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(21) International Application Number: PCT/IT89/00081 (22) International Filing Date: 19 December 1989 (19.12.89) (30) Priority data: 48352 A/89 11 September 1989 (11.09.89) IT (71)(72) Applicant and Inventor: MOTANARI, Pierluigi [IT/IT]; Via Alpi Apuane, 70, I-00141 Roma (IT). (74) Agent: MASCIOLI, Alessandro; A.N.D.I.-Associazione Nazionale degli Inventori, Via Urbana, 20, I-00184 Roma (IT). (81) Designated States: AT (European patent), BE (European patent), CH (European patent), DE (European patent)*, ES (European patent), FR (European patent), GB (European patent), IT (European patent), JP, LU (European patent), NL (European patent), SE (European patent), US.		Published With international search report.	
(54) Title: A CONTAINER DEVICE FOR A PLURALITY OF TOOTHED KEY BLADES PLACED SIDE BY SIDE, THAT MAY BE SELECTED AND PUSHED OUTSIDE ONE BY ONE			
(57) Abstract The device according to the present invention consists of a container for seven or more toothed blades of keys placed side by side, and which may be selected by means of a small knurled wheel (7); under the action of a sliding tab (5) the outcome of one key-blade from a front opening (4) is determined as well as the blocking thereof, so that the container can be used like a handle for making the key turn in the lock.			

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"A CONTAINER DEVICE FOR A PLURALITY OF TOOTHED KEY BLADES
PLACED SIDE BY SIDE, THAT MAY BE SELECTED AND PUSHED OUT-
SIDE ONE BY ONE"

5 The present invention concerns a means of new conception
for carrying about, in a pocket or similar, and with the
minimum encumbrance, various different keys, that may be
selected very quickly.

10 It is already well known that the less encumbring and most
used keys are of the YALE kind, and that those keys, even
being each very small and light, once assembled in a group
of four or five or more, become a heavy and irregular en-
cumbrance, being particularly tiresome in the pockets of
the clothes.

15 It is therefore the aim of the present invention to realize
a container device of minimum dimensions, for the housing
of seven or more YALE-keys being reduced to the sole blade,
and said keys being selectionable and output one by one.

20 The present invention will be described more in detail he-
reinbelow according to the attached drawings in which a
preferred embodiment of the object of the present inven-
tion is shown.

Figure 1 shows a lateral scheme of the toothed blade of a
YALE key that may be housed, in a plurality of
25 samples, in the device according to the present
invention.

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2)

Figure 2 shows an axonometric external view of the device according to the present invention.

Figure 3 shows an axonometric view of the internal details of the device according to the present invention.

5 Figure 4 shows the internal side of the cover.

Figure 5 shows the internal spring mechanism.

Figure 6 shows, in detail, a possible selection and output mechanism for the keys.

Relating to the details of the figures, the device according to the present invention consists of a container, preferably in the shape of a rectangular parallelepiped, having on one of the sides vertical to the major axis, a small rectangular opening 4, through which the toothed part of the key passes when it is pushed out or taken back after
10 use, by means of a sliding tab 5, sliding inside the cover along a small longitudinal opening 6.

The choice of the key to be used is performed by counting the clicks of the knurled selection wheel 7, placed on the wall opposite to the opening for the keys outlet. Each
20 click corresponds to the outlet position of a determined key: it is therefore sufficient to memorize the various keys according to the clicks for finding them without need-
ing to looking at them. Once the key has been chosen and the toothed blade pushed out of the container, said con-
25 tainer is used as a handle for making the key turn in the lock.

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3)

Inside the container, a slide 8, movable vertically to the major axis, may house seven or more blades at dragging contact with each other. In the transversal run said slide 8 is guided by a track 9, interrupted at a centre 20 for the width of a blade. Each key shows, at the top of the tooth-
5 ed part, a part of a guide 1, with two opposite grooves:

- the lower groove 2, i.e. the one obtained on the back of the blade resting on the plane of the slide, gets inserted on the guide track, repeating the shape of the transversal section. Through said groove, that gets hooked to
10 the track, the keys follow the transversale movement of slide 8, becoming one piece with the same.
- The upper groove 3 gets inserted, similarly, on a track 14, interrupted at the centre like the precedent one and
15 obtained on the internal wall of the cover; in said interruption a pin 15 is provided for the dragging of the key, becoming one piece with the sliding tab 5; the key that is in correspondence with the pin is free from the hooking with the upper track and with the guide track of
20 the slide and may therefore slide, being dragged by the pin of the sliding tab, until it gets inserted in the outlet opening, for the output from the container, only for the toothed part.

Said slide 8 is hooked to a rack 10 which, in turn, gets
25 engaged with a small pinion connected to the small selec-

.../...

4)

tion wheel 7 and, rotating, it moves inside a transversal groove with smooth walls 11; on the inner walls 12 seven or more cavities 21 are placed side by side so as to form a spherical cap; said cavities have equal distances between each other and in said spaces a small steel ball gets engaged in succession, being pushed by a spring housed inside the body of the rack 10; by means of the lateral movement of said rack 10 and of the connected slide 8, each following click of the small ball in the seats 21 corresponds to the outlet position of a different key.

