

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DGL GROUP, LTD.,
Petitioner,

v.

HANGZHOU CHIC INTELLIGENT TECHNOLOGY CO., LTD.,
Patent Owner.

IPR2022-00844
Patent 10,597,107 B2

Before JEREMY M. PLENZLER, CARL M. DeFRANCO, and
JAMES A. WORTH, *Administrative Patent Judges*.

DeFRANCO, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

Hangzhou Chic Intelligent Technology Co., Ltd. (“Hangzhou”) is the owner of U.S. Patent No. 10,597,107 B2 (Ex. 1001, “the ’107 patent”). DGL Group Ltd. (“DGL”) filed a Petition requesting *inter partes* review of claims 1 and 4–25 of the ’107 patent. Paper 1 (“Pet.”). Hangzhou filed a Preliminary Response. Paper 7 (“Prelim. Resp.”). Because DGL

demonstrates a reasonable likelihood that at least one claim of the '107 patent is unpatentable, we institute an *inter partes* review of all claims as challenged in the Petition. See 35 U.S.C. § 314(a).

I. BACKGROUND

A. Related Matters

The '107 patent is the subject of a parallel infringement action filed March 18, 2021 in the U.S. District Court for the Eastern District of New York and captioned *Unicorn Global, Inc.*¹ and *Hangzhou Chic Intelligent Technology Co., Ltd. v. DGL Group, Ltd.*, Case No. 1:21-cv-1443 (E.D.N.Y.). See Pet. 3; Paper 6, at 3. Both DGL and Hangzhou inform us that the '107 patent was also the subject of several other infringement actions, including: *Unicorn Global, Inc. v. Golabs Inc.*, No. 3:20-cv-02023 (N.D. Tex.); *Golabs Inc. v. Unicorn Global, Inc.*, No. 3:21-cv-00311 (N.D. Tex.); *Unicorn Global, Inc. v. E-Link Technology Co., Ltd.*, No. 1:20-cv-04127 (N.D. Ill.); *Golabs Inc. v. Hangzhou Chic Intelligent Technology Co. Ltd.*, No. 3:19-cv-01019 (N.D. Tex.); *Unicorn Global, Inc. v. Walmart Inc.*, No. 3:20-cv-03111 (N.D. Tex.); and *Unicorn Global, Inc. v. Jetson Electric Bikes LLC*, No. 1:21-cv-01436 (E.D.N.Y.). See Pet. 3–4; Paper 6, at 3–4. According to DGL and Hangzhou, each of those other actions has terminated. See Pet. 4; Paper 6, at 3–4.

B. The '107 Patent

The '107 patent is directed to a two-wheeled, electric self-balancing personal vehicle. See Ex. 1001, 1:21–22. The self-balancing vehicle has two platforms on which a user stands that “rotate relative to each other” and

¹ Hangzhou informs us that “Unicorn Global, Inc., is the exclusive licensee of the '107 Patent, and thus is a real-party-in-interest.” Paper 6, at 2.

“enable the user to stand more stably” while the vehicle is moving. *Id.* at 1:22–23, 5:65–6:1. Notably, each foot platform includes an inner cover disposed between a top cover and a bottom cover. *Id.* at 1:50–62. The inner cover operates “as the internal framework of the entire self-balancing vehicle [] to indirectly bear the weight of the user,” thereby making the vehicle “firmer and stronger,” while also protecting the electronic components within the vehicle body. *Id.* at 6:20–29. Figure 2 of the ’107 patent, reproduced below, illustrates an embodiment of the self-balancing vehicle.

