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(54) Title (EN): PISTON SEAL WITH SOLID LUBRICANT APPLICATOR

(54) Title (FR): JOINT DE PISTON COMPRENANT UN APPLICATEUR DE LUBRIFIANT SOLIDE

(57) Abstract:

(EN): A ringset (220, 230) is configured to be arranged on a piston (226) for sealing a gas in a high-pressure region of a cylinder (260) in the absence of oil or other liquid lubricant. The ringset includes one or more rings made from a high-strength material as a sealing element. The ringset also includes a solid lubricant applicator (261) configured to provide lubrication between the one or more rings and a bore (262) of the cylinder. For example, the ring can support pressure loads from high-pressure gas without breaking, while the applicator need not act as a seal. As the piston reciprocates in the bore, the applicator slides against the bore and applies solid lubricant material to the bore, resulting in a solid lubricant film on the bore against which the sealing element may slide. The applicator includes a material such as a graphite, a polymer, or other suitable solid lubricant.

(FR): L'invention concerne un ensemble anneau (220, 230) conçu pour être disposé sur un piston (226) pour sceller un gaz dans une région à haute pression d'un cylindre (260) en l'absence d'huile ou d'un autre lubrifiant liquide. L'ensemble anneau comprend un ou plusieurs anneaux fabriqués à partir d'un matériau à haute résistance en tant qu'élément d'étanchéité. L'ensemble anneau comprend également un applicateur de lubrifiant solide (261) conçu pour assurer une lubrification entre le ou les anneaux et un trou (262) du cylindre. Par exemple, l'anneau peut supporter des charges de pression provenant d'un gaz à haute pression sans subir de rupture, tandis que l'applicateur n'a pas besoin d'agir comme un joint d'étanchéité. Lorsque le piston effectue un mouvement de va-et-vient dans le trou, l'applicateur coulisse contre le trou et applique un matériau lubrifiant solide au trou, produisant un film lubrifiant solide sur le trou contre lequel l'élément d'étanchéité peut coulisser. L'applicateur comprend un matériau tel qu'un graphite, un polymère ou un autre lubrifiant solide approprié.

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