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Datasheet for the decision of 13 November 2025

Case Number: T 0378/21 - 3.5.01

Application Number: 16840384.8

Publication Number: 3391299

IPC: G06Q10/04, G06T7/80, G06T7/33

Language of the proceedings: EN

Title of invention:
IMAGE STITCHING FOR FOOTWEAR COMPONENT PROCESSING

Applicant:
Nike Innovate C.V.

Headword:
Image stitching/NIKE

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (yes)

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Case Number: T 0378/21 - 3.5.01

D E C I S I O N
of Technical Board of Appeal 3.5.01
of 13 November 2025

Appellant: (Applicant)	Nike Innovate C.V. Dutch Partnership One Bowerman Drive Beaverton, OR 97005-6453 (US)
Representative:	Müller-Boré & Partner Patentanwälte PartG mbB Friedenheimer Brücke 21 80639 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 11 December 2020 refusing European patent application No. 16840384.8 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairwoman	A. Wahrenberg
Members:	L. Falò
	D. Rogers

Summary of Facts and Submissions

I. This is an appeal against the examining division's decision to refuse European patent application No. 16840384.8.

II. The application was refused on the ground of lack of inventive step over D1, US 5172326.

III. In the statement setting out the grounds of appeal, the appellant requested that the decision of the examining division be set aside and a patent be granted on the basis of the refused main or auxiliary request, both re-filed therewith. There was also a request for oral proceedings.

IV. In a communication under Article 15(1) RPBA, the Board set out its preliminary view that the subject matter of claim 1 of both requests lacked an inventive step in view of D1 and a well-known camera array and image stitching system. D6, US 2009/040293, was also discussed as an example of such known systems.

V. In response to the Board's communication, the appellant filed a second auxiliary request and, for all requests, amended description pages. The appellant further provided arguments in favour of the patentability of the requests.

VI. With letter of 20 December 2023 the appellant stated that they would not attend the oral proceedings, withdrew the request for oral proceedings and asked for a decision "according to the state of the file". The oral proceedings were subsequently cancelled.

VII. In a communication dated 8 November 2024 the Board informed the appellant that the subject-matter of claim 1 of the first auxiliary request was considered inventive, but that dependent claims 3 and 5 lacked clarity.

VIII. With letter of 8 January 2025 the appellant filed a new main request and new auxiliary requests 1 to 6. The requests also included corresponding amended description pages. The new main request is based on the previous first auxiliary request, with dependent claims 3 and 5 deleted and the remaining claims renumbered accordingly.

IX. Claim 1 of the main request reads:

An image stitching and manufacturing system (100), comprising:

a conveyance system (102), the conveyance system (102) moves a material (122) in a process direction, the material (122) being a rolled good having a plurality of footwear components integrally formed therein;

a plurality of cameras (104; 106; 108; 110),

wherein a first camera (104) of the plurality of cameras (104; 106; 108; 110) has a first field of view ("FOV") (302) including an area relative to the conveyance system (102) that overlaps a portion of a second FOV (304) of a second camera (106) of the plurality of cameras (104; 106; 108; 110),

wherein the FOVs (302; 304; 306; 308) of the plurality of cameras (104; 106; 108; 110) cover a roll width (204) of the material (122), while the plurality of

cameras (104; 106; 108; 110) has a distance offset Z (202) from the material (122),

wherein the first camera (104) is configured to capture a first image (402) of a first material portion of the material (122) and the second camera (106) is configured to capture a second image (404) of a second material portion of the material (122),

wherein the first material portion and the second material portion include a first common portion of the material (122);

a process station (112), wherein the process station (112) is after the plurality of cameras (104; 106; 108; 110) in the process direction of the conveyance system (102);

and a computing device (116), the computing device (116) is logically coupled with the plurality of cameras (104; 106; 108; 110) to receive the first image (402) from the first camera (104) having the first FOV (302) and the second image (404) from the second camera (106) having the second FOV (304),

wherein the computing device (116) is configured to stitch the first image (402) and the second image (404) based on the first common portion to form a stitched image, to identify a first pattern in the stitched image, wherein the first pattern corresponds to a footwear component integrally formed in the material (122), and to determine a first tool path based on the identified first pattern, wherein the first pattern identified in the stitched image is an input for the computing device (116) which is configured to provide instructions to the process station (112) to perform an

operation on the material (122) based on the first tool path,

wherein the process station (112) is a cutting device configured to extract the footwear component identified as the first pattern from the material (122).

