The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 35

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte MARKUS FLEISCHLI, FELIX STREIFF and ANDREAS WALDER

_____

Appeal No. 1998-0023
Application 08/470,374

_____

ON BRIEF

_____

Before CALVERT, FRANKFORT, and BAHR, Administrative Patent Judges.

FRANKFORT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 17 through 30, which are all of the claims remaining in this application. Claims 1 through 16 have been canceled.

Appellants' invention relates to a method of admixing two or more flowable media of different viscosities. Claims 17, 21, 22, 23, 27 and 28 are representative of the subject matter on appeal and a copy of those claims is appended to this decision.

The prior art references of record relied upon by the examiner in rejecting the claims on appeal are:

Gillner et al. (Gillner)	4,590,030	May 20, 1986
Fredriksson et al. (Fredriksson)	4,861,165	Aug. 29, 1989
Miyata (Japanese Kokai)[1]	58-133823	Aug. 9, 1983

Claims 17 through 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Miyata in view of Fredriksson and Gillner.

[1] Our understanding of this foreign language document is based on a translation prepared for the U.S. Patent and Trademark Office. A copy of that translation is attached to this decision.

Claims 21 through 30 stand rejected under 35 U.S.C. § 103 as being unpatentable over Miyata in view of Gillner.

Claims 17 through 30 stand rejected under 35 U.S.C. 112, first paragraph, as being directed to a specification which, as originally filed, does not support the invention as now claimed. More particularly, the examiner urges (answer, page 5) that claims 17 and 21 recite "...cross-sectional flow area of the... mixer is taken generally perpendicular to the direction of flow through the... mixer...," without support in the specification.[2]

Rather than reiterate the examiner's statement of each of the above-noted rejections and the conflicting viewpoints advanced by the examiner and appellants regarding those

[2] This is a new ground of rejection added in the examiner's answer. While the examiner has apparently based this rejection on the "make and use" provision of 35 U.S.C. § 112, first paragraph, it is apparent to us from the explanation of the rejection that it is instead based on lack of written description, and we will so treat the rejection for purposes of this appeal.

rejections, we refer to the examiner's answer (Paper No. 24, mailed February 7, 1997) and to the supplemental examiner's answer (Paper No. 30) for the examiner's reasoning in support of the rejections and to the brief (Paper No. 23, filed January 10, 1997) and reply brief (Paper No. 27) for appellants' arguments to the contrary.

OPINION

In arriving at our decision in this appeal, we have carefully considered appellants' specification and claims (both as originally filed and as amended), the applied references, and the respective positions of the examiner and appellants regarding the issues before us on appeal. As a consequence of our review, we have made the determinations which follow.

Turning first to the examiner's rejection of claims 17 through 30 under 35 U.S.C. § 112, first paragraph, we note that the test for determining compliance with the written

description requirement of the first paragraph of § 112 is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter. See In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983). In this regard, it is important to additionally understand that the claimed subject matter does not have to be expressed in ipsis verbis in the specification in order to satisfy the description requirement of § 112 (see In re Wertheim, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976)) and that, under appropriate circumstances, the original drawings alone may be sufficient to provide the required "written description of the invention." See Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991); In re Wolfensperger, 302 F.2d 950, 956, 133 USPQ 537, 542 (CCPA 1962).

With this as our background, we turn to the examiner's characterization of the recitation in claims on appeal regarding the cross-sectional flow area of the first and

second mixers being “taken generally perpendicular to the direction of flow through said respective mixers...,” as being without support in the specification. While the examiner is correct in observing that appellants’ original specification does not expressly indicate that the cross-sectional flow areas of the first and second mixers are “taken generally perpendicular to the direction of flow through said respective mixers,” we find that we are in agreement with appellants’ arguments on pages 1 through 3 of the reply brief that these claims only recite that which one skilled in the art would have viewed as being apparent (inherent) in the original disclosure of appellants’ application. Accordingly, it is our determination that appellants’ disclosure as originally filed would have reasonably conveyed to the artisan that the inventors had possession of the now claimed subject matter at the time of filing of the present application. Thus, the examiner's rejection of claims 17 through 30 under 35 U.S.C. § 112, first paragraph, as lacking support in the originally filed disclosure will not be sustained.

Next, we turn to the prior art rejection of claims 17 through 20 under 35 U.S.C. § 103 as being unpatentable over Miyata in view of Fredriksson and Gillner. The findings of the examiner regarding the applied references and his statements regarding the combination of those references is set forth on pages 3 and 4 of the answer. Appellants have not specifically disputed the examiner's combination of the applied references, but have instead focused on the perceived deficiencies of Miyata alone in relation to the claimed subject matter.

As to independent claim 17 on appeal, appellants urge (brief, pages 9-19) that Miyata does not disclose or teach a method of admixing two flowable media wherein the static mixer used for such mixing is one which includes first and second mixers sized and designed so that the cross-sectional flow area of the second mixer is greater than the cross-sectional flow area of the first mixer. In addition, appellants argue that the static mixer apparatus of Miyata does not have static mixer elements along which the media must flow which are

"disposed along a longitudinal axis" of the mixer.

