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Datasheet for the decision of 25 March 2015

Case Number: T 0967/12 - 3.3.05

Application Number: 04736760.2

Publication Number: 1631367

IPC: B01D33/03, B07B1/46

Language of the proceedings: EN

Title of invention:
SCREENING APPARATUS

Patent Proprietor:
Axiom Process Limited

Opponents:
Openshaw, Paul Malcolm
National Oilwell Varco, L.P.

Headword:
Screening apparatus/AXIOM

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step (all requests): no -
reformulation of the technical problem (yes)
Inventive step (all requests): no - obvious technical solution

Decisions cited:
T 0162/04

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Catchword:

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Case Number: T 0967/12 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 25 March 2015

Appellant: (Patent Proprietor)	Axiom Process Limited Unit 10B Brunswick Industrial Estate Newcastle Upon Tyne Tyne and Wear NE13 7BA (GB)
Representative:	Newell, Campbell Marks & Clerk LLP Atholl Exchange 6 Canning Street Edinburgh EH3 8EG (GB)
Respondent: (Opponent 1)	Openshaw, Paul Malcolm Openshaw & Co. 8 Castle Street Farnham Surrey GU9 7HR (GB)
Representative:	Potter, Julian Mark WP Thompson 55 Drury Lane London WC2B 5SQ (GB)
Respondent: (Opponent 2)	National Oilwell Varco, L.P. 7909 Parkwood Circle Drive Houston, Texas 77036 (US)
Representative:	Lucas, Phillip Brian Lucas & Co. 135 Westhall Road Warlingham, Surrey CR6 9HJ (GB)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 19 March 2012 revoking European patent No. 1631367 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	G. Raths
Members:	J-M. Schwaller
	C. Vallet

Summary of Facts and Submissions

I. The present appeal lies from the decision of the opposition division to revoke European patent No. 1 631 367, claim 1 of which reads as follows:

"*1. A method of removing solids from a liquid and solids mixture feed comprising the steps of:*

a) providing a basket (4) mounted in a vibratory screening apparatus (1), wherein said basket (4) mounts a stack of at least three screen assemblies (8',8", 8"'), with superposed screen assemblies separated from each other by a respective flow directing tray (9',9") and is provided with a flow distributor (15) formed and arranged for;
receiving filtrate from the flow directing tray (9') associated with a primary upper screen assembly (8');
dividing said filtrate into at least a first feed stream and a second feed stream;
directing said feed streams onto respective ones of first and second screen assemblies (8",8"') and
receiving filtrate from said respective flow directing trays (9"); and

b) directing a said liquid and solids mixture feed onto the primary upper screen assembly (8') of the stack of screen assemblies (8',8",8"')."

II. In the contested decision, the opposition division held that claim 1 of the main request (also claim 1 as granted) lacked inventive step in the light of the combined teachings of documents

E1: WO 01/81014 A2 and

E44: Shale Shakers and Drilling Fluid Systems, Butterworth-Heinemann (1999).

III. With the grounds of appeal dated 27 July 2012, the proprietor ("the appellant") contested the decision of the opposition division and filed ten auxiliary requests.

IV. With their response to the grounds of appeal, opponents I and II (respondents I and II, respectively) requested an apportionment of the costs because of the excessive number of new requests. Further, they raised issues under Articles 54, 56, 83, 84 and 123 EPC.

V. By letter of 17 July 2013, respondent II filed two further documents.

VI. In a communication dated 6 February 2015, the board drew the appellant's attention in particular to the fact that the subject-matter of the requests filed with the grounds of appeal was so divergent in nature that some of them might not be admitted into the appeal proceedings.

VII. By letter of 6 March 2015, respondent I argued that claim 1 as granted lacked inventive step over the combination of the teachings of documents E1 and

E33: EP 0 024 784.

VIII. With letter dated 10 March 2015, the appellant replaced the auxiliary requests filed with the grounds of appeal by three new auxiliary requests.

