

Title (en)

FLOOD PROTECTION FOR UNDERGROUND AIR VENTS

Title (de)

HOCHWASSERSCHUTZ FÜR UNTERIRDISCHE BELÜFTUNGSÖFFNUNGEN

Title (fr)

PROTECTION CONTRE L'INONDATION DESTINÉE AUX BOUCHES D'AIR SOUTERRAINES

Publication

**EP 3485115 A4 20200401 (EN)**

Application

**EP 17828564 A 20170714**

Priority

- US 201662363024 P 20160715
- US 2017042220 W 20170714

Abstract (en)

[origin: WO2018013974A1] Apparatus allowing ventilation through a ventilation shaft to an underground ventilation duct fluidly communicating through the ventilation shaft to an atmospheric opening of the shaft and on threat of flooding operable to prevent downward flow of surface water into the ventilation duct includes support sidewalls fitting in the shaft providing a ventilation passage between support top and bottom openings and a suspension member supported on opposed lateral sidewalls proximate the top opening holding one or more hinge connected panels that manually release to rotationally close the passage and are manually rotationally liftable to a home position allowing ventilation. A panel drain automatically closes when the panel is raised to home position so it is already closed when the panel is released to rotationally close the passage.

IPC 8 full level

**E04H 9/14** (2006.01); **E06B 7/02** (2006.01); **E06B 7/14** (2006.01); **E21F 1/08** (2006.01); **E21F 1/16** (2006.01); **E21F 17/103** (2006.01); **E21F 17/12** (2006.01)

CPC (source: EP)

**E21F 1/003** (2013.01); **E21F 1/08** (2013.01); **E06B 2009/007** (2013.01); **F24F 13/02** (2013.01)

Citation (search report)

- [A] WO 2015051352 A1 20150409 - WATERS LOUIS A [US]
- See references of WO 2018013974A1

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)

**WO 2018013974 A1 20180118**; EP 3485114 A1 20190522; EP 3485114 A4 20200401; EP 3485114 B1 20230927; EP 3485114 C0 20230927; EP 3485115 A1 20190522; EP 3485115 A4 20200401; EP 3485115 B1 20221221; EP 3485116 A1 20190522; EP 3485116 A4 20200401; EP 3485116 B1 20231025; EP 3485116 C0 20231025; EP 3485117 A2 20190522; EP 3485117 A4 20200401; EP 3485117 B1 20230927; EP 3485117 C0 20230927; EP 3485125 A1 20190522; EP 3485125 A4 20200401; EP 3485125 B1 20231018; EP 3485125 C0 20231018; ES 2936510 T3 20230317; JP 2019523382 A 20190822; JP 2019525125 A 20190905; JP 2019525126 A 20190905; JP 2019527806 A 20191003; JP 2019527809 A 20191003; WO 2018013970 A1 20180118; WO 2018013977 A1 20180118; WO 2018013981 A2 20180118; WO 2018013981 A3 20180315; WO 2018013981 A9 20180405; WO 2018013984 A1 20180118

DOCDB simple family (application)

**US 2017042220 W 20170714**; EP 17828561 A 20170714; EP 17828564 A 20170714; EP 17828567 A 20170714; EP 17828569 A 20170714; EP 17828571 A 20170714; ES 17828564 T 20170714; JP 2019501446 A 20170714; JP 2019501486 A 20170714; JP 2019522628 A 20170714; JP 2019522630 A 20170714; JP 2019522631 A 20170714; US 2017042214 W 20170714; US 2017042226 W 20170714; US 2017042234 W 20170714; US 2017042237 W 20170714