

European Patent Office
80298 Munich
Germany

22 August 2022

Our ref:
E35976EP-MTB/BCC/bcc

Your ref:

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Dear colleagues

Re: European patent application no. 19914241.5
Regional phase of PCT application no. PCT/US2019/016973
Blind fastener and method of installation thereof
Howmet Aerospace Inc.

In response to the communication pursuant to Rules 70(2) and 70a(2) EPC dated 17 August 2022, we are filing herewith a substitute description page for this application. Please replace the description page presently on file with the substitute description page filed herewith.

We also hereby confirm that the applicant wishes to proceed further with this application.

Amendments to the description

We have introduced a reference to cited document D1 onto page 1 of the description, as requested by the examiner in part 2.2 of the search report.

We submit that no new subject matter has been added to the amended description.

Novelty (Article 54 EPC)

The examiner has alleged that independent claims 1 and 12 lack novelty over each of D1, D2 and D3. We respectfully disagree.

Claim 1 of the present application recites "the pull region comprises an axial length no greater than 4 times a diameter of the shank region and is configured to be engaged by an installation tool".

D1 discloses the below expander (see figure 17 of D1).

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Stanley Black & Decker, Inc. - EX1009, Page001
IPR2025-01581 (Stanley Black & Decker v. Howmet)

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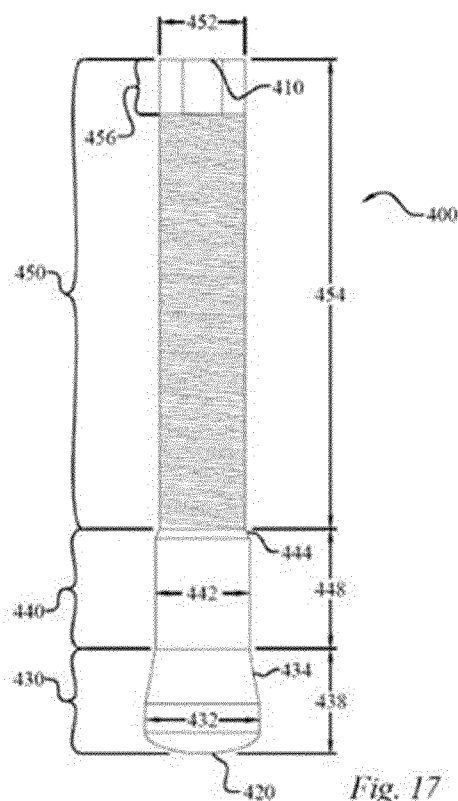


Fig. 17

The examiner has alleged that: the tensioning section 450 of the expander of D1 is equivalent to the pull region of claim 1 of the present application; and the expansion section 440 of the expander of D1 is equivalent to the shank region of claim 1 of the present application. The examiner has additionally alleged that D1 discloses a length 454 of 60 mm and diameter 442 of 30 mm such that D1 discloses the feature of “the pull region comprises an axial length no greater than 4 times a diameter of the shank region and is configured to be engaged by an installation tool”.

However, page 35 of D1 recites “the tensioning section length (454) is 60-145 mm” and “the expansion section diameter (442) is 15-35 mm”. D1 does not explicitly disclose an expander having a length 454 of 60 mm in combination with a diameter 442 of 30 mm. In alleging that D1 discloses such a combination, the examiner has made a double selection, selecting arbitrarily: a length of 60 mm from the range 60-145 mm; and a diameter of 30 mm from the range 15-35 mm (double selections are not directly and unambiguously derivable from the prior art - see Guidelines G-VI, 8(i)).

We submit that the skilled person could quite as easily select a length of 145 mm and a diameter of 15 mm starting from the disclosure of page 35 of D1, which would not fulfil the requirement of “the pull region comprises an axial length no greater than 4 times a diameter of the shank region” claimed in claim 1 of the present application. In fact, the dimensions shown in figure 17 of D1 could be argued to teach the skilled person toward selecting a length for the tensioning section 450 of D1 that is more than 4x greater than the diameter 442.

We submit that D1 fails to disclose any relationship between the length 454 and the diameter 442. In particular, D1 fails to disclose that the length 454 must be no more than 4 times greater than the diameter 442. Furthermore, D1 does not disclose, contrary to the examiner’s assertion, a specific embodiment wherein the length 454

is no more than 4 times greater than the diameter 442. As such, D1 fails to disclose all of the features of claim 1 of the present application.

A similar argument is applicable to D2. Column 6 of D2 discloses: a length of the pull region (N-M, see figure 2 of D2) of 1.050 - 0.450, i.e., 0.60; and a diameter of the shank region (G, see figure 2 of D2) of 0.137. 0.60 is more than 4 times 0.137.

Additionally, D3 is silent as to any relationship between the length of the pull region 70 and the diameter of the shaft region 72 of D3.

The above arguments concerning the novelty of claim 1 are equally applicable to claim 12, which claims a method using the novel fastener of claim 1.

We submit that the examiner's objections under Article 54 EPC have been overcome.

Inventive step (Article 56 EPC)

As explained above, none of D1 to D3 disclose the feature of "the pull region comprises an axial length no greater than 4 times a diameter of the shank region and is configured to be engaged by an installation tool" as is claimed in claim 1 of the present application.

Additionally, we submit that none of cited documents D1 to D3 teach toward the feature "the pull region comprises an axial length no greater than 4 times a diameter of the shank region and is configured to be engaged by an installation tool" as is claimed in claim 1 of the present application.

As disclosed in paragraph [0018] of the present application, "the blind fastener according to the present disclosure may be installed with an installation force less than a force that can fracture the mandrel. Reducing the installation force requirement and installing without a shock force occurring during fracture of the mandrel can enable lighter weight installation tools, longer life of installation tool components, limit damage to the structural components, and enhance ergonomics for operators using the installation tools". The shock force is reduced by not fracturing the pull region after installation, which is made possible by reducing the length of the pull region as recited in claim 1.

None of the cited documents disclose or teach toward a pull region as claimed in claim 1 or the advantages thereof (i.e., enabling lighter weight installation tools, increasing the life of installation tool components, limiting damage to structural components, and enhancing ergonomics for operators using the installation tools). As such, the subject matter of claim 1 is not obvious from any of D1 to D3, either alone or in combination.

The above arguments concerning the inventive step of claim 1 are equally applicable to claim 12, which claims a method using the inventive fastener of claim 1.

We submit that the examiner's objections under Article 56 EPC have been overcome.

Claim 3 patentability

The examiner has alleged that the subject matter of claim 3 lacks novelty and inventive step over D1 to D3. However, the mandrels of D1 to D3 do not comprise a tapered pull region as claimed in claim 3 of the present application (see figure 17 of D1, figure 2 of D2 and figure 1 of D3).

The claimed taper can reduce potential stripping of the grooves due to crest-to-crest engagement (see paragraph [0035] of the present application). Reduced stripping of the grooves is particularly advantageous when the size of the pull region is reduced, because there are fewer threads/grooves that will be engaged by an installation tool.

Conclusion

We submit that the application is now in order for grant.

Any amendments and/or deletions we have made are without prejudice to the filing of divisional applications. The applicant is not abandoning any of the subject matter of this application.

We respectfully request a telephone interview if there are any further objections. If refusal of the application is contemplated, at any stage, then we request the appointment of oral proceedings.

Yours faithfully



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Enc: Clean and marked-up substitute description page