

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHENZHEN ZHIYI TECHNOLOGY CO., LTD., D/B/A ILIFE,
Petitioner,

v.

IROBOT CORP.,
Patent Owner.

Case IPR2017-02133
Patent 8,600,553 B2

Before WILLIAM V. SAINDON, TERRENCE W. McMILLIN, and
AMANDA F. WIEKER, *Administrative Patent Judges*.

McMILLIN, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Shenzhen Zhiyi Technology Co. Ltd., d/b/a iLife, (“Petitioner”) filed a Petition requesting an *inter partes* review of claims 1, 2, 4, 8, 11, 12, 21, 22, and 25 of U.S. Patent No. 8,600,553 B2 (Ex. 1001, “the ’553 patent”). Paper 1 (“Pet.”). iRobot Corp. (“Patent Owner”) filed a Preliminary Response. Paper 7 (“Prelim. Resp.”).

We have authority under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and the Preliminary Response shows that “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314; *see also* 37 C.F.R. § 42.4(a) (“The Board institutes the trial on behalf of the Director.”). We conclude that the information presented in the Petition does not establish a reasonable likelihood that Petitioner will prevail with respect to any of the claims challenged in the Petition. Accordingly, we do not institute an *inter partes* review of the ’553 patent.

A. Related Matters

The parties identify the following matters related to the ’553 patent (Pet. 1; Paper 3, 2; Paper 6, 2–3):

In re Certain Robotic Vacuum Cleaning Devices And Components Thereof Such As Spare Parts, Inv. No. 337-TA-1057 (USITC);

iRobot Corp. v. Hoover, Inc., Case No. 1:17-cv-10647 (D. Mass.);

iRobot Corp. v. Bissell Homecare, Inc., Case No. 1:17-cv-10649 (D. Mass.); and

iRobot Corp. v. Shenzhen Zhiyi Technology Co. d/b/a iLife, Case No. 1:17-cv-10652 (D. Mass.).

In addition, Petitioner has filed petitions challenging five of Patent Owner's other patents in IPR2017-02050 (U.S. Patent No. 9,038,233 B2), IPR2017-02061 (U.S. Patent No. 6,809,490 B2), IPR2017-02078 (U.S. Patent No. 7,155,308 B2), IPR2017-02137 (U.S. Patent No. 9,486,924 B2), and IPR2018-00005 (U.S. Patent No. 8,474,090 B2).

B. The '553 Patent

The '553 patent is directed to autonomous coverage robots used, e.g., in vacuum cleaning, floor washing, patrolling, or lawn cutting. Ex. 1001, 1:16–30. In a described embodiment, “an autonomous coverage robot includes a drive system, a bump sensor, and a proximity sensor. The drive system is configured to maneuver the robot according to a heading (turn) setting and a speed setting.” *Id.* at 3:24–27. “The bump sensor is responsive to a collision of the robot with an obstacle in a forward direction. The proximity sensor is responsive to an obstacle forward of the robot at a proximate distance but not contacting the robot, e.g., 1–10 inches, preferably 1–4 inches.” *Id.* at 27–31.

C. Challenged Claims

Petitioner challenges claims 1, 2, 4, 8, 11, 12, 21, 22, and 25 of the '553 patent. The '553 patent includes three independent claims: 1 (autonomous coverage robot), 11 (method of navigating an autonomous coverage robot), and 25 (autonomous coverage robot). Claim 1 recites:

1. An autonomous coverage robot comprising:
a drive system configured to maneuver the robot according to a heading setting and a speed setting;

a bump sensor responsive to a collision of the robot with an obstacle in a forward direction; and
a proximity sensor responsive to a potential obstacle forward of the robot;
wherein the drive system is configured to reduce the speed setting in response to a signal from the proximity sensor indicating detection of a potential obstacle, while continuing to advance the robot according to the heading setting;
wherein the drive system is configured to increase the speed setting if the drive system does not receive a subsequent signal indicating the presence of an obstacle while continuing to advance according to the heading setting and the reduced speed setting; and
wherein the drive system is configured to alter the heading setting in response to a signal received from the bump sensor indicating contact with an obstacle.

