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Datasheet for the decision of 8 May 2013

Case Number: T 0513/09 - 3.5.02

Application Number: 03017761.2

Publication Number: 1372245

IPC: H02K 7/118, F16D 3/02, F04D 13/02, F16D 3/10, F04D 29/22, F04D 29/26

Language of the proceedings: EN

Title of invention:
Device for transmitting motion between the rotor of a synchronous permanent-magnet motor and the working part, said device having an increased free rotation angle

Applicant:
Askoll Holding S.r.l.

Headword:
-

Relevant legal provisions:
EPC Art. 56, 123(2)

Keyword:
"Inventive step - (yes) after amendment"
"Amendments - added subject-matter (no)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0513/09 - 3.5.02

D E C I S I O N
of the Technical Board of Appeal 3.5.02
of 8 May 2013

Appellant: (Applicant)
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Representative:
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Decision under appeal:
Decision of the Examining Division of the European Patent Office posted on 30 September 2008 refusing European patent application No. 03017761.2 pursuant to Article 97(2) EPC.

Composition of the Board:

Chairman: M. Rognoni
Members: G. Flyng
P. Mühlens

Summary of Facts and Submissions

I. The applicant's appeal concerns the examining division's decision to refuse European patent application 03 017 761.2 (hereinafter the "present" application). The present application, which was published as EP 1 372 245 A1, is a divisional application of European patent application 99 910 348.4 (hereinafter the "parent" application), the content of which was published under the PCT as WO 99/48189.

In the contested decision the examining division refused the application inter alia on the grounds that the amendments to claim 1 filed with the letter dated 8 August 2008 introduced fresh subject-matter, contrary to Article 123(2) EPC, and that the subject-matter of claim 1 was not new within the meaning of Article 54 EPC.

II. The following prior art document references are used in this decision:

D1: EP 0 723 329 A2
D2: GB 2 177 456 A
D3: US 2 099 359
D4: US 4 803 855
D5: EP 0 213 751
D6: US 1 627 964
D7: US 5 711 657
D8: US 4 661 085.

Documents D1, D2, D4, D5 and D8 were cited in the European search report for the present application. Documents D3 and D6 were cited during the opposition

procedure of the parent application. Document D7 was cited in the European search report for European patent application 07 006 832.5, which is a divisional application of the present application and its parent.

III. During the course of oral proceedings held before the Board on 13 March 2013 the appellant submitted an amended version of claim 1, with hand-written amendments, and requested to grant a patent on the basis of that claim 1 with dependent claims and description to be adapted. The chairman declared the debate closed as far as claim 1 was concerned. After deliberation, the Board found that the amended claim 1 met the requirements of the EPC. The dependent claims and the description needed to be adapted. For that purpose, the procedure was to be continued in writing.

IV. With a letter dated 19 March 2013 the appellant submitted a replacement set of claims 1 to 11 and replacement description pages 4, 5 and 14. Following a communication from the Board, the appellant submitted further replacement description pages 4, 4a, 5, 6 and 11 with a letter dated 18 April 2013 and requested that a Communication under Rule 71(3) EPC be issued.

V. Independent claim 1 as filed with the letter dated 19 March 2013 is reproduced below. With one exception, it corresponds to the version of claim 1 that was submitted during the oral proceedings on 13 March 2013. The exception concerns the word "part", which was deleted in the hand-written amendments made in the oral proceedings but which erroneously remains in the version filed with the letter dated 19 March 2013. The Board has struck this word through in the following:

"1. A centrifugal pump comprising an impeller (32, 232, 432) driven by a synchronous permanent-magnet motor (10) and a device for transmitting motion between a shaft (19, 219) of said synchronous permanent-magnet motor (10) and said impeller (32, 232, 432) of said centrifugal pump, said device comprising:

- at least two motion transmission couplings which mutually cooperate in kinematic series, so that the angle of freedom between the rotor and the impeller ~~part~~ is increased;
- a first coupling of said motion transmission couplings comprising at least one driving element (37, 237, 437) which is eccentric with respect to the rotation axis, and at least one driven element (39, 239, 439) which is also eccentric with respect to the rotation axis and can rotate freely with respect to said shaft (19, 219);
- a second coupling of said motion transmission couplings comprising at least one driving element (39, 239, 439) which is also eccentric with respect to the rotation axis and at least one driven element (41, 241, 441) which is also eccentric with respect to the rotation axis and protrudes radially from the internal wall of a hollow body (34, 234, 434) of said impeller (32, 232, 432);
- said at least one driving element of the second coupling being said at least one driven element of the first coupling; wherein
- said at least one driving element (37, 237, 437) of said first coupling is rigidly coupled to the end of said shaft (19, 219);
- said at least one driven element (39, 239, 439) of said first coupling extends axially from an

intermediate annular element (40, 240, 440) which can rotate freely in said hollow body (34, 234, 434) of said impeller (32, 232, 432);
- the angle covered by the elements of each coupling are, as a whole, less than a round angle;
- the radial or axial extension of said driving element (37, 237, 437) of said first coupling is such that said driving element (37, 237, 437) of said first coupling, during its rotation, does not interfere with said driven element (441, 241, 441) of said second coupling."

