

(19)



(11)

**EP 2 599 954 A2**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:

**05.06.2013 Bulletin 2013/23**

(51) Int Cl.:

**E21B 33/12 (2006.01)**

**E21B 49/10 (2006.01)**

(21) Application number: **11290552.6**

(22) Date of filing: **30.11.2011**

(84) Designated Contracting States:

**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR**

Designated Extension States:

**BA ME**

(71) Applicants:

• **Services Pétroliers Schlumberger**  
**75007 Paris (FR)**

Designated Contracting States:  
**FR**

• **Schlumberger Technology B.V.**  
**2514 GJ The Hague (NL)**

Designated Contracting States:  
**AL BG CZ DE DK GR HU IE IT LT MK NO PL RO RS SI SK SM TR**

• **Schlumberger Holdings Limited**  
**Tortola (VG)**

Designated Contracting States:  
**GB NL**

• **PRAD Research and Development Limited**  
**Road Town, Tortola (VG)**

Designated Contracting States:  
**AT BE CH CY EE ES FI HR IS LI LU LV MC MT PT SE**

(72) Inventors:

• **Nguyen-Thuyet, Alain**  
**75015 Paris (FR)**

• **Belair, Lionel**  
**24660 Notre Dame de Sanilhac (FR)**

• **Tesson, Bruno**  
**19600 Saint Pantaléon de Larche (FR)**

(74) Representative: **Rzaniak, Martin**

**Etudes & Productions Schlumberger**  
**1, rue Henri Becquerel, BP 202**  
**92142 Clamart Cedex (FR)**

(54) **Probe packer and method of using same**

(57) A probe for forming a seal between a downhole tool and a wall of a wellbore, includes a probe inlet (120) extending from the downhole tool for fluid communication with a subterranean formation, a base (130) positionable about the downhole tool about the probe inlet, a packer (118) positionable on the base for forming a seal with the wellbore wall, and a raised packer support (342) and/or packer stopper (556) for supporting the packer as the packer is compressed against the wellbore wall. The

packer may have an inlet channel (536) extending there-through for receiving the probe inlet. The raised packer support can extend from the base for supporting the packer, and the packer may have a support channel extending a distance therein for receiving the raised packer support. The packer stopper can extend from the base about a perimeter of the packer with an expansion gap defined (562) therebetween.

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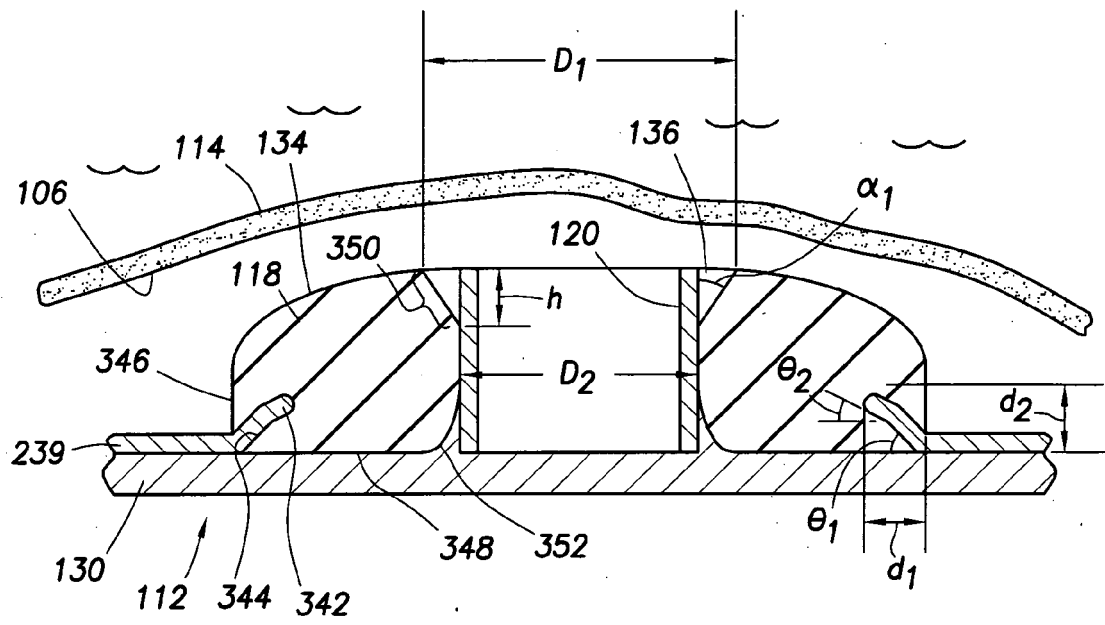


FIG.3A

## Description

### BACKGROUND

[0001] This present disclosure relates generally to techniques for performing formation evaluation. More specifically, the present disclosure relates to techniques, such as packers and/or probes, for sealing with a wall of a wellbore.

[0002] Downhole tools may be deployed into the earth to locate and gather valuable hydrocarbons. Drilling tools may be advanced from a surface rig into the earth to form a wellbore. The drilling tool may include a series of drill pipes with a drill bit at an end thereof rotationally advanced into the earth. A drilling mud may be pumped through the drilling tool and out of the drill bit to cool the drilling tool, to carry away cuttings generated during drilling, and to line the wellbore.

[0003] Formation evaluation tools may be deployed into the wellbore, for example, to investigate downhole formations and/or to determine the viability of retrieving hydrocarbons. In some cases, the formation evaluation tools may be part of the drilling tool. In other cases, the downhole tools may be removed from the wellbore so that a separate formation evaluation tool may be deployed into the wellbore to perform various operations, such as measuring, testing, sampling, or other formation evaluation operations.

[0004] Downhole tools may be provided with various formation evaluation devices (e.g., gauges, sensors, probes, fluid circuits, etc.) for performing formation evaluation. Some formation evaluation operations may involve drawing fluid into the downhole tool for testing and/or for collection in sample chambers. The downhole tool may be provided with one or more probes for forming a seal with a wall of the wellbore and drawing fluid therein. Examples of probes are described in US Patent Nos. 7793713, 7585786, 7458419 and 7114385. The probe may be provided with a packer for establishing the seal, and with an inlet for drawing fluid into the downhole tool. Examples of packers are described in US Patent/Application Nos. 7121338, 2007/0151727 and 2010/0155053.

[0005] Despite the development of certain probes and/or packers, there remains a need to provide advanced techniques for more effectively sealing with a wall of a wellbore. The disclosure herein is directed to fulfilling this need in the art.

### SUMMARY .

[0006] In at least one aspect, the techniques herein relate to a probe for forming a seal between a downhole tool and a wall of the wellbore. The probe has a packer that is supported as it is pressed against the wall of the wellbore. The packer may be provided with support features, such as a raised packer support for internal support thereof and/or a packer stopper for external support about a perimeter thereof.

[0007] In at least one aspect, the disclosure relates to a downhole tool including a probe for forming a seal between the downhole tool and a wall of a wellbore penetrating a subterranean formation. The downhole tool may include a probe inlet extending from the downhole tool for fluid communication with the subterranean formation, a base positionable about the downhole tool (the base having a raised packer support ring extending therefrom), and a packer for forming the seal with the wall of the wellbore. The packer may be positionable on the base and has an inlet channel extending therethrough for receiving the probe inlet. The packer may have a support channel extending a distance therein for receiving the raised packer support whereby the packer is supported as it is compressed against the wall of the wellbore.