Claim 1 of auxiliary request 1 reads as follows:

"*1. A method of removing solids from a liquid and solids mixture feed comprising the steps of:*

a) providing a basket (4) mounted in a vibratory screening apparatus (1), wherein said basket (4) mounts a stack of at least three screen assemblies (8',8", 8"'), with superposed screen assemblies separated from each other by a respective flow directing tray (9',9") and is provided with a flow distributor (15) ***provided at one end of the basket and mounted on the basket, and*** *formed and arranged for;*
receiving filtrate from the flow directing tray (9') associated with a primary upper screen assembly (8');
dividing said filtrate into at least a first feed stream and a second feed stream;
directing said feed streams onto respective ones of first and second screen assemblies (8",8"') and receiving filtrate from said respective flow directing trays (9"); and

b) directing a said liquid and solids mixture feed onto the primary upper screen assembly (8') of the stack of screen assemblies (8',8",8"')."

Claim 1 of auxiliary request 2 corresponds to auxiliary request 1 underlying the decision of the opposition division and reads as follows:

"*1. A method of removing solids from a liquid and solids mixture feed comprising the steps of:*

a) providing a basket (4) mounted in a vibratory screening apparatus (1), wherein said basket (4) mounts a stack of at least three screen assemblies (8',8", 8"'), with superposed screen assemblies separated from each other by a respective flow directing tray (9',9")

and is provided with a flow distributor (15) ***mounted on the basket and*** *formed and arranged for;*
receiving filtrate from the flow directing tray (9') associated with a primary upper screen assembly (8');
dividing said filtrate into at least a first feed stream and a second feed stream;
directing said feed streams onto respective ones of first and second screen assemblies (8", 8"') and
receiving filtrate from said respective flow directing trays (9"); and

b) directing a said liquid and solids mixture feed onto the primary upper screen assembly (8') of the stack of screen assemblies (8',8",8"')."

Claim 1 of auxiliary request 3 reads as follows:

"*1. A method of removing solids from a liquid and solids mixture feed comprising the steps of:*

a) providing a basket (4) mounted in a vibratory screening apparatus (1), wherein said basket (4) mounts a stack of at least three screen assemblies (8',8", 8"'), with superposed screen assemblies separated from each other by a respective flow directing tray (9',9") and is provided with a flow distributor (15) ***provided at one end of the basket and*** *formed and arranged for;*
receiving filtrate from the flow directing tray (9') associated with a primary upper screen assembly (8');
dividing said filtrate into at least a first feed stream and a second feed stream;
directing said feed streams onto respective ones of first and second screen assemblies (8", 8"') and
receiving filtrate from said respective flow directing trays (9"); and

b) directing a said liquid and solids mixture feed onto the primary upper screen assembly (8') of the stack of screen assemblies (8',8",8"')."

IX. At the oral proceedings, which took place on 25 March 2015, the respondents challenged the admissibility of the auxiliary requests but agreed to the board's proposal to discuss inventive step first. In this respect, the discussion focused on documents E1, E33 and E44, it being agreed that E1 was representing the closest state of the art.

X. After closing the debate the chairman established the parties' requests as follows:

The appellant requested that the decision under appeal be set aside and that the patent be maintained as granted or, alternatively, that the patent be maintained in amended form on the basis of the claims according to one of the sets of claims filed on 10 March 2015.

Respondents I and II both requested that the appeal be dismissed and that part of their appeal costs be awarded.

Reasons for the Decision

1. Main request - Inventive step

By applying the problem-solution approach, the board came to the following conclusions:

