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Datasheet for the decision of 14 March 2018

Case Number: T 2023/13 - 3.2.07

Application Number: 11159545.0

Publication Number: 2338614

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Language of the proceedings: EN

Title of invention:
Screen frame

Applicants:
United Wire Limited
M-I L.L.C.

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - main request (no) - auxiliary request (no)

Decisions cited:

Catchword:

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Case Number: T 2023/13 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 14 March 2018

Appellant 1: (Applicant 1)	United Wire Limited Granton Park Avenue Granton Edinburgh Fife EH5 1HT (GB)
Appellant 2: (Applicant 2)	M-I L.L.C. 5950 North Course Drive, Department WS Houston, TX 77072 (US)
Representative:	Schlumberger Cambridge Research Limited High Cross Madingley Road Cambridge CB3 0EL (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 17 May 2013 refusing European patent application No. 11159545.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	V. Bevilacqua
Members:	K. Poalas
	R. Cramer

Summary of Facts and Submissions

I. An appeal against the decision refusing European patent application No. 11 159 545.0 was filed in the name of only the first named-applicant, namely United Wire Limited. After said deficiency in the notice of appeal was brought to its attention, this party stated in its letter of 17 December 2013 that its true intention was to file the appeal in the name of the two applicants, namely United Wire Limited and M-I L.L.C., hereafter named "the appellants".

II. In its decision, the examining division held that the subject-matter of claim 1 of the main request filed with the submission dated 13 February 2013 did not involve an inventive step over the combination of the teaching of D8 (WO 2004/03524 A), with the teaching of D9 (WO 2004/098798 A) and that the subject-matter of claim 1 of the auxiliary request filed during the oral proceedings held before the examining division did not involve an inventive step over the combination of the teachings of the above-mentioned documents either.

III. The appellants request that the decision under appeal be set aside and that a patent be granted on the basis of the sets of claims dealt with as main and auxiliary request in the impugned decision. No request for oral proceedings has been filed.

IV. Claim 1 of the main request reads as follows:

"A shaker comprising a screen frame to separate solids from a liquid/solid mixture and to which woven wire mesh is attached, the frame comprising an outer rectangular perimeter comprising two long sides and two short sides and a plurality of plastics ribs extending

between both pairs of opposing sides of the perimeter, thus forming a plurality of rectangular openings, the frame being arranged in the shaker with the long sides clamped in place and the short sides not clamped, with the number of plastics ribs per unit length for the long sides is greater than the number of plastics ribs per the same unit length for the short sides."

Claim 1 of the auxiliary request reads as follows:

"A shaker comprising a screen frame to separate solids from a liquid/solid mixture and to which woven wire mesh is attached, the frame comprising an outer plastics rectangular perimeter comprising two long sides and two short sides and a plurality of plastics ribs extending between both pairs of opposing sides of the perimeter, thus forming a plurality of plastics rectangular openings, the frame being arranged in the shaker with the long sides clamped in place and the short sides not clamped, with the number of plastics ribs per unit length for the long sides is greater than the number of plastics ribs per the same unit length for the short sides."

V. The appellants argued essentially as follows:

The screen frame of D8 is made of steel bars welded together, see page 17, lines 27 to 30, page 21, line 32 to page 22, line 4, page 26 lines 13 to 23.

The difference between the subject-matter of claim 1 of the main and the auxiliary request and the disclosure of the embodiment shown in figures 4C and 4D of D8 resides in the use of plastics as a construction material for the frame.

A steel frame cannot be directly compared to a plastic frame, due to the completely different properties of the respective materials, and for this reason D8 does not relate to the problem to be solved by the present patent application, and is not a suitable starting point for discussing inventive step.

The technical problem to be solved starting from D8 resides in the provision of a lightweight screen frame whilst also ensuring that the screen frame has acceptable rigidity.

D8 teaches away from using plastics for that purpose, because the skilled person is aware that with plastics the frame would lack adequate rigidity.

D9 teaches that, provided that it is shaped as disclosed therein to achieve acceptable rigidity, the entire screen frame can be made from plastics, see page 2, lines 17 to 20.

D9 therefore does not teach that in this technical field plastic can straightforwardly replace steel in the construction of frame components.

Consequently, to consider the screen frames of D9 as a practical alternative to those of D8 would go against the explicit teaching of D9.

D9 relates to plastic screen frames, particularly reinforced plastic screen frames, and therefore is in the same technical area as the present invention, and is therefore a more logical starting point for discussing inventive step.

D9 teaches the person skilled in the art that the embodiments disclosed therein do have sufficient rigidity, due to the reinforcing in the frames combined with the use of the lattice-like construction of the slot-defining members, see page 8 lines 5 to 7.

The objective technical problem in view of D9 is therefore how to increase the rigidity of these plastic reinforced screen frames.