[0008] The packer may have a donut shaped body. The support channel may extend into the packer from an outer perimeter downhole tool and from a base surface of the packer. The packer support ring may be a plate operatively connectable to the base or a downhole tool integral with the base. The packer support ring may have a raised lip on an inner diameter thereof, and the raised lip an S-shaped cross-section. The inlet channel may have an outwardly tapered outer portion adjacent an outer surface of the packer. The inlet channel may have an inwardly tapered inner portion adjacent a base surface of the packer. The probe inlet may be in fluid communication with a fluid circuit of the downhole tool. The base may be selectively extendable from a housing of the downhole tool. The downhole tool may be a wireline tool, a drilling tool, a coiled tubing tool, a completions tool, a testing tool, and/or a production tool.

[0009] In another aspect, the disclosure relates to a method of forming a seal between a downhole tool and a wall of a wellbore penetrating a subterranean formation. The method involves providing the downhole tool with a probe. The probe includes a probe inlet extending from the downhole tool for fluid communication with the subterranean formation, a base positionable about the downhole tool (the base having a raised packer support ring extending therefrom), and a packer for forming the seal with the wall of the wellbore. The packer is positionable on the base and has an inlet channel extending there-through for receiving the probe inlet. The packer has a support channel extending a distance therein for receiving the raised packer support whereby the packer is supported as it is compressed against the wall of the wellbore. The method further involves positioning the probe against the wall of the wellbore, and forming the seal between the packer and the wall of the wellbore by supporting the packer with the raised packer support ring while compressing the packer against the wall of the wellbore.

[0010] The method may also involve establishing fluid communication between the subterranean formation and the probe inlet, drawing fluid from the subterranean formation into the downhole tool, securing the packer to the base, and/or forming a seal between the packer and the

inlet.

**[0011]** In another aspect, the invention may relate to a downhole tool including a probe for forming a seal between the downhole tool and a wall of a wellbore penetrating a subterranean formation. The downhole tool including a probe inlet extending from the downhole tool for fluid communication with the subterranean formation, a base positionable about the downhole tool, a packer for forming the seal with the wall of the wellbore (the packer positionable on the base and having an inlet channel extending therethrough for receiving the probe inlet), and a packer stopper for supporting the packer. The packer stopper extends from the base about a perimeter of the packer with an expansion gap defined therebetween whereby the packer is supported as it is compressed against the wall of the wellbore.

**[0012]** The packer stopper may have a ring shaped body with one of a triangular cross-section, or a trapezoidal cross-section. The perimeter of the probe may be tapered away from the packer stopper and an inner diameter of the packer stopper is flat. The perimeter of the probe may be flat and an inner diameter of the packer stopper may be tapered away from the perimeter of the packer. The probe inlet may be in fluid communication with a fluid circuit of the downhole tool. The base may be selectively extendable from a housing of the downhole tool. The downhole tool may be a wireline tool, a drilling tool, a coiled tubing tool, a completions tool, a testing tool, and/or a production tool.

**[0013]** In yet another aspect, the disclosure relates to a method of forming a seal between a downhole tool and a wall of a wellbore penetrating a subterranean formation. The method involves providing the downhole tool with a probe. The probe includes a probe inlet extending from the downhole tool for fluid communication with the subterranean formation, a base positionable about the downhole tool, a packer for forming the seal with the wall of the wellbore (the packer positionable on the base and having an inlet channel extending therethrough for receiving the probe inlet), and a packer stopper for supporting the packer. The packer stopper extends from the base about a perimeter of the packer with an expansion gap is defined therebetween whereby the packer is supported as it is compressed against the wall of the wellbore. The method involves positioning the probe against the wall of the wellbore, and forming the seal between the packer and the wall of the wellbore by supporting the packer with the packer stopper while compressing the packer against the wall of the wellbore.

**[0014]** The method may also involve forming the seal involves permitting the packer to expand into the expansion gap, establishing fluid communication between the subterranean formation and the probe inlet, drawing fluid from the subterranean formation into the downhole tool, securing the packer to the base, forming a seal between the packer and the probe inlet.

**[0015]** This summary is provided to introduce a selection of concepts that are further described below in the

detailed description. This summary is not intended to identify key or essential features of the claimed subject matter, nor is it intended to be used as an aid in limiting the scope of the claimed subject matter.

## BRIEF DESCRIPTION OF DRAWINGS

**[0016]** Embodiments of the probe packer are described with reference to the following figures. The same numbers are used throughout the figures to reference like features and components.

Figure 1 is a schematic view of a wellsite having a downhole tool deployed into a wellbore, the downhole tool having a probe with a packer for sealing with a wall of the wellbore.

Figures 2A and 2B are schematic views of a portion of the downhole tool of Figure 1 depicting the probe in greater detail.

Figures 3A and 3B are horizontal cross-sectional views of a portion of the probe of Figure 1 taken along line 3-3 in a non-engagement position and an engagement position, respectively.

Figures 4A and 4B are graphical depictions of stresses along a packer obtained by computer modeling.

Figures 5A and 5B are horizontal cross-sectional views of an alternate probe with a packer stopper.

Figures 6A and 6B are longitudinal cross-sectional views of another alternate probe with a packer stopper.

Figure 7 is a flow chart depicting a method of forming a seal between a downhole tool and a wall of a wellbore.

## DETAILED DESCRIPTION

**[0017]** The description that follows includes exemplary systems, apparatuses, methods, and instruction sequences that embody techniques of the subject matter herein. However, it is understood that the described embodiments may be practiced without these specific details.

**[0018]** The techniques herein relate to a probe and/or packer for sealing a downhole tool with a wellbore wall.

The packer may be provided with a support extending therein and/or a packer stopper along a perimeter thereof to support the packer as the packer is pressed against the wellbore wall. The packer may also be configured to eliminate interference with an inlet of the probe extending through the packer. The probe and/or packer may be configured to achieve one or more of the following, among others: reduced wear, reduced damage, reduced failure, reduced leakage, enhanced sealing, etc.

**[0019]** Figure 1 depicts a wellsite 100 having a rig 102 with a downhole tool 104 deployed into a wellbore 106 therebelow. The wellsite 100 is depicted as land-based, but could be offshore. The downhole tool 104 is depicted as a wireline tool, but could be any downhole tool (e.g.,

drilling, coiled tubing, completions, testing, production or other downhole tool).

**[0020]** The downhole tool 104 is positionable in the wellbore 106 for drawing formation fluid 108 from a surrounding formation 110. The downhole tool 104 may have a probe 112 positionable against a wall 114 of the wellbore 106 for establishing fluid communication with the formation 110. A cake 116 that is formed from, for example, a drilling fluid such as mud may line the wall 114 of the wellbore 106. The formation fluid may be at a formation fluid pressure  $P_{for}$ . The mud 116 may be at a mud pressure  $P_{mud}$ , for example, to prevent leakage of formation fluid 108 from the formation 110.

**[0021]** The probe 112 has a packer 118 for sealing an inlet 120 for drawing fluid into the downhole tool 104. The probe 112 may be configured with features for enhanced sealing engagement with the wall 114 of the wellbore 106 as will be described further herein. The inlet 120 is positioned in the packer 118 for receiving fluid from the formation 110. The inlet 120 is in fluid communication with a flowline 122 extending through the downhole tool 104 for fluid communication with various downhole components, such as a pretest 124, sample chambers 126 and pump 128.

**[0022]** Figure 2A is a schematic view depicting the probe 112 of Figure 1 in greater detail. The probe 112 has a base 130 optionally extendable from the downhole tool 104 by arms 132. The packer 118 is depicted as a donut shaped member having an outer surface 134 for engaging the wall 114 of the wellbore 106 (and mud cake 116, if present). The probe 112 is depicted as having a single packer 118 and inlet 120 in a specific configuration. However, it will be appreciated that one or more packers 118 and inlets 120 in various shapes (e.g., square, rectangular, concave, etc.) may be provided.

