United States District Court,
C.D. California.

EMHART GLASS, S.A,
Plaintiff.
v.
BOTTERO, S.p.A,
Defendant.

No. CV 01-4321 LGB (JWJx)

July 2, 2002.

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***MARKMAN* ORDER**

LOURDES G. BAIRD**, District Judge.**

I. INTRODUCTION

Plaintiff Emhart Glass, S.A. ("Emhart") brings this action accusing Bottero, S.p.A. ("Bottero") of patent infringement. The conflict centers on three patents issued to Emhart, U.S. Patents 4,332,606 ("the '606 patent"), 4,402,721 ("the '721 patent"), and 4,705,552 ("the '752 patent").

II. FACTUAL AND PROCEDURAL BACKGROUND

The parties dispute the proper construction of a number of claims for each patent. There are claim construction issues for claims one, five, and twelve of the '606 patent. In addition, the parties dispute language in claims one through five of the '721 patent. Finally, there are claim construction issues involving claims one, two, four, five, six, nine, ten, eleven, and fourteen of the '552 patent. The parties filed their Second Amended Joint Claim Construction Statement ("Joint Statement") with the Court on April 10, 2002.

Both Emhart and Bottero manufacture machinery for creating glassware. This particular litigation centers on Bottero's sales of individual section ("I.S.") equipment to the Gallo wineries. Understanding the patents at issue requires an overview of the glassware forming process in an I.S. machine.

Glassware, such as glass bottles, begins as a molten collection of ingredients. This molten mixture is

distributed in discrete amounts called "gobs." Each gob corresponds to a finished piece-for the sake of convenience the Court will use glass bottles as the representative example. Gobs are formed into bottles through a molding process.

An I.S. machine consists of several mold sections, each independently capable of forming bottles. Each individual section is capable of producing one, two, or three bottles at a time. A device called a "feeder" sends the gobs to the individual sections, delivering gobs to each section before returning back to deliver a gob to the first section, starting the cycle over again. Thus, an I.S. machine with six sections, each capable of handling two gobs at a time will create twelve bottles during each cycle of the feeder.

Each individual section is composed of two stations-the blank mold station and the blow station. Within each blank mold station are two molds, the blank mold and a neck mold. The two molds are mated, so that the gob fills both when it is deposited in the blank mold station. Once the gob is inside the blank mold station, it is formed into a bottle-shaped article called the "parison." The creation of a parison is done in one of two ways.

The first method, called "press and blow," involves a plunger, which presses the gob into the blank mold. This plunger defines the neck opening of the model. The cavity of the mold is then closed, and the parison is formed. In the second method, called "blow and blow," a thimble is associated with the plunger and air, rather than pressure, is used to create the parison.

Once the parison is formed, it is moved into the blow station. This movement is accomplished by the "neck ring arm," which includes the neck mold. The neck mold supports the parison during this transfer from the blank mold station to the blow station. The neck mold is then released after the parison is deposited in the blow station.

In the blow station, the final forming of the bottle's body takes place. After this final blow is complete, the blow mold opens, tongs swing into the mold, the bottle is removed from the mold, and the bottle is sent on to a conveyer system for taking the finished bottles away.

This conveyor system relies on precise timing as bottles are added to the line from each of the various sections. The end result is a single line of bottles moving down the conveyor.

As gobs are repeatedly poured into the molds, it becomes necessary to periodically clean out the molds. This cleaning is accomplished by "swabbing" out the molds with a releasing agent. The releasing agent is a liquid mixture of oil and carbon black that leaves a residue on articles formed by the mold over a certain number of cycles. This residue is difficult to detect and remove from the bottles. Because the residue is so difficult to detect or remove, glassware machines attempt to identify and reject the affected bottles.

III. CLAIM INTERPRETATION LAW

A. General Standards

In Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996), the Supreme Court held that the interpretation of a patent claim-the portion of the patent document that defines the scope of the patentee's rights-is a matter of law exclusively within the province of the court and is not a factual question for the jury. *See* id. at 372. The *Markman* decision suggested that a trial court could consider various types of evidence when interpreting a patent, including expert testimony. *See id*. at 388-90.

Shortly after the Supreme Court handed down *Markman,* the Federal Circuit, in Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576 (Fed.Cir.1996), expanded on the Court's dicta concerning evidence available to a trial court in interpreting patent claims. *See* id. at 1581-83. The Federal Circuit held that if intrinsic evidence can, by itself, resolve ambiguity in a patent term, then a court may not rely on extrinsic evidence, such as expert testimony, to construe the term. *See* id. at 1583. A trial court may only use extrinsic evidence when intrinsic evidence fails to illuminate the meaning of the disputed claim. *See id.* Moreover, extrinsic evidence cannot broaden the reach of a claim or contradict explicit language. *See id.*

The Federal Circuit detailed a hierarchy of specific types of evidence that a court may consider. When interpreting a patent, a trial court must first look at the language of the claim itself. *See id.* at 1582. Courts should typically construe terms by their common, customary meaning, but a patentee is allowed to define her own terms in the specification section of the patent. *See id.* Therefore, courts must always review the specification, which, when setting forth an embodiment of the invention, frequently provides explicit definitions of the claim terms. *See id.* The language in the specification is dispositive, and "it is the single best guide to the meaning of the disputed term." *Id.* However, a patent's claims are not limited to the specification's best mode, preferred embodiment, specific objects, or illustrative examples, and it is erroneous to read limitations from the specification into the claims. *See* Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865 (Fed.Cir.1988) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations."); Rolls-Royce Ltd. v. GTE Valeron Corp., 800 F.2d 1101, 1108 (Fed.Cir.1987) ("Reference to an object does not constitute in itself a limitation in the claims."); *Intervet America, Inc. v. Kee-Vet Laboratories, Inc.,* 877 F.2d 1050 (Fed.Cir.1989).

In addition, a court may consider the prosecution history of the patent as evidence of meaning. *See id.* This history contains the complete record of all the filings and examinations before the Patent and Trademark Office, including representations made by the applicant regarding the significance of claims and terms. *See id.* The history also limits the interpretation of terms by recording the exclusion of any term definition disclaimed during the prosecution. *See id.*

Only when intrinsic evidence fails to resolve ambiguity in a disputed claim term may a court rely on extrinsic evidence. *See id.* at 1583. The policy rationale supporting this evidentiary limitation is that prospective patentees must have access to public records concerning the patent to "design around" a prior art. *Id* . If expert testimony or other extrinsic evidence were permitted to alter the record, then this public benefit would be frustrated. *See id.* Accordingly, a court can only examine extrinsic evidence if the evidence does not contradict the claim language, the specification, or the prosecution history but instead supplements it. *See id.* at 1584-85.

B. Interpreting "Means Plus Function" Language

In construing a patent, the inventor may refer to a "means" for performing a function without describing the underlying structure that performs the function. *See* B. Braun Med., Inc. v. Abbot, 124 F.3d 1419, 1424 (Fed.Cir.1997). This language is referred to as "means plus function" language. *See* id. at 1424. As such, an element in a claim "expressed as a means ... for performing a specified function without the recital of a structure ... shall be construed to cover the corresponding structure ... described in the specification and equivalents thereof." 35 U.S.C. para. 112, para. 6. Construing such a claim is a two-step process. First, a court must identify the function specified in the claim and then the court must identify the structure in the specification that performs the claimed function. Meditronic v. Advanced Cardiovascular Svs., Inc., 248

F.3d 1303, 1311 (Fed.Cir.2001).

