

United States District Court,
E.D. Wisconsin.

DISA INDUSTRIES A/S,
Plaintiff.

v.
THYSSENKRUPP WAUPACA, INC,
Defendant.

No. 07-C-949

Oct. 24, 2008.

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DECISION ON CLAIM CONSTRUCTION

WILLIAM C. GRIESBACH, District Judge.

DISA Industries A/S ("DISA") sued Thyssenkrupp Waupaca, Inc., ("Waupaca") for infringement of two of DISA's patents relating to machinery used in the metalcasting industry. The Court conducted a hearing in accordance with *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996), on October 16, 2008, to address several disputed claim terms in the two patents at issue. My discussion and resolution of these disputes follow.

I. Law of Claim Construction

It is a "bedrock principle" of patent law that "the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed.Cir.2005) (en banc) (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed.Cir.2004)). The terms of a patent claim are to be given their ordinary and customary meaning to a person skilled in the art at the time of the patent application. *Id.* A "person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." *Id.* at 1313. Thus, in construing the disputed terms the court may look to the "words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence." *Id.* at 1312 (quoting *Brown v. 3M*, 265 F.3d 1349, 1352 (Fed.Cir.2001)).

II. Patent No. 6,481,488 ('1,488 Patent)

Both of the patents at issue in this case relate to components of vertical moulding machines which are used in the metalcasting industry. Moulding machines are used to create moulds into which molten metal is

poured to manufacture commodity parts such as automobile break rotors. To manufacture commodity parts, the foundry casting equipment must be capable of producing the moulded parts quickly, efficiently and with a high degree of precision. The quicker the part can be cast, the more parts a foundry can produce over a given period of time. Similarly, the higher the precision in casting the moulded parts, the less additional tooling is required.

In a vertical moulding machine, heavy squeeze plates compress a moulding material (such as sand) in a chamber to create moulds. The forces required to compact a mould structure are powerful, and when uneven forces are applied to the moulding plates the frame structure surrounding the squeeze chamber can become deformed. The '1,488 patent teaches an apparatus that is intended to reduce this deformation by providing an auxiliary guiding means as the squeeze plates are pushed together. The '1,488 patent attempts to reduce this deformation by having a pull yoke that is "directly guided and supported against movements in a plane perpendicular to the intended movement of the frame structure and accordingly, a more rigid frame structure is achieved." ('1,488 patent, col. 1, ll. 45-48.)

Claim 1 of the patent reads as follows:

1. Apparatus for producing casting mould parts by compacting a material comprising:

a squeeze chamber having a longitudinal axis and including a vertical squeeze plate at a rear end and a vertical swingable plate at a front end;

a rigid frame structure having a longitudinal axis parallel with the longitudinal axis of said squeeze chamber and including

a front yoke to which said swingable plate is pivotally mounted whereby said swingable plate swings away after compaction of the material into a mould part to allow passage of the mould part from the squeeze chamber by a forward movement of the squeeze plate,

guide columns to which said front yoke is mounted, and

a pull yoke located behind said squeeze chamber and connected to said guide columns;

at least two respective fixed guides in which at least two respective said guide columns are respectively journaled for movement parallel to the longitudinal axis of said squeeze chamber, whereby said guide columns, said pull yoke and said front yoke are together movable relative to said squeeze plate between a compaction configuration and an extraction configuration of said squeeze chamber, and such that said guides are located closer to said front yoke when said squeeze chamber is in the compaction configuration than when said squeeze chamber is in the extraction configuration; and

a **guiding means** for guiding said pull yoke and hence said frame structure for movement between the compaction and the extraction configuration of said squeeze chamber, and against movements in a plane perpendicular to the longitudinal axis of said frame structure, said guiding means being closer to said pull yoke when said squeeze chamber is in the compaction configuration than when said squeeze chamber is in the extraction configuration.

('1,488 patent, col. 3, l. 40-col. 4, l. 35.)

A. "Guiding Means"

The principal dispute involves the proper description of the guiding means set forth above. Both sides agree that the phrase "guiding means" is a means-plus-function element under 35 U.S.C. s. 112(6), which

provides that "[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof." The Federal Circuit has explained the approach a court should take in construing means-plus-function elements:

The construction of a means-plus-function limitation follows a two-step approach. First, we must identify the claimed function, staying true to the claim language and the limitations expressly recited by the claims. Once the functions performed by the claimed means are identified, we must then ascertain the corresponding structures in the written description that perform those functions. A disclosed structure is corresponding "only if the specification or the prosecution history clearly links or associates that structure to the function recited in the claim." In other words, the structure must be necessary to perform the claimed function.

