

Title (en)

METHOD AND ASSEMBLY FOR FORMING AN ANNULAR OBJECT

Title (de)

VERFAHREN UND ANORDNUNG ZUR HERSTELLUNG EINES RINGFÖRMIGEN GEGENSTANDES

Title (fr)

PROCÉDÉ ET ENSEMBLE DE FORMATION D'UN OBJET ANNULAIRE

Publication

EP 3858509 A1 20210804 (EN)

Application

EP 21154412 A 20210129

Priority

US 202016779986 A 20200203

Abstract (en)

A method is provided for forming an annular object. This method includes: providing a frustoconical preform (104) extending axially along an axis (28), wherein a sidewall of the frustoconical preform (104) is angularly offset from the axis (28) by a preform angle (120); externally drawing the frustoconical preform (104) over an outer surface (34) of a punch (22) and an outer surface (80) of a die clamp (72) to provide an externally drawn body (122), wherein the outer surface (80) of the die clamp (72) is angularly offset from the axis (28) by a die clamp angle (82) that is different than the preform angle (120); mating a die (74) with the die clamp (72) to provide a die assembly (26), wherein the externally drawn body (122) is clamped radially between the die (74) and the die clamp (72); and translating the die assembly (26) axially along the axis (28) and into a bore (38) of the punch (22) to at least partially internally draw the externally drawn body (122) against an inner surface (36) of the punch (22).

IPC 8 full level

B21D 22/06 (2006.01); **B21D 22/22** (2006.01); **B21D 22/24** (2006.01); **B21D 25/02** (2006.01); **B21D 53/92** (2006.01)

CPC (source: EP US)

B21D 22/06 (2013.01 - EP); **B21D 22/22** (2013.01 - EP); **B21D 22/24** (2013.01 - EP); **B21D 25/02** (2013.01 - EP US); **B21D 53/92** (2013.01 - EP)

Citation (search report)

- [X] WO 2015004152 A1 20150115 - LUDLOW MICHAEL [GB]
- [A] WO 2010003538 A1 20100114 - UNIV ULSTER [GB], et al
- [A] CN 109692911 A 20190430 - SHANGHAI AEROSPACE EQUIPMENTS MFT CO LTD

Cited by

EP4268990A1; GB2618123A

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)

EP 3858509 A1 20210804; US 2021237139 A1 20210805

DOCDB simple family (application)

EP 21154412 A 20210129; US 202016779986 A 20200203