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

(11) EP 1 098 020 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
09.05.2001 Bulletin 2001/19

(51) Int Cl.[7]: **D04B 15/32**

(21) Application number: **00830720.9**

(22) Date of filing: **31.10.2000**

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

(30) Priority: **03.11.1999 IT BS990103**

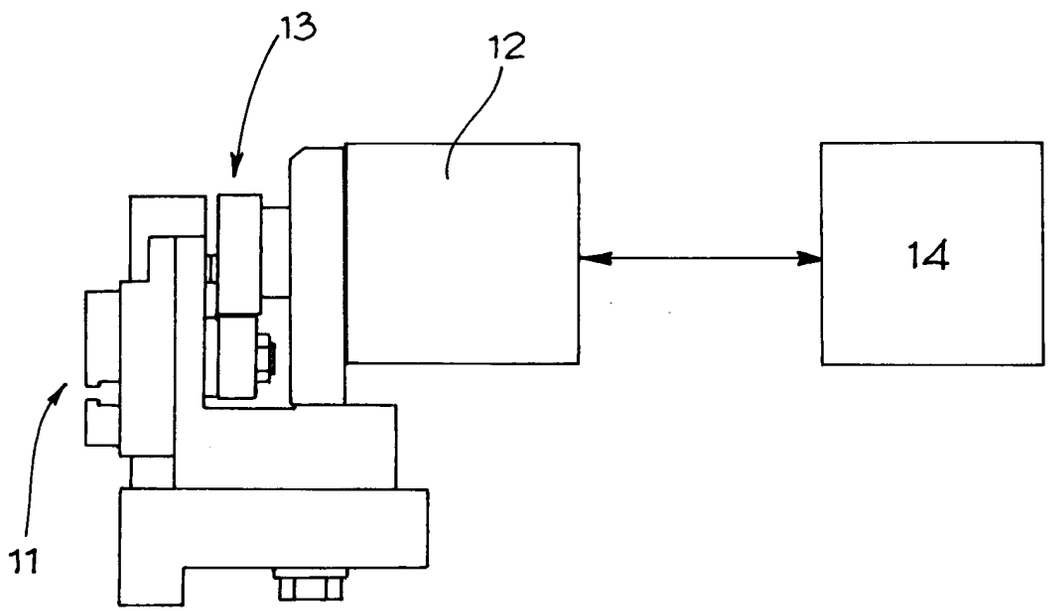
(71) Applicant: **Sangiacomo S.p.A.**
25135 Brescia (IT)

(72) Inventor: **Sangiacomo, Fulvio**
25128 Brescia (IT)

(74) Representative: **Manzoni, Alessandro**
MANZONI & MANZONI,
UFFICIO INTERNAZIONALE BREVETTI,
P.le Arnaldo 2
25121 Brescia (IT)

(54) System for varying the stitches through programmed movements of the stitch cams in circular knitting machines

(57) The invention regards a system for varying the stitches through programmed movements of the stitch cams in circular knitting machines equipped with a programming and control computer. Each stitch cam is controlled in its movements in height by a servomechanism (12), and this is connected, programmed and managed by the knitting machine computer (14) to intervene to change the stitch according to the programme in any area of a finished article or knitted piece, even during the knitting of the same rows.



EP 1 098 020 A2

Description

[0001] The present invention belongs to the circular knitting machines sector and refers in particular to a system for governing the position of the stitch cams and consequently the variations in the knitting made on these machines.

[0002] The variations in the size of the stitches on said machines are usually governed by stitch cams which can be increased in height compared to the butt of the needles which are working. In the same way, various stitch cam control systems are available for changing the position of the cams as required in order to carry out variations in the knitting. An example, amongst others, of a stitch cam and its control device for positioning was described in a previous application for an invention by the same applicant. However, up until now, in circular knitting machines, positioning of the stitch cams, programming and managing using the computer these machines may be equipped with to control their operating cycle, appears to be lacking.

[0003] The aim of this invention is to remedy this deficiency by implementing efficient programming of the stitch cam positions in the circular knitting machines sector. These cams can be controlled, raised and lowered, even singularly under the control of the computer on board these machines, following the operating programme of the article or part of knitting being made.

