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(54) **LIGHTED ELASTOMERIC GASKET**

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(76) Inventors: **Victor Lee Walker**, Murrieta, CA (US);  
**Garth T.W. Weber**, Fallbrook, CA  
(US); **Angelo Vito Pugliese JR.**, Vista,  
CA (US); **Timothy P. Pflueger**,  
Escondido, CA (US)

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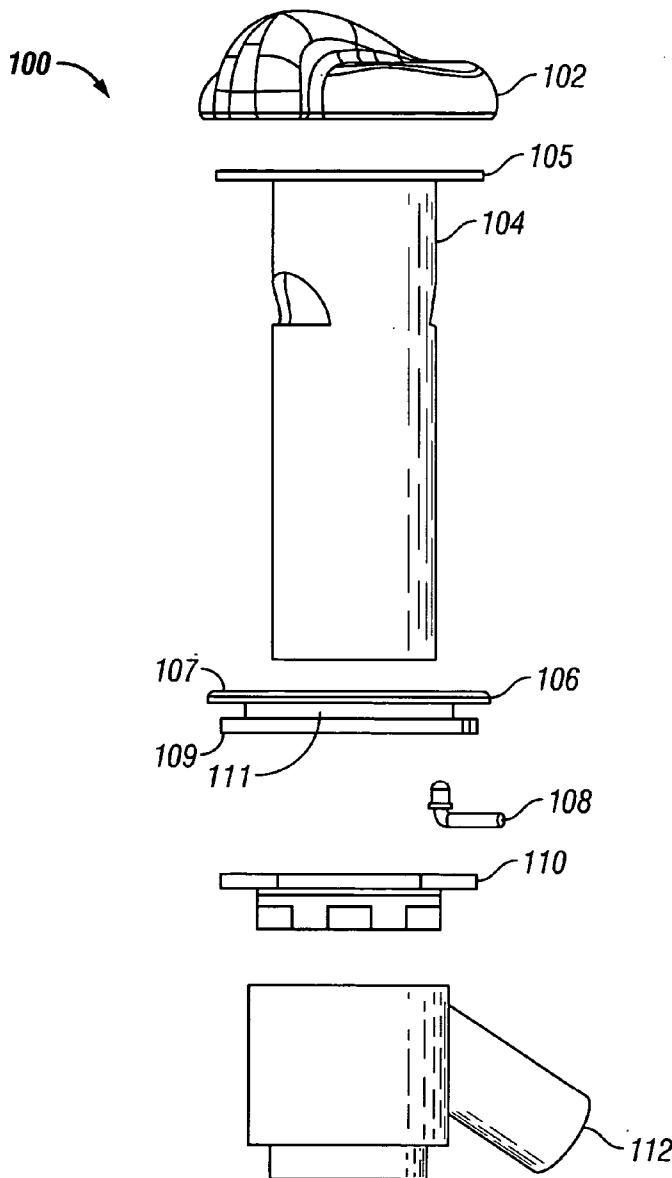
(57) **ABSTRACT**

Correspondence Address:  
**FISH & RICHARDSON, PC**  
**P.O. BOX 1022**  
**MINNEAPOLIS, MN 55440-1022 (US)**

A gasket for a spa shell includes a body formed of an at least partially translucent material. The gasket includes a top ring configured to abut a top surface of the spa shell and a bottom ring configured to abut a bottom surface of the spa shell. In one embodiment, the gasket includes an indentation configured to receive light from a light source for transmission through the body. The gasket may be formed with an elastomer.

