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EXAMINER
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TROOST, AARON L

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3668

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* LARRY DEAN ELIE, TIMOTHY J. POTTER,  
ROBERT F. NOVAK, JOHN W. JARANSON,  
JEFFREY A. WALLACE, MICHAEL M. AZZOUZ,  
GERALD J. HEATH, and EVANGELOS P. SKOURES

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Appeal 2017-006586  
Application 14/693,597<sup>1</sup>  
Technology Center 3600

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Before MICHAEL C. ASTORINO, AMEE A. SHAH, and  
ROBERT J. SILVERMAN, *Administrative Patent Judges*.

ASTORINO, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134, the Appellants appeal from the Examiner’s decision rejecting claims 1, 3–10, and 12–20. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> According to the Appellants, “[t]he real party in interest is Ford Global Technologies, LLC.” Appeal Br. 2.

STATEMENT OF THE CASE

*Subject Matter on Appeal*

The Appellants' invention relates to a system and a method for preventing a vehicle door from transitioning between an opened position and a closed position in response to a light-field camera detecting the presence of an object in the swing radius of the door. *See Spec.* ¶¶ 4, 5.

Claims 1, 9, and 17 are the independent claims on appeal. Claim 1, reproduced below, is illustrative of the subject matter on appeal.

1. A vehicle comprising:
  - a door having a swing radius;
  - a light-field camera configured to detect and determine the distance to objects within a field-of-view of the camera; and
  - a controller programmed to, in response to the camera detecting the presence of an object moving along a path, that is based on the distance to and a trajectory of the object, towards the swing radius, prevent the door from transitioning between opened and closed positions.

*Rejections*

Claims 1, 3, 4, 6, 9, 12, 13, 17, and 19 are rejected under 35 U.S.C. § 103 as unpatentable over Nickolaou et al. (US 2011/0196568 A1, pub. Aug. 11, 2011) (“Nickolaou”) and Foley et al. (US 2013/0286188 A1, pub. Oct. 31, 2013) (“Foley”).

Claim 5 is rejected under 35 U.S.C. § 103 as unpatentable over Nickolaou, Foley, and Ishiguro et al. (US 2012/0217764 A1, pub. Aug. 30, 2012) (“Ishiguro”).

Claims 7, 8, 10, 14, 15, and 20 are rejected under 35 U.S.C. § 103 as unpatentable over Nickolaou, Foley, and Miyahara (US 2006/0017656 A1, pub. Jan. 26, 2006).

Claims 16 and 18 are rejected under 35 U.S.C. § 103 as unpatentable over Nickolaou, Foley, and Ihlenburg et al. (US 2014/0207344 A1, pub. July 24, 2014) (“Ihlenburg”).

### ANALYSIS

The Appellants argue that the Examiner’s rejection of independent claims 1, 9, and 17, and their dependent claims, as unpatentable over Nickolaou and Foley relies on impermissible hindsight. Appeal Br. 3–5; Reply Br. 2–3. The Appellants’ argument does not persuade us that the Examiner erred.

The Examiner finds that Nickolaou teaches substantially all of the subject matter of claims 1, 9, and 17. *See* Final Act. 3, 5, 7. Among other things, the Examiner finds that Nickolaou teaches sensor group 130, having sensors 270–280, which are configured to detect and determine the distance to objects. *See, e.g.*, Final Act. 3; Ans. 2; Nickolaou ¶¶ 25, 35. The Examiner also finds that Nickolaou’s sensors include “both active (e.g., LIDAR) and passive (e.g., stereo camera) sensors,” where the latter generates images of objects within a target area. Ans. 4; *see* Final Act. 3 (citing Nickolaou ¶ 23).

The Examiner finds that Nickolaou fails to teach a light-field camera as one of its sensors, which is required by claims 1, 9, and 17. *See* Final Act. 3–4 (citing Nickolaou ¶ 23); Ans. 4. The Examiner relies on Foley to remedy this deficiency. Final Act. 4 (citing Foley ¶ 40, Abstract).

The Examiner concludes, “[i]t would have been obvious to a person of ordinary skill in the art . . . to have modified the vehicle safety system of Nickolaou to be a light-field camera that determines depth data of objects, as taught by Foley, to detect objects for controlling vehicle functions.” Final Act. 4. The Examiner explains that this modification is a simple substitution. Ans. 3. More particularly, a “[s]imple substitution of the light-field camera of Foley for the sensor(s) of Nickolaou[, which] would yield the same and predictable result of detecting and ranging objects around the vehicle, where the data from the light-field camera is used to control a vehicle function.” Ans. 3; *see KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007) (“[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.”) (citing *United States v. Adams*, 383 U.S. 39, 50–51 (1966)). We agree with the Examiner.

The Appellants do not acknowledge that the Examiner’s modification is based on a simple substitution rationale. As such, the Appellants do not explain why one of ordinary skill in the art would fail to understand the replacement of Nickolaou’s sensors with the sensors as taught by Foley to be a simple substitution. For example, the Appellants do not challenge the Examiner’s finding “the sensor(s) of Nickolaou and the light-field camera of Foley perform equivalent functions, and the data from the sensor(s) and the light-field camera are both used for controlling the vehicle as part of an object detection and avoidance system.” Ans. 3.

Rather, the Appellants’ contentions are directed to a comparison of Nickolaou’s sensors with the Appellants’ passive sensing devices, i.e., light-

field cameras. *See* Appeal Br. 3–4; Reply Br. 2. For example, the Appellants acknowledge that Nickolaou’s vehicle safety system may include cameras, but contend that they “are simply used to generate images in the target area and not to determine proximity, direction, speed, or the trajectory of an object,” whereas light-field cameras “are capable of determining the proximity, direction, speed, or the trajectory of an object by generating depth data.” Appeal Br. 4. We appreciate the Appellants’ comparison of Nickolaou’s sensors and Appellants’ light-field cameras, however the comparison does not suggest that the sensors taught by Foley are not substitutes for Nickolaou’s sensors.

The Appellants also contend that “Nickolaou *teaches away* from using passive sensors for determining the proximity, direction, speed, or the trajectory of an object” because Nickolaou’s “stereo cameras are used to generate images depicting the height and curvature of objects in conjunction with an active sensor that is used to sense the presence and position of the objects within the target area.” Reply Br. 2 (emphasis added). However, Nickolaou does not teach away from using passive sensors. Actually, Nickolaou suggests other types of sensors that result in the same functionality as sensor group 130 by describing “that alternative embodiments may include other types of sensors as well.” Nickolaou ¶ 23. As such, we fail to understand Nickolaou to criticize, discredit, or otherwise discourage investigation into the use of a light-field camera. *See DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009) (“A reference does not teach away, however, if it merely expresses a general preference for an alternative invention but does not

‘criticize, discredit, or otherwise discourage’ investigation into the invention claimed.”) (quoting *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004)).

Thus, we sustain the Examiner’s rejection of claims 1, 3, 4, 6, 9, 12, 13, 17, and 19 as unpatentable over Nickolaou and Foley. We also sustain the rejections of claim 5, 7, 8, 10, 14, 15, 16, 18, and 20, which the Appellants do not argue separately.

#### DECISION

We AFFIRM the Examiner’s decision rejecting claims 1, 3–10, and 12–20.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED