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Paper 30
Entered: November 12, 2015

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INFOMOTION SPORTS TECHNOLOGIES, INC.,
Petitioner,

v.

PILLAR VISION, INC.,
Patent Owner.

Case IPR2014-00764
Patent 8,622,832 B2

Before KEN B. BARRETT, JAMES P. CALVE, and JACQUELINE WRIGHT BONILLA, *Administrative Patent Judges*.

BARRETT, *Administrative Patent Judge.*

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

InfoMotion Sports Technologies, Inc. ("Petitioner") filed a Petition requesting *inter partes* review of claims 1–26 of U.S. Patent No. 8,622,832 B2 ("the '832 patent," Ex. 1001). Paper 4 ("Pet."). On November 13, 2014, the Board instituted a trial for each of claims 1–11, 15, and 17–26 on asserted grounds of unpatentability. *See* Paper 8 ("Institution Decision" or "Inst. Dec.").

After institution of trial, Pillar Vision, Inc. ("Patent Owner") filed a Patent Owner Response ("PO Resp.") to the Petition. Paper 17. Petitioner filed a Reply ("Reply") to Patent Owner's Response. Paper 19. Petitioner also filed a Motion to Exclude. Paper 21 ("Pet. Mot."). Patent Owner filed an Opposition to that Motion (Paper 23, "PO Opp."), and Petitioner filed a Reply (Paper 25, "Pet. Reply to Opp.").

Oral hearing was conducted on June 26, 2015.[1]

The Board has jurisdiction under 35 U.S.C. § 6(c). Pursuant to 35 U.S.C. § 318(a), this decision is "a final written decision with respect to the patentability of any patent claim challenged by the petitioner."

Petitioner has shown by a preponderance of the evidence that claims 1–11, 15, and 17–26 are unpatentable. We deny Petitioner's Motion to Exclude.

A. Related Proceedings

Both parties identify, as a district court matter involving the '832

[1] A transcript of the oral hearing has been entered into the record as Paper 29 ("Hr'g. Tr.").

patent, *Pillar Vision, Inc. v. InfoMotion Sports Technologies, Inc.*, No. 2:14-cv-00043-RDP (N.D. Ala. filed Jan. 8, 2014). Pet. 2; Paper 6.

B. The'832 Patent

The '832 patent discloses a trajectory detection and feedback system, useful to evaluate trajectory parameters of a basketball shot at a basketball hoop. *See* Ex. 1001, Abstract. Figure 1 of the '832 patent is reproduced below:

