

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* FELIX A. STREIFF

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Appeal 2007-0380  
Reexamination Control 90/007,199  
Patent 6,394,644 B1  
Technology Center 1700

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Decided: June 15, 2007

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Before ADRIENE LEPIANE HANLON, ROMULO H. DELMENDO, and  
SALLY G. LANE, *Administrative Patent Judges*.

LANE, *Administrative Patent Judge*.

DECISION ON APPEAL

**I. Statement of the case**

The patent under reexamination is US Patent 6,394,644 B1, issued on 28 May 2002 from Application 09/596,499, filed 19 June 2000. ('644 Patent).<sup>1</sup>

We have jurisdiction under 35 U.S.C. §§ 6(b) and 306.

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<sup>1</sup> The real party in interest is said to be Sulzer Chemtech AG (Br. 3).

Claims 1, 2, 5, 15-23, and 28 are rejected under 35 U.S.C. §102(b) as being anticipated by Duke, CZ 1707U (Duke).

Claims 1, 2, 5, 23 and 25-28 are rejected under 35 U.S.C. § 102(b) as being anticipated by Signer, US Patent 5,564,827 (Signer).

Claim 23 is rejected for failing to meet the written description requirement of 35 U.S.C. § 112, ¶1.

We affirm the decision of the Examiner to reject claims 1, 2, 5, 15-23, and 28 over Duke, but reverse the decision of the Examiner as to the other two rejections.

## II. Findings of fact

The record supports the following findings of fact, as well as any other findings of fact set forth in this Decision, by a preponderance of the evidence.

1. The invention is directed to a saddle element for a static mixer.
2. Claim 1, set forth below, is illustrative:

A saddle element for a static mixer comprising:

a generally ring-shaped support structure having a central axis, concentric inner and outer, radially spaced, circumferentially extending surfaces, and first and second axially spaced, generally parallel edge surfaces, said inner surface defining a fluid flow path which extends along said axis,

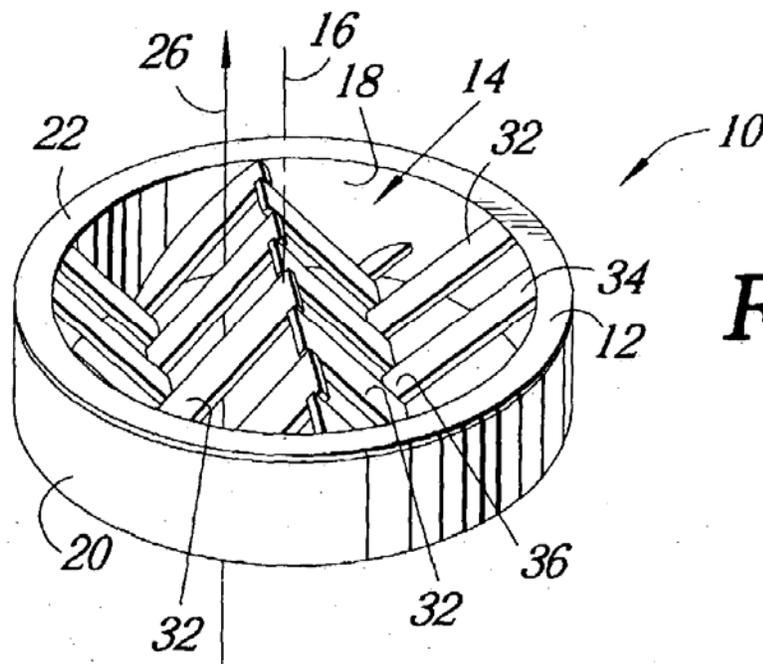
said edge surfaces being located in respective generally parallel transverse planes which are essentially perpendicular relative to said axis; and

a mixing structure located in said flow path between said edge surfaces, said mixing structure including a plurality of crossbars located in said flow path, each of said crossbars having a first end which is closer to the transverse plane of said first edge than to the

transverse plane of the second edge and a second end which is closer to the transverse plane of said second edge than to the transverse plane of the first edge,

said crossbars being arranged in at least two separate intersecting oblique planes, each of which intersecting oblique planes is disposed at an angle relative to said axis, there being a plurality of said crossbars in each said plane, which crossbars of each plane are spaced apart to provide openings for fluid flow and wherein each respective crossbar is laterally connected directly to an adjacent crossbar at respective ends thereof.

