

Associated circuits in the electronics control the indicating means at the symbols, whereby some are indicated as suitable for the sort of cloth pointed out by the switching means. The seam selection is then effected by actuating the button of the selected symbol. The electronics comprise circuits for supplying ideal data controlling stitch length and stitch width for the selected cloth and seam, respectively.

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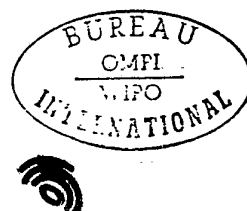
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Sewing guide of a seam pattern sewing machine

The present invention relates to an arrangement for making a seam choice, especially related to a built-in sewing guide in an electronic sewing machine with an electronic seam memory for the supply of stitch data to the needle positioning and cloth feeding mechanisms.

- 5        Electronic fancy seam data systems for sewing machines have, in general, among other things an input selector, e.g. a set of push button switches with a row of symbols showing the seam the machine will sew, when a push button referred to a certain symbol is actuated. The choice of one of the several symbols and eventually other controls must, however, be made by the operator
- 10        which can be a difficult problem with regard to the cloth quality and the appropriateness of the several seams. Most sewing machines have a manual which provides advices to the adjustment of the machine. At an extensive programme of fancy seams such a manual will be big and inconvenient and cause a confusion to the one which operates the several controls. It was therefore
- 15        presented arrangements in fancy seam data systems having an input selector with a so called cloth control as an essential feature, as several textures or qualittes of sewing stuff demands quite different adjustments on the machine, even if one and the same function of the performed seam exists. In the electronic memory stitch codes for every seam are stored and a start address
- 20        word from the input selector adjusts e.g. a counter on the first stitch code of the selected seam. Adjustments on another texture or another function provide an address word representing such other adjustments which release codes for another seam etc. The address counter releases in a known way the code words of the subsequent stitches one by one from the memory, while the fancy seam is
- 25        performed.

However, the art here referred to permits a plurality of different seam patterns for one and the same function (or operation). Modern sewing machines have, for instance for the operation "Sew together" at least three different



seams i.e. straight seam, zigzag seam and reinforced straight seam. The plurality of alternative seams for every operation could make the sewing complicated, if there was not an effective instruction accessible at or on the machine. The present invention is related to a system for making the information on the several alternatives for every operation accessible which is introduced and stored in the memory of the machine. The seams which are less suitable in a certain combination of texture and operation are not shown on this information. At the symbols for the shown suitable seams there are switch means on which someone of these seams can be selected. When such a seam is selected, the input selector supplies a start address to the counter, and feeding of ideal data for cloth and operation in question is effected from the stitch memory. The advantage of such a system is found in the fact that the operator directly after the adjustment of the cloth control obtains information for the next adjustment referred to the operation. This advantage can be realized, when the system is carried out in accordance with the characteristics disclosed in Claim 1.

An embodiment of a sewing guide according to the invention is described in the following with the assistance of the attached drawings which shows in Fig. 1 a control panel on the front surface of a sewing machine, Fig. 2 the same panel but a certain adjustment of a rotary control thereon, Fig. 3 a wiring diagramme of the indicating means in the panel, Fig. 4 a wiring diagramme of the input selector in the panel.

On a sewing machine provided with a post 10 and an over-arm 11 there is mounted a control panel 12 with indicating means 13, buttons 14 and a rotary control 15, which are used for informing the electronic system 16 of the machine of a certain seam selection. The rotary control is used for making a preadjustment on a series of seam patterns, e.g. utility seams, of which at least one can be selected on the buttons 14. Such a rotary control is suitably constituted of a binary converter with for instance four output lines 17 on which an output four bit code represents a certain adjustment on the rotary control. The several positions are marked by text on the panel stating, in the shown embodiment, the texture of the stuff to be sewn. The rotary control can, for instance, be designed as shown in Fig. 3 which also shows the connection of a number of lamps 18 (light emitting diodes) to a memory unit 19 constituted of four partial memories which are generally denoted 74S 278 in so called TTL-technics. The wires 17 are branched to every one of the partial memories which have 8 outputs 20-23 each. The memory unit is programmed for supplying current on a special combination of wires in the groups 20-23 corresponding to the input code on the wires 17. First said wires supply current to light the corresponding lamps, and these ones