Structure disclosed in a specification is "corresponding structure" only if the specification or prosecution history clearly links or associates the structure to the function recited in the claim. *See* Braun, 124 F.3d at 1424. Moreover, details more particularly defining a structure in ways unrelated to the recited function are *not* to be read as limiting the scope of a "means" clause. *See* Chiuminatta Concrete Concepts. Inc. v. Cardinal Indus. Inc., 145 F.3d 1303, 1308-09 (Fed.Cir.1998). Choosing to write a patent claim in means-plus-function language comes at a cost because such a claim does not cover every means for performing a specified function, but is limited to the corresponding structure described in the specification, as well as the structure's equivalents. *See* Itron, Inc. v. Berghiat, 169 F.Supp.2d 1073, 1082 (D.Minn.2001).

IV. ANALYSIS

With regard to each patent, the parties dispute language in a number of claims. Additionally, there are numerous points of disagreement within each claim. Before addressing each individual point of contention within a claim, the Court will provide the claim's language, with disputed portions highlighted, unless doing so would be inordinately redundant.

A. '606 Patent

The '606 patent is directed towards using electric signals to identify and reject particular wares, such as glass bottles, that are produced in molds that have been cleaned or are otherwise suspected of having dubious qualities. ' 606 Patent, Col. 1:5-12. There are three claims with disputed language in the '606 patent: claims one, five, and twelve.

1. Claim 1

a. Claim Language

In a ware forming machine having multiple sections producing a plurality of articles **such as** glass bottles **or the like** from a plurality of molds during each cycle of machine operation, all of the sections depositing the articles in series on an output conveyor, a ware identifying apparatus **for selectively identifying in the series on the conveyor, articles formed in a particular section and mold during a particular cycle of the machine operation** comprising:
a plurality of mold switches associated respectively with each of the plurality of molds in each section, each section, each switch being selectively actuated to provide a **ware signal** indicative of an article produced from the associated mold during a particular cycle of operation;

pulse generating means operatively coupled with the ware forming machine and producing **trains of pulse signals** corresponding to the articles formed in the machine sections during multiple cycles of the machine operation;

section signal generating means operatively coupled with the ware forming machine for generating during each cycle of machine operation a **sequence of section signals** corresponding to the order of the articles from the sections on the conveyor;

first gating means associated with each of the molds of the machine and **connected with** both the pulse generating means and the section signal generating means for detecting a **coincidence** of the pulse signals

and the sequenced section signals and generating a series of coincidence pulses for each series of articles from the molds of the respective sections;

signal delay means **connected with** the plurality of mold switches to receive the ware signals from the switches and produce signals delayed for different numbers of machine cycles after the respective switches are actuated, the number of cycles of delay for the respective signals corresponding with the movement of an article from the corresponding mold in a section to a given station along the conveyor; and

second gating means connected with the first gating means and the signal delay means to receive the series of coincidence pulses and the delayed signals to generate a **unique signal** identifying an article produced in a particular mold during a particular cycle of operation at a time when the article reaches the given station along the conveyor.

'606 Patent, Col. 14:2-49.

b. "In a ware forming machine ... producing a plurality of articles such as glass bottles or the like"

Emhart contends that the proper construction of the phrase "or the like" in claim one refers to things similar to glass bottles, such as glass jars. Emhart Br. at 13. Bottero, in contrast, argues that the term "such as" extends the reach of "or the like" to encompass any ware forming machine with multiple sections. Bottero Br. at 19. The Court concludes that Emhart's construction best comports with the language of the patent, although it is slightly too restrictive.

The Court construes the phrase "or the like" to mean articles produced by a method similar to that used in producing glass bottles in an I.S. machine as that is the plain meaning of the words in light of the patent as a whole. Emhart's proposed construction is close to the mark because "things similar to glass bottles" would appear to encompass things such as glass jars. There is however, a sense in which Emhart's formulation implies that these "things" are limited to glasswares. The language in the patent refuses, however, to so limit the scope of "ware forming machines" and the claim gives no indication that it seeks to use the verbal formulation "glass bottles or the like" to restrict the claim to *only* glassware machines. See '606 Patent, Col. 1:7-8 ("glassware machines and the like"); 1:58 ("The present invention resides in a ware forming machine, such as a glassware machine that produces bottles in a cyclic operation").

Thus, "ware forming machine" refers to any ware forming machine, but this wide definition is then restricted by the language following it. *See* '606 Patent, Col. 14:2-4. Bottero's proposed interpretation, extending claim 1 to *any* ware forming machine with multiple sections, fails to take account of the limiting effect of this language. The appropriate "ware forming machine" thus has: a) multiple sections, b) each producing a plurality of articles, and c) these sections produce articles "like" glass bottles from a plurality of molds during each cycle. Because the patent refuses to explicitly restrict these items to "glasswares," the term "like" must, at least theoretically, be able to encompass something more than just glassware. By reference to the method by which glass bottles are produced, the term "or the like" appropriately restricts the range of "ware forming machines" but does not necessarily reduce the reach of the patent to simply "glasswares."

c. "Ware identifying apparatus for selectively identifying ..."

The parties disagree over the proper construction of the following phrase:

... a ware identifying apparatus for selectively identifying in the series on the conveyor, articles formed in a

particular section and mold during a particular cycle of the machine operation ...

'606 Patent, 14: 6-8.

Emhart argues that the ware identifying apparatus is one "which has the ability to discriminate between ware articles placed on the conveyor one after the other." Emhart Br. at 13. Additionally, Emhart claims that the language is not a limitation but a desired result of the apparatus. *Id*. In contrast, Bottero contends that the "articles are identified on the basis of the section, mold and cycle in which they are formed." Bottero Br. at 19.

The Court finds the plain meaning of the patent's language to be a description of purpose for the apparatus. This purpose is to identify individual articles that were formed in a particular section and mold during a particular cycle as they pass on the conveyor. This language does not necessarily require that the identification be *based* on the section, mold and cycle as Bottero would have it. At the same time, Emhart's proposed interpretation ignores the language in the patent restricting the articles identified to *individual* articles. This is so because there is only one article produced "in a particular section and mold during a particular cycle of the machine operation." *See* '606 Patent, Col. 14:8-10. The Court's construction above thus attempts to avoid the perceived difficulties with the parties' proposed constructions.

d. "ware signal"

Claim one also refers to:

a plurality of mold switches ... each switch being selectively actuated to provide a ware signal indicative of an article produced from the associated mold during a particular cycle of operation.

'606 Patent, Col. 14:11-16.

Emhart contends that the "ware signal" is a signal associated with a particular article, Emhart Br. at 14, whereas Bottero asserts the ware signal identifies the ware order on the conveyor. Bottero Br. at 19. The Court construes the term "ware signal" in claim one to refer to the signal produced by the use of a mold switch. *See* '606 Patent, Col. 11:4-15, 14:13-14. Emhart is correct that such a ware signal is associated with a single article, as the language following "ware signal" makes clear. Bottero's proposed construction states the "ware signal identifies the ware order on the conveyor." This construction is inconsistent with the language of the claim as the ware order signal is explicitly created by the "section signal generating means" and is inconsistent with the teachings embodied in the specification, as the ware order signal identified by Bottero emanates from the "section sequence selector" of Figure 2, identified as (36), not the mold switches identified at (50).

e. "trains of pulse signals"

Emhart maintains that the "train of pulse signals" are "signals such as A, B, [and] C as illustrated in Figure 4" of the '606 patent. Emhart Br. at 14. Bottero claims the "trains of pulse signals identify the mold in which an article was formed, group the articles by sections, and are common to all molds (e.g., the signals A, B, C, and A' in Fig. 4)." Bottero Br. at 15. The Court finds Emhart's construction more persuasive, although A' is also a member of the representative "train of pulse signals." *See* '606 Patent, Fig. 2. The Court does not read into these pulse trains any requirement that they "identify the mold in which *an* article was formed, group the article by section and are common to all molds." It is simply enough that the each pulse in the pulse train

correspond to a single article. *See* 606 Patent, Col. 5:42-48, 14:18-21.

f. "sequence of section signals"

Claim one also provides for: "a section signal generating means ... for generating during each cycle of machine operation a sequence of section signals corresponding to the order of the articles from the sections on the conveyor." '606 Patent, Col. 14:23-27.

