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**Datasheet for the decision
of 21 March 2024**

Case Number: T 2013/22 - 3.2.04

Application Number: 14168367.2

Publication Number: 2811154

IPC: F03B3/18, F03B3/02

Language of the proceedings: EN

Title of invention:

Method of refurbishing an energy conversion facility and
refurbished energy conversion facility

Patent Proprietor:

GE Renewable Technologies

Opponent:

Voith Patent GmbH

Headword:

Relevant legal provisions:

EPC Art. 54, 56

Keyword:

Novelty - (yes)
Inventive step - (yes)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

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Case Number: T 2013/22 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 21 March 2024

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
17 June 2022 concerning maintenance of the
European Patent No. 2811154 in amended form.**

Composition of the Board:

Chairman A. de Vries
Members: J. Wright
K. Kerber-Zubrzycka

Summary of Facts and Submissions

- I. The appeals were filed by the proprietor and the opponent against the interlocutory decision of the opposition division finding that, on the basis of the auxiliary request 1, the patent in suit met the requirements of the EPC.
- II. The opposition division decided that the subject-matter of claim 1 of the main request was not novel.
- III. In a communication, the Board gave its preliminary opinion on the contentious issues. Oral proceedings before the Board were held on 21 March 2024.
- IV. The appellant- patent proprietor) requests that the decision under appeal be set aside and that the patent be maintained as granted (main request), in the alternative that the patent be maintained according to one of auxiliary requests 1 (as maintained) or 2 to 5, all refiled with the statement setting out the grounds of appeal.

The appellant-opponent requests that the decision under appeal be set aside and that the patent be revoked.

- V. The independent claims of the main request read as follows:

"1. A method of refurbishing a facility (2) for converting hydraulic energy into electrical or mechanical energy and vice versa, this refurbished facility comprising:

- a Francis type pump-turbine (20), including a runner (202) movable about an axis (Z202),

- a pre-distributor (204), including stay vanes (2040) defining between each pair of two adjacent stay vanes a first water passage channel (C1),
- a distributor (206), including guide vanes (2060) arranged downstream of the stay vanes in the direction of water flow feeding the pump-turbine operating in turbine mode, the guide vanes (2060) defining between each pair of two adjacent guide vanes a second water passage channel (C2), this method being characterized in that it includes steps consisting in:
 - a) reducing the height (h204), taken parallel to the axis (Z202) of rotation of the runner (202), of the first water passage channels (C1),
 - b) reducing the height (h206), taken parallel to the axis of rotation of the runner, of the second water passage channels (C2), by changing the distributor (206), by equipping the pump-turbine with a distributor (206') the channels (C2) of which have a height (h206'), measured parallel to the axis of rotation (Z202) of the runner (202), identical to the height (h204') of the first channels (C1)".

"6. A refurbished facility (2) for converting hydraulic energy into electrical or mechanical energy and vice versa, comprising:

- a Francis type pump-turbine (20), including a runner (202) movable about an axis,
- a pre-distributor (204), including stay vanes (2040) defining between each pair of two adjacent stay vanes a first water passage channel (C1),
- a distributor (206') including guide vanes (2060') arranged downstream of the stay vanes in the direction of water flow feeding the pump-turbine operating in turbine mode, the guide vanes defining between each pair of two adjacent guide vanes a second water passage channel (C2)".

VI. In the present decision, reference is made to the following documents:

- D1: J.F. Gülich "Kreiselpumpen, Handbuch für Entwicklung, Anlagenplanung und Betrieb", 3rd edition, Springer, 2010, title page, page 246, Formelzeichen und Definitionen and page XXXIII.
- D2: US 2003/0182798 A1
- D3: JP 2008-57412 A
- D5: A. A. Frigo *et al* "Evaluation of Advanced Hydraulic Turbomachinery for Underground Pumped Hydroelectric Storage - Part 1", Argonne National Laboratory, National Technical Information Service, U. S. Department of Commerce, 1979 title page and pages I to X and 1 to 123.
- D7: JP-58-187584 A
- D7A English language translation of D7.

VII. The appellant-proprietor's arguments can be summarised as follows:

In claim 1 as granted, the step of changing the distributor exclusively means substituting it, contrary to the finding of the opposition division. D7 should not be admitted into the appeal proceedings. The subject matter of claims 1 and 6 is new over D7 and involves an inventive step over the prior art cited by the appellant-opponent.