3. Figure 1 illustrates the invention and is produced below:



**FIG. 1.**

4. In Figure 1, the mixing structure is shown at 14, the inner surface is shown at 18, the outer surface is shown at 20, the support structure is shown at 12, an edge surface is shown at 22, the crossbars are shown at 32 (first end at 34 and second end at 36), the flow path is shown at

- 26, the central axis is shown at 16, all of which make up the saddle element 10.
5. As to the rejection over Duke, Streiff presents separate arguments as to claims: (a) 1, (b) 15, (c) 17, and (d) 21.<sup>2</sup>
  6. As noted by Streiff, “claim 1 requires a saddle element to have crossbars wherein ‘each respective crossbar is laterally connected directly to an adjacent crossbar at respective ends thereof’”. (Br. 14).
  7. As noted by Streiff, claim 15 “is directed to a saddle element having crossbars wherein at least two of the crossbars are arranged in intersecting oblique planes where (1) ‘two of said oblique planes intersect at a line disposed essentially in the transverse plane of said first edge...’ and (2) ‘the first ends of the crossbars of said two oblique planes being connected together near said line’.” (Br. 16).
  8. As noted by Streiff “Claim 17 is directed to a static mixer structure that comprises two of the saddle elements of claim 15 wherein the saddle elements are arranged with the second edge surfaces thereof disposed in ‘mated, contacting relationship’.” (Br. 17).
  9. Streiff further notes that “Claim 21 requires a static mixer structure to be comprised of two saddle elements which are ‘**separately mounted** on a common axis’.” (Br. 18).
  10. Claim 21 also requires the saddle elements to be arranged with the second edge surfaces thereof disposed in “mated, contacting relationship.”

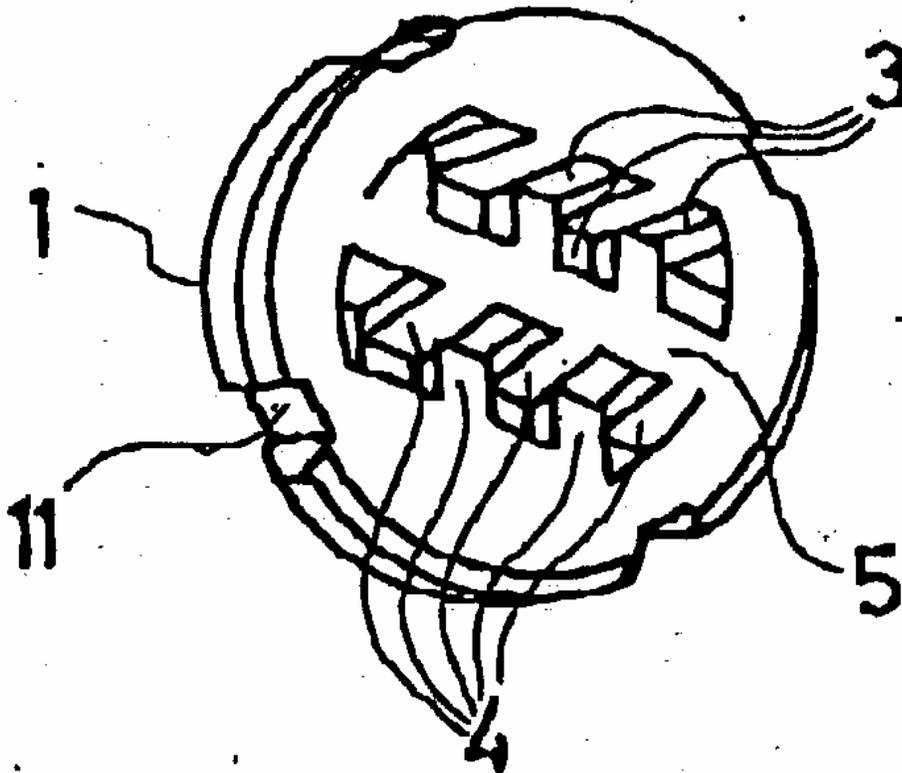
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<sup>2</sup> As to the other rejected claims, Streiff argues that these claims are not anticipated for reasons set forth as to another claim. For example, Streiff states that claims 2 and 5 are not anticipated for the same reasons expressed as to claim 1. (Br. 16).