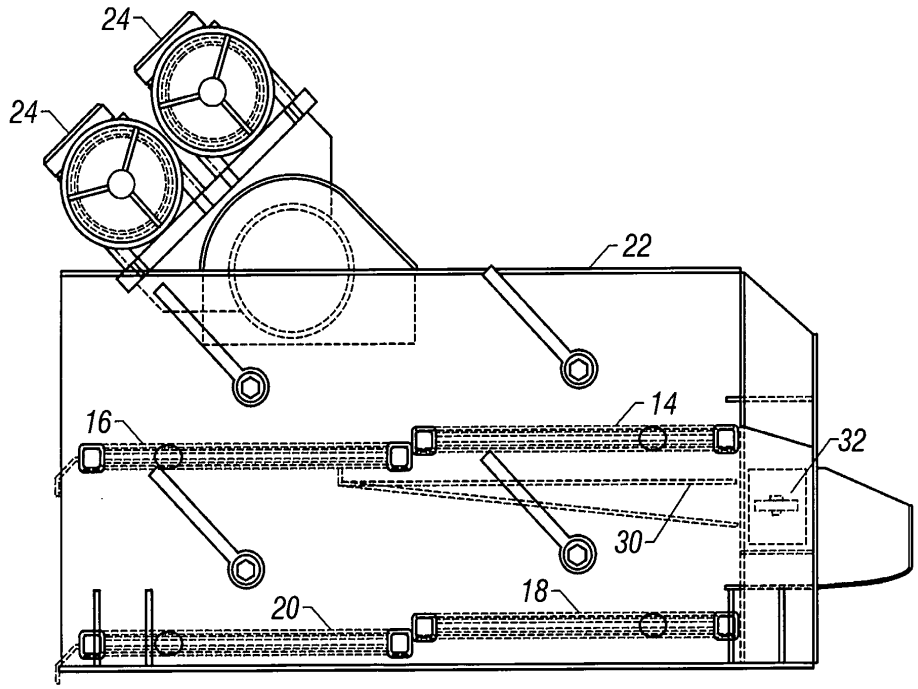
1.1 Invention

The alleged invention relates to a method of removing

solids from a liquid and solids mixture feed using a vibratory screening apparatus.

1.2 Closest prior art

The closest state of the art, document E1, discloses a shale shaker according in particular to Figure 3 reproduced below.



According to E1, claims 1, 3 and 4, the shale shaker comprises:

- upper shaker screens (14,16);
- lower shaker screens (18,20);
- a basket (22) mounted movably with respect to and on a base;
- a distribution conduit;
- a flowback pan (30) disposed between the upper and lower screens and overlying at least a portion of the lower screen for preventing the screened material falling through the upper screen from

contacting the lower screen and for directing said screened material to the distribution conduit;
- a flow director (32) for directing screened material flowing through the distribution conduit to or away from the lower screen;
- a distribution apparatus comprising a header feeding both the upper and the lower screens with unscreened material;
- a sump below the basket for receiving the screened material falling through the lower screen and the screened material directed away from the lower screen by the flow director.

Thus, E1 discloses a method of removing solids from a liquid and solids mixture feed comprising the steps of:

a) providing a basket mounted in a vibratory screening apparatus, wherein said basket mounts a stack of at least **two** ~~three~~ screen assemblies separated from each other by a flow directing tray and is provided with a flow distributor ~~receiving filtrate from the flow directing tray associated with a primary upper screen assembly;~~ dividing ~~said filtrate~~ **the mixture feed** into at least a first feed stream and a second feed stream; directing said feed streams onto first and second screen assemblies and receiving filtrate from said flow directing tray; and
b) directing said liquid and solids mixture feed onto the primary upper screen assembly of the stack of screen assemblies to the flow distributor. (*Note: the bold and strike-through markings identify the differences to the subject-matter of claim 1 at issue.*)

1.3 Problem

According to the contested patent (paragraph [0001]),

the problem underlying the invention was to improve the efficiency of existing vibratory screening apparatuses in relation to their physical size.

1.4 Solution

As a solution to this problem, the contested patent proposes the process according to claim 1 at issue, which is characterised in particular in that the liquid and solids mixture feed is directed onto the upper screen assembly of a stack of **three** screen assemblies separated from each other by a flow directing tray, with the **filtrate from the upper flow directing tray** being directed to the flow distributor which divides the filtrate into a first and second feed stream which are directed onto second and third screen assemblies.

1.5 Success of the solution

As to the success of the solution proposed in claim 1 at issue, paragraph [0005] of the contested patent discloses that the stacking of a plurality of screen assemblies within a single basket and the provision of a flow distributor to route multiple flows in parallel through different screens in the stack provides an increase of the effective screen surface with little or no increase in the size of the apparatus.

The parties agreed that the stacked configuration and the flow distributor in the shale shaker of E1 provided advantages similar to the ones according to the invention. Therefore, the problem has to be reformulated.

The problem can be reformulated as minimising the fouling of the flow distributor while maintaining the

same footprint of the existing shale shaker.

In particular the appellant/proprietor argued in this way at point 16 in the grounds of appeal.