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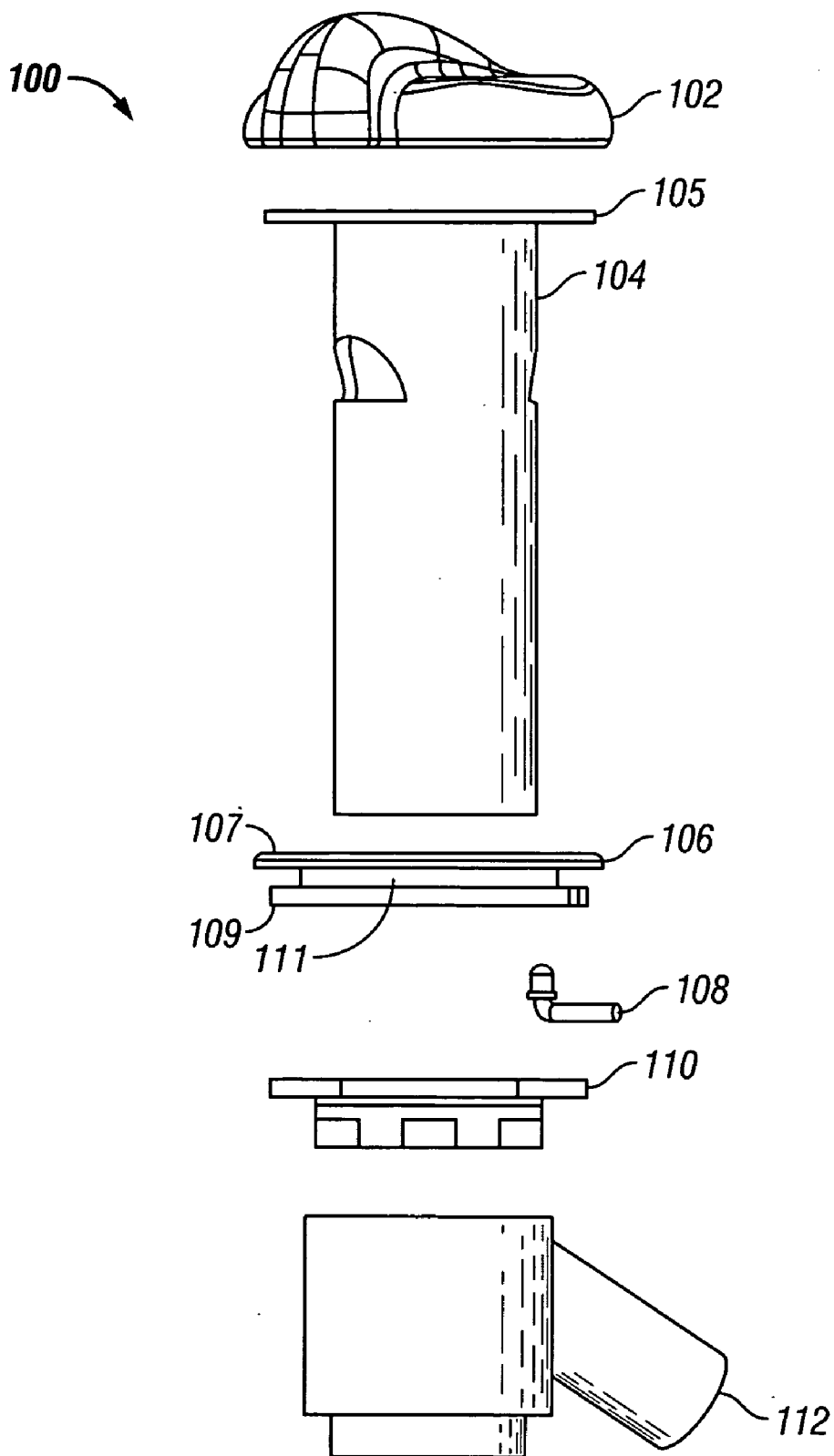


