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**Miller et al.**

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(54) **RUGGEDIZED PROTECTIVE CASE WITH  
INTEGRATED EASEL KICKSTAND FOR  
MOBILE DEVICE**

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U.S.C. 154(b) by 0 days.

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**Related U.S. Application Data**

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24, 2016.

(51) **Int. Cl.**  
**H04B 1/3877** (2015.01)  
**H04B 1/3888** (2015.01)

(52) **U.S. Cl.**  
CPC ..... **H04B 1/3888** (2013.01); **H04B 1/3877**  
(2013.01)

(58) **Field of Classification Search**  
CPC ..... H04B 1/3888; H04B 1/3877  
See application file for complete search history.

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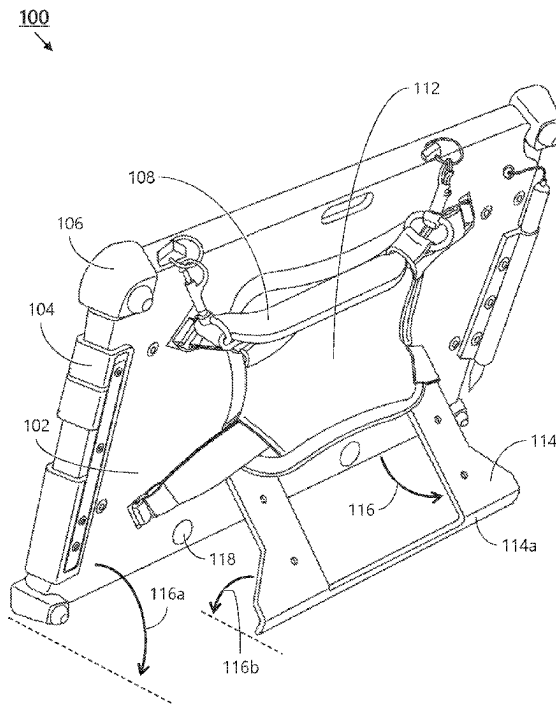
*Primary Examiner* — Nguyen T Vo

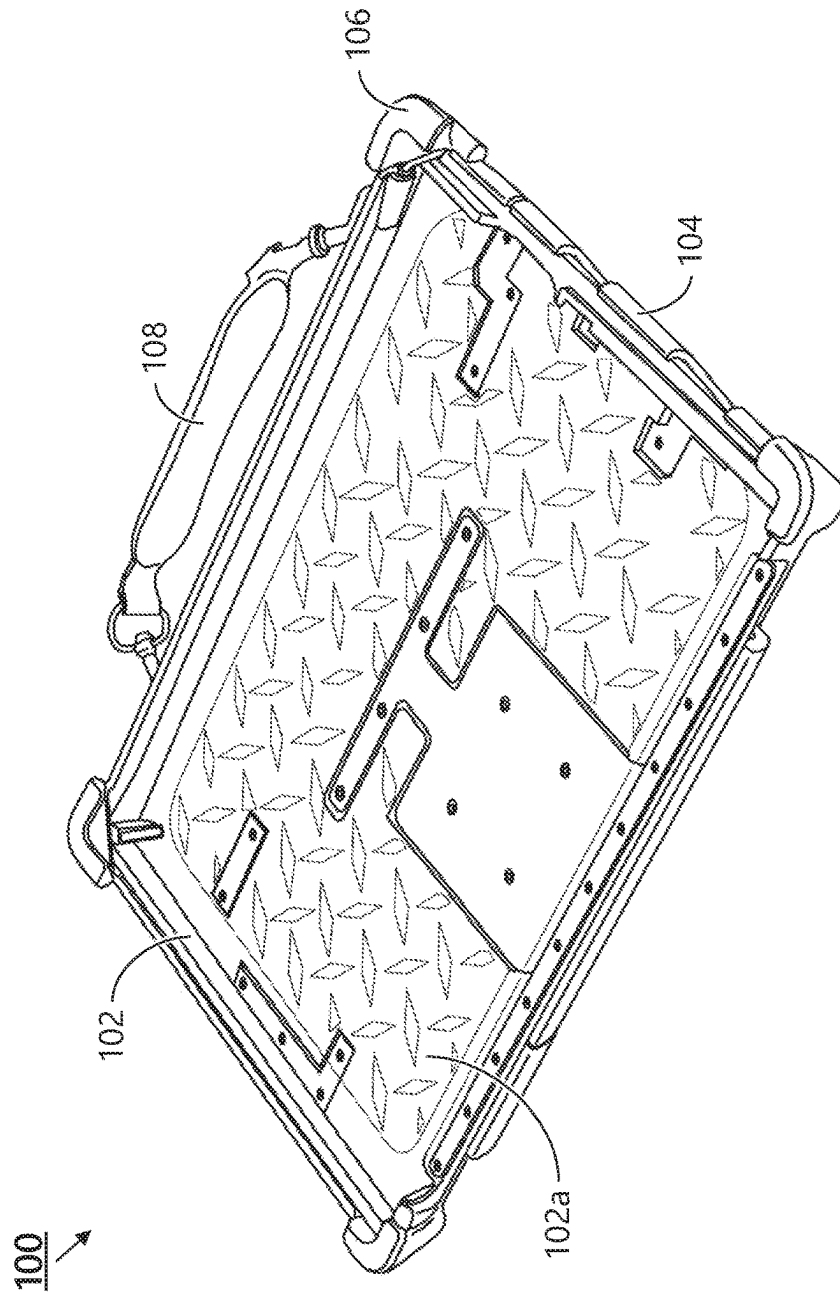
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(57) **ABSTRACT**