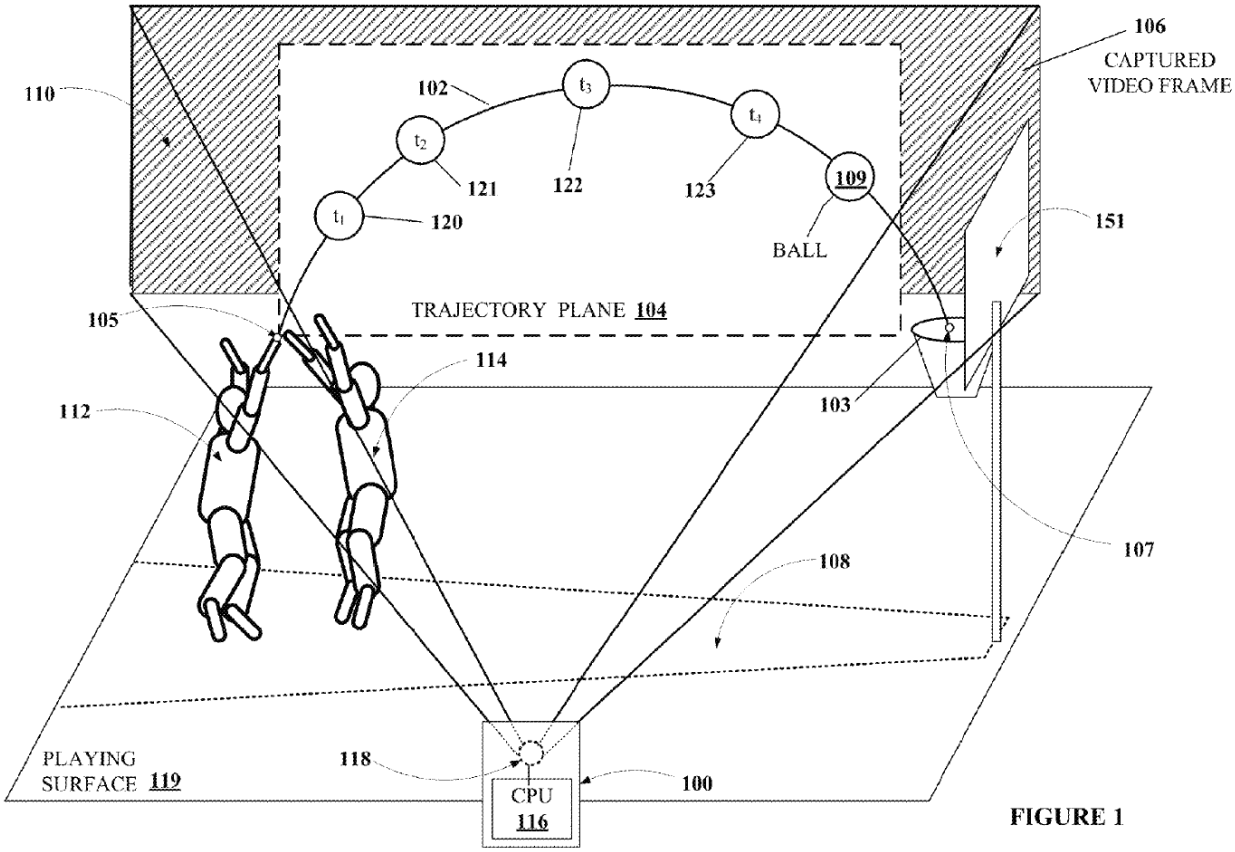


FIGURE 1

Figure 1 depicts a trajectory capture and feedback scenario employing a trajectory detection and feedback system using a machine vision system with a single camera to detect basketball trajectories. *Id.*, col. 8, ll. 17–19, 58–60. The specification explains that sensor systems other than machine vision systems maybe be used to generate trajectory parameters. *Id.*, col. 19, ll. 15–

18. "As [an] example, non-intrusive sensors, such as accelerometers or vibration sensors, may be integrated into the object [i.e., a basketball]." *Id.*, col. 19, ll. 26–28. In conjunction with the basketball having an integrated sensor system and wireless interface, the overall system of the claimed invention utilizes a processor configured to receive sensor data and generate feedback to characterize the skill of the player. *E.g.*, *id.*, col. 35, ll. 45–67 (claim 1). "The feedback information, such as a trajectory entry angle into the basketball hoop and/or an entry velocity into the hoop for the shot, may be output to the player." *Id.*, col. 2, ll. 52–55.

C. Illustrative Claim

Claims 1 and 26 are independent claims. Claims 2–11, 15, and 17–25 depend directly or indirectly from independent claim 1. Claim 1, reproduced below with emphasis added, is illustrative:

> 1. A system comprising:
>
> a basketball including a sensor system, disposed within the basketball, for measuring motions of the basketball wherein the sensor system includes a first wireless interface for sending sensor data related to the motions of the basketball to an electronic device;
>
> the electronic device including a processor and a memory and a second wireless interface for receiving the sensor data, said processor configured to 1) receive sensor data for a plurality of repeated motions of the basketball, 2) based upon the received sensor data, generate one or more parameters that characterize the plurality of repeated motions, 3) based upon the one or more parameters, generate feedback information that is used to characterize a skill of a person at generating the repeated motions and 4) output the feedback information wherein, when the repeated motions are a plurality of basketball shots, *an angle of the trajectory of each of the plurality of basketball shots relative to a plane of a basketball hoop when*

> *the basketball is proximate to the basketball hoop is determined* from the received sensor data associated with each shot and the feedback information is based upon the determined angles.

Ex. 1001, col. 35, ll. 45–67. Independent claim 26 is substantially similar except that it recites, rather than the angle language of claim 1, "wherein . . . a velocity of the basketball at one or more trajectory locations near the basketball hoop, including trajectory locations after the basketball enters the basketball hoop, is determined." *Id.*, col. 37, l. 18–col. 38, l. 20.

D. Applied References

Marinelli	US 6,148,271	Nov. 14, 2000	Ex. 1008
Dave Mullaney, *Free Throw Technique*, 38 Athletic Journal 53 (1957)			Ex. 1009
Roy, III et al.	US 5,515,378	May 7, 1996	Ex. 1010
Black et al.	US 5,566,934	Oct. 22, 1996	Ex. 1011
Soignet et al.	US 5,365,427	Nov. 15, 1994	Ex. 1012
Chartrand	US 5,562,550	Oct. 8, 1996	Ex. 1013

E. Asserted Grounds of Unpatentability

We instituted *inter partes* review on the following asserted grounds of unpatentability against the challenged claims (Inst. Dec. 21):

Reference[s]	**Basis**	**Claims**
Marinelli and Mullaney	§ 103(a)	1–6, 11, 15, 21, 23, 25, and 26
Marinelli, Mullaney, and Black	§ 103(a)	7–9, 17, and 20
Marinelli, Mullaney, and Roy	§ 103(a)	10
Marinelli, Mullaney, and Soignet	§ 103(a)	18, 19, and 24
Marinelli, Mullaney, and Chartrand	§ 103(a)	22

II. ANALYSIS

A. Claim Construction

In an *inter partes* review proceeding, we give claim terms in unexpired patents their broadest reasonable interpretation in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b). Under that standard, we assign claim terms their ordinary and customary meaning, as understood by a person of ordinary skill in the art, in the context of the entire patent disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Location of the Basketball Velocity Determination

Claim 26, with emphasis added, recites: "wherein . . . a velocity of the basketball at one or more trajectory locations near the basketball hoop, *including trajectory locations after the basketball enters the basketball hoop*, is determined." The parties dispute the implication of the emphasized phrase. We determine that Patent Owner's proposed interpretation is unreasonably narrow.