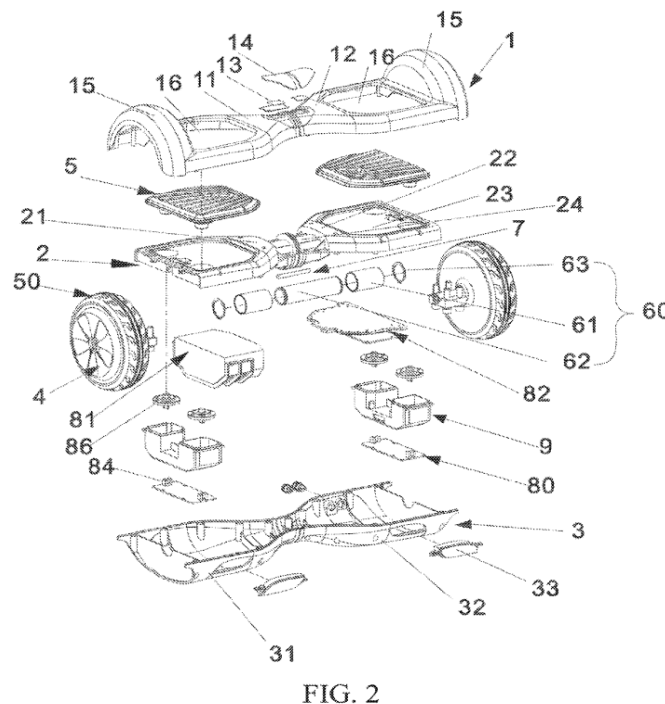


Figure 2 is an exploded schematic diagram of the electric self-balancing vehicle 100. Ex. 1001, 3:56–57. As shown, electric self-balancing vehicle 100 includes top cover 1, inner cover 2, bottom cover 3, two hub motors 4, two wheels 50, rotating mechanism 60, plural sensors 80, power supply 81, and controller 82. *Id.* at 4:8–12. Inner cover 2 is fixed

between top cover 1 and bottom cover 3, and includes first inner cover 21 and second inner cover 22 disposed symmetrically and rotatable relative to each other. *Id.* at 5:43–47. Rotating mechanism 60 is fixed between first inner cover 21 and second inner cover 22. *Id.* at 6:45–46.

C. The Asserted Challenges

Claims Challenged	35 U.S.C. §	Basis
8, 10, 11, 14–16	103	Chen ² and Guangjing ³
1, 5, 6, 12, 13, 25	103	Chen, Guangjing, and Kakinuma ⁴
4	103	Chen, Guangjing, Kakinuma, Dunn ⁵
7	103	Chen, Guangjing, and Osamu ⁶
9, 17, 18	103	Chen, Guangjing, and Hye ⁷
19, 20	103	Chen, Guangjing, and Dunn
21, 24	103	Chen, Guangjing, Dunn, and Cosby ⁸
22, 23	103	Chen, Guangjing, and Larson ⁹
1, 5, 8, 10–16, 25	102(a)	Kickstarter ¹⁰
6	103	Kickstarter and Guangjing

² US 2013/0238231 A1, pub. Sept. 12, 2013 (Ex. 1004, “Chen”).

³ CN 103144715 A, pub. June 12, 2013 (Ex. 1005, “Guangjing”) (Ex. 1006, certified English translation).

⁴ US 7,958,956 B2, iss. June 14, 2011 (Ex. 1007, “Kakinuma”).

⁵ US 2006/0226675 A1, pub. Oct. 12, 2006 (Ex. 1010, “Dunn”).

⁶ JP 2005-94898 A, pub. Apr. 7, 2005 (Ex. 1008, “Osamu”) (Ex. 1009, certified English translation).

⁷ KR 10-2008-0062416 A, pub. July 3, 2008 (Ex. 1011, “Hye”) (Ex. 1012, certified English translation).

⁸ US 2011/0023652 A1, pub. Feb. 3, 2011 (Ex. 1013, “Cosby”).

⁹ US 2013/0206493 A1, pub. Aug. 15, 2013 (Ex. 1014, “Larson”).

¹⁰ *Hovertrax* by Inventist, <https://web.archive.org/web/20130504083823/http://www.kickstarter.com/projects/687658339/hovertrax>, May 4, 2013 (Ex. 1015, “Kickstarter”).

Claims Challenged	35 U.S.C. §	Basis
7	103	Kickstarter and Osamu
9, 17, 18	103	Kickstarter and Hye
4, 19, 20	103	Kickstarter and Dunn
21, 24	103	Kickstarter, Dunn, and Cosby
22, 23	103	Kickstarter and Larson

In support of these challenges, DGL also submits the declaration of Glenn E. Vallee, Ph.D., P.E. *See* Ex. 1003. Hangzhou, in turn, submits the declaration of David C. Hartup, Ph.D. *See* Ex. 2001.

D. The Challenged Claims

Four of the challenged claims are independent—claims 1, 8, 10, and 25. Claims 1, 8, and 25 each require that the electric balance vehicle have a top cover, a bottom cover, and an inner cover, as well as other components for operating the vehicle. Claim 10 requires an inner cover for the vehicle, but does not require the top and bottom covers. Claim 8 is representative and recites:

8. An electric balance vehicle, comprising:
 - [1] a top cover;
 - [2] a bottom cover;
 - [3] an inner cover positioned between the top cover and the bottom cover, the inner cover comprising a first inner cover and a second inner cover disposed symmetrically and rotatable relative to each other, the inner cover comprising a left edge and a right edge;
 - [4] a rotating mechanism disposed between the first inner cover and the second inner cover and comprising a shaft sleeve installed in inner ends of the first inner cover and the second inner cover, the first inner cover and the second inner cover capable of rotating relative to each other through the rotating mechanism; and

[5] wheels rotatably fixed to the left edge and the right edge, respectively.

Ex. 1001, 11:11–27 (nomenclature added).