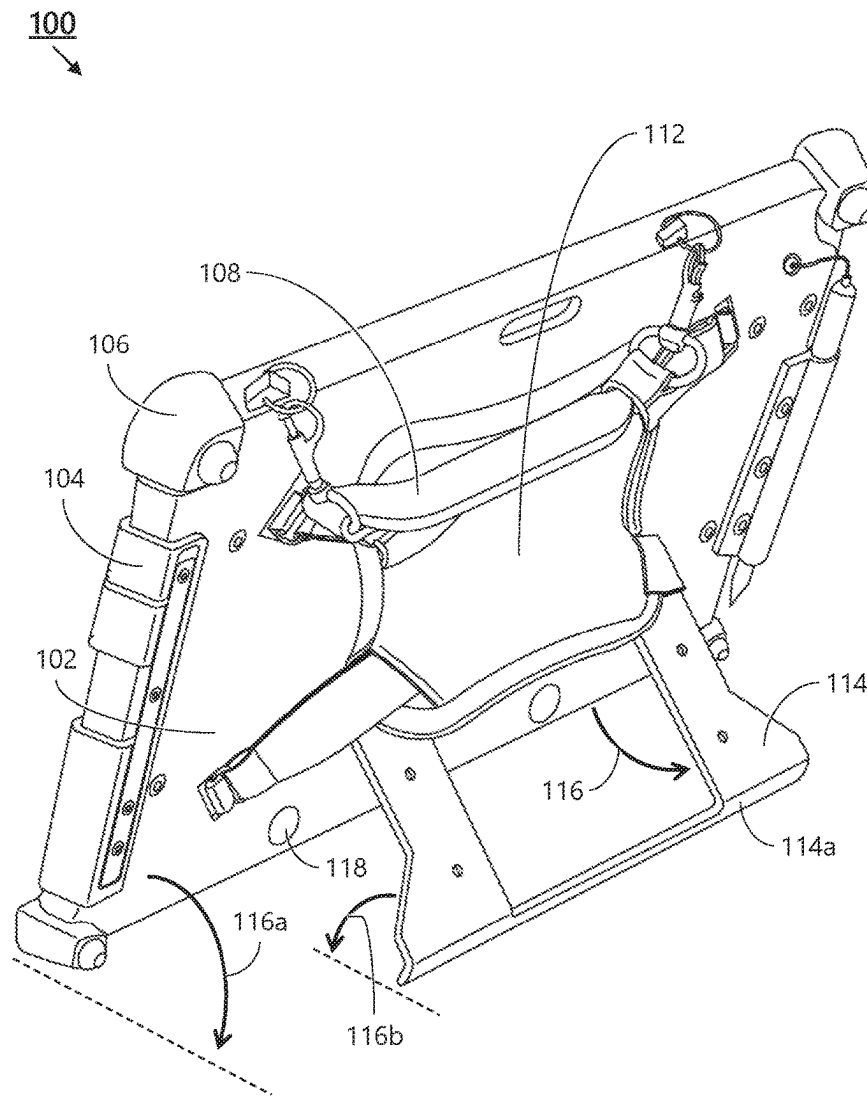
In a first aspect, embodiments of the inventive concepts disclosed herein are directed to a ruggedized protective case for a tablet, smartphone, or other like mobile communications or computing device. The case may include a rigid inner housing shielding the reverse face of the mobile device and a flexible, rubberized outer housing including reinforced impact-absorbing corners. The case may include a kickstand/easel hingedly attached to the rear inner housing, positionable by a user for holding the mobile device at any desired angle to a substantially horizontal surface.

