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D E C I S I O N
of 16 January 2003

Case Number: T 0438/01 - 3.2.1

Application Number: 93302558.7

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IPC: B21J 15/32

Language of the proceedings: EN

Title of invention:
Fastener delivery tube

Patentee:
ARIEL INDUSTRIES PLC

Opponent:
Tucker GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56, 123(2)

Keyword:
"Addition of subject-matter (no)"
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
T 0016/87

Catchword:
-



Case Number: T 0438/01 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 16 January 2003

Appellant: ARIEL INDUSTRIES PLC
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Respondent: Tucker GmbH
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 19 February 2001
revoking European patent No. 0 567 240 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: F. Pröls
Members: S. Crane
H. Preglau

Summary of facts and submissions

- I. European patent No. 0 567 240 was granted on 10 September 1997 on the basis of European patent application No. 93 302 558 7, filed on 31 March 1993.
- II. The granted patent was opposed by the present respondents on the grounds that its subject-matter lacked novelty and inventive step (Article 100(a) EPC). The published state of the art relied upon included the following documents:

(D8) US-A-4 099 324

(D10) US-A-4 201 325

- III. The opposition Division revoked the patent with its decision posted on 19 February 2001, the subject-matter of claim 1 under consideration being held to lack novelty with respect to document D8.

A notice of appeal against that decision was filed on 12 April 2001 and the fee for appeal paid at the same time. The statement of grounds of appeal was received on 13 June 2001.

- IV. Oral proceedings before the Board were held on 16 January 2003.

The appellants (proprietors of the patent) requested that the decision under appeal be set aside and the patent maintained in amended form on the basis of claims 1 to 3 and revised description submitted at the oral proceedings together with Figures 1 to 5 of the drawings as granted (main request) or in the alternative on the basis of the respective sets of

claims according to the auxiliary requests 1 to 8 filed on 16 December 2002.

Claim 1 according to the main request reads as follows:

"A delivery tube (21) for a fastener application machine (20) for delivering fasteners (25) in succession to a fastener station at which the fasteners are applied to a workpiece, the fasteners each having an elongate shank (24) and a relatively enlarged head (27) having a predetermined cross-sectional dimension, and the application machine having a fastener application plunger (28); the delivery tube (21) comprising:

a tubular member provided with an internal longitudinal passage with an internal cross-sectional dimension greater than the predetermined cross-sectional dimension of the enlarged head (27) of the fastener (25) when the shank (24) is substantially aligned with the longitudinal direction of said passage and

displaceable guide means along and within the internal surface of the tubular member, for rendering the cross-sectional dimension smaller than said predetermined cross-sectional dimension of said enlarged head, the guide means being axially continuous and being longitudinally arranged along the length of the tubular member,

characterised in that

the guide means comprises a lining (22) of the passage, the lining being made of resiliently deformable material, which lining forms a local passage

constriction resulting from an interference fit with the enlarged head (27) of the fastener, which local passage constriction is longitudinally movable along the delivery tube as the fastener is propelled along the tube by the plunger (28), such that the guide means restrains the fastener head from free-fall throughout its passage through the delivery tube until the fastener reaches the point of application regardless of the orientation of the delivery tube and preserves a desired fastener orientation while enabling the fastener (25) to advance and be guided along the delivery tube (21) towards the workpiece."

Dependant claims 2 and 3 relate to preferred embodiments of the delivery tube according to claim 1.

The respondents requested dismissal of the appeal.

- V. In support of their main request the appellants argued substantially as follows:

The claims has now been limited to the type of delivery tube disclosed in Figures 1 to 5 of the patent specification which provided a very simple and convenient solution of the prevention of tumbling of the fasteners as they moved along the tube. The use of a lining of resiliently deformable material within the tube which was locally engaged by the head of a fastener to prevent its free-fall could in no way be compared with the split collets used for holding fasteners as disclosed in documents D8 and D10.

- VI. The arguments of the respondents in reply can be summarised as follows:

Claim 1 according to the main request contained added subject-matter over the original disclosure and had been extended in scope with regard to granted claim 1. It thus offended against Articles 123(2) and (3) EPC. More particularly, it was now stated in the claim that the guide means was within the tubular member, whereas in granted claim 1 it was required to be within the delivery tube. Furthermore, the original application did not in any case include any reference to such a tubular member. As for the newly introduced requirement that the guide means be "axially continuous" this was an unwarranted intermediate generalisation of what had been originally disclosed, namely that the guide means extended along the whole length of the delivery tube. Lastly, the functional statement at the end of the claim concerning the movement of the fastener through the delivery had been cobbled together from diverse phrases found at various locations in the original application which had been taken out of context and which had nothing to do with each other.

