



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
10.02.2010 Bulletin 2010/06

(51) Int Cl.:
G07F 17/32 (2006.01) H01H 13/00 (2006.01)

(21) Application number: **09167157.8**

(22) Date of filing: **04.08.2009**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR
Designated Extension States:
AL BA RS

(71) Applicant: **Alberici S.p.A.**
40024 Castel San Pietro Terme, (BO) (IT)

(72) Inventor: **Alberici, Fabrizio**
I-40024, Castel San Pietro Terme (BO) (IT)

(74) Representative: **Negrini, Elena**
Agazzani & Associati S.r.l.
Via dell'Angelo Custode 11/6
40141 Bologna (IT)

(30) Priority: **05.08.2008 IT BO20080061 U**

(54) **Backlighted push button**

(57) A backlighted push button for game machine comprises a body (2) for hooking to the game machine and for supporting at its upper end of a covering body (4).

Inside the body (2) and the covering body (4) is housed a sliding element (3) supporting a cap (5) illuminable by the passage of a luminous beam (R) from the

inside towards the outside of the push button (1) of a luminous source inside this latter.

The push button includes an insert (6) interposed between the covering body (4) and the cap (5) and has a conveyor means (7) of the luminous beam (R) directed to outside of the backlighted push button (1).

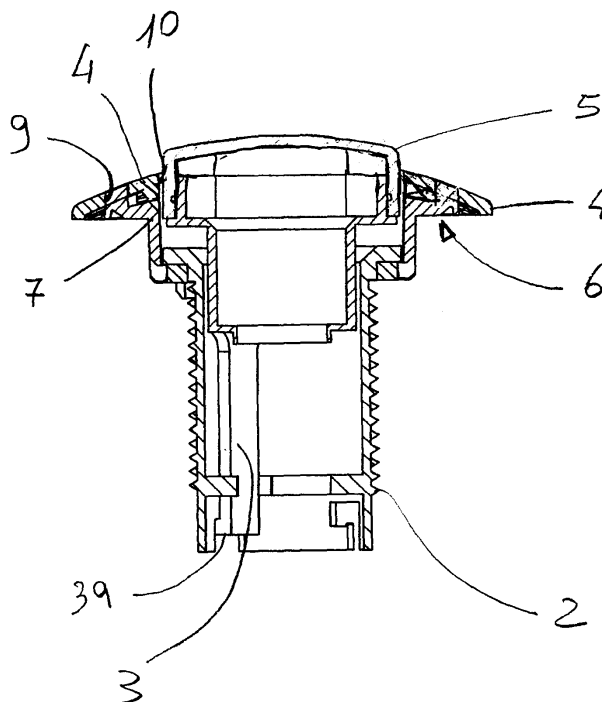


FIG. 2

Description

[0001] The present invention relates to game machine, and in particular it refers to a backlighted push button for said machines.

[0002] There are known backlighted push buttons which are essentially constituted by a body for hooking to the game machine and for housing a sliding element, fit to carry out the opening and closing strokes of the electric connection of the push button, and supporting at its upper end a covering body housing a transparent cap allowing the light to pass through coming from a light opportunely positioned inside the sliding element.

[0003] Said known push buttons, therefore, allow to activate the main functions of the game machine and during the function, allowing the illumination of the transparent cover.

[0004] A limitation of the known push buttons is due to the fact that the portion which is illuminated is only limited to the central portion of the push button well visible from the top of the key but not from the side.

[0005] Further drawback of the known push buttons is that the illuminated portion is reduced in some cases and anyway it has only one colour.

[0006] The main object of the present invention is to propose a backlighted push button with more than one illuminable zone so that it can be seen better and also laterally.

[0007] Further object is to propose a backlighted push button in which different zones are illuminable with various colorations.

[0008] The characteristics of the invention is evidenced in the followings with particular reference to the attached drawings in which:

- figure 1 shows a lateral view of the push button object of the present invention;
- figure 2 shows a sectioned view at plane II-II of figure 1 in which some parts are removed away in order to better evidence the others;
- figure 3 shows a side view of a portion of the push button of figure 1;
- figure 4 shows a section view according to the plane IV-IV of figure 3;
- figure 5 shows a top view of the portion of figure 3.

[0009] With reference to the figures from 1 to 5, numeral 1 indicates a backlighted push button for game machine, known but not shown, which is essentially constituted by a body 2, a sliding element 3, a fixing element, so called covering body 4, a cap 5 and an insert 6.

[0010] The body 2 is hallow internally and houses the sliding element 3 with the interposition of a spring, not shown, and externally provided with a threaded zone to facilitate the hooking of push button 1 to the game machine through a screw bolt.