FIG. 1

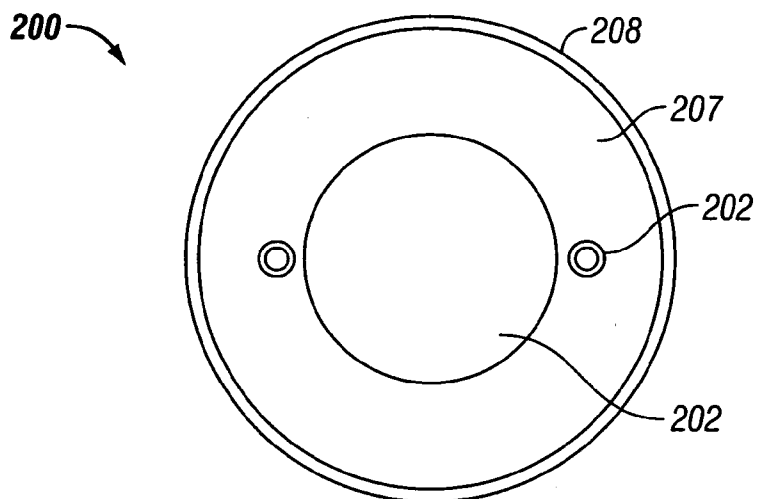


FIG. 2A

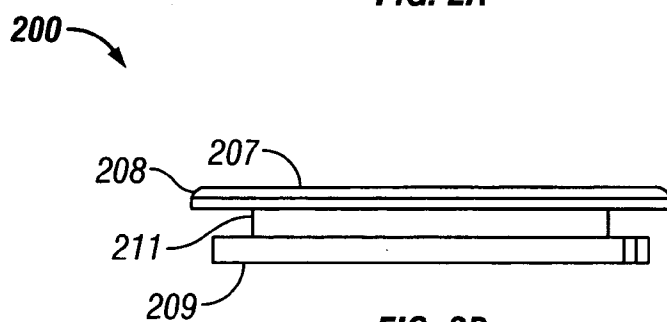


FIG. 2B

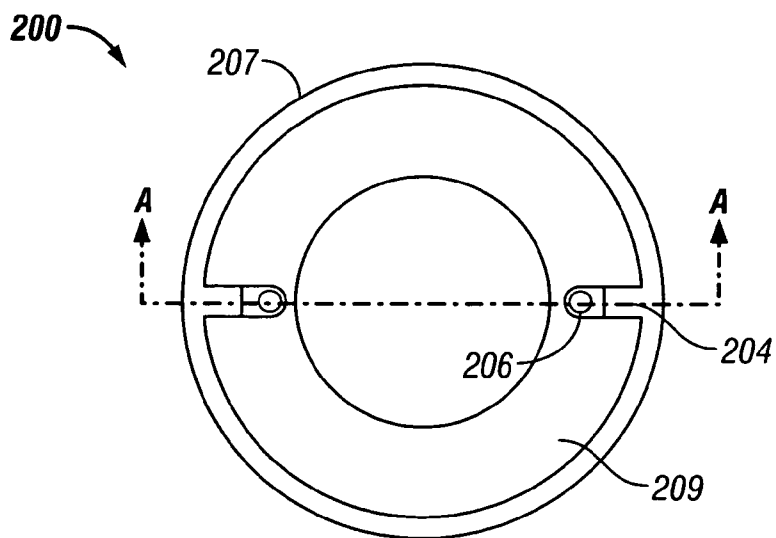


FIG. 2C

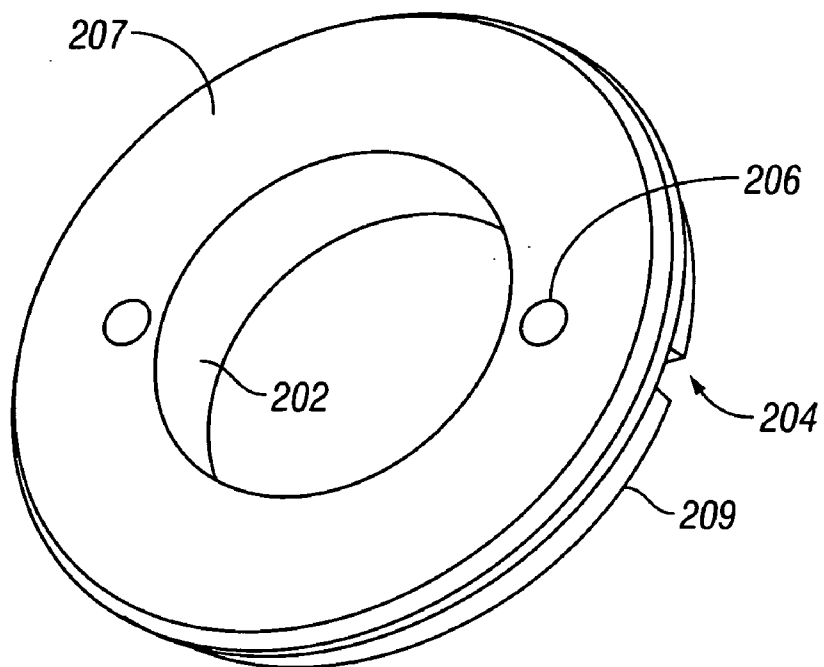


FIG. 2D

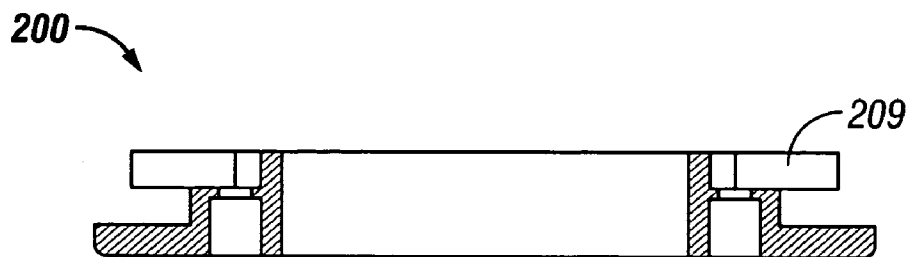


FIG. 2E

**LIGHTED ELASTOMERIC GASKET**

**BACKGROUND**

[0001] In spas, hot tubs or swimming pools (referred to generically herein as “spa”), accent lighting has become a ubiquitous feature. Access lighting illuminates user controls, as well as improves aesthetic qualities of a spa. With respect to user controls, such as knobs controlling valves, etc., accent lighting assists the user in locating controls in low light conditions, as well as providing an attractive accent. Conventional access lighting mechanisms for user controls consist of an acrylic ring with tubes descending from the ring for receiving light from a light source.

[0002] Conventional access lighting designs have several inherent problems. First, acrylic material transmits light too efficiently, usually causing a brighter light than is desired for a quiet accent, particularly in low-light environments such as night-time. Instead of a low glowing accent effect, the individual light sources are too easily perceivable, and can be quite bright.

[0003] Another, more significant problem is that the use of an acrylic ring requires an additional and separate gasket at the junction between the user control and the spa shell. Added to problems sealing the spa shell against the acrylic ring, the conventional designs typically require drilling multiple holes in the spa shell to anchor the additional gasket, which creates more sources for possible leaks. One solution has been to cut an oversized hole in the spa shell to accommodate the light source tubes. However this causes its own sealing difficulties.

