

United States District Court,
N.D. California.

AMERICAN PILEDIVING EQUIPMENT, INC,
Plaintiff.

v.

BAY MACHINERY CORPORATION,
Defendant.

No. C 08-1934 PJH

June 12, 2009.

Background: Holder of patent relating to assembly used in vibratory pile-driving and pile-pulling equipment brought action against competitor, alleging infringement. Parties sought Markman hearing to construe disputed patent terms.

Holding: The District Court, Phyllis J. Hamilton, J., held that patent terms relating to impartation of vibratory force utilizing counterweights would be construed.

So ordered.

5,355,964. Construed.

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ORDER CONSTRUING CLAIMS

PHYLLIS J. HAMILTON, District Judge.

On May 6, 2009, the parties' claim construction hearing to construe the disputed terms of U.S. Patent No. 5,355,964 ("the '964 Patent") pursuant to Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996), came on before this court. Plaintiff American Piledriving Equipment, Inc. ("APE") appeared through its counsel Craig Madson and defendant Bay Machinery Corporation ("Bay") appeared through its counsel Peter Knops and Kenneth Kula. Having read the parties' papers and carefully

considered their arguments and the relevant legal authority, the court hereby rules as follows.

BACKGROUND

The '964 Patent covers a vibratory assembly used in vibratory pile driving and pile pulling equipment for imparting a vibratory force to a pile utilizing counterweights. APE has sued Bay for infringement of the '964 Patent. *See* First Amended Complaint ("FAC").

A. Background Technology

Pile driving equipment is used to drive large piles into the earth to form a stable support for buildings or other structures. Similarly, pile driving equipment is used to remove large piles from the earth. Pile driving equipment with a vibratory apparatus, as opposed to pile driving equipment that use hammer devices to drive the pile, impart vibration force to the pile. Vibratory devices have several advantages over hammer devices, including an increased driving speed.

Vibratory devices can generate extremely high driving and pulling forces by rapidly rotating large counterweights within the vibratory assembly. The counterweights are large cylindrical, eccentrically weighted gears, i.e., they have uneven weight distribution around the body of the gear such that its center of gravity is radially outward of the gear's rotational axis. When the vibratory apparatus rotates two counterweights in opposite directions, the counterweights generate substantial vibratory forces that are transmitted through the vibratory assembly, through a pile holding device, and to the pile. The rapid rotation generates substantial vibratory forces, creating large stress loads within the counterweights as well as high temperatures in and around the counterweights due to the friction of the moving parts.

The prior art includes a vibratory assembly with counterweights having solid eccentric weight bolted to a portion of the cylindrical gear. These bolted counterweights, however, are not sufficiently durable because the bolts have a tendency to break under the stress generated during the rapid rotation of the counterweights. Another prior art vibratory assembly avoids the bolt breaking problem by using a cast one-piece, solid counterweight having an eccentric weight portion integral with a cylindrical gear portion. These solid, cast counterweights, however, do not have sufficient mass to generate large enough vibratory forces to efficiently drive or pull piles.

Attempts have been made to use lead to increase the mass of cast counterweights by machining holes into the eccentric weight portion and filling these holes with lead. These lead-filled counterweights, however, generate a limited degree of vibration amplitude. In addition, the friction generated during the rapid rotation of the counterweights causes the lead to liquify and shift during operation, creating an unbalanced weight distribution in the counterweights, causing lateral forces which can damage the vibratory assembly. The unbalanced weight distribution is also caused by the inability to fill the holes with precise amounts of lead. Another problem experienced with lead-filled counterweights is that the lead inserts can be chipped or shaved off during operation, or otherwise contact the oil used for lubricating the moving components. The loose lead contaminates the oil and creates an environmentally hazardous waste, requiring expensive disposal procedures.

B. The '964 Patent

On October 18, 1994, the '964 Patent was issued to John White ("patentee"), president of APE. The invention relates to pile driving and pile pulling equipment, and more particularly to vibratory pile driving

and pile pulling equipment using counterweights. The '964 Patent covers a vibratory assembly used in vibratory pile driving equipment for imparting a vibratory force to a pile wherein the vibratory assembly has a housing and a pair of counterweights that rotate within the housing.

