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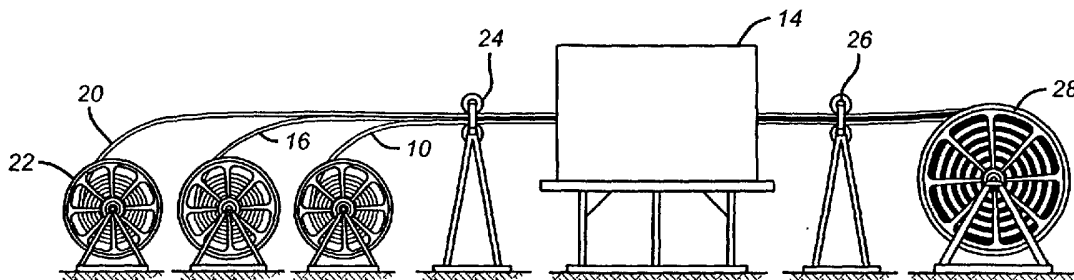
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(54) Title: MULTI LAYER SCREEN FOR DOWNHOLE USE.



(57) Abstract: A downhole completion method and an expandable filtration apparatus are disclosed. The filter assembly comprises a plurality of layers beginning with a coated perforated base pipe (10). The coating (18) reduces the force required for expansion. A drainage layer (24) overlays the base pipe with the filtration layer (26) above it. The drainage layer improves flow through the filtration layer and protects it from burrs in the base pipe. A filtration enhancement layer fits (32) over the filtration layer and an outer shroud (34) protects the assembly during run in. The assembly can be used as made or expanded downhole in one or a series of expansions.



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INTERNATIONAL SEARCH REPORT

International Application No  
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A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 E21B43/08 E21B43/10 B01D29/00

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 E21B B01D

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)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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| A          | US 3 680 183 A (SUNDBERG)<br>1 August 1972 (1972-08-01)<br>column 14, line 15 - line 27<br>column 7, line 42 - line 46<br>column 2, line 12 - line 21<br>--- | 1                     |
|            | -/--   |                       |

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
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
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- \*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

26 July 2002

Date of mailing of the international search report

09.08.2002

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## INTERNATIONAL SEARCH REPORT

International Application No

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| Y  | ---  | 17,18                 |
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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/27581

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT |   |                       |
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| Y  |   | 18                    |
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 01/27581

## 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:

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 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.:

### Remark on Protest

The additional search fees were accompanied by the applicant's protest.

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: 1-14

Expandable filter assembly for downhole use, comprising at least one annealed filtration layer.

2. Claims: 15-19

Expandable filter assembly for downhole use, comprising at least one filtration layer which is mounted on a coated pipe.

3. Claims: 20-23

Expandable filter assembly for downhole use, comprising at least one filtration layer and an expander capable of multi-stage expansion.

4. Claims: 24,25

Expandable filter assembly for downhole use, comprising at least one filtration layer including a weave having weft and warp wires.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/27581

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