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UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK

----- X  
 BIOSIG INSTRUMENTS, INC,  
 Plaintiff,  
 v.  
 NAUTILUS, INC.,  
 Defendant.  
 ----- X

**ORDER AND OPINION  
DENYING MOTION FOR  
SUMMARY JUDGMENT**

10-cv-7722 (AKH)

ALVIN K. HELLERSTEIN, U.S.D.J.:

Plaintiff Biosig Instruments, Inc. filed suit against Nautilus, Inc. alleging that some of its exercise machines infringed Biosig’s U.S. Patent No. 5,337,753 (“the ‘753 patent”). Biosig’s patent claims a heart rate monitor used in exercise equipment. Its patent consists of an elongate member, referred to as the “cylindrical bar” or “sensor bar,” which detects electrical signals from a user through four contact electrodes. Electronic circuitry connected to the electrodes amplifies the user’s heart rate signals (electrocardiograph signals, “ECG”), while substantially reducing muscle signals (electromyography signals, “EMG”). The electronic circuitry then connects to a heart rate monitor, described in Biosig’s patent claim as “a display device disposed on said elongate member.” Following a *Markman* hearing, *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 372 (1996), and with the agreement of counsel, I defined the term to mean “there is a display arranged on the cylindrical bar for showing the user's heart rate.” [Dkt. No. 32 at 3]

Nautilus now moves for summary judgment on the basis that none of the Nautilus products accused in the complaint, or identified later, contains this element. Biosig responds that the Nautilus products do have a display that is sufficiently “arranged on” the cylindrical bar

literally or, alternatively, under the doctrine of equivalents. For the reasons discussed below, Nautilus's motion for summary judgment is denied.

### **I. Factual Background**

The accused devices are of several types. The Nautilus U514 Upright Exercise Bike has a display console attached to a central column or mast in front of the user, with a U-shaped sensor bar at the base of the display and bending around it on both sides. The Nautilus E916 Elliptical Trainer and the Schwinn 430 Elliptical Trainer both have a V-shaped sensor bar underneath the display console; both sensor bar and display are attached to a central column situated in front of the user. Nautilus U916 Upright Bike has a display console that lays relatively flat, even with the seat of the user, and the U-shaped sensor bar is situated on top of the display and extends above it. The Schwinn 860 Treadmill has a large console in front of the user which houses the display and the sensor bar, with the sensor bar running along the base of the large console. The Schwinn 112 and 103 Upright Bikes have raised seats that are even with a slightly inclined display console atop the central column of the machine, in front of the user. The sensor bar is affixed to the base of the display console.

Nautilus also submits various machines in which the display is not itself attached to the sensor bar, but rather located near it. [See Dkt. No. 115] The Nautilus E514 Elliptical Trainer has a display console located on a central column in front of the user, while the sensor bar curves around the central column and back towards the user. The Nautilus NE2000 Elliptical Trainer has a display device that is located on top of a central column, in front of the user at chest height. The display device is housed in the middle of a larger console that also holds two separate sensor bars in place; these sensor bars flank the display and curve towards the user. The StairMaster SC916 Stepper and StairMaster FreeClimber 4600PT Exercise System both have a

slightly inclined display console attached to a central column in front of the user. A sensor bar, situated below the display console, is also attached to this central column. The Schwinn 418 Elliptical Trainer and Schwinn 101 Upright Bike have a display device on top of a central column located in front of the user. The sensor bar is also attached to the central column, affixed below the display device with its handles curving up around the display and away from the user.

Finally, Nautilus presents an image of a third category of recumbent bikes, in which the sensor bar is located elsewhere on the exercise machine. The Nautilus NR 3000 Recumbent Bike, as shown in the materials, has a display console that is located in front of the exercise user, while the sensor bar extends from the seat of the exercise machine.

## **II. Literal Infringement**

“An infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996) (internal citations omitted). “While claim construction is a question of law, infringement, whether literal or under the doctrine of equivalents, is a question of fact.” *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1105 (Fed. Cir. 2000) (internal citations omitted).