**SUMMARY**

[0004] A gasket for a spa shell is disclosed. In an embodiment, the gasket includes a body formed of an at least partially translucent material and having a top ring configured to abut a top surface of the spa shell and a bottom ring configured to abut a bottom surface of the spa shell. The gasket can also include a middle ring disposed between the top ring and the bottom ring.

[0005] In accordance with another embodiment, a user control system for a spa includes a user-operable control interface configured for placement on a top surface of a spa shell, and a controller configured for extending below the spa shell. The system further includes a gasket comprising a body formed of an at least partially translucent and elastomeric material and having a top ring, a recessed middle ring, and a bottom ring. The gasket is further configured for placement around the controller and between the control interface and the top surface of the spa shell.

[0006] The details of one or more embodiments are set forth in the accompanying drawings and the description below. Other features and advantages will be apparent from the description and drawings, and from the claims.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0007] These and other aspects will now be described in detail with reference to the following drawings.

[0008] **FIG. 1** shows an exploded view of a spa control including a gasket formed of an at least partially translucent, elastomeric material.

[0009] **FIGS. 2A-E** show various views of a gasket in accordance with one embodiment.

[0010] Like reference symbols in the various drawings indicate like elements.

**DETAILED DESCRIPTION**

[0011] This document discloses an elastomeric gasket having light-carrying capacities for illuminating a control feature of a spa. The gasket is preferably formed of a unitary body capable of being inserted into a hole in the spa shell, to abut both the top surface and bottom surface of the spa shell.

