

Title (en)  
BARREL-PLUNGER UNIT COMPRISING SHORT CANNULA

Title (de)  
ZYLINDER-KOLBEN-EINHEIT MIT KURZKANÜLE

Title (fr)  
UNITÉ CYLINDRE-PISTON COMPORTANT UNE CANULE COURTE

Publication  
**EP 2800597 A1 20141112 (DE)**

Application  
**EP 12797780 A 20121116**

Priority  

- DE 102011119203 A 20111116
- EP 2012072821 W 20121116

Abstract (en)  
[origin: WO2013072455A1] The invention relates to a barrel-plunger unit comprising at least one barrel, which receives an injection solution and which comprises a discharge opening, and at least one plunger. The barrel or a component mounted upstream of the barrel has an end face from which a short cannula protrudes during the proper emptying process of the barrel-plunger unit, said cannula having a discharge opening at the free end of the cannula. The discharge opening has a surface with a border which has a point or an edge near the base. The point or the edge near the base lies 0.15 - 0.3 mm away from the end face or the front-most end face point or edge. According to the invention, a barrel-plunger unit is developed for a single-use injector, said unit being suitable for penetrating the human skin, among others, in a virtually painless manner in order to apply highly viscous injection solutions.

IPC 8 full level  
**A61M 5/46** (2006.01)

CPC (source: EP US)  
**A61M 5/46** (2013.01 - EP US); **F16J 1/005** (2013.01 - US)

Citation (search report)  
See references of WO 2013072455A1

Citation (examination)  

- WO 0009184 A1 20000224 - IMPRINT PHARM LTD [GB], et al
- US 2002193740 A1 20021219 - ALCHAS PAUL G [US], et al
- EP 0749758 A1 19961227 - PHARMACIA AB [SE]
- WO 2007071485 A1 20070628 - NOVO NORDISK AS [DK], et al
- WO 2010038879 A1 20100408 - TERUMO CORP [JP], et al
- DE 102008052749 A1 20100527 - HAHN SCHICKARD GES [DE]
- US 2009157041 A1 20090618 - PETTIS RONALD J [US], et al
- VON PING M. WANG: "Precise Microinjection into Skin Using Hollow Microneedles", JOURNAL OF INVESTIGATIVE DERMATOLOGY, vol. 126, 2006

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)  
**DE 102011119203 A1 20130516**; EP 2800597 A1 20141112; JP 2015501676 A 20150119; JP 6175066 B2 20170802;  
US 2014245882 A1 20140904; US 9599220 B2 20170321; WO 2013072455 A1 20130523

DOCDB simple family (application)  
**DE 102011119203 A 20111116**; EP 12797780 A 20121116; EP 2012072821 W 20121116; JP 2014541678 A 20121116;  
US 201414276249 A 20140513