Duke

11. Duke teaches a mixer made from “mixing plates 2 which are placed on top of one another and welded together....” (Duke 3).

12. Figure 1 of Duke, below, illustrates a mixing plate:



13. Figure 1 shows bars 4, mixing passageways between the bars 3, a transverse rib 5, an axial notch 11 and an end ring 1.

14. Duke states that the “[m]ixing plates 2 [numeral not shown in figure] are advantageously produced by the precision casting method, and in such a way that axial mixing passageways 3 are provided in the gaps

between bars 4 and produce, in each mixing plate 2, shaped angled cavities 6, which are designed in such a way that one transverse rib 5 is produced between them on the surface on one side of the mixing plate 2....” (Duke 3-4).

15. Duke further states that “[a]t least two adjacent mixing plates 2 are always superimposed on one another in such a way that the adjacent shaped angled cavities 6 produced in one mixing plate 2 form, together with the shaped angled cavities 6 in the adjacent mixing plate 2, transverse prismatic cavities 10 permitting the flow-through of the molten material ....” (Duke 4).

#### Signer

16. Signer teaches a device comprising static mixing elements.

17. As noted by the Examiner, in the device taught by Signer, not all of the crossbars are laterally connected directly to an adjacent crossbar at the respective ends of the crossbars. (Answer 16).

18. Streiff claim 25 does not require direct connection of adjacent crossbars but does require “a mixing structure located in said flow path between said edge surfaces and including a plurality of mixer components, each of said mixer components having a first end located between said edges surfaces...and a second end located between said edge surfaces” where the mixer components comprise crossbars.

19. The crossbars of Signer extend beyond the edge surfaces. (See, e.g., Fig. 4).

#### Written Description

20. Claim 23 requires that the circumferentially extended surface that extends perpendicularly relative to the axis extends perpendicularly

between the transverse planes “and substantially from one of said transverse planes to the other of said transverse planes..”.

21. Figures 1 and 4 of Streiff show the outer surface of the ring shape structure extending almost completely between the transverse planes.

### III. Legal Principles

#### Claim interpretation

During examination, claims are given their broadest reasonable construction that is consistent with the specification. *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1668 (Fed. Cir. 2000). A limitation may not be read into a claim from the specification, but it is appropriate to look to the specification to define a limitation already in the claim. *Elekta Instr. S.A. v. O.U.R. Sci. Int'l, Inc.*, 214 F.3d 1302, 1307, 54 USPQ2d 1910, 1913 (Fed. Cir. 2000).

#### 35 U.S.C. § 102

“A person shall be entitled to a patent unless .... the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States” 35 U.S.C. § 102(b).

To anticipate a claim, a prior art reference must disclose every limitation of the claimed invention, either expressly or inherently. *Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

#### Written description

Whether the inventor has provided adequate written description, either explicitly or inherently, must be determined from the disclosure considered

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as a whole. *Reiffin v. Microsoft Corp.*, 214 F.3d 1342, 1346, 54 USPQ2d 1915, 1917 (Fed. Cir. 2000). By disclosing a device that inherently has a property, that property is disclosed even if the property is not stated explicitly. *In re Smythe*, 480 F. 2d 1376, 178 USPQ 279 (CCPA 1973).

To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'

*In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

#### IV. Analysis

##### Duke

Claims 1, 2, 5, 15-23, and 28 are rejected under 35 U.S.C. § 102(b) as being anticipated by Duke.

##### *Claim 1<sup>3</sup>*

Streiff argues that Duke does not teach the limitation requiring the saddle element to have crossbars wherein “each respective crossbar is laterally connected directly to an adjacent crossbar at respective ends thereof.” Streiff argues that the figures of Duke show that each crossbar is connected, not to an adjacent crossbar, but instead to a rib 5. (Br. 14). Streiff points to the portion of the rib 5 that extends in the spaces between

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<sup>3</sup> Streiff states that claims 2, 5, 23, and 28 are not anticipated by Duke “for the same reasons expressed with respect to claim 1.” (Br. 16, 21, and 24).

the end grating 4 and the “ring” 2 as showing that the rib of Duke “do[es] not consist entirely of portions of crossbars 4...”