thereby inform the operator about the seam patterns which for the priorly made preadjustment of the rotary control can be selected. In Fig. 2 an example of a preadjustment of the control 15 and a couple of rows of illuminated text 24 are shown indicating the several operations that may be effected on the stuff  
5 pointed out by the control 15. The text in every square 25 made of transparent material, is illuminated from behind by the corresponding lamp. When light is out the text is vanished. Below the text squares another row of squares 26 is positioned showing a symbol of the seam described by the text in the square above. Besides a description of the operation the text may include practical hints  
10 on extra measures for the accomplishment of the seam, for instance, changing the presser foot and the like. After any adjustment of the buttons 14 the zigzag width and the stitch length can be adjusted individually on a couple of controls 27, 28.

The information by the illuminated text squares is used for the completion  
15 of a seam selection, which is made so that the operator pushes a button 14, whereby a so called seam selection code (or start address) is created and conducted to a start address memory in the electronic unit. This unit is composed of many parts in the form of circuit cards and components, which are not here separately stated or described, as a plurality of embodiments are priorly  
20 known and the invention does not refer to a special embodiment of the electronic unit for controlling the needle and feeder. However, an example of such a unit is described in the Swedish patent specification No. 7910201-8, which may be referred to for the sake of completeness.

The embodiment now described is an example how to realize the invention.  
25 As a variation of the "cloth control" it may be mentioned that the handle 15 may be replaced by buttons or a slide control. Even if the application of the invention in an electronic sewing machine is described in the foregoing, the invention is not restricted to such application but can advantageously also be applied to sewing machines with mechanical zigzag stitch control, for instance cam discs.



## C l a i m s

1. A sewing guide for a zigzag sewing machine provided with at least two seam pattern selectors, a first one including a schedule of text, symbols or the like provided with indicating means connected to and controlled by an adjustable control of the second seam pattern selector, c h a r a c t e r i z e d in that such  
5 indicating means (13) is associated with adjustable controls (14) by which the respective seam operation is selected and as a start address supplied to an electronic unit (16) for supplying stitch data in the machine.
2. A sewing guide according to Claim 1, c h a r a c t e r i z e d in that a schedule of the second seam pattern selector (15) is related to the texture and/or  
10 thickness of the stuff to be sewn.
3. A sewing guide according to Claim 1, c h a r a c t e r i z e d in that the schedule (25) provided with said indicating means is related to seam operations.
4. A sewing guide according to Claim 3, c h a r a c t e r i z e d in that an information for the selection of presser foot is included in said schedule.
- 15 5. A sewing guide according to Claim 3 or 4, c h a r a c t e r i z e d in that the indicating means includes lamps (18) enlightening the text or symbols in the schedule.
6. A sewing guide according to Claim 2, c h a r a c t e r i z e d in that said seam pattern selector has connections via a data memory to the indicating  
20 means and among these ones selects seam operations suitable for the texture and/or thickness of the stuff pointed out by said second seam pattern selector.
7. A sewing guide according to Claim 1, c h a r a c t e r i z e d in that the schedule includes at least one indicator which is controlled by a combination of adjustments on both seam pattern selectors.



