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Essig et al.

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(54) **METHOD OF PRODUCING A KNITTED ARTICLE**

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(30) **Foreign Application Priority Data**

Jul. 24, 1998 (DE) 198 33 392

(51) **Int. Cl.⁷** **D04B 7/34**

(52) **U.S. Cl.** **66/65; 66/174**

(58) **Field of Search** 66/45, 64, 65,
66/69, 169 R, 170, 171, 174, 173

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 3,916,647 * 11/1975 Yabuta 66/65
- 5,239,846 * 8/1993 Kitaura et al. 66/174
- 5,444,995 * 8/1995 Benetton 66/64
- 5,943,884 * 8/1999 Kobata et al. 66/176

- 5,987,930 * 11/1999 Nakai 66/69
- 6,065,311 * 5/2000 Essig et al. 66/64
- 6,085,553 * 7/2000 Schmidt et al. 66/69

FOREIGN PATENT DOCUMENTS

- 1 277 782 6/1972 (GB) .
- 2 183 264 6/1987 (GB) .

* cited by examiner

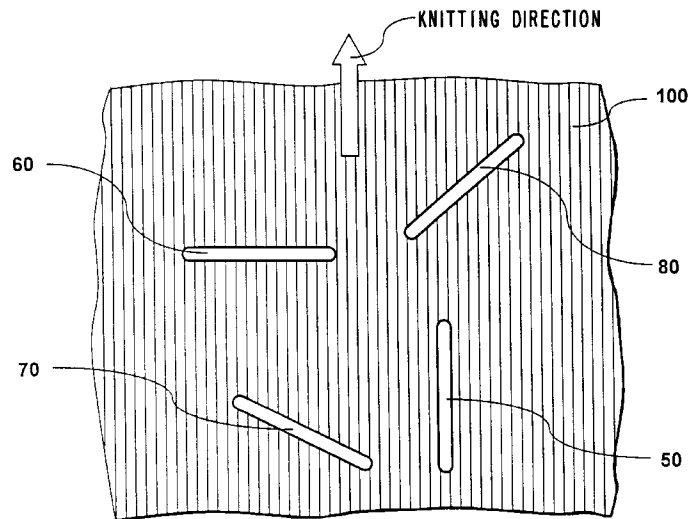
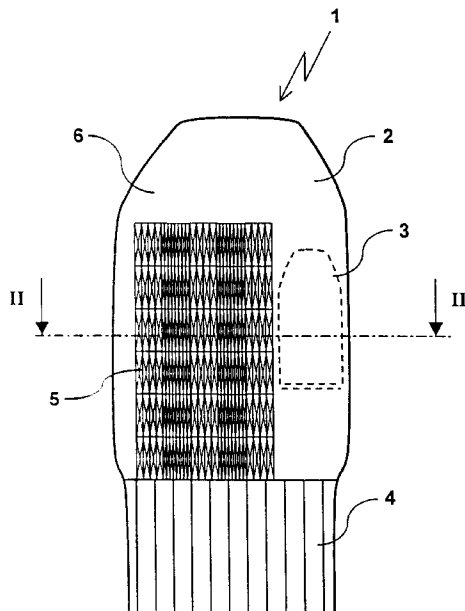
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(57) **ABSTRACT**

A method for producing a knitted article with a spatial main knitted element and at least one spatial partial knitted element on a flat knitting machine with at least two opposite needle beds, a needle displacement device and a loop transfer device, the method has the steps of producing the main knitted element and the at least one partial knitted element parallel on the machine until at least the partial knitted element is finished and the main knitted element reaches a point of coupling with the at least one partial knitted element, connecting loops of the main knitted element and the at least one partial knitted element by a transfer technique with one another, and then arranging loops of the at least one partial knitted element by the needle bed displacement device on one needle bed opposite to the loops of the main knitted element on the other needle bed, with which they must be connected.