**[0023]** The inlet 120 extends through an inlet channel 136 extending through the packer 118. The inlet channel 136 is configured to facilitate receipt of the inlet 120 therein as will be described further herein. The base 130 may have upper and lower portions 138a,b adjacent the packer 118 for providing support thereto. The packer 118 may also be provided with internal and external support(s) as will be described further herein.

**[0024]** Figure 2B shows another view of the packer 112 with the upper and lower portions 138a,b removed to show a support plate 239 positioned therebelow. The support plate 239 is secured to the base 130 by bolts 240. The support plate 239 is configured to act as an internal support for the packer 112 as will be described further herein.

**[0025]** Figures 3A and 3B show a portion of the probe 112 in greater detail. Figure 3A shows the probe 112 in non-engagement with the wall 114 of the wellbore 106. Figure 3B shows the probe 112 in engagement with the wall 114 of the wellbore 106. As shown in these views, the curved outer surface 134 of the packer 118 may be shaped to conform to the wall 114 of the wellbore 106. The packer 118 may be a flexible member made of, for

example, an elastomeric material (e.g., rubber) compressible against the wall 114 of the wellbore 106 for sealing engagement therewith.

**[0026]** The packer 118 may be adhered onto the base 130 using an epoxy, adhesive or other bonding agent. Support plate 239 may extend from the base 130 for supporting the packer 118. The support plate 239 may be, for example, a metal component operatively connected to the base 130 as shown, or integral therewith. The support plate 239 may have a raised lip 342 forming a raised support ring along an inner diameter thereof extending a distance into the packer 118 for retaining the packer 118 in a desired position on the base 130 and/or for supporting the packer 118 in sealing engagement against the wall 114 of the wellbore 106. The packer 118 may be provided with a ring channel 344 for receiving the support plate 239.

**[0027]** The packer 118, ring channel 344 and support plate 239 may be configured to provide internal support to the packer 118 as it is moved into engagement with the wall 114 of the wellbore 106 as shown in Figure 3B. The support plate 239 may extend into the packer 118 to provide an inner mechanical structure to support the packer 118 as it is pressed against the wall 114. The packer 118 may deform as it is pressed against the wall 114. The support plate 239 may restrict the amount of deformation, thereby retaining the packer 118 in a sealed position against the wall 114 and providing internal support.

**[0028]** The angle, length and shape of the ring channel 344 and support plate 239 may be configured to enhance support of the packer 118. As shown, the raised lip 342 has an S-shaped configuration extending a horizontal distance  $d_1$  (e.g., from about 3mm to about 30 mm) and a vertical distance  $d_2$  (e.g., from about 3mm to about 15 mm) into the packer 118 at a first inward angle  $\theta_1$  (e.g., from about 10 degrees to about 60 degrees) and a second inward angle  $\theta_2$  (e.g., from about +60 degrees to about -60 degrees). As also shown, the support plate 239 extends into the packer 118 from an outer perimeter 346 and from a base surface 348 of the packer 118. While a specific configuration is depicted, it will be appreciated that the support plate 239 and ring channel 344 may extend at various distances and angles in various shapes through various surfaces of the packer 118.

**[0029]** The inlet channel 136 of the packer 118 has an outwardly tapered outer portion 350 adjacent the outer surface 134, and an inner portion 352 adjacent the base surface 348, both shaped to receivingly engage the inlet 120. The inlet channel 136 may taper outwardly at an angle  $\alpha_1$  (e.g., from about 5 degrees to about 45 degrees) along the tapered outer portion 350 defining a diameter  $D_1$  (dependent on the diameter D2 which is about the same as the outer diameter of the probe inlet 120), and a height  $h$  (e.g. from about 5mm to about 20mm) along the outer surface 134. At least a portion of the tapered outer portion 350 may taper at a desired angle to provide the desired space to allow insertion of the inlet 120 and/or

sealing engagement thereabout.

**[0030]** The shape of the inlet channel 136 may be configured to facilitate insertion of the inlet 120 into the inlet channel 136 in a manner that prevents damage to the packer 118. As shown in Figure 3A, the tapered outer portions 350 may be configured to provide space to facilitate insertion of the inlet 120 into the packer 118 during non-engagement. The shape of the inlet channel 136 may also be configured to facilitate sealing between the packer 118 and the inlet 120 when in the engagement position as shown in Figure 3B. The inlet channel 136 of the packer 118 may close about the inlet 120 as the packer 118 is compressed against the wall 114 of the wellbore 106. Once a seal is formed, fluid may flow from the formation into the inlet 120 as indicated by the arrows.

**[0031]** As shown in the graphs of Figures 4A and 4B, the packer 118 can experience various stresses when in use. As depicted by these figures, the shape of the packer 118 is provided with the ring channel 344 and the tapered inlet channel 136 that can receive increased stress. The mechanical structure of the support plate 239 and the inlet 120 may be positioned in the high stress regions of the packer 118 to support the packer 118 where it receives increased stresses. This configuration may be manipulated to address high stresses that can be experienced by the packer 118 when in use, thereby helping to reduce potential damage, wear and/or failure relating to the packer 118.

**[0032]** Figures 5A-6B show various views of alternate probes 512a,b usable as the probe 112 of Figure 1. The alternate probes 512a,b have packers 518a,b bonded to the base 130 of a downhole tool, such as the downhole tool 104 of Figure 1. The alternate probes 512a,b are also provided with perimeter (or external) supports, or packer stoppers 556a,b, positioned about a perimeter 546a,b for providing support thereto.

**[0033]** As shown in a horizontal cross-section about the wellbore 106 of Figure 5A, the alternate probe 512a may have a cylindrical packer 518a with a cylindrical inlet channel 536a positioned on the base 130. The packer stopper 556a is a ring shaped member positioned on the base 130 about the perimeter 546a of the packer 518a. The packer stopper 556a has a triangular cross-section defining an outer surface 558a at an angle aligned with the perimeter 546a of the packer 518a shaped for alignment with the wall 114 of the wellbore 106. The triangular cross-section also defines an inner surface 560a angled away from the perimeter 546a of the packer 518a to provide a gap 562a therebetween. The gap 562a provides space to allow the packer 518a to expand as it is compressed against the wall 114 of the wellbore 106 as shown in Figure 5B. The inner surface 560a may be at an angle  $\beta$  (e.g., from about 45 degrees to about 10 degrees) radially rotated a distance on either side of a centerline of the probe 518a and positioned along a radius  $r$  extending from an axis  $z$  of the wellbore 106.

**[0034]** As shown in a longitudinal cross-section about the wellbore 106 of Figure 6A, the alternate probe 512b

may have a packer 518b with a tapered perimeter 546b positioned on the base 130. The packer stopper 556b is a ring shaped member positioned on the base 130 about the perimeter 546b of the packer 518b. The packer stopper 556b has a trapezoidal cross-section defining an outer surface 558b at a sloped angle to the base 130. The trapezoidal cross-section also defines a flat inner surface 560b to provide support to the packer 518b. The tapered perimeter 546b defines a gap 562b between the packer 518b and the packer stopper 556b. The gap 562b provides space to allow the packer 518b to expand as it is compressed against the wall 114 of the wellbore 106 as shown in Figure 6B. The tapered perimeter 546b may be at a sloped angle  $\gamma$  (e.g., from about 45 degrees to about 5 degrees) to the inner surface 560b of the packer stopper 556b.

