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Datasheet for the decision of 13 September 2018

Case Number: T 1310/15 - 3.2.08

Application Number: 08763830.0

Publication Number: 2280803

IPC: B23Q3/154, B25B11/00

Language of the proceedings: EN

Title of invention:
MONOLITHIC MAGNETIC APPARATUS AND PROCESS FOR MAKING SAID MONOLITHIC MAGNETIC APPARATUS

Patent Proprietor:
Tecnomagnete S.p.A.

Opponents:
Sarda, Uttam
Schunk GmbH & Co. KG Spann- und Greiftechnik

Headword:

Relevant legal provisions:
EPC Art. 54, 56, 100(b)
RPBA Art. 12, 13

Keyword:
Novelty - (yes)
Inventive step - (yes)
Grounds for opposition - insufficiency of disclosure (yes)
Amendments to a party's case on the day of the oral proceedings - admitted (no)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 1310/15 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 13 September 2018

Appellant: (Opponent 2)	Schunk GmbH & Co. KG Spann- und Greiftechnik 74345 Lauffen am Neckar (DE)
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Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 27 April 2015 rejecting the opposition filed against European patent No. 2280803 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairwoman	P. Acton
Members:	M. Foulger
	Y. Podbielski

Summary of Facts and Submissions

I. With the decision posted on 27 April 2015 the opposition division rejected the opposition against European patent No. 2 280 803. The opposition division found that the grounds of opposition under Articles 100(a) and (b) EPC did not prejudice the maintenance of the patent as granted.

II. The appellant (opponent) filed an appeal against this decision and requested that the decision under appeal be set aside and the patent be revoked.

III. Oral proceedings were held before the Board on 13 September 2018.

IV. The respondent (patent proprietor) requested that the appeal be dismissed, or in the alternative that the patent be maintained in amended form according to the first auxiliary request filed during the oral proceedings or the auxiliary request filed with letter dated 20 July 2018.

V. a) Main request

Claim 1 of the patent as granted reads:
"A magnetic apparatus for magnetic clamping of ferrous elements (P1), comprising:
(a) - a support structure (11) formed of ferromagnetic material having a predetermined width (L), length (I) and thickness (S),;
(b) - first and second sides (12, 13) being formed in said support structure (11) at the larger opposite surfaces;
(c) - at least one pole piece (30A) comprising **(c1)** a ferromagnetic element (60), **(c2)** at least one first

pole piece collector (50), **(c3)** a first magnetic core (40) being interposed between the bottom (50B) of said first pole piece collector (50) and said ferromagnetic element (60), and **(c4)** an electric coil (30) for changing the magnetization state of the first magnetic core (40), said at least one first pole piece collector (50) being adapted to convey at least one first magnetic flux (F1) generated by said magnetic apparatus to said first side (12); **(d)** said at least one first pole piece collector (50) is formed of one piece with said support structure (11) to create a monolithic magnetic apparatus (10A) **characterized in that (e)** said at least one pole piece (30A) is held within the thickness (S) of said support structure (11)."

(Feature references in bold added by the Board)

Claim 16 reads:
"A process for making a magnetic apparatus according to claim 1, said process comprising the steps of:
- providing a plate of ferromagnetic material having a predetermined width (L), length (1) and thickness, said plate defining first and second sides (12, 13) at the opposed larger surfaces;
characterized in that it includes the additional steps of:
- removing from said plate (11) of ferromagnetic material (11) such an amount of said ferromagnetic material, from the surface of said second side (13) as to create at least one recess (R), wherein said recess (R) is formed of a first portion of predetermined depth (S') and diameter (D1), said first portion of said recess (R) forming a bottom (50B) of a first pole piece collector (50),
- removing from said plate of ferromagnetic material an additional amount of said ferromagnetic material to

form a second portion of said recess (R), said second portion of said recess (R) forming the lateral surface (50C) of said first pole piece collector (50),
- so that said first pole piece (50) is formed of one piece with said support structure (11)."

b) Auxiliary request filed during oral proceedings

The final feature of claim 16 has been changed as follows (addition underlined):
"- so that said first pole piece collector (50) is formed of one piece with said support structure (11)."

