



EUROPEAN PATENT APPLICATION

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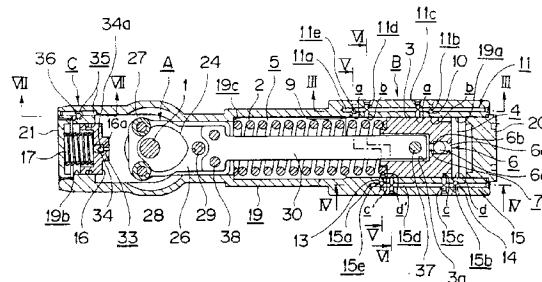
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54 Floor hinge.

57 A floor hinge may independently perform a back check action, a delayed action, a first speed door closing action, a second speed door closing action and a latching action. When the door is fully opened, a back check piston (16) abuts against a rotational motion-linear motion converting mechanism (A) to stop or decelerate the opening motion of the door. A returning motion of a piston (3) is classified into four-speed modes. The closing motion of an output shaft (1) is changed in the four-speeds. In the door closing action, the working oil within a piston tear chamber (5) flows into a piston front chamber (4) through a first hydraulic passage (7). In the delayed action, the working oil within the piston front chamber (4) will flow into the piston rear chamber (5) only through a second hydraulic passage (11) and delayed action adjusting valve (9). In the first speed door closing action, the working oil within the piston front chamber (4) will flow into the piston rear chamber (5) only through the second hydraulic passage (11) and a first speed adjusting valve (10). In the second speed door closing action, the working oil within the piston front chamber (4) will flow into the piston rear chamber (5) only through a third hydraulic passage (15) and a second speed adjusting valve (13). In the latching action, the working oil within the piston front chamber (4) will flow into the piston rear chamber (5) only through the third hydraulic passage (15) and a latching action adjusting valve (14).

FIG. 1A





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EUROPEAN SEARCH REPORT

Application Number

EP 92 31 0782

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.5)
D,Y	EP-A-0 407 150 (RYOBI) * Column 8, line 35 - column 9, line 48; column 10, line 7 - column 11, line 15; figures 1,2,15-18 *	1,3,6	E 05 F 3/10
A	---	4,7,9	
Y	EP-A-0 409 445 (RYOBI) * Column 5, line 54 - column 6, line 58; column 7, lines 25-57; column 8, lines 29-47; figures 1,2,3,4,5 *	1,3,6	
A	FR-A-2 164 149 (DORMA) * Page 5, lines 9-18; figures 1,2 *	2,3,6	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			E 05 F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 02-03-1993	Examiner GUILLAUME G E P
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	

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	CLAIMS INCURRING FEES
<p>The present European patent application comprised at the time of filing more than ten claims.</p> <p><input type="checkbox"/> All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.</p> <p><input type="checkbox"/> Only part of the claims fees 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 claims:</p> <p><input type="checkbox"/> 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.</p>	
	LACK OF UNITY OF INVENTION
<p>The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions or groups of inventions, namely:</p> <p style="text-align: center; margin: 20px 0;">See sheet -B-</p> <p><input type="checkbox"/> All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.</p> <p><input type="checkbox"/> 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:</p> <p><input checked="" type="checkbox"/> None of the further search fees has 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: 1-6,9</p>	



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EP 92 31 0782 -B-

LACK OF UNITY OF INVENTION

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

1. Claims 1-6,9 : Floor hinge with delayed, first speed closing, second speed closing and latching actions.
2. Claims 7,8,9 : Floor hinge with back check mechanism.