The subject-matter of claim 1 of the main request was fully anticipated by both document D8 and document D10. Each of those disclosed a delivery tube having a lining which was elastically deformed radially by the passage of the fastener therethrough in order to provide a gripping force on the fastener to prevent it from free-fall. It was self-evident that this lining had to be of resiliently deformable material. In the event that the subject-matter of the claim was considered novel with respect to these documents then it certainly lacked inventive step with regard to their combined teachings.

Reasons for the decision

1. The appeal complies with the formal requirements of Article 106 to 108 and Rules 1(1) und 64 EPC. It is therefore admissible.

2. The claimed invention is concerned with a delivery tube for delivering headed fasteners in a preferred orientation to a station where they are applied to a workpiece. Because of their shape such fasteners have a natural tendency to tumble in the delivery tube unless appropriate measures are taken to prevent this. After extensive limitation of the patent specification in the course of the opposition and the appeal proceedings claim 1 is now directed solely to the type of delivery tube disclosed in Figures 1 to 5 which comprises a lining of resiliently deformable material having a cross-sectional dimension smaller than that of the enlarged head of the fastener involved. This lining is therefore deformed locally by the head of the fastener and correspondingly applies a gripping force to it to prevent free-fall of the fastener through the delivery tube. The localised area of deformation of the lining can be considered as moving along the delivery tube with the associated fastener as the latter is advanced by a plunger of the fastener application machine.

It is apparent from the above brief description that the claimed delivery tube has a relatively simple structure. Nevertheless, the wording of claim 1 according to the main request has proved a fertile ground for disputes between the parties as to questions of clarity, original disclosure and extension of scope.

Turning first to the question of clarity, this is concerned with the reference in the claim to the formation of a local passage "constriction" resulting

from engagement with the enlarged head of the fastener. In the normal sense of the term it would be expected that the "constriction" would be constituted by a local area of the lining which has a smaller cross-section dimension than the remainder of the lining. It would seem however that this understanding is plainly at odds with the mechanism actually involved, as explained above, where the enlarged head of the fastener produces a localised widening of the lining. Nevertheless, it must be emphasised that lack of clarity is not a ground of opposition and the term "constriction" was already present in granted claim 1 (indeed was already used in an equivalent way in the original application) so that any lack of clarity is not a consequence of the amendments made to the claim in the course of the opposition and appeal proceedings. In circumstances such as these it is incumbent upon the Board to seek an interpretation for the term involved which best bridges the gap between its normal meaning and the technical realities of what has actually been disclosed (cf T 16/87, OJ EPO 1992, 212). Applying this principle to the present case the Board notes that with respect to the maximum dimension of the fastener head a "constriction" of sorts can be recognised in the adjacent area of the lining, which "constriction", being of lesser dimension than the fastener head, prevents its free movement through the delivery tube. For the purpose of evaluating novelty and inventive step the Board will therefore interpret claim 1 of the main request as requiring local deformation of the lining of the delivery by the enlarged head of the fastener in such a manner as to form a local "constriction" in this sense.

The first objection of the respondents under

Article 123(2) EPC concerns the statement in claim 1 that the displaceable guide means are disposed "along and within the internal surface of the tubular member". It is the same statement which gives rise to their objection under Article 123(3) EPC. The source of these objections lies in the fact that in granted claim 1 the internal surface referred to in this context was that of the delivery tube. In the opinion of the Board the amendment of claim 1 in this respect does not go beyond unobjectionable clarification of what was already implicit. Claim 1 as granted already specified that the delivery tube comprised a tubular member having an internal cross-section dimension greater than that of the enlarged head of the fastener and the only sensible reading of the claim, even without reference to the totality of the disclosure, was that the guide means disposed "along and within the internal surface of the delivery tube" were arranged along and within that tubular member. The fact that the term "tubular member" is not as such to be found for the corresponding element of the delivery tube in the particular description of the patent specification cannot detract from this appreciation.

The next objection to claim 1 of the main request is of a different character since the respondents do not as such dispute that the guide means (ie the lining) are "axially continuous" as required by the claim. What they do say however is that the term is of much broader ambit than what has actually been disclosed, namely guide means which extend along the whole axial extent of the tubular member, so that the term constitutes an inadmissible intermediate generalisation. However, that view is only sustainable if the term is taken in isolation. When seen in the context of the other

requirements of the claim, in particular the functional statement concerning the controlled movement of the fastener "throughout its passage through the delivery tube", it is implicit that the guide means must in fact extend over substantially the whole length of the delivery tube in order to achieve this. Thus this objection to an addition of subject-matter also fails.