**[0035]** Figure 7 is a flow chart depicting a method 700 of forming a seal between a downhole tool and a wall of a wellbore. The method involves providing 770 the downhole tool with a probe including a probe inlet, a base positionable about the downhole tool about the probe inlet, a packer positionable on the base, and a raised packer support ring and/or a packer stopper for supporting the packer. The method 700 further involves positioning 772 the probe against the wall of the wellbore; and forming 774 a seal between the packer and the wall of the wellbore by supporting the packer with the raised packer support and/or the packer stopper while compressing the packer against the wall of the wellbore. The method 700 may also involve other steps, such as establishing fluid communication between the subterranean formation and the probe inlet and drawing fluid from the subterranean formation into the downhole tool. The steps may be performed in any order and repeated as desired.

**[0036]** While the embodiments are described with reference to various implementations and exploitations, it will be understood that these embodiments are illustrative and that the scope of the inventive subject matter is not limited to them. Many variations, modifications, additions and improvements are possible. For example, one or more probes, packers, and one or more internal and/or external packer support rings may be provided.

**[0037]** Plural instances may be provided for components, operations or structures described herein as a single instance. In general, structures and functionality presented as separate components in the exemplary configurations may be implemented as a combined structure or component. Similarly, structures and functionality presented as a single component may be implemented as separate components. These and other variations, modifications, additions, and improvements may fall within the scope of the inventive subject matter.

**[0038]** Although only a few example embodiments have been described in detail above, those skilled in the art will readily appreciate that many modifications are possible in the example embodiments without materially departing from this invention. Accordingly, such modifi-

cations are intended to be included within the scope of this disclosure as defined in the following claims. In the claims, means-plus-function clauses are intended to cover the structures described herein as performing the recited function and not only structural equivalents, but also equivalent structures. Thus, although a nail and a screw may not be structural equivalents in that a nail employs a cylindrical surface to secure wooden parts together, whereas a screw employs a helical surface, in the environment of fastening wooden parts, a nail and a screw may be equivalent structures. It is the express intention of the applicant not to invoke 35 U.S.C. § 112, paragraph 6 for any limitations of any of the claims herein, except for those in which the claim expressly uses the words 'means for' together with an associated function.

## Claims

1. A downhole tool comprising a probe for forming a seal between the downhole tool and a wall of a wellbore penetrating a subterranean formation, comprising:

a probe inlet extending from the downhole tool for fluid communication with the subterranean formation;

a base positionable about the downhole tool, the base having a raised packer support ring extending therefrom; and

a packer for forming the seal with the wall of the wellbore, the packer positionable on the base and having an inlet channel extending there-through for receiving the probe inlet, the packer having a support channel extending a distance therein for receiving the raised packer support whereby the packer is supported as it is compressed against the wall of the wellbore.

2. The downhole tool of Claim 1, wherein the packer has a donut shaped body.

3. The downhole tool of any preceding Claim, wherein the support channel extends into the packer from an outer perimeter downhole tool or into the packer from a base surface of the packer.

4. The downhole tool of any preceding Claim, wherein the packer support ring comprises a plate operatively connectable to the base or is integral with the base.

5. The downhole tool of any preceding Claim, wherein the packer support ring comprises a raised lip on an inner diameter thereof or a raised lip on an inner diameter thereof having an S-shaped cross-section.

6. The downhole tool of any preceding Claim, wherein the inlet channel has an outwardly tapered outer por-

tion adjacent an outer surface of the packer or an inwardly tapered inner portion adjacent a base surface of the packer.

7. The downhole tool of any preceding Claim, wherein the probe inlet is in fluid communication with a fluid circuit of the downhole tool.

8. The downhole tool of any preceding Claim, wherein the base is selectively extendable from a housing of the downhole tool.

9. The downhole tool of any preceding Claim, wherein the downhole tool is one of a wireline tool, a drilling tool, a coiled tubing tool, a completions tool, a testing tool, a production tool and combinations thereof.

10. A method of forming a seal between a downhole tool and a wall of a wellbore penetrating a subterranean formation, the method comprising:

providing the downhole tool with a probe, the probe comprising:

a probe inlet extending from the downhole tool for fluid communication with the subterranean formation;

a base positionable about the downhole tool, the base having a raised packer support ring extending therefrom; and

a packer for forming the seal with the wall of the wellbore, the packer positionable on the base and having an inlet channel extending therethrough for receiving the probe inlet, the packer having a support channel extending a distance therein for receiving the raised packer support whereby the packer is supported as it is compressed against the wall of the wellbore;

positioning the probe against the wall of the wellbore; and

forming the seal between the packer and the wall of the wellbore by supporting the packer with the raised packer support ring while compressing the packer against the wall of the wellbore.

11. The method of Claim 10, further comprising establishing fluid communication between the subterranean formation and the probe inlet.

12. The method of Claim 11, further comprising drawing fluid from the subterranean formation into the downhole tool.

13. The method of any of Claims 10-12, further comprising securing the packer to the base.

14. The method of any of Claims 10-13, further comprising forming a seal between the packer and the inlet.

15. A downhole tool comprising a probe for forming a seal between the downhole tool and a wall of a wellbore penetrating a subterranean formation, comprising:

a probe inlet extending from the downhole tool for fluid communication with the subterranean formation;

a base positionable about the downhole tool;

a packer for forming the seal with the wall of the wellbore, the packer positionable on the base and having an inlet channel extending therethrough for receiving the probe inlet; and

a packer stopper for supporting the packer, the packer stopper extending from the base about a perimeter of the packer with an expansion gap defined therebetween whereby the packer is supported as it is compressed against the wall of the wellbore.

16. The downhole tool of Claim 15, wherein the packer stopper has a ring shaped body with a triangular cross-section or a trapezoidal cross-section.

17. The downhole tool of Claim 15 or 16, wherein the perimeter of the probe is tapered away from the packer stopper and an inner diameter of the packer stopper is flat, or the perimeter of the probe is flat and an inner diameter of the packer stopper is tapered away from the perimeter of the packer.

18. The downhole tool of any of Claims 15-17, wherein the probe inlet is in fluid communication with a fluid circuit of the downhole tool.

19. The downhole tool of any of Claims 15-18, wherein the base is selectively extendable from a housing of the downhole tool.

20. The downhole tool of any of Claims 15-19, wherein the downhole tool is one of a wireline tool, a drilling tool, a coiled tubing tool, a completions tool, a testing tool, a production tool and combinations thereof.

21. A method of forming a seal between a downhole tool and a wall of a wellbore penetrating a subterranean formation, the method comprising:

providing the downhole tool with a probe, the probe comprising:

a probe inlet extending from the downhole tool for fluid communication with the subterranean formation;

a base positionable about the downhole

tool;

a packer for forming the seal with the wall of the wellbore, the packer positionable on the base and having an inlet channel extending therethrough for receiving the probe inlet; and

a packer stopper for supporting the packer, the packer stopper extending from the base about a perimeter of the packer with an expansion gap is defined therebetween whereby the packer is supported as it is compressed against the wall of the wellbore;

positioning the probe against the wall of the wellbore; and

forming the seal between the packer and the wall of the wellbore by supporting the packer with the packer stopper while compressing the packer against the wall of the wellbore.

22. The method of Claim 21, wherein forming the seal involves permitting the packer to expand into the expansion gap.

23. The method of Claim 21 or 22, further comprising establishing fluid communication between the subterranean formation and the probe inlet.

24. The method of any of Claims 21-23, further comprising drawing fluid from the subterranean formation into the downhole tool.