The housing has at least one counterweight receiving area adapted to rotatably receive at least one counterweight. The counterweight is made of a first metal, such as steel, and has a cylindrical gear portion with an integral eccentric weight portion. The eccentric weight portion has at least one insert-receiving area formed therein for receiving a second metal, a solid insert made of tungsten ("tungsten rod"), which fits securely within the insert-receiving area. The tungsten rod is heavier than the first metal, and has a melting point of 328 (deg.) C or greater, such that the tungsten will not become fluid and shift during the operation of the vibratory assembly. At least one driving motor is operatively connected to the counterweight and is adapted to rapidly rotate the counterweight to generate substantial vibratory forces.

The '964 Patent contains twenty-seven claims. APE maintains that Bay has directly infringed and continues to infringe claims 1-3, 5-14 and 16-18 by using, offering to sell or rent, selling and/or renting certain vibratory pile driving devices in the United States. The parties now seek construction of the following five disputed terms and/or phrases: (1) the "cylindrical gear portion"; (2) the "eccentric weight portion"; (3) "integral"; (4) the "insert-receiving area"; and (5) "connected to."

DISCUSSION

A. Legal Standard

Claim construction is a question of law to be decided by the court. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed.Cir.1995). In construing claim terms, the court must begin with an examination of the claim language itself. The terms used in the claims are generally given their "ordinary and customary meaning." *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed.Cir.2005); *see also Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed.Cir.1998) ("The claims define the scope of the right to exclude; the claim construction inquiry, therefore, begins and ends in all cases with the actual words of the claim."). This ordinary and customary meaning "is the meaning that the terms would have to a person of ordinary skill in the art in question at the time of the invention ..." *Phillips*, 415 F.3d at 1313. A patentee is presumed to have intended the ordinary meaning of a claim term in the absence of an express intent to the contrary. *York Products, Inc. v. Central Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1572 (Fed.Cir.1996) ("Without an express intent to impart a novel meaning to claim terms, an inventor's claim terms take on their ordinary meaning."). In some cases, the ordinary meaning of a claim by one of ordinary skill in the art may be readily apparent even to lay judges. *Id.* at 1314. In such a case, claim construction involves nothing more than the application of the widely accepted meaning of the commonly understood words through the use of a general purpose dictionary used in conjunction with the intrinsic evidence. *Id.*

Generally speaking, the words in a claim are to be interpreted "in light of the intrinsic evidence of record, including the written description, the drawings, and the prosecution history, if in evidence." *Teleflex, Inc. v. Ficosa North Am. Corp.*, 299 F.3d 1313, 1324-25 (Fed.Cir.2002) (citations omitted); *see also Medrad, Inc. v. MRI Devices Corp.*, 401 F.3d 1313, 1319 (Fed.Cir.2005) (court looks at "the ordinary meaning in the context of the written description and the prosecution history"). "Such intrinsic evidence is the most significant source of the legally operative meaning of disputed claim language," that is, the claims, the specification and the prosecution history. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed.Cir.1996). This is because "the 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." Phillips, 415 F.3d at 1312.

With regard to the intrinsic evidence, the court's examination begins, first, with the claim language. *See Vitronics*, 90 F.3d at 1582. Specifically, "the context in which a term is used in the asserted claim can be highly instructive." Phillips, 415 F.3d at 1314. As part of that context, the court may also consider the other patent claims, both asserted and unasserted. *Id.* For example, as claim terms are normally used consistently throughout a patent, the usage of a term in one claim may illuminate the meaning of the same term in other claims. *Id.* The court may also consider differences between claims to guide in understanding the meaning of particular claim terms. *Id.* For example, the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim. *Id.* at 1314-15.