Id. at 17:59–18:12.

Claim 2 recites: “wherein the drive system is configured to alter the heading setting in response to the signals received from the bump sensor and the proximity sensor to follow a perimeter of the obstacle.” *Id.* at 18:13–16.

Claim 4 recites: “wherein the proximity sensor comprises at least one infrared emitter and receiver pair.” *Id.* at 18:21–22.

Claim 8 recites: “wherein the drive system is configured to maneuver the robot at a torque setting, wherein the drive system is configured to alter the torque setting in response to a signal received from the bump sensor indicating contact with an obstacle.” *Id.* at 18:29–34.

Claim 25 is the same as claim 1 except for the second “wherein” clause, which in claim 25 recites: “wherein the drive system is configured to increase the speed setting if the drive system does not receive **a signal from the bump sensor within an elapsed time after the speed setting is reduced.**” *Id.* at 20:3–21 (emphasis added).

Claim 11 recites:

11. A method of navigating an autonomous coverage robot with respect to an object on a floor, the method comprising the robot: autonomously traversing the floor in a cleaning mode at a cleaning speed;
upon sensing a proximity of the object forward of the robot, reducing the cleaning speed to a reduced speed while continuing towards the object;
in response to not sensing the presence of the object while advancing at the reduced speed, increasing the speed setting; and
in response to sensing contact with the object, turning with respect to the object and cleaning next to the object.

Id. at 18:43–55.

Claim 12 recites: “wherein the robot follows a perimeter of the object while cleaning next to the object.” *Id.* at 18:56-57.

Claim 21 recites: “wherein the robot decreases the cleaning speed to a reduced speed at a no[n]-linear rate.”¹ *Id.* at 19:14–15.

Claim 22 recites: “wherein the cleaning speed of the robot is about 300 mm/sec.” *Id.* at 19:17–18.

¹ Claim 21 recites “**nor**-linear.” Ex. 1001, 19:14–15. In the ITC case referenced above, the parties agreed “**non**-linear” was meant. Pet. 12. See also Ex. 1011 (Joint Claim Construction Chart), 5; Ex. 2002 (ITC Order No. 27 Construing Terms of the Asserted Patents), 15 (construing “nor-linear” as “non-linear.”). This meaning is in accordance with the Specification. Ex. 1001, 4:31–34 (“Upon sensing a proximity of an object forward of the robot, the robot may decrease the full cleaning speed to a reduced cleaning speed at a constant rate, an exponential rate, a **non-linear** rate, or some other rate.” (emphasis added)). Thus, “nor-linear” appears to be a typographical error.

D. Prior Art and Asserted Grounds

Petitioner asserts that claims 1, 2, 8, 11, 12, and 25 are anticipated and would have been obvious in view of Suckmaster² and the Suckmaster code;³ claims 2, 4, 12, 21, and 22 would have been obvious in view of Suckmaster, Suckmaster code, and Jones;⁴ and that claim 22 would have been obvious in view of Suckmaster, Suckmaster code, Jones, and Park.⁵ Pet. 4.

II. PATENTABILITY ANALYSIS

A. Claim Construction

No terms require construction for purposes of this decision. See *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (only those terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy).

*B. Prior Art Status of Suckmaster (Ex. 1004)
and Suckmaster code (Ex. 1005)*

Based on the record in this proceeding, we conclude that Suckmaster (Ex. 1004) and the Suckmaster code (Ex. 1005) have not been established to be prior art sufficiently for purposes of institution.

The earliest priority date claimed for the '553 patent is December 2, 2005 based on a provisional application. Ex. 1001, (60). The Petition states: “the earliest possible priority date for the Challenged Claims is December 2,

² “*Suckmaster II Vacuum Robot*” (Ex. 1004).

³ “*Suckmaster II vacuum robot control program*” (Ex. 1005).

⁴ U.S. Patent No. 6,809, 490 B2 (Ex. 1009).