VI. The appellant argued essentially the following:

Main Request

a) Article 100(a) EPC

i) Novelty

The subject-matter of claim 1 was not new with respect to either D1 or D3.

D1 disclosed a magnetic apparatus for magnetic clamping of ferrous elements, comprising:
(a) - a support structure (1 and 2) formed of ferromagnetic material having a predetermined width , length and thickness (see Fig. 1),;
(b) - first and second sides being formed in said support structure at the larger opposite surfaces (see Fig. 1);
(c) - at least one pole piece comprising (c1) a ferromagnetic element (base plate 2), (c2) at least one first pole piece collector (4), (c3) a first magnetic core (6) being interposed between the bottom of said

first pole piece collector and said ferromagnetic element, and (c4) an electric coil (3) for changing the magnetization state of the first magnetic core (p.7, final paragraph), said at least one first pole piece collector being adapted to convey at least one first magnetic flux generated by said magnetic apparatus to said first side (due to the slots).

Moreover, the pole piece was clearly held within the thickness of said support structure (1,2) (feature (e) of the claim). This formed an apparatus which had a monolithic working surface and was thus, in effect, a monolithic magnetic apparatus.

Thus all features of claim 1 were known from D1.

D3 disclosed a magnetic apparatus for clamping of ferrous elements. The base of the support structure 22 was regarded as the pole piece collector and this formed a monolithic structure as required by features (a),(b) and (d) of the claim. Moreover, D3 disclosed a pole piece comprising a ferromagnetic element (inner pole 24), a first magnetic core (26) being interposed between the bottom of said first pole piece collector and said ferromagnetic element, and an electric coil (28) for changing the magnetization state of the first magnetic core, wherein the first pole piece collector was formed of one piece with said support structure (22) to create a monolithic magnetic apparatus wherein the at least one pole piece is held within the thickness of said support structure. Thus features (c), (c1),(c2),(c3),(c4) and (e) were also known from D3.

Consequently, the subject-matter of claim 1 was not new with respect to either D1 or D3.

ii) Inventive step

Starting from D3, in contrast to the novelty argument above, the inner pole 24 was considered to be the pole piece collector. The subject-matter of claim 1 differed from the magnetic apparatus of D3 in that the first pole piece collector was formed of one piece with the support structure to create a monolithic magnetic apparatus.

The problem to be solved was to prevent working fluid entering into the magnetic apparatus.

This problem was addressed by D1 which proposed as a solution a monolithic working surface, see D1, p. 3, final paragraph. This would incite the skilled person to make the pole piece collector as one piece with the support structure.

Although it was correct that access had to be provided in order to install the magnetic coil, D3, Fig. 7, suggested a solution to this by bolting the ferromagnetic element to the underside of the support structure.

Thus, the skilled person would have combined the teachings of D3 with those of D1 and thereby arrived at the subject-matter of claim 1 without the exercise of inventive skill.

The subject-matter of claim 1 was also obvious starting from D1 as closest prior art. The appellant submitted that the inventive step attack based on D1 (submitted with letter dated 31 July 2018) was based on a document already in the proceedings and should thus be admitted. Considering the conclusion regarding novelty on the day

of the oral proceedings, the appellant wished to present a new inventive step attack based on the Board's opinion as to the differentiating feature. This line of argumentation was a reaction to the course of the oral proceedings and should thus be admitted.

As regards obviousness, the appellant submitted with its letter dated 31 July 2018 that the characterising feature (e) of the claim was obvious. Seeking to solve the problem of vibration damping, the skilled person would make the upper plate 1 of D1 thicker. This would result in an arrangement wherein the pole piece was held within the thickness of the support structure as claimed.

b) Article 100(b) EPC

It was not possible to carry out the invention because claim 16 required that the pole piece was formed of one piece with the support structure. As the pole piece was itself made up of several elements this was not possible and thus the requirements of Article 83 EPC were not met.

Auxiliary Request filed during oral proceedings

a) Admissibility

This request was late filed and should therefore not be admitted into the proceedings.

b) Article 123(2) EPC

The reformulated feature in claim 16 was not disclosed as a method step and therefore this modification

infringed Article 123(2) EPC.