20 Claims, 7 Drawing Sheets



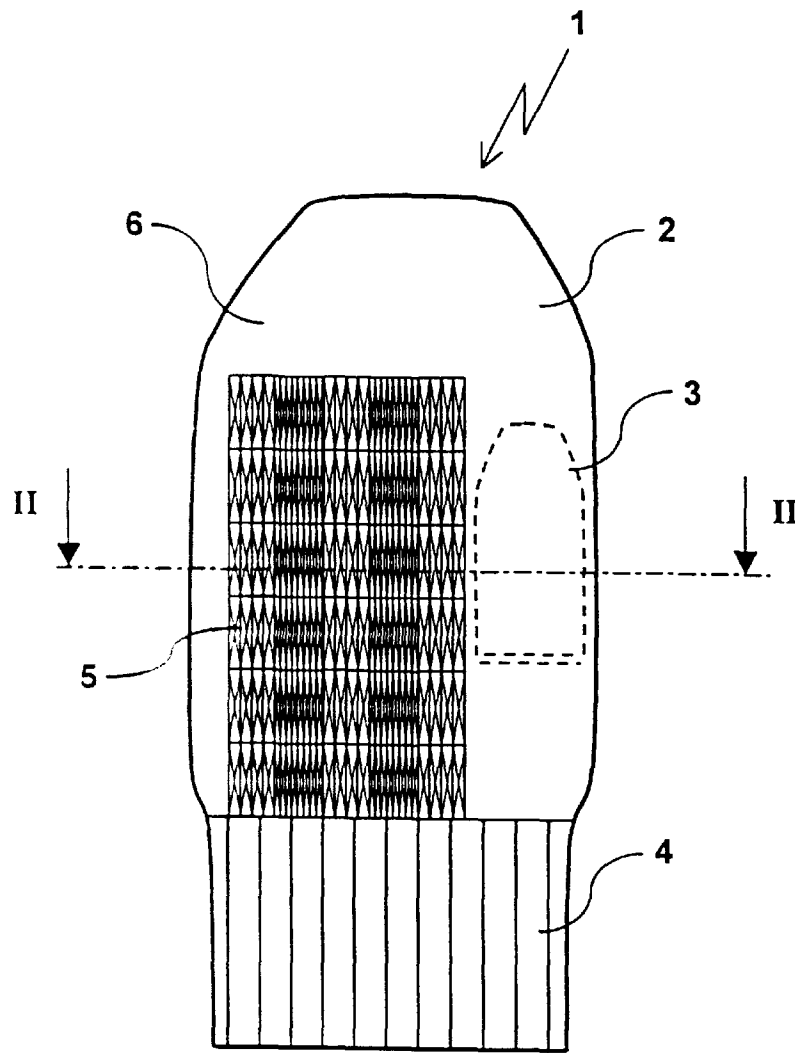


FIG. 1

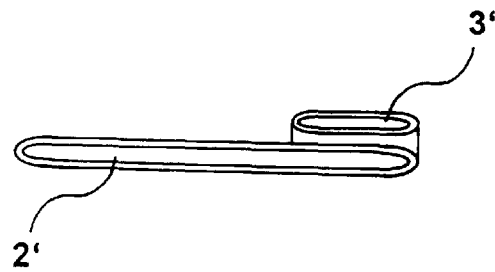


FIG. 2