Second, the claims "must [also] be read in view of the specification, of which they are a part." Phillips, 415 F.3d at 1315. "[T]he specification 'is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.' " *Id.* at 1315, 1321 (the specification is "the single best guide to the meaning of a disputed term, and acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication"); *see also* *Kinetic Concepts, Inc. v. Blue Sky Medical Group, Inc.*, 554 F.3d 1010, 1018-19 (Fed.Cir.2009). "In light of the statutory directive that the inventor provide a 'full' and 'exact' description of the claimed invention, the specification necessarily informs the proper construction of the claims." Phillips, 415 F.3d at 1316 (citing *Merck & Co. v. Teva Pharms. USA, Inc.*, 347 F.3d 1367, 1371 (Fed.Cir.2003) ("A fundamental rule of claim construction is that terms in a patent document are construed with the meaning with which they are presented in the patent document. Thus claims must be construed so as to be consistent with the specification, of which they are a part.") (citations omitted)). When the specification reveals a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess, the inventor's lexicography governs. Phillips, 415 F.3d at 1316. "The specification may [also] reveal an intentional disclaimer, or disavowal, of claim scope by the inventor. In that instance as well, the inventor has dictated the correct claim scope, and the inventor's intention, as expressed in the specification, is regarded as dispositive." *Id.*

The pertinence of the specification to claim construction is reinforced by the manner in which a patent is issued. Phillips, 415 F.3d at 1316. "The Patent and Trademark Office ("PTO") determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction 'in light of the specification as it would be interpreted by one of ordinary skill in the art.' " *Id.* Indeed, because "the rules of the PTO require that application claims must 'conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description,' " it is "entirely appropriate for a court, when conducting claim construction, to rely heavily on the written description for guidance as to the meaning of the claims." Phillips, 415 F.3d at 1316-17.

Finally, as part of the intrinsic evidence analysis, the court "should also consider the patent's prosecution history, if it is in evidence." Phillips, 415 F.3d at 1317. The prosecution history is intrinsic evidence and consists of the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent. *Id.* "[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." *Id.*;

see also *Alpex Computer Corp. v. Nintendo Co. Ltd.*, 102 F.3d 1214, 1220 (Fed.Cir.1996) (prosecution history, along with the claim language and specification, is relevant for construing the meaning and scope of the claims); *Microsoft Corp. v. Multi-Tech Systems, Inc.*, 357 F.3d 1340, 1349 (2004) (statements made by the patentee in the prosecution of the patent application as to the scope of the invention may be considered when deciding the meaning of the claims). The court should take into account, however, that the prosecution history "often lacks the clarity of the specification" and thus is of limited use for claim construction purposes. *Phillips*, 415 F.3d at 1317.

In most cases, claims can be resolved based on intrinsic evidence. *See Vitronics*, 90 F.3d at 1583. Only if an analysis of the intrinsic evidence fails to resolve any ambiguity in the claim language may the court then rely on extrinsic evidence, such as expert and inventor testimony, dictionaries, and learned treatises. *See id.*; *see also Phillips*, 415 F.3d at 1321-22 (Courts are free to consult dictionaries so long as they are careful not to elevate them "to such prominence that it focuses the inquiry on the abstract meaning of the words rather than on the meaning of the claim terms within the context of the patent."). As the court explained in *Markman*, "[extrinsic] evidence may be helpful to explain scientific principles, the meaning of technical terms, and terms of art that appear in the patent and prosecution history." *Id.* at 980. However, the court generally views extrinsic evidence as less reliable than the patent and its prosecution history in determining how to read claim terms, even if its consideration is within the court's sound discretion. *See Phillips*, 415 F.3d at 1318-19.

B. Construction of Disputed Terms and Phrases

As previously noted, the parties seek construction of five disputed terms and/or phrases: (1) the "cylindrical gear portion"; (2) the "eccentric weight portion"; (3) "integral"; (4) the "insert-receiving area"; and (5) "connected to." The court addresses each of these terms and/or phrases in turn below.

1. "cylindrical gear portion"

[1] This phrase appears in asserted claims 1, 6, 11 and 16. The phrase also appears in unasserted claims 19, 21 and 27. At the hearing, the parties stipulated to the following construction of the phrase "cylindrical gear portion": "**the 'gear portion' of the counterweight is a substantially cylindrical portion and has a rear face, a front face, and a plurality of gear teeth around its perimeter.**" Because the court finds that the parties' proposed construction is supported by the claim language and the specification, the court hereby adopts it.