Omega Engineering, Inc. v. Raytek Corp., 334 F.3d 1314, 1321 (Fed.Cir.2003) (citations omitted).

Following this approach, the first step is to identify the claimed function. As set forth in the claim itself, the function of the element is for "guiding said pull yoke and hence said frame structure for movement between the compaction and the extraction configuration of said squeeze chamber, and against movements in a plane perpendicular to the longitudinal axis of said frame structure ." This is not disputed.

The bone of contention arises in identifying the "corresponding structure" described in the specification. In other words, which structures in the description are "necessary to perform the claimed function"? *Id.* DISA proposes that the auxiliary guide column 9 and the fixed part 12, and equivalents thereof, are the corresponding structures necessary to perform the claimed function. One of the initial disputes between the parties involved whether the fixed part 12 was part of the corresponding structure. In its response brief, Waupaca has conceded that it is. Both sides also agree that column 9 is part of the corresponding structure.

The key remaining dispute involves whether guide 8 is part of the corresponding structure disclosed in the specification. Waupaca believes the guide is necessary to perform the claim function because it cooperates with column 9 to guide the pull yoke. The guide, it asserts, also prevents movement of the frame in a perpendicular fashion, which is another of the invention's teachings.

DISA argues that considering guide 8 as part of the necessary structure would improperly import a limitation into the claim from the specification. It states that although the guide aids in the guiding of the pull yoke, it would be theoretically possible to achieve a similar result without the guide. (For example, by using a "precision hole," i.e., a narrow opening that conforms to and supports the column 9.) In fact, it notes, guide 8 is absent from the embodiments shown in FIGS. 6-8. In these embodiments, the invention is shown using "alternative constructions for providing a direct guiding of the pull yoke 6 in the compacting position." (1,488 patent, col. 3, ll. 12-14.) These other constructions show, among other things, the use of rollers or bearing surfaces that provide the "direct guiding" of the pull yoke. (1,488 patent, col. 3, ll. 12-25.)

At the hearing, DISA called an expert, Dr. Stoll, who testified that guide 8 was a kind of bearing that would be necessary to create a load path and to reduce friction. Although good design would demand such a bearing, he believed guide 8 was not strictly "necessary" to achieve the desired result. Still, he conceded that it would be unusual to attempt building the structure described in the patent *without* guide 8.

Although the question is a close one, I conclude that guide 8 is *not* a necessary component of the "guiding means." First, it is evident that the figures 6-8 do not employ such a structure. Second, the principle of claim differentiation comes into play. Specifically, Claim 2 describes exactly the guiding means that Waupaca proposes in Claim 1: a fixed part 12, an auxiliary guide column 9, and a guide mounted to the pull yoke, 8. Claim 2 depends on Claim 1, and it teaches a narrower manifestation of that device. That is, the apparatus with the guide 8 taught in Claim 2 must be something different from the apparatus claimed in Claim 1. Waupaca seems to concede this in its brief, noting that the principle of claim differentiation is satisfied because Claim 1 "also protects the other three embodiments as shown in FIGS. 6-8 ... These other three

embodiments do not include the guide, fixed part and auxiliary guide column as defined in claim 2." (Waupaca Response Br. at 6.) Thus, if those embodiments are protected by Claim 1, and if those embodiments do *not* include guide 8, Waupaca has admitted that guide 8 is not a necessary component of Claim 1. Although claim differentiation creates a rebuttable presumption, nothing in the patent or prosecution history rebuts that presumption, and in fact Waupaca has declined to rebut it by conceding that Claim 2 is actually narrower than Claim 1. Accordingly, I conclude that the guiding means is limited to the column 9 and the fixed part 12.

Waupaca also contends that the position of some of the mechanisms shown in the figures and described in the specification is constant in relation to the position of the pull yoke. Why is this important? Waupaca argues that the entire claim is a "botched" claim. In particular, the second half of the claim language at issue here states as follows: "... said guiding means being closer to said pull yoke when said squeeze chamber is in the compaction configuration than when said squeeze chamber is in the extraction configuration." (1,488 patent, col. 4, ll. 12-15.) This phrase clearly states that the "guiding means" must be closer to the pull yoke during compaction than it is during the extraction phase. In other words, the guiding means moves in relation to the position of the pull yoke.