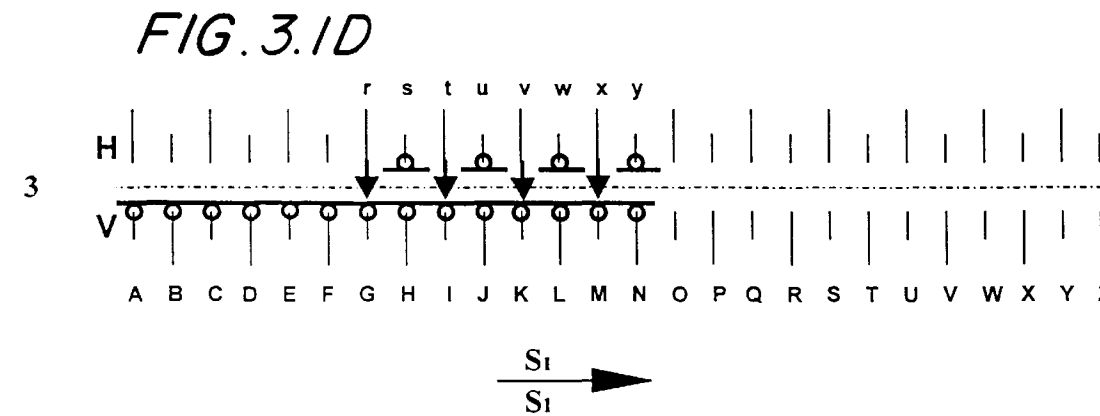
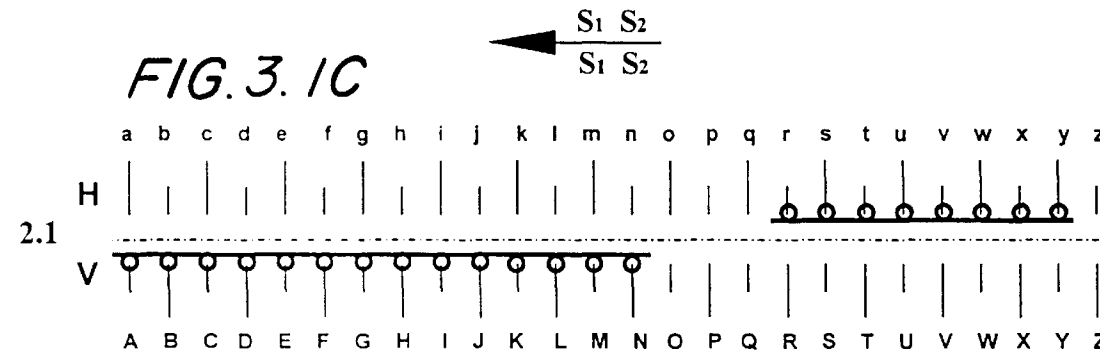
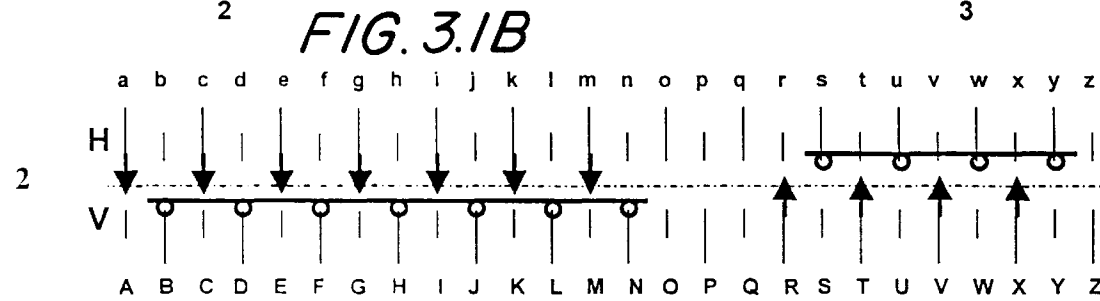
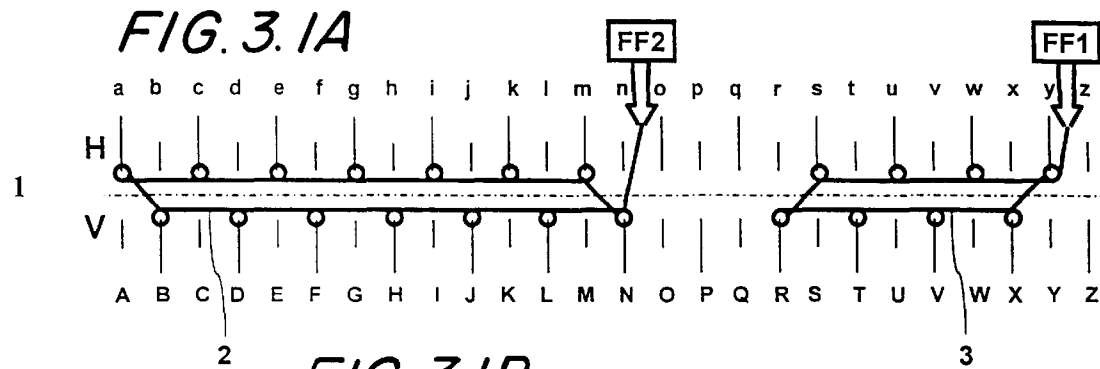