Patent Owner maintains that "[t]he plain meaning of that clause requires measurement not of ***entry velocity*** of a basketball into a hoop, but of ***post-hoop velocity***, or the velocity of the basketball ***after*** it enters the hoop." PO Resp. 11. Patent Owner argues that the claim phrase should "be construed to require measurement of the basketball's velocity . . . at ***trajectory locations below the plane of the hoop***." *Id.* at 12.

Petitioner argues that the "the Velocity Limitation is broad enough to include the entry velocity of a basketball into a basketball hoop." Pet. 11. Specifically, Petitioner maintains that the emphasized phrase modifies the

earlier phrase "one or more trajectory locations near the basketball hoop." Reply 20–21. Thus, argues Petitioner, the claim requires a determination of velocity at only one location (referring to the "at one or more" language) and that the location may be, but is not required to be, at a post-hoop location. *Id.* at 21.

The claim recites "one or more," thus encompassing a single location, whereas Patent Owner's construction would require measurement at a plurality of "trajectory locations." *See* Reply 21; PO Resp. 12. Petitioner's proposed construction—where the phrase containing the phrase "trajectory locations" modifies the earlier use of that same phrase—is a more natural reading of the claim language. Contrary to Patent Owner's arguments (PO Resp. 11), we do not view Petitioner's construction as reading out the emphasized phrase from the claim.

Petitioner's broader construction is consistent with the description in the specification. For example, the specification provides: "Using the curve-fit, trajectory parameters, such as an entry angle 211 and the entry velocity 212 of the object as it enters the hoop, is near the hoop or at other states along the trajectory may be generated." Ex. 1001, col. 16, ll. 34–37.

Patent Owner argues that claim 26 should be narrowly construed because "[t]he purpose of this ***post-hoop velocity*** measurement is to determine whether a basket has been made or missed" and because this measurement is "essential for carrying out the claimed invention." PO Resp. 11, 12. However, Patent Owner's claim construction analysis does not explain adequately how the intrinsic evidence would leave the ordinary artisan with the impression that the post-hoop velocity had the import to which Patent Owner would now ascribe. *See id.* at 10–12.

In characterizing the '832 patent and the velocity parameter, Patent Owner offers citations to the specification. *See id.* at 5–6. Patent Owner asserts that the post-hoop velocity is depicted as element 212 in Figure 2 of the '832 patent. *Id.* at 6. However, this assertion is inconsistent with the specification, which describes the element as "entry velocity 212," not as post-hoop or hoop exit velocity, and Figure 2 depicts this element as a velocity vector originating at termination point 213 at the hoop, not after the hoop. *See* Ex. 1001, col. 16, ll. 34–42; Fig. 2; *see also id.*, col. 1, ll. 44–46 (the trajectory terminates "within an area defined by the hoop"). As Patent Owner acknowledges, the specification refers to many trajectory characteristics including entry angle into a hoop, entry velocity into the hoop, a missed shot and a made shot. PO Resp. 6–7 (citing Ex. 1001, col. 6, ll. 25–36). Patent Owner does not point to where the specification mentions explicitly post-hoop velocities (as opposed to the passing references to made/missed shots) or to persuasive evidence indicating that the scope of claim 26 should be limited to only using post-hoop velocities to determine made or missed shots.

In our Institution Decision, we agreed with Petitioner's proposed construction of the velocity recitation as being "broad enough to include the entry velocity of a basketball into a basketball hoop." Inst. Dec. 7–8 (quoting Pet. 11). After further development of the record and consideration of the arguments presented and evidence relied upon by both parties, we determine that construction is appropriate also with respect to this Final Written Decision.