Waupaca argues that although fixed part 12 is indeed closer to the pull yoke when in the compaction position, neither the auxiliary guide column 9 nor the guide 8 are closer to the pull yoke. Guide column 9 (which both sides agree is part of the guiding means) goes *through* the pull yoke, and as such it is not "closer" to the yoke just as a train passing through a tunnel is not "closer" to the tunnel at one end versus the other end. Thus, the claim language requiring the guiding means to be "closer to said pull yoke when said squeeze chamber is in the compaction configuration than when said squeeze chamber is in the extraction configuration" is simply unsupportable.

Nowhere in the specification's language or drawings does the element of the "said guiding means being closer to said pull yoke" arise, and Waupaca says this is the result of a patent drafting error. The end result is that the claim itself, which is a means-plus-function claim, teaches a limitation not found anywhere in the specification. Means-plus-function claims are limited to those "corresponding structures" disclosed in the specification, and the "said guiding means being closer to said pull yoke" element of the claim is found nowhere in the specification. In fact, the only elements disclosed in the specification include "guiding means" that are in fixed locations relative to the pull yoke.

Even if Waupaca is correct in its analysis, however, I am not convinced that its argument is properly addressed at the *Markman* stage. It may be that DISA will have problems down the road, and Waupaca has suggested that a summary judgment motion on this point might be in order. But for now, my principal task is to construe the terms of the patent claims, not to determine the implications of that construction. For *Markman* purposes, therefore, I conclude that the structure of the guiding means comprises auxiliary guide column 9 and fixed part 12.

B. Claim 5: "Apparatus for producing casting mould parts as claimed in claim 1, wherein said guiding means includes co-operating bearing surfaces provided on said pull yoke and respective fixed parts."

Waupaca argues very briefly that this clause should be interpreted as follows: "The bearing surfaces 16 (FIG.7) on the pull yoke 6 cooperate with bearing surfaces 17 that are fixed." For support, it relies on the specification, which explains that "[t]he construction shown in FIG. 7 comprises bearing surfaces 16 on the pull yoke 6, co-operating with corresponding bearing surfaces 17 on a fixed part of the apparatus." (1,488 patent, col. 3, ll. 20-23.) Although Waupaca's proposal seems true to what is disclosed in Figure 7, there is no indication in the claim language or elsewhere that the terms should be *limited* to what is shown in that figure. The claim language allows for any kind of bearing surfaces to cooperate with fixed parts, and accordingly I will adopt DISA's proposal rather than Waupaca's.

III. Patent No. 6,588,488 ('8,488 Patent)

The '8,488 patent describes an apparatus for controlling the movements of the squeeze plates of a string moulding apparatus. Given the amount of pressure required to create a mould, such machines are typically very large and heavy and, as such, their parts are somewhat slow-moving. The '8,488 patent describes a machine with simultaneous and separately controlled movements, and the simultaneous movement of squeeze plates allows the machine to create moulds faster than a machine without simultaneous movement.

Claim 1 of the '8,488 patent claims a

1. String moulding apparatus comprising:

a moulding chamber between a movable squeeze plate and a pivoted squeeze plate, at least one of the squeeze plates being provided with a pattern, the movable squeeze plate being movable by means of a first linear hydraulic actuator and the pivoted squeeze plate being movable by means of a second linear hydraulic actuator; and

a source of hydraulic fluid under pressure connected through supply/return conduits to the first and second linear hydraulic actuators,

(a) wherein the source of hydraulic pressure comprises a first and a second hydraulic pump, with the first hydraulic linear actuator connected to be driven by the first hydraulic pump and with the second hydraulic linear actuator connected to be driven by the second hydraulic pump, and

(b) wherein the supply/return conduits are configured in association with the first and second pumps to provide simultaneous and separately controlled movements of said first and second pressure plates such that during operation of said string moulding apparatus a movement of one of said first and second squeeze plates commences before a preceding movement of the other of said first and second squeeze plates has finished.

('8,488 patent col. 7, ll. 7-32.)

A. Claim 1[B] (a): "a source of hydraulic fluid under pressure connected through supply/return conduits to the first and second linear hydraulic actuators,

(a) wherein the source of hydraulic pressure comprises a first and a second hydraulic pump, with the first hydraulic linear actuator connected to be driven by the first hydraulic pump and with the second hydraulic linear actuator connected to be driven by the second hydraulic pump"

This section of Claim 1 has generated several of the principal disputes between the parties.

