

United States District Court,
N.D. Illinois, Eastern Division.

Bryan REAL,
Plaintiff.

v.

BUNN-O-MATIC CORPORATION,
Defendant.

June 13, 2000.

Assignee of patent for beverage dispensing device sued competitor for infringement. The District Court, Morton Denlow, United States Magistrate Judge, construed claim language.

Claims construed.

4,488,664. Construed.

Paul G. Juettner, Greer, Burns & Crain, Ltd., Chicago, IL, for Plaintiff.

Randall G. Litton, Steven L. Underwood, Price, Heneveld, Cooper, Dewitt & Litton, Grand Rapids, MI, for Plaintiff.

Grant H. Peters, Thomas J. Donovan, Trexler, Bushnell, Giangiori & Blackstone, Ltd., Chicago, IL, for Defendant.

MEMORANDUM OPINION AND ORDER

DENLOW, United States Magistrate Judge.

Plaintiff Bryan Real ("Plaintiff" or "Real"), owner of United States Patent No. 4,488,664 ("the '664 patent") brings a patent infringement claim against Defendant Bunn-O-Matic Corporation ("Defendant" or "Bunn-O-Matic") alleging violation of 35 U.S.C. s. 271(a), (b) and (c). Bunn-O-Matic brings a motion for a Markman hearing to construe Claim 1 of the '664 patent. The hearing was held May 24, 2000. For the reasons set forth below, the Court adopts Plaintiff's proffered construction of Claim 1.

I. BACKGROUND

A. THE '664 PATENT

The '664 patent, entitled "Beverage Dispensing Machine," was issued to inventor Robert K. Cleland on December 18, 1984. It was assigned on April 1, 1999 to Real, who, wasting no time, sent a cease and desist

letter to Bunn-O-Matic on April 12, 1999, accusing Defendant of patent infringement. This suit was then filed on June 4, 1999.

The '664 patent relates to an attachment unit that sits atop the tank of a non-carbonated beverage dispensing machine, such as the self serve models found in convenience stores. The unit mixes together powdered concentrate and water, delivers the mixture into the tank when the liquid level in the tank reaches a predetermined low level, and continues filling the tank until the liquid level reaches a predetermined high level. This invention avoids the need for pre-mixing the beverage solution in a separate container and manually pouring the mixture into the tank when the machine attendant notices that the beverage level is low.

The Court will first explain the rules of claim construction and will then apply those rules to the '664 patent.

II. RULES OF CLAIM CONSTRUCTION

[1] [2] An infringement analysis involves two steps. The first step is determining the meaning and scope of the patent claims allegedly infringed, also known as claim construction or interpretation. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed.Cir.1995)(en banc) *aff'd* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). Claim construction is a matter of law for decision by the courts. *Id.* at 970. The second step is comparing the properly construed claim to the instrument accused of infringing. *Id.* at 976. This proceeding is concerned with the first step, commonly known as a Markman hearing.

A. SOURCES AND HIERARCHY FOR CLAIM INTERPRETATION

[3] [4] In interpreting a claim, a court first looks to the language of the claim, which defines the breadth and depth and bounds of the claim. *York Products, Inc. v. Central Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1572 (Fed.Cir.1996). The general rule is that terms in the claim are to be given their ordinary and accustomed meaning. *Johnson Worldwide Assoc., Inc. v. Zebco Corp.*, 175 F.3d 985, 989 (Fed.Cir.1999). A court must presume that the terms of the claim mean what they say, and give full effect to the ordinary and accustomed meaning of the claim terms unless otherwise compelled. *Id.* There are two instances in which a court may be compelled to give the definition of a term a meaning outside of the ordinary and accustomed one. The first one arises when a patentee has chosen to be his own lexicographer, as long as the special definition of the term is clearly stated in the patent specification or file history. *Id.* at 990; *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996). The second arises when the terms chosen by the patentee "so deprive the claim of clarity that there is no means by which the scope of the claim may be ascertained from the language used." *Zebco*, 175 F.3d at 990.

Second, the court looks to the patent specification, containing a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use it. *Vitronics*, 90 F.3d at 1582. It is here where, if the patentee chooses to be his own lexicographer, the special meanings of the claim terms are typically found. *Id.* The specification is "always highly relevant" and is usually dispositive; it is the "single best guide to the meaning" of a disputed term. *Id.* All claims must be read in view of the specification, which acts as a sort of dictionary to explain the invention and may define the terms used in the claim. *Markman*, 52 F.3d at 979.

Third, the court may also consider the prosecution history of the patent, which contains the complete record of the proceedings before the Patent and Trademark Office ("PTO"), including any express representations made by the patentee regarding the scope of the claims. *Vitronics*, 90 F.3d at 1582. The prosecution history

is often significant when determining the scope of a claim. *Id.* The prosecution history can and should be used to understand the language used in the claim, however, it can not be used to enlarge, diminish or vary the terms in the claim. *Markman*, 52 F.3d at 980. Included within an analysis of the file history may be an examination of the prior art cited therein, as the prior art gives guidance as to what the patent does and does not cover. *Vitronics*, 90 F.3d at 1583.

Finally, extrinsic evidence consisting of expert and inventor testimony, dictionaries and learned treatises, may be considered only to assist in the court's understanding of the patent, not to vary or contradict the terms of the claims. *Markman*, 52 F.3d at 980-1. However, in most situations, an analysis of the intrinsic evidence alone resolves a disputed claim term and unambiguously describes the scope of the patented invention. *Vitronics*, 90 F.3d at 1583. Under these circumstances reliance on extrinsic evidence is improper. *Id.*

[5] [6] [7] [8] In terms of hierarchy, evidence that is objective, reliable, and publicly accessible, such as prior art documents, dictionaries and treatises are preferred over other types of extrinsic evidence. *Id.* at 1585. Although dictionaries and treatises fall within the category of extrinsic evidence, they are worthy of special consideration. Judges are free to consult such resources at any time to better understand the underlying technology, and may rely on dictionary definitions as the ordinary and accustomed meaning of a term, as long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent. *Id.* at 1584 n. 6. Prior art, although also extrinsic evidence, may be included in an analysis of the prosecution history if cited therein. *Id.* at 1583. A court may rely on prior art proffered by one of the parties, even if not cited in the specifications and file history, to aid in the court's understanding and to demonstrate how a disputed term is used by those skilled in the art. *Id.* at 1584. Opinion testimony of experts and the inventor should be treated with "utmost caution" and may only be relied upon if the patent documents taken as a whole are insufficient to enable the court to construe disputed claim terms, which is rare, if ever. *Id.* at 1584-5.

B. PATENTS ARE GENERALLY UNAMBIGUOUS

In most situations, there is no "ambiguity" in the claim language. *Markman*, 52 F.3d at 986. Statutory language requirements are designed to avoid ambiguity in a patent. *Id.* The statute requires that the specification contain a written description in "full, clear, concise and exact terms." 35 U.S.C. s. 112. Patent applications are reviewed by examiners at the PTO who are "trained in the law and presumed to have some expertise in interpreting the prior art references and to be familiar from their work with the level of skill in the art and whose duty it is to issue only valid patents." *Markman*, 52 F.3d at 986. Thus, "[i]f the patent's claims are sufficiently unambiguous for the PTO, there should exist no factual ambiguity when those same claims are later construed by a court of law in an infringement action." *Id.*

[9] However, because "a judge is not usually a person conversant in the particular technical art involved and is not the hypothetical skilled in the art to whom a patent is addressed, extrinsic evidence may be necessary to inform the court about the language in which the patent is written. But this evidence is not for the purpose of clarifying ambiguity in claim terminology. It is not ambiguity in the document that creates the need for extrinsic evidence but rather unfamiliarity of the court with the terminology of the art to which the patent is addressed." *Id.*