VII. The respondent argued essentially the following:

Main request

a) Article 100(a) EPC

i) Novelty

D1 did not disclose a monolithic magnetic apparatus. Either the support structure was to be regarded as the upper plate 1 or the support structure was to be regarded as both the upper plate 1 and the base plate 2. In the first case, the pole piece was not held within the thickness of said support structure (feature (e) of the claim). In the second case, the apparatus was not monolithic as required by feature (d) of the claim.

D3 did not disclose that the first pole piece collector was formed of one piece with said support structure to create a monolithic magnetic apparatus. The base of the outer pole 22 could not be regarded as the pole piece collector because it was not adapted to convey the magnetic flux generated by the magnetic apparatus to the first side. The drawings of D3 clearly showed that the flux remained within the pole 22 and did not extend to the first side. Moreover pole 22 was in no way "adapted" to convey the flux to the side.

The subject-matter of claim 1 was therefore new.

ii) Inventive step

D3 could be regarded as closest prior art with the

upper surface as drawn in Fig. 1 being regarded as the first side in the language of the claim. Moreover, D1 may well teach a monolithic working surface. However, if this teaching was followed and the pole piece collector 24 was formed of one piece with the support structure 22 then it would not be possible to mount the electric core and the magnetic core in the apparatus. The skilled person would therefore be dissuaded from making this modification. Although Fig. 7 of D3 showed a possible solution to the mounting problem using a separate base plate 205, this required a multiple stage design process which in itself indicated an inventive step.

The inventive step attacks based on D1 as closest prior art were not included in the statement setting out the grounds of appeal which should have included the appellant's complete case (Article 12(2) RPBA). These new attacks were therefore late filed and should not be admitted into the proceedings. The inventive step attack that the appellant wished to present during the oral proceedings was particularly late and would require adjournment of the oral proceedings because there had been no possibility of preparing for such a new attack.

Regarding the inventive step attack presented with the appellant's letter of 31 July 2018, this would not succeed - the skilled person would not be led to the subject-matter of claim 1 because the resulting magnetic apparatus would not be monolithic.

b) Article 100(b) EPC

The skilled person reading claim 16 would immediately recognise that the last feature should read "pole piece

collector". This was indicated by the reference sign 50 which was associated with the pole piece collector. Also the wording of this feature using "said" indicated that reference was made to an object already mentioned in the claim.

Auxiliary request:

a) Admissibility

The amendment to claim 16 was simple in nature and merely introduced what was already implicitly present. The request should therefore be admitted into the proceedings.

b) Article 123(2) EPC

The modification to claim 16 was derivable from claim 1. The phrasing of the last feature of the claim with "such that.." implied that this last feature related to the result to be achieved by the method rather than an actual method step.

The auxiliary request was therefore allowable.

Reasons for the Decision

1. Main request

1.1 Article 100(a) EPC - Novelty

1.1.1 With respect to D1

D1 discloses the following features of claim 1:

A magnetic apparatus for magnetic clamping of ferrous elements, comprising:
(a) - a support structure (1 and 2) formed of ferromagnetic material having a predetermined width , length and thickness (see Fig. 1),;
(b) - first and second sides being formed in said support structure at the larger opposite surfaces (see Fig. 1);
(c) - at least one pole piece comprising
(c1) a ferromagnetic element (base plate 2),
(c2) at least one first pole piece collector (4),
(c3) a first magnetic core (6) being interposed between the bottom of said first pole piece collector and said ferromagnetic element, and
(c4) an electric coil (3) for changing the magnetization state of the first magnetic core (p.7, final paragraph), said at least one first pole piece collector being adapted to convey at least one first magnetic flux generated by said magnetic apparatus to said first side (due to the slots).

The Board considers that D1 discloses the first part of feature (d), whereby "said at least one first pole piece collector (50) is formed of one piece with said support structure", because the first pole piece

collector forms a monolithic working surface with the upper plate, see p. 8, 5th para. Moreover, feature (e) is also known from D1 because if, following the appellant's line of reasoning, the support structure is made up of 1 and 2 then the pole piece is indeed within the thickness of the support structure.