VIII. The appellant-opponent's arguments can be summarised as follows:

In claim 1, changing the distributor can also mean just modifying it. The subject matter of granted claims 1 and 6 then lacks novelty over D7. The subject matter of granted claims 1 and 6 lacks inventive step starting

from D5 in the light of the skilled person's general knowledge exemplified by D1 considered with D2 or with D2 and D3. The same applies to granted claim 6, which additionally lacks inventive step starting from D2, in particular the embodiment shown in figure 7 combined with the embodiment of figure 14 and D3, alternatively, additionally considering the skilled person's general knowledge disclosed in D1.

Reasons for the Decision

1. The appeals are admissible.
2. Background

The invention relates to a method of refurbishing a facility for converting hydraulic energy into electrical or mechanical energy and vice versa, and such a refurbished facility.

In the field of such conversions, it is known to use a Francis pump-turbine which includes a runner that is movable about a vertical axis. This pump-turbine also includes a distributor, formed by a set of [adjustable] guide vanes arranged about the runner, and a pre-distributor, arranged between the volute and the distributor and formed by a set of [fixed] stay vanes (see published patent specification, paragraph [0001] and [0002] and claims 1 and 6). Known refurbishments involving modifications to the pre-distributor may weaken the pump-turbine's structure. The invention aims to overcome this drawback (see published patent specification, paragraphs [0004] to [0007]).

3. Interpretating certain features of the granted claims

3.1 Claim 1, characterising feature b, "changing the distributor".

In its impugned decision (see reasons, point 3.2), the opposition division considered that here, "changing the distributor", could mean *both* modifying and replacing, that is substituting, the distributor. In the Board's view, it can only mean substituting in the present context.

The skilled person reads the claims giving terms their usual meaning and contextually. Read in isolation, the gerund *changing* can mean both *modifying* [something] and *substituting* [one thing for another] (cf. Oxford English dictionary online (OED), senses 1.a and 2.a). However, read in its claim context, the Board holds that *changing* the distributor exclusively means substituting the distributor. In other words, changing in the sense of *modifying* is excluded when interpreting the feature. The reasons are as follows.

The refurbishment method of claim 1 includes the step b) of "*reducing the height [...] of the second water passage channels (C2)*", which are defined in the preamble to be between adjacent guide vanes of the distributor (cf. published patent specification figures 2 and 6). Feature b) also defines that the height reduction of the second channels is brought about "**by changing the distributor, by equipping the pump-turbine with a distributor** the channels of which have a height [...] identical to the height of the first channels (C1)" (*emphasis added*).

Thus the act of *changing* here is further limited by specifying that it is achieved *by equipping* the pump turbine with a distributor having channels of a certain height. Equipping is a cognate of the verb *to equip*: *To furnish for service [...]; to provide with what is requisite for efficient action, as arms, instruments, or apparatus of any kind* (see OED, entry 2a). Thus, rather than the distributor being changed by modifying, it is *changed* by furnishing or providing a distributor, which can but mean that the original distributor is replaced. Therefore, the skilled person contextually reads *changing the distributor* narrowly to read *substituting* an existing distributor with a new one (namely one with smaller second channels) as part of the claimed refurbishment. In the Board's view, this contextual reading of the feature is clear in itself and thus behoves no clarification from the description. That said, if the skilled person were to consult the description, they would find in paragraph [0046] that the detailed embodiment of the refurbishment method involves the step of substituting (replacing to use the term of that paragraph) *the distributor*, which thus confirms the above interpretation.

The fact that the word *changing* is used elsewhere in the patent in the sense of *modifying* plays no role in interpreting feature b), since those contexts are different: In paragraphs [0004], [0029], [0036] and [0044] the word *changing* is used clearly in the context of modifying guide vanes in the prior art and in paragraph [0045] it refers to the height of the pre-distributor.

From the foregoing, the Board concludes that the wording *changing the distributor* in claim 1, feature b)

is to be interpreted narrowly to exclusively mean *substituting the distributor*.

3.2 Claim 6, characterising feature "deflector"

The usual meaning of the verb deflect (see OED) is: *To bend or turn to one side or from a straight line; to change the direction of; to cause to deviate from its course*. Moreover, a deflector is an *instrument or contrivance for deflecting*. Thus, in its claim context the deflector is a means that causes the flow of water to be deviated from the path it would have taken had the deflector not been there. Therefore, the skilled person understands the term without needing any definition of the word from the description. Thus, it is not relevant that none is given there (it is merely used paragraphs [0043] and [0047]).