2. "eccentric weight portion"

[2] This phrase appears in asserted claims 1, 3, 6, 11 and 16. The phrase also appears in unasserted claims 19, 21, 26 and 27. APE contends that "eccentric weight portion" should be construed to mean "that portion of the counterweight that contributes to the eccentric moment of the counterweight. The portion is part of the whole counterweight, but need not be a separate component piece or part." Bay contends that "eccentric weight portion" should be construed to mean "the portion of the counterweight that extends forward from the front face of the gear portion as defined in the specification."

To begin its analysis, the court first turns to the claims themselves. The phrase "eccentric weight portion" is first introduced in claim 1, which provides: "A vibratory assembly for imparting a vibratory force to a pile, comprising: ... a counterweight ... having a cylindrical gear portion and an eccentric weight portion integral with said cylindrical gear portion, said eccentric weight portion having at least one insert-receiving area

formed therein, said counterweight made of a first metal; a solid insert member securely positioned in one of said at least one insert-receiving areas said solid insert member being made of a second metal ..." Claim 2 provides that the first metal is steel and the second metal is tungsten. Claim 3 provides that the insert-receiving area is a bore in the eccentric weight portion and the solid insert is a tungsten rod. As to the other claims in which the phrase appears, e.g., claims 6-9, 11-13 and 16-19, the relevant language is substantially similar to the language in claims 1-3 insofar as those claims indicate that the counterweight is comprised of an "eccentric weight portion" and a "cylindrical gear portion"; the "eccentric weight portion" has at least one "insert-receiving area"; at least one solid insert is inserted into an "insert-receiving area"; the counterweight is made of steel; and the solid insert is a tungsten rod. FN1

FN1. The court notes that the phrase "eccentric weight portion" also appears in claims 21, 26 and 27. These claims concern the method of making a counterweight assembly of a vibratory device. In general, these claims indicate that the "eccentric weight portion" is a portion of the counterweight having at least one "insert-receiving area" and that at least one solid insert is inserted in an "insert-receiving area."

Based on the court's review of the claim language, two things are evident. First, the term "eccentric weight portion" is meant to have the same meaning in each claim, since there is no indication that the phrase is to be given a specific definition in any one claim versus another, and no indication that the phrase has been particularly defined, or referred to in a materially different way, in any specific claim. Second, the claim language does not define the phrase, but rather describes that the "eccentric weight portion" is a portion of the counterweight with at least one insert-receiving area therein adapted for receiving at least one solid tungsten rod. Accordingly, the court must turn to the specification for added insight.

The specification explains that the "vibratory assembly of the present invention ... generates substantially vertical vibratory forces by rotating at high speeds two counterweights **40**.... Each counterweight **40** has a gear portion **41** and an eccentric weight portion **43** that is integral to the gear portion. The eccentric weight portion **43** has dense, solid, metal inserts **45** FN2 mounted therein to increase the mass of the eccentric weight portion, and to position the center of gravity of the counterweight **40** radially outward from its rotational axis." '964 Patent, col. 3, lines 39-51 (footnote added). The specification further provides:

FN2. "The preferred solid insert **45** is a tungsten rod ..." '964 Patent, col. 6, line 5. "A tungsten rod is used as the preferred solid insert **45** because the metal is very dense and has a melting point temperature far greater than temperatures experienced by the counterweight **40** during operation of the vibratory assembly **34**." '964 Patent, col. 6, lines 11-15.

As best seen in FIGS. 3A and 3B, the gear portion **41** of the counterweight **40** is substantially cylindrical and has a rear face **94**, a front face **96**, and a plurality of gear teeth **98** around its perimeter. The eccentric weight portion **43** of the counterweight **40**, which is formed integral with the gear portion **41**, extends forward from the front face **96** of the gear portion. The gear portion **41** has a weight distribution with less weight provided by a top portion **102** and more weight provided by a bottom portion **104** as a result of the eccentric weight portion **43** being connected thereto. In the preferred embodiment, the eccentric weight portion **43** has a substantially semi-cylindrical portion **100**, and the bottom portion **104** constitutes over one-half of the area of gear portion. Accordingly, the counterweight **40** has a large mass of material integral to and projecting from the bottom portion **104** of the gear portion **41**, thereby forming a counterweight having a center of gravity located radially outward from the rotational axis of the gear portion.

