NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

MOBILEYE VISION TECHNOLOGIES LTD.,
Appellant

v.

IONROAD, LTD.,
Appellee

2017-1984

Appeal from the United States Patent and Trademark Office, Patent Trial and Appeal Board in No. 95/002,012.

Decided: June 12, 2018

DARREN M. JIRON, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Reston, VA, argued for appellant. Also represented by ANTHONY J. LOMBARDI, DANIEL C. TUCKER.

PAUL MICHAEL SCHOENHARD, McDermott, Will & Emery LLP, Washington, DC, argued for appellee. Also represented by IAN BARNETT BROOKS, NICOLE JANTZI.

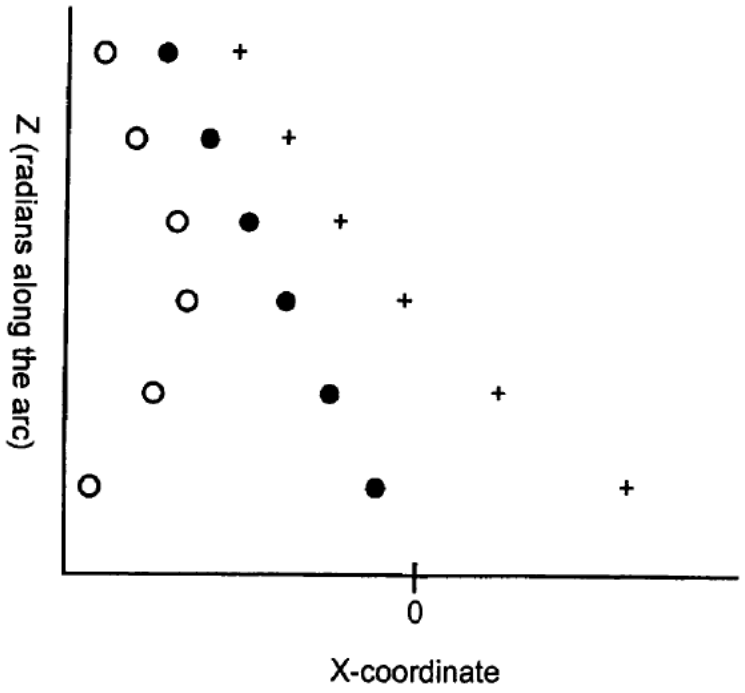
Before LOURIE, CLEVENGER, and REYNA, *Circuit Judges*.

LOURIE, *Circuit Judge*.

Mobileye Vision Technologies Ltd. ("Mobileye") appeals from the final written decision of the United States Patent and Trademark Office Patent Trial and Appeal Board ("the Board") in an *inter partes* reexamination affirming the examiner's rejection of claims 1–7 of U.S. Patent 7,113,867 ("the '867 patent") as obvious. *See iOnRoad, Ltd. v. Mobileye Techs. Ltd.*, No. 2015-7925, 2016 WL 949027, at *8 (P.T.A.B. Mar. 11, 2016) ("*Decision*"). On appeal, Mobileye only challenges the Board's decision with respect to claim 6. Because the Board did not err in its decision, we *affirm*.

BACKGROUND

Mobileye owns the '867 patent directed to a system for estimating a time-to-contact between a moving vehicle and an obstacle. *See* '867 patent Abstract. The system accomplishes this by recording successive images and analyzing "the rate at which the separation between the vehicle and obstacle" is changing. *Id.* col. 7 ll. 37–46. For example, Figure 2B depicts a series of images starting at the top with three obstacles "○," "●," and "+" in the left, center, and right lanes of a roadway, respectively. *See id.* fig. 2B. The obstacle "●" in the center lane will collide with the vehicle located at the origin "0," but obstacles "○" and "+" in the left and right lanes will not. *See id.* col. 8 ll. 5–27, fig. 2B.



F I G. 2B

Id. fig. 2B.

