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**Horn et al.**

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(54) **BLOWOUT PREVENTER WITH PRESSURE EQUALIZATION BLOCK**

(56) **References Cited**

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CPC ..... *E21B 33/063* (2013.01); *E21B 34/08* (2013.01); *E21B 33/06* (2013.01); *F16K 39/04* (2013.01)

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See application file for complete search history.

(57) **ABSTRACT**

A blowout preventer includes a body containing upper and lower ram assemblies. The body defines a surface pressure area above the upper rams and a wellbore pressure area between the upper and lower rams. An upper passageway communicates an outside of the body with the surface pressure area and a lower passageway communicates the outside with the wellbore pressure area. A valve adjacent the outside surface allows communication between the areas for pressure equalization. A bonnet is removed from the body by unfastening a flange from a face of the body and extending the flange from an assembled configuration to an extended configuration, thereby exposing a tool receiving surface on a ram change piston, wherein the piston communicates with the body and the flange. The tool surface is engaged for manipulating and disengaging the piston from one of the body and the flange, thereby facilitating removal of the flange.

**13 Claims, 18 Drawing Sheets**

