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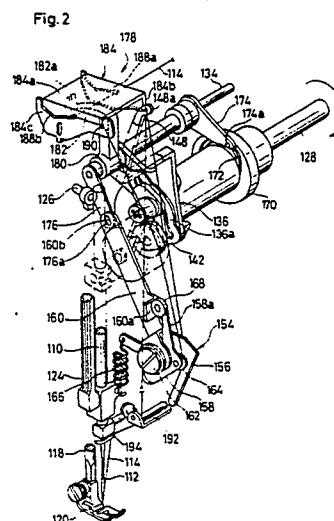
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Automatic needle thread supply control system.

An automatic needle thread supply control system having a pair of clamping members (152A) disposed between the needle thread supply source and the needle thread take-up member (138), for clamping and releasing the needle thread (114). The moment when the clamping members start moving apart from each other and the period in which the clamping members are held apart from each other are controlled by control means according to the thickness of the work fabric or the thickness of the needle thread. While the clamping members are separated from each other, the needle thread is supplied from the needle thread supply source without restraint as the work fabric is fed. The needle thread is thus supplied under a tension conforming to the type of the work fabric in tightening the needle thread. During the free supply of the needle thread, the thread take-up member is held at the uppermost position, and hence the needle thread of an amount corresponding to the needle thread demand of the shuttle is supplied properly. After the supply of the needle thread has been accomplished, the clamping members are engaged to clamp the needle thread to prevent the excessive supply of the needle thread,

while the thread take-up member starts its motion in phase with the vertical reciprocatory motion of the needle. To control the motion of the clamping members according to the thickness of the needle thread instead of the thickness of the work fabric, the control means is provided with proportional control means for engaging and for disengaging the clamping members at a speed proportional to the rotating speed of the arm shaft (128) of the sewing machine,





EP 87 30 9359

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.4)
X	GB-A-2015596 (SINGER) * page 1, line 61 * * page 2, column 2 * ---	1	D05B47/04 D05B51/00
A	US-A-4215641 (SINGER/DOBRJANSKI) * page 7, line 1 - line 36 * ---	1	
P	GB-A-2188070 (BROTHER) * the whole document * ---	1	
A	EP-A-0158708 (TOKYO JUKI) * the whole document * ---	1	
A	US-A-3307509 (IOANNILLI) * column 7, paragraph 2 * -----	1, 7	
			TECHNICAL FIELDS SEARCHED (Int. Cl.4)
			D05B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 12 JUNE 1989	Examiner VUILLEMIN L. F.
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			