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Declarations under Rule 4.17:

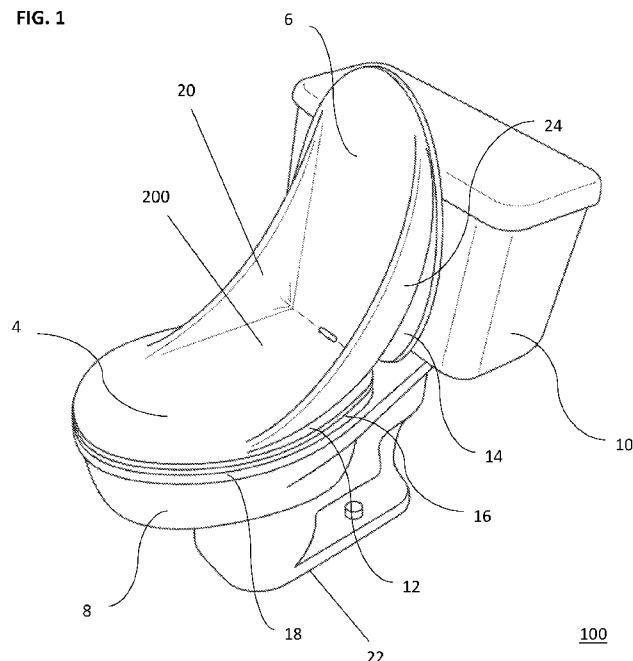
— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

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— with international search report (Art. 21(3))

(54) Title: TOILET COVER DEVICE WITH INTEGRATED URINAL

FIG. 1



(57) Abstract: Toilet cover devices having integrated urinal structures. Exemplary cover devices include those comprising a top lid, a bottom lid, and a collapsible liquid collection structure.



TOILET COVER DEVICE WITH INTEGRATED URINAL

FIELD

[001] The present disclosure relates to toilet seat covers and, specifically, cover devices having an integrated urinal structure.

BACKGROUND

[002] Conventional toilets accommodate those who choose to use them in both the sitting and standing positions. In contrast, a conventional urinal is intended for standing use only. Some of the advantages of a conventional urinal reside in the fact that the urinal is shaped to protect along a much more extensive vertical surface than is a conventional toilet. That is, while conventional toilets have no means to prevent “splashback” or “side splashing,” the benefits of splash reduction with traditional urinals is overshadowed by the fact that urinals are incapable of accommodating seated users and solid waste.

[003] Splash protection becomes important in a variety of situations. For example, splashes outside the toilet bowl can be expected when a young child is being toilet trained. Persons who are impaired or disabled may also find it difficult to use a conventional toilet in the standing position without causing undesired splashing. With a conventional toilet, the areas where the splashing can occur are often difficult to clean and sanitize such as the space between the toilet lid and the toilet tank. Accordingly, there remains a need to have seated toilet designs that allow for the reduction of splashing.

SUMMARY

[004] Described herein are cover devices, systems, and kits comprising an integrated urinal structure. In certain embodiments the cover device contains an integrated urinal structure, such that the cover device comprises:

a cover mechanism comprising a top lid and a bottom lid, said top lid and said bottom lid each having an inside surface, an outside surface, a proximal end, a distal end, a right portion, and a left portion, wherein the top lid and bottom lid are hingedly connected at their distal ends to permit the cover mechanism to have an open position and a closed position; and

a collapsible liquid collection structure having a base portion attached to the inside surface of the bottom lid and an upper portion attached to the inside surface of the top lid, wherein

the collapsible liquid structure is adapted to define a right splashguard and a left splashguard when the cover mechanism is placed in the open position,

wherein the device further defines a fluid passage aperture positioned toward the distal ends of the top and bottom lids.

[005] Toilet systems are also described herein. In certain embodiments, the toilet system comprises the cover device described above, along with a toilet defining a bowl and a toilet seat. Also described herein are kits, said kits comprising the cover device described above, along with instructions for installing the cover device. The kits may optionally further include a seat.

BRIEF DESCRIPTION OF THE DRAWINGS

[006] FIG. 1 is a perspective view of a toilet system comprising a cover device with an integrated urinal structure.