B. Petitioner's Motion to Exclude

Petitioner filed a Motion to Exclude the table in Paragraph 34 of

Exhibit 2001 (the Silverberg Declaration) and all testimony relating to that table. Pet. Mot. 1. The table purportedly "provides some rough numbers that illustrate why aerodynamic effects are not considered in the game of basketball." Ex. 2001 ¶ 34. Petitioner objects to Paragraph 34 because Dr. Silverberg did not provide—at least as of the conclusion of Dr. Silverberg's deposition—source data for the numbers in the table. Pet. Mot. 2–3. During his deposition, Dr. Silverberg testified that the values in the table were from his recollection from reading articles over the years and that he could not identify the names of the articles. Ex. 1020, 198:7–15, 199:8–10. Petitioner, in support of its Motion, relies on our rule at 37 C.F.R. § 42.65(a), which provides "[e]xpert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight." Pet. Mot. 7. In the alternative, Petitioner argues that testimony based solely on Dr. Silverberg's own experience should be excluded as unreliable (*id.* at 9 (citing Fed. R. Evid. 702(b))) or should be given no weight (Pet. Reply to Opp. 1–2).

Patent Owner responds that the testimony from Dr. Silverberg is admissible because it "is founded on his considerable experience." PO Opp. 1. Patent Owner argues that the objections go to weight and not admissibility. *Id.* at 9–10.

After considering both parties arguments, we agree with Patent Owner that Petitioner's assertions in its Motion go to the weight we should give the evidence at hand. We are not persuaded that exclusion of the table and related testimony is necessary under our rules or is needed to remedy

possible prejudice to Petitioner.[2] Accordingly, we deny Petitioner's Motion to Exclude.

C. Obviousness over Marinelli and Mullaney

Petitioner contends that claims 1–6, 11, 15, 21, 23, 25, and 26 would have been obvious over Marinelli and Mullaney, relying on the Declaration of Michael W. Maziarz (Ex. 1003). Pet. 14–39; Reply 1–18. Patent Owner contends otherwise, relying on the Declaration of Larry M. Silverberg (Ex. 2001). PO Resp. 7–8, 12–47.

1. Marinelli (Ex. 1008)

Marinelli is directed to an accelerometer network embedded into movable sporting objects to measure motion characteristics that are reported back to a user. Ex. 1008, col. 2, l. 66–col. 3, l. 16. The stated intended purpose of Marinelli's device is to provide the user with statistics concerning the trajectory of a spinning moving, object. *Id.*, col. 4, ll. 40–42. Figure 1 of Marinelli is shown below:

[2] In ruling on Petitioner's Motion regarding the admissibility of Dr. Silverberg's testimony, we are not persuaded by Patent Owner's argument (PO Opp. 11–12) that Petitioner should have rebutted the testimony with Petitioner's own evidence and testimony.

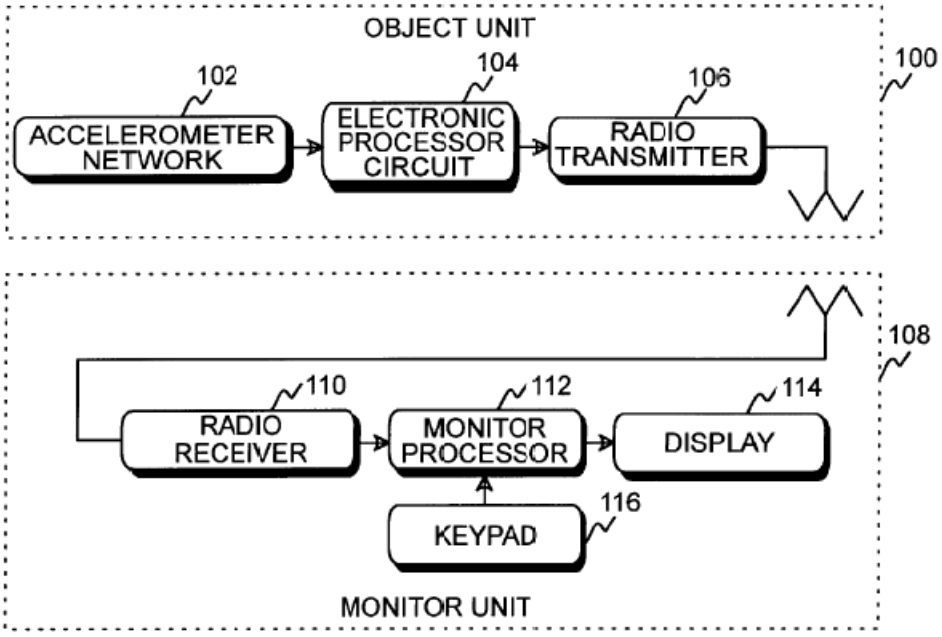
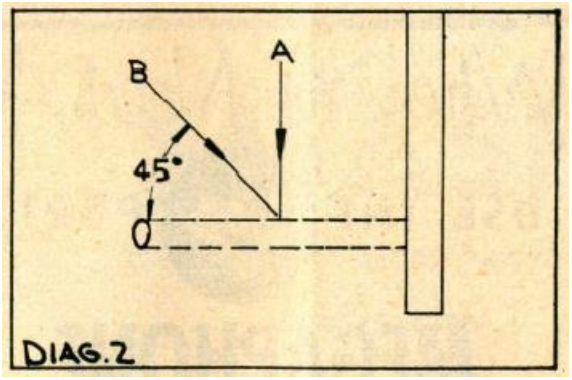


