

Title (en)  
Process for the consolidation of excavation faces by means of expansible tension member

Title (de)  
Verfahren zur Ortsbrustverfestigung durch ausweitbare Spannungsglieder

Title (fr)  
Procédé de consolidation du front de taille par des éléments de tension expansible

Publication  
**EP 1712685 B1 20091230 (EN)**

Application  
**EP 06100622 A 20060119**

Priority  
IT PC20050003 A 20050119

Abstract (en)  
[origin: EP1712685A1] Reinforcing element, called tension member, with variable geometry for the consolidation of soils and excavation faces produced by a mechanical tension member encapsulated in a pipe-shaped sheath which surrounds it adhering to the outer surface of the tension member for its entire length. The tension member is usually constituted by a rod made of fibreglass or another composite material having a plurality of longitudinal grooves intended to house a portion of sheath and has a central duct for conveying injected grout, while the covering is constituted by a sheath made of robust fabric. The installation procedure entails making the borehole in the ground, inserting the reinforcing element and pressurised injection of grout through the feed duct into the space between sheath and tension member causing radial dilation of the sheath until it is pressed against the inner wall of the borehole. The shape of the section of the sheath and/or the elasticity thereof allow the sheath to dilate radially retaining the grout and to exert a desired hydrostatic pressure against the soil. Control of the pressure of the grout inside the sheath allows control and uniform distribution of the tangential friction forces along the entire length of the tension member both between soil and grout and between grout and tension member.

IPC 8 full level  
**E02D 3/12** (2006.01)

CPC (source: EP)  
**E02D 5/805** (2013.01)

Cited by  
US9617703B2; WO2014147623A1; CN112814708A; CN102191770A; JP2019522129A; US9157287B2; US2016040385A1; EP2976466A4; US9976274B2; WO2019136420A1; WO2014099390A1

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