

Title (en)
EXPANDING AND COLLAPSING APPARATUS AND METHODS OF USE

Title (de)
AUSZIEH- UND ZUSAMMENKLAPPBARE VORRICHTUNG UND VERFAHREN ZUR VERWENDUNG

Title (fr)
APPAREIL À DÉPLOIEMENT ET RESSERREMENT ET PROCÉDÉS D'UTILISATION

Publication
EP 3394386 A1 20181031 (EN)

Application
EP 16834091 A 20161223

Priority
• GB 201522725 A 20151223
• GB 201522741 A 20151223
• GB 2016054065 W 20161223

Abstract (en)
[origin: GB2545817A] The invention provides an expanding and collapsing ring apparatus 170 and method of use. The expanding and collapsing ring comprises a plurality of elements 177 assembled together to form a ring structure 172 oriented in a plane around a longitudinal axis. The ring structure is operable to be moved between a collapsed condition and a first expanded condition by movement of the plurality of elements 177 on actuation by an axial force. The apparatus further comprises a secondary expanding and collapsing mechanism 175/176 operable to move the ring structure between its collapsed condition (Fig 5B) or its first expanded conditions to a second expanded condition (Fig 6B) on actuation by an axial force. Applications of the invention include oilfield devices, including anti-extrusion rings, plugs, packers, locks, patching tools, connection systems, and variable diameter tools run in a wellbore.

IPC 8 full level
E21B 33/12 (2006.01); **E21B 33/128** (2006.01)

CPC (source: EP GB US)
E21B 10/32 (2013.01 - EP GB US); **E21B 23/01** (2013.01 - US); **E21B 33/12** (2013.01 - GB); **E21B 33/1216** (2013.01 - EP); **E21B 33/1265** (2013.01 - GB); **E21B 33/128** (2013.01 - EP US); **E21B 17/1014** (2013.01 - EP); **E21B 33/04** (2013.01 - EP); **E21B 33/134** (2013.01 - EP); **E21B 47/08** (2013.01 - EP)

Citation (search report)
See references of WO 2017109509A1

Cited by
EP3645828B1; EP3645826B1

Designated contracting state (EPC)
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 state (EPC)
BA ME

DOCDB simple family (publication)
GB 201622150 D0 20170208; **GB 2545817 A 20170628**; **GB 2545817 B 20200304**; AU 2016376007 A1 20180719;
AU 2016376007 B2 20220414; CA 3009580 A1 20170629; EP 3394386 A1 20181031; US 2019352988 A1 20191121;
WO 2017109509 A1 20170629

DOCDB simple family (application)
GB 201622150 A 20161223; AU 2016376007 A 20161223; CA 3009580 A 20161223; EP 16834091 A 20161223; GB 2016054065 W 20161223;
US 201616066046 A 20161223