

Title (en)

DEVICE AND METHOD FOR RECOVERING MAGNETIC PARTICLES TRAPPED ON A MAGNETIC PLUG

Title (de)

VERFAHREN UND VORRICHTUNG ZUR RÜCKGEWINNUNG VON AUF EINEM MAGNETSTOPFEN GEFANGENEN MAGNETISCHEN PARTIKELN

Title (fr)

DISPOSITIF ET PROCEDE DE RECUPERATION DE PARTICULES MAGNETIQUES PIEGEES SUR UN BOUCHON MAGNETIQUE

Publication

**EP 2552590 B2 20230222 (FR)**

Application

**EP 11715956 A 20110321**

Priority

- FR 1052291 A 20100329
- FR 2011050577 W 20110321

Abstract (en)

[origin: WO2011121207A1] The invention relates to a device (100) for recovering magnetic particles (20) trapped on a magnetic plug (1), said magnetic plug (1) having a bar magnet (3) intended to retain the magnetic particles (20) entrained by a liquid in which said magnetic plug (1) is immersed. The device (100) comprises a cap (4) comprising a non-magnetic tube (6) having a proximal end provided with an opening for the insertion of the bar magnet (3) into the tube (6) and a closed distal end, the tube (6) being capable of covering the bar magnet (3) when the bar magnet (3) is inserted into the tube (6). The device (100) further includes means capable of ensuring retention between the cap (4) and the bar magnet (3) when the bar magnet (3) is inserted into the tube (6), extraction means (5) provided with an opening capable of ensuring insertion of the tube (6) into the extraction means (5), the extraction means (5) being capable of covering the tube (6) when the tube (6) is inserted into the extraction means (5) and of receiving the particles (20) trapped on the tube (6) when the bar magnet (3) is withdrawn from the tube (6), and means capable of ensuring retention between the extraction means (5) and the tube (6).

IPC 8 full level

**B03C 1/032** (2006.01); **B03C 1/28** (2006.01)

CPC (source: EP US)

**B03C 1/032** (2013.01 - EP US); **B03C 1/286** (2013.01 - EP US); **B03C 2201/18** (2013.01 - EP US); **B03C 2201/28** (2013.01 - EP US)

Citation (opposition)

Opponent :

- GB 2232098 A 19901205 - UNIV SWANSEA [GB]
- US 5043063 A 19910827 - LATIMER MICHAEL W [US]
- US 2007262028 A1 20071115 - FLAHERTY JOSEPH R [US]
- US 6173851 B1 20010116 - HAGUE BRIAN [US], et al
- US 4644610 A 19870224 - FISH IVAN L [US]
- US 2975667 A 19610321 - BROSS WARREN C
- US 2594955 A 19520429 - MARKOWITZ ALBERT A
- US 5619569 A 19970408 - MCVAY CLIFFORD R [US]
- US 3068316 A 19621211 - GOVERNOR WITT
- US 5906303 A 19990525 - CARONE NICHOLAS J [US], et al
- US D445980 S 20010731 - TJUGUM STEVEN J
- US D425740 S 20000530 - DALY MICHAEL W, et al

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

DOCDB simple family (publication)

**FR 2957823 A1 20110930; FR 2957823 B1 20150227**; BR 112012024507 A2 20160906; BR 112012024507 B1 20210112; CA 2793984 A1 20111006; CA 2793984 C 20180529; CN 102821865 A 20121212; CN 102821865 B 20150722; EP 2552590 A1 20130206; EP 2552590 B1 20190522; EP 2552590 B2 20230222; ES 2730934 T3 20191113; ES 2730934 T5 20230426; JP 2013523430 A 20130617; JP 5830521 B2 20151209; RU 2012145457 A 20140510; RU 2553721 C2 20150620; US 2013037470 A1 20130214; US 9687857 B2 20170627; WO 2011121207 A1 20111006

DOCDB simple family (application)

**FR 1052291 A 20100329**; BR 112012024507 A 20110321; CA 2793984 A 20110321; CN 201180017762 A 20110321; EP 11715956 A 20110321; ES 11715956 T 20110321; FR 2011050577 W 20110321; JP 2013501893 A 20110321; RU 2012145457 A 20110321; US 201113637160 A 20110321