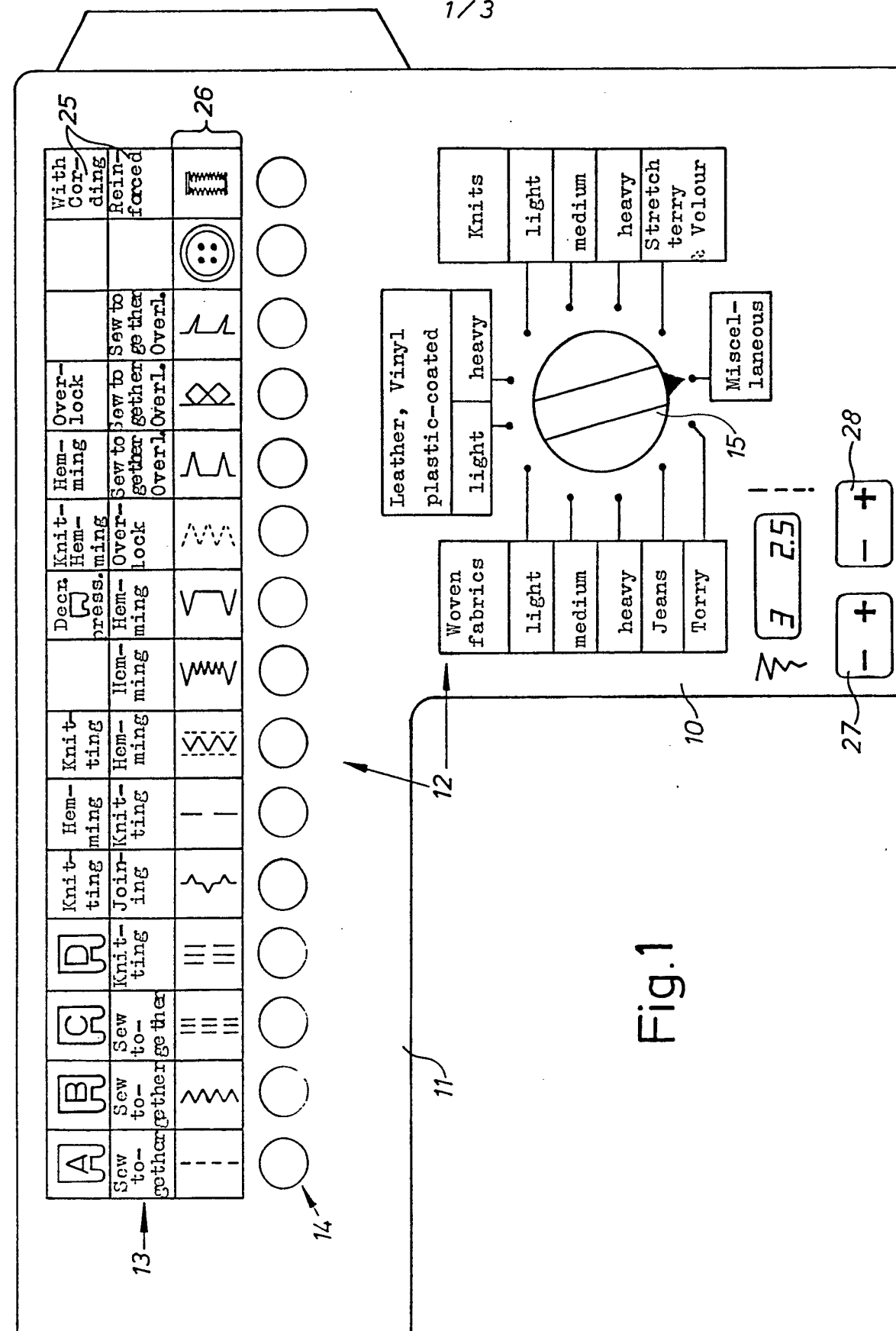


Fig. 1