Claims 2 to 11 as filed with the letter dated 19 March 2013 are all dependent on claim 1.

VI. The appellant argues in essence that claim 1 filed with the letter dated 19 March 2013 does not add subject-matter contrary to Article 123(2) EPC and is novel and inventive over the cited prior art.

Reasons for the Decision

1. The appeal is admissible.

2. **Amendments, Articles 76(1) and 123(2) EPC**

2.1 In the version of claim 1 considered in the contested decision (i.e. that filed with the letter dated 8 August 2008), the amendment that gave rise to the examining division's refusal under Article 123(2) EPC concerned the addition of the feature "said at least one driven element (41, 241, 441) protruding to the vicinity of the external profile of said at least one

driving element (37, 237, 437)". In the current version of claim 1 this feature has been removed, thus overcoming the examining division's objection.

2.2 The Board sees no cause to raise objection to the further amendments that have been made to claim 1 for the following reasons.

All of the embodiments of the present application and of the parent application relate to a centrifugal pump comprising an impeller driven by a permanent-magnet motor.

In each of the embodiments of the present application, as well as in the corresponding embodiments of the parent application, it is evident that the driving element(s) of the second coupling are one and the same as the driven element(s) of the first coupling (see teeth 39, 239 and 439).

The feature that the driven element (39, 239, 439) of the first coupling extends axially from an intermediate annular element (40, 240, 440) which can rotate freely in the hollow body (34, 234, 434) of the impeller (32, 232, 432) is directly and unambiguously derivable from paragraphs [0046], [0049], [0067] and [0067] of the present application and from the corresponding sections of the parent application.

The feature that the driven element of the second coupling protrudes radially from the internal wall of the hollow body is directly and unambiguously derivable from the first and second embodiments of the present application (see paragraphs [0053] and [0070] and

figures 4 and 8, driven elements 41 and 241) as well as from the corresponding sections of the parent application. The arrangement of figures 9 to 11 is not in conformity with this feature of claim 1 because the driven element 441 does not protrude radially from the internal wall of the hollow body, but rather protrudes axially from the cover 435, see paragraph [0084] and figure 10. The amendments on pages 6 and 11 acknowledge this fact.

3. **Novelty and inventive step**

3.1 None of the available prior art documents discloses all of the features of claim 1, which is therefore novel in the sense of Article 54 EPC.

3.2 Considering inventive step, either document D1 or document D2 could be considered as the closest prior art. Document D1 concerns a pump in which the impeller 16 is rigidly attached to a shaft 27. The rotor 29 of an electric motor is arranged to rotate on the shaft and a coupling 28, 31, 33 is provided between the rotor and the shaft, which allows the rotor to rotate without load through a given rotation angle before the shaft and impeller are engaged and rotated. Document D2 concerns a pump in which the impeller 9 has a projection 19 that is able to rotate within a seat 20 in the rotor 7 of an electric motor. A coupling 10, 18 is provided between the rotor and the impeller, which allows the rotor to rotate without load through a given rotation angle before the shaft and impeller are engaged and rotated.

Documents D3, D4, D5, D6 and D8 disclose arrangements with at least two motion transmission couplings that mutually cooperate in kinematic series.

Document D7 discloses a centrifugal pump with curved impeller blades that prop open flexibly if the motor starts in the wrong direction.

None of the available prior art documents discloses a coupling arrangement in which a driven element protrudes radially from the internal wall of a hollow body of an impeller, as set out in present claim 1. Also the available prior art does not disclose a coupling arrangement in which the driven element of a first coupling (which is also the driving element of a second coupling) extends axially from an intermediate annular element which rotates freely in such a hollow body of an impeller. Hence, the Board finds that the subject-matter of present claim 1 is not rendered obvious by the cited prior art and so meets the requirements for inventive step, Article 56 EPC.

The remaining claims also meet the requirements for inventive step at least through their dependency on claim 1.

4. In view of the above the board accedes to the appellant's request for grant.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to grant a patent in the following version:

Description:

- Pages 1 to 3 and 7, 8, 9, 10, 12 and 13 as originally filed
- Pages 4, 4a, 5, 6 and 11 filed with the letter dated 18 April 2013;
- Page 14 filed with the letter dated 19 March 2013;

Claims:

- 1 to 11 filed with the letter dated 19 March 2013, with the word "part" in the last line of the second paragraph of claim 1 deleted;

Drawings:

- Sheets 1/4 to 4/4 as originally filed.

The Registrar: The Chairman:

U. Bultmann M. Rognoni