[007] FIG. 2 is a perspective view of a cover device comprising an integrated urinal structure, with the cover device set in the open position.

[008] FIG. 3 is a side view of a cover device comprising an integrated urinal structure, with the cover device set in the open position.

[009] FIG. 4 is a front view of a cover device comprising an integrated urinal structure, with the cover device set in the closed position.

[010] FIG. 5 is a cross-sectional side view of a cover device comprising an integrated urinal structure, with the cover device set in the open position.

DETAILED DESCRIPTION

[011] While the following describes exemplary embodiments of the devices, systems, and kits described herein, it is understood that the description is made by way of example and is not intended to limit the scope of the general inventive concepts set forth herein. It is expected that alterations and further modifications, as well as other and further applications of the principles, may occur to others skilled in the art and, to the extent they differ from the foregoing, shall remain within the spirit and scope of the instant disclosure.

[012] Described herein are cover devices, toilet systems, and kits comprising an integrated urinal structure. In certain embodiments the integrated urinal structure comprises a collapsible liquid collection structure.

[013] **Fig. 1** illustrates exemplary toilet system **100**, which comprises cover device **200**, toilet **22**, and toilet seat **16**. Toilet **22** may further comprise bowl **8**, upper bowl edge **18**, seat **16**, and tank **10**. Cover device **200** comprises bottom lid **12** and top lid **14**. Cover device **200** further comprises a fluid collection structure, which includes base portion **4**, upper portion **6**, left splashguard **20**, and right splashguard **24**. In certain embodiments, base portion **4**, upper portion **6**, left splashguard **20**, and right splashguard **24** may be formed from separate pieces stitched or connected together (*e.g.*, gluing or hermetic bonding of polymeric materials). In other embodiments, base portion **4**, upper portion **6**, left splashguard **20**, and right splashguard **24** may be formed from a single piece of material, such that the fluid collection structure comprises a single, unitary structure. In certain embodiments, the fluid collection structure may comprise a polymeric or elastomeric material, which may optionally further include a hydrophobic layer or coating that repels urine and protects against liquid adhesion.

[014] Bottom lid **12** and top lid **14** each define an inside surface and an outside surface. As depicted in **Fig. 1**, base portion **4** is attached to (and, thus, at least partially covers) the inside surface of bottom lid **12**. Similarly, upper portion **6** is attached to (and, thus, at least partially covers) the inside surface of upper lid **14**. The outside surface of top lid **14** is obstructed in the view of **Fig. 1**, as it faces tank **10**; similarly, the outside surface of bottom lid **12** is facing upper bowl edge **18** and, thus, the inside of bowl **8**.

[015] **Fig. 2** provides further details of exemplary cover device **200**. Bottom lid **12** defines proximal end **102**, right portion **110**, and left portion **124**, while top lid **14** defines proximal end **118**, right portion **114**, and left portion **122**. The splashguards are also similarly defined, with left splashguard **20** defining proximal end **106** and distal end **120**. In this embodiment, the proximal and distal ends of splashguard **20** are attached to the proximal ends of bottom lid **12** and top lid **14**, respectively. Base portion **4** and upper portion **6** meet at a fold point **126**. The fluid collection structure may also define aperture **124**, located at fold point **126**, which serves to provide an exit for fluid collected in the fluid collection structure.

[016] **Fig. 3** further depicts a side view of cover device **200**, which shows distal end **204** of bottom lid **12**, and distal end **206** of top lid **14**. Bottom lid **12** and top lid **14** are hingedly attached at distal ends **204** and **206**, and can be connected by any suitable means, such as by hinge structure **108**. Hinge structure **108** is connected to mounting mechanism **230**, which may be used to bolt the cover device to toilet **22**. For example, mounting mechanism **230** may comprise bolts for attaching cover device **200** to the toilet. Optionally, toilet seat **16** may be connected to cover device **200**, such as

through hinge structure **108**. **Figs. 1-3** depict cover device **200** in an open position, in which top lid **14** is raised about hinge structure **108**. **Fig. 4** depicts cover device **200** in a closed position, in which top lid **14** is lowered about hinge structure **108** such that proximal ends **102** and **118** are drawn together such that the fluid collection structure collapsed and encased between the inside surfaces of the lids, including the folding of splashguards **20** and **24**. The splashguards and, optionally, the entire fluid collection structure, may be formed of a thin thermoplastic material that will accept folding and/or permanent creasing and will flex numerous times without causing tears or otherwise compromising the integrity of material. As used herein, “raising” a component, such as the top lid, will mean moving the component from a horizontal toward a vertical position. “Lowering” a component will mean moving a component toward a horizontal position. Typically, an “open” position will be achieved when the top lid is raised and the bottom lid remains in the lowered position.