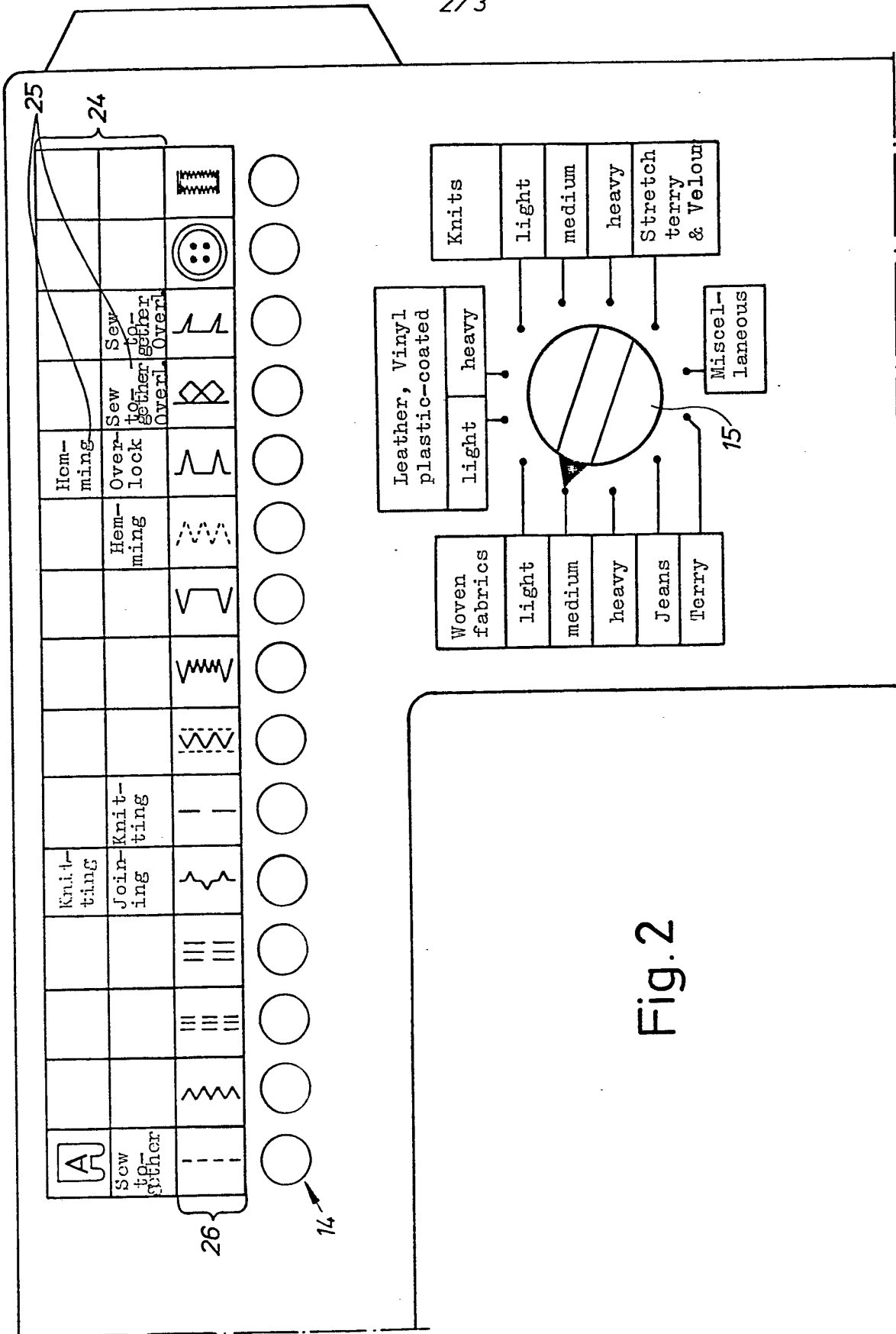
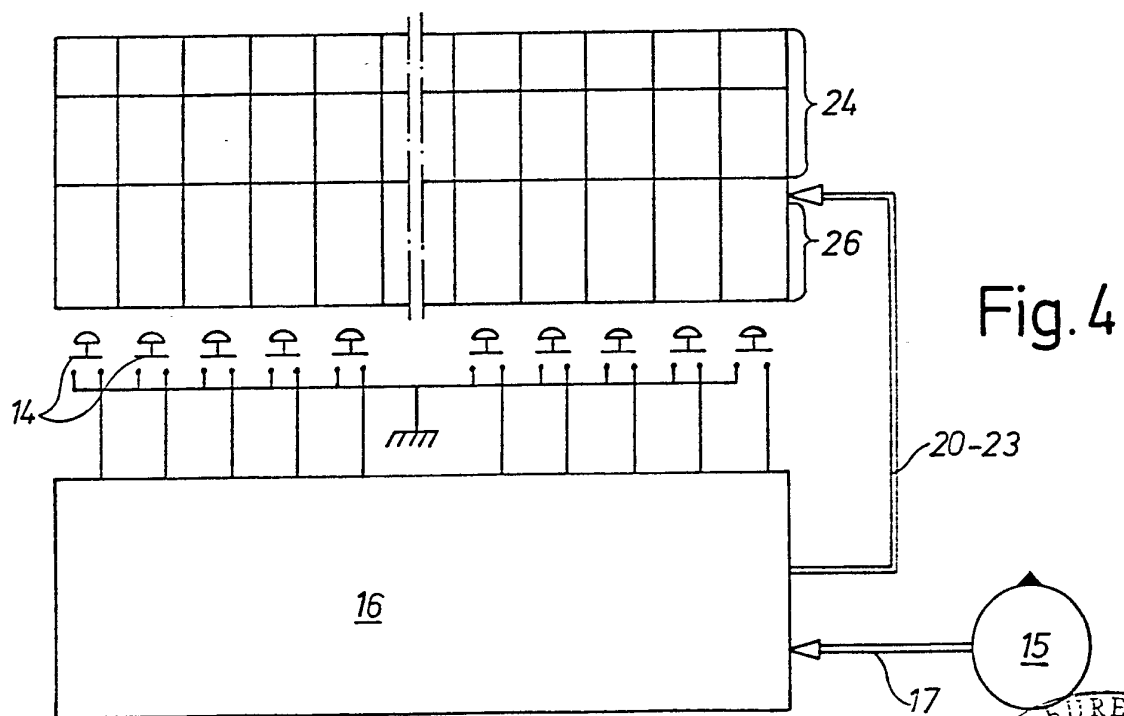