4. Main request, claims 1 and 6, novelty with respect to D7

4.1 Admissibility of D7

4.1.1 In its communication in preparation for oral proceedings (see section 6), the Board stated its reasons as to why the proprietor's challenge to the admittance of D7 into the opposition /appeal proceedings is moot. The Board wrote the following:

6. According to settled jurisprudence of the Boards of appeal (see Case Law of the Boards of Appeal, 10th edition, 2022 (CLBA) IV.C.4.5.2, and the cited decisions, for example T0640/91, headnote III and reasons, 6.3) a board of appeal should only overrule the way in which a department of first instance has exercised its discretion if it concludes that it has

done so according to the wrong principles, or without taking into account the right principles, or in an unreasonable way. Thus, whether or not the division could or should have decided prima facie relevance differently is not relevant.

6.1 In the present case, the prima facie relevance of D7 was discussed at the oral proceedings (see minutes, point 2), so the parties were heard on the issue, and the opposition division used this test when deciding to admit D7 into the proceedings, which is in line with the examination guidelines (see impugned decision, section II 2, cf. Guidelines for examination 2019, E-VI,2.2.2.1). Therefore, the opposition division appears to have exercised its discretion according to the right principles and in a reasonable way.

6.2 Moreover, in the present case, the Board is not aware of any legal basis for not admitting a document into subsequent appeal proceedings that the opposition division had admitted and on which it based its decision. The evidence cannot, therefore, now be retroactively excised from either the opposition proceedings or the appeal proceedings.

6.3 For these reasons, the proprietor's challenge to the admittance of D7 into the opposition/appeal proceedings is moot.

4.1.2 Neither in writing nor at the oral proceedings did the appellant-proprietor comment on this part of the communication. Nor does the Board see any reason to deviate from its stated reasoning or conclusion. The Board therefore decided that D7 was correctly admitted into the opposition proceedings and, by the same token, is part of the appeal proceedings.

4.2 In the following, text references are to D7's translation, D7a.

D7 relates to a Francis type pump-turbine facility, as is explicitly disclosed on page 5, 11th line and page 6 - brief description of the drawings. Moreover, the main features of a typical Francis type turbine are described on page 2 (overview) in conjunction with figure 1 for example. This Francis pump-turbine has a runner (impeller) 2, distributor with guide vanes 6, a pre-distributor with stay vanes 7 and a scroll casing.

D7 (see the overview, page 2, page 3, top and page 4 last half) also discloses a method of refurbishing such a facility: To reduce fluid friction and thus increase efficiency a lining member made of carbon or glass reinforced resin material is adhered to the whole of the flow path surface[s] contacting water.

4.3 Novelty of claim 1

Amongst other things, claim 1 requires the step of *changing the distributor*. In D7 there is no disclosure of substituting the distributor, nor has this been argued. Rather, the appellant-opponent has argued that, in D7, the step of lining the distributor with a lining member equates to the distributor *changing* in the sense of its being *modified*, as indeed was found by the opposition division in its impugned decision (see reasons, 3.2). Since the Board interprets claim 1's *changing* feature narrowly to mean *substituting* the distributor, the argument of the appellant-opponent is moot. The Board concludes that, contrary to the finding of the opposition division, D7 does not take away novelty of claim 1.

4.4 Novelty of claim 6

4.4.1 Amongst other things, claim 6 requires (as summarised by the Board), that:

- the facility is refurbished with the method of claim 1 and that
- the refurbished facility includes at least one deflector arranged on a lower and/or upper flange ring in each first channel [of the pre-distributor] whereby
- the deflector is arranged to match the height of the first channel [of the pre-distributor] with the height of the second channel of the distributor.

4.4.2 It is not disputed that adhering a lining member to the whole of the flow path surface includes adhering it to the walls of the distributor and the pre-distributor. The appellant-opponent has argued that in the pre-distributor with its first channels defined between the stay vanes, the lining member constitutes a deflector. Moreover, so the appellant-opponent argues, since before and after applying the lining member, the heights of the first and second channels are the same and the lining member in the pre-distributor (first channel), and in the distributor (second channel) will have the same thickness, the lining member in the pre-distributor, can be said to *match the height* of the two channels.

