

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BIO-RAD LABORATORIES, INC.,
Petitioner,

v.

CALIFORNIA INSTITUTE OF TECHNOLOGY and
FLUIDIGM CORPORATION,
Patent Owner.

Case IPR2015-00009
Patent 7,294,503 B2

Before GRACE KARAFFA OBERMANN, DONNA M. PRAISS, and
KRISTINA M. KALAN, *Administrative Patent Judges*.

PRAISS, *Administrative Patent Judge*.

DECISION
Denying Request for Rehearing
37 C.F.R. § 42.71(d)

Patent Owner, California Institute of Technology and its exclusive licensee Fluidigm Corporation (collectively, “Patent Owner”), request rehearing of the Board’s Final Decision (Paper 32, “Dec.”) dated April 21, 2016 (Paper 33, “Req. Reh’g”). In the Final Decision, we determined that claims 1, 2, 5–11, 18, 19, 30, 31, 46, 47, and 49–51 of U.S. Patent No. 7,294,503 B2 (Ex. 1001, the “’503 patent”) were unpatentable. Dec. 36. Specifically, we found, *inter alia*, that independent claims 1, 46, 49, and 51 would have been obvious over the combination of Stewart II¹ and Burns.² *Id.* at 11–26, 29–34. Patent Owner requests rehearing on one issue: whether we “overlooked and/or misapprehended Patent Owner’s argument that ‘[e]ven if the Board agrees with the Petitioner that it would have been obvious to modify Stewart II’s channel dimensions in light of Burns, the rationale relied on by the Petitioner could, at most, only apply to Stewart II’s main conduit.’” Req. Reh’g 1 (citing PO Resp. 44–48; Final Decision 11, 21–22). For the reasons that follow, Patent Owner’s request for rehearing is *denied*.

DISCUSSION

A party challenging a final written decision by way of a request for rehearing must identify specifically all matters the party believes the Board misapprehended or overlooked. 37 C.F.R. § 42.71(d). The challenging party bears the burden of showing that the decision should be modified. *Id.*

We are not persuaded by Patent Owner’s argument that we overlooked the contention that “the Petitioner failed to present any evidence

¹ WO 84/02000, published May 24, 1984 (Ex. 1004).

² WO 98/22625, published May 28, 1998 (Ex. 1005).

that the Stewart II's side arm had a diameter or cross section of 267 microns or less." Req. Reh'g 2 (citing Dec. 21). This argument was acknowledged in the Final Decision, which states "Patent Owner further argues that the second channel or side arm of Stewart II would not necessarily have the same dimension as the main channel because the side arm does not also contain droplets." Dec. 17. Accordingly, it was not overlooked.

We also are not persuaded by Patent Owner's argument that we misapprehended the contention that "Petitioner has not provided any rationale for why one of ordinary skill in the art would be motivated to modify a channel size having unknown dimensions (which may be larger than 267 microns) to 100 microns or how one of ordinary skill in the art would be able to have reasonable success in making such a modification." Req. Reh'g 3 (quoting PO Resp. 47). Patent Owner argues on rehearing that, in the Decision to Institute, we adopted as the rationale for combining Burns with Stewart II that "the forces governing the behavior of fluid in a channel of diameter 267 microns are the same as . . . a channel of diameter of 100 microns." *Id.* at 1 (citing Dec. 11, 21–22 (citing Ex. 1002 ¶¶ 49–50)). Further, Patent Owner asserts that "to apply this rationale to the proposed obviousness rejection, there must be some showing that both the alleged first and second channels in Stewart II, the main conduit and the side arm, have a diameter of 267 microns or less." *Id.* (citing PO Resp. 44). Patent Owner further asserts that relying on Figure 1 of Stewart II for the relative dimensions of the main channel and the side arm is a new argument raised for the first time in Petitioner's Reply and should not be considered. *Id.* at 3–5.