Streiff would have us construe the limitation “crossbar” in such a way that it cannot be part of the rib 5 of Duke. However, Streiff has directed us to nothing in its claim language or Specification that would compel such a construction. Instead we give the term its broadest reasonable interpretation which we conclude, allows for the crossbars to form a rib by the attachment of each crossbar to the end point of an adjacent crossbar.

We are not persuaded by Streiff’s argument that the rib 5 in Duke cannot be formed entirely of crossbars. When we give claim 1 its broadest reasonable construction, we see nothing in the claim that precludes the crossbars from attaching as shown in Figures 1 and 2 of Duke. As noted by the Examiner, Duke states that “...passageways 3 are provided in the gaps between bars 4 and produce, in each mixing plate 2, shaped angled cavities 6, which are designed in such a way that one transverse rib 5 is produced between them....” (Answer 19-20; Duke 3). In Duke, it is crossbars 4, attached at end points of adjacent crossbars, that produce the rib 5. To the extent it is Streiff’s argument that some portion of the Duke rib does not make up “crossbars”, we note that the claim language does not exclude that portion of the rib.

Streiff notes that the ribs of Duke, as shown in the figures, extend across the flow path and “reduce the free cross-section for a flow of material”. Streiff argues that the crossbars of its structure do not reduce the flow path and allow for the use of thinner materials. (Brief 15-16). However, as Streiff does not explain how its claims exclude the embodiment shown in the figures of Duke, we do not see how this argument is relevant.

*Claim 15<sup>4</sup>*

Regarding claim 15, Streiff argues that the crossbars of Duke “are arranged in planes that intersect at a point within a rib 5 and not in the transverse plane of the edge of the ring ....” (Brief 16). Streiff’s argument hinges on whether claim 15 precludes a construction where the crossbars attach to one another to form the rib as shown in Duke Figure 1. For reasons stated above, when we give the claim terms their broadest reasonable construction, we conclude that such a construction is not precluded. Thus, Streiff’s argument as to claim 15 fails.

*Claim 17<sup>5</sup>*

Regarding claim 17, Streiff argues that the mixing plates 2 of Duke while being in contact, are not “mated”. Streiff does not point to a definition of the term “mated” in its Specification but instead directs us to a dictionary definition of the term “mate”. Unfortunately, Streiff does not explain how the definition of “mate” precludes the construction shown in figure 4 of Duke. We note, for instance, that to mate, according to the dictionary definition provided, may mean “to join together” or “to provide a mate.” (Br. 17). Duke teaches an embodiment where mixing plates, after being placed on top of one another, may be welded together. (Duke 3). Streiff does not explain why these mixing plates would not be considered to be “mated.”

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<sup>4</sup> Streiff states that claims 16-20 are not anticipated by Duke “for the same reasons expressed with respect to claim 15”. Nonetheless, we consider, below, Streiff’s separate arguments as to claim 17. (Br. 17).

<sup>5</sup> Streiff states that claim 18 is not anticipated by Duke “for the reasons expressed above with respect to claim 17”. (Br. 16).

Streiff does not explain how the side by side arrangement of mixing plates shown in Figure 4 does not meet the claim limitation when it is given its broadest reasonable construction.

*Claim 21<sup>6</sup>*

As to claim 21, Streiff argues that Duke does not show two saddle elements that are “separately mounted on a common axis”. Streiff argues that the elements of Duke cannot be “separately mounted” because the elements are welded together. (Brief 18). However, as noted by the Examiner, the mixing plates of Duke are separately mounted “enabl[ing] the sets of mixing plates ... to be welded together.” (Duke 4). As explained by the Examiner, it is the device formed by the mounted plates, not those welded together, that is relied upon for anticipation. (Answer 21). Streiff has not explained why the superimposed mixing plates described in Duke (at 4) and seen in figure 4 of Duke are not “separately mounted” as required by claim 21. While Streiff argues that Duke does not show mounting in a blender or other equipment (Brief 18), Streiff has not shown where its own claims require mounting in equipment.