Looking at Figure 7 of Miyata, we observe that the cross-sectional flow area of the first mixer (1a) is generally equal to the cross-sectional area of the interior flow channel of that mixer minus the cross-sectional area of the shaft body (10). By comparison, the cross-sectional flow area of the second mixer (1b), at least at the inlet opening (6) and outlet (7), appears to be equal to the cross-sectional area of the interior flow channel of the mixer (1a). Thus, at the inlet opening (6) and outlet (7) of the second mixer, the cross-sectional flow area of the second mixer (1b) of Miyata is "greater than the cross-sectional flow area of the first mixer," as broadly set forth in claim 17 on appeal. We note in this regard, that claim 17 does not specify any particular location where the cross-sectional flow area of the second mixer is greater than the cross-sectional flow area of the first mixer, or that the cross-sectional flow area of the second mixer is greater than the cross-sectional flow area of the first mixer along its entire length.

As for appellants' argument that claim 17 on appeal requires the second mixer to have a plurality of static mixer elements "disposed along a longitudinal axis thereof," and that the second mixer in Miyata lacks such an arrangement because the disks (16, 17) therein are not mixer elements, but diverter plates, and the mixing elements of Miyata (small chambers 15) are arranged not along a longitudinal axis of the second mixer, but laterally thereto, in a radial direction, we also find this argument to be unpersuasive. In the first place, given the redirection of flow created by the unit bodies (14) of the disks (16, 17) as seen in Figures 1 and 7 of Miyata and the creation of flow passageways (19) defined by disks (17), we view the plurality of disks (16, 17) of Miyata as broadly being mixer elements "disposed along a longitudinal axis" of the second mixer. Moreover, even if only the small chambers (15) are viewed as the mixer elements in Miyata, we note that sets of the small chambers (15) associated with each pairing of disks (16, 17) can be viewed as being "mixer elements" and that a plurality of such mixer elements are "disposed along a longitudinal axis" of the second mixer (1b),

i.e., so that the mixer (1b) of Miyata has six sets of such "mixer elements" disposed along the longitudinal axis thereof. Thus, we do not see that this limitation in claim 17 in any way distinguishes over the mixing device and method of Miyata.

Given that appellants' arguments for the patentability of claim 17 on appeal are unpersuasive, we will sustain the examiner's rejection of that claim under 35 U.S.C. § 103. Regarding claims 18, 19 and 20 which depend from claim 17, we note that appellants have grouped these claims along with claim 17 (brief, page 4). As a result of their grouping with claim 17, we view claims 18 through 20 as falling with the independent claim and will therefore also sustain the examiner's rejection of claims 18 through 20 under 35 U.S.C. § 103.

The only other rejection for our review on appeal is that of claims 21 through 30 under 35 U.S.C. § 103 as being

unpatentable over Miyata in view of Gillner. Again, appellants have not specifically argued the examiner's combination of Miyata and Gillner, but have instead pointed out specific limitations in the claimed subject matter that they believe are not taught or suggested in the applied references. More specifically, in arguing independent claims 21 and 23 (brief, page 20), appellants have again urged that Miyata does not disclose a two-stage mixer in which the cross-sectional flow area of the second mixer is greater than that of the first mixer and in which the static mixer elements in the second stage are disposed along the longitudinal axis of the mixer or arranged longitudinally over a length of the second mixer. For the same reasons as set forth above regarding Miyata as applied against independent claim 17, we find these arguments to be unpersuasive of any error on the examiner's part here. Thus, we will sustain the examiner's rejection of claims 21 and 23 under 35 U.S.C. § 103. As a result of its grouping with claim 23, we view claim 24 as falling with the independent claim from which it depends and will therefore also sustain the examiner's rejection of claim

24 under 35 U.S.C. § 103.

As argued by appellants on pages 21-23 of their brief, dependent claims 25 and 26, as well as independent claims 22 and 28, directly or indirectly require that the cross-sectional flow area through the second mixer be substantially constant over the length of the mixer. Appellants urge that Miyata does not disclose, teach or suggest a second mixer with the required constant cross-sectional flow area over the length of the mixer. We agree, and for that reason we will not sustain the examiner's rejection of claims 22, 25, 26 and 28 on appeal under 35 U.S.C. § 103. It follows that the examiner's rejection of claims 29 and 30, which depend from independent claim 28, will also not be sustained.

The last of the claims rejected by the examiner under 35 U.S.C. § 103 based on Miyata and Gillner is independent claim 27. Appellants' arguments set forth on page 23 of their brief have convinced us that the examiner's combination of Miyata and Gillner would not result in the claimed subject

matter. Accordingly, we will not sustain the examiner's rejection of this claim under 35 U.S.C. § 103.