[0004] To achieve this aim, the positioning of the height of the stitch cams in knitting machines is governed by a motor or by some other actuator which can be connected, programmed and managed by the electronic system (computer) which governs all the functions of the knitting machine. This has the advantage of being able to pre-set precisely the movements of the stitch cams either singularly and/or in groups and be able to carry out more stitch variations without any limitations even during the same row of knitting and in any part of the piece being knitted.

[0005] In the enclosed drawing, which shows an example of the realization of the present invention, a stitch cam is numbered 11 and is moved by a servomechanism 12 through a drive 13. The servomechanism may be made up of an electric motor, an electromagnetic actuator or some similar means. The drive 13 can be the rotating type in the case of a control motor, linear or lever in the case of an electromagnetic actuator, or some other means capable of raising the stitch cams.

[0006] Whether it be a servomechanism, motor, electromagnetic actuator or some other means, it is connected to, programmed and managed by a computer 14, the same which is on board and which controls all the functions of the circular knitting machine.

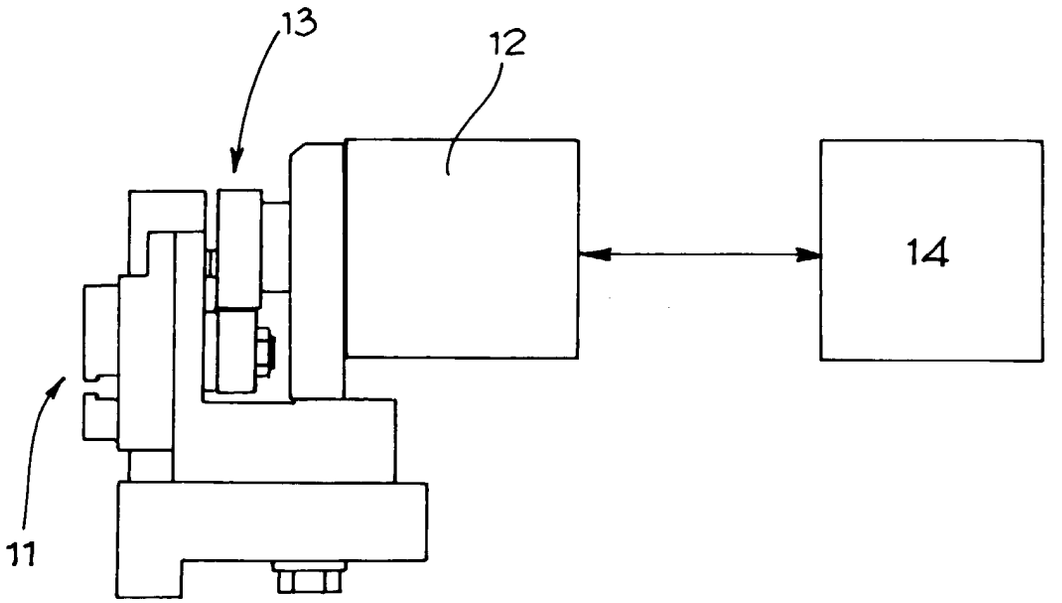
[0007] In this way, each stitch cam can be raised or lowered correctly according to a pre-set programme and according to the stitch variations required by the article being knitted. It is clear that by programming the movements of the stitch cams run directly by the computer of a knitting machine, stitch variations can be anticipated and achieved in any part of the article without limitations as to zone and without the implicit restrictions of a non programmed control system.

Claims

1. System for varying the stitch through movements of the stitch cams of a circular knitting machine equipped with a computer for programming and controlling, characterized by the fact that each stitch cam is governed in its upward movements by a servomechanism and said servomechanism is connected, programmed and run by the knitting machine computer which can intervene according to the programme to change either the stitch in any part of an article or piece of knitting even during the knitting of one of the same rows of knitting.

2. System according to claim 1, where said servomechanism is made up of an electric motor, an electromagnet or some similar means.

3. Circular knitting machine characterized by stitch cams governed and positioned by programmes under the control of an electronic machine as indicated in the previous claims.


13
12
14
11