

Title (en)  
FLUIDISED BED UNIT

Title (de)  
WIRBELBETTEINHEIT

Title (fr)  
UNITÉ DE LIT FLUIDISÉ

Publication  
**EP 4209710 A1 20230712 (EN)**

Application  
**EP 22020003 A 20220110**

Priority  
EP 22020003 A 20220110

Abstract (en)  
This invention relates to a fluidised bed unit for use in thermally treating biomass, waste, dried sewage sludge or by-products in general. The application is to be intended not limited to thermal treatments but has to be intended extended to any application involving a fluidised bed reactor. The unit forms part of a larger system including a forced draft fan and an induced draft fan suitable to maintain the reactor operating temperature and pressure. The system is suitable for installation on a small or medium scale installation in the range 500kWth - 3Mth for thermal treatment application or in general in the range 10kg/h to 1000kg/h of feedstock. The unit comprises three cylinders arranged in an inverted "U" shape hereafter described. The first cylinder is vertical and comprises a feedstock inlet, a fluidisation agent inlet, a nozzle inlet box, a plurality of nozzles for injecting the fluidisation agent in the bed, a plurality of temperature and pressure sensors. The flow in the first cylinder is upward. The second cylinder is horizontal and comprises a flue gas temperature control device and an explosion protection device. The flow in the second cylinder is horizontal moving from the first cylinder toward the third cylinder. The third cylinder is vertical and comprises a temperature control device, a catalytic filter, an auger for feeding new catalyst and extracting exhausted catalyst, and trapped particles, a plurality of temperature and pressure sensors. The flow in the third cylinder is downward. The fluidised bed unit is compact, relatively simple to maintain and commercially viable so that it may be skid mounted in the factory and transported to the installation site. The fluidised bed unit can also be part of an energy conversion system that is suitable for installation on small and medium scale processing plants.

IPC 8 full level  
**F23C 10/00** (2006.01); **F23C 10/01** (2006.01); **F23C 10/20** (2006.01)

CPC (source: EP)  
**F23C 10/005** (2013.01); **F23C 10/20** (2013.01)

Citation (applicant)  
• DE 2751911 A1 19790523 - DAVY POWERGAS GMBH  
• DE 19548324 A1 19960627 - RHEINISCHE BRAUNKOULEN AG [DE]  
• EP 0889943 A1 19990113 - FOSTER WHEELER ENERGIA OY [FI]  
• EP 1286113 A2 20030226 - EBARA CORP [JP]  
• EP 0433547 A1 19910626 - TOMADINI GINO & C [IT]  
• EP 1432779 A1 20040630 - VALTION TEKNILLINEN [FI]

Citation (search report)  
• [XAI] WO 0133140 A1 20010510 - CONS ENG CO INC [US]  
• [XAI] US 5462718 A 19951031 - ABDULALLY IQBAL F [US]  
• [A] US 2014008205 A1 20140109 - HEYDENRYCH MICHAEL DAVID [ZA], 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

Designated extension state (EPC)  
BA ME

Designated validation state (EPC)  
KH MA MD TN

DOCDB simple family (publication)  
**EP 4209710 A1 20230712**

DOCDB simple family (application)  
**EP 22020003 A 20220110**