

United States District Court,  
D. Maryland.

**C.M.L.,**

v.

**INECO INDUSTRIAL NAVARRA DE EQUIPOS Y COMERCIO, S.A.**

**Nov. 26, 2001.**

Patentee brought action against alleged infringer relating to patent on countermatrix for use in pipe bending machines. In construing the patent claims, the District Court, Nickerson, J., held that: (1) term "end tract" was limited to tapered area of groove and was entirely non-circular, but not "purely elliptical"; (2) term "arcuate," as it referred to cross sections of groove, included semi-circular curve of bottom of groove as well as non-circular portions of groove where it tapered toward exit edge; and (3) term "arcuate" in combination with terms "having side walls having radii of curvature" described cross-sections that were non-circular at least in part, and could include, but were not limited to, elliptical shapes.

Ordered accordingly.

5,345,802, 5,469,728. Construed.

Douglas V. Rigler, Andrews and Kurth LLP, Washington, DC, for plaintiff.

Robert J. Mathias, John Caleb Dougherty, Piper Marbury Rudnick and Wolfe LLP, Baltimore, MD, for defendants.

### ***MEMORANDUM***

**NICKERSON, District Judge.**

Plaintiff C.M.L. s.r.l. ("C.M.L.") claims, *inter alia*, that Defendants Ineco Industrial Navarra de Equipos y Comercio, S.A., and its United States distributor, Advanced Fabricating Machinery (hereinafter referred to collectively as "Ineco"), have wilfully infringed U.S. Patents Nos. 5,345,802 ("the '802 patent") and 5,469,728 ("the '728 patent"). The issue now before the Court involves the construction of certain claims within the patents. A *Markman* hearing was held on September 27, 2001, and the parties have submitted proposed conclusions of law as to the construction of the disputed terms. After consideration of the parties' positions as argued at the hearing and presented in their pleadings, the Court finds as follows:

#### **I. BACKGROUND**

The claims of the '802 and '728 patents relate generally to a countermatrix for use in pipe bending machines. The countermatrix is the portion of the machine that holds the pipe against the machine's matrix, which

rotates while the pipe is pulled through and bends the pipe in the process. The disputed claims in the patents describe the shape of the groove in the countermatrix.

The '802 patent contains two claims, but only Claim 1 is asserted by C.M.L. to be infringed. The '728 patent contains five claims, and C.M.L. asserts that Ineco has infringed all five claims. Claim 1 of the '802 patent provides as follows:

Claim 1. A shaped groove countermatrix for a rotary groove pulley matrix and a countermatrix head pipe bending machine, comprising:

a groove (10) FN1 having an exit edge (18), a semicircular cross-sectional tract with a curved surface, and an end tract (2) aligned in a direction of feed of a pipe to be bent in the groove (1) during a bending operation;

FN1. Numbers in parentheses refer to points on the illustrative figures included in the patents.

said end tract (2) being tapered, according to substantially elliptic profiles (20), both longitudinally and transversely with respect to the semicircular cross-sectional tract;  
said end tract (2) further having its cross section substantially defined by arcs (4, 4') or two ellipses with major axes (6, 6') being parallel to and slightly offset with respect to the plane (8) of longitudinal symmetry of the groove (10); and

said end tract (2) further being tapered starting from a substantially parabolic profile (14) having its line of axial symmetry lying in the plane (8) of longitudinal symmetry of the groove (10) and also having its vertex (16) spaced from the exit edge (18) of the groove (10).

Claims 1-5 of the '728 patent provide as follows:

Claim 1. A countermatrix for a pipe bending machine, the countermatrix comprising an elongated body having an elongated groove therein, the elongated body having a longitudinal axis, and the groove having arcuate cross sections in planes parallel to each other and perpendicular to said axis that decrease in radius of curvature toward one end of said elongated body.

Claim 2. A countermatrix as claimed in claim 1, said groove having circular cross-sectional configurations in planes perpendicular to said axis and parallel to each other, said circular cross-sectional configurations being of constant radius of curvature toward the other end of said elongated body.