Figure 1 shows a block diagram of a device for measuring the speed, spin rate, and curve of a movable object. Ex. 1008, col. 3, ll. 37–39, col. 4, ll. 37–38. The device includes object unit 100 and monitor unit 108. *Id.*, col. 4, ll. 39–40. Object unit 100 is secured within a movable object, such as a baseball, golf ball, hockey puck, football, soccer ball, or tennis ball. *Id.*, col. 2, l. 66–col. 3, l. 9. Electronic processor circuit 104 of object unit 100 gathers data from accelerometer network 102 and uses radio transmitter 106 to send the data to monitor unit 108. *See id.*, col. 4, ll. 40–48; col. 5, ll. 29–35. Monitor unit 108 uses the data to determine the velocity, spin rate, curve, and other characteristics of the moving object. *See id.*, col. 5, ll. 29–55; col. 6, ll. 21–34; *see also id.*, col. 5, l. 63–col. 6, l. 6 (describing how to utilize, e.g., barometric pressure and humidity information to more accurately calculate the deflection from a straight line trajectory).

2. Mullaney (Ex. 1009)

Mullaney is an article appearing in the *Athletic Journal* in 1957 titled

"Free Throw Technique." Ex. 1009, 3. Mullaney "examine[s] some ways to improve shooting at the free throw line." *Id.* Two considerations in achieving that goal, according to Mullaney, are the "angle of entry" and the "velocity" of the basketball at the rim. *See id.* Diagram 2 of Mullaney, shown below, illustrates angle of entry B:



Id. As shown in Diagram 2, according to Mullaney, the "optimum" angle of entry for a free throw basketball shot is 45°. *Id.* Mullaney further concludes "in order to get the *softest* ball on rim impact, the total velocity of the ball should be minimum [sic]." *Id.*

Mullaney explains that, based upon the 45° angle of entry, one may construct trajectory curves and compute the highest point of the arc P. *Id.* at 3–4. Mullaney's Diagram 3 is shown below.

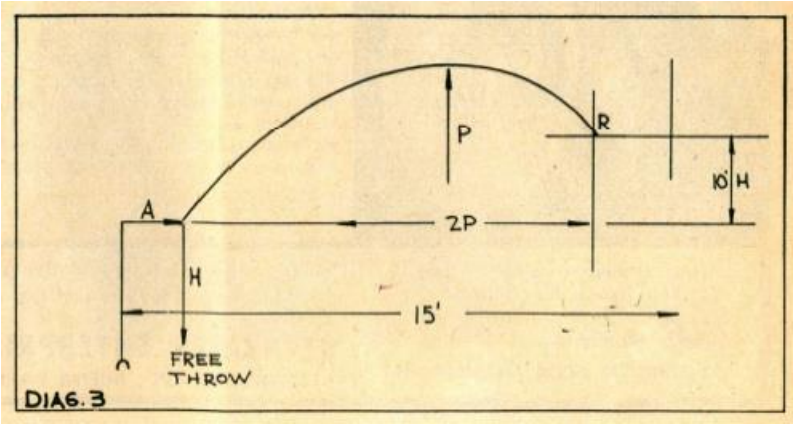


Diagram 3 depicts a free throw trajectory curve. *Id.* at 3. Mullaney

concludes that the peak trajectory height for various sized players falls within a limited range and suggests the use of a vertical free throw practice rim in order "to increase team efficiency in hitting the proper top of the trajectory." *Id.* at 4. Thus, Mullaney proposes using peak trajectory height as a way to attain the desired entry velocity and angle. *See id.* at 4–5 ("Use of the vertical rim to assure a 45° angle of entry will control final velocity and softness.")

3. The Independent Claims 1 and 26

Petitioner contends that Marinelli discloses all limitations of claims 1 and 26 except feedback information based on an angle of the trajectory of basketball shots and a velocity of the basketball. *See* Pet. 15–18, 21–29; *see also id.* at 16 (referring to the "Angle Limitation" and the "Velocity Limitation"). Petitioner relies on Mullaney as disclosing those basketball angle and velocity limitations. *Id.* at 18–19, 22, 26–27, 28–29.

According to Petitioner, a person of ordinary skill in the art "would have been motivated to combine the teachings of Marinelli and Mullaney to insert an accelerometer network into a basketball to measure and report important basketball trajectory characteristics such as basketball entry angles and entry velocities." Pet. 19; *see* Ex. 1003 ¶¶ 29–37. Petitioner maintains that the challenged claims "are merely a combination of 'prior art elements according to known methods to yield predictable results' and thus are unpatentable." Pet. 14 (citing *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007)).