⁵ U.S. Patent Application Publication 2005/0192707 A1 (Ex. 1010).

2005. For purposes of this Petition only, Petitioner assumes that the Challenged Claims are entitled to the benefit of the provisional filing date.”

Pet. 7.

With regard to the prior art status of Suckmaster (Ex. 1004), the Petition states:

“Dale’s Homemade Robots – Suckmaster II Vacuum Robot” Ex. 1004; hereinafter “Suckmaster Article” in text, “Ex. 1004–article” in citations) is an article authored by Dale Heatherington that was available at <http://www.wa4dsy.net/robot/suckmaster2/index.html>, a web page that was available to the public without any password, fee, or other restriction, as early as February 2002. (Ex. 1006, Declaration of Dale Heatherington (hereinafter “Ex. 1006-Heatherington” in citations) at pp. 1-3) This web page was archived by www.archive.org no later than June 20, 2002, demonstrating both that the Suckmaster Article predates the ’553 priority date by more than a year and that the website was indexed by search engines. (*Id.* at pp. 1-3; Ex. 1007, Archived Version of Suckmaster Article, archived on June 20, 2002.) The Suckmaster Article is prior art to the ’553 patent under 35 U.S.C. § 102(b).

Pet. 12–13. With regard to the prior art status of the Suckmaster code (Ex. 1005), the Petition states:

“suckmaster2.c” (Ex. 1005; hereinafter “Suckmaster Code” in text, “Ex. 1005–Code” in citations) is source code for the robot described in the Suckmaster Article and that was linked from the Suckmaster Article web page as early as February 2002. (Ex. 1006-Heatherington at pp. 1-3) The Suckmaster Code was archived by www.archive.org as early as February 16, 2002 and was available to the public without any password, fee, or other restriction. (*Id.*) The Suckmaster Code is prior art to the ’553 patent under 35 U.S.C. § 102(b).

Pet. 14–15.

According to the Federal Circuit, “[b]ecause there are many ways in which a reference may be disseminated to the interested public, ‘public accessibility’ has been called the touchstone in determining whether a reference constitutes a ‘printed publication’” under Section 102. *Kyocera Wireless Corp. v. Int’l Trade Comm’n*, 545 F.3d 1340, 1350 (Fed. Cir. 2008) (quoting *In re Hall*, 781 F.2d 897, 898–99 (Fed. Cir. 1986)). A reference is publicly accessible “upon a satisfactory showing that such document has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art exercising reasonable diligence, can locate it.” *SRI Int’l, Inc. v. Internet Sec. Sys., Inc.*, 511 F.3d 1186, 1194 (Fed. Cir. 2008). We assess public accessibility on a case-by-case basis. See *Kyocera*, 545 F.3d at 1350.

In *SRI International*, in the context of a motion for summary judgment, a document on an FTP server was not shown to have been sufficiently publicly accessible, in part, because “the FTP server did not contain an index or catalogue or other tools for customary and meaningful research.” 511 F.3d at 1196. In another example, theses deposited at a library “were not accessible to the public because they had not been either cataloged or indexed in a meaningful way.” *In re Cronyn*, 890 F.2d 1158, 1161 (Fed. Cir. 1989).

In the Petition, Suckmaster (Ex. 1004) and the Suckmaster code (Ex. 1005) are the only references relied upon as disclosing the elements and limitations of the independent claims. Pet. 4, 25–37 (claim 1), 41–44 (claim 11), 45–50 (claim 25). Accordingly, the Petitioner’s challenge to the claims cannot succeed unless Suckmaster (Ex. 1004) and the Suckmaster code (Ex. 1005) are established to be prior art.

Petitioner relies on the Declaration of Dale Heatherington (Ex. 1006) as establishing that Suckmaster (Ex. 1004) and the Suckmaster code (Ex. 1005) are prior art. Pet. 12–15. The Heatherington Declaration contains no specific references to Exhibits 1004 and 1005. *See generally* Ex. 1006. The Heatherington Declaration states:

In February 2002, I published an article titled “Suckmaster II Robot Vacuum” on my website www.wa4dsy.net. Specifically, I published the article at the URL <http://www.wa4dsy.net/robot/suckmaster2/index.html>. A true and correct copy of that article, as it was published on my website in February 2002, is attached as **Exhibit A**.