Claim 3. A countermatrix for a pipe bending machine, comprising an elongated body having an elongated groove extending longitudinally thereof, said groove having a longitudinal axis, said groove having side walls having radii of curvature, said radii of curvature decreasing in a direction toward one end of said elongated body more rapidly than along a central portion of said body midway between the ends of said body.

Claim 4. A countermatrix as claimed in claim 3, the rate of decrease of said radii increasing in said direction upon progressively approaching said one end of said elongated body, whereby cross sections of the side walls of said groove in planes parallel to said axis are concave.

Claim 5. A countermatrix as claimed in claim 3, the rate of change of said radii from said central portion of said body toward the other end of said matrix being zero.

The parties agree on the construction of most of the terms in the disputed claims. The points of contention can be summarized as follows. As to Claim 1 of the '802 patent, the parties differ as to their proposed constructions of the terms "substantially defined by the arcs of two ellipses," and "tapered according to substantially elliptic profiles," as such terms describe the "end tract." Regarding Claims 1-5 of the '728 patent, the parties differ as to their proposed constructions of two terms: first, the term "arcuate" as it relates to the parallel cross-sections of the "groove," and second, the requirement that the groove have "side walls having radii of curvature."

## II. LEGAL STANDARD FOR CLAIM CONSTRUCTION

[1] [2] Claim construction is a question of law, to be determined by the Court. *See*, *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 976 (Fed.Cir.1995) ( *en banc* ), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). It is well established that in interpreting an asserted claim, a court should look first to the intrinsic evidence of record, i.e., the claims themselves, the specification, and the prosecution history. *See*, *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1584 (Fed.Cir.1996).

[3] The court must look first to the actual wording of the claims. *Id.* at 1584. The words of a patent claim are to be given their common and ordinary meaning. Unlike other legal writings, however, the meaning given to terms used in patent claims is the common and ordinary meaning to "one skilled in the art." *Schenck v. Nortron Corp.*, 713 F.2d 782, 787 (Fed.Cir.1983). Although words in a claim are generally given their ordinary and customary meaning, a patentee may choose to be his or her own lexicographer and use terms in a manner other than their ordinary meaning, provided that the definition of the term is clearly stated in the patent specification or the file history. *Vitronics*, 90 F.3d at 1582.

[4] The second tier of intrinsic evidence guiding the construction of claims is the language of the patent specification. *See*, *Standard Oil Co. v. American Cyanamid Co.*, 774 F.2d 448, 452 (Fed.Cir.1985). The specification functions as a dictionary to explain the claimed subject matter and define the terms used in the claims. *Minnesota Min. and Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1566 (Fed.Cir.1992). The specification is to be used only to interpret words or phrases of a patent claim, not to add to, or detract from, the language of the claims. *See*, *In re Paulsen*, 30 F.3d 1475, 1480 (Fed.Cir.1994) ( *quoting* *E.I. du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed.Cir.1988), *cert. denied*, 488 U.S. 986, 109 S.Ct. 542, 102 L.Ed.2d 572 (1988)).

[5] Finally, the court should also examine the prosecution history of the patent, that is, the public record of the proceedings before the United States Patent Office. "The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution." *Southwall Tech., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed.Cir.1995), *cert. denied*, 516 U.S. 987, 116 S.Ct. 515, 133 L.Ed.2d 424 (1995).

Guided by these principles, the Court now turns to the disputed claims.

## III. CONSTRUCTION OF CLAIMS

### A. *The '802 Patent*

[6] The heart of the parties' disagreement as to the shape of the groove described in the '802 patent is whether the "end tract" is composed of cross-sections that are non-circular throughout, or non-circular only in part. Plaintiff contends that most cross sections of the end tract would be semi-circular on the bottom (in the parabolic area that has not yet begun to taper and that retains its semi-circular shape) and "roughly elliptical on their lateral portions" where the tapering has begun. Pl.'s Brief at 5. Plaintiff then contends that cross-sections taken closest to the exit edge of the end tract would be entirely non-circular, since the semi-circular parabolic region would have ceased by that point.