C. LIMITATIONS NOT SET FORTH IN THE CLAIM MAY NOT BE READ INTO THE CLAIM

[10] [11] [12] There are two familiar claim construction canons regarding limitations imposed on claims,

setting forth the relationship between the claims and the written description: 1) one may not read a limitation into a claim from the written description, and 2) one may look to the written description to define a term already in a claim limitation, as a claim must be read in view of the specifications of which it is a part. *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed.Cir.1998). Thus, a limitation must appear in the language of the claim before one looks to the written description to define that limitation. "This is so because the claims define the scope and the right to exclude, and the claim construction inquiry ... begins and ends in all cases with the actual words of the claim." *Id.*

Without a term in the claim that would direct us to the written description for clarification, there is no legitimate way to narrow the claim. *Id.* Similarly, if the written description provides us a definition of a term used in the claim, then reading in a further limiting definition would be improper. *Mantech Environmental Corp. v. Hudson Environmental Serv. Inc.*, 152 F.3d 1368, 1374 (Fed.Cir.1998). The Supreme Court explained this requirement, stating, "We know of no principle of law which would authorize us to read into a claim an element which is not present, for the purpose of making out a case of novelty or infringement. The difficulty is that if we once begin to include elements not mentioned in the claim in order to limit such claim...., we should never know where to stop." *Renishaw*, 158 F.3d at 1248 (quoting *McCarty v. Lehigh Val R.R.*, 160 U.S. 110, 116, 16 S.Ct. 240, 40 L.Ed. 358 (1895)).

[13] Words in a claim should be accorded their ordinary and accustomed meaning, not a narrower scope than what is ordinarily accorded it. *Renishaw*, 158 F.3d at 1249. Thus, when a claim term contains a general descriptive term, the term will not be limited to a numerical range that is included in the written description. Similarly, a general term cannot be reduced to a narrower scope or subset of that term by a modifier if the claim does not expressly contain the modifier. For example, if the claim term recites a general noun without limiting that noun with an adjective, the claim should be construed to cover all known types of that general noun supported by the patent disclosure. *Id.* at 1250. Likewise, if the words of the claim recite a general verb without limiting it with an adverb, the claim should be construed to cover the ordinary broader meaning of the verb. *Id.* (citing *Virginia Panel Corp. v. Mac Panel Co.*, 133 F.3d 860 (Fed.Cir.1997) (holding that "reciprocating" is not limited to linearly reciprocating)). In looking at the written description to define the scope of a claim term, the varied use of a term demonstrates the breadth of the term, demanding a broad construction, rather than a narrow one. *Zebco*, 175 F.3d at 991.

[14] However, a common meaning, such as one found in a dictionary, that is inapposite to the context of the patent disclosure is not one that the court should adopt. *Id.* Indiscriminate reliance on definitions found in dictionaries can produce absurd results if not read in light of, and in the context of, the patent specifications. *Id.*

D. THE SCOPE OF THE CLAIM IS NOT LIMITED TO THE PREFERRED EMBODIMENT

[15] As a general rule, the claim is not limited by the language of the preferred embodiments or specific examples included in the specification. *Karlin Technology Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 972 (Fed.Cir.1999). "It is well settled that device claims are not limited to devices which operate precisely as the embodiments described in detail in the patent." *Id.* (quoting *Virginia Panel*, 133 F.3d at 866). Similarly, mere inferences drawn from the description of an embodiment cannot serve to limit claim terms. *Johnson*, 175 F.3d at 992. "Although the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples in the specification will not generally be read into the claims." *Comark Communications, Inc. v. Harris Corporation*, 156 F.3d 1182, 1186 (Fed.Cir.1998). The law "does not require that an applicant describe in his specification every conceivable

and possible future embodiment of his invention. The law ... requires only that the inventor describe the 'best mode' known at the time to him in making the invention." *SRI International v. Matsushita Electric Corp. of America*, 775 F.2d 1107, 1121(Fed.Cir.1985).

III. CLAIM INTERPRETATION

A. CLAIM 1

The dispute between the parties lies in the construction of Claim 1 of the '664 patent. Claim 1 reads as follows:

An attachment unit removably engageable with the rim of an upwardly opening liquid supply tank of a beverage dispensing machine and operating to mix together predetermined metered volumes of dry powdered beverage concentrate and water **and to deliver a resulting beverage into the tank when the liquid level in the tank lowers to a predetermined low level and until the liquid level in the tank rises to a predetermined high liquid level, said unit includes an elongate vertically extending housing with vertically spaced substantially horizontal top and bottom walls, substantially vertical front, rear and side walls and a tank rim engaging flange about its perimeter, said housing is positioned atop the tank with the flange engaged on the rim of the tank**, an elongate substantially horizontally extending and upwardly opening concentrate holding hopper positioned within the housing in spaced relationship with the walls thereof and having an elongate discharge duct communicating with and depending from one end portion thereof, an elongate auger within and extending longitudinally of the hopper, an electric motor within the housing drivingly coupled with the auger and operating to rotate the auger to move concentrate longitudinally in the hopper and into said duct when said motor is energized, a vertically extending mixing chamber at the bottom wall, said chamber has an upper inlet port below said duct to allow concentrate flowing from the duct to flow into the chamber and lower discharge opening communication with the tank, water supply means including a pressurized water service system remote from the attachment unit, an elongate nozzle with a discharge end opening into the mixing chamber and disposed to cause water issuing therefrom to mix with concentrate moved from the hopper and into the chamber and having an inlet end, an elongate water conductor connected with and between the water service system and the inlet end of the nozzle, an electrically operated on and off valve within the housing connected with and operating to start and stop the flow of water through the conductor, and a valving device connected with and operating to control the rate of flow of water through the conductor, **a liquid level sensing device carried by the housing and depending into the tank and including low and high liquid level responsive switching devices, a control circuit connected with an electric power source remote from the unit and with said motor, on and off valve and said high and low liquid level responsive switching devices and operating to energize the motor and actuate the on and off valve to an open position when the low liquid level switching device operates in response to a low liquid level in the tank and operating to deenergize the motor and to actuate the on and off valve to a closed position when the high liquid level responsive switching device operating in response to a high liquid level in the tank.**

('664 Patent Claim 1).

The dispute between the parties lies primarily in two areas of the claim language, in bold, regarding the flange and the liquid level sensing device. The parties proffer different interpretations of the disputed claim language. The Court conducted a Markman hearing to clarify the parties' differences and to frame the precise questions which the Court must decide.

1. Defendant's Proffered Claim Construction

Specifically, Defendant proffers the following construction of the claim language regarding the flange (a) and the liquid level sensing device(b-d).

(a) The claimed invention includes a tank rim engaging flange in the form of an outwardly extending rim that extends around the perimeter of the housing and that is engaged on the rim of the tank.

(b) The claimed attachment unit delivers beverage to the tank when the liquid level in the tank drops to a predetermined low liquid level and stops delivering beverage into the tank when the liquid level in the tank rises to a predetermined high level-and-the predetermined high liquid level is higher than the predetermined low liquid level.

(c) The liquid sensing device and control circuit should be interpreted to include the following limitations:

(i) the liquid sensing device includes two liquid level responsive switching devices, namely: a low liquid responsive switching device and a separate high liquid level responsive switching device; and

(ii) the control circuit is connected with an electric power source remote from the unit and with the motor, the on/off valve, the high liquid level responsive switching device, and the low liquid level responsive switching device; and

(iii) the control circuit actuates the on/off valve to an open position when the low liquid level responsive switching device operates in response to the predetermined low liquid level in the tank; and

(iv) the control circuit actuates the on/off valve to a closed position when the high level responsive switching device operates in response to the predetermined liquid high level in the tank; and

(v) the low liquid level responsive switching device, the high liquid level responsive switching device and the control circuit maintain the liquid level between the predetermined low liquid level and the predetermined high liquid level.

(d) The high liquid level responsive switching device and the low liquid level responsive switching device are carried by the housing.

(D.'s Reply Brief).