Reasons for the Decision

1. The invention as claimed concerns a system (claim 1) and a method (claim 6) for controlling a manufacturing process (page 1, lines 6 to 12). Looking at Figure 1, a conveyance system (102) moves a rolled good having a plurality of footwear components integrally formed therein towards a cutting device (112). A plurality of cameras located at a given distance from the conveyance system (104, 106, 108, 110) take partially overlapping images of a portion of the conveyance system. The images are provided to a computer device (116), which stitches them together to generate a single image (page 5, lines 9 to 15). The resulting stitched image is analysed to identify to a pattern corresponding to a footwear component and determine a "tool path", based on which the cutting device extracts the footwear component (page 2, lines 3 to 6, page 9, lines 10 to 19, page 12, lines 3 to 5, page 14, line 10 to page 5, line 14).

Main request - inventive step

2. Document D1, US 5172326, is considered to be the best starting point for assessing inventive step. It discloses a computer-controlled fabric cutting system for cutting a fabric moving on a conveyor (Figures 1,

2). The system includes digital image capture means consisting of a fixed or a movable camera adapted to capture an image of the fabric or of a section thereof (column 4, lines 27 to 39). A template pattern retrieved from a library is superimposed on the captured image (column 4, lines 8 to 13). An operator aligns the template pattern with the image (column 4, lines 14 to 19 and 51 to 58). The aligned patterns are converted into instructions for the cutting station, which cuts the fabric as the conveyor is moving (column 5, lines 14 to 24).

3. The appellant argued in the statement of grounds of appeal that the examining division erred in mapping the templates of D1 to the patterns of claim 1, since in D1 the templates are not identified from the captured image but are retrieved from a memory. Hence, D1 did not disclose the claimed features of the computing device being configured to identify a first pattern in the stitched image and determine a first tool path based thereupon. Also D1 did not disclose using the first pattern as an input to provide instructions to the process station for performing an operation on the material.

4. The Board agrees with the appellant that the "templates" or "template patterns" of D1 identify pre-stored graphic elements which are retrieved and aligned with the captured image. They therefore differ from the "first pattern" of claim 1, which corresponds to a perceptible element captured from the stitched image and, in particular, to a footwear component formed in the material.

5. D1 also discloses identifying "match points" in the captured image (for example, a flower on the fabric, as

in column 13, lines 9 to 14 and 41 to 44). These are however reference points used to align the pre-stored templates and, therefore, they cannot be mapped to the "first pattern" either.

6. Accordingly, the Board takes the view that the following features are not disclosed in D1:

- providing a plurality of cameras with partially overlapping field of views, providing the captured images to the computing device, stitching, by the computing device, the images into a single image based on the common portions

- the computing device being configured to identify a first pattern in the stitched image, the first pattern corresponding to a footwear component integrally formed in the material, and to determine a first tool path based on the identified first pattern.

7. Compared with D1, the claimed system is fully automated and also more flexible, because it does not rely on pre-stored information (the templates) but adapts the cutting pattern to the actual shape of the footwear component.

Moreover, the use of a "camera array" and image stitching provides, in the Board's view, a credible synergistic effect, as it increases the accuracy of the cutting operations by reducing the distortions in the detected pattern and, therefore, in the path followed by the cutting tool.

8. In view of this, the Board judges that the skilled person, starting from D1, would not arrive in an obvious manner at the claimed combination of features.

9. A combination of D1 and D6 would not lead to the claimed subject matter either, as the resulting system would still make use of the stitched image to identify a match point and align a template based thereupon.

10. For the same reasons, the corresponding method claim 6 is also inventive (Article 56 EPC).

Conclusion

11. Accordingly, the Board concludes that the subject matter of claim 1 and 6 of the main request 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 examining division with the order to grant a patent on the basis of the following documents:

- claims 1 to 11 of the main request (filed with letter of 8 January 2025)

- description pages 1, 1a, 1b, 2, 4, 5, 10, 12 and 14 to 17 of the main request (filed with letter of 8 January 2025)

- description pages 3, 6 to 9, 11 and 13, as published;

- figures 1 to 8 (drawing sheets 1/5 to 5/5), as published.

The Registrar: The Chair:

T. Buschek A. Wahrenberg

Decision electronically authenticated