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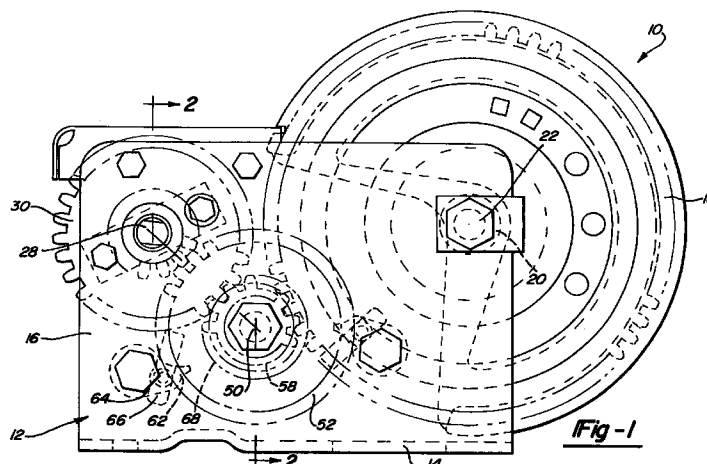
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(54) **Multi-speed winch with constant mesh gearing system**

(57) A constant mesh gearing system for a multi-speed winch (10) which allows shifting of gear ratios for varying operating properties. The gearing system incorporates at least two different sized crank gears (32,34) coaxially mounted to a crankshaft (28). Each of the crank gears (32,34) are in constant mesh engagement with drive gears (54,56) mounted to a drive shaft (50). The other end of the drive shaft (50) includes a ratchet gear (58) drivably engaging the winch drum (18). A ratchet pawl (62) with a standoff link (66) locks the ratchet gear (58) against rotation in one direction. Upon cranking the standoff forces the pawl (62) away from the

ratchet gear (58) for noiseless cranking of the winch (10). The crankshaft (28) of the winch (10) is longitudinally shiftable to selectively engage either of the crank gears (32,34). The shaft (28) includes detents (44) engageable by a spring-biased ball bearing (46) to prevent inadvertent longitudinal movement of the crankshaft (28). The crankshaft (28) also includes a drive tooth (40) selectively engageable with the crank gears (32,34). Upon longitudinal shifting of the crankshaft (28), different gear ratios may be selected for operation of the winch (10).



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EUROPEAN SEARCH REPORT

Application Number
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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.6)
A	GB 2 127 917 A (SOUTHAM ERIC) 18 April 1984 * claim 1 *	1,7,12	B66D1/04
A	US 4 566 674 A (EBEY EDWARD ET AL) 28 January 1986 * claim 1 *	1,2,7,8,12,13	
A	CH 115 994 A (DENZLER) 16 December 1926 * claim 1 *	1	
A	SU 1 754 634 A (MOGILEVSKIJ MASH) 15 August 1992 * figures 1,2 *	1	
A	SU 1 759 784 A (UK NII STANKOV INSTR) 7 September 1992 * figures 1-4 *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B66D
Place of search		Date of completion of the search	Examiner
THE HAGUE		12 September 1997	De Gussem, 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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