

Title (en)

METHOD OF MANUFACTURING A METAL MEMBER WITH THROUGH HOLE

Title (de)

HERSTELLUNGSVERFAHREN FÜR EIN METALLTEIL MIT DURCHGANGSBOHRUNG

Title (fr)

PROCEDE POUR LA FABRICATION D'UNE PIECE METALLIQUE AVEC UN TROU TRAVERSANT

Publication

**EP 1852196 B1 20130424 (EN)**

Application

**EP 06713684 A 20060214**

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- JP 2006025296 A 20060202

Abstract (en)

[origin: EP1852196A1] A structure and method is realized for stably and at low cost carrying out an operation for forming a through hole 5c at one portion of a side wall 14 of an expanded portion 7a made by plastically deforming one part of a metal tube 3 radially outward, in a portion where the plate thickness gradually changes. A slide tool 13b is withdrawn from inside a punch hole 12 while applying hydraulic pressure to the inside of the side wall 14. Regarding a tip end face 20a of the slide tool 13b, a portion facing the portion of the side wall 14 where the plate thickness is relatively thick is recessed. Due to this construction, at the instant of commencing withdrawal of the slide tool 13b, the degree of progress in the shearing for the portions of the side wall 14 matching with the two side edges of the punch hole 12a is made different. Then the timing for moving from shearing to rupture is made to coincide, so that of the side wall 14, the portions matching with the punch hole 12a, are made reliably into a blank 10c, and are extracted from the side wall 14.

IPC 8 full level

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CPC (source: EP KR)

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Citation (examination)

- JP 2007203881 A 20070816 - NSK LTD
- US 2002148270 A1 20021017 - EASTERBROOK ERIC T [US]

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