4.4.3 The Board disagrees. D7's friction reducing reinforced-resin lining member can but uniformly cover the existing walls along the water pathway and will be relatively thin, perhaps a few centimetres at most, compared to a diameter of the channels in the order of

a meter or more. Such a lining merely causes the water in the first channel to flow circumferentially parallel to the course it would have taken had the liner not been present. Therefore, although the underlying wall of the pre-distributor is curved (see D7, figure 4, reference 7), the lining itself does not cause any change in flow direction. At most it only causes an insignificantly small radial displacement of the flow away from the underlying walls of the pre-distributor whilst its course remains unchanged. Bearing in mind how the Board interprets the word *deflector* (instrument causing a change of flow direction), it follows that the lining of D7 is not a deflector as claimed.

4.4.4 Moreover, the Board considers that D7's lining in the pre-distributor is not arranged to *match the height* of the first channel with that of the second channel as the claimed deflector must do. In this regard, the Board notes that claim 6 defines that the claimed facility is refurbished with the method of claim 1. This means that the height of the second water channels of the [substitute] distributor of claim 6, is reduced compared with what it was initially and it is this height reduction which the deflector of claim 6 must match. In the Board's view, with their mind willing to understand, the skilled person would recognise this height reduction to be considerably more than the few centimetres D7's lining might have: Rather it must be a significant proportion of the overall height of the second channel. Otherwise, substituting the distributor for a smaller one would have no significant technical effect. This implies that the height of claim 6's deflector at the point where the distributor and pre-distributor meet must likewise be a significant proportion of the second channel height. This interpretation is also borne out by the description

(see for example published patent specification, paragraphs [0039] to [0040] with figure 6): the wedge-shaped deflector 214 is a large component screwed to the walls of the pre-distributor and of significant height where it meets the distributor.

Turning again to D7, as best seen in figure 4 (see the distributor with guide vanes 6 forming the second channel and the pre-distributor with stay vanes 7 forming the first channel), where the first and second channels meet, they are matched in height. At most, the thickness of the lining in the first channel merely matches the thickness of the lining in the second channel. Although D7 is silent as to what this thickness might be (perhaps a few centimetres), it can but be negligible compared to the height of the second channel, rather than being a comparatively significant proportion thereof as claim 6's deflector, being arranged to match the heights of first and second channels, must have. Therefore, also for this reason, the lining in D7 is not a deflector as claimed.

- 4.5 For all these reasons, D7 does not take away novelty of the independent claims of the main request.
- 5. Main request, claim 1, inventive step starting from D5 with the skilled person's common general knowledge and D2 and possibly D3
 - 5.1 D5 (see pages 19, 20 and 22 with figures 7 and 9) discloses a Francis type pump-turbine. As readily seen in the figures, the pump-turbine has a runner, a pre-distributor with stay vanes that separate flow into a number of first channels and a distributor provided with guide vanes [wicket gates] between which second channels are formed, so that it has the same features

as the machine defined in the preamble of claim 1. However, D5 is silent as to any method of refurbishing a facility. At most (see page 114, definitions of *service outage* and *spare equipment*), D5 does no more than hint that such facilities will need to be maintained and repaired, in other words refurbished, from time to time.

5.2 Therefore, the subject matter of claim 1 differs from D5 in that it defines a method of refurbishment involving features a and b of the characterising features (reducing the height of first channels and changing - in the sense of substituting - the distributor with one having second channels of a lower height).

5.3 The Board assesses inventive step using the problem solution approach. In accordance with established jurisprudence, the objective technical problem should normally start from the problem described in the patent (see CLBA I.D.4.2.2). In the patent (see published specification, paragraphs [0004] to [0007]) various aspects of refurbishment of a Francis pump-turbine are discussed, such as modifying the camber of the guide vanes, however these have not been claimed. Nor does the patent mention any increase in efficiency, which the appellant-opponent has asserted - without supporting evidence - would always be the goal of such a refurbishment. On the contrary, paragraphs [0004] to [0006] explain that various proposed refurbishment measures result in pressure losses which are adverse to the machine's performance (decrease its efficiency) and that these should be remedied by the proposed refurbishment. In other words the machine's efficiency should be just as good after the refurbishment as before. With this in mind, the argument of the

appellant-opponent that the objective technical problem should include the aim of renovating to *increase* efficiency is moot.

These paragraphs also emphasise that, whatever refurbishment measures are taken, it is important not to weaken the mechanical strength of the pump-turbine, whereby the pre-distributor and flange rings in particular are key mechanical components subjected to high levels of mechanical stress.