2. Plaintiff's Proffered Claim Construction

Plaintiff, unsurprisingly, disagrees with most of Defendant's proffered limitations and interpretations. Plaintiff argues that the terms should be construed broadly, not narrowly. Having provided for more than one description of the liquid level sensing device and two different types of flanges in Claim 1 and Claim 10, he also argues that Claim 1 should not be limited to the preferred embodiment as providing the only claim interpretation. Finally, he claims that the patent rests, not in the details of each particular element, but in the overall combination of the elements, and that the claims should be interpreted accordingly.

The Court has narrowed the disagreement between the parties to the interpretation of several words or phrases. The Court has framed the dispute in the form of specific questions to be answered, and addresses

each issue in turn.

B. FLANGE

The claimed unit calls for a "tank rim engaging flange about its perimeter, said housing is positioned atop the tank with the flange engaged on the rim of the tank." There are two issues of disagreement regarding the flange: 1) whether the term "about" its perimeter is defined as "completely around" its perimeter, and 2) whether the flange must extend outwardly.

1. Whether the Term "About" Its Perimeter Means "Completely Around" Its Perimeter. Answer: No.

[16] Plaintiff argues that the term "about" does not mean "completely around," and that the ordinary and accustomed definition can mean either "partially about" or "completely about." He uses the example of people sitting *about* a campfire to illustrate that one would ordinarily envision people unevenly dispersed around a campfire, not completely encircling the campfire. Although the drawings and the preferred embodiment illustrate a flange completely around the perimeter of the unit, Plaintiff points out there is no limitation or modifier of the word "about" in the claim language. Accordingly, Plaintiff contends the claim should not be limited to the preferred embodiment. Plaintiff also argues that "about its perimeter" is not a limitation, but simply refers to the location of the flange. Finally, Plaintiff argues that, because Claim 10 refers to a "support flange" and Claim 1 refers only to a "flange," Claim 1 should be interpreted broadly, based on the doctrine of claim differentiation.

On the other hand, Bunn-O-Matic argues that the term "about" means "completely around," reasoning that "completely around" is the ordinary and accustomed meaning, based on at least one dictionary definition. Defendant contends that the illustration of the invention in Figure 4 supports its definition. Defendant suggests that using the word "completely" next to "about" in the claim would be redundant, using the example of the term "completely pregnant" to illustrate its point.

After applying the rules of claim construction, the Court holds that the Plaintiff's interpretation of the "flange" language is correct.

a) Claim Language

The analysis begins, as always, with the language of the claim, which calls for a "tank rim engaging flange about its perimeter." The general term "about" does not contain a modifier, thus, rules of claim construction would suggest that none be added. The terms "completely" or "partially" are not mentioned next to the term "about."

The paragraph just prior to the claim states: "Having illustrated and described only one typical preferred form and embodiment of my invention, I do not wish to be limited to the specific details herein set forth, but wish to reserve to myself any modifications and/or variations that might appear to those skilled in the art and which fall within the scope of the following claims:" ('664 Patent Col. 14 line 15-21). FN1

FN1. Unless otherwise noted, all patent reference will be to the '664 patent and citations will refer first to column number, then to the first line of the cited language. Thus, Column 14 line 15-21 of the '664 patent will be cited as "(Col.14:15)".

Defendant argues that this is simply boilerplate language. Plaintiff contends that the boilerplate language reflects the language of the statute, which only requires that the inventor "set forth the best mode contemplated by the inventor of carrying out his invention." 35 U.S.C. s. 112. It is apparent to the Court that the patentee did not want to limit the scope of the claims. It is also apparent that the inventor informed the public that the described invention was only one preferred embodiment, to which the claims should not be limited.

b) Written Description

The Court next looks to the patent specification, that is, the written description. The paragraph immediately preceding the "DESCRIPTION OF DRAWINGS" states "The foregoing and other objects and features of my invention will be fully understood from the following detailed description of one typical preferred form and application of my invention, throughout which description reference is made to the accompanying drawings." ('664 Patent Col. 4 line 57). Therefore, the inventor intended that the description and drawings were only one preferred embodiment of the invention.

The specification of the preferred embodiment describes "an outwardly projecting horizontal support flange 34 about the upper perimeter of lower said portion defined by the walls 30, 31, and 32." (Col.7:32). Again, there is no modifier or limitation to the term "about," however, for location purposes, the description denotes that the flange is "about the upper perimeter" of the lower portion of the housing, as opposed to simply "about its perimeter" as in Claim 1. This supports Plaintiff's argument that the terms were used to identify the location of the flange, not to impose a limitation. Although Figure 4 of the preferred embodiment illustrates a flange completely around the perimeter of the housing unit, the law does not limit the claim to the preferred embodiment.

c) Prosecution History

Third, the Court looks to the patent prosecution history. The history provides no specific reference to the flange or the terms "about its perimeter." However, included in the letter from the PTO after the PTO's approval is the following Examiner's Statement of Reason for Allowance: "The primary reason for the allowance of claims 1-18 was the combination of the supply tank and attachment unit, said attachment unit comprising a housing mounted atop said tank and enclosing dry powdered beverage concentrate and water discharge apparatus which operate in response to the level of beverage in the tank. The above was found in all the claims but not in the prior art." (Pl.Ex. 7 p. 2).

Thus, the primary reason for allowance was not the specific elements of the invention, but the overall combination into one unit. This factor also weighs in favor of a broad definition of the terms.

d) Dictionary Definition

Finally, the Court looks to a dictionary definition to suggest an ordinary and accustomed meaning to the term. However, the dictionary definition cannot be used if it varies or contradicts the terms of the claim. *Vitronics*, 90 F.3d at 1584 n. 6.

The term "about" is used as a preposition in the phrase "about its perimeter." Looking to the meaning as it refers to a preposition, the following relevant definitions appear: "1. around; on all sides of; 2. here and there in; everywhere in; 3. near to." WEBSTER'S NEW WORLD COLLEGE DICTIONARY 4 (3d ed.1997). Another dictionary cites the following: "1. on all sides of: surrounding; 2. in the vicinity of: around; 3.

almost the same as: close to." WEBSTER'S II NEW RIVERSIDE UNIVERSITY DICTIONARY 67 (1994). It would seem that both Plaintiff's proffered definition and Defendant's proffered definition are plausible. However, the fact that Plaintiff argues that the term not only means here and there, but is also an identifier of the location of the flange weighs in Plaintiff's favor, accounting for two out of a possible three definitions in each dictionary.

e) Extrinsic Evidence

The meaning of the term "about" is made clear from an analysis of the intrinsic evidence and the dictionary, therefore, it is unnecessary to look to extrinsic evidence for claim interpretation.

Based on the foregoing analysis, the Court holds that the term "about" in this context is not limited to "completely around." The term "about" does not contain a limitation or modifier in the claim language and therefore none should be read in to its meaning. Plaintiff's argument that "about the perimeter" identifies the location of the flange, and that the interpretation of the claim should not be limited to the preferred embodiment is in accordance with proper patent construction rules.

2. Whether The Flange Must Extend Outwardly. Answer: No.

[17] The second issue regarding the flange is whether the flange must extend outwardly. Plaintiff argues there is no requirement in Claim 1 that the flange must extend outwardly, and none should be read in. Plaintiff contends that a flange can be horizontal, angular, downward or vertical. Plaintiff also points out, the direction depends on the perspective of the viewer. From the top half of the unit which sits atop the tank, the flange would seem to be inward. However, from the bottom half of the unit that is inside the tank, the flange would seem to be outward. Either way, Plaintiff argues, it would be confusing to add a modifier that does not exist. Furthermore, Plaintiff argues that described preferred embodiment, which is reflected in Claim 10 and described in the written description, should not limit the terms in Claim 1, based on the doctrine of claim differentiation and the rule of construction that claims should not be limited to the preferred embodiment.

Defendant counters that the flange must be interpreted to extend outwardly, and offers a dictionary definition as support. Defendant further asserts that a flange cannot extend downwardly, however, it could extend at an angle.