[017] Inside surfaces of lids **12** and **14** may define a concave structure, which provides room for storage of the fluid collection structure when in the closed position. Moreover, when cover device **200** is in the open position, the concavity provides a room for the collection of urine in base portion **4**, which is attached to the inside surface of lid **12**. Aperture **124** allows for the exit of fluid into bowl **8** (as described further below). In addition, any fluid remaining in/on base portion **4** may exit via aperture **124** when bottom lid **12** is raised, wherein the raising of bottom lid **12** effectively places distal ends **102** and **118** in proximity and, optionally, may be locked together (as described further below)

[018] The outside surfaces may define a convex structure to accommodate the concavity of the inside surfaces. With reference to **Fig. 4**, cover device **200** may be locked in the closed position using locking structure **300**, which would not allow the separation of bottom lid **12** and top lid **14** to the open position to allow access to the fluid collection structure. If locking mechanism **300** is unlatched, then top lid **14** may be raised about hinge structure **108**, which allows for the unfolding of splashguards **20** and **22** and, thus, access to the fluid collection structure.

[019] **Fig. 5** depicts a method for which fluid collected in the fluid collection structure may be eliminated via fluid passage aperture **124**. For example, fluid passage aperture may be in fluid communication with hose **400**. Hose **400**, in turn, may be in fluid communication with the inside of bowl **8**. Hose **400** may be routed, for example, through/between distal ends **204** and **206** of bottom and top lids **12** and **14**, respectively, and then routed behind and underneath seat **16**, then between seat **16** and upper bowl edge **18**, to provide drain access indirectly to the inside of bowl **8**.

[020] Other embodiments may include kits for providing the cover device to consumers. In certain embodiments, the kit will comprise the cover device, and instructions for installing the cover device on a toilet.

CLAIMS:

1. A device comprising:

a cover mechanism comprising a top lid and a bottom lid, said top lid and said bottom lid each having an inside surface, an outside surface, a proximal end, a distal end, a right portion, and a left portion, wherein the top lid and bottom lid are hingedly connected at their distal ends to permit the cover mechanism to have an open position and a closed position; and

a collapsible liquid collection structure having a base portion attached to the inside surface of the bottom lid and an upper portion attached to the inside surface of the top lid, wherein the collapsible liquid structure is adapted to define a right splashguard and a left splashguard when the cover mechanism is placed in the open position,

wherein the device further defines a fluid passage aperture positioned toward the distal ends of the top and bottom lids.

2. The device of claim 1, wherein the left splashguard and the right splashguard each has a proximal end and a distal end, wherein the proximal ends of the splashguards are attached to the proximal end of the bottom lid, and wherein the distal ends of the splashguards are attached to the proximal end of the top lid.

3. The device of any one of claims 1-2, wherein the splashguards are attached to the base portion and the upper portion of the collapsible liquid collection structure.

4. The device of any one of claims 1-3, wherein the splashguards, the base portion, and the upper portion comprise a unitary structure.

5. The device of any one of claims 1-4, wherein the collapsible liquid collection structure defines the fluid passage aperture, such that said aperture is positioned where the base portion meets the upper portion.

6. The device of claim 5, wherein the fluid passage aperture is adapted for fluid communication with the bowl of a toilet.

7. The device of claim 6, wherein the fluid passage aperture is connected to a hose.

8. The device of any of claims 1-7, wherein the top lid and the bottom lid each comprise a rounded shape, an oval shape, or an egg shape.