Emhart claims that the sequence of section signals are "ware signals" such as SW identified as (38) in Figure 9 of the '606 patent. Emhart Br. at 15; ' 606 Patent, Fig. 9. Bottero's proposed construction would have the "[s]equence of section signals identify the section in which articles on the conveyor are formed and are common to all molds." Bottero Br. at 15. As examples of these signals, it too points to signal SW. The Court construes the term "sequence of section signals" to mean a number of signals equal to the number of machine sections, with a single signal common to all articles in a section, and with the signals proceeding in the same sequence as the grouped bottles from individual sections on the conveyor (e.g., 1, 6, 3, etc.).

g. "connected with"

Claim one further refers to a:

"first gating means associated with each the molds of the machine and connected with both the pulse generating means and the section signal generating means ..."

'606 Patent, Col. 14:28-31.

The parties dispute the meaning of "connected with." Emhart reads the terms to indicate an association or coupling, Emhart Br. at 15, Bottero reads the terms to require the components be "directly coupled to each other with no other components in between ." Bottero Br. at 19. The Court favors Emhart's proposed construction as comporting with the plain language of the claim. Bottero has not provided the Court with adequate reason to believe the directness of a coupling *should* matter for construction purposes. Additionally, the Court utilizes this construction for every use of "connected with" in the patent.

h. "coincidence pulses"

The first gating means is used:

for detecting a coincidence of the pulse signals and the sequenced section signals and generating a series of coincidence pulses for each series of articles from the molds of the respective sections.

'606 Patent, Col. 14:31-34.

Emhart proposes that the coincidence pulses are "pulses created by the coincidence of two pulses." Emhart Br. at 16. Bottero argues that coincidence pulses are "pulses output in response to the gating means receiving at the same time, one of the pulse signals and one of the sequenced section signals." Bottero Br. at 16. The Court construes the term as "pulses created by the coincidence of a pulse signal and a sequenced section signal." Coincidence more accurately captures the ability of the gating means to react to the confluence of signals matching its pre-programmed parameters and also comports with the language used in the claim. *See* '606 Patent, Col. 14:29-31. At the same time, the claim's context makes it clear that it is the coincidence of

the pulse signal and sequenced section signal which leads to the generation of the coincidence pulses, not the coincidence of any two pulses.

i. "Second gating means"

Claim one also provides for a:

second gating means connected with the first gating means and the signal delay means to receive the series of coincidence pulses and the delayed signal to generate a unique signal identifying an article produced in a particular mold during a particular cycle of operation at a time when the article reaches the given station along the conveyor.

'606 Patent Col. 14:42-49.

Both parties agree that this language creates a "means plus function" situation. The Court thus must identify the proper function. Here the function is "to receive the series of coincidence pulses and the delayed signals to generate a unique signal identifying an article produced in a particular mold during a particular cycle of operation at a time when the article reaches the given station along the conveyor." '606 Patent at 14:44-49.

The Court finds that the structure in the '606 patent corresponding to this function is the NAND gate (226). *See* '606 Patent, Col. 10:49-58; *see also* Emhart Br. at 16. Bottero posits that another NAND gate (254) and flip flop (252) are also included within the structure of the "second gating means." Bottero Br. at 16. The Court disagrees because neither of these additional structures actually "receives" both the coincidence pulses and the delayed signals. *See* '606 Patent, Fig. 9. Rather, these two elements of the specification's structure receive only the delayed signal. These additional structures are thus not necessary to performing the identified function and are not properly considered part of the "second gating means" structure.

j. "unique signal"

The second gating means generates a "unique signal identifying an article produced in a particular mold during a particular cycle of operation at a time when the article reaches the given station along the conveyor." '606 Patent, Col. 14:46-49. Bottero argues that this "unique signal" is a "signal output in response to the second gating means receiving, at the same time, one of the coincidence pulses and the delayed signal." Bottero Br. at 17. Emhart contends that it is enough that the signal be unique to an article produced in a particular mold during a particular cycle of operation. Emhart Br. at 17.

The Court concludes that Emhart's proposed construction is the strongest. Although it is true that the patent as disclosed creates this unique signal through the process identified by Bottero, the patent does not so restrict itself. Instead, any restriction on the generation of the "unique signal" must center on the limitations inherent in the use of the "second gating means" language. In other words, Bottero must rely on the restriction of the second gating means to a NAND gate and its equivalents to restrict the reach of the patent, rather than reading those restrictions further into the very definition of the unique signal that is generated by the second gating means.

2. Claim 5

The parties only dispute two sets of terms in claim five. Because the language and context are the same, the Court construes "connected with" in the same manner as it construed the same term in claim one. This

leaves the parties' argument over the term "next cycle of operation."

The relevant section of claim five reads:

each machine section includes a blank mold in which a parison is formed during one cycle of operation and a blow mold to which the parison is transferred and blown to the form of the article during the next cycle of operation.

'606 Patent, Col. 15:4-8.

Emhart identifies the "next cycle of operation" as the "blow mold cycle of operation immediately following the blank mold cycle of operation." Emhart Br. at 17. Bottero argues that the "next cycle" is the cycle immediately following the "one cycle." Second Amended Joint Construction Statement ("2d J.C.S.") at 6. Although the Court has difficulty distinguishing any real difference between the two proposed constructions, Bottero's is the stronger. "Next cycle" refers back to the "one cycle," while the identification of the blow mold operations identify actions that need to occur during this "next cycle." *See* '606 Patent, Col. 15:6-8.

3. Claim 12

There are a variety of disputed terms concerning claim 12. The Court construes two sets of terms-"or the like" and "connected with"-in the same way the terms were construed in claim one. The Court will address the remaining disputes in turn.

a. Claim language

A reject apparatus for rejecting selected articles from a glassware forming machine or the like which machine has multiple sections and a uniform number of molds in each section producing articles in a cyclic machine operation and transfers the articles from each section to a common rejection station, comprising:

a plurality of manually actuated switches, each switch being uniquely associated with one mold in a section of a machine to produce a corresponding rejection signal identifying an article to be rejected, the article being formed in the associated mold during a particular cycle of the machine;

article signal generating means common to all of the molds in all machine sections and connected with the forming machine for producing **timing signals** in timed relationship with the arrival of articles from each section at the common rejection station;

rejection signal delaying means connected with the forming machine and the plurality of manually actuated switches delaying the respective rejection signals for periods of time allowing the articles to travel from the molds to the rejection station;

gating means connected with the article signal generating means and the rejection signal delaying means for **correlating** the timing signals for all machine sections and the delayed rejection signals from the switches in particular sections and producing **timed rejection signals** for articles formed in particular molds and sections during particular cycles of the machine, and;

rejection means at the rejection station connected with the gating means to receive the timed rejection signal and reject an article formed in a mold during a particular cycle when the article reaches the rejection

station.

'606 Patent, Col. 15:52-16:18.

b. "timing signals"

Claim twelve provides for an "article signal generating means common to all of the molds in all machine sections and connected with the forming machine for producing timing signals in timed relationship with the arrival of articles from each section at the common rejection station." '606 Patent, Col. 15:64-68. Emhart contends the "timing signals" are pulse trains such as A, B, and C as illustrated in Figure 4 of the '606 patent.2d J.C.S. at 8. Bottero contends that the timing signals are signals common to all molds of the machine and include the pulse trains above and section signals identifying the section of each article as it passes in front of the rejector. Bottero Br. at 14.