Petitioner reasons that one would have been motivated to apply Marinelli's accelerometer network technology to basketball because motion (trajectory) characteristics like those that are the subject of the sports listed

in Marinelli's disclosure also are of interest to those involved with basketball. Pet. 16–17; Ex. 1003 ¶¶ 29–32. Petitioner maintains Mullaney teaches that, "as long ago as 1957, players and coaches knew that both entry angles and entry velocities are . . . useful for characterizing basketball trajectories and for providing feedback information to basketball shooters." Pet. at 19; *see* Ex. 1003 ¶ 34.

We conclude that Petitioner has established by a preponderance of the evidence that the teachings of Marinelli and Mullaney account adequately for all the features of the independent claims, and a skilled artisan would have had adequate reason to combine those teachings. We are persuaded that one would have had reason to apply the teachings of Mullaney in relation to entry angles and velocities, in the context of basketball, to the teachings in Marinelli. We have reviewed all of Patent Owner's arguments against this ground and address its principal arguments below.

4. Patent Owner's Arguments Concerning the Independent Claims

Patent Owner argues that the independent claims "require measurement," as opposed to calculation, of entry angle and velocity and that "these measurements" are not taught by the prior art relied upon by Petitioner. PO Resp. 15; *see also id.* at 36 (asserting Marinelli calculates but does not measure velocity). This argument is not commensurate in scope with the claims. The independent claims call for structure (presumably the processor) to "determine[]" the velocity or angle and only refer to "measuring motions" in reciting the function of the sensor system of the basketball.[3] Thus, the claims require a processor configured to determine

[3] *E.g.*, claim 1 (emphases added) ("A system comprising: a basketball

the angle and velocity, and that would include determination by calculation based on data from the sensor system within the basketball, the function of which is to measure motions.

Patent Owner argues that Mullaney teaches only to "measure" the peak trajectory height rather than the entry velocity and entry angle. PO Resp. 15–32. For the reasons discussed above, this argument is not commensurate in scope with the language of independent claims 1 and 26. The claims recite that the velocity and angle are determined, not measured. Further, that Mullaney promotes a practice drill using peak trajectory height does not diminish the teaching that entry velocity and angle were considered important characteristics of a basketball free throw. As discussed above, Mullaney, in 1957, used the technology at hand, namely a vertical practice rim, to establish a point on the trajectory curve to attain the desired, predetermined entry angle and the minimum entry velocity. In addition, Marinelli taught the application of more modern technology, an accelerometer network and processor, to moveable sports objects in order to determine trajectory characteristics. Accordingly, we are persuaded that Petitioner's proposed combination of teachings addresses adequately the claim recitations regarding an angle and a velocity that are determined.

Patent Owner's makes the related argument that Mullaney erred in hypothesizing that the minimum entry velocity creates the softest ball on rim impact and that minimum entry velocity is achieved at an entry angle of 45°.

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including a sensor system, disposed within the basketball, *for measuring motions* of the basketball . . . [and an] electronic device including a processor . . . wherein . . . *an angle of the trajectory . . . is determined* from the received sensor data.").

PO Resp. 23; *see id.* at 23–30. We do not find this argument persuasive because, even if Mullaney was incorrect as to the most desirable values for the angle and velocity,[4] we are not persuaded that one of ordinary skill in the art would fail to recognize the fundamental teaching that those variables were of interest to those in the field of basketball.

Patent Owner next argues that Mullaney fails to teach the measurement of post-hoop velocity. PO Resp. 32–34. This argument is unavailing. As discussed above in construing the claim, claim 26 does not require a measurement or determination of the velocity after the basketball has passed through the hoop.

Patent Owner impliedly argues that Marinelli discloses measuring spin rate only, and maintains that "[t]he measurements disclosed in Marinelli thus have no useful application in basketball." *Id.* at 3; *see also id.* 35–40 (arguing that spin does not affect a basketball's flight path). Similarly, Patent Owner suggests that Marinelli must have omitted basketball from the list of sports because spin rate has no impact on basketball trajectory. *Id.* at 37. Even were we persuaded that spin rate has no relevance in basketball—which we are not[5]—we would not find Patent Owner's

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[4] The patent at issue, although for a reason different than that of Mullaney, describes similarly a 45° entry angle as a component of an optimal trajectory. Ex. 1001, col. 12, ll. 8–14 ("For instance, for a basketball shot in the basket 103, an optimal entry angle into the hoop that provides the greatest margin of error is about 43–45 degrees measured from a plane including the basketball hoop 103.").