FIG. 3.2A

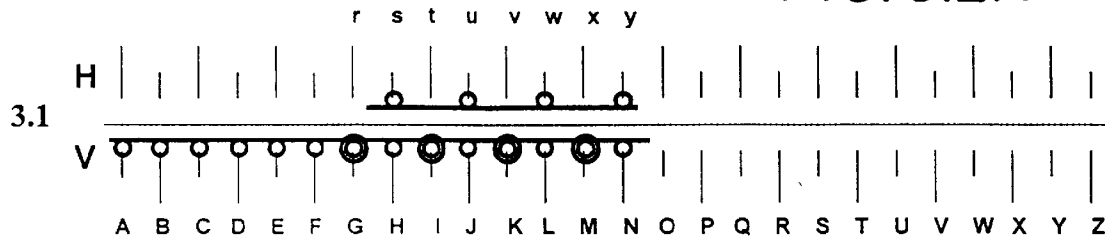


FIG. 3.2B

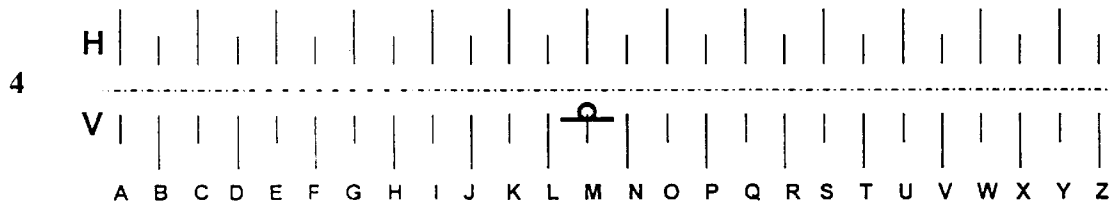


FIG. 3.2C

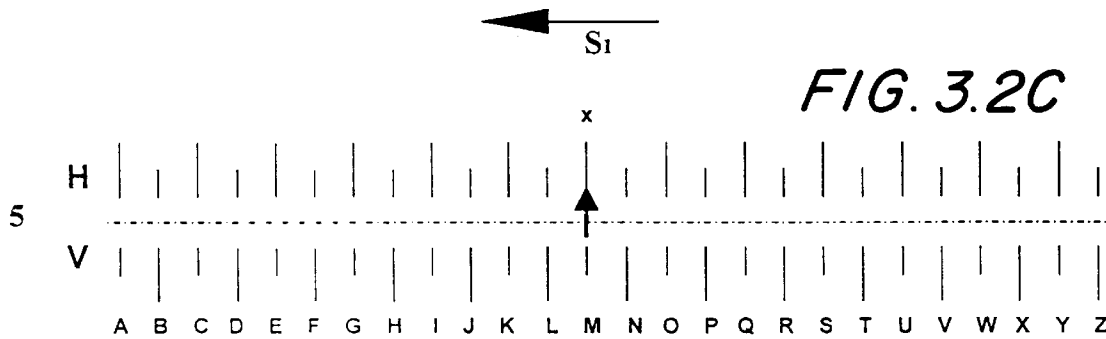


FIG. 3.2D

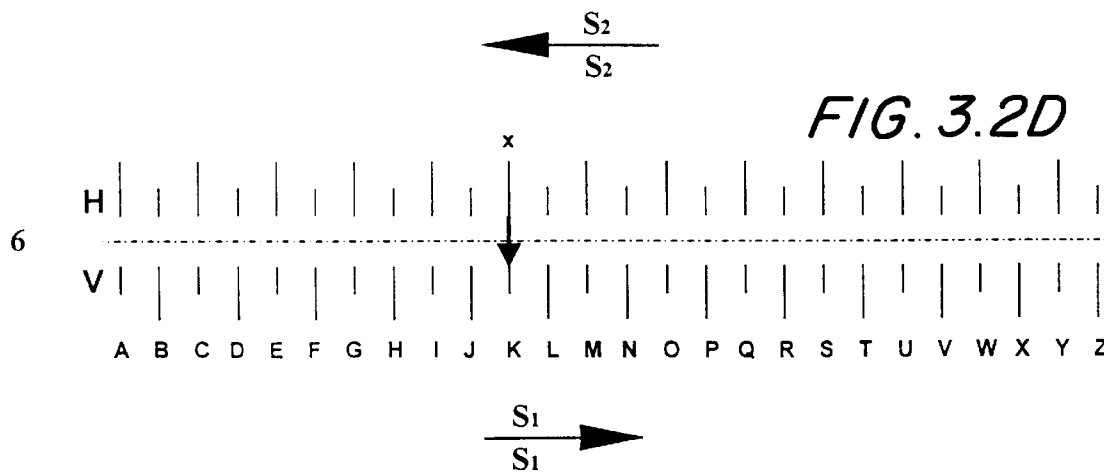


FIG. 3.3A

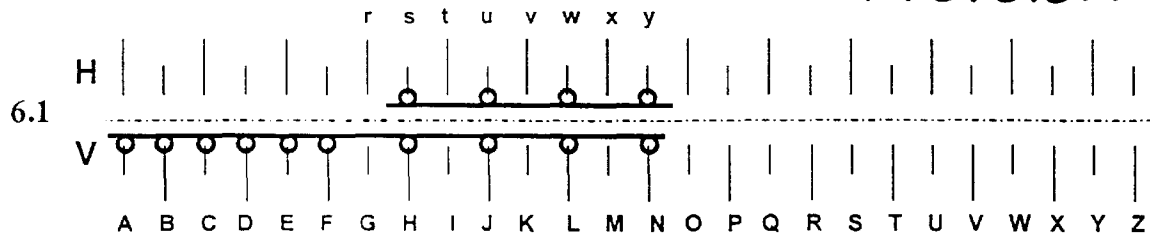


FIG. 3.3B