'964 Patent, col. 5, lines 17-36.

As the specification describes, and figures 3A and 3B illustrate, the counterweight has a top portion and a bottom portion. The bottom portion extends forward from the front face of the gear portion and contains more weight than the top portion as a result of the "eccentric weight portion," which has at least one dense, solid, metal insert, i.e., tungsten rod, mounted therein to increase the mass of the "eccentric weight portion." The specification teaches that the function of the "eccentric weight portion" is to create an uneven weight distribution around the body of the gear such that the center of gravity is located radially outward from the rotational axis of the gear portion, thereby allowing the counterweight to generate substantial vibratory forces upon rotation.

After reviewing the claim language and the specification, the court declines to adopt either party's proposed construction of the phrase "eccentric weight portion." Instead, the court construes the phrase "eccentric weight portion" to mean: **"the bottom portion of the counterweight, which extends forward from the front face of the gear portion, containing more weight than the top portion due to its larger mass, including at least one insert-receiving area formed therein to receive at least one solid tungsten rod."**

3. "integral"

[3] This term appears in asserted claims 1, 6 and 11. The term also appears in unasserted claims 19, 21 and 27. APE contends that the term should be construed to mean "composed of portions, parts, or pieces that together constitute the whole. The portions act together to function as the counterweight." Bay contends that the term should be construed to mean "formed or cast of one-piece."

To begin its analysis, the court first turns to the claims themselves. The term "integral" is first introduced in claim 1, which provides: "A vibratory assembly for imparting a vibratory force to a pile, comprising: ... a counterweight having a cylindrical gear portion and an eccentric weight portion integral with said cylindrical gear portion ..." Substantially similar language appears in claims 6, 11, 19, 21 and 27.

Reviewing all the claims in which the term "integral" is used, it is apparent that the term is meant to have the same meaning in each claim, since there is no indication that the term is to be given a specific definition in any one claim versus another, and no indication that the term has been particularly defined in any specific claim. The court, however, finds that the usage of the term in claims 21, 23 and 27 provides illumination as to the meaning of the term when read together with claims 16 and 19.

Claim 21 provides: "A method of making a counterweight assembly of a vibratory device for imparting a vibratory force to a pile, comprising the steps of: forming with a first metal a counterweight having a cylindrical gear portion and an eccentric weight portion integral with the cylindrical gear portion ..." Claim 23 provides: "The method of claim 21 wherein said step of forming the counterweight comprises casting the counterweight." Claim 27 provides: "A method of making a counterweight assembly of a vibratory device for imparting a vibratory force to a pile, comprising the steps of: casting with a first metal a counterweight having a cylindrical gear portion and an eccentric weight portion integral with the cylindrical gear portion ..."

The court construes the language in unasserted claims 21, 23 and 27 as supporting Bay's proposed construction insofar as these claims indicate that the counterweight is made by forming or casting the "cylindrical gear portion" and "eccentric weight portion" with one metal, i.e., the "cylindrical gear portion" and "eccentric weight portion" are "formed or cast as one-piece." This conclusion is also supported by the

language of claims 16 and 19.

However, claim 16 provides: "A counterweight assembly for use in a vibratory pile ... comprising: a cylindrical gear portion having a plurality of gear teeth around its circumference, ... an eccentric weight portion connected to said cylindrical gear portion at a position radially outward of the axis of said cylindrical gear portion ..." Claim 19, which depends from claim 16, provides: "The counterweight assembly of claim 16 wherein said eccentric weight portion is integral with said cylindrical gear portion, said first metal is cast steel, and said second metal is a tungsten."