[0012] **FIG. 1** shows an exploded view of one type of spa control **100**, a valve assembly, including a gasket **106** formed of an at least partially translucent, elastomeric material. The spa control **100** includes a control interface **102**, such as a user-operable cap/handle that is mountable on a controller **104** such as a valve body. In the example, the cap/handle can be operated by a user for positioning the valve body for controlling a spa feature such as a pump, jet, light or fountain. Other interfaces **102** include data readouts, buttons, touch-sensitive controls, etc. The controller **104** extends below a spa shell (not shown), and can include a flange **105** for abutting against a top surface of the spa shell.

[0013] The control interface **102** and/or controller **104** interfaces with the spa shell via the gasket **106**. Spa shells are typically no greater than 0.25 inches thick. The elastomeric gasket includes a recessed middle ring **111** that is adapted to the thickness of a spa shell and which fits into a hole provided in the spa shell. The recessed middle ring **111** is formed between a top ring **107** and a bottom ring **109**. The top ring **107** is adapted to abut against the top surface of the spa shell, while the bottom ring **109** is adapted to abut against the bottom surface of the spa shell. The top ring **107** and bottom ring **109** are further adapted to inhibit the passage of water or other objects past the recessed middle ring **111**. While the top ring **107**, bottom ring **109** and recessed middle ring **111** can be rounded, they may also be squared or any other shape having an aperture therethrough.

[0014] The gasket **106** is formed of an elastomeric material, including but not limited to, natural rubber, polyisoprene, polybutadiene, polyisobutylene, polyurethane, silicone RTV, fluorosilicone, or other elastomer. In one embodiment, the gasket **106** is formed of a unitary piece of material. In an alternative embodiment, the gasket **106** is formed of two or more pieces, which can have variable relative elasticity. The gasket **106** is also preferably translucent, or has light-carrying characteristics. In an exemplary embodiment, a light source **108** such as a light emitting diode (LED) can be placed next to or into the gasket **106** to illuminate the gasket **106**.

[0015] In the example spa control **100**, the gasket **106** can be secured in place against the top and bottom of the spa shell, via top and bottom rings **107** and **109** respectively, by application of a nut **110** or other tightening mechanism. The nut **110** can be threaded onto threads provided on the controller, in one example. The spa control **100** can include a valve tee **112** for connection of the spa control **100** to another part of the spa.

[0016] **FIGS. 2A-E** show various views of a gasket in accordance with one embodiment. **FIG. 2A** shows a top

view of a gasket **200** and a top ring **207** that forms an aperture **202**. The top ring **207** is formed with a ridge **208**. The top ring **207** propagates light energy out through its surfaces, and in particular the ridge **208** which is adapted to be viewed by a user operating a spa control to which the gasket **200** is connected. The ridge **208** is illuminated to contrast at least slightly with the rest of the top ring **207** for prominence.

[0017] **FIG. 2B** is a front view of the gasket **200** as a planarized disk. The gasket **200** includes the top ring **207**, a bottom ring **209**, and a recessed middle ring **211** therebetween. The top ring **207** preferably includes the ridge **208** formed at an angle between 10-80 degrees from the top surface of the top ring **207**. The middle ring **211** has a depth that is adapted to correspond with a thickness of a spa shell to which the gasket is to be attached. The bottom ring **209** is substantially planar, and preferably (though not necessarily) has a diameter that is slightly less than the diameter of the top ring **207** for ease of installation, and due to the relative greater importance of the top ring **207** forming a watertight seal against the spa shell to prevent water or other matter from entering the spa shell from its top surface past the middle ring **211**.

[0018] **FIG. 2C** is a bottom view of the gasket **200** illustrating the bottom ring **209** and its preferred relative size against the top ring **207**. The bottom ring **209** may include one or more indentations **204**. The indentations **204** can be used to receive light from a light source (not shown), such as an LED, or to receive the light source itself. The light source can illuminate the entire gasket **200** which propagates light energy out of the top ring **207** for being viewed by a user of the spa. The indentations **204** can be a cavity, aperture or notch (as shown) formed into the bottom ring **209**. The bottom ring **209** may also include one or more holes **206** for receiving an anchoring and positioning mechanism, to anchor and/or position the gasket **200** relative to another part of the spa.