[0011] The sliding element 3 is hallow internally, houses an luminous source, for example a known but not

shown light bulb, and has, at its lower end, hooking means 3a to the body 2 and, at its upper end, supports the cap 5.

[0012] The covering body 4 is fixed at the upper portion of the body 2 and constitutes the peripheral visible portion of the push button 1.

[0013] The covering body 4 is centrally provided with a hole 10 for the passage of the sliding element 3 and two peripheral slots 9.

[0014] The insert 6, interposed between the covering body 4 and the cap 5, is shaped almost complementary to the covering body 4, is provided with a hole 11, is hooked by click to the covering body 4 and comprises conveyor means 7. The insert 6 is hooked to covering body the 4 in such a manner that the two inner ends 7a of conveyor means 7 are invested by a light beam R coming, for example, from the light source inside the sliding element 3.

[0015] Each external end 7b of conveyor means 7, passing through the corresponding push slot 9, ends on the external surface of the covering body 4. Each external end 7b is semi-lunar shaped complementary to the corresponding push slot 9 of the covering body 4.

[0016] The conveyor means 7 is preferably made of light transparent material, also in several colours, and comprises a prism of internal reflection 8a, a prism of intermediate reflection 8b and a prism of external reflection 8c.

[0017] The operation of push button 1 provides the activation of the luminous source whose light beam R beats the inner wall of the cap 5, backlighting this latter and allowing the primary lighting of the backlighted push button 1.

[0018] The same light beam R, or in alternative other different light beam sources also with varied colorations, invests the inner end 7a of the conveyor means 7 and, passing through this latter, is reflected in succession by the prisms of the internal reflection 8a, of the intermediate reflection 8b and of the external reflection 8c until it illuminates the external end 7b.

[0019] In this manner with the light source or with the supplementary light sources it is possible to illuminate the push button not only at the part of cap 5 but also in peripheral zones of the covering body 4 allowing better visible the push button also from the oblique angles-shot in respect with the longitudinal axis of the push button, because the covering body 4 is normally curved having cylindrical or spherical external surfaces.

[0020] The main advantage of the present invention is to provide a backlighted push button with more than one illuminable zone in order to be visible not only from the top but also from the side.

[0021] Further advantage is to provide a backlighted push button whose various zones are illuminable with various colorations.

Claims

1. Backlighted push button for game machine comprising a body (2) for hooking to the game machine and for supporting at its upper end of a covering body (4), inside the body (2) and the covering body (4) a sliding element (3) is housed supporting a cap (5) illuminable by means of the passage of at least a luminous beam (R) of a luminous source inside the push button (1), this latter being characterized in that it includes an insert (6) interposed between the covering body (4) and the cap (5) and having at least a conveyor means (7) of the at least a luminous beam (R) fit to direct this luminous beam from the inside towards the outside of the backlighted push button (1). 5 10 15
2. Backlighted push button (1) according to claim 1 characterized in that at least a conveyor means (7) is constituted by a light permeable portion whose inner end (7a) is in proximity of the luminous source and the external end (7b) is on the visible external surface of the push button (1). 20
3. Backlighted push button (1) according to any one of the preceding claims characterized in that the conveyor means (7) comprises a prism of internal reflection (8a), a prism of intermediate reflection (8b) and a prism of external reflection (8c) fit to deviate at least the light beam (R) inside the conveyor means (7) from the luminous source to the external end (7b). 25 30
4. Backlighted push button (1) according to any one of the preceding claims characterized in that the conveyor means (7) is made of coloured light transparent material. 35
5. Backlighted push button (1) according to any one of the preceding claims characterized in that the conveyor means (7) has a pair of external ends (7b) inserted in corresponding slots (9) of the covering body (4). 40
6. Backlighted push button (1) according to claim 5 characterized in that each external end (7b) is semi-lunar shaped. 45

