



(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
12.09.2001 Bulletin 2001/37

(51) Int Cl.7: **H01H 59/00**

(43) Date of publication A2:
09.08.2000 Bulletin 2000/32

(21) Application number: **99830731.8**

(22) Date of filing: **25.11.1999**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

- **Koniachkine, Valerian**
10043 Orbassano, Torino (IT)
- **Perlo, Piero**
10043 Orbassano, Torino (IT)
- **Sinesi, Sabino**
10043 Orbassano, Torino (IT)

(30) Priority: **02.02.1999 IT TO990072**

(71) Applicant: **C.R.F. Societa' Consortile per Azioni**
10043 Orbassano (Torino) (IT)

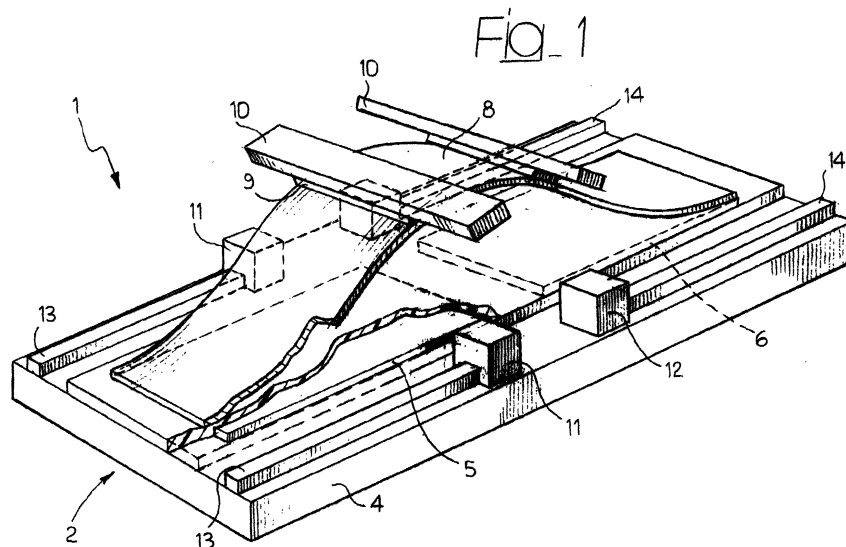
(74) Representative: **Notaro, Giancarlo et al**
c/o Buzzi, Notaro & Antonielli d'Oulx srl,
Corso Fiume 6
10133 Torino (IT)

(72) Inventors:
• **Pizzi, Marco**
10043 Orbassano, Torino (IT)

(54) **Electrostatically controlled micro-relay device**

(57) An electrostatically controlled micro-relay device comprises a base (2) provided with a pair of separate electrodes (5, 6) and a petal (8) constituted by a conductive film having the ends connected to the base (2) and a movable part carrying a pair of movable contacts (10) adapted to co-operate with respective fixed

contacts (11, 12) carried by the base (2). By applying an electric voltage between the petal (8) and one of electrode (5, 6) of the other, an adhesion is caused by electrostatic effect of one part of the petal to the base, which causes engagement of one or the other of the movable contacts (10) with the respective fixed contacts (11, 12).





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 83 0731

| 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.7) |
| X | DE 197 30 715 C (FRAUNHOFER GES FORSCHUNG) 26 November 1998 (1998-11-26) | 1,4,6 | H01H59/00 |
| Y | * column 1, line 34-42; figures 1,2 * | 7 | |
| A | -& US 6 162 657 A (SCHIELE ET AL.) 19 December 2000 (2000-12-19) * column 1, line 35-43 * | 2,3,5 | |
| Y | PATENT ABSTRACTS OF JAPAN vol. 1998, no. 11, 30 September 1998 (1998-09-30) -& JP 10 162713 A (OMRON CORP), 19 June 1998 (1998-06-19) * abstract * | 7 | |
| A | DE 197 36 674 C (SIEMENS AG) 26 November 1998 (1998-11-26) * the whole document * | 1 | |
| | | | TECHNICAL FIELDS SEARCHED (Int.Cl.7) |
| | | | H01H |
| The present search report has been drawn up for all claims | | | |
| Place of search | | Date of completion of the search | Examiner |
| MUNICH | | 29 June 2001 | Simonini, S |
| CATEGORY OF CITED DOCUMENTS | | | |
| X : particularly relevant if taken alone | | T : theory or principle underlying the invention | |
| Y : particularly relevant if combined with another document of the same category | | E : earlier patent document, but published on, or after the filing date | |
| A : technological background | | D : document cited in the application | |
| O : non-written disclosure | | L : document cited for other reasons | |
| P : intermediate document | | & : member of the same patent family, corresponding document | |

EPO FORM 1503 03.82 (P04C01)

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

EP 99 83 0731

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.

29-06-2001

| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
|---|---------------------|--|--|
| DE 19730715 C | 26-11-1998 | DE 19646667 A DE 59701898 D WO 9821734 A EP 0938738 A US 6162657 A | 14-05-1998 20-07-2000 22-05-1998 01-09-1999 19-12-2000 |
| JP 10162713 A | 19-06-1998 | NONE | |
| DE 19736674 C | 26-11-1998 | WO 9910907 A EP 1021815 A TW 385465 B US 6191671 B | 04-03-1999 26-07-2000 21-03-2000 20-02-2001 |