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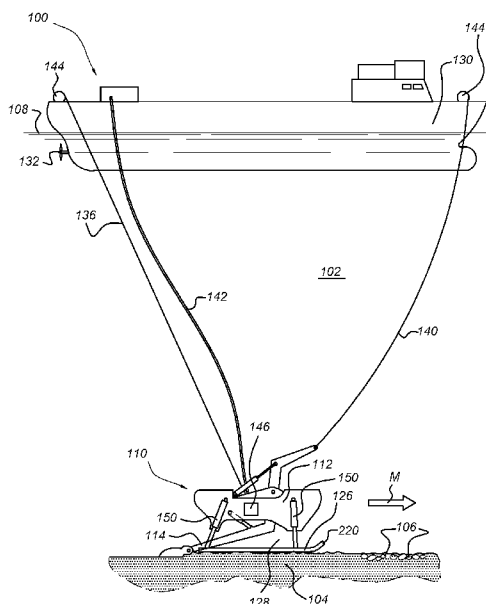
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- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

[Continued on next page]

(54) Title: DEVICE FOR COLLECTING MATERIAL FROM A FLOOR SURFACE OF A WATER COLUMN

Fig 1a



(57) Abstract: The present invention relates to a device (110) for collecting material (106) from a floor surface (104) of a water column (102). The device (110) comprises an excavation tool (114), a frame (112) for supporting the excavation tool (114) and at least one support surface (126) on a bottom side (128) of the frame (112) for supporting the device (110) when positioned on the floor surface (104). The orientation of at least one support surface (126) with respect to the frame is adjustable.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. E02F3/88 E02F9/02
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)
E02F E21B E21C

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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	NL 9 201 058 A (KONIJN NICOLAAS G) 3 January 1994 (1994-01-03) figures 1-3	1,2, 8-10,14
X	----- EP 0 837 192 A1 (PARAGON INT BV [NL]) PARAGON INTERNAT B V [NL]) 22 April 1998 (1998-04-22) figures 2-6e	1,5,7-9, 14
X	----- WO 01/21900 A1 (ENGINEERING BUSINESS LTD [GB]; GRINSTED TIMOTHY WILLIAM [GB]) 29 March 2001 (2001-03-29) figures 2,3, 4, 6, 7, 8-17	1,4,5, 7-10,14
X	----- GB 2 242 788 A (ECA [FR]) 9 October 1991 (1991-10-09) figures 1, 3	1,5,7-9, 14-17
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☒ 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

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"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

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

International application No
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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.
X	EP 0 004 378 A1 (EPI PNEUMA SYST [IT]) 3 October 1979 (1979-10-03) abstract; figures 2-5 paragraph [0038] -----	1,2
A	EP 0 185 422 A1 (SOIL MACHINE DYNAMICS LTD) 25 June 1986 (1986-06-25) abstract; figures 10, 11 page 4, line 1 - line 2 -----	1,2
A	GB 2 364 358 A (ENGINEERING BUSINESS LTD [GB]) 23 January 2002 (2002-01-23) abstract; figures 3, 4 page 4, line 26 - page 5, line 6 -----	1,2

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NL2012/050190

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.:

see additional sheet(s)

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, 2, 4, 5, 7-10, 14-17

Device for collecting material from a floor surface which can be operated in a first or sledge mode and in a second or gliding working mode.

Device for collecting material from a floor surface comprises at least two support surfaces or comprises a suspension rod connected to a towing cable wherein the suspension rod is connected to the frame via a hinge connection allowing the suspension rod to rotate with respect to the hinge connection.

Device for collecting material from a floor surface wherein the at least one support surface comprises a leading edge, being curved upwardly.

Device for collecting material from a floor surface comprises a plurality of actuators to adjust the orientation of the at least one support surface.

At least one vessel with propulsion means and with at least one cable for connecting the vessel to the device for collecting material from a floor surface.

1.1. claims: 1, 2

Device for collecting material from a floor surface which can be operated in a first or sledge mode and in a second or gliding working mode.

1.2. claims: 1, 4, 7-10

Device for collecting material from a floor surface comprises at least two support surfaces or comprises a suspension rod connected to a towing cable wherein the suspension rod is connected to the frame via a hinge connection allowing the suspension rod to rotate with respect to the hinge connection.

1.3. claims: 1, 5

Device for collecting material from a floor surface wherein the at least one support surface comprises a leading edge, being curved upwardly.

1.4. claims: 1, 14

Device for collecting material from a floor surface comprises a plurality of actuators to adjust the orientation of the at least one support surface.

1.5. claims: 1, 15-17

At least one vessel with propulsion means and with at least one cable for connecting the vessel to the device for

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

collecting material from a floor surface.

2. claims: 1, 3, 12, 13

Device for collecting material from a floor surface wherein the excavation tool comprises an excavation head attached to the frame and a height controller arranged to adjust the height of the excavation head or wherein the excavation tool comprises an excavation aperture and a position controller for adjusting an orientation of the excavation aperture.

3. claims: 1, 6, 11

Device for collecting material from a floor surface wherein the at least one support surface comprises at least one steering support surface which is rotatable about a rotation axis or wherein the at least one support surface is provided with a hinge axis extending in a moving direction of the device when in use, the hinge axis forming two support surfaces parts which can be orientated under a variable angle with respect to each other.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/NL2012/050190

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