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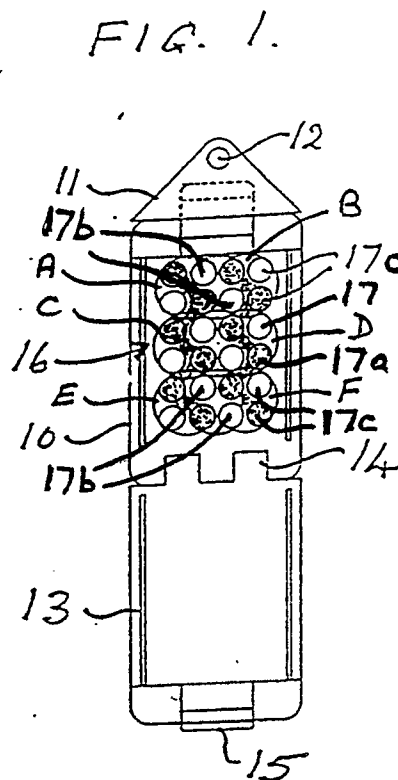
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(54) **Code recording device.**

(57) A code recording device is provided for securely recording at least one identification or other code such as a PIN. The device comprises at least one group of zones (17) each of which is adapted to have recorded thereon one element of the code. The zones (17) are so arranged that the elements of the code can be permanently recorded thereon in any one of a variety of different ways.



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This invention relates to code recording devices for securely recording at least one identification or other code.

The use of identification codes which have to be remembered by individuals has become extremely common. For example, with the advent of cash dispensers at banks, building societies and the like most people now have at least one PIN (personal identification number) which has to be keyed into a cash dispenser if the person wishes to draw cash from the dispenser and which accordingly needs to be remembered. If a person has several accounts each with its own PIN then that person may have several codes which need to be remembered. Another code which frequently has to be remembered is for actuating a keypad controlled security lock on an entrance door, e.g. to a home, office or the like. Whilst it is possible to write down such codes so that they will not be forgotten, this is not a practice to be recommended since it considerably increases the risk of unauthorised use of the code if, for example, a person were to lose or have stolen their cash dispenser card and the written notation of the PIN required to obtain cash with the card.

The present invention has as its object to provide a device for securely recording at least one identification or other code in a simple but effective manner.

The present invention provides a code recording device for securely recording at least one identification or other code having at least four elements, the device comprising at least one group of zones each of which is adapted to have recorded thereon one element of the code, said zones being so arranged that the elements of the code can be permanently recorded on selected zones in a plurality of different ways in each of which the code can be read by proceeding from one selected zone to another selected zone in a logical sequence.

Since most codes currently in use, such as PIN's and codes for actuating keypad controlled security locks are numbers it is preferred that the said code is a number and said elements are digits of the number. It will be appreciated, however, that the code could be composed of other elements such as letters of the alphabet or be an alphanumeric code and that the present invention is equally applicable thereto.

Said code may have from four to ten elements, preferably four elements. Most PIN and other codes currently in use have four elements, although the invention is equally applicable to codes having a greater number of elements than four. For a code with less than four elements it becomes impossible to arrange said zones in a sufficient number of different ways whilst if the number of elements in the code exceeds about eight or ten

then the device tends to become unwieldy.

Preferably the zones of the or each group are arranged in rows and columns, or substantially so. Preferably the device comprises a matrix providing a plurality of said groups of zones, the zones in said matrix being arranged in rows and columns. The number of zones in said matrix may be a multiple of the number of zones in each said group. Thus, for example, the at least one code may comprise four elements and said matrix may comprise four zones in each row and six zones in each column to give a total of twenty four zones. Any groups of zones in said matrix not used to record a code may have random elements recorded thereon to conceal the location in the matrix of the code or codes.

Each of said zones may be adapted to have an element of the or a said code, or a random element, written, printed or otherwise recorded thereon. According to a preferred embodiment the element of the or each code, or random elements, are printed on small self-adhesive labels and said zones are adapted to receive said labels. Thus, for example, the device may be supplied with said zones blank and be accompanied by a sheet of small self-adhesive labels mounted on a release paper backing, the labels being printed with a selection of code elements so that the purchaser can peel required code elements from the release paper and apply them to selected zones in a way known only to the purchaser and then apply to any remaining zones labels having random elements thereon to conceal the location of the actual code or codes. Alternatively, the device according to the present invention could be made to order, e.g. with the purchaser indicating on an order form the required arrangement of their code or codes and the elements of the code or codes then being recorded in the appropriate zones by the manufacturer as by printing, engraving, embossing, moulding or the like.

The device of the present invention may be produced in any convenient form, for example, in the form of a tag or fob for attachment to a key ring, as a watch strap, as a simulation of a credit card or cash dispenser card, or as a printed page, e.g. for a loose leaf book.

Where the device is in the form of a tag or fob for attachment to a key ring, a watch strap, or the like then it is preferably moulded from suitable plastics material.