[5] The table in the declaration of Patent Owner's expert (Ex. 2001 ¶ 34; the table that is the subject of the Motion to Exclude) lists the same spin rate for a basketball as for a soccer ball, a ball that is discussed in Marinelli. This is in contradiction to Patent Owner's argument that "the spin rate . . . of a

arguments persuasive as to patentability. Marinelli teaches, as discussed above, the determination of various trajectory characteristics of moving sports objects, not only spin, and such would be of interest in basketball. *See* Ex. 1003 ¶ 30. In an obviousness analysis, we will not presume that the person of ordinary skill in the art is an automaton unable to envision applications of the teachings beyond that explicitly disclosed. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007).

Patent Owner argues that "Marinelli does not ***measure*** velocity of a ball in flight, but rather ***calculates*** it." PO Resp. 36. As discussed above, this argument is not commensurate in scope with the claims. Independent claims 1 and 26 call for structure to "determine[]" the angle and velocity, respectively. The function of the sensor system of the basketball is to measure motions. Accelerometers can measure motions. *See, e.g.*, Ex. 2001 ¶ 30 (Dr. Silverberg, Patent Owner's witness, testifying "[t]he Marinelli Patent teaches how to measure the motion of a sports object by embedding accelerometers into the sports object and by sending those measurement signals though [sic] a wireless interface to a receiving sensor."); *id.* ¶ 35 ("The Marinelli Patent, through its teachings with of an accelerometer network mounted along three perpendicular axes, has the ability to measure changing rotational motion of a moving object about different axes independent of its translational motion."); Hr'g. Tr. 32 (counsel for Patent

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basketball shot [is] far lower than in any of the sports named in Marinelli." PO Resp. 40. Patent Owner's expert testified that it was known at least as of 2002 that "it was well known that in the neighborhood of three revolutions per second was a good amount of back spin to put on the [basket]ball." Ex. 1020, 97:22–98:6.

Owner acknowledging that "[Marinelli] can calculate things like speed and it can calculate things like peak shot height."). Mr. Maziarz persuasively testifies that a person of ordinary skill in the art would have been able to implement Marinelli's accelerometer technology into a basketball system so as to measure and report entry angles and entry velocities. Ex. 1003 ¶ 38.

Counsel for Patent Owner at the hearing stated his belief that a person could not use the system of Marinelli to determine entry angle or velocity. Hr'g. Tr. 33. Although we recognize that this discussion may have resulted from questioning by the judges, we fail to see where Patent Owner's papers present an argument concerning whether Marinelli provided an enabling disclosure. *See Office Patent Trial Practice Guide*, 77 Fed. Reg. 48,756, 48,768 (Aug. 14, 2012) (parties are not permitted to raise new arguments at oral hearing). At the hearing, counsel cited page 36 of Patent Owner's Response as raising the argument that Marinelli calculates rather than measures speed. Hr'g. Tr. 41:7–13. We have addressed above the specific argument set forth on that page. Nonetheless, Patent Owner's counsel's stated belief at the hearing is not a substitute for evidence and does not rebut the evidence of Marinelli's enabling disclosure as discussed in the paragraph immediately above. Further, we find persuasive Petitioner's contention that, "[u]nlike the '832 Patent, which mentions accelerometers once in the specification [in addition to claim 3], Marinelli provides extensive details about configuring accelerometer networks within sporting objects to provide users with statistics about the object's trajectory." Pet. 15.

Patent Owner further attempts to distinguish basketball from the sports listed in Marinelli by arguing that Marinelli does not teach measuring the trajectory relative to a stationary object like a basketball goal. PO

Resp. 42–44. We are not persuaded. First, the argument appears grounded in the flawed proposition that Marinelli only teaches the relevance of spin. *See id.* 43. Second, as Patent Owner concedes (*see* Hr'g. Tr. 38:20–39:3), sports in Marinelli are concerned with curving the flight path. Those instances of curving would be relative to a stationary object or at least a relatively stationary one (for example, bending a soccer ball around a defender to target a stationary goal, drawing a golf shot to avoid a hazard or to target the stationary hole, or throwing a curve ball to target a particular point in space relative to the batter and corresponding strike zone). *Cf. id.* (discussing examples of bending the ball in flight). That the discussion at hand pertains to the end of the trajectory at a basketball hoop does not suggest that one of ordinary skill in the art would fail to see value in Marinelli's teaching of a complete trajectory analysis, even where the pertinent point in the trajectory in some instances might be at a location other than the trajectory termination (i.e. the strike zone rather than the catcher's mitt; *see* PO Resp. 43 (arguing that there would be no point in measuring the spin of a baseball at the moment it is caught by the catcher)). Third, Patent Owner's argument is unpersuasive because it is an attack on Marinelli individually rather than a response to the Petitioner's articulated combination of teachings of the references. Petitioner does not rely on Marinelli alone for the disclosures that Patent Owner addresses. *See* Pet. 26–29; *see also In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)) (one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references). Mullaney teaches utilizing shot trajectory information, including the development of the entire

trajectory, and using the basketball hoop as the point of reference for entry velocity and angle.