1. "source of hydraulic fluid under pressure connected through supply/return conduits"

DISA suggests that "a source of hydraulic fluid under pressure" means "a point or points of origin of a pressurized hydraulic fluid ." In other words, it believes that the "source" need not be limited to a single, distinct location. Waupaca has not specifically addressed DISA's argument, and its own proposal is essentially the same, although it suggests there could be only one source. There is nothing in the claims or specification that limits "source" to a single, fixed location. In fact, the common meaning of "source" lends itself to a somewhat open-ended interpretation, and the claim itself begins by describing an apparatus "comprising ... a source of hydraulic fluid ..." Accordingly, I will adopt DISA's broader definition of "source".

2. The claim allows for more than two pumps, and each pump need not be "exclusive" to one circuit

One of the key disputes involves the number of hydraulic pumps taught in the claim. Relying largely on the prosecution history of the patent, Waupaca argues that the patent teaches only two hydraulic pumps, one for each of the two pressure plates, such that each actuator is powered by a separate pump. At the hearing, it became clear that Waupaca's principal argument hinged not so much on the number of pumps *per se*, but on the pumps' role in driving the actuators.

In particular, Waupaca argues that the patent teaches that each pump (whether a single pump or multiple pumps working in concert) must be independent, i.e., there must be a dedicated pump for each squeeze plate. The novelty of the invention, it argues, is that each plate can move independently of the other, and independent pumps allow separate control of the circuits. It bases this view in part on the specification, which notes that "one of the two ports of the first pump 30 is connected to the inner compartment 17 of the first linear hydraulic actuator 10. The other port is connected directly through conduit 21 to compartment 16a and further via an on/off valve 38 ..." (8,488 patent, col. 5, ll. 20-23.) The specification then teaches that "in an analogous manner" the second pump is connected to the second linear hydraulic actuator. (8,488 patent, col. 5, ll. 27-29.) These sections of the specification describe how each pump is "dedicated" (Waupaca's term) to a specific actuator and *only* to that actuator.

Waupaca also relies on certain portions of the prosecution history involving the examiner's conclusion that Claim 1 was obvious over an existing patent. In attempting to overcome obviousness, DISA had argued that there was "no incentive" in the prior art (which used a traditional movement pattern rather than the novel simultaneous movement pattern) "for providing two separate pumps (one for each of the cylinders)". (Dkt. # 18, Ex. A at 30.) In essence, DISA argued that there would have been no point to using two pumps for the earlier invention, and thus the use of two pumps was not obvious. The main advantages of the new invention were "better and simpler control possibilities for the movements due to the provision of two separate hydraulic pumps, one for each of the two pressure plates." (*Id.* at 31.)

Although these sections of the specification and statements to the examiner suggest the use of two, and only two, pumps, there is nothing within these statements that *limits* the use of the number of pumps. Nor is there anything that suggests that simultaneous movement of the plates requires a pump be connected *only* to a single actuator. As DISA notes, the conduit 20 is shared by both circuits, which allows the pumps to work together. Some of the embodiments, in fact, describe the actuators as being connectable in an open circuit to the first and second pumps "so that the hydraulic pressure acting on the actuators is equalized." (8,488 patent, col. 2, ll. 51-53.) Although these embodiments might be reflected in claims other than Claim 1, the open circuit concept undercuts Waupaca's argument that the novelty of the invention required independent, dedicated pumps. Waupaca makes a persuasive argument that perhaps the apparatus was primarily intended to work with the pumps operating on independent circuits, but nowhere in the specification or prosecution history has DISA limited its claims to a description of pumps dedicated to specific actuators. In short, I find no basis to limit the number of pumps or to impose a limitation requiring that each pump be dedicated to only one actuator.

B. Claim 1[B](b): "Supply/return conduits"

DISA proposes that supply/return conduits means a "plurality of pipes or channels for conveying fluids, which may convey fluid in either direction (supply or return), connect the point or points of origin of pressurized fluid to the first and second linear actuators ." Waupaca argues that this term must be construed under a means-plus-function treatment because the claim describes the supply and return system solely in terms of function:

... (b) wherein the supply/return conduits are configured in association with the first and second pumps to

provide simultaneous and separately controlled movements of said first and second pressure plates such that during operation of said string moulding apparatus a movement of one of said first and second squeeze plates commences before a preceding movement of the other of said first and second squeeze plates has finished.

