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(54) **Turbo machines**

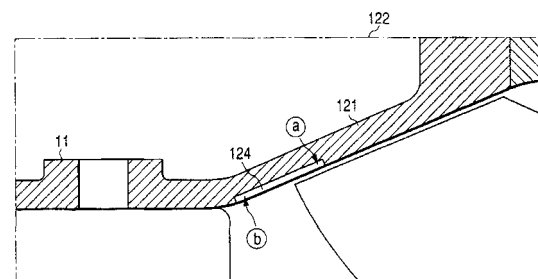
(57) A turbo machine comprising: an impeller having a plurality of blades therewith; a casing having a flow surface defined therein and being positioned with the impeller therein; and a plurality of grooves being formed in the flow surface of the casing, for connecting between an inlet side of said impeller and an area on the flow surface of the casing in which the blades of said impeller reside, on a periphery thereof, wherein an index of determining a form of the grooves is obtained by a following equation:

$$JE \text{ No.} = WR \times VR \times WDR \times DLDR$$

where, WR (a width ratio) is a value obtained by dividing a total value of the groove widths W with a length of casing periphery; VR (a volume ratio) is a value obtained by dividing a total volume of said grooves with a volume of said impeller; WDR (a width-depth ratio) is a value obtained by dividing the width W of said groove with a depth D of said groove; and DLDR is a ratio between a length of said groove in flow, being lower than the impeller inlet and the depth of said groove, and wherein, said grooves are formed so that the index JE

No. lies in a range from 0.03 to 0.5.

FIG. 1





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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			F04D
Place of search		Date of completion of the search	Examiner
THE HAGUE		4 April 2002	Teerling, J
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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**ANNEX TO THE EUROPEAN SEARCH REPORT
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