

Title (en)

Rapidly forming complex hollow shapes using lost wax investment casting

Title (de)

Schnelle Herstellung von komplex geformten Gegenständen unter Verwendung von verlorenen Wachsmodellen

Title (fr)

Production rapide d' articles de forme complexe par moulage de précision à la cire perdue

Publication

EP 0924008 A1 19990623 (EN)

Application

EP 98310605 A 19981222

Priority

US 99592897 A 19971222

Abstract (en)

A method of repetitively forming rapid prototype metal castings that are fully durable and functional metal parts of a complex shape, comprising the steps of: (a) making an assembly (10) of resin-bonded particulate cores (11,12,13) spaced from each other, one core arcuately encompassing at least one end of another core to define at least one hidden space (31,32) therebetween; (b) making an easily machined die set (18) to receive and support said assembly (10) of cores in spaced relation for defining a casting cavity (34) around and between said cores, including said at least one hidden space (31,32); (c) injecting fluidised wax into said cavity (34) under a controlled sustained pressure to fill said cavity without entrapping gases and to form a wax pattern (37) for the casting; (d) using said wax pattern (37) with said assembly (10) of cores therein to form a shell mould (40) thereabout and thence draining the wax from the mould to permit a metal casting (43) to be formed in place of the wax pattern (37) with the assembly (10) of cores still in place, and (e) removing from the casting all of the particulate cores (11,12,13) in said casting by reversing the bond between said core particles to form a collection of particles that is freely flowable under gravity. <IMAGE>

IPC 1-7

B22C 7/02; **B22C 9/04**; **B22D 29/00**; **B22C 9/10**

IPC 8 full level

B22C 7/02 (2006.01); **B22C 9/04** (2006.01); **B22D 29/00** (2006.01)

CPC (source: EP US)

B22C 7/02 (2013.01 - EP); **B22C 9/04** (2013.01 - EP); **B22D 29/003** (2013.01 - EP US)

Citation (search report)

- [X] US 5140869 A 19920825 - MRDJENOVICH ROBERT [US], et al
- [X] GB 2053047 A 19810204 - ROLLS ROYCE
- [X] US 5577550 A 19961126 - SCHMIDT GLENN H [US]
- [A] EP 0092690 A1 19831102 - NISSAN MOTOR [JP]

Cited by

CN103084541A; CN105705274A; CN103372630A; CN106583658A; CN103273010A; CN108607953A; CN104475680A; CN102019354A; DE102005001023A1; EP1600230A1; CN114406190A; EP1764170A1; US7240718B2

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DOCDB simple family (application)

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