Lastly, Patent Owner argues that one of ordinary skill in the art would not be motivated to combine Mullaney and Marinelli. PO Resp. 44–46. This argument is premised on the assertions that "Mullaney does not teach measuring anything other than peak shot height" and "Marinelli's focus on spin rate has no utility in basketball." *Id.* at 44. We have addressed these assertions above and find them unavailing. Patent Owner directs us to no persuasive argument or evidence that persuades us that either reference "teaches away" from Petitioner's articulated combination of references' teachings. *See id.* at 45, 46; *see also In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (A reference does not teach away if it merely expresses a general preference for an alternative invention but does not "criticize, discredit, or otherwise discourage" investigation into the invention claimed.).

Reviewing the record before us, we determine that Petitioner has shown, by a preponderance of the evidence, that the teachings of Marinelli and Mullaney render obvious the subject matter of independent claims 1 and 26.

5. The Dependent Claims

The remaining claims that are the subject of the first ground—claims 2–6, 11, 15, 21, 23, and 25—depend from independent claim 1. Petitioner sets forth a detailed analysis of how Marinelli and Mullaney teach the limitations of these claims as well as why a person of ordinary skill in the art would have reason to modify the teachings of Marinelli in view of the teachings of Mullaney to arrive at the subject matter recited in those claims. Pet. 28–39. Patent Owner does not respond directly to the arguments and

evidence regarding these dependent claims presented in the Petition. *See* PO Resp. 46–47. Rather, Patent Owner relies on its arguments presented for independent claim 1. *Id.* at 47. Based on the argument and evidence presented in the Petition, we are persuaded that Petitioner has established, by a preponderance of the evidence, that claims 2–6, 11, 15, 21, 23, and 25 are rendered obvious by Marinelli and Mullaney.

D. Remaining Obviousness Grounds

There are four remaining obviousness grounds in this proceeding. For each such ground, Petitioner maintains that Marinelli and Mullaney in combination with another reference renders obvious certain dependent claims of the '832 patent, claims 7–10, 17–20, 22, and 24. Those additional references are Black (Ex. 1011; pertaining to a baseball trainer; applied to claims 7–9, 17, and 20), Roy (Ex. 1010; wireless communications systems; applied to claim 10), Soignet (Ex. 1012; system for evaluating basketball free throws; applied to claims 18, 19, and 24), and Chartrand (Ex. 1013; computerized golf handicap system; applied to claim 22). Petitioner sets forth a detailed analysis of how each combination renders obvious the claimed subject matter and provides reasoning as to why one would have combined the references' teachings to arrive at the subject matter recited in those claims. Pet. 39–57. For these grounds, Patent Owner relies on its arguments presented for independent claim 1 and presents further arguments. PO Resp. 47–51.

Patent Owner argues that one would not have been motivated to combine the teachings as proposed by Petitioner because none of Black, Roy, or Chartrand mentions basketball. *Id.* Patent Owner additionally argues that Roy "does [not] even mention applying its teachings to sports."

Id. at 48. These arguments are not availing as they fail to address persuasively Petitioner's reasoning why one would have combined the references. As to Roy, Petitioner explains how Marinelli describes a problem with data transmission concerning simultaneously moving sports objects and how one of ordinary skill would have recognized that Roy teaches a solution to that problem. Pet. 46–47. Patent Owner's expert acknowledges that Roy "addresses teachings pertaining to the measurement of a movable object, in this case multiple moving objects." Ex. 2001 ¶ 55. Patent Owner criticizes Soignet because it pertains to basketball, arguing unpersuasively again that Marinelli's teachings have no utility in basketball. PO Resp. 49–50.

We are persuaded that Petitioner has established, by a preponderance of the evidence, that the subject matter of claims 7–10, 17–20, 22, and 24 would have been obvious over the articulated combinations of art.

III. CONCLUSION

Upon review of the Petition and supporting evidence, as well as the Patent Owner Response and supporting evidence, we are persuaded that Petitioner has demonstrated, by a preponderance of the evidence, that: Marinelli and Mullaney render obvious claims 1–6, 11, 15, 21, 23, 25, and 26; Marinelli, Mullaney, and Black render obvious claims 7–9, 17, and 20; Marinelli, Mullaney, and Roy render obvious claim 10; Marinelli, Mullaney, and Soignet render obvious claims 18, 19, and 24; and Marinelli, Mullaney, and Chartrand render obvious claim 22.

IV. ORDER

In consideration of the foregoing, it is

ORDERED that claims 1–11, 15, and 17–26 of the '832 patent are unpatentable;

FURTHER ORDERED that Petitioner's Motion to Exclude evidence is *denied*; and

FURTHER ORDERED that, because this is a Final Written Decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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