The Court holds that Claim 1 does not require the flange to extend outwardly, and that Plaintiff's interpretation is correct.

a) Claim Language

Looking to the claim language, there is no mention of an "outwardly extending" flange. The language simply recites a "tank rim engaging flange." The word "engaging" describes the word flange. Clearly, the purpose of the flange is to engage it with something. The word "rim" describes the word "engaging." Thus, the flange is to engage a rim. Finally, "tank" describes "rim," therefore, the flange is to engage the tank rim. It is improper for the Court to add limitations, in this case "outwardly extending," to a claim term, "flange," when those limitations do not appear in the claim.

Notably, the inventor uses similar terms in describing other structural features of the machine, such as "vertically extending housing" (Col. 14: 31), a "horizontally extending ... hopper" (Col 14: 37), "a vertically

extending mixing chamber" (Col. 14: 47). The noticeable lack of modifiers surrounding the term "flange" is significant. Had the inventor intended to limit the flange to "extend outwardly," he could have done so.

The language of Claim 10 describes a "support flange" between the upper and lower portion of the housing unit. Based on the doctrine of claim differentiation, the claims in Claim 1 should be interpreted differently than the claims in Claim 10, the preferred embodiment which is described in the written description and illustrations.

b) Written Description

The patent specifications describing the preferred embodiment referred to in Claim 10 recite "an outwardly projecting horizontal support flange 34 about the upper perimeter of said lower portion." (Col.7:32). Flanges are also described in other areas of the written description. For example, the patent provides that "[t]he funnel 41 has an upper horizontal flange 42 abutting the bottom wall." (Col.8:16). In another section, it recites that "[t]he rear wall 48 is further provided with a rearwardly projecting horizontal mounting flange 56 at its upper edge." (Col.8:49). Clearly, when the inventor thought it necessary to describe a flange with modifiers, he did so. No such limitation was included in Claim 1, and the Court will not change the language to impose the limitation that the flange in Claim 1 "extend outwardly."

As previously stated, the written description does not describe Claim 1, but Claim 10, and it is improper to limit a claim to the preferred embodiment. It is also improper to read a limitation into a claim from the written description if the terms do not appear in the claim.

Additionally, the Court notes that a flange may be in any direction, including downward. Although not assigned a number in the Figure 4, there is a small downward flange perpendicular to the one at issue, apparently to secure the housing unit to the tank rim.

c) Prosecution History

Looking to the prosecution history, there is no specific reference to the flange or its shape, and therefore, no limitation can be derived from the prosecution history.

d) Dictionary Definition

Finally, Defendant offers a dictionary definition to support its view. Flange is described as "a projecting rim or collar on a wheel, pipe, rail, etc., to hold it in place, give it strength, guide it, or attach it to something." WEBSTER'S NEW WORLD COLLEGE DICTIONARY 513 (3d ed.1997). The Court notes that the dictionary definition assumes the rim is on a round or circular object, which is not the case here. Furthermore, the definition does not require that a flange extend outwardly, as opposed to upwardly, downwardly, or inwardly. In addition, the Court observes that a flange on a wheel, such as might be found on a railroad car or in the illustration in Defendant's dictionary, extends, among other places, in a circular fashion upwardly and downwardly, in direct conflict with Defendant's assertion that a flange cannot extend downwardly.

The language of Claim 1 recites an "engaging flange." The term "engage" is defined as "to interlock or cause to interlock: mesh." WEBSTER'S II NEW RIVERSIDE UNIVERSITY DICTIONARY 433 (1994). Thus, it would seem logical that the inventor envisioned a structure that would interlock with the rim of the tank.

The Court next looks to the definition of Defendant's proffered interpretation of "extends outwardly" to determine if it either aligns with or contradicts the meaning of "engaging." The term "extend" is defined as "to open or straighten out: unbend; to stretch or spread out to full length." WEBSTER'S II NEW RIVERSIDE UNIVERSITY DICTIONARY 456 (1994). Relevant definitions of "outward" include "toward the outside, away from a central point; on the outside: externally; ... the outside: exterior." WEBSTER'S II NEW RIVERSIDE UNIVERSITY DICTIONARY 836 (1994). None of these definitions are congruent with the idea of an engaging or interlocking flange. There is no support for the proposition that the flange must be on the "exterior" of the housing unit. It might just as easily be said that the flange was "inward towards a central point" from the perspective of the upper portion of the tank, as "outward away from a central point" from the perspective of the lower portion of the tank. "Unbending" or "straightening out" also appear to be inapposite to the idea of interlocking and meshing.

e) Extrinsic Evidence

The interpretation of the disputed term is clear from an analysis of the intrinsic evidence and the dictionary, therefore, further analysis based on extrinsic evidence is improper.

In conclusion, based on the above analysis, the Court holds that the flange is not limited by the requirement that it must "extend outwardly."

C. THE LIQUID LEVEL SENSING DEVICE

The second major area of claim interpretation issues which the Court must resolve surrounds the liquid level sensing device. Starting first with the language that is not disputed, both parties answer the following questions in the affirmative: Can the high and low liquid level responsive switching devices be included in a single liquid level sensing device? Is the predetermined high liquid level higher than the predetermined low liquid level? Is the control circuit connected with an electric power source remote from the unit with the motor, the on/off valve, the high liquid level responsive switching device, and the low liquid level responsive switching device? Does the attachment unit deliver a resulting beverage into the tank when the liquid level in the tank lowers to a predetermined low level and until the liquid level in the tank rises to a predetermined high level? Because the parties stipulate to these issues, and the interpretation is supported by the claim language, the Court finds that these are proper interpretations of Claim 1.

The parties disagree as to the following issues: 1) Whether the low and high liquid level responsive switching devices in Claim 1 can be incorporated into a single unit or device; 2) whether Claim 1 is limited to two physically separate liquid level responsive switching devices; 3) whether Claim 1 requires any specific distance, or difference in height, between the low liquid level and the high liquid level; 4) whether the control circuit actuates the on/off valve to an open position when the liquid level responsive switching device operates in response to the predetermined low liquid level in the tank; 5) whether the control circuit actuates the on/off valve to a closed position when the high liquid level responsive switching device operates in response to the predetermined high liquid level in the tank; 6) whether the low liquid level responsive switching device, the high liquid level responsive switching device and the control circuit maintain the liquid level between the predetermined low liquid level and the predetermined high liquid level; and 7) whether the high liquid level responsive switching device and the low liquid level responsive switching device are carried by the housing. The Court will address each issue in turn.

1. Whether the low and high liquid level responsive switching devices in Claim 1 can be incorporated

into a single unit or device. Answer: Yes.

[18] Plaintiff argues that the low and high liquid level responsive switching devices can be incorporated into a single unit or device. Plaintiff claims that Figure 4 is simply one preferred embodiment of the invention and that the claim construction should not be limited to the preferred embodiment. Plaintiff contends that the plural reference in Claim 1 to the "low and high liquid level responsive switching devices" merely reflects the notion that the device performs both on and off functions, not that it must be two physically separate devices. Specifically, Plaintiff points out that the written description expressly states that the liquid level sensing device used is old art, and that one invention of old art consists of a single liquid level sensing device with a single liquid level switching device.

Bunn-O-Matic proffers that the low and high liquid level responsive switching devices can not be incorporated into a single unit or device because the language of the claim expressly calls for the plural form "devices." Furthermore, Defendant contends that Claim 1 is directed toward a preferred embodiment and that Claim 1 fails to encompass any other alternative embodiment, such as the single float actuated switching device. In addition, Defendant maintains that if the patentee wanted the patent to cover a single switching device, as opposed to two switching devices, the patentee should have included an alternative embodiment in the patent with only one switching device. Finally, Defendant asserts that, because the inventor amended the claim language from "low liquid level and high liquid level switching means" to "low and high liquid level responsive switching devices" in response to a rejection from the PTO, Claim 1 now requires two separate switching devices.