A *Markman* hearing was conducted to interpret the meaning and scope of Biosig’s patent claim. With the agreement of counsel, I construed the claim term, “a display device disposed on said elongate member,” to mean, “there is a display arranged on the cylindrical bar for showing the user’s heart rate.” [Dkt. No. 32 at 3] At the second stage of the analysis, Nautilus now compares its devices to the claim construction. Nautilus argues that there is no dispute about the material facts about the accused devices, and that, as a matter of law, its

devices do not infringe. According to Nautilus, each accused device has a display that is “visibly off of any kind of bar that has electrodes” and thus does not infringe the display claim element that requires a display be “arranged on” the bar. Nautilus’s argument makes “on” the determinative element in the claim and argues that the sensor bar itself must contain the display for showing the user’s heart rate.

But the claim term does not require such a narrow construction. “As a general rule, claim language carries the ordinary meaning of the words in their normal usage in the field of invention.” *Electro Sci. Indus., Inc. v. Dynamic Details, Inc.*, 307 F.3d 1343, 1347 (Fed. Cir. 2002) (citing *Toro Co. v. White Consol. Indus.*, 199 F.3d 1295, 1299, 53 USPQ2d 1065, 1067 (Fed. Cir. 1999)). A jury could find that a display that is “arranged on the cylindrical bar” does not have to be physically integrated into that bar. A jury might conclude that some of the Nautilus machines described above have a display “arranged on” the bar when there is a display console mounted onto the bar or connected to the bar in some fashion. *See, e.g., Asyst Techs., Inc. v. Emtrak, Inc.*, 402 F.3d 1188, 1194 (Fed. Cir. 2005) (finding the phrase “mounted on” to denote “a form of attachment”); *Senmed, Inc. v. Richard-Allan Med. Indus., Inc.*, 888 F.2d 815, 821 (Fed. Cir. 1989), disapproved of on other grounds by *Cardinal Chem. Co. v. Morton Int’l, Inc.*, 508 U.S. 83 (1993) (“‘[O]n’ the anvil surface . . . must be interpreted as ‘in physical contact’ with the anvil surface.”).

Nautilus also points to the embodiment shown in the patent specification, in which a display is integrated into the sensor bar. But, “although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005). Figure 1 of the patent does not confine the scope of the claim term, where the specification is

written more broadly. “[T]he patentee is entitled to claim scope commensurate with the invention that is described in the specification.” *Inline Plastics Corp. v. EasyPak, LLC*, 799 F.3d 1364, 1368 (Fed. Cir. 2015). Here, the specification describes “a display device disposed on” the sensor bar, or – as construed in the *Markman* hearing – “arranged on” the sensor bar. Biosig asserts, and Nautilus does not dispute, that the positioning of the display was not made an issue during the prosecution of the patent and that it does not have any interplay with the operation of the rest of the invention. Indeed, neither party described the importance of the placement of the electrodes to the claimed invention, and whether it makes a difference that the electrodes are on, or near to, the display. Nautilus has not established, as a matter of law, that its interpretation of the limitation is correct or required, and, the limitation appears to me, on this record, susceptible to other possible interpretations. *See, e.g., Intellectual Ventures II LLC v. JP Morgan Chase & Co.*, No. 13-CV-3777 (AKH), 2016 WL 3963107, at \*5 (S.D.N.Y. July 21, 2016).

### **III. Doctrine of Equivalents**

Biosig argues that the accused Nautilus devices infringe under the doctrine of equivalents, even if they do not literally infringe. “The proper inquiry for the court is to apply the doctrine of equivalents, asking whether an asserted equivalent represents an ‘insubstantial difference’ from the claimed element, or ‘whether the substitute element matches the function, way, and result of the claimed element.’ If no reasonable jury could find equivalence, then the court must grant summary judgment[.]” *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1356 (Fed. Cir. 2012) (quoting *Warner-Jenkinson Co. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 39 n. 8 and 40 (1997)).

Nautilus contends that the doctrine of equivalents cannot be used to equate devices with displays “on” the bar with devices with displays “off” the bar because they are

“opposing, antithetical concepts.” *See, e.g., Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091, 1106 (Fed. Cir. 2000) (“[I]t would defy logic to conclude that a minority – the very antithesis of a majority – could be insubstantially different from a claim limitation requiring a majority, and no reasonable juror could find otherwise.”). The Federal Circuit has found that “[c]ourts properly refuse to apply the doctrine of equivalents ‘where the accused device contain[s] the antithesis of the claimed structure.’” *Deere & Co.*, 703 F.3d at 1356 (quoting *Planet Bingo, LLC v. GameTech Intern., Inc.*, 472 F.3d 1338, 1345 (Fed.Cir. 2006)). But the Federal Circuit has warned against an element by element application of this concept of “vitiation,” because “in every case applying the doctrine of equivalents, at least one claimed element is not literally present in the accused product.” *Deere & Co.*, 703 F.3d at 1357. Instead, “[v]itiation’ is not an exception to the doctrine of equivalents, but instead a legal determination that the evidence is such that no reasonable jury could determine two elements to be equivalent.” *Deere & Co. v. Bush Hog, LLC*, 703 F.3d at 1356.