In light of the foregoing, the decision of the examiner rejecting claims 17 through 30 under 35 U.S.C. § 112, first paragraph, is reversed. However, the examiner's decision to reject claims 17 through 20 under 35 U.S.C. § 103 based on the combined teachings of Miyata, Fredriksson and Gillner is affirmed. The decision of the examiner to reject claims 21 through 30 under 35 U.S.C. § 103 based on the combination of Miyata and Gillner is affirmed as to claims 21, 23 and 24, but is reversed as to claims 22 and 25 through 30. Thus, the examiner's decision is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

IAN A. CALVERT	)	
Administrative Patent Judge	)	
	)	
	)	
	)	BOARD OF PATENT
CHARLES E. FRANKFROT	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
JENNIFER D. BAHR	)	
Administrative Patent Judge	)	

CEF:pgg
Townsend and Townsend and Crew LLP
Two Embarcadero Center, 8th Floor
San Francisco, CA 94111-3834

APPENDIX

17. A method of admixing at least two flowable media of different viscosities, said method comprising the steps of

directing a first flow of a high viscosity medium through a convergent orifice of a plate transverse to the flow and into a first mixer, the first mixer having a predetermined cross-sectional flow area and a plurality of static mixer elements disposed along a longitudinal axis for mixing media together, wherein the cross-sectional flow area of the first mixer is taken generally perpendicular to the direction of

flow through the first mixer;

introducing a second flow of a low viscosity medium into the convergent orifice for passage into the first mixer; and

directing media from the first mixer into a second mixer having a plurality of static mixer elements disposed along a longitudinal axis of the mixer and having a cross-sectional flow area that is greater than the cross-sectional flow area of the first mixer, wherein the cross-sectional flow area of the second mixer is taken generally perpendicular to the direction of flow through the second mixer.

21. A method of admixing at least two flowable media of different viscosities, said method comprising the steps of

directing at least two flows of media of different viscosities into a first mixer having a predetermined cross-sectional flow area and a plurality of static mixers disposed along a longitudinal axis for mixing therein, wherein said cross-sectional flow area of the first mixer is taken generally perpendicular to the direction of flow of the media through the first mixer; and

thereafter passing the media from the first mixer into a second mixer having a greater cross-sectional flow area than said first mixer, wherein the cross-sectional flow area of the second mixer is taken generally perpendicular to the direction of flow

of the media through the second mixer, said second static mixer having a plurality of static mixer elements disposed along a longitudinal axis for mixing of the media therein.

22. A method of mixing first and second fluid media of differing viscosities comprising the steps of

directing the media into a first mixer having a predetermined cross-sectional flow area and a plurality of

static mixer elements located along a longitudinal axis of the first mixer for mixing the media; and

thereafter passing the media from the first mixer into a second mixer fluidly coupled to the first mixer and having a substantially constant, cross-sectional flow area over its length which is greater than the cross-sectional flow area of the first mixer, the second mixer including a plurality of static mixer elements serially arranged between an inlet and an outlet of the second mixer for mixing the received media.

23. A method of mixing first and second fluid media of differing viscosities comprising the steps of

providing a first mixer defined by an elongated first tubular conduit having a first cross-sectional area and a plurality of static mixer elements serially arranged in the first tubular conduit over a length thereof for mixing the media;

forming a first flow of the media through the mixer elements;

flowing the first flow substantially parallel to the first tubular conduit;

with the first flow substantially completely occupying the first cross-sectional area of the conduit;

providing a second mixer defined by an elongated, second tubular conduit having an inlet in flow communication with the first tubular conduit, an outlet and a second cross-sectional area which is greater than the first cross-sectional area, and a plurality of static mixer elements arranged longitudinally over a length of the second conduit;

at the inlet of the second mixer receiving the first flow and with it forming a second flow of the media;

flowing the second flow over the length of and

substantially parallel to the second tubular conduit and the mixer elements therein; and

with the second flow substantially completely occupying the second cross-sectional area of the second conduit so that a cross-sectional flow area for the media through the second conduit is greater than the cross-sectional flow area for the media through the first conduit.

27. A method of mixing first and second fluid media of differing viscosities comprising the steps of joining first and second tubular mixing conduits end-to-end, axially flowing the fluid media to be admixed from an inlet of the first conduit to an outlet of the second conduit, providing the first and second conduits with first and second cross-sectional areas bounded by interior wall surfaces of the respective conduits which are substantially constant over respective lengths of the conduits, the second cross-sectional area being greater than the first cross-sectional area, serially arranging a plurality of first and second static mixer elements over the lengths of first and second conduits, respectively, each static mixing element extending transversely to the axes of the conduits over the entire cross-sectional area of the respective conduits; and sequentially flowing the media through the first and second conduits at respective flow rates which are inversely proportional to the first and second cross-sectional areas.

28. A method of mixing first and second fluid media of differing viscosities comprising the steps of forming a continuous flow of the media along first and second, serially-arranged portions of a confined flow path, subjecting the media in the first and second portions of the flow path to mixing action, and enlarging a cross-sectional area of the flow path in the second portion relative to a cross-sectional area of the flow path in the first portion so that the media flow along the entire second portion of the flow path at a rate which is less than a rate of flow in the first portion.