The Court holds that the low and high liquid level responsive switching devices in Claim 1 can be incorporated into a single unit or device.

a) Claim Language

The language of Claim 1 calls for "a liquid level sensing device carried by the housing and depending into the tank and including low and high liquid level responsive switching devices, a control circuit connected with an electric power source remote from the unit and with said motor, on and off valve and said high and low liquid level responsive switching devices." (Col.14:64). The plain language of the claim calls for the plural "devices," indicating that there must be more than one switching device included in the single sensing device. The term "device" is a somewhat generic, non-specific term, thus, the Court looks to other intrinsic evidence for clarification.

b) Written Description

Rules of claim construction provide that limitations cannot be read into a claim from the written description, however, once a term is included in the claim, one may look to the written description to define the term and to provide context. Thus, the Court next turns to the patent specification to provide context and definitions for the liquid level sensing device and liquid level responsive switching devices included therein.

The claim description provides the following in pertinent part:

The liquid level sensing means L can be in the form of a float actuating switching device or, as shown, can be in the form of a resistive probe, with spaced apart pairs of electrodes which depend into the tank T. The lower ends of one pair of electrodes terminates at the lower liquid level in the tank and the lower end of at least one electrode of the other pair of electrodes terminate at the high liquid level in the tank. The beverage

in the tank is a conductor and serves as a switching gate between the ends of the pairs of electrodes. With this form of liquid level sensing means, when the liquid level drops below the lower ends of the first or lower most set of electrodes, the circuit therebetween is open and when the liquid level rises in the tank to contact the lower ends of the upper set of electrodes, it closes the circuit therebetween. Accordingly, the two pairs of electrodes cooperate with the liquid in the tank T to establish liquid level responsive normally closed and normally opened switches. The lowermost switch which is normally closed is a recycling or cycle starting switch and the other or upper normally open switch is a cycle stopping or stop switch.

In practice, one of the electrodes of each of the noted switches can be established by a common electrode with the result that three electrodes function to establish the noted pair of switches.

It is to be noted that the form of liquid level sensing means illustrated and described above is old in the art and is the full mechanical equivalent of those float actuated switching devices and means which have long been provided to effect control of electrical circuits in response to the level of liquids being worked upon and which are well known to all of those who are familiar with or skilled in the art to which my invention relates.

('664 Patent Col.11:58-Col.12:23)

This language expressly indicates that the patent encompasses more than one type of liquid level sensing device, such as a float device, a common electrode, or, as in the preferred embodiment, a probe with a pair of electrodes. It also indicates that the liquid level sensing device is not new art, and that the preferred embodiment performs the same function as the floating actuating switching device. This supports Plaintiff's argument that the patent as shown is only one embodiment, and that the invention encompasses other embodiments. Rules of claim construction mandate that the claims must not be limited to the preferred embodiment. Therefore, the various forms and combinations of sensing devices and switching devices set forth in prior art are within the purview of this invention and Claim 1. Accordingly, the liquid level sensing devices and the liquid level responsive switching devices that are included in a float actuating switching device, a resistive probe with a pair of electrodes, and a common electrode are within the boundaries of Claim 1. The Court considers the prior art of the float actuating switching device referred to in the patent to assist the Court in its understanding of the patent, but not to vary or contradict the terms of the claim. *Markman*, 52 F.3d at 980-1.

c) Prosecution History

Claim 1 of the original application to the PTO was denied by the Examiner due to prior art, specifically the inventions by Popinski, Greenfield, and Cartwright. In response, the inventor challenged the Examiner's rejection based on prior art, calling the rejection "not well-founded." The inventor explained that the present invention's "basic combination and relationship of parts is not anticipated or made obvious by the teachings of the prior art (independent from that which applicant teaches) and is clearly patentable." (Pl.Ex. 6 p. 17). In short, the inventor conceded that many of the individual elements of his invention were found in prior art, including the liquid level sensing device and the liquid level responsive switching device. However, the novelty, and thus the patentability, of his invention lay in the overall combination of many elements into a single housing unit that sits atop a holding tank.

In support of this proposition, the inventor stated,

It is submitted that the broad aspects of applicant's invention might properly support and justify the allowance of a claim similar to Claim 1 in which the particular liquid level sensing device which is recited in Claim 1 is not recited. In accordance with the foregoing, the recitation of the high and low liquid level switching devices of the liquid level sensing means, which are recited to include sufficient structure and make the claim definite, should be afforded the broadest possible interpretation.

(Pl.Ex. 6 p. 17).

Therefore, the prosecution history makes it clear that the inventor envisioned that the invention could justify a claim similar to Claim 1 without the liquid level sensing device, and accordingly, the liquid level responsive switching device included therein should be broadly, not narrowly, construed.

Furthermore, the inventor stood his ground, successfully defended his application, and amended Claim 1 not because of the Examiner's rejection, but because he thought it loquacious. In addition to defending his position regarding the prior art, the inventor, believing Claims 1,2,10, and 11 to be wordy, took it upon himself to simplify the language and "carefully amended" the claims "to delete all language which was found to be redundant and/or otherwise unnecessary and/or which could be deleted without rendering it structurally deficient." (Pl.Ex. 6 p. 9).

After considering the amended application along with the applicant's arguments, the Examiner was persuaded by the applicant's reasoning as to the prior art and approved the patent without substantial changes. The Examiner set forth the reasoning for his allowance: "The primary reason for the allowance of claims 1-18 was the combination of the supply tank and attachment unit, said attachment unit comprising a housing mounted atop said tank and enclosing dry powdered beverage concentrate and water discharge apparatus which operate in response to the level of beverage in the tank. The above was found in all the claims but not in the prior art." (Pl.Ex. 7 p. 2).

d) Prior Art, Technical Treatises and Dictionary Definition

Extrinsic evidence is to be considered to the extent necessary to assist in the Court's understanding of prior art and the patent at issue, not to contradict the terms of the claim.

As to the prior art, the invention must be read in light of the prior art to which it makes reference and to which the prosecution history makes reference. Specifically, United States Patent No. 3,643,835 by Leonard Popinski ("the Popinski patent") teaches a float actuating switching device in which a main float means, i.e. the liquid level sensing device, is comprised of a floating rod containing a single control switch, which may be a conventional mercury switch. (Popinski patent Col. 3: 43). The single switch has an on-position and an off-position. Id.

The Popinski patent liquid level sensing floating device, switching device, and the circuit work together in the following way to add beverage to the tank when the beverage lowers to a low level and to stop when the beverage reaches a high level:

[W]hen the rod portion 70 of the main float means 68 falls below a predetermined level, the main level switch 72 closes to its on-position and impresses 12 v. AC across the relay coil 92 causing the relay switch 91 to close; thereby connecting line 1 of the 115 v. AC to the pump means 34 and the electric water valve 42. With the power circuit closed, the pump means 34 operates and the water valve 42 opens, The pump

means pumps the concentrate from tank 28 into the bowl 14 and the water simultaneously flows through valve 42 into the bowl 14 under the water pressure at output 57 originally set by the water pressure adjustment means 60 of the regulator. When the main float means 68 is buoyed upward with the addition of the concentrate and water and returns to the predetermined level, control switch 72 switches to its off-position, relay means 90 deenergizes, and relay switch 91 moves to its open-position and thereby disconnects the 115 v. AC from the pump means 34 and water valve 42 causing the proportioner device 20 to stop operating.

(Popinski patent Col. 4: 32).

Furthermore, a mercury switch "consist[s] of a glass tube containing mercury and two stationary contact members located in opposite ends of the tube." A *MERICAN ELECTRICIAN'S HANDBOOK* 4-4 (Terrell Croft & Wilford I. Summers eds., 12th ed.1992)(emphasis added). "As the tube is tilted, the mercury moves until it bridges the electrodes and makes electrical contact." IAN R. SINCLAIR, *SWITCHES* 75 (1988). Thus, the mercury switch is a single unit, i.e. one glass tube, and can be in either the on or off position.