The difficulty for the Court is the fact that the parties have not provided the Court with their apparently agreed-upon structure corresponding to the "article signal generating means." *Cf.* '606 Patent, Col. 16:19-30 (defining structure of "article signal generating means"). Left without any such guidance, the Court refers only to the language of the claim in determining what constitutes "timing signals." The claim requires that the timing signals be "in timed relationship with the arrival of articles from each section at the common rejection station." As the Court reads this language, it only requires a single set of signals that are timed to arrive at the rejection station at the same time as articles from each section of the machine. During the Court's tutorial, the Court asked both parties' experts about methods for matching up signals with bottles passing by the rejection station. Both made it clear that the pulse train standing alone could do that job. It fell to other signals to translate the steady state of the pulse trains into information that could be acted upon.

Claim twelve appears to limit the required information to that provided by the rejection signal delaying means. *See* '606 Patent, Col. 16:7-9. Thus, the rejector apparatus could conceivably work with only two sets of signals. This reading is consistent with the prosecution history referred to by both parties, which argued that this two-step process differentiated it from the single step process of the Quinn patent. Thus, there is no need to read the ware order signals of claim one into claim twelve, as Bottero asks the Court to do, although reading the ware signal order as timing signals would also be consistent with a "timing signal." The Court thus construes the phrase to include, at a minimum, pulse trains such as A, B, and C.

c. "gating means"

Claim twelve also requires a "gating means connected with the article signal generating means and the rejection signal delaying means for correlating the timing signals for all machine sections and the delayed rejection signals from the switches in particular sections and producing timed rejection signals for articles formed in particular molds and sections during particular cycles of the machine." '606 Patent, Col. 16:7-18.

The function of the gating means is to correlate the pulse trains and the delayed rejection signals and produce a rejection signal that rejects an article associated with a particular mold as it passes the rejector apparatus. *See* '606 Patent, Col. 16:9-13. The structure that accomplishes this role in the specification is the NAND gate (226) in Figure 9 of the '606 patent. See '606 Patent, Col. 10:49-58. The other structures identified by Bottero are extraneous to this function, particularly once it is pared down to the minimum number of signals necessary to trigger the final rejection signal.2d J.C.S. at 9 (identifying Bottero's proposed structure).

d. "correlating"

Moving beyond the identification of the gating means, the Court construes "correlating" to mean establishing a mutual relationship between the *signals* generated by the article signal generating means and the signals relayed by the rejection signal delaying means. *See* '606 Patent, Col. 16:9 (correlating the timing signals). Emhart's construction is on the right track, but the Court sees no reason to extend the reach of the means to a correlation between the various other means as Emhart proposes, when the claim itself refers to the signals. *See* Emhart Br. at 18. At the same time, the Court cannot accept Bottero's proposed restriction requiring the signals to overlap in time because such a restriction is again more a function of the range of equivalents for the gating means than a limitation imposed by the language of the claim.2d J.C.S. at 10.

e. "timed rejection signals"

Similarly, the Court construes the "timed rejection signals" to be the signal outputs from the NAND gate 226, without requiring the temporal connection proposed by Bottero. *See* Bottero Br. at 18.

f. "rejection means"

Claim twelve provides for a:

rejection means at the rejection station connected with the gating means to receive the timed rejection signal and reject an article formed in a mold during a particular cycle when the article reaches the rejection station.

'606 Patent, Col. 16:14-19.

The parties agree that the function performed by the means is "to receive the timed rejection signal and reject an article formed in a mold during a particular cycle when the article reaches the rejection station." '606 Patent, Col. 16:16-18. They both agree that this includes a pneumatic rejector. They part company as to the other structures needed, however.

Emhart claims that the pneumatic rejector is all that is needed. Emhart Br. at 18. Bottero points to the delay timer (310), photodetector (312), reject timer (316) and solenoid valve (324) as necessary elements of the structure. Bottero Br. at 18. The Court partially agrees with Bottero. Both the reject timer and solenoid valve are required to perform the rejection function, as the reject timer sets the interval of time during which the rejector is turned on and the solenoid valve must be actuated for the pneumatic rejector to work. '606 Patent 13:18-26, 44-45. The other elements identified by Bottero are not *necessary* in the way the reject timer and solenoid valve appear to be and thus are not properly understood as part of the "rejection means" structure.

B. The '721 Patent

The '721 patent is directed at using single reference pulses and a timing mechanism to regulate the steps involved in changing a gob into a finished ware. The parties disagree as to a number of terms in the '721 patent.

1. Claim 1

a. Claim language

Claim one reads:

In a glassware forming machine having at least one section, which section includes a set of components controlled by an associated set of two-state (on/off) devices switchable between their on and off states in accordance with a **cyclically repeated sequential program** of switching events to cause said set of components to form a gob of glass into an article during each repeat of said program, and a feeder with a cyclically movable part which feeder provides a gob of glass to said one section during each cycle of said feeder part, the improvement comprising:

means for producing a **reference pulse** once per cycle of said feeder part which reference pulse occurs at one point in the cyclic movement of said feeder part and is absent throughout the remainder of each cycle of said part so that the time elapsing between successive ones of said pulses is a measure of the time consumed by said part in undergoing one cycle of its movement,

means receiving said reference pulses and providing therefrom a **factor Q which represents the amount of cycle degrees said feeder part moves in a given increment of time** (e.g. Q = degrees of feeder part movement each millisecond),

a memory means storing a plurality of elements defining a sequential program of switching events such as aforesaid, each of said **elements** including a **cycle angle word** indicating the **cycle angle** at which an event defined by the element is to occur,

means for adding said factor Q to a memory store upon the lapse of each of said given time increments to provide an **updated store content,** and

means for comparing said cycle angle words of said stored elements to said updated store content to control the occurrence of said switching events.

'721 Patent, Col. 6:56-7:19.

b. "cyclically repeated sequential program"

The '721 patent refers to a "cyclically repeated sequential program" that controls the switching of a number of "on/off" switches. '721 Patent, Col. 6:58-63. Emhart's position is that such a program is a "computer program or programmed logic made up of instructions that are executed in a sequence to control switching events in a cycle." Emhart Br. at 4. According to Emhart this program is then repeated in successive cycles. *Id*. Bottero's proposed construction identifies the program as "a threaded or linked list of elements where the last element in the list refers to the first element." Bottero Br. at 6.

The Court finds that proper construction of the phrase refers to "a sequential logic (A to B to C) controlling switching events, where the sequence is repeated over time."

c. "reference pulse"

Claim one also refers to a:

means for producing a reference pulse once per cycle of said feeder part which reference pulse occurs at one point in the cyclic movement of said feeder part and is absent throughout the remainder of each cycle.

'721 Patent, Col. 6:66-7:2.

Emhart takes the position that the reference pulse is an electrical pulse which represents a cycle. Emhart Br. at 15. Bottero interprets the reference pulse as a "pulse derived directly from the cyclical movement of the feeder part." Bottero Br. at 2. The Court adopts Emhart's construction of the terms.

The language describing the reference pulse makes clear that it is defined by its relationship to the movement of a feeder part, not defined by the feeder part itself. *See* '721 Patent, Col. 7:3-5 (measure of time consumed by said part). Any such limitation is to be found in mapping the structure which performs the means (and its equivalents), not inherent in the definition of the pulse itself.