The dragging pin slides in a stright groove 16, obtained in the internal side of the container, and the length whereof determines the entity of the output of the blade up to the stop of the usual YALE-keys, having the function of placing the profile of the blade inserted in the lock in a precise correspondence of the pins of the small block. In the container according to the present invention, the rest consists of the same outlet wall with a small round relief, on the diameter thereof the opening is performed. Said pin, connected to a spring mechanism 18 internal to said cover, as shown in figure 5, is maintained by the same with a considerable resistance in the two positions of end run by means of a shaped plate 17, and contrasted by a needle spring. Thus, the transversal sliding of the slide 8 is always free, with retracted key, and when the key is output it may be inserted in the lock and the resistance of the pins won't push it back inside the container.

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5)

When all keys are inside said container, said mechanism has also the function of protecting the keys from the dust, because said plate 17, with the sliding tab at the run end, adheres to the internal plane of the cover, thus completely closing the groove for the sliding of the sliding tab 19.

For providing that the blades may not move and thus cause an irregular functioning in the inlet and output of the blades - particularly if they are of different lengths - each blade is kept in the correct position inside said slide 8 by a series of parallel vertical grooves 13, obtained in the back wall of the slide, in which the corresponding end part of the keys will get inserted.

It is possible to distinguish the blade coming out by a numeral being visualized through a little opening 22 obtained on the side of the container opposite to the cover: the numerals corresponding to the keys are written on the sliding plane of the slide and appear, in succession, through the little opening.

The small pre-selection wheel may show, in possible variants, a vertical and a horizontal axis and, in both cases, a friction ring between the body of the small wheel and the knurled crown prevents from excessive efforts on the axis and on the toothing of the small pinion and of the rack, when operating on the small wheel with the slide at end run or with the key taken off.

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6)

A simplified and reduced variant of the device according to the present invention provides the direct control of slide 8 by means of a sliding tab, placed on the face opposite to the one of the blades' outlet, said sliding tab being of one piece with the block containing the the ball and the spring.

In a further variant on the blades' outlet wall a light point is provided for finding the lock; this point gets lit when the key is out, because the feeding circuit gets closed by the passing of the key. The seats of the micro-lamp and the corresponding micro-battery are provided beside the groove for the passage of the blades.

CLAIMS

7)

1. A container device for a plurality of toothed key blades, being placed side by side, and selected and put out one by one, characterized in:
- 5 - a parallelepiped rectangular container provided, on one of the faces orthogonal to the major axis, with a rectangular opening (4) for the output of the toothed part of the key under the action of the sliding tab (5), at the centre of the cover and along the longitudinal opening (6);
- 10 - a small knurled selection wheel (7), placed on the wall opposite to the opening (4) for the selection of the keys;
- an internal mechanism for the movement of the blades.
- 15 2. A device according to claim 1, characterized in that the internal mechanism for the movement of the part of the keys consists of:
- a slide (8), orthogonally movable to the major axis, housing seven or more blades in dragging contact one to
- 20 the other;
- a track (9) for the guide of the transversal run of said slide (8), with a central interruption (20) for the width of one blade, on which the lower groove (2) of the blade of each key gets inserted so that the group of the keys
- 25 may follow the transversal movement of the slide (8) become out of one piece with the same;

.../...

8)

- a track (14) obtained in the internal face of the cover, also interrupted at the centre, where a pin (15) is provided being of one piece with the sliding tab (5), for the dragging of the key, inserted with the upper groove (3) on said track (14);
- a rack (10), to which the slide (8) is hooked, that gets engaged with a small pinion connected to the small selection wheel and that, by rotating, moves in a transversal groove with smooth walls (11);
- seven or more cavities (21), aligned on the internal wall (12), having the same distance between each other, in which a small iron ball gets successively engaged, pushed by a spring housed inside the body of rack (10), so that with the transversal movement of the rack (10) and of the slide (8) connected to the same, each following click of the small ball in the seats corresponds to the outlet position of a different key.

3. A device according to claim 1, characterized in that the dragging pin slides in a straight groove (16) obtained in the internal face of the cover, and is connected to a spring mechanism (18) and is maintained by the same in the two positions of end run by means of a shaped plate (17), contrasted by a needle spring, so that the transversal sliding of the slide (8) is always free with the key inside and, when the key comes out it will be inserted in the lock without being pushed back by the resistance of the pins.

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9)

4. A device according to claim 1, characterized in a series of vertical parallel grooves (13), obtained in the back wall of slide (8) per maintaining each blade of the keys in the correct position.
- 5 5. A device according to claim 1, characterized by a small opening (22) obtained on the face of the container opposite to the cover for the visualization, by means of a numeral or similar, of the outcoming key.
- 10 6. A device according to claim 1, characterized in the presence of a light point on the wall for the outlet of the blades.