**8 Claims, 5 Drawing Sheets**

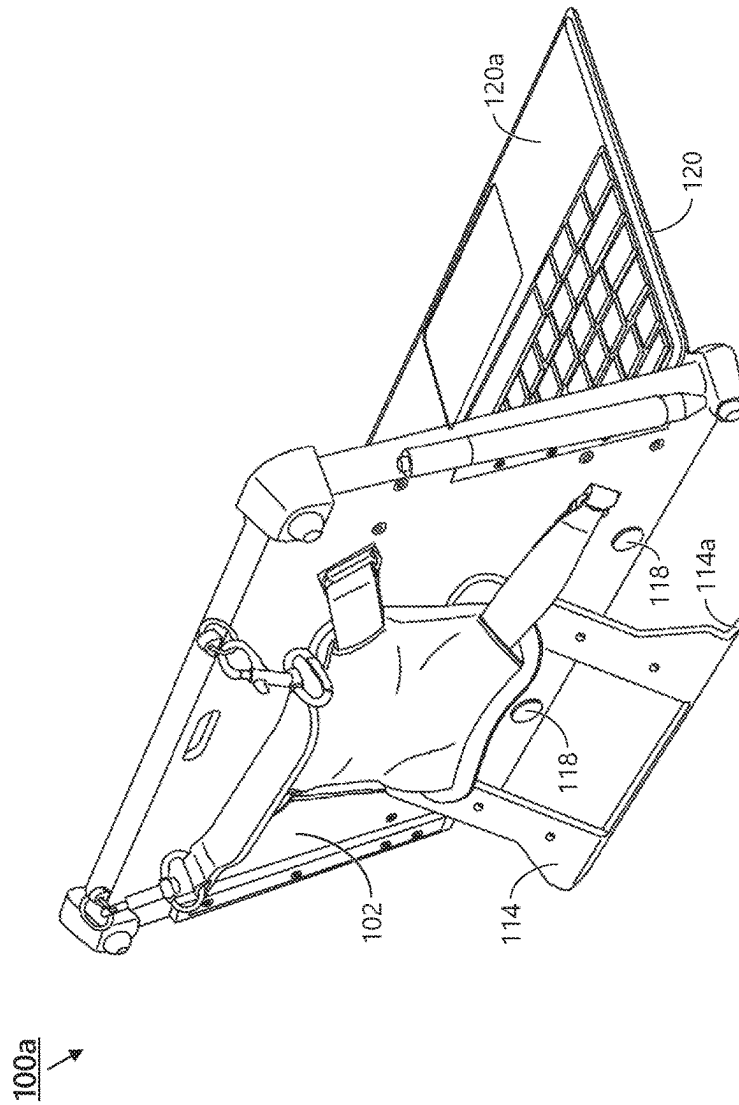




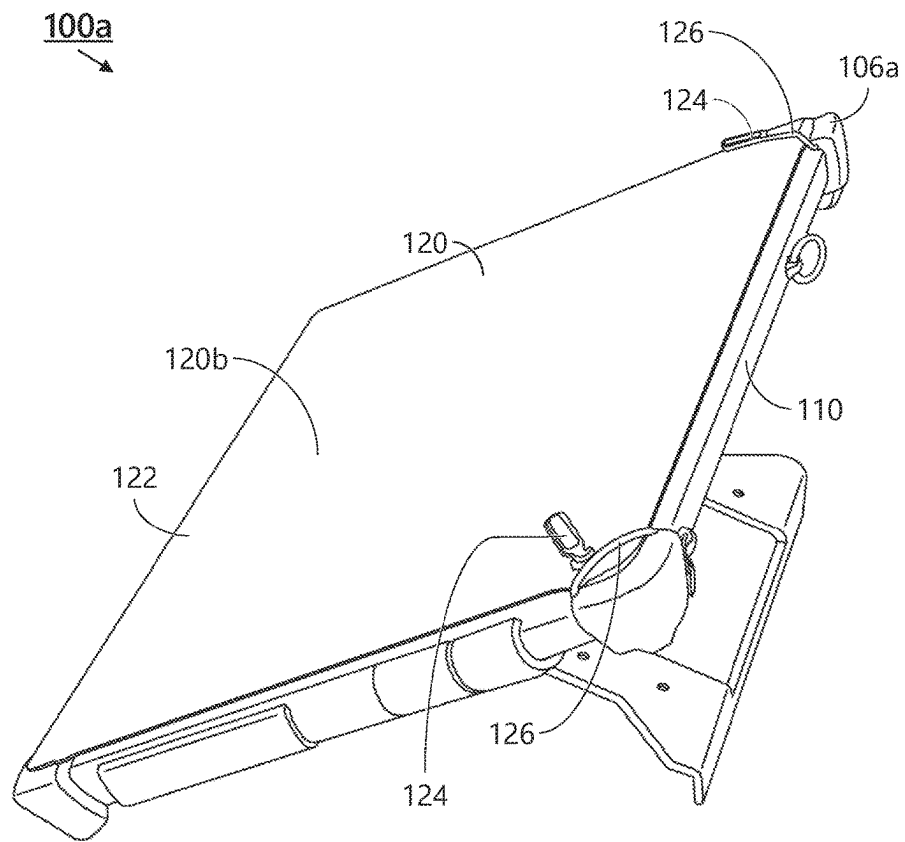
**FIG. 1A**



**FIG. 1B**



**FIG. 2A**



**FIG. 2B**

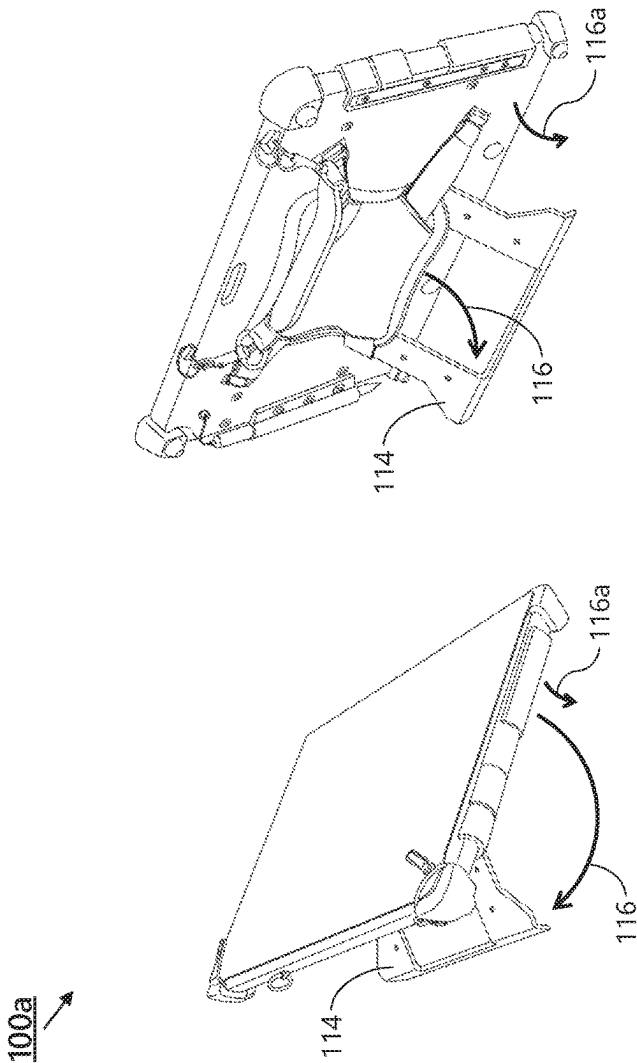


FIG. 3

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## RUGGEDIZED PROTECTIVE CASE WITH INTEGRATED EASEL KICKSTAND FOR MOBILE DEVICE

### CROSS-REFERENCE TO RELATED APPLICATIONS

The instant application claims priority under 35 U.S.C. § 119(e) to provisional U.S. Patent Application Ser. No. 62/299,360, filed on Feb. 24, 2016. Said provisional U.S. Patent Application 62/299,360 is herein incorporated by reference in its entirety.

### SUMMARY

In a first aspect, embodiments of the inventive concepts disclosed herein are directed to a ruggedized protective case for a tablet, smartphone, or other like mobile communications or computing device. The case may include a rigid inner housing shielding the reverse face of the mobile device and a flexible, rubberized outer housing including reinforced impact-absorbing corners. The case may include a kickstand/easel hingedly attached to the rear inner housing, positionable by a user for holding the mobile device at any desired angle to a substantially horizontal surface.