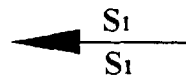
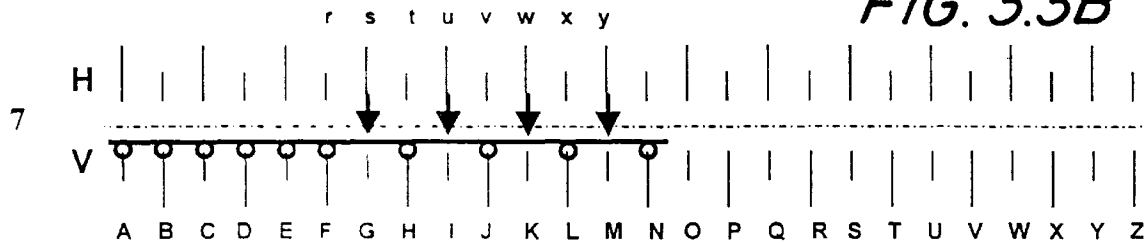


FIG. 3.3C

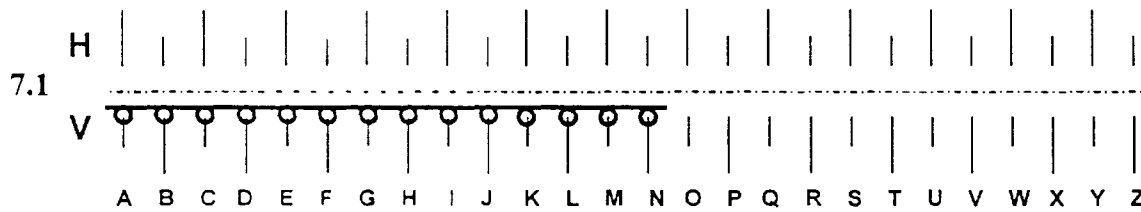
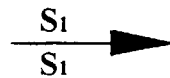
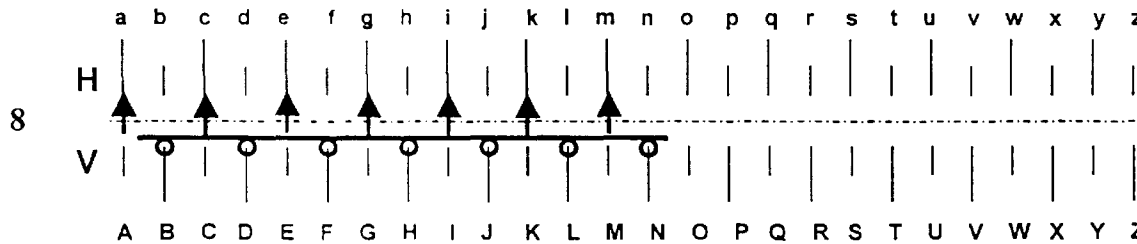


FIG. 3.3D



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