With these aspects in mind, and without including pointers to the solution or effects of elements which have not been claimed, the Board formulates the objective technical problem as: How to implement refurbishment of the Francis pump-turbine facility of D5 whilst maintaining its performance and without weakening the structure.

- 5.4 The appellant-opponent has argued that it would be obvious for the skilled person to substitute D5's distributor for one with [second] channels between its guide vanes of lower height from their general knowledge as exemplified by D1 and D2.

The Board does not find this convincing. D1 is a text-book and thus belongs to the skilled person's general knowledge. However, as the title of the book indicates, it relates to centrifugal pumps (Kreiselpumpe), rather than machines arranged to also operate as turbines, let alone to Francis pump-turbines. Moreover, as D1's subtitle explains, it is a manual for development, system planning and operation of such pumps, rather than for their refurbishment. For these reasons, the Board is not convinced that the skilled person would look to D1

for a solution to the objective technical problem, which concerns refurbishment of a Francis pump-turbine.

Even if the skilled person were to look to D1 for a solution to the objective technical problem (the Board holds that they would not), they would not find a solution pointing to replacement of a distributor for one with smaller channels. In this regard, the appellant-opponent has cited D1's table 5.1(1) - interpretation and adaptation of the characteristic curve shape, pointing in particular to the lower half (2) of the table, showing a Q-H (volume flow rate to pressure head) curve in the first column together with the statement that energy consumption is too high, possibly due to excessive recirculation at the runner impeller outlet (4th column). Amongst possible counter measures (5th column), a reduction in the impeller blade width b_2 at the impeller exit is proposed (cf. D1, Formula symbols and definitions page and table 0.2(1) of page XXXIII), which boils down to reducing the runner channel height. This, so the appellant-opponent argues, would lead to the skilled person replacing the runner in D5 for one of reduced height which in turn would prompt the skilled person to substitute D5's distributor for one with reduced height [second] channels as claimed.

The appellant-opponent's argument is predicated on the idea that the skilled person is trying to solve a problem of excessive energy consumption in D5's Francis pump-turbine, or one of excessive recirculation at D5's runner impeller outlet when operated as a pump. This, however, is not the case. Rather the problem relates to refurbishment whilst maintaining (not increasing) efficiency. D1 gives no information about solving this problem in pumps, let alone in Francis pump-turbines.

In the light of this, the skilled person would not apply D1's teaching to reduce the channel height of D5's runner.

From this it follows that the consequential argument that it would be obvious to substitute D5's distributor, is moot, even if the skilled person knows from D2 (see paragraph [0032]) that if the height of channels in the runner are the same as those for channels in the distributor then flow turbulence near the wall will be avoided.

From the above, the combination of D5 with the skilled person's general knowledge as disclosed in D1, together with the disclosure of D2, would not lead the skilled person to a method of refurbishing a Francis pump-turbine involving the step of changing [substituting] the distributor as claimed. Therefore, the further question as to whether it would be obvious for the skilled person to reduce the height of [first] water passage channels in the pre-distributor, for example by applying the teaching of D2, figure 14 and/or D3, figure 4 need not be answered here.

6. Main request, claim 6, inventive step starting from D5 or D2 with the skilled person's common general knowledge, as disclosed in D1 and D2 and/or D3

Claim 6 defines a refurbished facility that includes a Francis type pump-turbine. Amongst other things, the claim defines that it is refurbished according to the method of claim 1 and that the refurbished facility includes at least one deflector arranged on a lower and/or upper flange ring in each first channel, that is the channel defined between the stay-vanes of the pre-distributor.

6.1 Starting from D5

6.1.1 As has been explained in the discussion of claim 1, D5 (see for example figure 9) discloses a Francis type pump-turbine. The Board sees the objective technical problem here as being analogue to that developed in the discussion of claim 1. Here it can be expressed as: How to refurbish D5's Francis pump-turbine facility whilst maintaining its performance and without weakening the structure.

6.1.2 In D5, the height of [second] channels of the distributor between its guide vanes (wicket gate to use D5's term), is the same as the height of the [first] channels of the pre-distributor, between its stay vanes. Therefore, their heights already match. Adding a deflector would at most lead to a mismatching of these heights. Therefore, it would not be obvious for the skilled person to add a deflector to the flange ring of the pre-distributor (first channels) in order to match height of the first and second channels, as they are disclosed in D5.