25. The method of any of Claims 21-24, further comprising securing the packer to the base.

26. The method of any of Claims 21-25, further comprising forming a seal between the packer and the probe inlet.

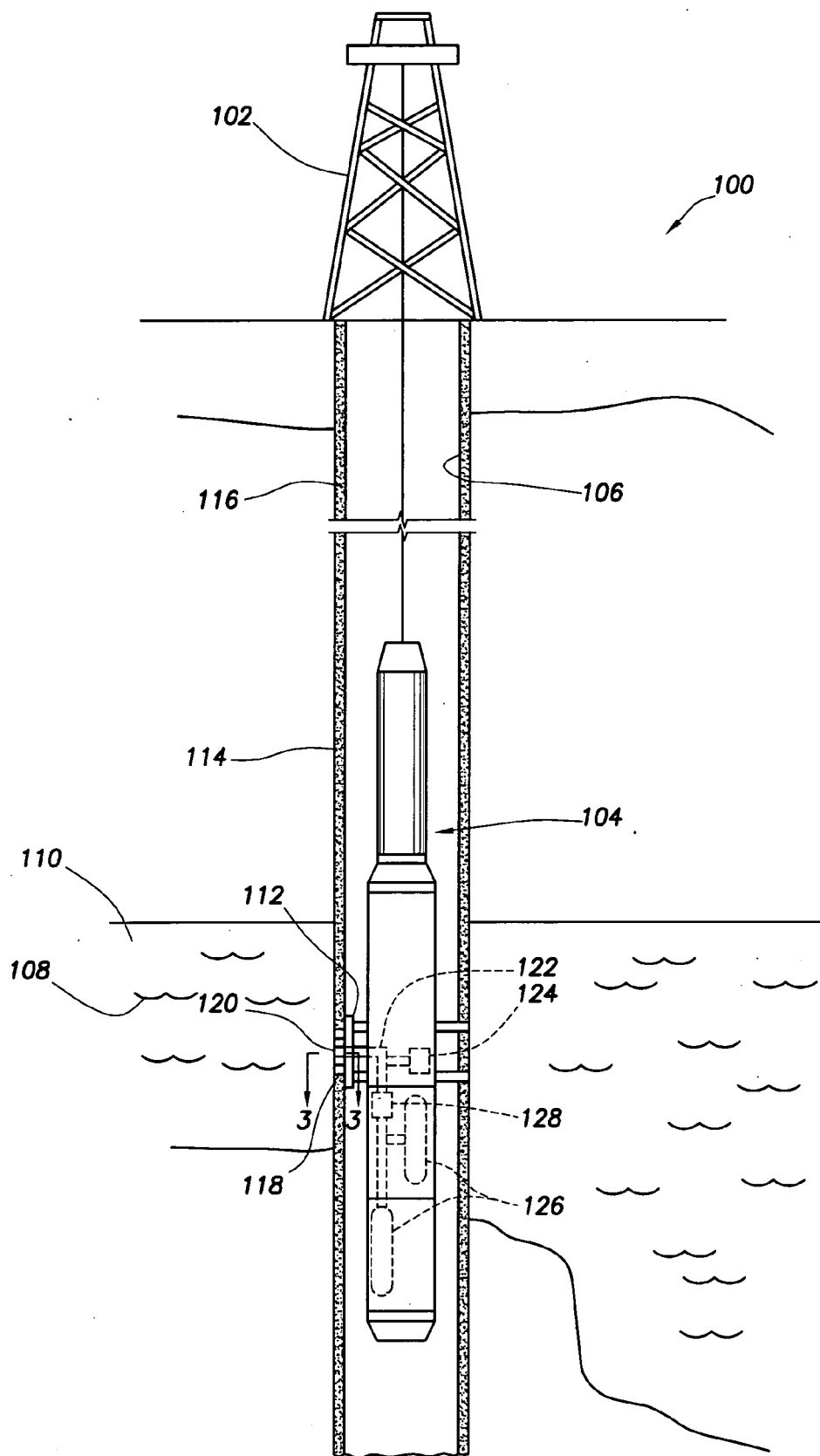
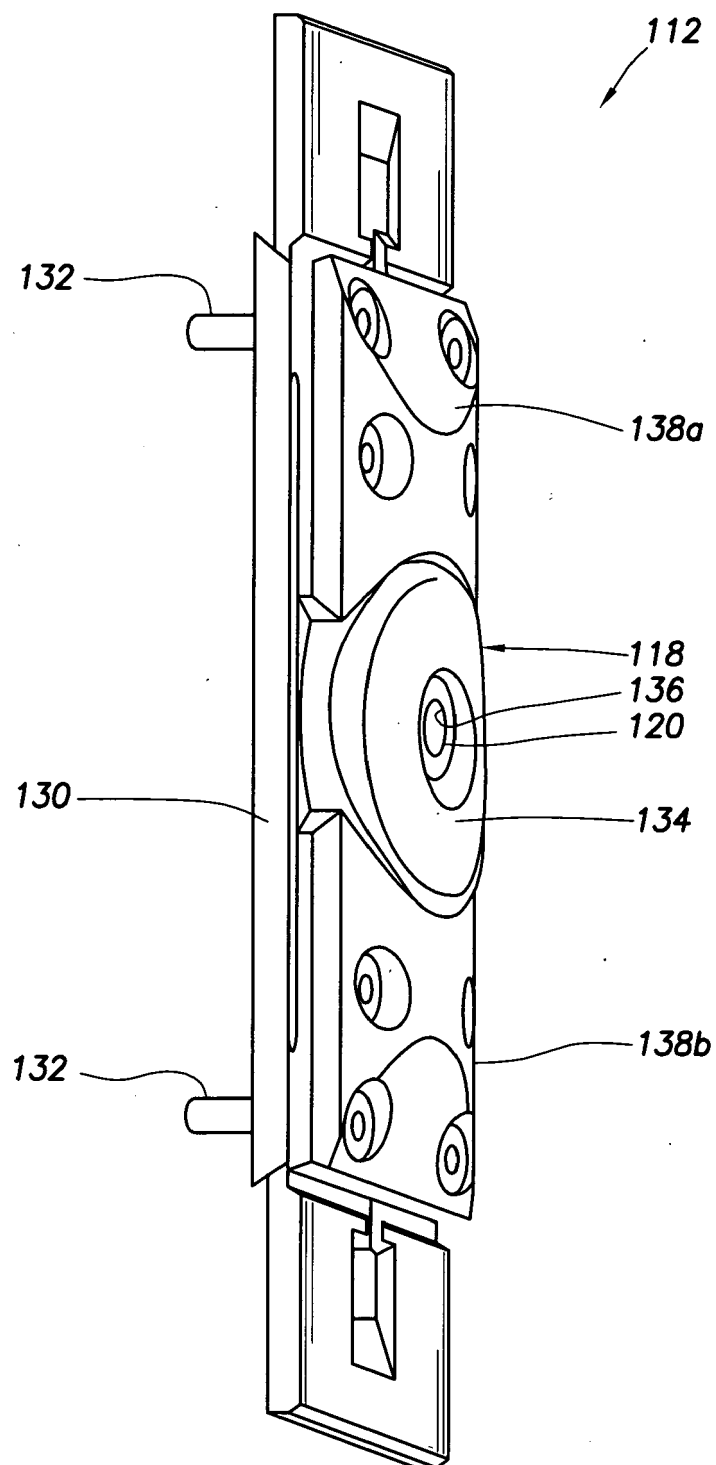
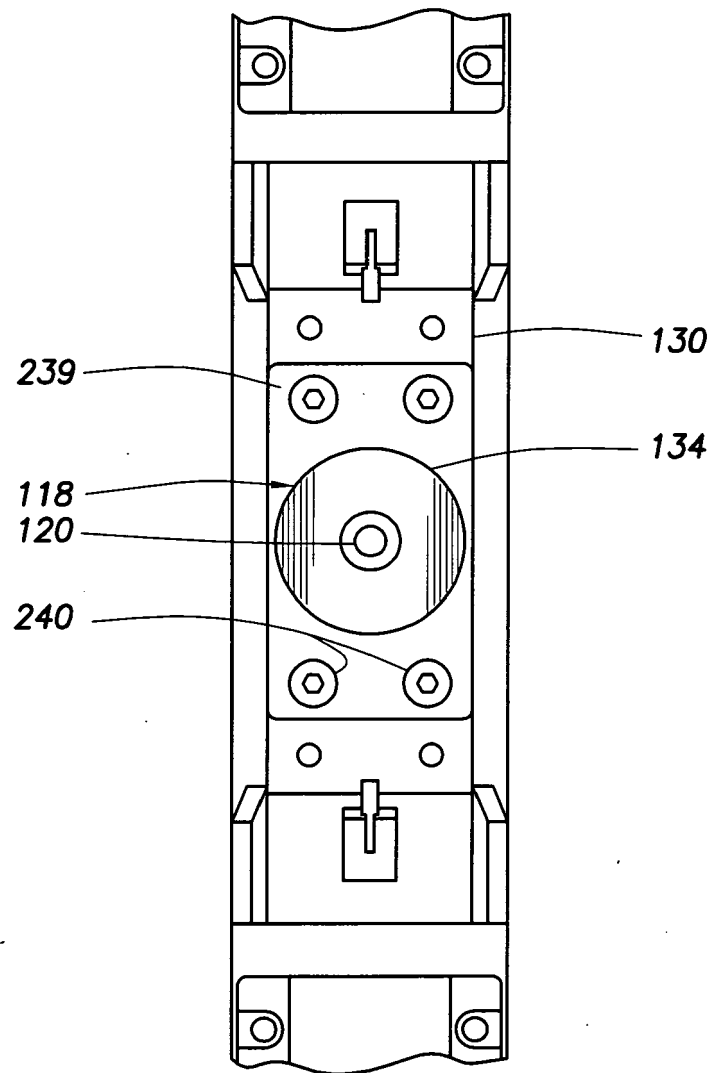