9. The device of any of claims 1-8, wherein the inside surfaces of the top lid and the bottom lid each define a concave structure.
10. The device of any of claims 1-9, wherein the outside surfaces of the top lid and the bottom lid each define a convex structure.
11. The device of any of claims 1-10, wherein the collapsible liquid collection structure comprises a polymeric material or an elastomeric material.
12. The device of claim 11, wherein the collapsible liquid collection structure comprises a hydrophobic coating.
13. The device according to any one of claims 1-12, further comprising a latch mechanism that is adapted to lock the top lid and bottom lid in the closed position.
14. The device according to any one of claims 1-13, further comprising a mounting mechanism adapted to attach the device to a toilet.
15. The device according to any one of claims 1-14, further comprising a toilet seat.
16. A system comprising:
 - a toilet, wherein the toilet defines a bowl portion;
 - a toilet seat;
 - a cover mechanism comprising a top lid and a bottom lid, said top lid and said bottom lid each having an inside surface, an outside surface, a proximal end, a distal end, a right portion, and a left portion, wherein the top lid and bottom lid are hingedly connected at their distal ends to permit the cover mechanism to have an open position and a closed position; and
 - a collapsible liquid collection structure having a base portion attached to the inside surface of the bottom lid and an upper portion attached to the inside surface of the top lid, wherein the collapsible liquid structure is adapted to define a right splashguard and a left splashguard when the cover mechanism is placed in the open position,
 - wherein the device further defines a fluid passage aperture positioned toward the distal ends of the top and bottom lids.
17. The system of claim 16, wherein the toilet further comprises a tank.
18. The system of any one of claims 1-17, wherein the fluid passage aperture is in fluid

communication with the bowl.

19. A kit comprising:

a device comprising:

a cover mechanism comprising a top lid and a bottom lid, said top lid and said bottom lid each having an inside surface, an outside surface, a proximal end, a distal end, a right portion, and a left portion, wherein the top lid and bottom lid are hingedly connected at their distal ends to permit the cover mechanism to have an open position and a closed position; and

a collapsible liquid collection structure having a base portion attached to the inside surface of the bottom lid and an upper portion attached to the inside surface of the top lid, wherein the collapsible liquid structure is adapted to define a right splashguard and a left splashguard when the cover mechanism is placed in the open position,

wherein the device further defines a fluid passage aperture positioned toward the distal ends of the top and bottom lids; and

instructions for installing the device on a toilet.

20. The kit according to claim 19, further comprising a toilet seat.

21. The kit according to any one of claims 19-20, further comprising a mounting mechanism for attaching the device to the toilet.