II. ANALYSIS

A. *Discretionary Denial Under 35 U.S.C. § 314(a)*

Hangzhou requests that we exercise our discretion under 35 U.S.C. § 314(a) to deny institution based on the parallel infringement action in the U.S. District Court for the Eastern District of New York. Prelim. Resp. 21–25. We decline to do so for the simple reason that, not only is there no trial date set in the parallel action, there is no indication whatsoever that the district court will render a final judgment before the statutory deadline of a final decision in this proceeding. *See id.* at 23; *see also Interim Procedure for Discretionary Denials in AIA Post Grant Proceedings with Parallel District Court Litigation*, at 8–9 (June 21, 2022).

Indeed, Hangzhou simply speculates that a trial is “highly likely” to occur before our final decision, whereas the district court’s docket informs us otherwise, namely, that fact discovery is still ongoing and expert discovery has yet to begin. *See* Ex. 3001 (District Court Docket Entries 51, 53–58 (dated Mar. 11, 2022–Aug. 25, 2022)). And, although the magistrate judge in the parallel action issued a recommendation on claim construction, Hangzhou has objected to the magistrate judge’s recommendation and sought review by the district court judge, meaning that deadlines for fact and expert discovery, let alone a trial date, have yet to be set because they all depend on the date of the district court’s *Markman* decision. *See* Ex. 2004, at 3–4 (setting completion of fact discovery for “90 days after *Markman* decision” and completion of expert discovery for 105 days after close of fact

discovery). Thus, in our view, those factors collectively weigh against exercising our discretion to deny institution under § 314(a) in view of the parallel action.

B. Claim Construction

We apply the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). That is, “the words of a claim ‘are generally given their ordinary and customary meaning’ . . . that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Id.* at 1312–13; *see also* 37 C.F.R. § 42.100(b).

DGL asks that we construe three claim terms: (1) the term “electric balance vehicle” in independent claims 1, 8, 10, and 25 to mean “a vehicle that automatically maintains its balance;” (2) the term “controller” in independent claims 1, 10, and 25 to mean “a single controller;” and (3) various versions of the term “control[ling] the [hub] motors” in independent claims 1, 10, and 25 to mean “controls both [hub] motors.” Pet. 22–23. Hangzhou responds that none of these terms need construction, but nonetheless notes the various constructions proposed by the parties in the related district court action. *See* Prelim. Resp. 8–9 (citing Ex. 1016, 13–17; Ex. 1020, 15–20).

At this stage, we do not perceive the need to construe any of these claim terms, as the threshold question of institution can be decided regardless of their construction. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (approving Board decision not to construe claim language where the construction is not material to the dispute).

C. Level of Ordinary Skill in the Art

Hangzhou contends that one skilled in the art in the relevant time frame:

would have at least (1) a bachelor's degree in electrical engineering, mechanical engineering, computer science, or a related field, or equivalent experience, and (2) at least two years of experience in the area of (i) robotics or feedback control for electromechanical systems; (ii) mechanical design, dynamic analysis, and/or control design for mechatronic systems, or (iii) equivalent experience in (i) or (ii).

Prelim. Resp. 5. DGL does not contest Hangzhou's definition of the level of skill in the art. See Pet. 11 (DGL adopting definition asserted by Hangzhou in the related district court action "for the purposes of this proceeding only"). At this stage, Hangzhou's formulation of the level of skill in the art appears reasonable and consistent with the level of skill reflected in the asserted prior art. Hence, we adopt it for purposes of institution.

D. Threshold for Institution

1. DGL's Obviousness Challenge Based on Chen and Guangjing

We begin with DGL's challenge of independent claim 8, assessing whether the Petition demonstrates a reasonable likelihood that the claimed "electric balance vehicle" is unpatentable as obvious over the combined teachings of Chen and Guangjing. See Pet. 24. DGL provides a detailed mapping of how Chen satisfies each element of claim 8, except for the third element reciting the "inner cover." *Id.* at 24–32. For that missing claim element, DGL points to Guangjing's teaching of an electric balance vehicle having "an inner cover (framework 4) between a top cover (upper housing 9) and a bottom cover (lower housing 1)," and explains that one skilled in the art would have "employ[ed] the inner cover of Guangjing with the electric

balance vehicle of Chen because of the benefits expressly taught by Guangjing: improved structural strength, lighter weight, lower battery load, faster response speed, and longer battery run-time.” *Id.* at 29 (citing Ex. 1003 ¶ 83). And, according to DGL’s declarant, “the use of an inner cover with the vehicle of Chen would have merely been the predictable result of using the elements of Guangjing according to their known function” and “the inner cover should be symmetric to balance the weight of the two sections.” Ex. 1003 ¶¶ 83, 86.