Defendants disagree with Plaintiff's characterization of what comprises the "end tract." Defendants assert that the patent claims and specifications define the "end tract" only as the tapered portion of the groove, marked on the patent's Figures by cross-hatched lines. Defendants recognize that the bottom of the groove, in the parabolic area, remains semi-circular. They do not, however, agree that this area should be included in the definition of "end tract." Therefore, Defendants claim that cross-sections of the end-tract do not include any semi-circular shapes, but rather include only the shape of the tapered area, which Defendants assert is purely elliptical.

The Court agrees with Defendants that the patent claims define the "end tract" only as the tapered area marked by cross-hatched lines. The Court finds, however, that the "end tract" as defined is entirely non-circular, but not "purely elliptical."

The language of Claim 1 of the '802 patent clearly defines the end tract as the tapered area of the groove, distinct and apart from the semicircular portion of the groove. The words "end tract" in the claim are always followed by "(2)," referring to the cross-hatched network of lines in Figure 1 that represent the tapered area, in contrast to the rest of the semi-circular shaped groove. Claim 1 itself never describes the end tract as including the semicircular portion of the groove. The language of the claim is supported by the specification, which states in pertinent part:

As can be observed in FIG.1, the shaped groove countermatrix of the present invention has a semicircular section except in an end tract 2, shown by a network of lines. Such a tract, as can be observed from FIGS. 4 and 5, is tapered both in the transversal and in the longitudinal sense, according to substantially elliptical profiles.

'802 Patent, Col. 2, lines 50-55. Therefore, the actual wording of the claim, as well as the language of the specification and the illustrative embodiments, supports Defendants' position that the "end tract" describes only the tapered area of the groove, and does not include the semicircular portion in the parabolic area.

Having concluded what constitutes the end tract, the Court must now construe the shapes of the end tract's cross-sections. The Court agrees with Defendants that the end tract does not include cross-sections that are circular in part. It does not follow, however, that the cross-sections of the end tract must be elliptical, as Defendants would have it. The claim describes the end tract as "being tapered, according to substantially elliptic profiles." The term "substantially," as Plaintiffs point out in their brief, "modifies the term 'elliptical' such that the elliptical portions of the cross-sections need not describe a mathematically exact ellipse." Pl.'s Brief at 6. The Court may not construe the claim as to read out the word "substantially." Therefore, according to the plain language of Claim 1 of the '802 patent, cross-sections of the end tract, while they may not include circular arcs, are not limited to purely elliptical shapes.

## B. *The '728 Patent*

[7] [8] The '728 patent uses nearly identical specification language and identical drawings as the '802 patent, although the wording of the claims is quite different. The dispute between the parties, however, is much the same. Here too, Plaintiff argues that certain cross-sections of the groove are "non-circular in part," meaning that most cross-sections will incorporate some circular curves (on the bottom of the groove) and some non-circular curves (on the sides of the tapered portion of the groove). Only the cross-sections very near the exit edge of the groove will be entirely non-circular. Plaintiff asserts that this construction is consistent with the disputed claim language, which describes the groove's cross-sections as "arcuate" and the groove as having "side walls having radii of curvature."

Defendants contend that these disputed terms describe an end tract with cross-sections that must be non-circular and elliptical throughout. According to Defendants, the claims of the '728 patent describe a groove with two different sections; one that has circular curvature that maintains a constant radius toward one end of the groove, and another section with "arcuate" cross-sections that decrease in radii (i.e., taper) toward the other end of the groove. Defendants acknowledge that the claims themselves do not describe where one section begins and the other ends, but argue that the specification and drawings indicate that the second section is indeed the same end tract as defined in the '802 patent and as evidenced by the network of cross-hatched lines in Figure 1.