('8,488 patent, col. 7, ll. 24-33.)

Because the structure is not sufficiently set forth in the patent, Waupaca argues, the claim should be limited to the specific manifestation set forth in the specification and drawings. When a claim limitation does not recite a "means," there is a rebuttable presumption that it is not a means-plus-function limitation. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1023 (Fed.Cir.2006). That presumption can be overcome, however, if "the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed.Cir.2002).

Waupaca argues that the structure of the supply/return conduits is not sufficiently disclosed in the claim. In other words, because the claim terms describe what the conduits *do* (e.g., provide simultaneous and separately controlled movements of said first and second pressure plates) without explaining how they are configured, the term should be read as a means-plus-function term despite the presumption against doing so. Waupaca relies on *Massachusetts Institute of Technology & Electronics for Imaging, Inc. v. Abacus Software*, 462 F.3d 1344 (Fed.Cir.2006), where the Federal Circuit concluded that the term "colorant selection mechanism" was a means-plus-function limitation despite the absence of the term "means". In doing so, the court noted that "[t]he generic terms 'mechanism,' 'means,' 'element,' and 'device' typically do not connote sufficiently definite structure." *Id.* at 1354. As such, "[t]he term 'mechanism' standing alone connotes no more structure than the term 'means.'" *Id.* The court thus concluded that "colorant selection" had no generally understood meaning in the art that would connote sufficiently definite structure.

Here, however, the claim does not disclose some sort of generic "mechanism" or "device." It discloses conduits, which everyone in the art would recognize as pipes or channels for conducting liquids. To avoid means-plus-function treatment the claims need not recite chapter and verse: "it is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function." *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1359-60 (Fed.Cir.2004). That is what the claim is doing here. The particular design or configuration of the conduits is not what's important, and so it makes little sense to limit the claim to the particular structure disclosed. The structure is indeed partially identified by its function, but unlike *Massachusetts Inst. of Tech.*, that does not mean no structure is disclosed at all. I will thus adopt DISA's proposal, which is based on common dictionary definitions.

C. Claim 8: "open circuit" and "delivery conduit"

Waupaca argues that it cannot offer a proposed claim construction for Claim 8 because the terms "open circuit" and "delivery conduit" are not found in the detailed description of the invention. These terms are introduced in the summary of the invention as follows:

According to a further embodiment of the invention, the first and second hydraulic linear actuators are connectable in an open circuit to the first and second pumps, whereby the delivery conduit of the first hydraulic linear actuator is connectable to the delivery conduit of the second linear hydraulic actuator so that the hydraulic pressure acting on the actuators is equalized.

('8,488 patent, col. 2, ll. 46-52.)

Despite Waupaca's argument that the terms are indefinite, neither "open circuit" nor "delivery conduit"

seems to cry out for a special definition. As the Federal Circuit has explained, a claim will not be invalidated for indefiniteness unless it is insolubly ambiguous:

We have not insisted that claims be plain on their face in order to avoid condemnation for indefiniteness; rather, what we have asked is that the claims be amenable to construction, however difficult that task may be. If a claim is insolubly ambiguous, and no narrowing construction can properly be adopted, we have held the claim indefinite. If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds.

Exxon Research and Engineering Co. v. United States, 265 F.3d 1371, 1375 (Fed.Cir.2001).

Given this strict standard, a claim will not be invalidated merely because a defendant states that the disputed claim terms are not described in the specification. The question is whether "open circuit" and "delivery conduit" are capable of construction, and I conclude they are. A "delivery conduit," as DISA proposes, may be construed to mean a pipe or channel that delivers something. DISA proposes the following definition for "open circuit": "the configuration or arrangement wherein the first and second hydraulic linear actuators are connectable to the first and second pumps to permit for inflow/outflow of hydraulic fluids from either or both pumps to either or both hydraulic linear actuators, wherein the circuit includes a reservoir at atmospheric pressure." At the *Markman* hearing, Waupaca did not have any substantive objection to this construction. Accordingly, I will adopt DISA's proposed claim construction.

D. Claim 9: "Apparatus according to claim 1, wherein the first and second pumps are coupled to a common drive shaft, so that the braking energy of one actuator is used to drive the other actuator."