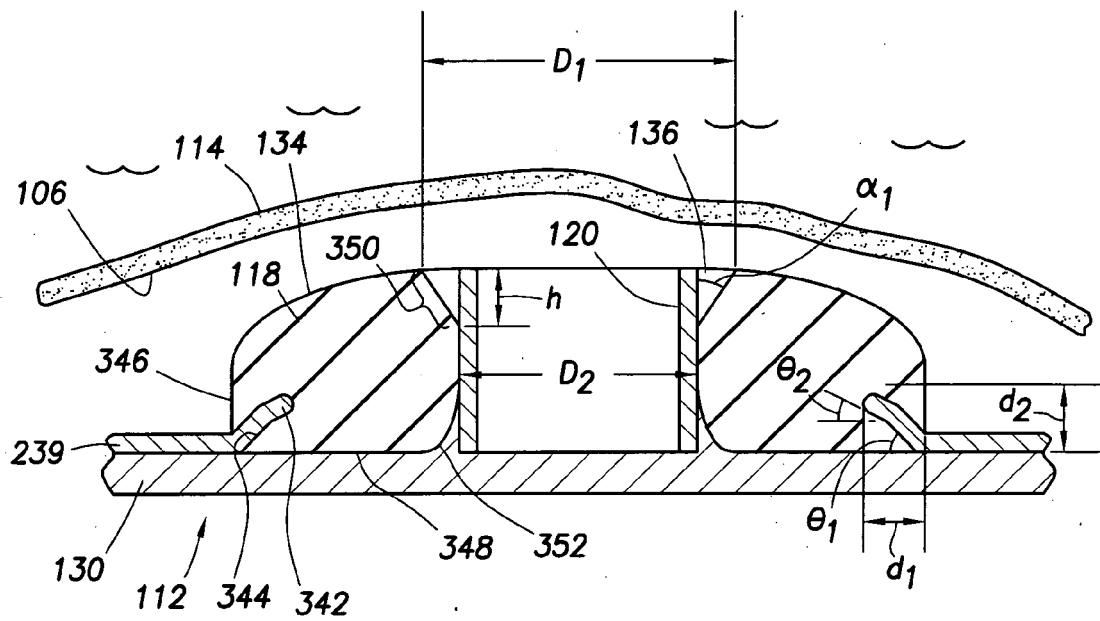
FIG. 1



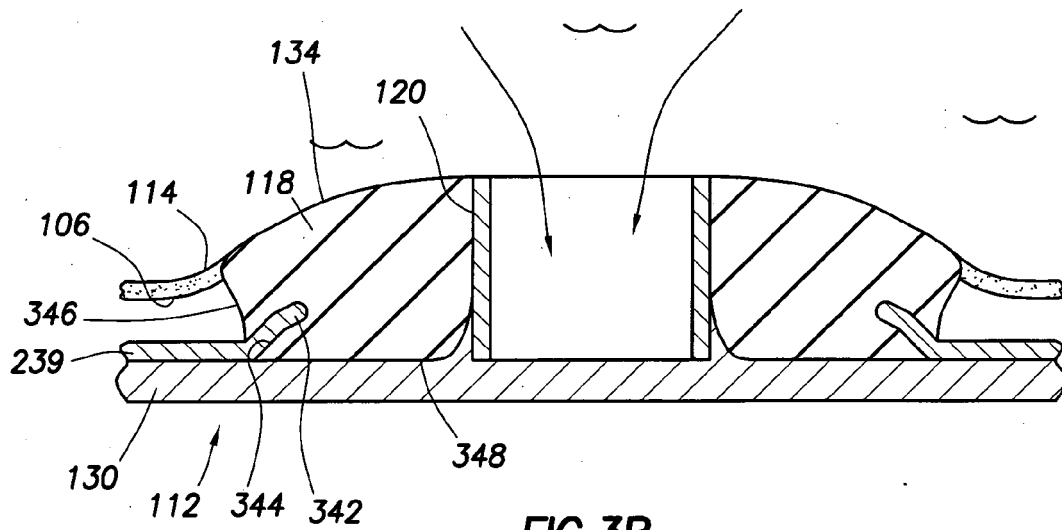
**FIG. 2A**



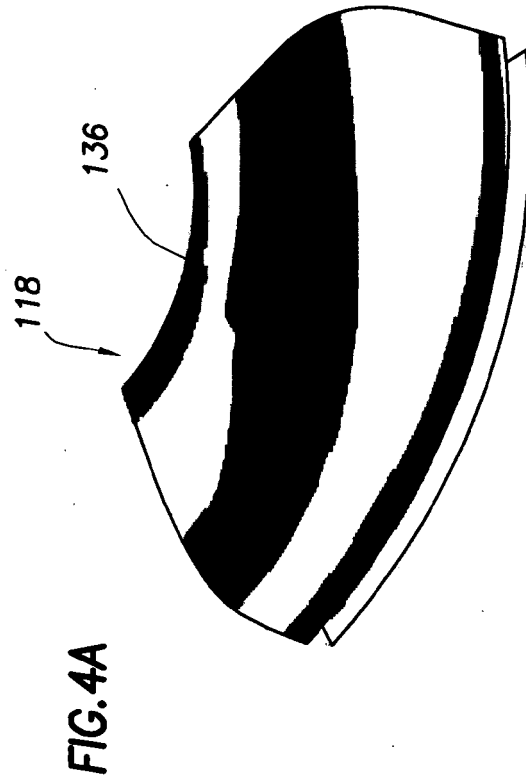
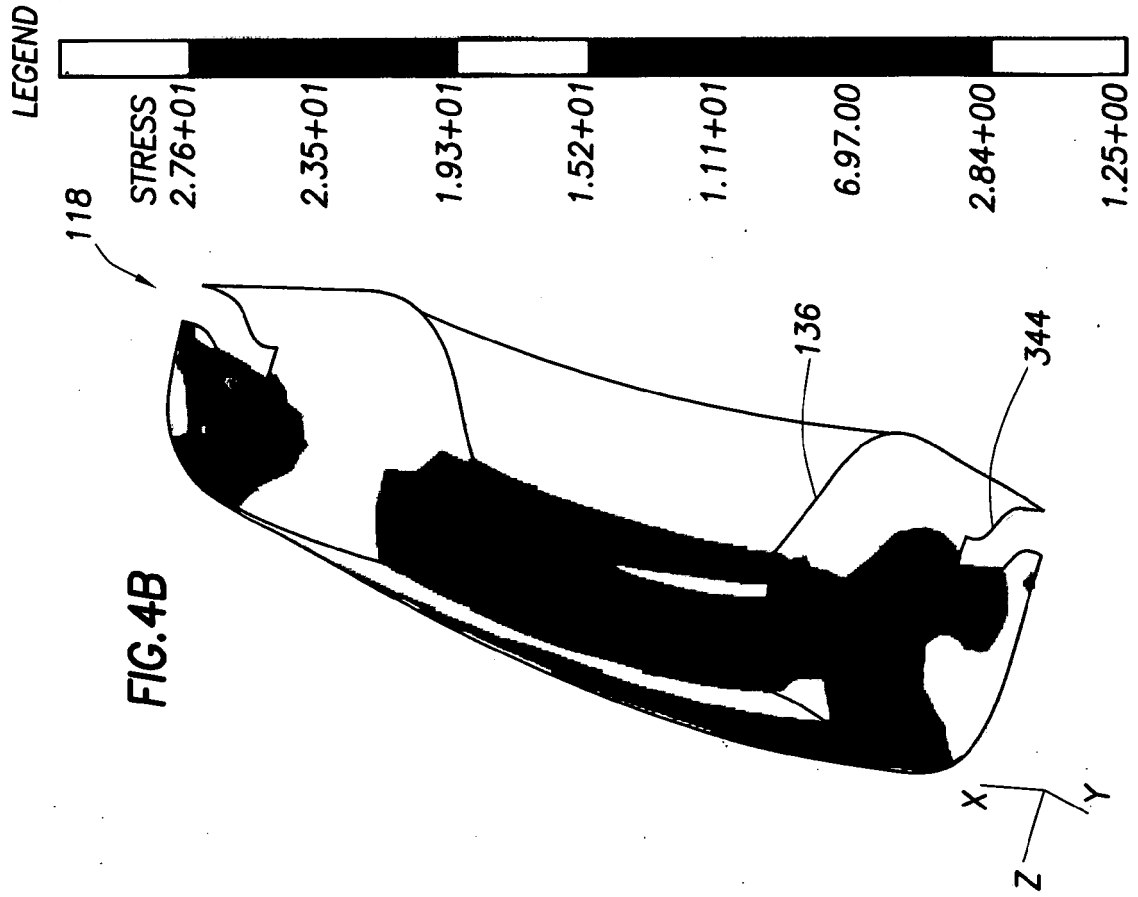
**FIG.2B**



