(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 033 342 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
19.11.2003 Bulletin 2003/47

(43) Date of publication A2:
06.09.2000 Bulletin 2000/36

(21) Application number: **00660042.3**

(22) Date of filing: **03.03.2000**

(51) Int Cl.[7]: **B66C 1/42**, B66C 1/48

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **04.03.1999 FI 990470**

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(54) Gripping lifter for transferring metal coils

(57) The present invention relates to a gripping lifter (1) intended for handling metal coils, being provided with two lifting arms (2; 2a, 2b), coupled at the upper ends (14) to one or more support arms (3) substantially in horizontal plane. The lower ends (13) of the lifting arms are provided with detectors (4; 4A, 4B) of the coil centre hole and projecting parts (7; 7a, 7b). On the inner sides (21) of the lifting arms, gravity-operated detectors (8; 8a, 8b) of the metal coil sides are provided, the projecting parts being on the lower parts (7; 7B) rotatably carried to be turnable, and the under edge thereof being provided with a limiting part (15) of the turning motion of the projecting part, and on the upper part (7; 7A) thereof being attached a lever mechanism (12) to be used mechanically.

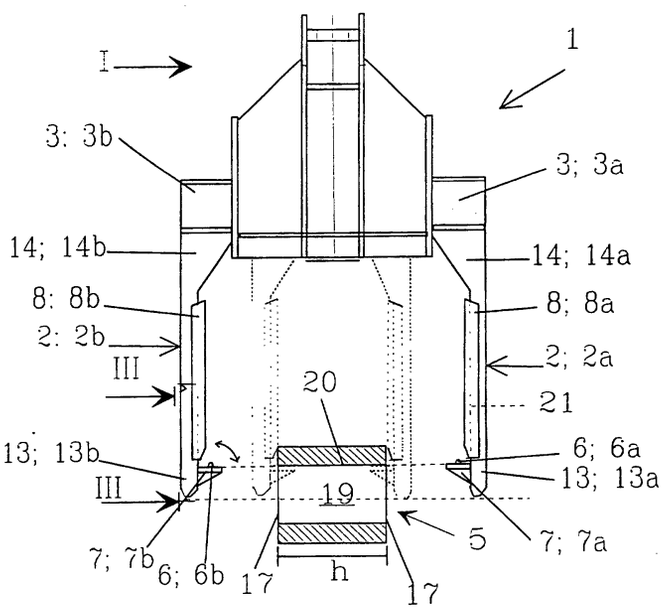


Fig. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 00 66 0042

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	FR 2 722 488 A (LORRAINE LAMINAGE) 19 January 1996 (1996-01-19) * page 7, line 11 - line 18; figures * ---	1,2,4,5, 8,9	B66C1/42 B66C1/48
A	PATENT ABSTRACTS OF JAPAN vol. 1996, no. 04, 30 April 1996 (1996-04-30) & JP 07 323988 A (MASAGO KOGYO KK), 12 December 1995 (1995-12-12) * abstract * ---	1,2,4,5, 8	
A	PATENT ABSTRACTS OF JAPAN vol. 016, no. 376 (M-1294), 12 August 1992 (1992-08-12) & JP 04 121391 A (NISSHIN STEEL CO LTD), 22 April 1992 (1992-04-22) * abstract; figures * -----	1,4,5,8	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

B66C

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
MUNICH	17 June 2003	Masset, M

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-5,8,9

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
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The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-5,8,9

   Gripping lifter and method for lifting metal coils

2. Claims: 6,7

   Gripping lifters functionally interconnected

3. Claim : 10

   Method for descending metal coils

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 00 66 0042

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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17-06-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
FR 2722488 A	19-01-1996	FR 2722488 A1	19-01-1996
JP 07323988 A	12-12-1995	NONE	
JP 04121391 A	22-04-1992	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82