Notably, the lateral displacement, which is the distance between the obstacle and the origin along the X-coordinate, of the obstacles in the left and right lanes will decrease initially, "but at some point the separations between" the vehicle "and the obstacles in the left and right lanes" will "again increase." *Id.* col. 8 ll. 12–16, fig. 2B. For the obstacle in the center lane, however, the lateral displacement will "uniformly approach zero," where zero is the origin, indicating that the vehicle and obstacle will collide. *Id.* col. 8 ll. 16–21, fig. 2B.

Claim 6 and the claims from which it depends read as follows:

1. A time-to-contact estimate determination system for generating an estimate as to the time-to-contact of a vehicle moving along a roadway with an obstacle comprising:

   A. an image receiver configured to receive image information relating to a series of at least two images as the vehicle moves along a roadway; and characterized by

   B. a processor configured to determine a scaling factor that defines a ratio between a dimension length associated with two features of the obstacle in a first one of the at least two images and the same length between the same two features of the obstacle in a second one of the at least two images and uses the ratio to generate a time-to-contact estimate of the vehicle with the obstacle.

4. A system according to claim 1 wherein the at least two images comprises more than two images.

5. A system according to claim 4 wherein the processor processes the image information to determine a lateral displacement of the object relative to a position of the vehicle.

6. A system according to claim 5 wherein the processor determines a likelihood of collision responsive to whether or not the lateral displacement *substantially uniformly approaches zero*.

Id. col. 10 ll. 8–21, 30–39 (emphasis added).

iOnRoad, Ltd. ("iOnRoad") filed a request for *inter partes* reexamination of the '867 patent arguing, *inter*

alia, that claim 6 would have been obvious over (1) Neil D. Matthews, *Visual Collision Avoidance*, Advanced Systems Research Group, Dept. of Elecs. & Comput. Sci., Univ. of Southampton (1994) ("Matthews"), (2) David N. Lee et al., *A theory of visual control of braking based on information about time-to collision*, 5 Perception 437 (1976) ("Lee"), and (3) U.S. Patent 4,257,703 ("Goodrich"). Mobileye only challenges the Board's findings with respect to Goodrich. Goodrich teaches a collision avoidance system that uses the "lateral translation of the block" to predict "whether or not at its current lateral velocity, the block will clear or intersect [with] the vehicle." Goodrich col. 5 ll. 4–9.

The examiner rejected claim 6 as obvious over Matthews, Lee, and Goodrich. Mobileye appealed to the Board, and the Board affirmed the examiner's rejection. *See Decision*, 2016 WL 949027, at *7. It determined that the combination of Matthews and Lee taught all of the limitations in claims 1, 4, and 5, and that Goodrich taught the "substantially uniformly approaches zero" limitation in claim 6. *See id.* at *5–7. It found that Goodrich used the lateral translation of an obstacle at a current lateral velocity to determine the point of intersection, which it reasoned was equivalent to determining when the lateral displacement "substantially uniformly approaches zero." *Id.* at *7. Accordingly, the Board determined that the combination of Matthews, Lee, and Goodrich rendered claim 6 obvious. *Id.*

Mobileye timely appealed the rejection of claim 6 to this court. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A).

DISCUSSION

We review the Board's legal determinations *de novo*, *In re Elsner*, 381 F.3d 1125, 1127 (Fed. Cir. 2004), and the Board's factual findings underlying those determinations for substantial evidence, *In re Gartside*, 203 F.3d 1305,

1316 (Fed. Cir. 2000). A finding is supported by substantial evidence if a reasonable mind might accept the evidence to support the finding. *Consol. Edison Co. v. NLRB*, 305 U.S. 197, 229 (1938). Obviousness is a question of law based on underlying factual findings, including "the scope and content of the prior art, differences between the prior art and the claims at issue, the level of ordinary skill in the pertinent art, and any objective indicia of non-obviousness." *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362 (Fed. Cir. 2013) (citing *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007)).