The parties also contest the meaning of the statement in the prosecution history that "these reference pulses may be produced in direct response to the operation of the feeder, but may also be produced by any other cyclically operating part, mechanism or device ." *See* B0019548. Bottero argues, in light of other statements in the prosecution history, that this language refers to cyclically moving parts attached to the feeder, other than the feeder itself. FN1 Bottero Br. at 3. Emhart, in contrast, argues that it is enough for the reference pulse to be triggered once per cycle of the feeder, regardless of how this is done.FN2 Emhart Br. at 5; Emhart Reply at 4. The Court, after reviewing the prosecution history finds Emhart's position persuasive.

FN1. The specific references in the prosecution history (referenced by bates number) referred to by Bottero are: B019529-B019531, B019542, B020134, B020190-B020191, B020197-B020198, and B20217.

FN2. At the *Markman* hearing, Bottero's counsel requested clarification on this point. In particular, counsel requested that the Court clarify whether the Court meant that reference pulses could be created by *both* moving or non-moving parts or whether the reference pulses simply had to be made by *a* cyclically movable part in the machine. The Court reads the prosecution history to be consistent with the former reading, but the Court expresses no opinion as to whether or not the "means" disclosed in the specification might incorporate a limitation restricting the structures that can generate these reference pulses, as the issue was not briefed by the parties.

The "direct coupling" between the timing system and the mechanical portion of the machine depends in large part on the stability and consistency of the feeder cycles. The less consistent the cycles are in time, the more the need for a physical coupling. At the same time, the more stable the cycles, the more an artificial system can establish the requisite coupling. The Court has found insufficient indication that the language in the claim or the patent prosecution history require Bottero's proposed construction of the term "reference pulse."

d. "a factor Q which represents the amount of cycle degrees said feeder part moves in a given increment of time"

The parties also dispute the exact nature of the factor Q in the patent. ' 606 Patent, Col. 7:6-9. Emhart contends Q "represents the amount of cycle degrees around a 360 (deg.) 'timing drum' the feeder part moves in a given increment of time." 2d J.C.S., Ex. B at 2. Bottero maintains that Q must be the estimated speed of the feeder part, defined in units of angle and time. Id.; Bottero Br. at 4. The Court sees no effective

difference between the parties positions on this issue. The "timing drum" is "coupled," in the sense of being a matched measurement of time, to the feeder's cycle, thus ensuring that 360 (deg.) is equal to one complete feeder cycle. Q is defined in terms of angles and times, the result of which is a measurement of speed as much as it is a timing device. *See Webster's New Riverside University Dictionary* 1117 (1988). Thus, the Court construes Q to represent "the amount of cycle degrees the feeder part moves in a given increment of time, where 360 (deg.) equals one cycle of the feeder."

e. "a given increment of time"

Bottero contends that the "given increment of time" must be fixed, *see* Bottero Br. at 4, with Emhart contending that the "given increment of time" may, but need not be, preset by a function generator.2d J.C.S., Ex. B. at 2. The Court construes the "given increment of time" to be constant within a given cycle, but capable of being altered for other cycles. In other words, for one cycle it may be angles per second, and for a different cycle angles per millisecond. The unit of time may not, however, shift over the course of any one cycle (e.g. milliseconds at the beginning, seconds at the end).

f. "a memory means storing a plurality of elements defining a sequential program of switching events"

Emhart argues that the "memory means" in the '721 patent does not invoke the "means plus function" construction rules, but instead refers to digital storage containing the steps of the program. Emhart Br. at 6. The problem with this contention, as recognized by Bottero, is Emhart's implicit recognition of the "memory means" in its discussion of the other "means plus function" claims in the patent prosecution history. *See* Bottero Br. at 5; *see also* B020197-020198. This reading, perhaps subject to question standing on its own, is supplemented by Emhart's explicit recognition that:

each of these means might also be provided in the form an individual hard-wired unit made up of discrete components without any computer or computer program being required. For example, the memory means storing a plurality of elements defining a sequential program of switching events could be supplied by a mechanical record such as a punched paper tape or a set of punched cards.

Patent Prosecution History, B020199.

The cumulative impact of this intrinsic evidence combined with the presumptions about the use of the word "means" leads the Court to conclude that the "memory means" is a "means plus function" recitation. The function identified by the patent is "storing a plurality of elements," '721 Patent, Col. 7:10, and the associated structure in the '721 patent's specification is the core store of a minicomputer and equivalent structures. *See* '721 Patent, Col. 4:40-42. It does not, however, encompass the linked list data structures, which are the material stored in the memory means, rather than being integral elements of the means itself.

g. "elements"

Further, the "elements" are not to be construed by the "means plus function" rules. Emhart argues that an element is "the representation of an event in the cycle, such as the turning on or off of a valve." Emhart Br. at 7. Bottero, in contrast, argues that an element is "a unit of a threaded or linked list and is composed of 4 16-bit words." Bottero Br. at 6.

The claim itself defines the minimum requirements of "elements." '721 Patent, Col. 7:10-15. Individually,

each element must include a cycle angle word indicating when an event is to occur, and the element must cause that event to occur. Id. Finally, the cumulative impact of the elements must "define a sequential program of switching events." Id. Thus, an element must contain more than just the representation of an event in the cycle, as it must also contain the cycle angle word indicating when the event is to occur. At the same time, so long as it is part of a sequential program, it need not be composed of four 16-bit words.

h. "cycle angle word" and "cycle angle"

These constructions also take care of the parties' disagreements over the construction of cycle angle word and cycle angle. *See* Emhart Br. at 8. The cycle angle word is the representation of an angle at which an event is to occur where 360 (deg.) equals one cycle of the feeder part. The cycle angle is the angle at which the event is to occur and, again, where 360 (deg.) equals one cycle of the feeder part.

i. "updated store content"

The final dispute in claim one concerns the "updated store content." The claim provides "means for adding said factor Q to a memory store upon the lapse of each of said given time increments to provide an updated store content." '721 Patent, Col. 7:14-16. Emhart contends that the updated store content is the "result of adding the factor Q." Emhart Br. at 8. Bottero defines it as the "value of a cycle counter in a core store location." Bottero Br. at 6. The Court again construes the term in line with the patent's language-the updated store content is the result after the factor Q is added. Bottero proposed construction once again tries to read a potential "means plus function" limitation on structure into the very definition of other words used in the claim. The Court again declines the invitation to so read the patent.

2. Claims 4 and 5

Turning to claims four and five, the parties dispute many of the same terms, although the meaning of the terms is slightly altered by their context. Because of the large overlap between the language of claims one, four and five, only language relevant to the construction issues will be presented.

Additionally, the Court's earlier construction of "cyclically repeated sequential program," "given increment of time," "memory means," "element," "cycle angle word," "cycle angle," and "updated store content" decides the issue as for these claims as well because there is no material difference between the language of the claims with regard to these terms.

a. "cycle of operation of each section"

As for the terms "cycle of operation of each section" in both claims, they occur in the following context:

a feeder which provides a gob of glass to said one section during each cycle of operation of said section.

'721 Patent, Col. 8:5-7, 35-37.

Emhart asserts that this cycle of operation is "the time required for a section to perform a defined sequence of events." Emhart Br. at 8. Bottero's proposed construction identifies a cycle of operation as "a cycle that is peculiar to a section, phased in relation to the machine cycle, and has a duration equal to the time required for that section to perform a set of recurring operations." Bottero Br. at 7.