[4] This language suggests that the term "integral" is not interchangeable with the phrase "connected to" inasmuch as claim 19 would be superfluous if "integral" and "connected to" meant the same thing. The doctrine of claim differentiation supports this construction. That doctrine creates a presumption against constructions that would render a claim meaningless in its entirety by making it identical in scope to another claim. *Sinorgchem Co., Shandong v. Int'l Trade Comm'n*, 511 F.3d 1132, 1139 (Fed.Cir.2007). In other words, claim differentiation creates a presumption that each claim in a patent has a different scope. *Kraft Foods, Inc. v. Int'l Trading Co.*, 203 F.3d 1362, 1368 (Fed.Cir.2000). Thus, the presence of the limitation "integral" in claim 19 gives rise to the presumption that this limitation is not present in claim 16, which supports the determination that the meaning of "integral" is not the same as "connected to." As discussed more fully below, because the court construes the term "connected to" to mean "joined together, united or linked" conveying the joining, uniting or linking together of two separate pieces or parts, the court construes the claim language to support the conclusion that the term "integral" means "formed or cast as one-piece." Nevertheless, because the claim language does not specifically define the term "integral," the court examines the specification for added insight.

The specification states that "[t]he present invention ... provides a method of making a counterweight assembly adapted to rotatably fit in a vibratory assembly. The counterweight assembly having a cylindrical gear portion and an integral eccentric weight portion is cast with a first metal such as steel." '964 Patent, col. 2, lines 52-57. The specification further states that "[t]he eccentric weight portion **43** of the counterweight **40** ... is formed integral with the gear portion **41**." '964 Patent, col. 5, lines 20-22. In addition, the specification states: "In the preferred embodiment, the counterweight **40** is a one-piece component that is cast with a predetermined metal, such as steel.... The bottom portion **104** of the counterweight **40** is cast having insert receiving areas or bores **112** substantially parallel to the center bore **106** and extending fully through the gear portion." '964 Patent, col. 5, lines 50-53, 61-65. Finally, in discussing the prior art, the specification refers to "a cast, one-piece, solid counterweight" as "having an eccentric weight portion integral with a cylindrical gear portion." '964 Patent, col. 1, lines 45-48. Based on the foregoing, the court finds that the specification also supports the conclusion that the term "integral" means "formed or cast as one-piece."

Moreover, as Bay points out, the prosecution history also supports this conclusion. During reexamination of the '964 Patent, the patentee represented to the PTO that claims 1, 6 and 11 "recite that the counterweight has 'a cylindrical gear portion and an eccentric weight portion' and that these two components are 'integral'-i.e., they are simply components of a 'one-piece' counterweight." Bay's Claim Construction Brief, Exh., C at 6. Specifically, the patentee distinguished the claims of the '964 Patent from U.S. Patent No. 3,224,514 issued to Hornstein, with the statement that Hornstein did not disclose the "requirement of the integral-i.e., one-piece-nature of the eccentric weight portion." *Id.* The patentee further stated that "there is no 'integral' or 'one-piece' relationship when Hornstein provides eccentric force" because "Hornstein teaches a system in which weights may be added or removed in order to unbalance the rotating rotor." According to the

patentee, because a second metal [which may be made of a different material] must be inserted into the rotor to render Hornstein's device capable of providing eccentric forces, his "eccentric is not integrally formed." *Id.* With these statements, the patentee expressly acknowledged, in order to distinguish his invention from prior art, that the "cylindrical gear portion" and an "eccentric weight portion" are components of a one-piece counterweight.

In sum, for all the reasons stated above, the court concludes that Bay's proposed construction of the term "integral" is most consistent with both the '964 Patent's language and the prosecution history. The court therefore construes the term "integral" to mean: **"formed or cast of one-piece."**

4. "insert-receiving area"

[5] This phrase appears in asserted claims 1, 6, 11. The phrase also appears in unasserted claims 21, 22, 24 and 27. APE contends that the phrase should be construed to mean "a region of the eccentric weight portion that is capable of receiving an insert, as opposed to receiving material being poured into the region." Bay contends that the phrase should be construed to mean "an area shaped to receive the solid insert and extending fully through either the gear portion or the eccentric weight portion. Both the gear portion and the eccentric weight portion have an insert receiving area. This limitation defines insert receiving area as the insert receiving area of the eccentric weight portion as opposed the insert-receiving area of the gear portion."