1.6 Obviousness

1.6.1 As to the obviousness of the claimed subject-matter, it has to be determined if, having regard to the state of the art, the proposed solution is obvious to a person skilled in the art.

1.6.2 In the present case, the respondents held that the content of E44 is particularly relevant, since this document represents the common general knowledge of the skilled person in the technical field of shale shakers at the priority of date of the patent.

In particular at page 111, left-hand column, E44 discloses a shale shaking cascade system comprising a scalper shaker mounted directly over a double-deck shaker - thus providing a stack of three screen assemblies - with the scalping shaker removing the larger solids before passing the drilling fluid to the finer mesh screens. This cascade system is described as especially successful where space is limited, since it reduces solids loading on the lower fine mesh screen deck, and so increases the shaker capacity and screen life.

1.6.3 Document E44 thus clearly teaches the provision of a primary upper screen (the "scalping shaker") for reducing the solids loading on the downwardly located fine mesh screens arrangement, i.e. a problem similar to the one underlying the alleged invention, which lies in the minimising of fouling of the flow distributor,

or in other words the reduction of the solids loading on the flow distributor.

For the board, it follows from the above that the skilled person gets a strong hint from document E44 to provide a "primary upper screen assembly" on top of the two screens assembly of document E1 with the aim of minimising fouling of the downwardly located equipment while maintaining the footprint of the shale shaker of E1.

1.6.4 E44 (right-hand column of pages 111 and 112) further teaches that a cascade system, such as the one disclosed above, can be arranged as an integral unit (in other words a "basket", as in the claimed subject-matter) with a single vibratory motion. This configuration is the same as the one known from the shale shaker according to document E1 (see Figure 3 in point 1.2 above) and the one defined in the subject-matter of claim 1 at issue. The skilled person is thus not hindered from implementing the teachings of E44 indicated in point 1.6.2 above in the shale shaker of E1.

In this respect, the board notes that the addition of the primary upper screen taught by E44 to the double-deck shaker arrangement known from E1 merely requires directing the feed material to the top of the primary upper screen, which does not present a technical challenge and is well within the capabilities of the person skilled in the art.

1.6.5 For the board, the ultimate modification to arrive at the subject-matter of claim 1 at issue, namely the provision the flow-directing tray associated with the primary upper screen assembly, is an obvious

modification for the skilled person because, once the larger solids have been removed by the primary upper screen, the skilled person would recognise that the filtrate, i.e. the drilling fluid which has passed through the primary upper screen, would need to be collected and conveyed back to the flow distributor. The skilled person would therefore look for some means of doing that.

Now, E1 already describes the provision of a flowback pan to collect screened material or filtrate from an upper shaker screen and direct it to the distribution conduit (see page 2, lines 16 to 21 of E1). Employing a flowback pan to collect filtrate from the primary upper screen and direct it to the flow distributor, yet again, is merely an obvious extension of a concept already applied in E1.

Furthermore, the general use of flow-directing trays for directing drilling fluid are taught at page 99 of E44, where they are referred to as flow-back trays. E44 by the way also proposes the specific use of a backflow pan in cascade systems since this "eliminates the manifold and piping needed for the two separate units" (see left-hand column, page 112 of E44). It follows that by modifying the shale shaker of E1 to include a primary upper screen and a flow-directing tray which directs filtrate from the primary upper screen to the distribution apparatus, the distribution apparatus now only handles filtrate, as in the claimed subject-matter.

1.6.6 The appellant argued that the modification of the shale shaker according to E1 to include a primary upper screen and a corresponding flow-directing tray which directs filtrate from the primary upper screen to the

distribution conduit was not obvious, in particular because in document E1 the distribution apparatus included the complex riser box illustrated in Figures 1 and 8.

The board does not accept this argument because the riser box in question is not an essential feature of the invention defined in E1. It is merely a specific embodiment of the generic shale shaker disclosed in claim 1 of E1 (see dependent claim 5 of E1), which is furthermore not illustrated in Figure 3 of E1 and so not mandatory in E1.

According to another argument of the appellant, in E1 the distributor handles the solid/liquid mixture feed while in the claimed subject-matter it handles a filtrate. For the board, this argument does not detract from a combination of the teachings of E44 with that of E1 because the filtrate defined in the claimed subject-matter is also a solid/liquid mixture. So whether it is a feed or a filtrate only a terminological difference and not a technical one.

