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**Datasheet for the decision
of 28 November 2022**

Case Number: T 0776/21 - 3.2.01

Application Number: 12796526.7

Publication Number: 2718182

IPC: B64C23/06

Language of the proceedings: EN

Title of invention:
THE SPLIT BLENDED WINGLET

Patent Proprietor:
Aviation Partners, Inc.

Opponent:
AIRBUS OPERATIONS LIMITED/AIRBUS OPERATIONS
SAS/AIRBUS OPERATIONS S.L./AIRBUS SAS/AIRBUS
OPERATIONS GMBH

Headword:

Relevant legal provisions:
EPC Art. 100(a), 54, 56

Keyword:

Novelty - (yes)

Inventive step - (no)

Decisions cited:

Catchword:



Beschwerdekammern
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Chambres de recours

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Case Number: T 0776/21 - 3.2.01

D E C I S I O N
of Technical Board of Appeal 3.2.01
of 28 November 2022

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Decision under appeal:
**Decision of the Opposition Division of the
European Patent Office posted on 31 March 2021
rejecting the opposition filed against European
patent No. 2718182 pursuant to Article 101(2)
EPC.**

Composition of the Board:

Chairman G. Pricolo
Members: S. Mangin
 S. Fernández de Córdoba

Summary of Facts and Submissions

I. The appeal was filed by the appellant (opponent) against the decision of the opposition division to reject the opposition filed against the patent in suit (hereinafter "the patent").

II. The opposition division held that:

- (1) the patent disclosed the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art,
- (2) the subject-matter of the claims as granted did not extend beyond the content of the application as filed, and
- (3) the subject-matter of the claims as granted was novel and involved an inventive step.

III. Oral proceedings were held before the Board by videoconference on 28 November 2022.

IV. The appellant (opponent) requested that the decision under appeal be set aside and that the European patent be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed. Further, they requested not to admit the submissions of the letter dated 23 November 2022.

V. Claim 1 of the main request reads as follows:

F1 A wing tip, comprising:

F2.1 an attachment end shaped to attach (A) to a swept and tapered wing (104, 402) with a leading edge,

F2.2 the attachment end defining a wing chord plane,
F3.1 a winglet (100, 404) coupled to the attachment end extending above the wing chord plane,
F3.2 the winglet having a leading edge (110; 302) and a tip (C) and,
F3.3 when mounted to the wing, being swept and tapered to a greater extent than the wing,
F3.4 the leading edge of the winglet including a linear section (112) with a sweep angle ($\Delta 1$) of up to 65° and,
F3.5 when mounted to the wing, a continuous and smooth transition from the leading edge of the wing to the linear section; and
F4.1 a swept and tapered fin (102; 406) coupled to the attachment end,
F4.2 extending below the wing chord plane and the winglet,
F4.3 the fin having a leading edge (303) and a tip; and wherein:
F5.1 the leading edges (110, 122; 302, 303) of both the winglet and the fin have a curve which varies monotonically with a leading-edge sweep angle up to 65° , and
F5.2 which transitions (116) at the respective tip along a continuous curve towards the direction of the airstream (118) over the tip.

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

D4: blended split winglet displayed at the NBAA 2011 exhibition with the following documents as evidence:

D4a: FLIGHT NBAA: Split winglets latest Evolution from Aviation Partners from Flight 2011 -10-13 (retrieved on 2018-12-12)

D4b: FLIGHT NBAA 2011: Convention Photo Gallery 2011 (retrieved on 2018-02-23)

D4b1: FLIGHT NBAA 2011: Convention Photo Gallery 2011 with improved explanations and resolution
D4c: Images 1-7: Photos from Winglets (prior use)
D4d: Aviation Partners Unveils the Shapes of the Future, 09-10-2011, Aviation Partners Inc
D4e: API displaying trio of blended winglets here, Mark Huber, 10-12-2011
D4e1: NBAA 2011 Tuesday Headlines, Chad Trautvetter, 10-10-2011, YouTube Video submitted also by DVD
D4f: Aviation Partners unveils new designs, 10-11-2011, Aviation Partners Inc
D4g: News & Events: Aviation Partners Inc displayed new winglet shape at NBAA, 18-10-2011
D4h: Aviation Partners @ NBAA 2100, Robert MacKenzie, 10-10-2011, YouTube Video submitted also by DVD
D4i: FlightBlogger - Aviation Partners' Blended Split Winglet - October 2011, Jan Ostrower, 17-10-2011, YouTube Video submitted also by DVD
D4j: NBAA 2011 - Blended Split Winglet - LVCC - Las Vegas, NV, photo from www.flickrriver.com
D4k: Aviation Partners Sets World Record -Without Winglets, 10-10-2011.

Reasons for the Decision

1. Novelty

The subject-matter of claim 1 is novel over D4, as the blended split winglet presented at the NBAA 2011 exhibition does not anticipate feature 2.1 of claim 1.

- 1.1.1 It was not disputed that the blended split winglet (documents D4A-D4K as evidence) was presented at the

NBAA 2011 exhibition at a date which is before the effective date of filing of the patent application.