6.1.3 In this regard, the appellant-opponent has argued, as it did for claim 1, that the skilled person would take from D1 (table 5.1(1) on page 246), the teaching that the skilled person should replace D5's distributor with one with channels of a smaller height in order to increase efficiency, which in turn would lead the skilled person to add a deflector to the pre-distributor [first] channels as claimed, in the way that is known for example from D2 or D3.

6.1.4 For the reasons already explained in its discussion of claim 1, the Board does not agree that, when faced with the objective technical problem (refurbishing whilst maintaining performance and without weakening the structure) the skilled person would be prompted by D1 to substitute D5's existing distributor with one having channels of reduced height. Therefore, the appellant-opponent's chain of argument is moot.

6.2 Starting from D2, embodiment of figure 7

6.2.1 D2 shows various ways of converting an existing pump (see paragraph [0025] and figure 1) into a reversible pump-turbine (see the abstract). One of these is explained, starting in paragraph [0027], as a series of steps to be carried out with reference to figures 2 to 7. The resulting pump turbine (see paragraph [0030] and figure 7) is of the Francis type. It has a substituted runner 21 (cf. figures 3 and 5), a pre-distributor including stay vanes 20, with first water passage channels defined between them, a distributor including guide vanes 14, between which second water passage channels are defined. Therefore, as with D5, this Francis pump-turbine has all the features of the preamble of claim 6 and is thus a suitable starting point from which to assess inventive step. The objective technical problem is analogous to the one developed when starting from D5: How to refurbish D2 figure 7's Francis pump-turbine facility whilst maintaining its performance and without weakening the structure.

- 6.2.2 Figure 7 shows that the first and second channels (at the stay vanes 20 and guide vanes 14 respectively) are of the same height. In other words their heights already match. Adding a deflector would only lead to a mismatch of these heights. Applying the same logic as when starting from D5, the skilled person would not modify D2's figure 7 arrangement by adding a deflector to the first channels. The same goes when considering the arrangement in the light of D1's teaching.
- 6.2.3 The appellant-opponent has also argued that the original runner 2 (cf. figure 3) which is of lower height than its replacement runner 21 can be used in figure 7, and that this would prompt the skilled person to lower the heights of the distributor and pre-distributor, the latter being carried out as a matter of obviousness by adding a deflector as for example is known from D2, figure 14 or D3, figure 4.

The argument is predicated on D2 teaching that, as an alternative to using the replacement runner 21 shown in full lines in figure 7, the original runner (shown in dotted lines) can be kept. In the Board's view, D2 does not disclose this alternative. Paragraph [0030], first sentence, categorically states that the pump-turbine shown in figure 7 is obtained by, amongst other things, replacing the pump runner 2 with the replacement runner 21 and adding guide vanes 14. The last sentence of this paragraph reads as follows: "*The vane outer diameter of the replacement runner 21 is set smaller than that of the existing runner 2 (or the replacement runner 21), which is indicated by dotted lines, to such an extent as allowing the guide vanes 14 to be disposed*".

Whilst at first glance, the word *or* in the statement in parentheses might suggest the runner 2 (cf. figure 3) and replacement runner 21 to be alternatives in this embodiment. However, this is not borne out by the last two lines of the sentence which explain that the replacement runner 21, with its smaller diameter, allows guide vanes 14 to be *disposed*, that is arranged [about its circumference]. Figure 7 confirms this: The dotted outline shows where the replaced runner 2 of larger diameter had been, and overlaps the guide vanes 14. These would thus clash, were the runner 2 still to have been mounted, rendering such a combination impossible. Therefore, D2 does not teach that the runner 2 of figure 3 can be used in the arrangement of figure 7 as an alternative to the runner 21.

Consequently, the argument of the appellant-opponent that the subject matter of claim 6 is obvious starting from the Frances pump turbine of figure 7, where its runner has not been replaced (dotted outline), is moot.

7. It follows that the subject matter of the independent claims 1 and 6 of the main request (as granted) is new and involves an inventive step in the light of the cited prior art. Therefore, the appellant-proprietor's main request (patent as granted) is allowable and the Board must set aside the impugned decision, Article 101(2) EPC.

Order

For these reasons it is decided that:

1. **The decision under appeal is set aside.**
2. **The patent is maintained as granted.**

The Registrar:

The Chairman:



G. Magouliotis

A. de Vries

Decision electronically authenticated