Waupaca argues that this claim is invalid under 35 U.S.C. s. 112 for failure to provide an adequate written description in the specification. In particular, it notes that there is very little disclosure in the specification of the "braking energy" process. Section 112(1) requires "sufficient information in the specification to show that the inventor possessed the invention at the time of that original disclosure." *Pandrol USA, LP v. Airboss Ry. Products, Inc.*, 424 F.3d 1161, 1165 (Fed.Cir.2005) "Adequate description of the invention guards against the inventor's overreaching by insisting that he recount his invention in such detail that his future claims can be determined to be encompassed within his original creation." *Id.* (quoting *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1561 (Fed.Cir.1991)). To say a claim lacks an adequate written description is not to say it needs to be interpreted in a *Markman* proceeding. The question of whether the written description is adequate is a question of fact, which makes consideration of the argument premature at the claim construction stage. *Id.* at 1164. Arguing that the claim cannot be interpreted, Waupaca has not proposed any language that would be a suitable construction. Accordingly, because the argument is about disclosure rather than construction, at this stage it seems better to forgo construction of the term and await any insufficient disclosure argument in future proceedings.

E. Claim 11: "wherein the source of hydraulic pressure is connected to only one of the two separate compartments of both the first and second linear hydraulic actuators when the movable squeeze plate and the pivoted squeeze plate squeeze otherwise moving toward the moulding chamber."

Waupaca argues that this is "nonsensical ungrammatical gibberish" and that the claim cannot be construed at all. First, the objection to grammar, while otherwise well taken, falls flat when the subject matter is a complex patent claim. Language that would embarrass a high school essayist often makes its way into convoluted "patentese," and Waupaca offers no support for rejecting a claim as invalid merely because of poor grammar.

Ultimately, the question is whether the language withstands construction. In making that determination, I am mindful that the patent examiner, a quasi-judicial officer, allowed the claim. Though not determinative, any

objection on the ground that a claim is "gibberish" must be taken with a grain of salt. Waupaca's particular objection is to the phrase "otherwise moving toward the moulding chamber." Although the claim is indeed not a model of clarity, I conclude its meaning is readily discernable in the fashion DISA suggests. Specifically, the claim term lacks the key word "or," an omission which is obvious in context. The phrase should read, "when the movable squeeze plate and the pivoted squeeze plate squeeze [or are] otherwise moving toward the moulding chamber." ('8,488 patent, col. 8, ll. 37-39.) DISA's proposal (Waupaca does not offer its own) accounts for this omission, and accordingly I will adopt it as my construction of the phrase.

IV. Claim Interpretation

As set forth above, the Court construes the disputed claim terms as follows:

'1,488 Patent

Claim 1: The structure of the "guiding means" is a stationary or fixed auxiliary guide column 9 and the stationary or fixed part 12.

Claim 5: The phrase "wherein said guiding means includes co-operating bearing surfaces provided on said pull yoke and respective fixed parts" means "The guiding means includes a surface provided on the pull yoke and a surface provided on fixed or stationary parts of the apparatus, including a surface or part of a surface of the fixed or stationary auxiliary guide column. The surfaces are arranged to contact one or more bearings to provide constrained motion of the pull yoke relative to the fixed or stationary parts."

'8,488 patent

Claim 1: "Source of hydraulic fluid under pressure" means "point or points of origin of a pressurized hydraulic fluid."

"Supply/return conduits" means "A plurality of pipes or channels for conveying fluids, which may convey fluid in either direction (supply or return), connect the point or points of origin of pressurized fluid to the first and second linear actuators."

"A first and a second hydraulic pump" means "a first machine or device and a second machine or device, each of which may include one or more machines or devices, that convert mechanical energy to hydraulic or fluid energy."

The phrase "... with the first hydraulic linear actuator connected to be driven by the first hydraulic pump and with the second hydraulic linear actuator connected to be driven by the second hydraulic pump" stands on its own, with the understanding that the pumps need not *only* be connected to a specific actuator.

Claim 8: "open circuit" means "the configuration or arrangement wherein the first and second hydraulic linear actuators are connectable to the first and second pumps to permit for inflow/outflow of hydraulic fluids from either or both pumps to either or both hydraulic linear actuators, wherein the circuit includes a reservoir at atmospheric pressure."

"delivery conduit" means "delivery pipe or channel"

Claim 9: not construed

Claim 11: "when the movable squeeze plate and the pivoted squeeze plate squeeze otherwise moving toward the moulding chamber" means "when the movable squeeze plate and the pivoted squeeze plate

squeeze or are otherwise moving toward the moulding chamber."

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