Here, the location of the display device “arranged on” the sensor bar is one element of the invention. But, a display device indirectly connected to the sensor bar, either through a central column, or through some other connector, is not the “antithesis” of that element, but rather, might be considered an “insubstantial difference” from it – at least, a jury could so decide. *See TurboCare Div. of Demag Delaval Turbomachinery Corp. v. Gen. Elec. Co.*, 264 F.3d 1111, 1126 (Fed. Cir. 2001) (remanding to allow jury to consider whether the doctrine of equivalents applied to a claim that required “touching” where accused device used “indirect contact”); *see also Deere & Co.*, 703 F.3d at 1357 (“Yet, a reasonable jury could find that a small spacer connecting the upper and lower deck walls represents an *insubstantial difference* from direct contact.”). An indirectly attached display console may very well fulfill the

“function, way, and result of the claimed element.” *Deere & Co.*, 703 F.3d at 1356. Such a display still may be found sufficiently to connect to the sensor bar that monitors the user’s heart rate; it generates heart rate data that can be displayed to the exercise user; and it then makes the output readable to the exercise user. *See Warner–Jenkinson*, 520 U.S. at 32 (defining the inquiry as “whether an omitted part is supplied by an equivalent device or instrumentality”).

Nautilus argues that the doctrine of equivalents is unavailable in this case because the display element represents a “clear structural limitation,” citing *Sage Products, Inc. v. Devon Industries, Inc.*, 126 F.3d 1420, 1425 (Fed. Cir. 1997). In *Sage Products*, the Federal Circuit found that the doctrine of equivalents did not apply where “the claim at issue defines a relatively simple structural device,” and a “skilled patent drafter would [have] foresee[n] the limiting potential” of such a clear structural limitation. 126 F.3d at 1425. In this specification, the display element does not contain such a clearly articulated structural limitation. *Cf. id.* (“No subtlety of language or complexity of the technology, nor any subsequent change in the state of the art, such as later-developed technology, obfuscated the significance of this limitation at the time of its incorporation into the claim.”). A jury could find that the location of the display device on the sensor bar, or on a central column of the exercise machine, is an “insubstantial difference.” *Sage Products* does not speak to the viability of the doctrine of equivalents and acknowledged that “[a] claim element is equivalently present in an accused device if only ‘insubstantial differences’ distinguish the missing claim element from the corresponding aspects of the accused device.” 126 F.3d at 1423.

Nautilus finally argues that the ‘753 patent disclosed a display console located off the bar, but then failed to claim it, thus dedicating this phase of its claim to the public. It cites *Maxwell v. J. Baker, Inc.*, for the proposition that “subject matter disclosed in the specification,

but not claimed, is dedicated to the public.” 86 F.3d 1098, 1107 (Fed. Cir. 1996). But such a disclosure-dedication rule depends upon the specificity of any such disclosure. “[T]he disclosure must be of such specificity that one of ordinary skill in the art could identify the subject matter that had been disclosed and not claimed.” *SanDisk Corp. v. Kingston Tech. Co.*, 695 F.3d 1348, 1363 (Fed. Cir. 2012). In other words, the patentee must have identified the unclaimed subject matter as “an alternative to a claim limitation.” *Id.* at 1363-64.


I cannot find, as Nautilus urges, that the doctrine of equivalents is unavailable here, as a reasonable jury could find equivalence between the display element of the accused devices and the display element of the claim. *Deere & Co.*, 703 F.3d at 1356. Whether the accused devices infringe under the doctrine of equivalents presents a question of fact for a jury.

#### **IV. Conclusion**

For the reasons stated above, I deny the Defendant’s motion for summary judgment. The Clerk shall terminate the motion at Docket No. 113. The parties shall continue with factual discovery and appear for a status conference, as scheduled, on July 14, 2017.

SO ORDERED.

Dated: September 30, 2016  
New York, New York

  
ALVIN K. HELLERSTEIN  
United States District Judge