D8 teaches that a rigid arrangement arises from the use of steel as the only structural material for the frame.

Therefore, when consulting D8 the person skilled in the art is not led towards the arrangement of claim 1 but is instead led away from it, namely towards a metal framed screen frame.

In conclusion, when D8 and D9 are considered as a whole and their technical teachings are taken into account they teach away from the present invention, which therefore involves an inventive step.

Reasons for the Decision

1. *Admissibility of the appeal*

The board is satisfied that it was the genuinely intended to file the appeal in the name of both applicants. Therefore the - implicit - request to correct the notice of appeal is granted and the appeal is admissible.

2. *Claim 1 according to the main request - inventive step*

2.1 The shaker according to claim 1 differs from the shaker known from D8, see figures 4C and 4D, in that a plurality of ribs of its screen frame are made of plastics material.

2.2 Given that the whole screen frame known from D8 is made from steel, the above-mentioned differentiating feature has the effect that some screen frame components are no longer made of steel and are therefore lighter.

2.3 The problem to be solved is therefore to be seen in the provision of a lighter screen frame.

2.4 The board concurs with the impugned decision that the first thought of a skilled person seeking to find a lighter screen frame than the steel frame known from D8 would be to use, for at least some of it, and in the present case for a plurality of ribs, of an alternative material that is lighter that steel.

2.5 It is well-established practice in several technical areas to replace components made of steel with components made of suitable plastics material in order to reduce weight. As argued by the examining division, in the present case the skilled person would be led towards the use of plastics, especially by the disclosure of D9.

Said document discloses a screen frame which has a similar pattern of rectangular openings to the one disclosed in D8 and suggests explicitly the use of a very rigid plastics material (see page 5, line 33 to page 6, line 2 and page 7, lines 22, 23 indicating that the frame can have the same Shore Hardness as the

associated panel).

2.6 Accordingly, the skilled person seeking to provide a screen frame which is lighter than the one known from D8 would be led by his general technical knowledge, which in the field of screen frames for the mining industry is documented via D9, to use plastics material for at least a component thereof, in the present case for a plurality of ribs.

2.7 The appellants disagree with the above-mentioned definition of the problem to be solved and argue that the technical effect of the distinguishing features mentioned under point 2.1 above is not only the provision of "a lightweight frame" but also the provision of "an acceptable rigidity", and that the problem should therefore also explicitly take the latter aim into account.

2.8 The board does not see how taking "an acceptable rigidity" into account would change the situation, as a skilled person always aims for a frame which is rigid enough to be used in practice, and no other particular meaning can be found in the present application for "an acceptable rigidity".

2.9 The skilled person seeking to provide a functioning screen frame would always adapt the dimensions and the structural design of the frame to the material(s) of the frame’s different components, i.e. whether they are of steel or of plastics material, in order to insure that it has an acceptable rigidity.

2.10 On page 3, lines 4 to 7 of the present application, referred to by the appellants in this respect, there is only a reference to plastics ribs with "**greater**

density" providing "**increased rigidity without necessarily increasing the weight** of the screen frame" (emphasis added by the board). An "acceptable" rigidity has neither been mentioned, nor defined in the present application. The board cannot therefore see any basis in the present application for the appellant's assertion, that the problem to be solved should explicitly take into account the aim of providing a rigidity which is "acceptable" in the sense that it should be comparable to the rigidity of the frame of D8, which is made exclusively of steel.

2.11 D9 clearly teaches that a shaker used for separating solids from a liquid/solid mixture can use frames with plastic components without compromising their functionality, since these frames clearly have acceptable rigidity, see page 3, lines 22 to 24, page 5, line 33 to page 6, line 2, page 7, lines 21 to 24 and page 8, lines 5 to 8.

2.12 The skilled person would immediately recognise the advantages of this teaching and would have no practical difficulties in applying it to the shaker known from D8. In this way he would arrive at the subject-matter of claim 1 without the exercise of any inventive activity.

2.13 The appellants argue further that a skilled person, being afraid of excessively reducing rigidity, would not use plastic elements in the screen frame of D8, especially because D9 supports the view that when not using a rigid material such as steel, additional measures must provided in order to stiffen the screen frame.

2.14 The board disagrees. As stated in the decision under appeal, what the skilled person learns from D9 is that plastics material can be used in a frame for a shaker without compromising its functionality. On page 2, lines 19 to 20 of D9 it is stated for example that the screen frame may be without any reinforcing, and on page 1, lines 21 to 22 of D9 it is stated that there is a trade-off between screen surface area and screen frame rigidity. This means that when plastic materials are used for the ribs of the frame, the dimensions of the screen surface area are correspondingly adapted in order to achieve the screen frame rigidity desired. This is part of the normal activities of the person skilled in the art and does not require an exercise of inventive activity.