[0019] **FIG. 2D** is a perspective view of the gasket **200**, illustrating the uniform formation of the center aperture **202**. The holes **206** may also extend through the top ring **207**, while indentations **204** may be provided only to the bottom ring **209**. The gasket **200** is shown as substantially circular, but can be squared, triangular, or any shape. Likewise, the gasket **200** is shown as having a uniform center aperture **202**, although such aperture **202** may be ridged or rifled. **FIG. 2E** shows a cross-sectional view of a gasket **200**, in a view of line A-A shown in **FIG. 2C**, i.e. top ring **207** down.

[0020] Although a few embodiments have been described in detail above, other modifications are possible. Other embodiments may be within the scope of the following claims.

1. A gasket for a spa shell, the gasket comprising:
  - a body formed of an at least partially translucent material and having a top ring configured to abut a top surface of the spa shell and a bottom ring configured to abut a bottom surface of the spa shell.
  2. A gasket in accordance with claim 1, further comprising a recessed middle ring disposed between the top ring and bottom ring.
  3. A gasket in accordance with claim 1, further comprising at least one indentation for receiving light from a light source.

4. A gasket in accordance with claim 3, wherein the indentation is formed in the bottom ring.

5. A gasket in accordance with claim 1, wherein the body is a planarized disk.

6. A gasket in accordance with claim 1, wherein a diameter of the bottom ring is less than a diameter of the top ring.

7. A gasket in accordance with claim 6, wherein a diameter of the recessed middle ring is less than the diameter of the bottom ring.

8. A gasket in accordance with claim 1, wherein the at least partially translucent material includes an elastomer that is selected from group consisting of: natural rubber, polyisoprene, polybutadiene, polyisobutylene, polyurethane, silicone RTV, or fluorosilicone.

9. A gasket in accordance with claim 1, wherein the top ring, recessed middle ring, and bottom ring form a uniform middle aperture.

10. A gasket in accordance with claim 1, wherein the top ring, recessed middle ring, and bottom ring form a notched middle aperture.

11. A user control system for a spa, comprising:

- a user-operable control interface configured for placement on a top surface of a spa shell;

- a controller configured for extending below the spa shell; and

- a gasket comprising a body formed of an at least partially translucent and elastomeric material and having a top ring, a recessed middle ring, and a bottom ring, the gasket being configured for placement around the controller and between the control interface and the top surface of the spa shell.

12. A system in accordance with claim 11, further comprising a light source for illuminating the gasket.

13. A system in accordance with claim 12, wherein the gasket includes at least one indentation for receiving light from the light source.

14. A system in accordance with claim 11, wherein the top ring is configured for abutting the top surface of the shell, and wherein the bottom ring is configured for abutting a bottom surface of the spa shell.

15. A system in accordance with claim 14, further comprising a nut configured to secure the bottom ring to the bottom surface of the spa shell.

16. A system in accordance with claim 11, wherein a diameter of the top ring is greater than a diameter of the bottom ring.

17. A system in accordance with claim 16, wherein the diameter of the bottom ring is greater than a diameter of the recessed middle ring.

18. A system in accordance with claim 11, wherein the recessed middle ring has a height that substantially corresponds with a thickness of the spa shell.

19. A spa, comprising:

- a spa shell;

- a user-operable control provided on a top surface of the spa shell; and

- a gasket for placement in a hole in the spa shell, the gasket including a body formed of an at least partially translucent elastomer material and having a top ring, a

recessed middle ring, and a bottom ring, wherein the top ring is configured to abut the top surface of the spa shell in proximity to the user-operable control, and wherein the bottom ring is configured to abut a bottom surface of the spa shell.

20. A spa in accordance with claim 19, further comprising a light source positioned to illuminate the at least partially translucent material.

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