The invention will be more particularly described with reference to the accompanying drawings, in which:-

Figure 1 is a front elevation of a device according to the present invention in the form of a fob or tag for attachment to a key ring,

Figure 2 is a side elevation of the device of

Figure 1,

Figure 3 is a side elevation of the device of Figure 1 with a lid or cover thereof in the closed position, and

Figures 4a to 4f are diagrams illustrating the different ways in which a code can be entered in a selected group of zones.

The device illustrated in Figures 1 to 3 is moulded from plastics material and comprises a body portion 10 having a triangular connecting portion 11 at one end thereof which is provided with an aperture 12 whereby the device can be attached to a key ring and a lid or cover 13 hingedly connected to the other end thereof as shown at 14. The lid or cover 13 has a catch portion 15 thereon which is a snap fit with the connecting portion 11 of the body 10 to retain the lid or cover in the closed position shown in Figure 3.

The body 10 is formed to provide a matrix 16 of zones 17 each of which is in the form of a circular recess. The zones 17 are arranged in rows and columns within the matrix as illustrated to provide groups of zones. Each group comprises four zones arranged at the four corners of a square, some of these groups being indicated by the letters A to F in Figure 1. Other groups of four zones appear between the zones marked with the letters A to F to give a total of fifteen groups of zones within the matrix of twenty four zones illustrated. Each of the zones 17 is adapted to have recorded thereon one element of a four element code, e.g. one digit of a four figure PIN. Such elements may be printed on small self-adhesive labels which can be placed in selected zones 17, such labels not being shown but being supplied, for example, as a selection mounted on a release paper backing from which they can be peeled by a purchaser and applied to the zones 17 as required. Any zones 17 not occupied by an element of a code can have random elements recorded thereon to conceal the location within the matrix of an actual code or codes.

Figures 4a to 4f illustrate the variety of different ways in which a four digit PIN can be recorded in a single group of zones to provide different reading patterns, the correct one of which will be known only to the user of the device. Figure 4a shows the digits of the code arranged for reading in a clockwise direction beginning from the top left hand corner of the group of zones whilst Figure 4b shows the digits of the code arranged for reading in an anticlockwise direction beginning at the top left hand corner of the group of zones. Figure 4c illustrates a "Z" pattern beginning at the top left hand corner of the group of zones and proceeding first from left to right, whilst Figure 4d illustrates another "Z" pattern commencing at the top left

hand corner but then proceeding first downwards. Figure 4e illustrates an "X" pattern commencing at the top left hand corner and proceeding first diagonally and then upwards whilst Figure 4f illustrates another "X" pattern commencing at the top left hand corner and proceeding first diagonally and then from right to left. Each of these patterns can be commenced from any one of the four corners of the group of zones so that there are twenty four different reading patterns for each group of four zones. As there are fifteen groups of zones within the matrix, the total possible number of combinations is 360. In addition, one or more four digit codes could be entered in a straight line extending horizontally, vertically or diagonally whereby the matrix illustrated provides over 400 different ways in which a four digit code can be entered therein. The reading patterns described above all make use of groups of adjacent zones. According to an embodiment of the invention some of the zones 17 are coloured, patterned or otherwise differentiated in a manner which will enable zones 17 in different parts of the matrix to be selected, used and easily remembered, thereby further increasing quite considerably the number of different ways in which a four digit code can be entered. For example, as shown in Fig. 1 alternate zones in each row and column may be differentiated, e.g., of one or more different colours or shades, from the remaining zones as shown at 17a. With this arrangement a four digit code can be entered on selected zones 17 in different parts of the matrix and the location thereof easily remembered. For example, a four digit code entered on selected zones 17b or 17c will be easily remembered.

It will thus be seen that the device provides a high level of security since only the user will know the precise location within the matrix of an actual code or codes and only the user will know the particular reading pattern selected for that code or codes.

Claims

1. A code recording device for securely recording at least one identification or other code having at least four elements, the device comprising at least one group of zones (17) each of which is adapted to have recorded thereon one element of the code, said zones (17) being so arranged that the elements of the code can be permanently recorded on selected zones (17) in a plurality of different ways in each of which the code can be read by proceeding from one selected zone (17) to another selected zone (17) in a logical sequence.
2. A code recording device according to claim 1,

wherein said code is a number and said elements are digits of the number.

