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(54) Title: DISC FOR FIXING AND SEALING A LINING AND METHOD FOR PROVIDING A FLUID TIGHT SUSPENSION OF A MEMBRANE ON TUNNEL WALLS AND METHOD FOR MANUFACTURING SUCH DISC

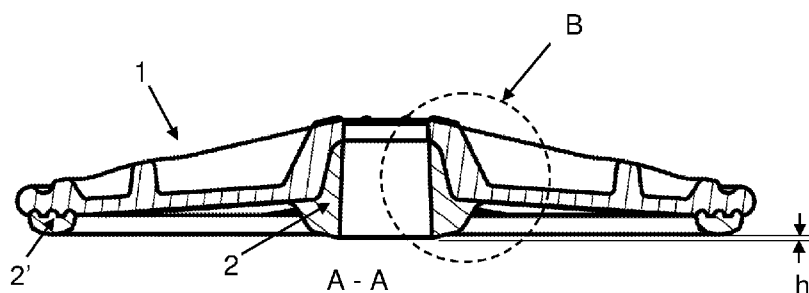


Fig. 7

(57) Abstract: A disc (1) for sealed attachment and support of a lining or insulation plate or mat (11) to a supporting surface, such as a wall and/or ceiling in a tunnel (10), the lining (11) being intended to be fixed to the supporting surface by a number of bolts (12) fixed in the supporting surface, fixed to the bolts (12) by means of discs (1) and a seal (2, 2') providing locking and sealing surface around the bolt (12) and the perforation of the lining (11), each with a through hole, intended to be threaded onto the corresponding bolt (12) and positioned on at least one side of the lining (11). The disc (1) is characterized in that the seal (2, 2') forms an integrated unit with the disc (1), wherein the seal (2, 2') only protrude on one side of the disc (1) intended to face towards the lining (11) where an inner seal (2) seal towards the bolt (12). There is a height difference (h) between the inner seal (2) and outer peripheral seal (2') in order to at least secure a water tight sealing between the inner seal (2) and the bolt (12) independently of sealing between the outer peripheral seal (2') and the lining (11). Methods for installation and manufacturing the disc are also included.



INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC: E21D, F16B, F16J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE, DK, FI, NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, PAJ, WPI data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	NO 20100813 A1 (SORBYE EVEN HELLY-HANSEN ET AL), 5 December 2011 (2011-12-05); abstract; figures 5,10 --	1-23
A	AU 2012216578 B2 (TRELLEBORG ENGINEERED SYSTEMS AUSTRALIA PTY LTD), 11 December 2014 (2014- 12-11); abstract; figure 12 --	1-23
A	US 4712802 A (HEWISON GEORGE D ET AL), 15 December 1987 (1987-12-15) --	1-23
A	WO 2007006428 A2 (SKUMTECH AS ET AL), 18 January 2007 (2007-01-18); whole document -- -----	1-23

Further documents are listed in the continuation of Box C.

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