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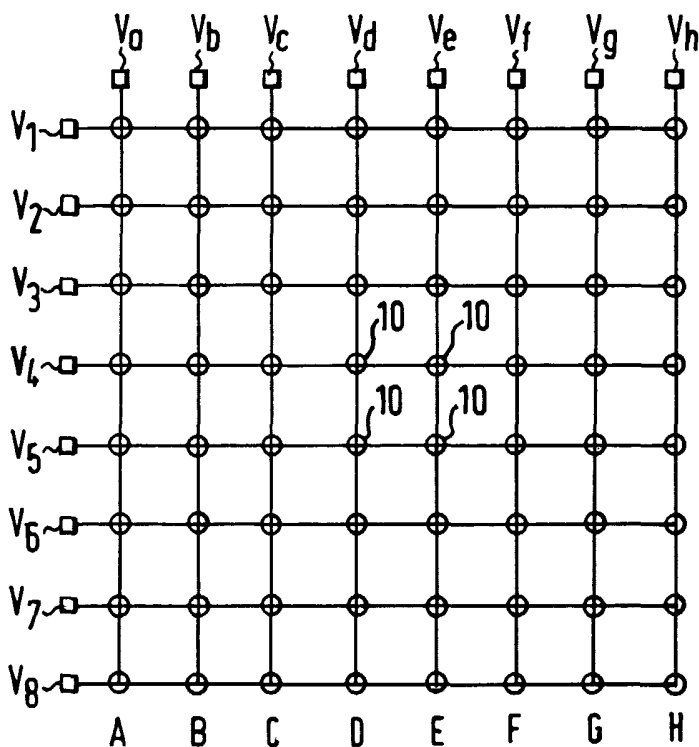
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PNEUMATIC APPARATUS USING AN ARRAY OF PNEUMATIC CYLINDERS



(57) Abstract: A support assembly for selective support of an article (2) from a face thereof, comprising an array of pneumatically actuated cylinders (6) movable from a retracted to a support position, wherein the cylinders (6) are arranged in an array and their actuation is controlled by a valve mechanism comprising a number of control valves (V_a - V_h , V_1 - V_8) which is less than the number of cylinders, such that each cylinder is controlled by actuation of two valves (V_g , V_6) which determine uniquely which cylinder is actuated. A cylinder assembly having a locking mechanism for use in the array is also disclosed.

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INTERNATIONAL SEARCH REPORT

Internati pplication No
PCT/GB 99/02508

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H05K13/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H05K B23K F16K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 513 673 A (VSE VAKUUMTECHNIK GMBH FA) 19 November 1992 (1992-11-19) page 4, line 15 -page 5, line 40; figure 1 ---	1-6
X	US 4 807 855 A (SCHUITEMA FRANK M) 28 February 1989 (1989-02-28) column 2, line 20 -column 3, line 51; figures 1,2 ---	1-6
A	US 4 078 779 A (MOLDERS WERNER) 14 March 1978 (1978-03-14) the whole document ---	1-6
A	US 3 790 129 A (PAULS C) 5 February 1974 (1974-02-05) ---	1-6
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
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- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published 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
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

Date of mailing of the international search report

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16/03/2000

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 434 255 A (DANA CORP) 26 June 1991 (1991-06-26) the whole document -----	1-6

INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 99/ 02508

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-6, 18

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 99/02508

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/GB 99/ 02508

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

line 4, after "an article", insert "(2)"
line 5, after "cylinders", insert "(6)"
line 6, after "cylinders", insert "(6)"
line 10, replace "uniquely that cylinder (9) and no other."
by "uniquely which cylinder is actuated."

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

1. Claims: 1-6, 18

A pneumatic cylinder

2. Claims: 7-17, 19

A pneumatic assembly comprising an array of pneumatic cylinders (claims 7-15 and 19) and a support assembly comprising such a pneumatic assembly (claims 16-17).

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/GB 99/02508

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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