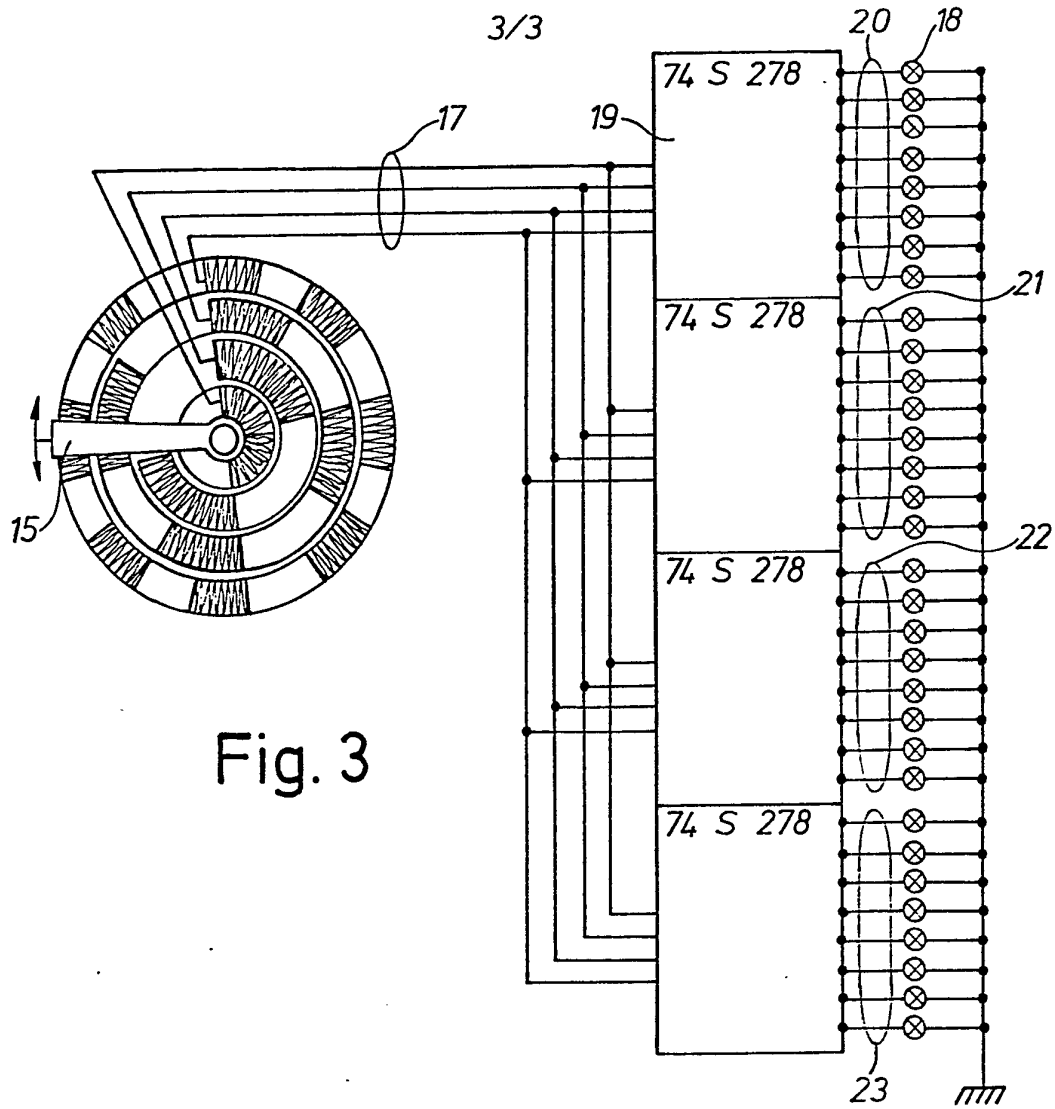