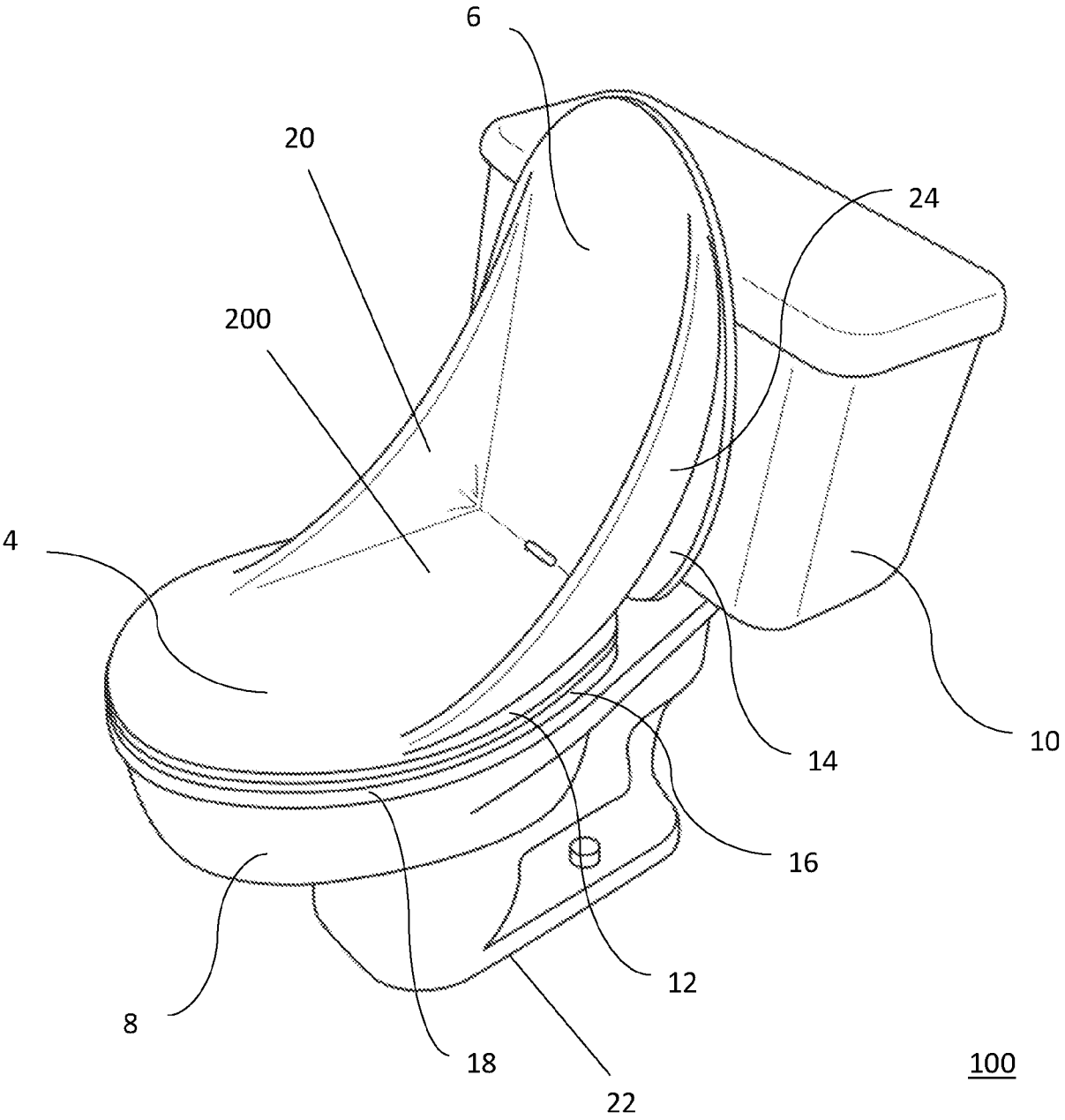


FIG. 1

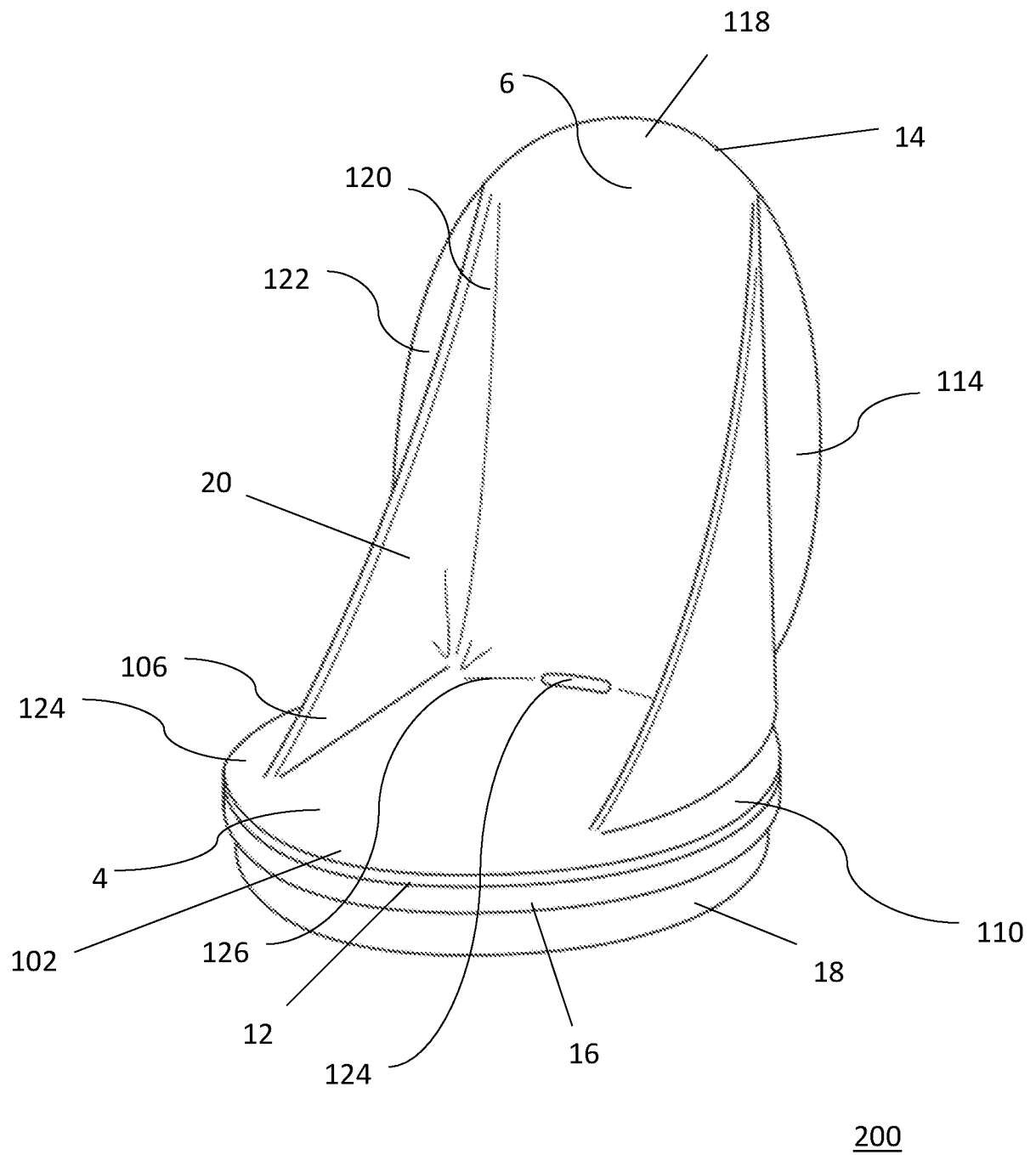


FIG. 2

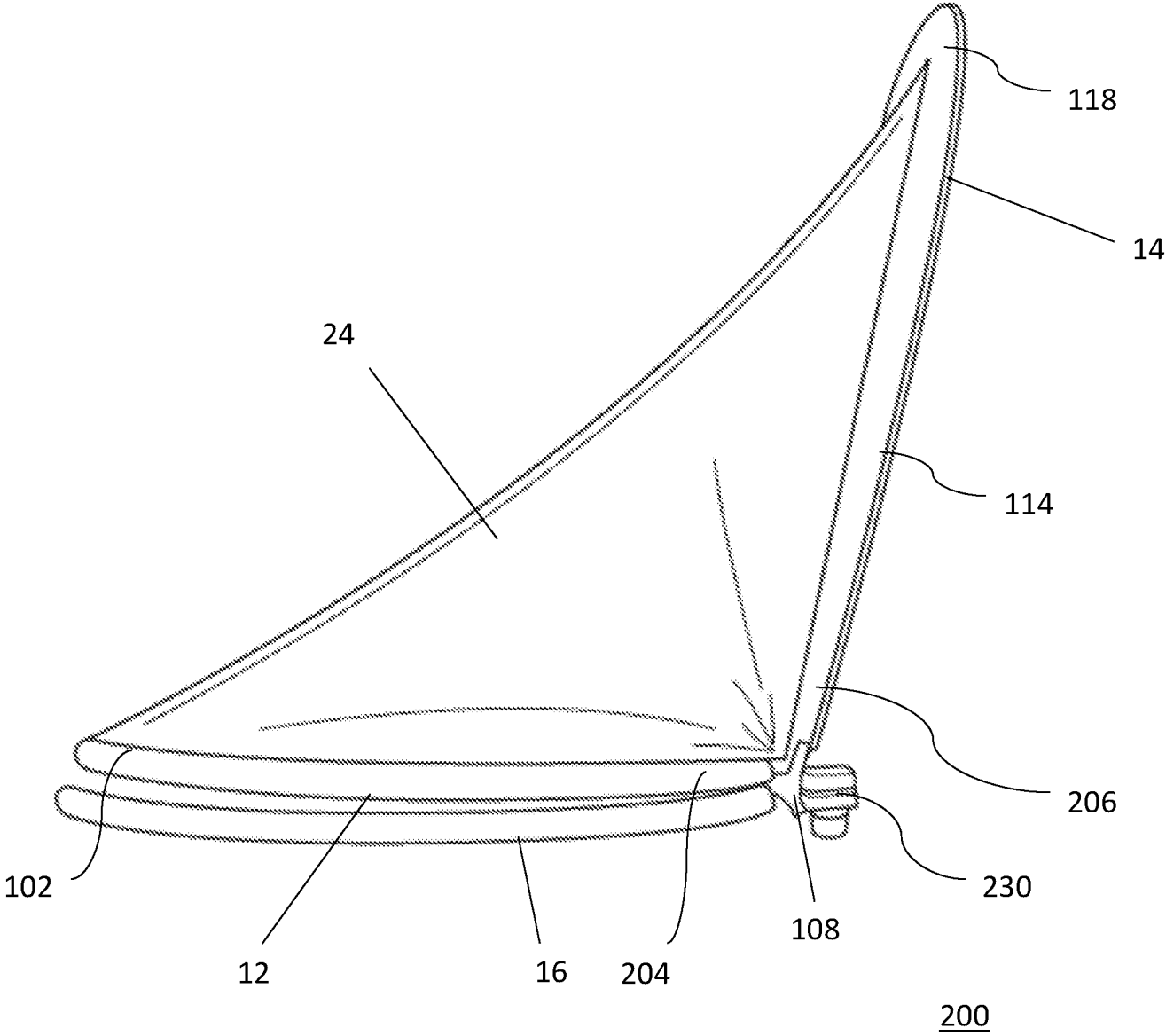


FIG. 3

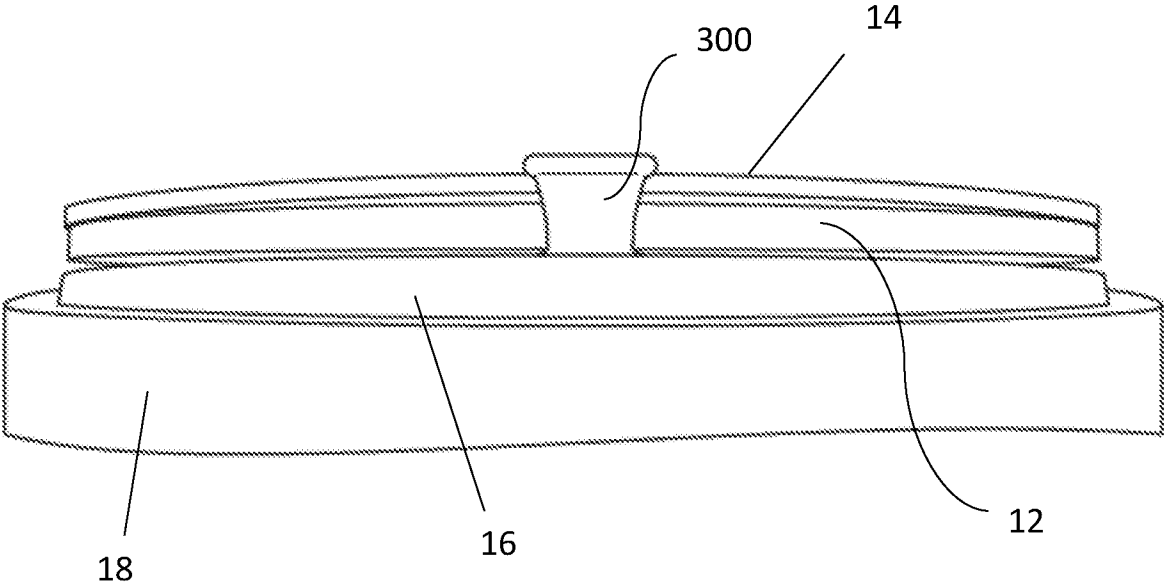


FIG. 4

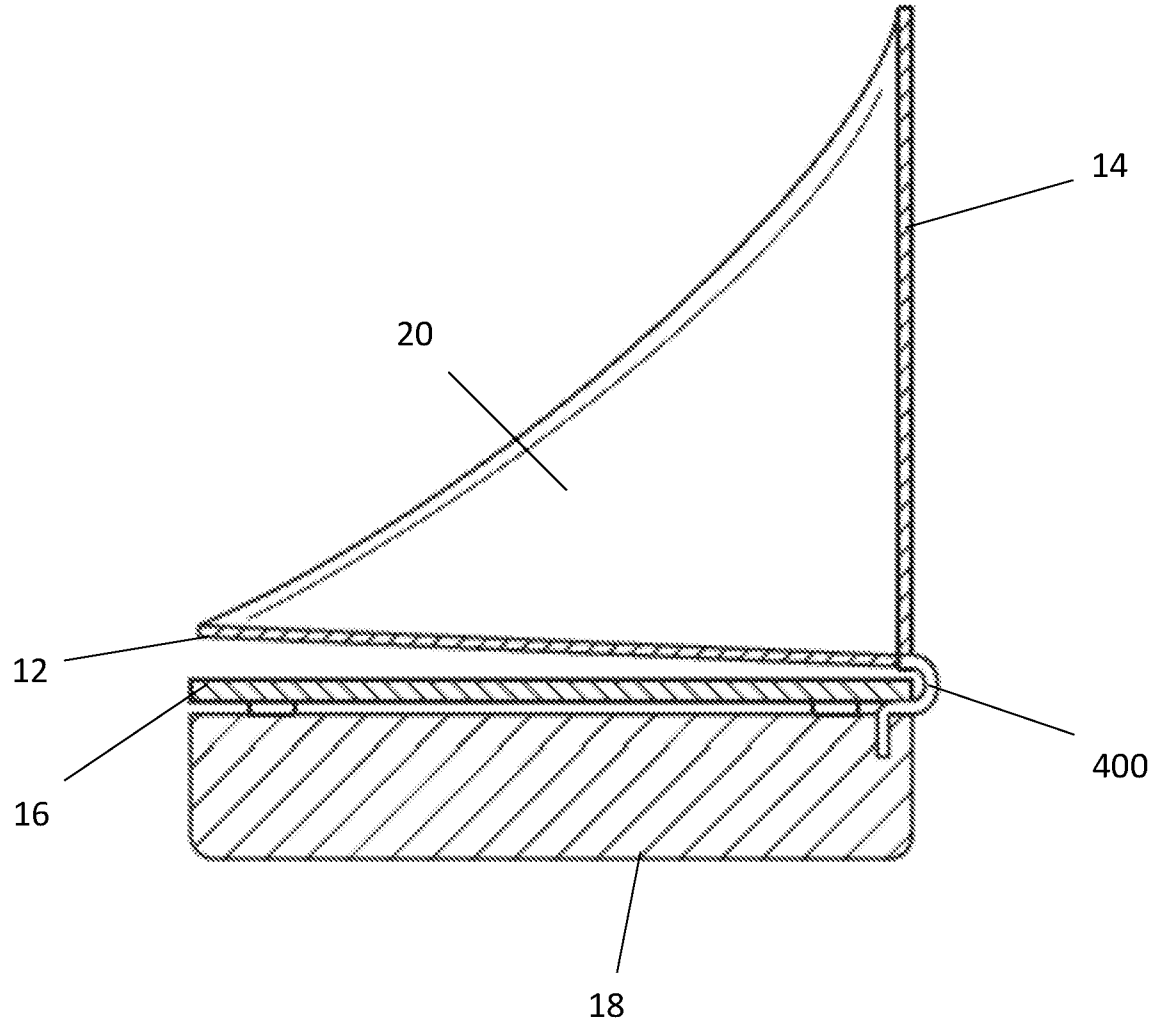


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US17/63788

A. CLASSIFICATION OF SUBJECT MATTER
IPC - A47K 13/00, 13/08; E03D 9/00 (2017.01)
CPC - A47K 13/00, 13/08, 17/00; E03D 9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	USD 384,139 S1 (TRIBOLET, R) 23 September 1997; Figures 1-6; Description	1-3
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Y		16-17,19-21
Y	US 2013/0000027 A1 (SAN LUIS, D et al.) 3 January 2013; Paragraph [0044]	16-17,19-21

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

- * Special categories of cited documents:
- | | |
|---|---|
| <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> | <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p> |
|---|---|

Date of the actual completion of the international search
12 January 2018 (12.01.2018)

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US17/63788

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☒ Claims Nos.: 4-15, 18
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.