50

55

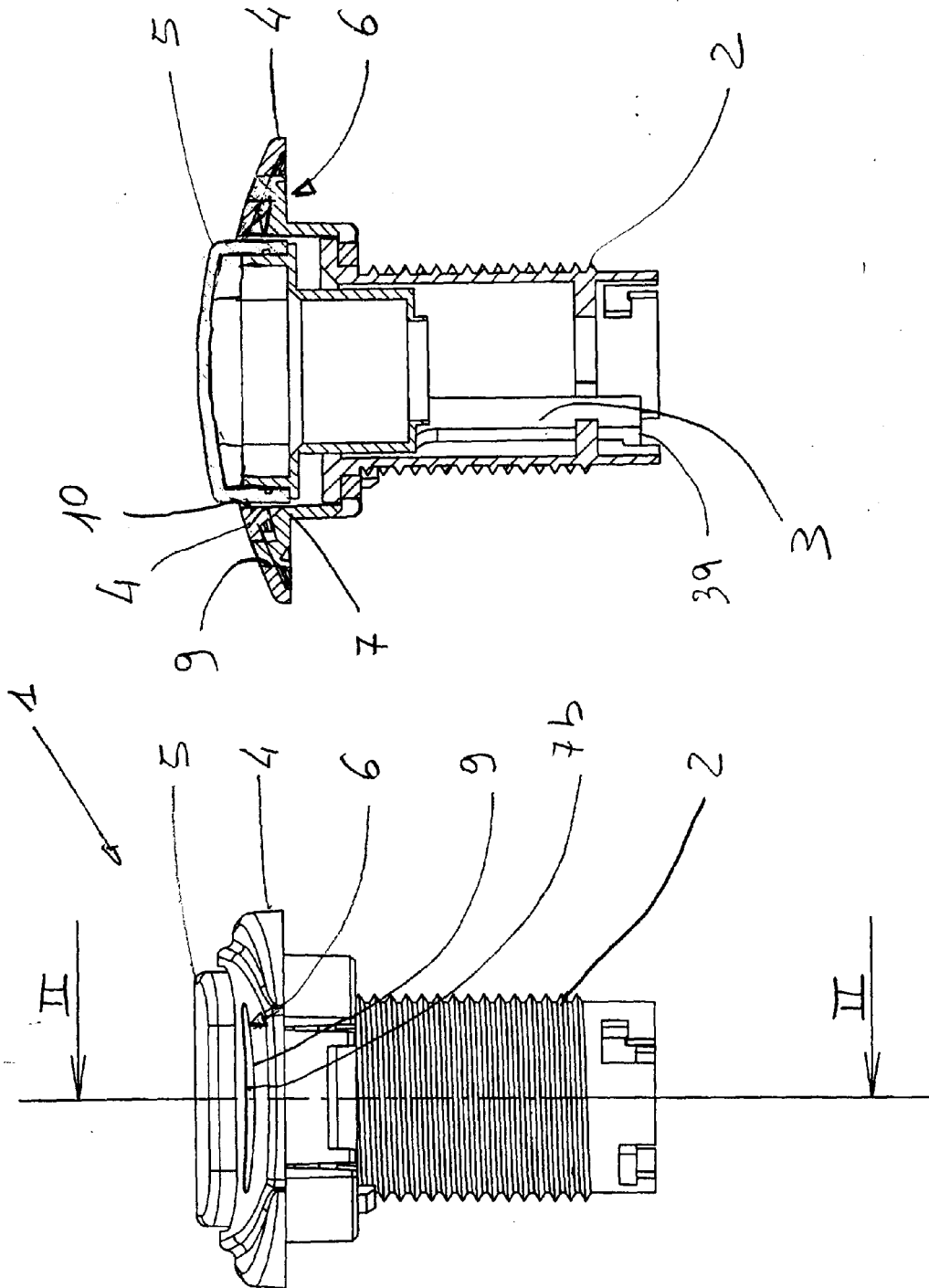
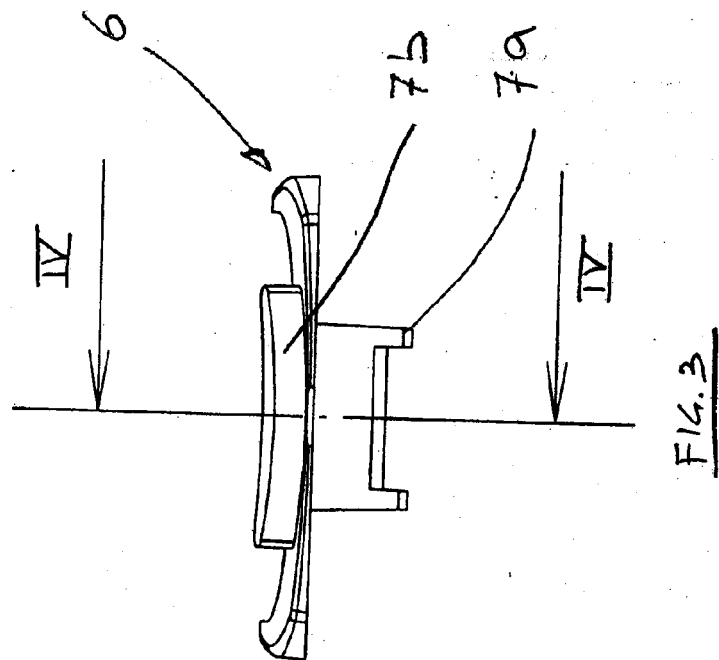
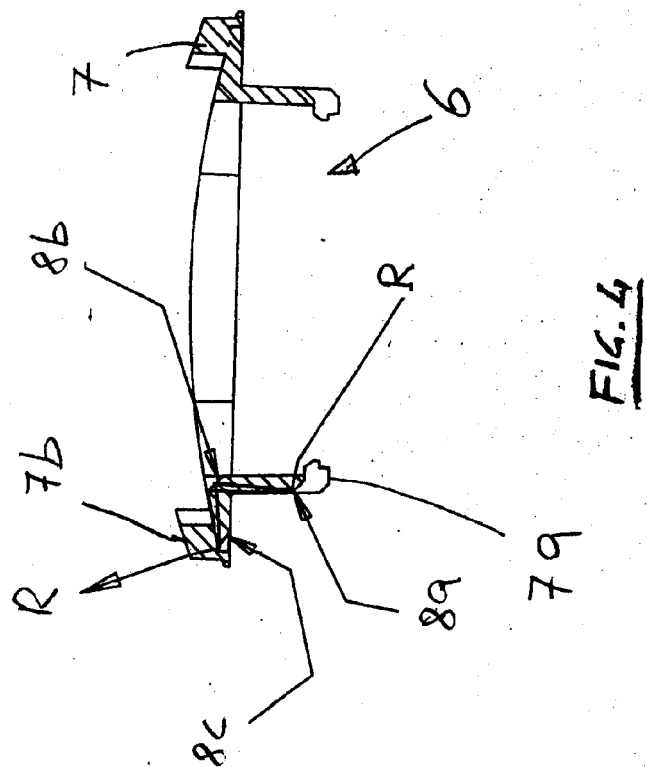
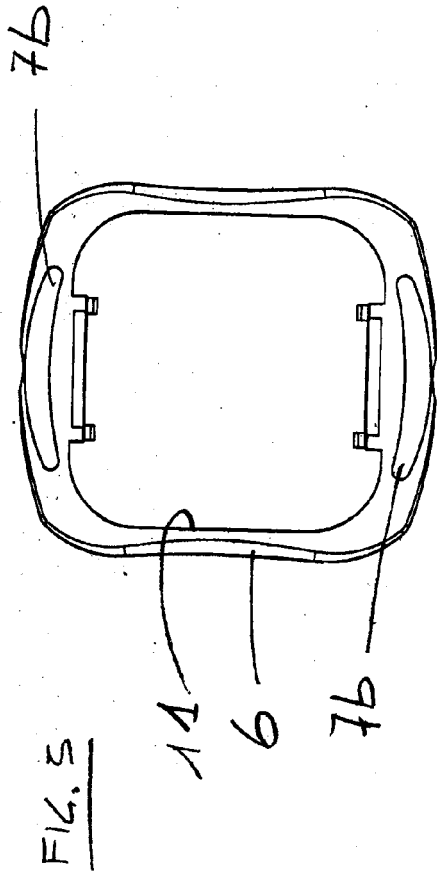