2.15 D9 refers in its specific embodiments exclusively to a frame made of plastics material, see page 5, line 1 to page 6, line 2; page 7, lines 21 to 24 and also page 8, lines 5 to 8, said last passage being referred to by the appellants. Since neither D8 nor D9 give any information concerning the dimensions of the screen frames disclosed therein, the rigidity of the screen frames disclosed in D8 and D9 cannot be compared, contrary to the arguments of the appellants.

2.16 The specific design measures to improve the rigidity of the screen frame of the particular embodiments disclosed in D9 are not of relevance for the assessment of inventive step.

2.17 Given that the shaker D8, representing the closest prior art, has a screen frame with a structural design falling within the scope of claim 1, the skilled person starting from the shaker known from D8 would consult D9 only in so far as it concerns the material to be used

for the ribs of the screen frame. The skilled person would see no reason to deviate from the structural design of the screen frame known from D8.

2.18 The appellants argue further that since D8 does not relate to the problem to be solved as mentioned under point 2.3 above, this document cannot be regarded as an obvious starting point for the discussion of inventive step.

2.19 The board notes in this respect that a document is to be considered as representing a suitable starting point to discuss inventive step if it provides the skilled person with a promising springboard to the invention, see the Case Law of the Boards of Appeal, 8th edition 2016, I.D.3.4.1. In the present case, the shaker known from D8 possesses all the technical features of claim 1 except the feature that a plurality of ribs of the screen frame is made of plastics material. This means that the shaker known from D8 discloses the majority of the technical features of claim 1 and can therefore be regarded as a promising springboard to the present invention. Accordingly, D8 can be considered as representing the closest prior art.

2.20 Furthermore, the board notes that the problem to be solved is defined by the effect(s) of the differentiating features of the subject-matter of claim 1 over the closest prior art, i.e. over the shaker known from D8. The fact that the problem to be solved, as thus defined, is not mentioned in D8 does not prevent the board from considering D8 to be a suitable starting point to discuss inventive step.

2.21 The appellants also argued that D8, teaching a screen frame made of steel (welded steel bars), teaches away

from a screen frame made (at least partly) of plastics material, as such a screen frame will not be as rigid as one made of welded steel bars.

2.22 The board notes in this respect that D8 is considered to be the closest prior art but not novelty-destroying. When discussing inventive step the skilled person starts from the closest prior art, in the present case from the steel screen frame of D8, and considers whether he would arrive at the differentiating features of claim 1 without the exercise of inventive skill. The fact that the closest prior art, D8, discloses a steel screen frame cannot be considered in the discussion of inventive step as teaching against ("away from") the use of any other material different from steel for the screen frame.

2.23 The appellants' argument that regarding the screen frames of D9 as a practical alternative to those of D8 would go against the explicit teaching of D9 cannot be accepted by the board, since its assessment of lack of inventive step was not based on the assumption that the screen frames of D9 are practical alternatives to those of D8, see points 2.4 to 2.6 above.

2.24 In view of the fact that the board, by starting from D8 as closest prior art, concluded that the subject-matter of claim 1 does not involve an inventive step, see point 2.12 above, an assessment of inventive step starting from D9 as closest prior art, as advocated by the appellants, becomes redundant.

2.25 For the above-mentioned reasons, the subject-matter of claim 1 of the main request does not involve an inventive step.

3. *Claim 1 according to the auxiliary request - inventive step*

3.1 Compared to claim 1 of the main request, claim 1 of the auxiliary request additionally defines that the outer perimeter of the frame and the rectangular openings are also made of plastics material.

3.2 Concerning the "plurality of plastics rectangular openings" claimed, the board follows the definition given in the impugned decision, and which has not been contested by the appellants, that this feature defines a plurality of rectangular openings completely surrounded by ribs formed from plastics material. Accordingly, claim 1 of the auxiliary request encompasses also a screen frame made completely of plastics material.

3.3 It has already been pointed out above in respect of claim 1 of the main request that the skilled person seeking to provide a lighter screen frame will replace as many steel parts of the frame of D8 as possible, especially in view of the disclosure of D9, see point 2.5 above. This encompasses the replacement of the additional steel parts now mentioned in claim 1 of the auxiliary request.

3.4 In their statement setting out the grounds of appeal and in their submission dated 11 July 2017, the appellants did not submit any argument specifically directed to those added features, explaining how the additional use of plastics material for the outer perimeter of the frame and the rectangular openings contributed to inventive step. The board too cannot recognise how said use of plastics material to save

weight could possibly give rise to an inventive step.

3.5 For the reasons mentioned above, the subject-matter of claim 1 of the auxiliary request also does not involve an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Kiehl V. Bevilacqua

Decision electronically authenticated