Fig. 2





# INTERNATIONAL SEARCH REPORT

International Application No PCT/SE81/00090

<b>I. CLASSIFICATION OF SUBJECT MATTER</b> (If several classification symbols apply, indicate all) <sup>3</sup> According to International Patent Classification (IPC) or to both National Classification and IPC <b>3</b>  <div style="text-align: center; font-size: 1.2em;">D 05 B 19/00, 3/00</div>								
<b>II. FIELDS SEARCHED</b>  <div style="text-align: center; font-size: 0.8em;">Minimum Documentation Searched <sup>4</sup></div> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 5px; vertical-align: top;"> <b>Classification System</b>             IPC <sup>3</sup>             US C1         </td> <td style="padding: 5px;"> <b>Classification Symbols</b>             D 05 B 3/00, 3/02, 3/04, 19/00   <u>112:121.11</u>, 121.13, 158         </td> </tr> </table> <div style="text-align: center; font-size: 0.8em; margin-top: 5px;">           Documentation Searched other than Minimum Documentation            to the extent that such Documents are Included in the Fields Searched <sup>5</sup> </div> <div style="text-align: center; padding: 10px; font-size: 1.1em;">             SE, NO, DK, FI classes as above           </div>			<b>Classification System</b>  IPC <sup>3</sup>  US C1	<b>Classification Symbols</b>  D 05 B 3/00, 3/02, 3/04, 19/00  <u>112:121.11</u> , 121.13, 158				
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<b>III. DOCUMENTS CONSIDERED TO BE RELEVANT</b> <sup>14</sup> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%; padding: 5px;">Category <sup>6</sup></th> <th style="width: 60%; padding: 5px;">Citation of Document, <sup>15</sup> with indication, where appropriate, of the relevant passages <sup>17</sup></th> <th style="width: 30%; padding: 5px;">Relevant to Claim No. <sup>18</sup></th> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 10px;">X</td> <td style="padding: 10px;">DE, A1, 2 828 083 published 1980, January 3, Wolfgang Engel</td> <td style="text-align: center; vertical-align: top; padding: 10px;">1-7</td> </tr> </table>			Category <sup>6</sup>	Citation of Document, <sup>15</sup> with indication, where appropriate, of the relevant passages <sup>17</sup>	Relevant to Claim No. <sup>18</sup>	X	DE, A1, 2 828 083 published 1980, January 3, Wolfgang Engel	1-7
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X	DE, A1, 2 828 083 published 1980, January 3, Wolfgang Engel	1-7						
<div style="font-size: 0.8em;"> <p><b>* Special categories of cited documents: <sup>16</sup></b></p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>"A" document defining the general state of the art</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document cited for special reason other than those referred to in the other categories</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> </div> <div style="width: 45%;"> <p>"P" document published prior to the international filing date but on or after the priority date claimed</p> <p>"T" later document published on or after the international filing date or priority date and not in conflict with the application, but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance</p> </div> </div> </div>								
<b>IV. CERTIFICATION</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">           Date of the Actual Completion of the International Search <sup>3</sup>   <div style="text-align: center;">1981-06-22</div> </td> <td style="width: 50%; padding: 5px;">           Date of Mailing of this International Search Report <sup>3</sup>   <div style="text-align: center;">1981-07-03</div> </td> </tr> <tr> <td style="width: 50%; padding: 5px;">           International Searching Authority <sup>1</sup>   <div style="text-align: center;">Swedish Patent Office</div> </td> <td style="width: 50%; padding: 5px;">           Signature of Authorized Officer, <sup>19</sup>  <div style="text-align: center;">               Jan Silfverling           </div> </td> </tr> </table>			Date of the Actual Completion of the International Search <sup>3</sup>  <div style="text-align: center;">1981-06-22</div>	Date of Mailing of this International Search Report <sup>3</sup>  <div style="text-align: center;">1981-07-03</div>	International Searching Authority <sup>1</sup>  <div style="text-align: center;">Swedish Patent Office</div>	Signature of Authorized Officer, <sup>19</sup> <div style="text-align: center;">               Jan Silfverling           </div>		
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