The court begins its analysis by first turning to the claims themselves. The phrase "insert-receiving area" is first introduced in claim 1, which states: "A vibratory assembly for imparting a vibratory force to a pile, comprising: ... counterweight having a cylindrical gear portion and an eccentric weight portion integral with said cylindrical gear portion, said eccentric weight portion having at least one insert-receiving area formed therein, said counterweight being made of a first metal; a solid insert member securely positioned in one of said at least one insert-receiving areas said solid insert member being made of a second metal ..." Claim 2 provides that the first metal is steel and the second metal is tungsten. The phrase "insert-receiving area" also appears in claims 6, 11, 16, 21, 22, 24 and 27.

Reviewing all the claims in which the phrase "insert-receiving area" appears, the court finds that, while the precise language of each claim differs, the language of claim 1 is representative of the other claims, and that the phrase is meant to have the same meaning in each claim, since there is no indication that the phrase is to be given a specific definition in any one claim versus another, and no indication that the phrase has been particularly defined, or referred to in a materially different way, in any specific claim. Accordingly, because none of the claims specifically define the phrase, the court turns to the specification for added insight.

The specification states that:

The bottom portion **104** of the counterweight **40** is cast having insert receiving areas or bores **112** substantially parallel to the center bore **106** and extending fully through the gear portion. In the preferred embodiment, two insert receiving bores **112** are formed in the counterweight **40**, although the number of bores can be varied. The insert receiving bores are shaped **112** to receive the solid insert **45**, wherein the solid insert is manufactured from a metal that has a density or specific gravity that is greater than the density or specific gravity of the metal used to form the remainder of the counterweight **40**. The preferred solid insert **45** is a tungsten rod ...

'964 Patent, col. 5, lines 61-68, col. 6, lines 1-5.

The essence of the dispute is whether the insert-receiving area extends through both the gear portion and eccentric weight portion of the counterweight. After reviewing the claim language and the specification, the court declines to adopt either party's proposed construction of the phrase "insert-receiving area." Instead, the court construes the phrase "insert-receiving area" to mean: **"a bore formed in the eccentric weight portion of the counterweight, which extends fully through the gear portion and fully through the eccentric weight portion of the counterweight, capable of receiving a solid tungsten rod."**

5. "connected to"

[6] This phrase appears in asserted claims 1, 6 and 11. APE contends that the phrase should be construed to mean "joined together, united or linked. In this instance, the eccentric weight portion is joined with the cylindrical gear portion at a point radially outward of the axis of the cylindrical gear portion. 'Connected to' can mean that the two portions are separate pieces joined together so long as that connection is at a position radially outward of the axis." Bay contends that the phrase should be construed to mean "formed of one-piece and specifically excludes bolting as the '964 patent teaches that prior art having bolted counterweights are not sufficiently durable and the '964 patent does not provide any other methods of "connected to" other than casting from one-piece."

The court begins its analysis by first turning to the claims themselves. The phrase "connected to" is first introduced in claim 1, which provides: "A vibratory assembly for imparting a vibratory force to a pile, comprising: ... at least one driving means operatively connected to said counterweight and adapted to rotate said counterweight about its rotational axis." Substantially similar language appears in claims 6 and 11. Claim 16 provides: "A cylindrical gear portion having a plurality of gear teeth around its circumference, said cylindrical gear portion being made of a first metal; an eccentric weight portion connected to said cylindrical gear portion at a position radially outward of the axis of said cylindrical gear portion ..." While the phrase "connected to" does not appear in claim 19, the court nonetheless finds that the language of this claim illuminates the meaning of this phrase. Claim 19, which depends from claim 16, provides: "The counterweight assembly of claim 16 wherein said eccentric weight portion is integral with said cylindrical gear portion, said first metal is cast steel, and said second metal is a tungsten."