**FIG.3A**



**FIG.3B**



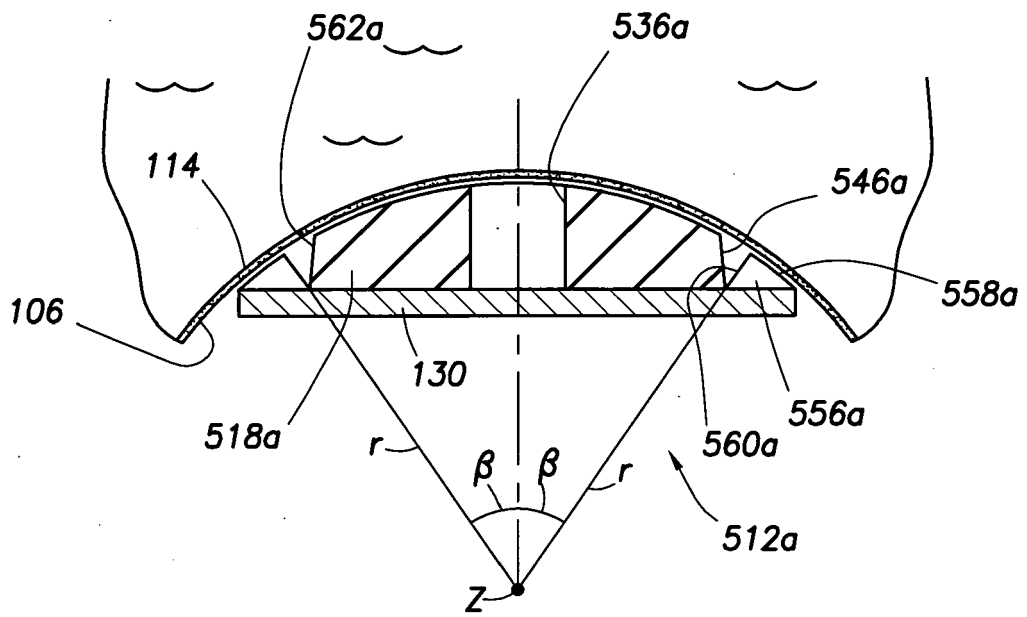


FIG. 5A

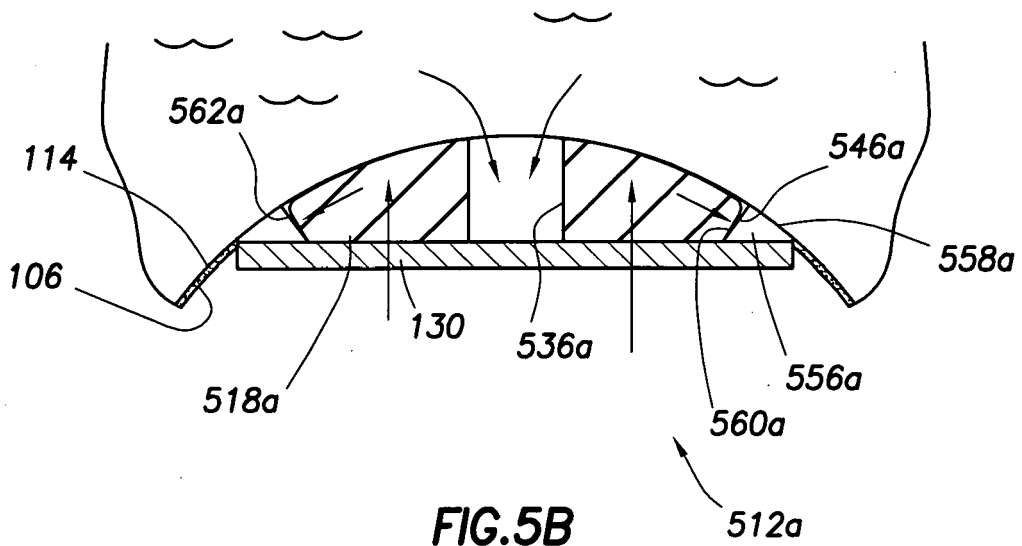


FIG. 5B

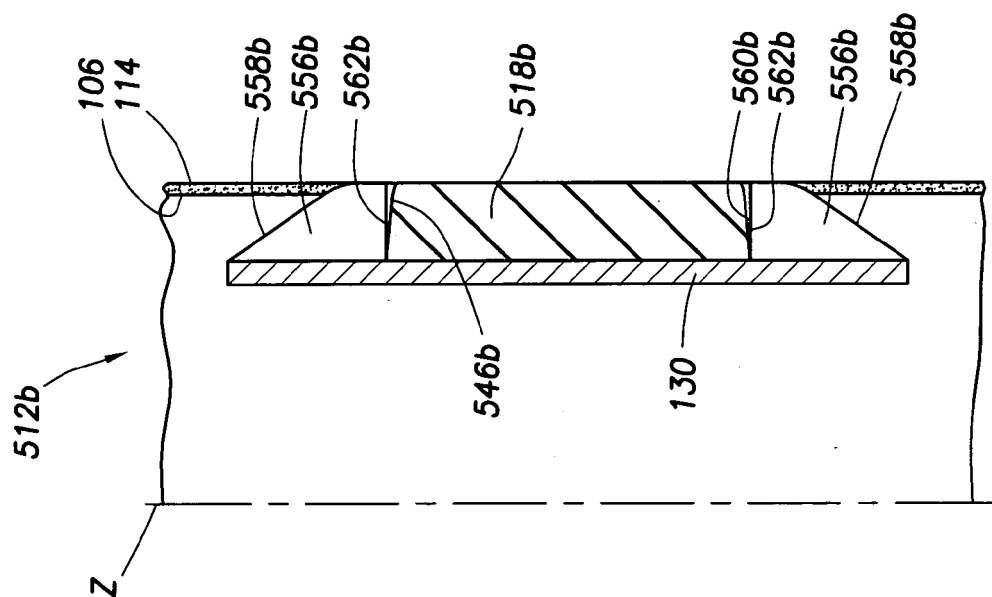


FIG. 6A