The Court begins by noting that there is an ambiguity in the claim, which filters into the parties' proposed constructions. The claim suggests that the cycle of each section and the cycle of the feeder coincide, so that only one gob of glass is provided per complete cycle, which results in a single article. *See* '721 Patent, Col. 8:2-5 ("cyclically repeated sequential program of switching events to said set of components to form a gob of glass into an article during *each* cycle of operation" (emphasis added)) Nevertheless both parties appear to agree that the required "cycle" need not involve the entire time period from the first entry of a gob into the section to the final creation of an article from the blow mold.FN3

FN3. Such an understanding would be consistent with the testimony heard by the Court during the tutorial on the '606 patent, where the rejection signal was delayed a number of "cycles," including one corresponding to the shift from the blank mold to the blow mold. This testimony seemed to suggest that as many as four bottles might be in the formation process in any given section at any given time-a gob heading to the blank mold, the blank mold forming the parison, the blow mold transforming a parison into the final article, and an article waiting on the dead plate to be placed on the conveyor. Theoretically, the sequence may even by tighter than that. The Court confesses to some confusion on this point, however.

The Court therefore works under the assumption that a "cycle of operation of a section" can be less than a complete cycle for the entire section. The Court then adopts the following construction of the terms: a cycle of operation of said section is the time required for each individual section to perform a defined sequence of recurring events. This construction acknowledges Bottero's point that each section has a slightly different timing schedule and the patent's acknowledgment of this in referring to the cycle of "said section." The construction ensures that the sequence of events is truly a cycle, while also recognizing Emhart's point that a cycle may be properly defined by an interval of time.

b. "means for producing repetitive reference pulses ..."

The Court then moves to the:

means for producing repetitive reference pulses at a rate of one pulse per desired cycle of said switching events so that the time elapsing between successive ones of said pulses is a measure of the time to be consumed by said components in undergoing one cycle of section operation.

'721 Patent, Col. 8:8-13.

Bottero contends that the reference pulses are pulses produced in direct response to the cyclical movement of any cyclically operating part, mechanism or device. Bottero Br. at 2. Emhart on the other hand claims the reference pulses are electrical pulses representing a cycle.2d J.C.S., Ex. B at 9; Emhart Reply at 4.

The Court agrees with Emhart, insofar as Emhart's proposed "cycle" represents a "cycle of operation of said section." As the Court understands the fourth and fifth claims, they are centered on reference pulses tailored to the cycles of individual sections rather than the pulses of the first three claims, which were directed towards the cycles of the feeder. This being so, the Court finds Bottero's references to the patent prosecution history unconvincing.

The Court has already rejected the equivalent argument in the framework of claim one and does so again here. There is no indication that this reference pulse *must* be *physically* "coupled" to the cycles of the feeder,

although the feeder plays a role in defining the length of a cycle of operation. *See* '721 Patent, Col. 8:5-7. The Court sees no reason why the claim language cannot encompass a pulse produced to drive, rather than respond to, the cyclical movement of any cyclically operating part, mechanism or device.FN4

FN4. Again, the Court expresses no opinion as to whether or not the structure identified in the specification for performing this function incorporates a structural limitation similar to the one Bottero advances with regard to the term "reference pulse."

c. "represents the amount of section cycle degrees corresponding to a given increment of time"

The parties appear to adopt parallel proposed constructions of this language akin to their positions in claim one. *See, e.g.,* 2d J.C.S., Ex. B at 14. The Court therefore adopts parallel constructions for those terms also utilized in claim one.

Thus, Q = the amount of section cycle degrees the feeder part moves in a given increment of time, where 360 (deg.) equals one cycle of the section. Similarly, the Court construes the "given increment of time" to be constant within a given cycle, but capable of being altered for other cycles.

The wrinkle in this claim is the dispute over the "amount of section cycle degrees." Emhart contends this is the "amount of section cycle degrees in a 360 (deg.) 'timing drum.' " Bottero's position is that the amount of section cycle degrees is an "angular measurement representative of the time in the section cycle." The Court adopts Bottero's construction as the plain meaning of the claim's language, especially in light of the claim's language indicating "the time elapsing between successive ones of said pulses is a measure of time to be consumed ... in undergoing one cycle of section operation," '721 Patent, Col. 8:10-13, and Q's function-translating this time measurement into cycle degrees per unit of time. *See* '721 Patent, Col. 8: 14-16.FN5

FN5. At the hearing, the Court expressed concern over a potential ambiguity in the use of the word "section cycle" as opposed to the feeder's cycle. Emhart's counsel confirmed, however, that the feeder cycle and section cycle refer to equivalent amounts of time.

C. The '552 patent

The '552 patent is directed to a system architecture for controlling most, if not all aspects, of an I.S. machine through the hierarchical use of controllers. Again, the parties dispute a number of terms.

1. Claim 1

a. Claim language

Claim one reads:

In a glassware forming machine of the type including a plurality of machine sections each having a set of machine components for receiving gobs of molten glass and molding the glass into glassware articles, said sections operating in phased relationship within cycles of operation,

an electronic control system for controlling the operation of said machine components comprising:

a section controller, for generating a series of timing signals for at least one section to define actuation and deactuation times within the machine cycle;

a machine controller for providing set-up parameters representative of operational set-up information for at least one of said machine components;

at least one mechanism controller for a given machine section, for controlling the operation of a given machine component thereof, said mechanism controller containing:

a control program for that component;

a processor;

timing input port means for receiving the timing signals from said section controller;

set-up input port means for receiving the set-up signals from said machine controller;

and **input interface means for providing**

actuating signals to at least one machine component, wherein said control program processes said timing signals in accordance with the set-up parameters to produce at least one control signal for the machine component;

a bidirectional asynchronous communications link between said machine controller and said mechanism controller, for passing set-up parameter signals from said machine controller to said mechanism controller, and for passing alarm signals from said mechanism controller to said machine controller (1) to signal alarm conditions identified by said control program or (2) to cause said machine controller to download said setup parameters.

'552 Patent, Col. 12:49-13:20.

b. "a section controller for generating a series of timing signals for at least one section"

Emhart argues that a section controller is a device that controls at least one section by timing signals.2d J.C.S., Ex. C. at 1, Emhart Br. at 8-10. Bottero argues that this language requires "means plus function" interpretation. Bottero Br. at 11-12. Emhart, however, points to the specifications identification of specific examples of "section controllers," as well as the claims failure to use the word "means" to rebut the argument that this language invokes 35 U.S.C. s. 112, para. 6. Emhart Reply at 9. The Court agrees. Under the circumstances, where the patent identifies three patents and an application disclosing such section controllers, the patent's language identifies sufficient structure for one skilled in the art to create a section controller. *See* '552 Patent, Col. 1:45-49. When combined with the presumption that section 112, para. 6 does not apply, the Court concludes that Emhart's proposed construction is correct. Under this construction the section controller controls a single section by timing signals.FN6

FN6. In the Court's original tentative, it indicated that it would construe the section controller to control "at least" one section by timing signals. At the hearing, however, both parties agreed that there was a one-to-

one relationship between sections and section controllers.

c. "a machine controller"

Bottero's contention that the terms "a machine controller" is subject to "means plus function" interpretation parallels the argument regarding section controllers. Bottero Br. at 11-12. Because that reasoning failed on the section controllers, it also fails with regard to the machine controllers. Additionally, the Court finds Emhart's use of a patent filed by Bottero's expert in which he refers to a "machine supervisory computer" to be persuasive evidence that one skilled in the art would understand the "machine controller" to identify sufficiently definite structure to avoid interpretation under section 112, para. 6. *See* Emhart Reply at 10 (discussing Farkas patent). The Court thus adopts Emhart's proposed construction, "a machine controller is a device that controls the set-up parameters of at least one machine component."

d. "at least one mechanism controller for a given machine section, for controlling the operation of a given machine component thereof"

Claim one provides that there must be "at least one mechanism controller for a given machine section, for controlling the operation of a given machine component thereof." '552 Patent, Col. 12:63-65. Emhart argues that this language should be construed to refer to a device that controls the operation of a machine component, but asserts that it can control more than one component as well.2d J.C.S., Ex. C at 2. The only requirement Emhart sees in this language is the implicit requirement that each component must be controlled by a mechanism controller. *Id*.