### BRIEF DESCRIPTION OF THE DRAWINGS

Implementations of the inventive concepts disclosed herein may be better understood when consideration is given to the following detailed description thereof. Such description makes reference to the included drawings, which are not necessarily to scale, and in which some features may be exaggerated and some features may be omitted or may be represented schematically in the interest of clarity. Like reference numerals in the drawings may represent and refer to the same or similar element, feature, or function. In the drawings:

FIG. 1A is an overhead view of an exemplary embodiment of a ruggedized protective case according to the inventive concepts disclosed herein;

FIG. 1B is a rear view of the protective case of FIG. 1A;

FIGS. 2A and 2B are side views of the protective case of FIG. 1A, including a mobile device.

FIG. 3 illustrates operations of the protective case of FIG. 2B.

### DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

Referring to FIGS. 1A and 1B, a ruggedized protective case **100** for a mobile device is shown. The protective case **100** may be sized to a particular mobile device or class thereof; for example, the protective case **100** may be configured to partially or fully enclose the rear face (e.g., the face opposite the screen or display surface) of a tablet or smartphone, protecting the mobile device from shock or from the elements. The protective case **100** may include a rigid inner housing **102** molded from enterprise-grade high impact plastic or a similar lightweight, durable, rigid material. The inner housing **102** may contact the rear face of the mobile device via an inner surface **102a**. The protective case **100** may include a flexible or rubberized outer housing **104** removably attachable to, and partially enclosing, the inner housing **102**. For example, the outer housing **104** may include protective coverings corresponding to gaps in the inner housing **102** and hingedly attached to the outer hous-

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ing, the protective coverings insulating ports or drives (e.g., USB ports, power inputs) positioned in the edges of the mobile device. Further, the outer housing **104** may include reinforced rubberized bumpers **106** providing added impact protection to the corners of the mobile device; it is contemplated that the bumpers **106** may provide sufficient protection to meet MIL-STD-810G testing standards. The protective case **100** may include one or more carrying handles **108** for transport of the mobile device. The protective case **100a** may include an adjustable carrying strap **112** attached to the inner housing **102**.