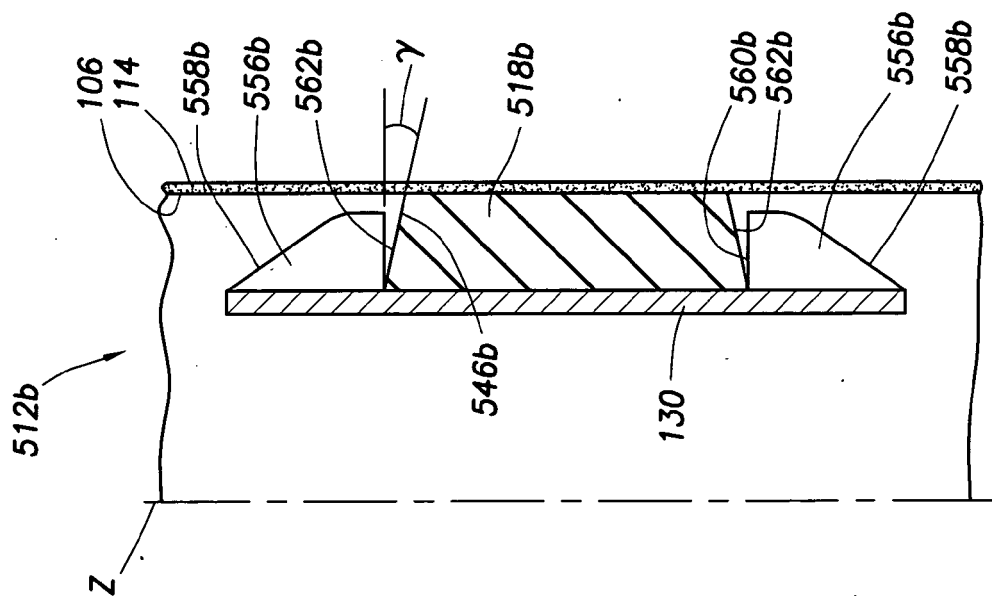


FIG. 6B

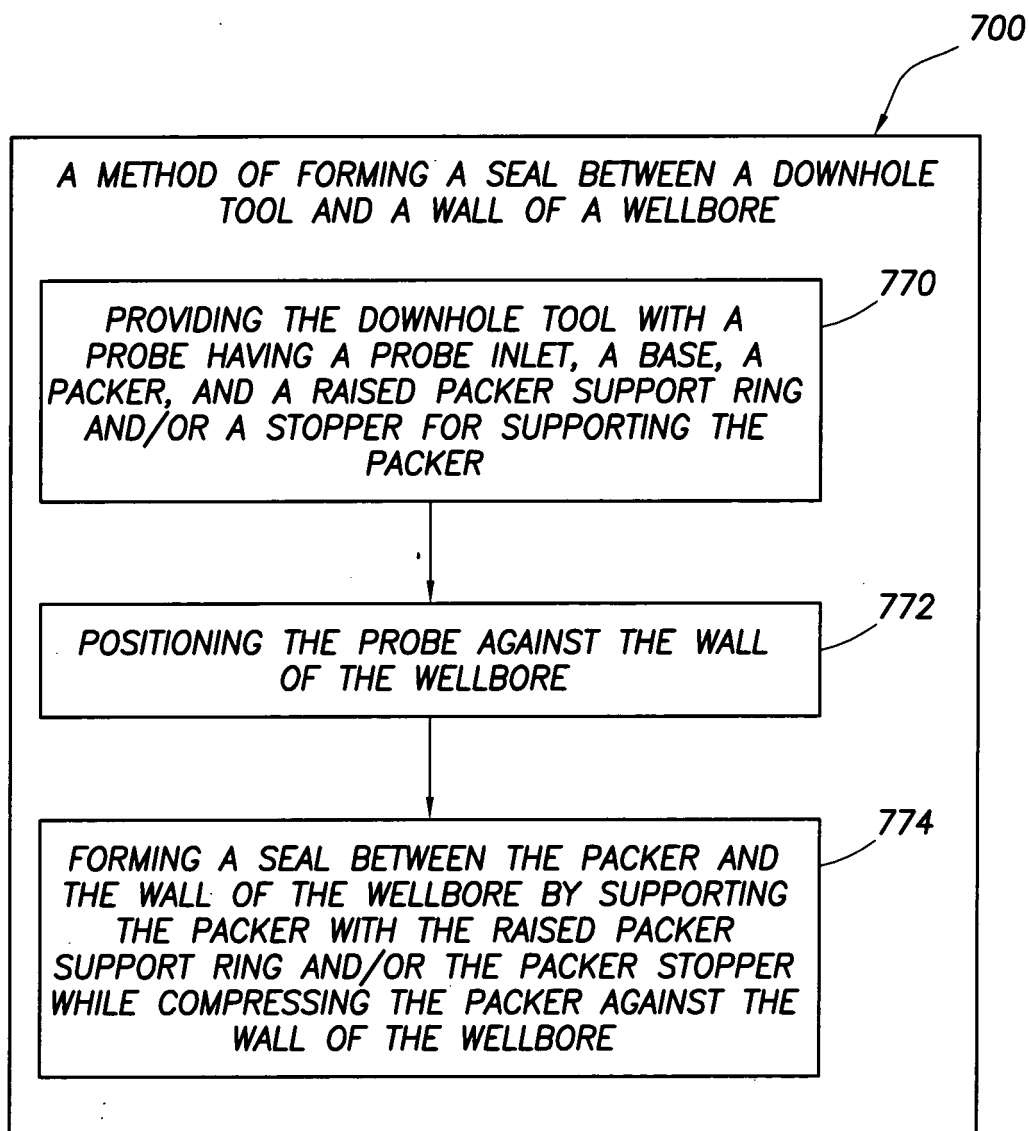


FIG.7

**REFERENCES CITED IN THE DESCRIPTION**

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