3. A code recording device according to claim 1 or 2, wherein said code has from four to ten elements. 5
4. A code recording device according to any one of claims 1 to 3, wherein said code has four elements. 10
5. A code recording device according to any one of the preceding claims, wherein the zones (17) of the or each group (A to F) are arranged in rows and columns, or substantially so. 15
6. A code recording device according to claim 5, comprising a matrix (16) providing a plurality of said groups of zones (17), the zones in said matrix being arranged in rows and columns. 20
7. A code recording device according to claim 6, wherein the number of zones (17) in said matrix (16) is a multiple of the number of zones in each said group. 25
8. A code recording device according to claim 7, wherein the at least one code comprises four elements and said matrix (16) comprises four zones (17) in each row and six zones (17) in each column. 30
9. A code recording device according to claim 6 or 7, wherein any groups of zones (17) in said matrix (16) not used to record a code have random elements recorded thereon to conceal the location in the matrix (16) of the code or codes. 35
10. A code recording device according to any one of the preceding claims, wherein each of said zones (17) is adapted to have an element of the or a said code, or a random element, written, printed or otherwise recorded thereon. 40
45
11. A code recording device according to claim 10 wherein the elements of the or each code, or random elements, are printed on small self-adhesive labels and said zones are adapted to receive said labels. 50
12. A code recording device according to any one of the preceding claims, the device being in the form of a tag or fob for attachment to a key-ring. 55
13. A code recording device according to claim 12, wherein the device is moulded from plas-

tics material.

14. A code reading device according to any one of claims 1 to 11, the device being in the form of a card, a printed page for a loose leaf book or a watch strap.
15. A code recording device according to any one of the preceding claims, wherein some of the zones (17a) are coloured, patterned or otherwise differentiated in a manner which enables zones (17b, 17c) in different parts of the matrix (16) to be selected, used and easily remembered.
16. A code recording device according to claim 15, wherein alternate zones (17a) are differentiated from the remaining zones (17).

FIG. 1.

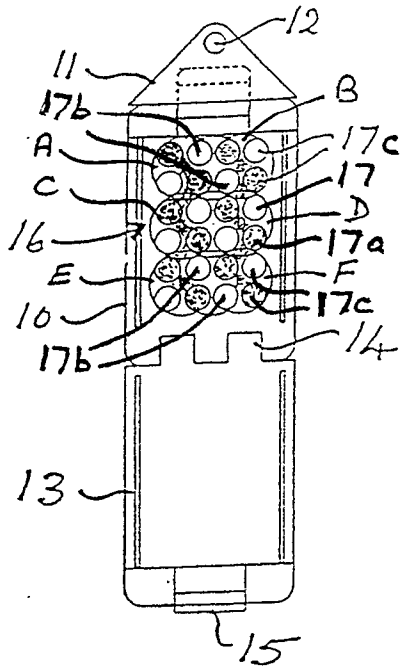


FIG. 2

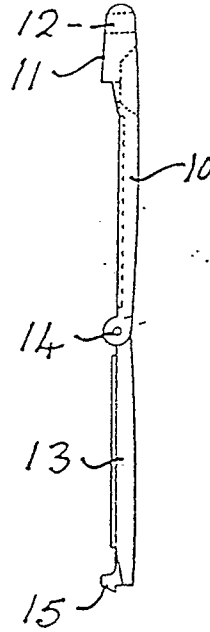


FIG. 3

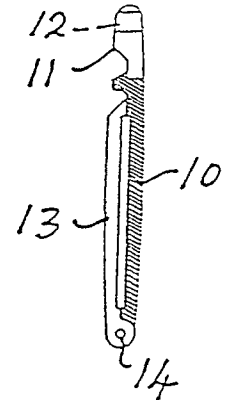


FIG. 4a

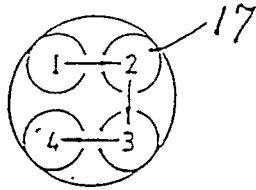


FIG. 4b

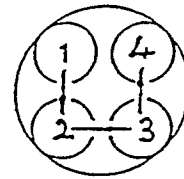


FIG. 4c

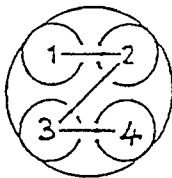


FIG. 4d

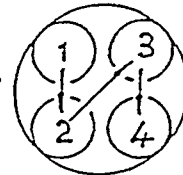


FIG. 4e

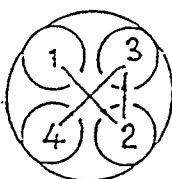
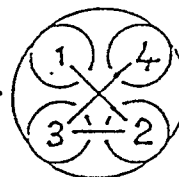


FIG. 4f





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EUROPEAN SEARCH REPORT

Application Number

EP 90 30 2576

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.5)
A	DE-A-3 131 761 (STOCKBURGER, WINDERLICH) * Figures 1-2; page 4, line 19 - page 7, line 2 * - - -	1,2,5,13, 14	G 07 F 7/10 G 07 C 9/00
A	US-A-4 235 459 (CALLAHAN) * Figures 1-4; column 1, line 62 - column 4, line 2 * - - -	1,10,11, 13,14,15	
A	EP-A-0 266 913 (ESCORP INC.) * Figures 1-5; page 3, line 1 - page 4, line 37 * - - -	1,3,5,6,8, 10,13,14, 15	
E	GB-A-2 222 551 (POWELL) * Figures 1-4; whole * - - - - -	1-14	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			G 07 F G 07 C E 05 B
The present search report has been drawn up for all claims			
Place of search		Date of completion of search	Examiner
The Hague		23 October 90	HERBELET J.C.
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