1.6.7 It follows from the above considerations that, having regard to the teachings of documents E1 and E44, the skilled person faced with the problem identified in item 1.5 above would arrive in an obvious manner at the subject-matter of claim 1 at issue, which therefore does not involve an inventive step in the sense of Article 56 EPC.

2. Admissibility of the auxiliary requests

The board observes that auxiliary request 1 to 3 were filed in response to the board's communication informing the appellant that its earlier requests were

so divergent in nature that some of them might not be admitted into the appeal proceedings. The sets of claims now proposed are no longer divergent in nature and their number is acceptable, so the board exercises its power of discretion to admit them into the appeal proceedings.

3. First auxiliary request - Inventive step

Claim 1 of this request differs from claim 1 of the main request in that the flow distributor is "provided at one end of the basket and mounted on the basket".

For the board, this feature does not provide any inventive contribution to the claimed subject-matter, since the shale shaker according to document E1 includes a flow distributor located similarly "at one end of the basket and mounted on the basket" (see Figure 3 in item 1.2 above), with the consequence that the reasons in points 1.5 to 1.6.6 above apply likewise to claim 1 of this request, which therefore does not meet the requirements of Article 56 EPC.

4. Second auxiliary request - Inventive step

Claim 1 of this request differs from claim 1 of the main request in that the flow distributor is "mounted on the basket".

For the board, this feature does not provide any inventive contribution to the claimed subject-matter, since the shale shaker according to document E1 includes a flow distributor which similarly is "mounted on the basket" (see Figure 3 in item 1.2 above), with the consequence that the reasons in points 1.5 to 1.6.6 above apply likewise to claim 1 of this request, which

therefore does not meet the requirements of Article 56 EPC.

5. Third auxiliary request - Inventive step

Claim 1 of this request differs from claim 1 of the main request in that the flow distributor is "provided at one end of the basket".

For the board, this feature does not provide any inventive contribution to the claimed subject-matter, since the shale shaker according to document E1 includes a flow distributor located similarly "at one end of the basket" (see Figure 3 in item 1.2 above), with the consequence that the reasons in points 1.5 to 1.6.6 above apply likewise to claim 1 of this request, which therefore does not meet the requirements of Article 56 EPC.

6. As none of the sets of claims of the requests on file meets the requirements of the EPC, the patentee's appeal cannot succeed and the decision to revoke the patent is confirmed.

7. Requests for apportionment of costs

7.1 Under Article 104(1) and Rule 100(1) EPC each party to the opposition/appeal proceedings bears the costs it has incurred, unless it is decided otherwise for reasons of equity.

7.2 In the case at hand, the opposition division revoked the patent because the three sets of claims discussed at the oral proceedings failed to meet the requirements of the EPC, in particular Articles 56 (main and first

auxiliary requests) and 123(2) EPC (second auxiliary request).

7.3 With the grounds of appeal, the patentee submitted eleven sets of claims, with the two first sets of claims corresponding to the main and first auxiliary requests underlying the decision of the opposition division.

7.4 In the respondents' view, the number of requests filed with the grounds of appeal was excessive and amounted to an abuse of procedure. This was contrary to the principle of equity and greatly increased their costs, since each new request had to be reviewed and countered.

7.5 The board considers that the filing with the statement of grounds of appeal of a large number of requests is not, as such, either an abuse of procedure nor inequitable; it is merely an attempt to overcome the reasons given by the opposition division for revoking the patent, and the alternatives proposed in the different requests are fallback positions if the board of appeal followed the reasoning of the impugned decision. The conduct of the appellant in withdrawing the eleven contested requests and replacing them with two different auxiliary requests is also not objectionable. This is to be seen merely as a legitimate defence of its case (see decision T 0162/04, point 5. of the reasons).

The board therefore does not see sufficient justification for departing in this case from the principle that each party meets the costs it has incurred.

Order

For these reasons it is decided that:

1. The appeal is dismissed.

2. The requests for apportionment of costs are refused.

The Registrar: The Chairman:

C. Vodz G. Raths

Decision electronically authenticated