Patent Owner's argument was not considered persuasive because the challenge was not over Stewart II alone, but over Stewart II in combination with Burns. As discussed in the Final Decision, Stewart II teaches channel dimensions of 267 microns and smaller. Dec. 21 (citing Ex. 1002 ¶ 42; Ex. 1020, 149:15–150:10). Stewart II also teaches that “[a]ll conduits should have diameters approximately the same as the droplets to be used in them.” *Id.* at 9 (quoting Ex. 1004, 5); Ex. 1002 ¶ 41. While Patent Owner's expert testified that “Stewart II's side arm *can* have a larger cross section than the main conduit” (Req. Reh'g. 4), Patent Owner's expert also testified that Stewart II “does not provide a comparison of the relative sizes of any channels, such [as] the relative dimensions of the conduit 1 to the side arm 2 or to the opening 3 shown in Figure 1” (Ex. 2019 ¶ 31). Accordingly, based on the complete record, Stewart II allows for conduits smaller than or uniform in size with the undisputed dimension of the main channel that was calculated based on the droplet size in Stewart II's apparatus.

As discussed in the Final Decision, Burns discloses illustrative ranges for channels for microfluidic devices that encompass the claimed dimensions of the channels. Dec. 12 (citing Pet. 19–20; Ex. 1005, 7:16–19). The “rationale for combining Stewart II and Burns is based on the teaching in Stewart II to use channel sizes less than 10 nanoliters in volume, which Dr. Anna calculates to be a 267 micron diameter.” *Id.* (citing Pet. 8). Given Stewart II's general disclosure of using a channel with a dimension of 267 microns and smaller, “one of ordinary skill in the art, in determining an appropriate channel size for the Stewart II device, would have included the channel dimensions described by Burns[.]” *Id.* (citing Pet. 20–21); *id.* at 21 (“the selection of known channel sizes for microfluidic devices as disclosed

in Burns would have been obvious as a predictable variation in the same field because the dimensions of Burns are less than 267 microns as directed by Stewart II.”) (citing *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007)). Based on the behavior of fluid in an otherwise similar channel with a diameter of 100 microns, one of ordinary skill in the art also “would have understood the use of channel sizes in the range of 1–100 microns both (1) was technically possible and (2) could have been predictably and effectively used in a droplet-creating device as taught by Stewart II.” *Id.* at 12 (citing Pet. 20–21); *id.* at 21–22 (finding a reasonable expectation of success because “[w]hile multiple factors may affect droplet formation, the formation of droplets in devices having a channel that is less than 267 microns in diameter (Stewart II) or in the claimed range (Burns) is supported by the evidence.”); see Ex. 1002 (Anna Declaration) ¶ 50 (explaining how the three principal phenomena governing droplet formation in the extrusion region would have led an ordinary artisan to understand that fluid behavior in devices designed for droplets of less than 267 microns in diameter would be substantially the same as that in devices designed for droplets of less than 100 microns in diameter). Accordingly, the Final Decision did not rely upon an express teaching in Stewart II of the dimensions of the side arm.

To the extent that Figure 1 of Stewart II describes a side arm with approximately the same width as the droplet formed in the main channel, such that it further supports the general teaching in Stewart II of the diameters of all of the channels being 267 microns or less, we do not consider that a new argument in Petitioner’s Reply. Petitioner cited Figure 1 of Stewart II as support for the disclosure of both the main channel and the second channel in its Petition. See, e.g., Pet. 39 (main channel), 41 (second

microfluidic channel). Moreover, Petitioner's argument in its Reply responded to the argument presented in Patent Owner's Response that Figure 1 is not indicative of relative dimensions. *See* PO Resp. 45–47 (citing Ex. 1004, Fig. 1 and reproducing Ex. 1004, Fig. 1 as annotated by Petitioner).

We are not persuaded by Patent Owner's arguments to the contrary. *See* Req. Reh'g 1–6. Thus, we are not persuaded that our determination that claims 1, 2, 5–11, 18, 19, 30, 31, 46, 47, and 49–51 of the '503 patent would have been obvious over Stewart II and Burns was erroneous.

CONCLUSION

We have reviewed and considered all arguments in Patent Owner's request for rehearing and determine that Patent Owner has not carried its burden of demonstrating that the Board misapprehended or overlooked any matters in rendering the Final Decision. 37 C.F.R. § 42.71(d). The request for rehearing is *denied*.

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