Bottero, in contrast, refers to the mechanism controller as "electronic circuitry dedicated to the control of a single machine component." 2d J.C.S., Ex. C at 2. The Court finds Bottero's proposed construction unpersuasive. First, the controller refers to more than just circuitry. The Court finds that a fair reading of the claim indicates that the controller is a "device" although it may be composed primarily of circuitry. Second, the natural reading of the claim's language indicates that Emhart's reading, where a mechanism controller can control one or more machine components is correct. The single mechanism controller is *for* a given machine component. *See* '552 Patent, Col. 12:63.

The Court finds this language does not restrict the reach of a machine controller to a single machine component. Bottero rests this construction on the use of the word "given." FN7 During argument Bottero contended that "given" restricts the application of the entire phrase to a single component. The Court reads the phrase "for a given machine component" more broadly than Bottero. Rather than reading "a given" to limit the scope of the word "for" to read "exclusively for," the Court construes the terms to cover situations where a single machine controller controls one or more machine components.FN8

FN7. During the hearing, Bottero explained that it read the "at least" language to refer to the number of sections in a machine or section (e.g., an I.S. machine has at least one section, but may have more). In light of Emhart's concession regarding section controllers, the Court similarly construes the "at least" language here to the number of mechanism controllers in the machine.

FN8. The Court finds this to be the more natural reading of the text and Bottero has not advanced a sufficiently persuasive argument to shift the Court's construction.

e. "timing input port means for receiving the timing signals from said section controller"

Claim one refers to a "timing input port means for receiving the timing signals from said section controller." '552 Patent, Col. 13:1-2. This language raises the presumption that the claim should be interpreted as a "means plus function." *See* Rodime PLC v. Seagate Tech., Inc., 174 F.3d 1294, 1302 (Fed.Cir.1999).

Emhart may rebut the "means plus function" presumption by showing that the claim element recites sufficient structure or material for performing the function, such that s. 112, para. 6 does not apply. *See* Rodime, 174 F.3d at 1302.

The patent prosecution history is ambiguous with respect to this claim element. The "timing input port means" is grouped with a collection of other "input means" in claim one. These other "input means" were initially claimed without the use of the word "means." *See* B0019898 (using the same terms without the addition of "means"). The addition of "means", with all its connotations under section 112, para. 6 thus appears as a conscious choice during the application period, albeit without any clear reason for so choosing. After carefully reviewing the patent and the patent prosecution history, including its use of the word "input port" in the specification, *see* '552 Patent, Col. 8:37, the Court finds the record creates ambiguity as to the meaning of "input port means," but it is presumptively a "means plus function" element.

Emhart has attempted to rebut the "means plus function" presumption by submitting two declarations stating that an "input port" would identify sufficient structure for one skilled in the art at the time. Gafford Decl. para. 7; Liska Reply Decl. para. 10. Bottero's expert contests this.

Gafford states that the term "port" had a well-defined structure to persons skilled in the art of electronics and electronic controllers. In support he points to the *IEEE Standard Dictionary of Electrical and Electronics Terms* (4th Ed.1988) ("*IEEE Dictionary*"), *see* Gafford Decl., Ex. 1, and a 1974 User Manual for Intel's MCS-4 microcomputer set, *see* Gafford Decl., Ex. 2.FN9

FN9. These are attached to Gafford's declaration as exhibits 1 and 2, respectively.

The *IEEE Dictionary* defines "port" for electronic devices or networks as:

A place of access to a device or network where energy may be supplied or withdrawn or where the device or network variables may be observed. Notes: (A) In any particular case, the ports are determined by the way the device is used and not be its structure alone. (B) The terminal pair is a special case of port.

IEEE Dictionary at 256.

Moving away from the *IEEE Dictionary*' s abstract discussion of "port," the Intel manual discusses "a 4 bit I/O [input/output] port." *See* Gafford Decl., Ex. 2. Significantly, this manual displays the input and output ports in block diagram fashion, a format identical to that used to identify the input port in the '552 patent. *Compare* Gafford Decl., Ex. 2 at 180 & 181 s. block diagram and Figure 13) *with* '552 Patent, Fig. 4 (block diagram for input port).

Emhart argues that the "timing input port means" thus should be construed as "an input port which receives

timing signals from a section controller" and should not be interpreted as "means plus function" language. Bottero's expert, Daniel Farkas, attacks Gafford's declaration in several ways.

First, he states there are "an infinite number of circuits that could be designed for receiving 'timing signals.' " Farkas Decl. para. 74. Moreover, he points to the lack of any structure in the IEEE definition and the note concerning the need to look to a port's use and not just its structure alone as further evidence that the "timing input port means" should be treated as a "means plus function" element. *Id*. para.para. 75, 76. According to Farkas, the IEEE Dictionary note "indicates to a person having ordinary skill in the art that the structure of the so-called port is entirely variable depending on the use." *Id*. para. 76.

The Court concludes, however, that Emhart's position is correct. The "timing input port means" is "an input port which receive timing signals from a section controller."

The IEEE Dictionary definition makes clear that a "port" is defined in some sense by its use. Leaving aside the functional language attached to the "timing input port means," the Court concludes that the identification of the port as a "timing input port" sufficiently indicates the port's use to identify the relevant structures for one skilled in the art. This is indicated both by the input port references in the Intel manual and by the use of "input port" as a structural recitation in patents predating the '552 patent. *See* U.S. Patent 4,242,738 (Dingwall, filed Oct. 1, 1979); *see also CCS Fitness Inc. v. Brunswick Corp.,* 288 F.3d 1357, 1369 (Fed.Cir.2002) ("To help determine whether a claim term recites sufficient structure we examine whether it has an understood meaning in the art").

The patent shows the "timing input port" at item 220 of Figure 4.FN10 Based on the Court's reading of the patent and the evidence of prior use of "input ports," supplemented by the Gafford and Liska declarations, the Court concludes that the "timing input port means" defines sufficient structure to escape section 112, para. 6, and it describes an input port which receives timing signals from a section controller.FN11

FN10. This conclusion was based in part on the failure of the patent to identify any specific characteristics of the timing input port's structure.

FN11. In addition, the Court notes that even were the Court to construe the language under section 112, para. 6, Bottero's use of the circuitry in item (225) points to unnecessary structure that would be excluded from any "means plus function" mapping.

f. "set-up input port means"

The parties make similar arguments regarding the "set-up input port means" and the applicability of section 112, para. 6 as they did for the "timing input port means." *See* Emhart Br. at 10-11; Bottero Br. at 9-11; 2d J.C.S., Ex. C at 3. For the same reasons that the Court found the "timing input port means fell outside the "means plus function" presumption, the Court finds the same for the "set-up input port means." The "set-up input port means" refers to an input port which receives set-up signals from a machine controller.FN12

FN12. As the Court understands the patent, the serial line in represents the incoming wire from the machine controller and the patent identifies a differential line receiver to handle the communication. *See* ' 552 Patent, Col. 8:15-20.

g. "input [output] interface means for providing actuating signals to at least one machine component."

Both parties agree that the phrase "input interface means for providing actuating signals to at least one machine component," should actually read "output interface means." *See* '552 Patent, Col. 13:3-4; 2d J.C.S., Ex. C at 3. The Court adopts this phrasing. Again, the parties dispute whether this language is "means plus function" or not.2d J.C.S., Ex. C. at 3; Bottero Br. at 10.