In order to construe the meaning of "arcuate" as it is used to describe the cross-sections of the groove, the Court looks first to the actual wording of Claim 1 of the '728 patent. Significantly, the term "end tract" appears nowhere in the claim. Nor does the term "elliptical." Rather, the claim describes "an elongated body having an elongated groove therein," and goes on to describe the cross sections of the groove as being "arcuate" and decreasing in radius of curvature toward one end of the groove. Unlike the wording of the '802 claim, then, this claim does not limit its description to cross-sections of the *end tract*. It follows that, in contrast to the '802 patent, cross-sections of the groove in this patent *do* include the semi-circular curve of the bottom of the groove, as well as the non-circular portions of the groove where it tapers toward the exit edge.

The next question is whether the term "arcuate," as it applies to the non-circular portions of the cross-sections, means the same thing as "elliptical." Defendants assert that the term "arcuate" must describe elliptical cross-sections, because arcuate is not defined by the claim language, and the specification and drawings describe an end tract that is defined by elliptical shapes. Def.'s Brief at 18. Plaintiff argues that the term arcuate is broader than "elliptical" or "substantially elliptical." Indeed, Plaintiff chose to use the words "substantially elliptical" to describe the cross-sections of the end tract in the '802 patent, but chose different wording in this patent. Namely, C.M.L. used neither the term "elliptical," nor the term "end tract" in the '728 patent. It is well-established that "different words or phrases used in separate claims are presumed to indicate that the claims have different meaning and scope ...." *Karlin Tech., Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968, 971-72 (Fed.Cir.1999).

According to the actual wording of the claim, then, the term "arcuate" should be construed more broadly than "substantially elliptical." Whether the language of the specification changes this construction is a close question. Defendant argues that the specification in the '728 patent (which is nearly identical to that of the '802 patent) describes an end tract with cross-sections "made up of two arcs of equal ellipses, ... which arcs are inferiorly radiused to each other by an arc of ellipse." '728 patent, Col. 2, lns. 57-61. Defendants urge that "[t]hese repeated references to elliptical shapes demonstrates that the term arcuate must describe

elliptical, and therefore, non-circular cross-sections in the end tract." Def.'s Brief at 18. The specification, however, is to be used only to interpret words or phrases of a patent claim, not to add to, or detract from, the language of the claims. *See, In re Paulsen*, 30 F.3d at 1480. Under this principle of claim construction, the Court concludes that the term "arcuate" includes, but is not limited to, elliptical cross-sections. To conclude otherwise would neglect Plaintiff C.M.L.'s choice of different language in the '728 patent.

This analysis also applies to the final disputed term, the requirement in Claim 3 that the groove have "side walls having radii of curvature." Here again, Defendants contend that this language means that the groove must have cross-sections that are elliptical and non-circular throughout. The Court finds, however, that this term, like "arcuate," does not restrict the shape of the side walls to that of an ellipse. Nothing in the claim language describe the side walls as being elliptical, and although the specification characterizes the end tract as being defined by elliptical shapes, the specification may not be used to detract from the actual wording of the claims. Therefore, the Court concludes that the term "side walls having radii of curvature" in Claim 3 does not require elliptical cross-sections.

#### **IV. CONCLUSION**

For the reasons set forth above, the Court construes the disputed terms as follows:

\* The term "end tract" as it is used in Claim 1 of the '802 patent is limited to the tapered area of the groove that is marked by cross-hatched lines on Figure 1. The "end tract" as so defined is entirely non-circular, but not "purely elliptical."

\* The term "arcuate" in Claim 1 of the '728 patent, as it refers to cross sections of the groove, includes the semi-circular curve of the bottom of the groove, as well as the non-circular portions of the groove where it tapers toward the exit edge.

\* The term "arcuate" in Claim 1 and the terms "having side walls having radii of curvature" in Claim 3 of the '728 patent describe cross-sections that are non-circular at least in part, and may include, but are not limited to, elliptical shapes.

D.Md.,2001.

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