

Title (en)  
TRANSFER DEVICE IN A TRANSFER PRESS OR LIKE METAL-FORMING MACHINE TOOL

Publication  
**EP 0384188 A3 19910130 (DE)**

Application  
**EP 90102074 A 19900202**

Priority  
DE 3905068 A 19890218

Abstract (en)  
[origin: EP0384188A2] The transfer device makes possible different motional sequences of the holding means (40) for the sheet-metal parts to be moved through the metal-forming machine tool. The holding means are secured on travelling carriages (24, 25). The travelling carriages (24, 25) are cam-guided, travelling carriage (25) performing a transfer motion (82) out of a processing stage (86) into an idle stage (88), taking a sheet-metal part along with it. The return motion (84) is interrupted in an intermediate position (89) during the forming process performed on the sheet-metal parts. Travelling carriage (24) executes a transfer motion (83) out of the idle stage (88) into a processing stage (87) and a return motion (85) interrupted temporarily in an intermediate stage (89). The perpendicularly guided motion components of the cams (82, 83, 84, 85) serve for the take-up and deposition of sheet-metal parts in processing stages, the extended lowering motion (94) serving for the deposition of the holding means onto sliding tables which can be moved into the press. The low-mass construction using travelling carriages (24, 25) makes possible high accelerations in the motions. The use of intermediate deposition points (17) in the idle stages (88) considerably shortens the transfer motions. <IMAGE>

IPC 1-7  
**B21D 43/05**

IPC 8 full level  
**B30B 15/30** (2006.01); **B21D 43/05** (2006.01)

CPC (source: EP US)  
**B21D 43/057** (2013.01 - EP US)

Citation (search report)

- [X] GB 2199525 A 19880713 - HONDA MOTOR CO LTD
- [X] GB 2199781 A 19880720 - HONDA MOTOR CO LTD
- [A] PATENT ABSTRACTS OF JAPAN, vol. 12, no. 109 (M-682)(2956) 08 April 1988; & JP-A-62 238 032 (MAZDA MOTOR CORP.) 19 Oktober 1987,
- [A] PATENT ABSTRACTS OF JAPAN, vol. 11, no. 67 (M-566)(2514) 28 Februar 1987; & JP-A-61 226 128 (HONDA MOTOR CO LTD) 08 Oktober 1986.
- [A] PATENT ABSTRACTS OF JAPAN, vol. 5, no. 50 (M-62)(722) 09 April 1981; & JP-A-56 006 743 (AIDA ENGINEERING K.K.) 23 Januar 1981.
- [A] PATENT ABSTRACTS OF JAPAN, vol. 9, no. 63 (M-365)(1786) 20 März 1985; & JP-A-59 197 325 (AIDA ENGINEERING) 08 November 1984.
- [A] PATENT ABSTRACTS OF JAPAN, vol. 11, no. 255 (M-617)(2702) 19 August 1987; & JP-A-62 061 742 (ISHIKAWAJIMA HARIMA HEAVY IND CO LDT) 18 März 1987.
- [A] PATENT ABSTRACTS OF JAPAN, vol. 13, no. 13 (M-783)(3361) 12 Januar 1989; & JP-A-63 224 824 (HONDA MOTOR CO LDT) 19 September 1988.

Cited by  
EP0754509A1; EP0901848A1; US6126582A; EP0671228A3; US5582061A

Designated contracting state (EPC)  
AT BE DE ES FR GB IT NL SE

DOCDB simple family (publication)  
**EP 0384188 A2 19900829; EP 0384188 A3 19910130; EP 0384188 B1 19931020**; AT E96063 T1 19931115; CA 1337254 C 19951010; DE 3905068 A1 19900823; DE 3905068 C2 19990722; DE 59003102 D1 19931125; ES 2047170 T3 19940216; RU 2082614 C1 19970627; US 5001921 A 19910326

DOCDB simple family (application)  
**EP 90102074 A 19900202**; AT 90102074 T 19900202; CA 611727 A 19890918; DE 3905068 A 19890218; DE 59003102 T 19900202; ES 90102074 T 19900202; SU 4743049 A 19900216; US 54272090 A 19900625