Therefore, the prior art included in the written description and the prosecution history of the '664 patent makes reference to a single liquid level sensing device with a single switching device, such as a mercury switch. The single switch has both an on function and an off function. Therefore, the liquid level sensing device in the patent at issue can include either a single switching device or multiple switching devices. Accordingly, the high and low liquid level responsive switching devices included in Claim 1 can be incorporated into a single unit or device. From the context of the written description and prosecution history, it is apparent that the "devices" cited in Claim 1 refer to the two off and on functions of high and low responsive switches, not two separate devices.

Defendant's arguments that the claim must be limited to the preferred embodiment and that the inventor should have included alternative embodiments if he had wanted the patent to encompass a float actuating device with a single switching device are without merit. There exists a wealth of case law in support of the notion that claims are not limited to the preferred embodiment. The law does not require the impossible. Hence, it does not require that an applicant describe in his specification every conceivable and possible future embodiment of this invention. The law recognizes that patent specifications are written for those skilled in the art, and requires only that the inventor describe the " 'est mode' known at the time to him of making and using the invention." *SRI*, 775 F.2d at 1121. As opposed to requiring the inventor to describe every possible embodiment, as Defendant would have the Court do, the law requires one considering the use of a device that might infringe on an existing patent to look into the prior art referred to in the written description and prosecution history before embarking on a course of action that would infringe on an existing patent. In this case, the inventor's reference in both the written description and prosecution history to the Popinski patent gives the public sufficient notice that the '664 patent includes as an element the prior art of the Popinski patent, specifically the single liquid level sensing device with a single switching device.

The dictionary definition of device tells us that device is broadly defined as "something constructed or devised for a particular purpose, esp. a machine used to perform one or more relatively simple tasks." *WEBSTER'S II NEW RIVERSIDE DICTIONARY* 370 (1994). This definition further supports Plaintiff's contention that a single switching device in Claim 1 can be used to perform both the high liquid level switching function and the low liquid level switching function.

2. Whether Claim 1 is limited to two physically separate liquid level responsive switching devices.

Answer: No.

This issue is substantially similar to the first issue, with the parties offering substantially the same arguments. Plaintiff argues that nothing in the claim limits the responsive switching devices to two physically separate devices, while Defendant contends that the mere use of the plural "devices" supports the notion that the claim calls for two physically separate devices. The Court, for reasons set forth under the first issue regarding the liquid level responsive switching device or devices, holds that Claim 1 is not limited to two physically separate liquid level responsive switching devices.

3. Whether Claim 1 Requires Any Specific Distance, or Specific Difference in Height, Between the Low Liquid Level and the High Liquid Level. Answer: No.

[19] Plaintiff contends that the plain language in Claim 1 does not require a specific distance between the high and low liquid levels, and that the difference can be either minuscule or relatively large. Defendant disagrees.

The Court holds that Claim 1 does not require a specific distance, or difference in height, between the low and high liquid levels. However, as common sense requires, and as stipulated by parties, the high liquid level must be higher than the low liquid level.

a) The Claim Language

The language of Claim 1 provides in pertinent part that the unit produces a "beverage into the tank when the liquid level in the tank lowers to a predetermined low level and until the liquid level in the tank rises to a predetermined high liquid level." (Col.14:28).

There is nothing in the claim language that would require a certain distance between the low and high liquid levels, other than the logical requirement that the high liquid level must be higher than the low liquid level.

b) The Written Description

Likewise, nothing in the written description provides further limitations regarding the distance between the high and low liquid levels.

c) Prosecution History

Similarly, no language exists in the prosecution history that would suggest a limitation on the distance between the high and low liquid levels. Notably, the inventor writes, "It is submitted that the broad aspects of applicant's invention might properly support and justify the allowance of a claim similar to Claim 1 in which the particular liquid level sensing device which is recited in Claim 1 is not recited." (Pl.Ex. p. 17). This also supports Plaintiff's proposition that Claim 1 does not require a specific distance between the low and high liquid levels because, if the inventor contemplates an embodiment of the invention without a liquid level sensing device, it is reasonable to assume that he had no intent to impose limits on the distance between the high and low liquid levels which would have been sensed by the missing sensing device.

In sum, there is not a scintilla of evidence to support Defendant's proffered interpretation. The Court holds that Claim 1 does not require a specific distance, or specific difference in height, between the low liquid level and the high liquid level.

4. Whether the Control Circuit Actuates the On/Off Valve to an Open Position When the Liquid Level Responsive Switching Device Operates in Response to the *Predetermined* Low Liquid Level in the Tank. Answer: No.

[20] Plaintiff submits that the term "predetermined" should not be included in this interpretation, but would agree to the following interpretation: "The control circuit actuates the on/off valve to an open position when the liquid level responsive switching device operates in response to *a* low liquid level in the tank." Plaintiff argues that the terms "the predetermined low liquid level" were cited in the preamble in Claim 1 (Col.14:29), and that they do not automatically flow into the rest of Claim 1 (Col.15:3). In particular, Plaintiff maintains that the liquid level cited to in the lower portion of Claim 1 (Col.15:3) could refer to another liquid level, not the specific predetermined liquid level cited in the preamble. Plaintiff points out that, after the preamble, the language of Claim 1 simply refers to "*a* low liquid level," not to "*the predetermined* low liquid level" or "*a predetermined* low liquid level." Because the low liquid level does not contain a modifier or limitation, Plaintiff argues, none should be inferred.

On the other hand, Defendant asserts that the term "predetermined" from the preamble of Claim 1 should be read into the rest of the claim. Therefore, Defendant maintains that the control circuit actuates the on/off valve to an open position when the liquid level responsive switching device operates in response to *the predetermined* low liquid level in the tank.

a) The Claim Language

The preamble of Claim 1 provides that the unit deliver a "beverage into the tank when the liquid level in the tank lowers to *a predetermined low level* and until the liquid level in the tank rises to *a predetermined high liquid level*." (Col.14:28)(emphasis added). Reading further, the claim also provides for

a control circuit connected with an electric power source remote from the unit and with said motor, on and off valve and said high and low liquid level responsive switching devices and operating to energize the motor and actuate the on and off valve to an open position when the low liquid level switching device operates in response to *a low liquid level* in the tank and operating to deenergize the motor and to actuate the on and off valve to a closed position when the high liquid level responsive switching device operates in response to *a high liquid level* in the tank.

(Col.14:66)(emphasis added).

The lower portion of the claim makes no explicit connection between "a low liquid level" and the "predetermined low liquid level" of the preamble, nor does it contain any terms of limitation or modification that would indicate reference to a specific level. The lower portion does not refer to "*said predetermined* low level," "*aforementioned predetermined* low level," "*the predetermined* low liquid level" or even "*the* low liquid level." It simply refers to "*a* low liquid level."

The Court notes that, generally, when previously cited terms are referred to, the language of the claim specifically identifies the previous cite by using the term "said" or "the." Claim 1 uses the term "said" seven times to refer to a previous cite. For example, "said unit" (Col.14:31), "said housing" (Col.14:35), "said duct" (Col:14:46), "said motor" (Col 14:46, 68), "said chamber" (Col 14:48), and "said high and low liquid level responsive switching devices." (Col.15:1). In addition, the term "the" is used throughout Claim 1 to refer to previously cited items.

Declining to use the terms "said predetermined" or "the predetermined" as a modifier for "low liquid level" demonstrates that the inventor did not intend the low liquid level to be limited to the predetermined level cited in the preamble. If the inventor had intended the low liquid level in Column 15, line 3 to refer to, and be limited to, the same predetermined low liquid level previously cited in the preamble in Column 14, line 29, the inventor could have done so, as he did with other terms throughout the patent. Again, rules of claim construction require that one must not read in a limitation to a claim where the terms of the claim do not contain a limitation.

b) The Written Description

The written description provides, in pertinent part,

The attachment unit that I provide next includes liquid level sensing means L and a control circuit K which normally cyclically operate to energize the valve V of the means W and the motor M for the hopper H when the level of the beverage in the tank T drops to *a predetermined low level* and to maintain the valve an motor energized until the level of the beverage in the tank reaches *a predetermined high level*.

