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

(11) EP 1 172 325 A3

(12) EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
17.04.2002 Bulletin 2002/16

(43) Date of publication A2:
16.01.2002 Bulletin 2002/03

(21) Application number: **01302982.2**

(22) Date of filing: **29.03.2001**

(51) Int Cl.[7]: **B66D 1/44**, B66D 1/48, B66D 1/08, F15B 13/04, F15B 13/042, F15B 11/042, F15B 11/12

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

(30) Priority: **13.07.2000 JP 2000212746**
01.02.2001 JP 2001025132

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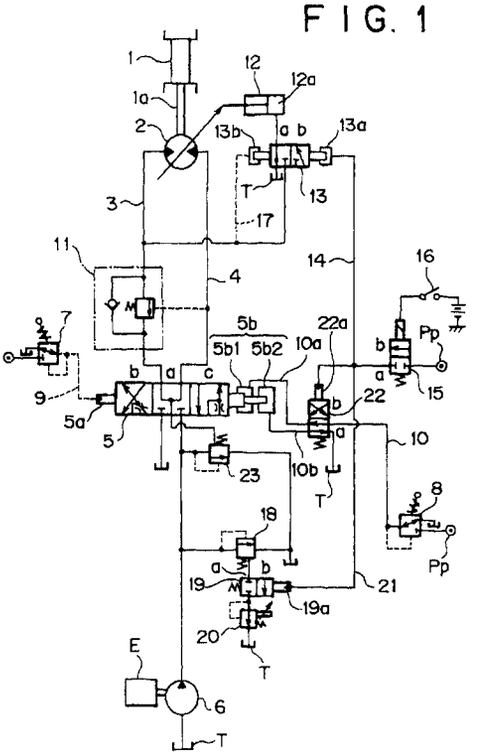
(54) Control device for hydraulic drive winch

(57) A winding-down side pilot port (5b) of a control valve (5) is of a 2-port construction comprising a normal winding-down side port (5b1) having a large pressure receiving area and a free fall side port (5b2) having a small pressure receiving area, wherein in the free fall operation carried out by setting a motor (2) to a small capacity, a pilot pressure of a winding-down side remote control valve (8) is supplied to the free fall side port through a mode switching valve (22). Thereby, a stroke of the control valve (5) can be suppressed so that a speed of a motor (2) does not exceed an allowable speed.
Additionally a load holding hydraulic system is disclosed with a hydraulic motor (101) and bidirectional pump (104) in closed circuit.

FIG. 1



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EUROPEAN SEARCH REPORT

Application Number
EP 01 30 2982

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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A	* the whole document *	1,2,8	
A	US 3 818 802 A (WILSON R) 25 June 1974 (1974-06-25) * the whole document *	5	
A	US 6 079 576 A (BOSLER PETER ET AL) 27 June 2000 (2000-06-27) * the whole document *	14	
A	DE 34 41 185 A (REXROTH MANNESMANN GMBH) 22 May 1986 (1986-05-22) * abstract * * page 6, paragraph 3 - page 15 * * figure 1 *	14	TECHNICAL FIELDS SEARCHED (Int.Cl.7) B66D F15B
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	1 February 2002	Sheppard, B

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
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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:

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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 - 13

   Control device for a hydraulic drive winch with free fall instruction means where motor capacity control means set hydraulic motor to a small capacity for free fall operation.

2. Claims: 14 - 25

   Control device for a hydraulic drive winch with bidirectional pump and motor forming a closed circuit and pump control means for controlling direction and flow rate of pump.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 01 30 2982

This annex lists the patent family membersrelating 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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01-02-2002

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