The protective case **100** may include a kickstand **114** comprised of a rigid metal core overmolded in rubber or a like synthetic rubberized material. The kickstand **114** may be attached to the exterior of the inner housing **102** by one or more friction hinges, incorporating hinge knuckles and pivot pins to create tension forcing the outer end (**114a**) of the kickstand away from the inner housing **102** in a radial fashion, separating the kickstand **114** from the inner housing **102**. The kickstand **114** may be manipulated by a user to hold the kickstand at any desired angle (**116**) from the inner housing **102** to which it is positioned (as opposed to being positionable to one of a finite set of detent positions) through a rotational angle of substantially 170-180 degrees, thus positioning the mobile device **110** at an angle (**116a**) to a substantially flat, horizontal working surface. For example, should the kickstand **114** be extended to the maximum desired angle, both the kickstand **114** and the mobile device **110** (e.g., the screen or display surface of the mobile device) would be substantially parallel to the flat surface against which the mobile device **110** is positioned. It may be noted that the angle **116** between the kickstand **114** and the inner housing **102**, the angle **116a** between the mobile device **110** and the working surface, and the angle **116b** between the kickstand **114** and the working surface may define a triangle, and thus total 180 degrees between the three angles **116**, **116a-b**. The rubberized outer end **114a** of the kickstand **114** may serve to hold the kickstand **114**, and thus the mobile device **110**, in the desired orientation to which it has been positioned on the working surface. As the metal core of the kickstand **114** may include a passive magnetic material, the outer housing **102** may include one or more magnets **118** for holding the kickstand **114** in place when repositioned to a substantially flush position against the outer housing **102**. The magnets **118** may be appropriately shielded to insulate the mobile device **110** and its components from magnetic corruption.

Referring now to FIGS. 2A and 2B, the protective case **100a** may be implemented and may function similarly to the protective case **100** of FIG. 1, except that the protective case **100a** may include a mobile device **110**. The mobile device **110** may include a portable keyboard **120** for use with the mobile device. For example, the portable keyboard **120** may comprise electronics housed within a flexible, rubberized sheet, the electronics connected to keys and touch-sensitive surfaces situated within an inner surface (**120a**). Referring in particular to FIG. 2B, the portable keyboard **120** may be magnetically attachable (**122**) to the mobile device **110** and have an outer surface (**120b**) serving as a protective cover for the mobile device **110** and its display surface. One or more reinforced rubberized bumpers (**106a**) may include corner tabs **124** attached to the reinforced rubberized bumpers by spring-loaded cables (**126**). For example, when the outer surface **120b** is positioned to cover the mobile device **110** (as shown by FIG. 2B), the corner tabs **124** may be

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extended from the reinforced rubberized bumpers **106a**, retracting automatically to secure the portable keyboard **120** to the mobile device **110**.

Referring to FIG. 3, the kickstand **114** may be repositioned to any desired angle **116** to the outer housing **102** in order to position the mobile device **110** at a desired angle (**116a**) to a working surface.

We claim:

1. A ruggedized protective case for a mobile computing device, comprising:  
 an inner housing configured to partially enclose a mobile computing device, the inner housing fashioned of a rigid material;  
 an outer housing configured to partially enclose the inner housing, the outer housing fashioned of a flexible material and including one or more reinforced corners, each reinforced corner configured to provide impact protection to a corner of the mobile computing device;  
 a kickstand consisting of a rigid core entirely overmolded with the flexible material, the kickstand having an inner end hingedly coupled to the inner housing and an outer end coupled to the kickstand at a first angle and configured to hold the mobile computing device at a second angle to a flat surface, the kickstand positionable at a third angle of at most 170 degrees to the inner housing.

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2. The ruggedized protective case of claim 1, wherein the mobile computing device includes at least one of a tablet and a smartphone.

3. The ruggedized protective case of claim 1, wherein the rigid core is at least partially fashioned of a passive magnetic material.

4. The ruggedized protective case of claim 3, wherein the inner housing includes at least one magnet configured to secure the kickstand to the inner housing by engaging with the passive magnetic material.

5. The ruggedized protective case of claim 4, wherein the at least one magnet is at least partially enclosed in a shield configured to insulate the mobile computing device from the at least one magnet.

6. The ruggedized protective case of claim 1, wherein the one or more reinforced corners include at least one corner tab coupled to the reinforced corner by a flexible cable, the corner tab configured to secure a covering to the mobile computing device.

7. The ruggedized protective case of claim 1, wherein: the rigid material includes a high impact plastic; and the flexible material includes a synthetic rubber.

8. The ruggedized protective case of claim 1, wherein the outer end is configured to conform to an edge of the mobile computing device when the kickstand is secured to the inner housing.

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