The liquid level sensing means L can be in the form of a float actuating device or, as shown, can be in the form of a resistive probe, with spaced apart pairs of electrodes which depend into the tank T. The lower ends of one pair of electrodes terminates at *the lower liquid level* in the tank and the lower end of at least one electrode of the other pair of electrodes terminate at *the high liquid level* in the tank. The beverage in the tank is a conductor and serves as a switching gate between the ends of the pairs of electrodes. With this form of liquid level sensing means, when the liquid level drops below the lower end of the first or lowermost set of electrodes, the circuit therebetween is open and when the liquid level rises in the tank to contact the lower ends of the upper set of electrodes, it closes the circuit therebetween. Accordingly, the two pairs of electrodes cooperate with the liquid in the tank T to establish liquid level responsive normally closed and normally open switches. The lowermost switch which is normally closed is a recycling or cycle starting switch and the other or upper normally open switch is a cycle stopping or stop switch.

(Col 11:50)(emphasis added).

Putting Claim 1 in context, the lower portion of the description refers to "*the lower liquid level*," (Col.11:62) which may be the "predetermined low level" previously mentioned (Col.11:55), or, any another liquid level that is lower than the higher liquid level. It is possible to imagine a situation where the beverage dispensing machine operator may wish to set various levels between which he would like to keep the liquid in the tank. For example, on hot days with heavy usage of cold lemonade, one may wish to keep the liquid levels higher. Conversely, on cold winter days with slow customer usage of cold lemonade, one may wish to establish lower liquid levels between which one desires to keep the beverage. There is nothing in the written description which would preclude the machine operator from establishing various liquid levels, depending on a variety of other factors that a convenience store using the machine may wish to consider, such as usage, cost, and freshness of product. This supports Plaintiff's argument that the term "predetermined" used in Claim 1 preamble should not be read into other portions of Claim 1, as there may be more than one low liquid level that may be established.

c) Prosecution History

The inventor amended Claim 1 of the original application. The original application called for the following:

[a] control circuit connected with an electrical power source remote from the attachment unit and with said motor, on and off valve and said high and low liquid level switch means and operating to energize the motor and actuate the on and off valve to an open position when the lower liquid level switch means is operated in response to the lowering of the liquid level in the tank to *said low liquid level* and operating to deenergize the motor and to actuate the on and off valve to a closed position when the high liquid level switch means is operated in response to the rise of liquid in the tank to *said high liquid level*.

(Pl.Ex. 6 p. 4)(emphasis added).

The inventor purposefully amended the claim to specifically delete references to " *said low liquid level*," presumably the "predetermined liquid level" originally in the preamble, and replaced it with the broader term "a low liquid level." Having deliberately changed the terms, the Court must give full meaning to the amended terms of Claim 1.

d) Dictionary Definition

The relevant dictionary meaning of the term "a" as used in the phrase " *a low liquid level*" is "used before nouns and noun phrases that denote a single, but unspecified, person or thing." WEBSTER'S II NEW RIVERSIDE DICTIONARY 65 (1994). The relevant dictionary definition of the term "the" as used in the phrase " *the predetermined low liquid level*" is "used before singular or plural nouns and noun phrases that denote particular persons or things." Id. at 1199. "Predetermined" is defined as "to determine, decide, or establish ahead of time." Id. at 926. These definitions further support the proposition that the phrase " *a low liquid level*" used later in Claim 1 is not required to be *the* "predetermined low liquid level" cited in the preamble of Claim 1, and that the term "predetermined" is not to be read into other parts of the claim.

e) Extrinsic Evidence

There is no extrinsic evidence which gives any guidance or provides any further understanding of the issue at hand.

5. Whether the Control Circuit Actuates the On/Off Valve to a Closed Position When the High Liquid Level Responsive Switching Device Operates in Response to the *Predetermined High Liquid Level* in the Tank. Answer: No.

This issue is substantially similar to the fourth issue, with the parties offering the same arguments. Plaintiff proffers the following interpretation: "The control circuit actuates the on/off valve to a closed position when the high liquid level responsive switching device operates in response to *a high liquid level* in the tank." The Court agrees that Plaintiff's interpretation is the proper claim construction. For reasons set forth under the fourth issue, the Court finds that the phrase " *a high liquid level*" used later in Claim 1 is not required to be *the* "predetermined high liquid level" as cited in the preamble, and that the term "predetermined" is not to be read into other parts of the claim.

6. Whether the Low liquid Level Responsive Switching Device, the High Liquid Level Responsive Switching Device, and the Control Circuit Maintain the Liquid Level Between the *Predetermined Low Liquid Level* and the *Predetermined High Liquid Level*. Answer: No.

Likewise, this issue is substantially similar to the fourth and fifth issues, with the parties offering the same

arguments. Plaintiff proffers the following interpretation: "The low liquid level responsive switching device, the high liquid level responsive switching device and the control circuit maintain the liquid level between *a* low liquid level and *a* high liquid level." Again, the Court finds that Plaintiff's interpretation is the proper claim construction. For reasons set forth under the fourth issue, the Court finds that the phrases "*a* high liquid level" and "*a* low liquid level" used later in Claim 1 are not required to refer to *the* "predetermined high liquid level" and "predetermined low liquid level" cited in the preamble, and that the term "predetermined" is not to be read into other parts of the claim.

7. Whether the Entire Low Liquid Level Responsive Switching Device and the Entire High Liquid Level Responsive Switching Device Must be Carried by the Housing. Answer: No.

[21] Plaintiff contends that the language in Claim 1 calls for the liquid level sensing device to be carried by the housing, but there is no requirement that the entire switching device be carried in the housing. In particular, Plaintiff claims that part of the switching device could be carried in the housing, and part be carried elsewhere. Thus, the issue is whether the entire switching device must be carried in the housing. Furthermore, Plaintiff again asserts that Figure 4 is only one preferred embodiment of the invention, and that rules of claim construction require that the claim should not be limited to the preferred embodiment.

Defendant argues that the entire switching device must be carried in the housing. Defendant reasons that, per the claim language, the liquid level sensing device includes the liquid level responsive switching device, the liquid level sensing device is carried by the housing, therefore, logic requires that the liquid level responsive switching device must be carried by the housing. Defendant further states that the entire switching device must be carried by the housing.

a) Claim Language

The analysis begins with the language of the claim, which calls for "a liquid level sensing device carried by the housing and depending into the tank and including low and high liquid level responsive switching devices." (Col.14:64). Notably, the subject matter of the clause at issue is the liquid level sensing device, not the housing or the switching device. Had the inventor intended to explicitly indicate that the switching device was carried by the housing, it seems reasonable that he would have made the switching device or the housing the subject matter of the clause, stating, for example, "the high and low liquid level responsive switching devices are carried by the housing and included in the liquid level sensing device." He did not do this, and, instead, the language only requires that the sensing device be carried by the housing.

The controversy seems to center around whether "including" the switching devices in the sensing device automatically requires the switching devices to be carried by the housing. It is not clear whether the switching devices must physically be contained within the sensing device, or whether they simply must somehow be connected to the sensing device as part of the circuitry so that they operate in response to the liquid levels in the tank. If the switching devices must be physically contained within the sensing device, which is carried by the housing, it would seem logical that the switching device would also be carried by the housing. On the other hand, if the switching devices are not required to be physically contained within the sensing device, it follows that the switching device need not be carried by the housing. The written description provides some insight as to this point.

Defendant points out that it could be inferred that the switching device may be carried by the housing because the switching device is included in the sensing device, which is carried by the housing. However, mere inferences cannot serve to limit claim terms. Johnson, 175 F.3d at 992. There is no explicit requirement

that the housing carry the switching device.

b) Written Description

Second, the Court looks to the written description of the patent to provide context and to glean the meaning of the word "include." Again, the Court notes that the written description and the illustrations are one preferred embodiment, and that rules of claim construction require that the claim not be limited to the preferred embodiment. The written description states, "The attachment unit that I provide next *includes* liquid level sensing means L and a control circuit K.... The liquid level sensing means L can be in the form of a float actuating switching device or, as shown, can be in the form of a resistive probe, with spaced apart pairs of electrodes which depend into the tank T." (Col.11:50).