At the outset, we note that Hangzhou does not dispute Chen’s disclosure of elements [1], [2], [4], and [5] of claim 8, as enumerated in Section I.D above. *See* Prelim. Resp. 25–30. As such, we address only element [3] of claim 8, which recites “an inner cover positioned between the top cover and the bottom cover.” With respect to that element, Hangzhou contends that combining Guangjing’s inner cover with Chen’s electric balance vehicle is improper because “the methods of control between the two devices are entirely different” and Chen “specifically teach[es] away from [Guangjing’s] ‘Segway’ type devices where the device is controlled not by the user’s feet, but through an operating or steering rod.” *Id.* at 25–26. And according to Hangzhou, because Guangjing “relies on a steering rod or column rather than control via the foot platforms,” one skilled in the art “would not have combined the inner cover of Guangjing with the invention of Chen as they utilize conflicting methods of control which would be non-functional and at cross purposes with one another.” *Id.* at 28 (citing Ex. 2001 ¶ 31).

We disagree with Hangzhou for several reasons. First, the preliminary record clearly supports DGL’s showing that, at a minimum, the

combination of Chen and Guangjing discloses an inner cover in the manner recited by claim element [3]. *See* Pet. 27–30. To the extent Hangzhou faults DGL’s reason for why one skilled in the art would have combined the teachings of Chen and Guangjing, we are unpersuaded for the simple reason that Hangzhou focuses repeatedly on an element in Guangjing not relied upon by DGL—namely, Guangjing’s “steering rod” for controlling the vehicle—and otherwise argues the references individually without ever acknowledging the combination of their teachings as a whole. *See* Prelim. Resp. 25–30, 33–35.

In other words, Hangzhou looks at the references too narrowly by improperly focusing on differences in the steering control for the self-balancing vehicles when, more aptly, the focus should be on the housing for the components of the vehicles. As the record currently stands, neither Chen nor Guangjing teaches away from incorporating an inner cover or similar framework within the outer housing of a self-balancing vehicle in order to strengthen its overall structure while also making it lighter. Thus, we determine that DGL demonstrates a reasonable likelihood that challenged claim 8 is unpatentable as obvious over the combined teachings of Chen and Guangjing, even accounting for Hangzhou’s arguments to the contrary.

Aside from claim 8, DGL also relies on Chen and Guangjing to challenge independent claim 10 and dependent claims 11 and 14–16. Pet. 32–39. Hangzhou does not treat DGL’s challenge of these claims any differently than DGL’s challenge of claim 8. *See* Prelim. Resp. 30–33. For instance, like it does for claim 8, Hangzhou argues that the asserted combination of Chen and Guangjing “lacks an inner cover entirely and specifically teaches away from the single piece inner frame of Guangjing—

which specifically requires a steering column and additional weight and components.” *Id.* at 30–31 (citing Ex. 2001 ¶ 36). As such, Hangzhou makes essentially the same arguments in support of claim 10 as it made for claim 8. Similarly, Hangzhou asserts that dependent claims 11 and 14–16, which depend from claim 10, are also not rendered obvious by Guangjing and Chen. *Id.* at 32–33. But Hangzhou’s arguments in support of claims 10, 11, and 14–16 are no more persuasive than they were for claim 8, at least not at this stage. But keeping in mind that DGL bears the burden of establishing a likelihood of success, we have fully considered DGL’s showing with respect to those claims, and, nonetheless, conclude that DGL demonstrates a reasonable likelihood that claims 10, 11, and 14–16 are unpatentable as obvious over Chen and Guangjing.

2. *DGL’s Other Challenges*

DGL challenges claims 1, 4–7, 9, 12, 13, and 17–25 as obvious over Chen, Guangjing, and various other references. Pet. 39–62. In addition, DGL challenges claims 1, 5, 8, 10–16, and 25 as anticipated by Kickstarter and claims 4, 6, 7, 9, and 17–24 as obvious over Kickstarter, Guangjing, and various other references. See Pet. 63–80. Because, as discussed above, DGL meets the threshold for institution with respect to at least independent claim 8, we need not decide at this time whether DGL’s other challenges satisfy the same threshold. Those challenges, in our view, are best left for trial after full development of the record.

III. CONCLUSION

For the above reasons, we determine that the information presented in DGL’s Petition demonstrates a reasonable likelihood that at least claims 8, 10, 11, and 14–16 of the ’107 patent are unpatentable as obvious over the

combined teachings of Chen and Guangjing. Because DGL meets the threshold for institution, we institute an *inter partes* review of all claims as challenged in the Petition. See 37 C.F.R. § 42.108(a) (“When instituting . . . review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

IV. ORDER

Accordingly, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1 and 4–25 of the ’107 patent is *instituted*; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), notice is hereby given of the institution of trial, which will commence on the entry date of this Decision.

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