For reasons stated above, we affirm the decision of the Examiner to reject claims 1, 2, 5, 15-23, and 28 over Duke.

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<sup>6</sup> Streiff states that claim 22 is not anticipated for the same reasons that claim 21 is not anticipated. (Br. 20).

Signer

Claims 1, 2, 5, 23 and 25-28 are rejected under 35 U.S.C. § 102(b) as being anticipated by Signer.

Claims 1, 23, and 28 require that “each respective crossbar is laterally connected directly to an adjacent crossbar at respective ends thereof.”

Claims 2 and 5 depend from claim 1.

The Examiner concedes that not all of the crossbars of Signer are connected to an adjacent crossbar at endpoints. However, the Examiner reasons that since the mixing structure is defined in the claims as “including” the connected crossbars, the mixing structure may contain crossbars that are not connected at an endpoint. (Answer 16). We do not agree. We construe the claim in such a way that each crossbar within the mixing structure must be “connected directly to an adjacent crossbar at respective ends thereof”. We agree with the Examiner that the use of the term “including” allows the “mixing structure” to contain components other than crossbars. However, we construe the claim as limiting each crossbar present in the mixing structure to one that is “connected directly to an adjacent crossbar at respective ends thereof” and therefore excluding from the mixing structure any crossbars that are not connected to an adjacent crossbar at respective ends thereof. Thus, the crossbars of Signer do not meet all the requirements of claims 1, 2, 5, 23, and 28.

Claim 25

Claim 25 does not require direct connection of adjacent crossbars but does require “a mixing structure located in said flow path between said edge surfaces and including a plurality of mixer components, each of said mixer components have a first end located between said edges surfaces ... and a

second end located between said edge surfaces” where the mixer components comprise crossbars. Claims 26 and 27 depend from claim 25.

We construe claim 25 as requiring that both ends of the mixing components be located between the first and second edge surfaces 22 and 24. Thus, any component of the mixing structure must be located entirely within the first and second edges surfaces. Claim 25 defines the crossbars as being a component of the mixing structure. We thus construe the claim as requiring that the crossbars be located entirely within the first and second edge surfaces. The crossbars of Signer do not lie entirely within the first and second edge surfaces (see, e.g., Fig. 4).

Thus, the crossbars of Signer do not meet all the requirements of claims 25 through 27.

We REVERSE the Examiner’s rejection of claims 1, 2, 5, 23 and 25-28 under 35 U.S.C. § 102(b) as being anticipated by Signer.

#### Written Description

Claim 23 was rejected under 35 U.S.C. § 112, ¶1, for failing to meet the written description requirement. In particular, the Examiner finds that the limitation “said outer circumferentially extending surface extending perpendicularly between said transverse planes and substantially from one of said transverse planes to the other of said planes” is not described within the Streiff disclosure. The Examiner points to Fig. 4 where it can be seen that “the outer circumferentially extending surface is perpendicular to the transverse planes but does not reach plane 28 or 30 due to the chamfered edges”. (Answer 22). We agree with the Examiner’s characterization of Fig. 4. However, we do not construe the limitation in question as requiring that the outer circumferentially extending surface extend completely from

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one plane to another. Instead the limitation requires that the surface extends “substantially” from one plane to another. We find that at least Figures 1 and 4 provide descriptive support for the limitation by showing the outer surface 20 as extending very close to the entire distance between the transverse planes.

We REVERSE the Examiner’s rejection of claim 23 under 35 U.S.C. § 112, ¶1, for failing to meet the written description requirement.

V. Order

Upon consideration of the record and for reasons given, it is

ORDERED that the Examiner’s rejection of claims 1, 2, 5, 15-23, and 28 under 35 U.S.C. § 102(b) as being anticipated by Duke is AFFIRMED;

FURTHER ORDERED that the Examiner’s rejection of claims 1, 2, 5, 23 and 25-28 under 35 U.S.C. § 102(b) as being anticipated by Signer is REVERSED;

FURTHER ORDERED that the Examiner’s rejection of claim 23 under 35 U.S.C. § 112, ¶1, for failing to meet the written description requirement is REVERSED; and

AFFIRMED-IN-PART

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