The opposition division found that the subject-matter of claim 1 differed from D4 in features 2.1, 3.3, 3.5 and 4.2. The remaining features of claim 1 are undisputedly disclosed by D4.

1.1.2 The Board agrees with the appellant's interpretation of features 3.3, 3.5 and 4.2 which merely specify the suitability of the wing tip to achieve these features when fitted to a wing.

1.1.3 The respondent acknowledged that the wing was not part of the subject-matter. However, as documents D4A to D4K did not disclose the blended split winglet attached to a wing they concluded that features 3.3, 3.5 and 4.2 were not disclosed by the blended split winglet presented at the NBAA 2011 exhibition. In their view these features provided conditions that had meaningful limitations on the winglet.

1.1.4 The Board takes the view that features 3.3, 3.5 and 4.2 limit claim 1 insofar as they relate to the wing tip as such, which comprises a winglet and a fin, and require the wing tip to be suitable for being mounted on a wing such as to fulfil the geometrical requirements of these features.

As a matter of fact:

- feature 3.3 requires that when the wing tip is mounted to the wing, the winglet is swept and tapered to a greater extent than the wing;
- Feature 3.5 requires that when the wing tip is mounted to the wing, the winglet forms a continuous and smooth transition from the leading edge of the wing to the linear section; and

- Feature 4.2 requires that when the wing tip is mounted to the wing, the fin extends below the wing chord plane and the winglet.

The above features are anticipated by the blended split winglet presented at the NBAA 2011 exhibition. Indeed, the blended split winglet is swept and tapered, and a fin is provided which extends below the winglet. Keeping in mind that the wing is not part of the claimed subject-matter and as such is undefined, it must be concluded that the blended split winglet of D4 is suitable for being mounted on a wing which is less swept and tapered, whilst forming a continuous and smooth transition from the leading edge of the wing to the linear section of the winglet, with the fin extending below the wing chord.

In fact, given the blended split winglet according to D4, these geometrical requirements are met simply by the provision of an appropriate less swept and tapered wing and an appropriate attachment thereto; no structural (geometrical) modifications of the blended split winglet would be necessary. The respondent submitted that features 3.3, 3.5 and 4.2 provided conditions that had meaningful limitations for the wing tip; however they did not point to any concrete features of the known blended split winglet that would make it unsuitable for meeting the above-mentioned requirements when mounted on a wing.

1.1.5 However, the Board follows the opposition division and the respondent's view that the blended split winglet on display is a model. Although the model is representative of a wing tip geometry, none of the videos or pictures related (see documents D4A-D4K) show an attachment end shaped to attach to a wing. Feature

2.1 is therefore not anticipated by the blended split winglet presented at the NBAA 2011 exhibition.

1.1.6 In line with the interpretation of features 3.3, 3.5 and 4.2, feature 2.1 should be interpreted as an attachment end suitable to attach (A) to a swept and tapered wing with a leading edge. While the shape of the wing has no limitation on the attachment end, the wing tip is required to have an attachment end suitably shaped to attach a wing. The appellant did not provide information allowing to conclude that the blended split winglet on display at the NBAA 2011 exhibition was as such provided with an end suitable for attaching a wing.

1.1.7 There is no need to further discuss the appellant's arguments in support of feature 2.1 being disclosed by D4 because this feature does not anyway contribute to inventive step, as explained below.

1.2 Inventive step starting from D4

The subject-matter of claim 1 is obvious in view of D4 combined with common general knowledge.

1.2.1 As explained above, the subject-matter of claim 1 differs from the blended split winglet presented at the NBAA 2011 exhibition in that the wing tip comprises an attachment end shaped to attach to a wing.

The technical effect of the identified difference is to enable the attachment of the wing tip to the wing. The problem to be solved may be regarded as to provide attachment means suitable to attach the wing tip to a wing.

Starting from the blended split winglet, it is obvious for the skilled person to add an attachment end shaped to attach to a wing. Indeed, winglets are meant to be attached to a wing. The skilled person would therefore provide an attachment end at the root of the winglet.

1.2.2 The respondent is of the opinion that the inventive step argumentation is based on hindsight. In their view it is not obvious to add an attachment end to the blended split winglet displayed at the NBAA 2011 exhibition such as to attach to a wing. The winglet may be integrated in the wing.

1.2.3 The Board does not agree with the respondent. Whilst it is accepted that a winglet integrally formed with a wing is a known possibility which would not require an attachment end, it is well known in the art that a winglet might instead be attached to a wing. Such alternative would be of obvious implementation on the blended split winglet for the skilled person. This would actually be the most straight forward alternative as the blended split winglet was displayed as such and not with a wing.

The Board further notes that the opposed patent itself does not give any concrete examples of an attachment end shaped to attach to a wing. As a consequence the skilled person should be assumed to have no difficulties (requiring the exercise of an inventive activity) in providing such an attachment end, as in fact submitted by the respondent when discussing sufficiency of disclosure at the oral proceedings before the Board.

Order

For these reasons it is decided that:

- The decision under appeal is set aside.
- The patent is revoked.

The Registrar:

The Chairman:



A. Voyé

G. Pricolo

Decision electronically authenticated