As discussed above, because claim 19 would be superfluous if the phrase "connected to" meant the same thing as the term "integral," and because the presence of the limitation "integral" in claim 19 gives rise to a presumption that this limitation is not present in claim 16, the court, as noted above, construes the phrase "connected to" have a different meaning than the term "integral." However, because the claim language does not clearly define the phrase, the court turns to the specification for added insight.

The specification states that:

The counterweight **40** has a center bore **106** that extends fully through the gear portion **41** and the eccentric weight portion **43** ... The center bore **106** has an inner diameter that is slightly larger than the outer diameter of the shaft **82**, such that the center bore securely receives the shaft. The eccentric weight portion **43** has two threaded bores **108** that communicate with and are transversely oriented relative to the center bore **106**. The threaded bores **108** are adapted to receive conventional threaded lock fasteners to lock the shaft **82** within the center bore **106**, thereby securely connecting the counterweight **40** to the shaft for rotation with the shaft.

'964 Patent, col. 5, lines 37-50.

The specification further states: "At least one motor is operatively coupled to the counterweight and is adapted to rotate the counterweight to cause the vibratory forces." '964 Patent, col. 2, lines 39-42. In addition, the specification states that: "When the drive motor **42** is activated, the drive motor turns its shaft ... causing the counterweight **40** to rotate on the shaft **82** ..." '964 Patent, col. 7, lines 25-31.

In this case, neither the claim language nor the specification expressly define or describe the phrase "connected to." Nor does the specification indicate explicitly or implicitly that the patentee intended to import a novel or specialized meaning to the phrase "connected to" or the term "connected." Ordinarily, therefore, "connected" means "conjoined; fastened or linked together." Oxford English Dictionary (2d ed. 1989). In addition, the specification indicates that the word coupled is used interchangeably with "connected to" insofar as the specification uses coupled, rather than the phrase "connected to" as used in the claim language, to describe the relationship between the drive motor and the counterweight. The patent discloses no novel or specialized meaning of the word "coupled." Ordinarily, therefore, coupled means "tied, joined, linked, or associated together in pairs." Oxford English Dictionary (2d ed. 1989). Thus, while the word "coupled" appears in the specification, not in the claims, the court finds that it is meant to have the same meaning as "connected to."

Moreover, as the specification describes, and figure 4 illustrates, the shaft and counterweight are separate pieces or parts and the shaft is securely connected to the counterweight by threaded lock fasteners for rotation with the shaft upon the activation of the drive motor. The court construes this language to mean that "connected to" conveys the joining, uniting or linking of two separate pieces or parts.

Finally, to the extent that Bay asks the court to construe the term "connected to" to exclude bolting on the basis that the "'964 patent teaches that prior art having bolted counterweights are not sufficiently durable and the '964 patent does not provide any other methods of "connected to" other than casting from one-piece[,] the court declines to do so. The court need not reach this issue to construe the phrase "connected to."

Thus, the court declines to adopt either party's proposed construction of the phrase "connected to." Instead, the court construes the phrase "connected to" to mean: "**joined together, united or linked.**"

CONCLUSION

In accordance with the foregoing, and for the reasons discussed above, the court construes the parties' disputed terms and/ or phrases as follows:

1. "cylindrical gear portion" means: "**the 'gear portion' of the counterweight is a substantially cylindrical portion and has a rear face, a front face, and a plurality of gear teeth around its perimeter.**"
2. "eccentric weight portion" means: "**the bottom portion of the counterweight, which extends forward from the front face of the gear portion, containing more weight than the top portion due to its larger mass, including at least one insert-receiving area therein adapted to receive at least one solid tungsten rod.**"

3. "integral" means: **"formed or cast of one-piece."**

4. "insert-receiving area" means: **"a bore formed in the eccentric weight portion of the counterweight, which extends fully through the gear portion and fully through the eccentric weight portion of the counterweight, capable of receiving a solid tungsten rod."**

5. "connected to" means: **"joined together, united or linked."**

IT IS SO ORDERED.

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American Piledriving Equipment, Inc. v. Bay Machinery Corp.

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