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- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

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(54) Title: METHOD AND APPARATUS FOR MANAGING FLUID SUPPLY IN A PROCESS CONTROL SYSTEM

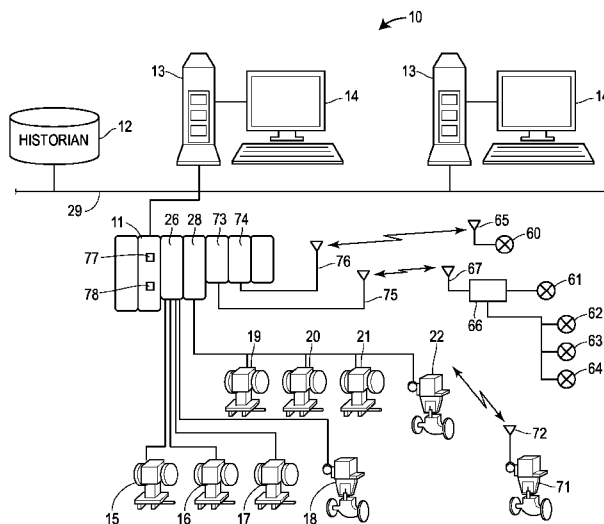
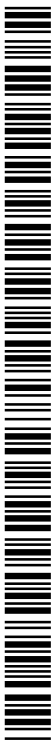


FIG. 1

(57) Abstract: A method of managing fluid supply in a process control system is provided. The method includes identifying, via a controller of a pilot device, a predetermined minimum source pressure, the predetermined minimum source pressure being the minimum pressure required at a fluid supply source to permit a simultaneous operation of all of a plurality of process lines. The method also includes determining, via the controller, whether a pressure of the fluid supply source is less than the predetermined minimum source pressure. The method further includes determining, via the controller, that the fluid supply source is to be changed when the pressure of the fluid supply source is less than the predetermined minimum source pressure.



## INTERNATIONAL SEARCH REPORT

International application No

PCT/US2014/040606

A. CLASSIFICATION OF SUBJECT MATTER  
 INV. G05D16/20 F17C13/04  
 ADD.

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)  
 G05D F17C

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 practicable, search terms used)

EPO-Internal, INSPEC, WPI Data

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 105 724 A (DRAGER OTTO H) 13 March 1968 (1968-03-13) figure 2 page 2, lines 91-99 page 2, line 126 - page 3, line 1 page 3, lines 39-42 -----	37-47
X	EP 1 354 252 B1 (FISHER CONTROLS INT [US]) 11 May 2005 (2005-05-11) paragraphs [0003], [0015], [0016], [0037], [0040], [0044]; figure 2 -----	1-23, 37-47 24-36
Y		
X	US 7 000 629 B1 (LUCAS JR JAMES L [US] ET AL) 21 February 2006 (2006-02-21) column 1, lines 15-45 column 3, lines 5-44 column 5, line 53 - column 6, line 2 -----	48-57  24-36
Y		



Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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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

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11/06/2015

Name and mailing address of the ISA/

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2014/040606

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

see additional sheet

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 fees, this Authority did not invite payment of additional fees.
  
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.:

### Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-23, 37-47

this group relates to methods and systems having the features corresponding to the ones of the method of claim 37 and further defined by the special technical features of the pilot device and the on-board controller defined in claims 1 and 13, for solving the problem of providing an alternative pilot valve and controller to the ones known from D1, figure 2.

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2. claims: 24-36, 48-57

this group relates to methods and systems having the features corresponding to the ones of the method of claim 37 and further defined by the special technical features of the switching valve defined in claims 24 and 48, for solving the problem of providing an alternative switching device to the one known from D1, figure 2.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2014/040606

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