Only claim 6 is before us. Mobileye argues that the Board's claim construction of the "substantially uniformly approaches zero" limitation to "merely mean[] that the obstacle is closing in on the vehicle, and that they will intersect," *see Decision*, 2016 WL 949027, at *7 (internal quotation marks omitted), reads out the "substantially uniformly" part of the limitation. It further contends that the "substantially uniformly" language in the claim describes *how* the lateral displacement approaches zero, not just whether it approaches zero. Goodrich, as Mobileye characterizes it, does not base its collision determination on *how* the lateral displacement changes, because it assumes a constant velocity. Mobileye argues that it therefore does not teach the "substantially uniformly" limitation in claim 6. Mobileye does not challenge the Board's findings with respect to the other prior art references.

iOnRoad responds that the Board expressly determined that Goodrich's disclosure of a "lateral translation of the block . . . whether or not at its current lateral velocity, the block will clear or intersect [with] the vehicle" satisfies the "substantially uniformly approaches zero" limitation. This disclosure comes directly from Goodrich's specification, *see* Goodrich col. 5 ll. 4–9, which, iOnRoad argues, is substantial evidence to support the Board's finding. iOnRoad also counters that Mobileye

waived its claim construction argument because it raised the issue for the first time in its rebuttal brief before the Board.

We agree with iOnRoad that the Board's finding that Goodrich teaches the "substantially uniformly approaches zero" limitation is supported by substantial evidence. Mobileye's arguments depend on distinguishing claim 6 of the '867 patent, which teaches estimating a time to collision using a lateral *displacement*, from Goodrich, which teaches collision avoidance based on a lateral *velocity*. *Compare* '867 patent col. 8 ll. 12–21, col. 10 ll. 36–39, *with* Goodrich col. 5 ll. 4–9. However, that is a distinction without a difference. An object whose lateral displacement over time is substantially uniform means that at each time interval, it moves approximately the same lateral distance. *See* '867 patent fig. 2B. An object that moves the same lateral distance per time interval is moving at a constant lateral velocity. *Cf.* Oral Arg. at 11:45–53, *Mobileye Vision Techs., Ltd. v. iOnRoad, Ltd.*, No. 2017-1984 (Fed. Cir. May 2, 2018), http://oralarguments.cafc.uscourts.gov/default.aspx?fl=2017-1984.mp3 (stating that there is general familiarity with the concept that "distance equals rate times time"). When the lateral distance between the obstacle and the vehicle "approach[es] zero," it will collide or intersect with the vehicle. *See* '867 patent col. 8 ll. 18–21, fig. 2B; *see also Decision*, 2016 WL 949027, at *7.

Goodrich discloses this very situation: when monitoring a "lateral translation" of an obstacle at "its current lateral velocity," the system can determine whether the obstacle "will clear or intersect [with] the vehicle." *See* Goodrich col. 5 ll. 4–9. Thus, substantial evidence supports the Board's finding that "Goodrich expressly teaches" the limitation in claim 6. *See Decision*, 2016 WL 949027, at *7.

At oral argument, Mobileye argued that a key feature of the '867 patent is that it exclusively relies on the lateral displacement to estimate the time of contact, which is not directly related to the velocity of the obstacle. *See* Oral Arg. at 11:55–12:33. This feature makes a difference, Mobileye contended, because an object could be moving at a constant velocity, but the changes in its *lateral* displacement with respect to the vehicle could still decrease or increase in a non-constant manner. *See id.*; *see also* '867 patent fig. 2B. But Goodrich's collision avoidance system does not depend on a constant velocity; it depends on a constant "*lateral* velocity." Goodrich col. 5 l. 6 (emphasis added). Therefore, the record does not support Mobileye's attempt to distinguish the prior art.

Accordingly, the Board's finding that Goodrich discloses the "substantially uniformly approaches zero" limitation is supported by substantial evidence, and the Board properly concluded that claim 6 would have been obvious over Matthews, Lee, and Goodrich.

We have considered Mobileye's remaining arguments, but find them unpersuasive.

CONCLUSION

For the foregoing reasons, we affirm the decision of the Board.

AFFIRMED