The Board however considers that the feature whereby the at least one first pole piece collector is formed of one piece with said support structure (defined above as parts 1 and 2) to create a monolithic magnetic apparatus is not known from D1. The apparatus of D1 is made of a two-part support structure. "Monolithic" does not require the apparatus to be made from a single piece as monolithic may also be defined as "[r]esembling a monolith; massive, immovable; homogeneous, characterless (esp. applied to a building)" (see http://www.oed.com/view/Entry/121457?redirectedFrom=monolithic#eid). However, the apparatus needs to at least look like a single piece for it to be monolithic. As the apparatus of D1 is not only made of two pieces but also looks like it is made from two pieces; it cannot be regarded as being monolithic.

The subject-matter of claim 1 is therefore new with respect to D1.

1.1.2 With respect to D3

As put forward by the appellant, D3 discloses the following features of claim 1:

A magnetic apparatus for magnetic clamping of ferrous elements, comprising:
(a) - a support structure (22) formed of ferromagnetic material having a predetermined width, length and

thickness;
(b) - first and second sides (flat surfaces at the ends) being formed in said support structure at the larger opposite surfaces;
(c) - at least one pole piece comprising
(c1) a ferromagnetic element (inner pole 24),
(c2) at least one first pole piece collector (the lower (as drawn) flat surface of 22),
(c3) a first magnetic core (26) being interposed between the bottom of said first pole piece collector and said ferromagnetic element, and
(c4) an electric coil (28) for changing the magnetization state of the first magnetic core,
(d) said at least one first pole piece collector is formed of one piece with said support structure (22) to create a monolithic magnetic apparatus (it does form a single unit - the term monolithic as used in the patent does not exclude having several components)
wherein (e) said at least one pole piece is held within the thickness of said support structure (22).

The pole piece collector is however not adapted to convey at least one first magnetic flux generated by said magnetic apparatus to the first side. This can be seen in Figs. 1, 2, 8 and 9 of D3 where the magnetic flux is shown as remaining within the support structure. Moreover, there is no aspect of the pole piece which makes it "adapted to convey" the magnetic flux to the first side. The argument that the end plate has a reduced thickness which is not thick enough to keep the entire flux within, and that therefore it is suitable to convey at least the first magnetic flux to the first side (second part of feature c4), is not persuasive. This is because the thickness of the shell 22 appears to be constant over the whole support structure which would rather lead to a uniform flux

distribution without flux escaping to the first side.

Thus the subject-matter of claim 1 is new with respect to D3.

1.2 Article 100(a) EPC - Inventive step

1.2.1 With respect to D3 as closest prior art

Note that in the following, in accordance with the parties' arguments, the first side is considered to be the upper (as drawn) surface in the figures, contrary to the analysis above for novelty.

D3 discloses:

A magnetic apparatus for magnetic clamping of ferrous elements, comprising:
(a) - a support structure (22) formed of ferromagnetic material having a predetermined width, length and thickness;
(b) - first and second sides (flat surfaces at the ends) being formed in said support structure at the larger opposite surfaces;
(c) - at least one pole piece comprising
(c1) a ferromagnetic element (the lower flat surface of 22),
(c2) at least one first pole piece collector (inner pole 24),
(c3) a first magnetic core (26) being interposed between the bottom of said first pole piece collector and said ferromagnetic element, and
(c4) an electric coil (28) for changing the magnetization state of the first magnetic core, said at least one first pole piece collector being adapted to convey at least one first magnetic flux generated by

said magnetic apparatus to said first side;
wherein (e) said at least one pole piece is held within the thickness of said support structure (22).

D3 does not disclose feature (d) whereby the at least one first pole piece collector is formed of one piece with said support structure to create a monolithic magnetic apparatus.

The problem to be solved is to avoid infiltration of working fluids - see patent [0035].

This problem is addressed in D1, p. 3, final para. and proposes the solution of having a monolithic upper surface. It is correct that it would have been obvious for the skilled person to investigate this solution in order to solve this problem. However, the skilled person would then realise that it was not possible to mount the pole piece components in the apparatus.