The specifications next describe circuit K, the switches in question, 102 and 103, and provide insight into the meaning of the term "included."

The control circuit K that I provide is a simple circuit supplied with current by a service cord 90 entering the housing G through an opening in the rear wall 31 thereof. The control switch S which is normally held closed by the hopper H is engaged in one conductor or line 91 of the cord 90. The circuit K, diagrammatically illustrated in FIG. 9 of the drawings, *includes* a transformer 100 connected with the cord 90 and under control of the switch S. The circuit K further *includes* a normally open primary relay switch 101 between and connected with the transformer 100 and the valve V and motor M. The circuit next *includes* a pair of switches 102 and 103 (the switching means of the liquid level sensing device L). The switch 102 is a normally open high liquid level shut-off switch and the switch 103 is a normally closed low level recycling switch. The circuit next *includes* a second shut-off or control relay switch 104 connected with the switch 102, the primary relay 101 and with a third, recycling relay switch 105.

Defendant appears to argue that "included" means "physically contained within," and that, accordingly, the switching device must be physically contained within the sensing device, and that both are carried by the housing. However, upon further examination of Figures 4, 7 and 9, it is clear that circuit K is completely and physically separate from sensing device L, even though the written description states that circuit K "includes" the switching devices 102 and 103, and even though the claim language cites a "liquid level sensing device ... *including* low and high liquid level responsive switching devices." Based on the illustrations and the written descriptions, Defendant's interpretation of Claim 1 and specifically the meaning of the word "include" is not feasible. It is impossible for switches 102 and 103 to be physically contained in both the liquid level sensing device L, as Defendant claims, and the circuit K, as the specifications describe, when L and K are physically separate as illustrated in Figures 4 and 7.

Thus, the patent specification and illustrations are compelling reasons for the Court to consider other plausible definitions of the term "include." The inventor's use of the word "include" suggests the various devices are connected by an electrical circuit; that they are a part or member of the same circuitry. The Court finds that, in this context, "includes" means "electrically or functionally connected."

Using the meaning of the term "include" gathered from the written description and applying that meaning to Claim 1, the switching devices are not required to be physically contained within the liquid level sensing device, although the switching devices must be electrically or functionally connected to the sensing device. Therefore, although Claim 1 requires that the sensing device be carried in the housing, and that the sensing device be "electrically or functionally connected" to the switching devices, there is no requirement that the

switching devices be carried by the housing.

c) Prosecution History

The prosecution history adds insight to the understanding of the patent. In his response to the initial rejection of the PTO, the inventor states,

The very essence and nature of applicant's invention, recited in the rejected claims, is an attachment unit engageable upon and with the open top of the beverage supply tank of a pre-existing non-automated beverage dispensing machine and such an attachment which includes a dry powder concentrate handling and dispensing mechanism to dispense metered volumes of powdered concentrate, water supply means to dispense metered volumes of water and mixing means to commingle the metered volumes of concentrate and water at the top of the tank and to deliver the resulting beverage directly into the tank.

(Pl.Ex. 6 p. 10).

As has been the case throughout the Court's analysis, what is specifically excluded from this description is just as telling as what is included. The applicant purposefully excludes any mention of a high and low liquid level switching device as he describes the housing unit, which is, in his opinion, the "very essence" of the invention.

The inventor further describes Claim 1:

Claim 1 as now presented is clearly and specifically directed to and recites that combination and relationship of parts which includes a box-like housing cooperatively engaged atop and supported by the supply tank of a beverage dispensing machine and in which a supply of beverage is to be maintained between predetermined high and low levels. The housing atop the tank carries, protects and obscures from view a motor driven hopper and auger type dry powder beverage concentrate metering and dispensing mechanism, a water supply means or system for delivering metered volumes of water and a mixing means for receiving concentrate from the hopper and water from the water supply means and to mix that concentrate and water at the top of and to deliver the resulting beverage directly into the tank.

(Pl.Ex. 6 p. 16).

Again, in this paragraph, the purpose of which is to describe the housing unit, there is no mention of the switching device. The heart of the invention is the mechanism used for mixing the powdered concentrate with the water and dispensing it into the tank. It is not until two paragraphs later that the inventor mentions the liquid level sensing device and responsive switching devices. The inventor continues as follows:

In addition to the basic and patentably novel combination and relationship of parts noted above, Claim 1 further specifically calls for the fluid level sensing device and its fluid level responsive switching devices which extend between and functionally tie or relate the attachment with the supply tank and/or with the supply of beverage therein. Claim 1 also specifically calls for that circuit means that connects with several electrical devices and/or means of the combination to effect their operation and functioning of the invention, as specified.

(Pl.Ex. 6 p. 17).

Here, the inventor is more specific about the location of the switching devices, adding insight as to whether they must be carried by the housing, as Defendant claims. The inventor tells us that the switching devices "extend between and functionally tie or relate the attachment with the supply tank and/or with the supply of beverage therein." Once again, what is excluded is as important as what is included. Noticeably excluded is the notion that the switching device is physically contained within the sensing device or that the switching device is carried by the housing. In addition, the circuit, of which the switching devices are a part, "connects with several electrical devices and/or means" further supporting the Court's definition of "included" as "connected electrically."

Finally, the inventor implores a broad claim construction of the switching devices in the following paragraph:

It is submitted that the broad aspects of applicant's invention might properly support and justify the allowance of a claim similar to Claim 1 in which the particular liquid level sensing device which is recited in Claim 1 is not recited. In accordance with the foregoing, the recitation of the high and low liquid level switching devices of the liquid level sensing means, which are recited to include sufficient structure and make the claim definite, should be afforded the broadest possible interpretation.

(Pl.Ex. 6 p. 17).

Here, the inventor appears to say that a possible embodiment of the invention is one excluding the liquid level sensing device but including the switching devices. This potential embodiment infers that the switching device is not physically enclosed within the sensing device. The inventor also tells us that the switching devices are recited and described in the patent specification in order to meet statutory requirements of structure and definiteness, however, they should be given a very broad interpretation.

The Examiner responds with an allowance of the patent, stating,

The primary reason for the allowance of claims 1-18 was the combination of the supply tank and attachment unit, said attachment unit comprising a housing mounted atop said tank and enclosing dry powdered beverage concentrate and water discharge apparatus which operate in response to the level of beverage in the tank. The above was found in all the claims but not in the prior art.

(Pl.Ex. 6 p. 17). Once again, there is no mention that the switching device is carried by the housing unit.

d) Dictionary Definition

The dictionary tells us that "include" is defined as "to have or take part in as a part or member: contain; to put into a group, class or total." WEBSTER'S II NEW RIVERSIDE DICTIONARY 619 (1994). There is no requirement of being physically enclosed. For example, one might be "included" in the membership of an organization, however, that does not require all members to be physically enclosed or contained within the bricks and mortar of an organization's primary place of meeting. This further supports Plaintiff's proffered claim interpretation.

e) Extrinsic Evidence

There is no extrinsic evidence which gives any guidance or provides any further understanding of the issue

at hand.

In summary, the Court finds that the low liquid level responsive switching device and the high liquid level responsive switching device in Claim 1 are not required to be carried by the housing unit.

IV. CONCLUSION

As a general rule, patents say what they mean, and mean what they say. They are reviewed by examiners who are experts in their field and trained in the law before being approved. In this case, Defendant offers limitations which do not appear in the language of the claim. Courts will not add limitations to claims that are not set forth in the claim. For the foregoing reasons, **the Court adopts Plaintiff's proffered construction, and rejects Defendant's proffered construction, of Claim 1 of United States Patent No. 4,488,664.**

N.D.Ill.,2000.

Real v. Bunn-O-Matic Corp.

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