Lastly, the respondents took issue with the functional statement mentioned above itself, arguing that nothing comparable could be found in the original disclosure. In strict linguistic terms that is indeed true, but besides the point. There can be no doubt that the statement accurately reflects the way in which the fasteners are advanced through the delivery tube to the point of application as would be understood from the original application, and as such does not constitute an addition of subject-matter.

3. The preamble of claim 1 of the main request is based on document D8, which relates to a mechanism for feeding and inserting pins into a circuit board. It is accordingly not in dispute that these pins constitute fasteners each having an elongate shank and a relatively enlarged head. The mechanism comprises a plunger for advancing the pins individually from a carrier through a delivery tube to the point of application. The delivery tube has guide means for the pins in the form of a longitudinally slotted collet which is located within a tubular sleeve member. The tubular member has a tapered internal surface at one end which cooperates with a corresponding tapered surface on the end of the collet and is spring biased to reduce the diameter of the passageway through the collet such that a slight drag force is exerted on the

pin as it is advanced through the collet.

The respondent argued that the collet comprised a "lining" of the passage through the tubular member within the meaning of claim 1, which the appellants did not seek to dispute, and also that this "lining", given the way the collet functioned, had to be made of "resiliently deformable material" as required by the claim. In absolute terms there can be no doubt that the material of the collet (which can be presumed to be made of machine steel) is "resilient" to the extent that the collet will return to its previous shape after passage of the pin there through. However, qualitative terms such as "resiliently deformable" must always be viewed in the full technical context of the subject-matter claimed. In the present case it is essential that the lining of the passage through the tubular member be sufficiently resiliently deformable to enable local deformation thereof by the enlarged head of the fastener with the formation of a "constriction" in the sense explained above, with the "constriction" moving along the delivery tube with the fastener as the latter is advanced by the plunger. This is clearly not the case with the collet of document D8 which is not deformed locally by the enlarged head of the fastener but instead widened along the whole length of its slotted portion.

The subject-matter of claim 1 of the main request is therefore novel with respect to document D8 (Article 54 EPC).

4. At the oral proceedings before the Board the respondents also argued that the subject-matter of claim 1 of the main request lacked novelty with respect

to the disclosures of document D10. This prior art relates to a gun-like explosive setting device for fasteners and is more particularly concerned with a holding member for preventing the fastener from falling out of the barrel of the gun when this is pointed downwards. The holding member comprises a sleeve provided with one or more longitudinally extending slots to make it radially expendable so that it can exert a gripping force on a guide ring positioned on the shank of the fastener, the guide ring having a diameter slightly larger than the free diameter of the holding member. The actual head of a fastener inserted into the barrel of the setting device and supported by the holding member is engaged by a recess in the forward end of a driving piston.

In the opinion of the Board it is questionable whether the barrel of the setting device of document D10 into which a fastener is manually inserted from the open end, temporarily gripped, and then shot out again, can be fairly considered as a delivery tube for delivering a succession of fasteners to a fastening station within the meaning of claim 1. Furthermore, it is to be noted that it is not the head of the fastener which is gripped by the holding member but a separate guide ring carried by the shank of the fastener. In any case however, having those issues aside, it is apparent that the holding member in the form of a split radially expandable sleeve is not locally deformed by the fastener to form a "constriction", but in a manner essentially equivalent to that discussed above with respect to the collet of document D8 is expanded along its entire length by engagement with the fastener.

Thus, the subject-matter of the claim under

consideration is also new with respect to document D10.

5. With regard to the question of inventive step the respondents relied solely on a combination of the documents D8 and D10. It is however apparent from what has been said above with respect to novelty that neither of these documents discloses the essential element of the claimed subject-matter, namely a lining for the delivery tube made of a resilient material which is locally deformed by the enlarged head of the fastener to form a "constriction". It is therefore evident that there is no way of combining the teachings of these documents to arrive at the delivery tube as defined in claim 1 of the main request, which accordingly involves an inventive step (Article 56 EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent on the basis of claims 1 to 3 and the description as submitted at the oral proceedings, together with Figures 1 to 5 of the drawings as granted.

The Registrar:

The Chairman:

S. Fabiani

F. Pröls