The argument that the skilled person would then turn to the embodiment of Fig. 7 of D3 for a solution to this further problem is not persuasive. The fact that the combination of the teaching of D3, Figs 8 and 9 with the teaching of D1 is incompatible would dissuade the skilled person from making this combination. It would be for example simpler merely to take the apparatus of D1 without further modification.

The subject-matter of claim 1 therefore involves an inventive step with respect to D3.

1.2.2 With respect to D1 as closest prior art

a) Admission of changes to the appellant's case

In the statement setting out the grounds of appeal, which is to contain a party's complete case on appeal (Article 12(2) RPBA) the appellant had not presented any inventive step objection using D1 as the closest prior art, but had instead limited its inventive step attacks to start from document D3 as closest prior art. An inventive step attack starting from D1 was presented for the first time with the appellant's letter dated 31 July 2018 and, thereafter, on the day of the oral proceedings. The appellant thus amended its case and the admission of this new line of attack is at the Board's discretion under Articles 13(1) and 13(3) RPBA.

The inventive step attack filed with letter dated 31 July 2018 was presented more than 1 month prior to the date of the oral proceedings and the complexity was not such that no reply to it could have been prepared prior to the oral proceedings. The Board thus decided to admit this amendment to the appellant's case.

With regard to the new inventive step attack on the date of the oral proceedings, however, the Board decided not to admit this amendment to the party's case. Neither the Board nor the respondent had any possibility to prepare for it and could not be expected to deal with it at the oral proceedings.
The Board does not find the appellant's argument convincing that he merely reacted to the events during the oral proceedings. In its communication dated 25 May 2018 the Board had summarised that the discussion during the oral proceedings concerning novelty over D1 would concern whether D1 disclosed features (d) and (e) of claim 1. That the Board concluded during the oral proceedings that D1 did not disclose feature (d) in its entirety was thus not

surprising.

b) Inventive step attack as submitted with letter of 31 August 2018

The appellant argues that the preamble of claim 1 is known from D1. In order to improve vibration dampening it would have been obvious for the skilled person to increase the thickness of the upper plate 1 of D1. This would result in the pole piece being held within the thickness of the support structure as required by the claim.

The Board does not find this persuasive because the apparatus would still not be monolithic as required by the claim (feature d). The skilled person would not arrive at the subject-matter of claim 1 without an inventive step being required.

1.3 Article 100(b) EPC

The final feature of claim 16 reads "said first pole piece (50) is formed of one piece with said support structure (11)". The pole piece is however made up of several elements, i.e. a ferromagnetic element, at least one first pole piece collector, a first magnetic core, and an electric coil (see for example claim 1).

Thus, it is not possible to make the first pole piece.

The argument that with the use of the reference signs the skilled person would recognise that the "pole piece collector" was meant is not persuasive because the reference signs are not limiting (Rule 43(7) EPC).

Thus, the skilled person could not carry out the

invention as defined in claim 16.

2. Auxiliary request 1

Independent claim 1 is unchanged from the main request and therefore the conclusions set above as regards novelty and inventive step also apply to this request.

2.1 Admissibility

This request was filed during the oral proceedings. It is thus late-filed and a change to the respondent's case which may be admitted at the Board's discretion (Article 13(1) RPBA). The amendment is simple in nature and did not require any adjournment of the oral proceedings, the Board therefore admitted it into the proceedings.

2.2 Article 123(2) EPC

Claim 16 is based on claim 16 as originally filed with the word "collector" added. Thus, the final feature of the claim now reads "so that said first pole piece collector (50) is formed of one piece with said support structure".

Claim 16 relates to a "process for making a magnetic apparatus according to claim 1". It thus encompasses all features of claim 1. Feature (d) of claim 1 specifies that "said at least first pole piece collector (50) is formed of one piece with said support structure". Moreover, through the conjunction "so that" it is apparent that having the first pole piece collector formed of one piece with the support structure is the result of the previously recited method steps rather than an additional method step.

Hence, the requirements of Article 123(2) EPC are met.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent as amended in the following version:

   - Claims 1-20 as filed during the oral proceedings on 13 September 2018;
   - Description: columns 1-14 of the patent specification;
   - Figures 1-4 of the patent specification.

The Registrar: The Chairwoman:

C. Moser P. Acton

Decision electronically authenticated