FIG. 2

FIG. 1





EUROPEAN SEARCH REPORT

Application Number
EP 09 16 7157

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	JP 2007 220348 A (CITIZEN ELECTRONICS) 30 August 2007 (2007-08-30) * abstract * * figures 2,4 *	1-6	INV. G07F17/32 H01H13/00
X	DE 29 17 367 A1 (FELLER AG) 16 October 1980 (1980-10-16) * page 4 - page 11 * * figure 1 *	1-6	
Y	JP 2005 293887 A (TEIKOKU TSUSHIN KOGYO KK) 20 October 2005 (2005-10-20) * abstract *	1-6	
Y	EP 0 976 972 A (PREH ELEKTRO FEINMECHANIK [DE] PREH GMBH [DE]) 2 February 2000 (2000-02-02) * the whole document *	1-6	
A	EP 1 752 853 A (VALEO SYSTEMES THERMIQUES [FR]) 14 February 2007 (2007-02-14) * paragraphs [0035] - [0050] *	1-6	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			G07F H01H
2	Place of search The Hague	Date of completion of the search 4 November 2009	Examiner Diepstraten, Marc
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons</p> <p>& : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P04/C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 16 7157

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

04-11-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2007220348 A	30-08-2007	NONE	
DE 2917367 A1	16-10-1980	CH 642479 A5	13-04-1984
JP 2005293887 A	20-10-2005	NONE	
EP 0976972 A	02-02-2000	DE 19834374 A1 JP 2000057870 A US 6224221 B1	03-02-2000 25-02-2000 01-05-2001
EP 1752853 A	14-02-2007	FR 2889767 A1	16-02-2007