Id. at 2 (emphasis added). There is no Exhibit A to the Heatherington Declaration. *Id.* However, there are two exhibits labelled “Exhibit B.” *Id.* at 5–41. Even were we to attribute this to a typographical error and to consider the first Exhibit B (*id.* at 5–10) to be Exhibit A, the first Exhibit B to the Heatherington Declaration does not correspond to Ex. 1004. Although the contents in the body appear to be largely the same, the layout and headings are different. In the first Exhibit B, at the top of the first page, there is a heading with the image of a robot and a stylized banner that says, “Dale’s Homemade Robots.” *Id.* at 6. These are not found in Ex. 1004. Ex. 1004, 1. And, the titles of the two documents are different. The first Exhibit B says, “Suckmaster II Robot Vacuum by Dale Heatherington February 2002” (Ex. 1006, 6) and Exhibit 1004 says, “Suckmaster II Vacuum Robot February 2002” (Ex. 1004, 1). Thus, “Robot” and “Vacuum” are transposed in the titles of the two documents, and Ex. 1004 does not have the byline.

In addition, Exhibit 1004 and the first Exhibit B (Ex. 1006, 6) both reference “News” which is dated May 13, 2006, which is after the earliest

priority date claimed for the '553 patent. Ex. 1004, 1. The existence of this 2006 “News” (and the 2004 and 2003 “News”) in Exhibit 1004 also contradicts Mr. Heatherington’s testimony (Ex. 1006, 2–3) that Suckmaster was published in this form in 2002. There is another version of this article attached as Exhibit C (Ex. 1006, 42–49) to the Heatherington Declaration, which Mr. Heatherington states he downloaded from the Internet Archive’s Wayback Machine. Ex. 1006, 3. But, Exhibit C also does not correspond to Exhibit 1004. *Compare* Ex. 1006, 42–49 (containing a header with the image of a robot and a stylized banner, “Dale’s Homemade Robots” and titled “Suckmaster II Robot Vacuum by Dale Heatherington February 2002”), *with* Ex. 1004 (no header, titled “Suckmaster II Vacuum Robot February 2002,” and including “News” from 2006, 2004, and 2003).

The Heatherington Declaration states the Suckmaster code (second Exhibit B (Ex. 1006, 11–41)) was linked to Exhibit A which, as noted above, does not exist. Ex. 1006, 2.

With regard to public accessibility of Suckmaster and the Suckmaster code, Heatherington states in the paragraph quoted above that he published Suckmaster by posting it on his website. Ex. 1006, 2. He states he published the Suckmaster code by placing a link to a zip file containing the code in the article. *Id.* With further regard to public accessibility, Mr. Heatherington states:

I made the webpages described in paragraphs 2 and 3 above (i.e., the pages containing Exhibits A and B) available to the public without any password, fee, or other form of restriction on access. These webpages were indexed by search engines, as shown by the fact that the Internet Archive was able to obtain and index a copy of them on June 20, 2002.

Ex. 1006, 4. This paragraph is conclusory and unsupported, especially the conclusion that the webpages for Suckmaster and the Suckmaster code were “indexed by search engines.” In addition, Mr. Heatherington’s statements about how the Internet Archive works lack foundation, as he does not establish he is competent to testify about the Internet Archive. We note that the fact that the Internet Archive was able to access a document does not establish, without more, that the document was publicly accessible through traditional search engines, like Google or Yahoo, merely that it was accessible to the Internet Archive. In view of all of the above reasons, Petitioner has failed to establish sufficiently for purposes of institution that Suckmaster and the Suckmaster code constitute prior art.

Accordingly, Petitioner has not established a reasonable likelihood of prevailing in showing that any of the claims of the ’553 patent are unpatentable.

III. ORDER

In view of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review is not instituted on any claim of the ’553 patent.

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