The Court finds the IEEE Dictionary, when combined with the Gafford declaration and the patent itself, provides more than enough support to rebut the "means plus function" presumption. In the IEEE Dictionary, after the generic definition of "interface" for data transmission uses, there are a number of more specific definitions. IEEE Dictionary at 175. Among these are three standard interface definitions, covering the European standard, the standard adopted by the Electronic Industries Association, and the Department of Defense. *Id*. These standards indicate that "interface" had a sufficiently understood structural meaning to one skilled in the art. This is reinforced by the definition for "interface system (2) (microcomputer system bus)":

The device-dependent electrical and functional interface elements necessary for communication between devices. Typical elements are: driver and receiver circuits, signal line descriptions, timing and control conventions and functional logic circuits.

Id.

The Court's conclusion is further buttressed by the use of the term "output interface" in claims eleven and twelve without the use of the word "means," and without further structural specification.FN13 *See* '552 Patent, Col. 14:23-29.

FN13. The same observation holds true for the use of "input and output ports" in claim 13. *See* '552 Patent, Col. 14:30-31.

Taken together the evidence before the Court rebuts the "means plus function" presumption and the Court therefore construes the output interface to be an interface that provides actuating signals to at least one machine component, such as a pusher assembly.

h. "a bidirectional asynchronous communications link between said machine controller and said mechanism controller"

Emhart argues that the "asynchronous communications" in claim one are communications transmitted independently of timing events. Emhart Br. at 11-12. Bottero's construction argues that there is no real time communication between the communications or the controllers of the link. Bottero Br. at 9. After parsing the parties' briefs, this appears to come down to a contention by Emhart that this link carries communications that are not directly tied to the synchronized schedule of the machine as it performs its glassware-making function, such as an alarm. Emhart B. at 11; Emhart Reply at 14-15. Bottero's argues that the link must pass data with no real time coordination. As it views the record, a real time transmission is one that "pertains to the performance of the machine." The Court finds Emhart's position to be the stronger one based on its

review of the prosecution history and in particular document number B0019902:

The secondary reference Miller does not disclose an asynchronous communications link in Figure 4 and accompanying text, the line 52 is a "bus", which acts synchronously under the control of real time clock 56 to coordinate in time the linked elements.

As the Court reads the prosecution history, this prior art contrasts with the present invention because the communications are not coordinated by a "real time clock," not that they cannot occur in "real time," which the court understands to be at the time the event happens, although these communications typically are not transmitted simultaneously with the underlying events.

At the hearing, Bottero's counsel stressed a distinction between the link and the data carried on the link, and pointed to Emhart's description of certain types of data as "asynchronous." The Court will attempt to clarify the relationship it perceives between the data and the link. First, an "asynchronous communications link" must be defined to some extent by the type of data it carries. Bottero appears to believe that Emhart's position is defined by the specific content of the data (e.g. an alarm). The Court understands the contention differently. Instead, the representative examples used by Emhart indicate signals that are generally in a particular relationship to the signals generated in response to a machine's timing and/or synchronizing pulses. When an alarm is hit, a signal is presumably sent at that moment, regardless of whether it is synchronized with the various timing pulses or not.

For purposes of the patent it does not matter whether that signal "relates to the performance of the machine" or not. Rather, what matters is the relationship of that signal to the pulses synchronized to the timing drum or like mechanism. Thus, one can imagine an "alarm" that is generated every 50th bottle in the course of a section's work, where the signal is generated in coordination with the other timing events, such as the opening and closing of various blow molds. This alarm, regardless of the data's content, would presumably be "synchronous."

At the same time, there may be other asynchronous signals beyond the alarm and set-up parameters identified by Emhart that "pertain to the performance of the machine" but are not synchronized with the timing pulses. Presumably such signals would also fit within the contours of an "asynchronous communications link."

Based on the above considerations, the Court construes the term "asynchronous communications" to be communications transmitted independently of timing events.

2. Claim 2

The parties only dispute one set of terms in claim two: "a machine terminal for entering, displaying, and modifying said actuation and deactuation times and said set-up parameters." '552 Patent, Col. 13:21-22. Bottero argues this is a means plus function limitation, *see* Bottero Br. at 11-13, Emhart argues that it is not. Emhart Br. at 8. For substantially similar reasons to those utilized by the Court in denying Bottero's argument with regard to the various controllers, the Court does the same here. The Court construes a machine terminal to be a remote input/output device linked to a computer.

3. Claim 4

The only dispute between the parties in claim 4 centers on "a plurality of said section controllers, each for a

corresponding machine section." '552 Patent, Col. 13:29-31. Emhart's position is that this has reference to an apparatus with more than one section controller, with each section controller communicating with a single machine section.2d J.C.S., Ex. C at 5. Bottero requires that the section controller be dedicated to timing control of all components within one section. *Id*. Neither party addressed this issue in their briefs and the Court declines to rule on the limited record before it without clarification of the parties' positions.

4. Claim 9-"non volatile control program memory means for storing a control program for said processor"

Although there are a variety of disputed terms in claim 9, the Court finds that the vast majority of them are interpreted in parallel with cognate terms found in other parts of this order. There is one disputed term that is unique to claim nine, however.

Claim nine identifies a "non-volatile control program memory means for storing a control program for said processor." '552 Patent, Col. 14:6-10. Emhart contends this recites sufficient structure to take this item outside the "means plus function" analysis, see 2d J.C.S., Ex. C at 10, Bottero contends the opposite. *Id*. The presumption raised by the use of "means" and the statements in the prosecution history convince the Court that this is a "means plus function" element. See B0020059 ("In summary, the first four steps of the method of claim 26 are necessarily implemented by the 'non-volatile control program memory means' of claim 22, by virtue of functional limitations in the 'means plus function' recitations.")

The function of this element is to store a control program for the processor. Bottero identifies the corresponding structure as *a 4* k x 8 bit ROM found at (215) in the patent or its equivalents. See '552 Patent, Col. 8:34-36; 2d J.C.S., Ex. C at 10. Although Emhart contends that this is too much structure, Emhart does not identify a more appropriate structure for the Court. Emhart Reply at 13. Therefore, on the limited record before it, the Court adopts Bottero's proposed structure.

The "non-volatile control program memory means" thus is a "means plus function" element. Its function is to store a control program for the processor and the corresponding structure is a 4k x 8 bit ROM found at (215).

5. Claim 11-"Output interface provides a motor controller driver signal"

Claim eleven mentions an "output interface," which "provides a motor controller driver signal." '552 Patent, Col. 14:23-25. Bottero argues that this is subject to section 112, para. 6, but Emhart disagrees. Bottero Br. at 10, 2nd J.C.S., Ex. C at 16. The Court finds that the terms do not refer to a means plus function limitation, for the same reasons the Court found the "output interface means" of claim one was not a "means plus function" element. The Court thus agrees with Emhart that the output interface "provides a motor controller driver signal" and this signal effects change in the motor.

6. Claim 14

Although the parties dispute a number of terms in claim 14, these disputes involve terms the Court has already construed. The Court therefore adopts identical constructions for these terms.FN14

FN14. One final note-the parties appear to agree on the meaning of "alarm signals" in claim one of the '552 patent. *See* Emhart Br. at 12; Bottero Br. at 13-14; Emhart Reply at 16. The Court thus felt no need to address the parties' arguments on this point.

V. CONCLUSION

For the reasons stated, the Court adopts the above constructions of various terms in the '552 patent, '606 patent, and '721 patent.

IT IS SO ORDERED.

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