FIG.1

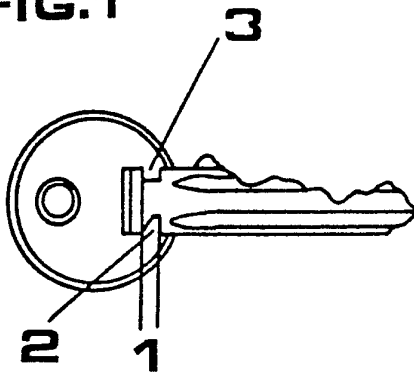


FIG.2

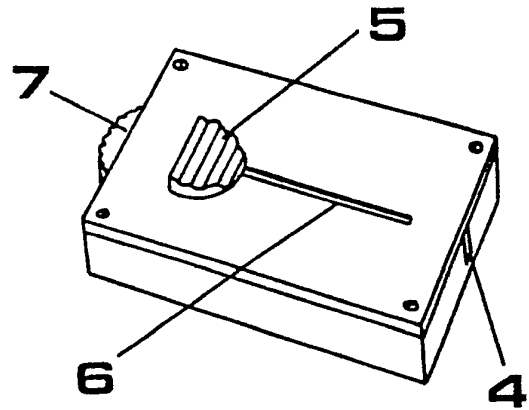


FIG.3

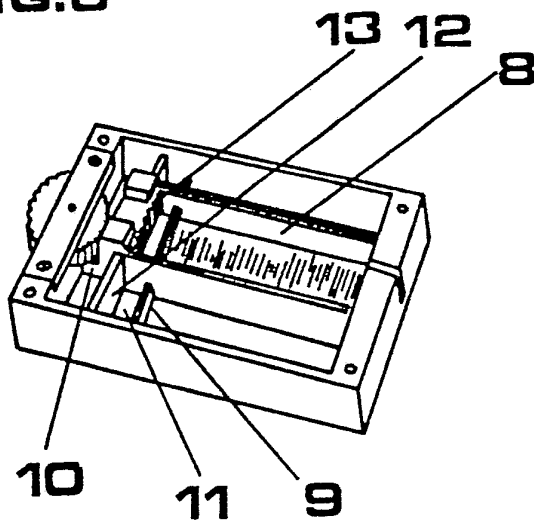


FIG.4

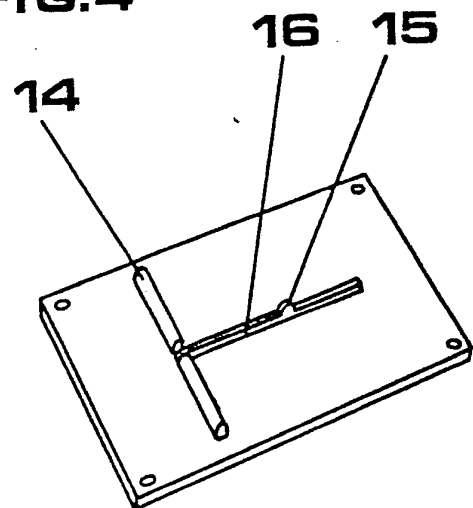


FIG.6

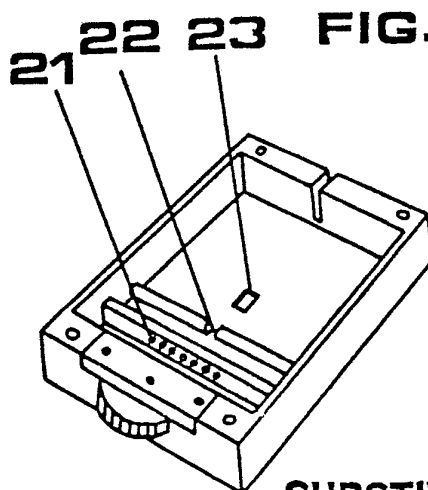
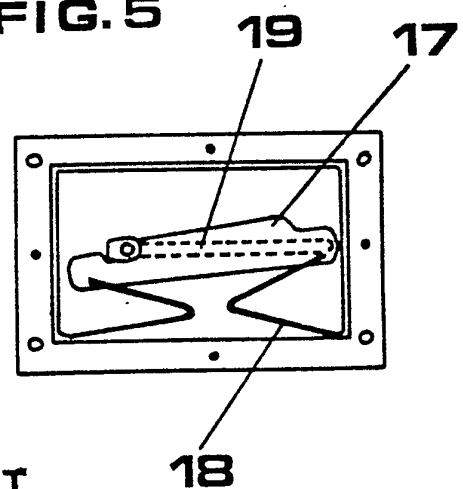


FIG.5



INTERNATIONAL SEARCH REPORT

International Application No

PCT/IT 89/00081

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. 5 A45C11/32		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	A45C	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ⁹		
Category ¹⁰	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
A	US,A,4653299 (KIM) 31 March 1987	
A	CH,A,372799 (SCHMIDT) 14 December 1963	
A	US,A,2640347 (MAJESKI) 02 June 1953	
A	US,A,2695511 (WING) 30 November 1954	
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IV. CERTIFICATION		
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