

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREW J. HINKLE, CRAIG C. MENZEMER, JANET C. SWEARINGEN,
CHARLES J. FULLER, DAVID S. BENNETT, DANIEL D. ROUP and JAMES T. BURG

Appeal No. 2000-0503
Application No. 08/902,031

HEARD: May 17, 2000

Before ABRAMS, McQUADE and BAHR, Administrative Patent Judges.
BAHR, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1, 47-88, 90-100, 102-150 and 152-156, which are all of the claims pending in this application.

BACKGROUND

The appellants' invention relates to container modules for shipping by rail, truck and ship, and for temporarily storing dry flowable product which is discharged from the container module under pressure or by gravity (specification, page 1). An important aspect of the invention is the means of attaching a tank of the container module to an external support frame. As seen in Figure 1, appellants' tank 5 is supported at its ends from above by hanger members 47 and corner gussets 51. Elongate tubular members 73 extending longitudinally along each side of the support frame 3 are welded to the tank to resist downward and outward deflection of the tank in the center with a fully loaded tank. While there may be some degree of settling of the tank 5 onto the elongate members 73, the tank is "essentially mostly" suspended by the hangers 47 (specification, page 10). Further understanding of the invention can be derived from a reading of exemplary claim 83, which appears in the appendix to the appellants' brief.

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

Gerhard	4,412,626	Nov. 1, 1983
Toth et al. (Toth)	5,353,967	Oct. 11, 1994

The following rejections are before us for review.

1. Claims 1, 48, 49, 51-58, 60, 61, 63-71, 73, 74, 76-84, 86, 87, 90-96, 98, 99, 102-109, 111, 112, 114-122, 124, 125, 127-132, 134, 135, 137-146, 148, 149 and 152-156 stand rejected under 35 U.S.C. § 103 as being unpatentable over Toth.

2. Claims 47, 50, 59, 62, 72, 75, 85, 88, 97, 100, 110, 113, 123, 126, 133, 136, 147 and 150 stand rejected under 35 U.S.C. § 103 as being unpatentable over Toth, as applied above, and further in view of Gerhard.

Reference is made to the brief and reply brief (Paper Nos. 9 and 11) and the final rejection and answer (Paper Nos. 7 and 10) for the respective positions of the appellants and the examiner with regard to the merits of these rejections.

OPINION

In arriving at our decision on the obviousness issues raised in this appeal, we have given careful consideration to the appellants' specification and claims, the teachings of the applied prior art references, the evidence supplied by appellants, and the respective positions articulated by appellants and the examiner. Having reviewed all of the evidence before us, we make the determinations which follow.

Turning first to independent claims 1, 58 and 70, for the reasons stated in our new ground of rejection, infra, under the second paragraph of 35 U.S.C. § 112 entered under the provisions of 37 CFR § 1.196(b), no reasonably definite meaning can be ascribed to certain

language (i.e., "essentially mostly") appearing in the claims. While we might speculate as to what is meant by the claim language, our uncertainty provides us with no proper basis for making the comparison between that which is claimed and the prior art as we are obliged to do. Rejections under 35 U.S.C. § 103 should not be based upon "considerable speculation as to the meaning of the terms employed and assumptions as to the scope of the claims." In re Steele, 305 F.2d 859, 862, 134 USPQ 292, 295 (CCPA 1962). When no reasonably definite meaning can be ascribed to certain terms in a claim, the subject matter does not become obvious, but rather the claim becomes indefinite. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Accordingly, we are constrained to reverse, pro forma, the examiner's 35 U.S.C. § 103 rejections of independent claims 1, 58 and 70 as well as claims 47-57, 59-69 and 71-82 which depend therefrom and are likewise indefinite. We hasten to add that this is a procedural reversal rather than one based upon the merits of the 35 U.S.C. § 103 rejections.¹

Turning next to the examiner's rejection of independent claims 83, 96 and 145 under 35 U.S.C. § 103 as being unpatentable over Toth, we note, at the outset, that appellants (see brief,

¹ We note of interest the teachings of U.S. Patent No. 4,416,384, issued November 22, 1983 to Bjurling, which is of record in this application, with regard to the suspension of a tank. Bjurling's disclosure of an arrangement comprising suspension plates 8 welded to the ends of the tank which transmit substantially all of the weight of the tank and secondary supports (saddles 5 and supports 6), wherein the tank does not come to be supported to any appreciable extent by the saddles and supports during normal use and handling (column 2, lines 28-39, and column 3, lines 5-16), appears particularly pertinent to the "essentially mostly suspending" limitations of these claims.

pages 2 and 19) have elected to argue the patentability of these claims, as well as the claims which depend therefrom, together as a group. Therefore, we shall decide the appeal of the rejections of these claims on the basis of representative claim 83, with claims 84-88, 90-100, 102-107, 145-150 and 152-156 standing or falling therewith. See In re Young, 927 F.2d 588, 590, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991); In re Wood, 582 F.2d 638, 642, 199 USPQ 137, 140 (CCPA 1978).

Toth discloses a container assembly comprising an elongated support frame 12 including a horizontally extending lower frame member 20, center longitudinal beams 16 and upright end frames comprised of vertical and horizontal end units 22 and 24, respectively; a tank (vessel 30) having a plurality of downwardly discharging hoppers 34 and an attachment means comprised of skirt rings 32, cross supports 25 and sills 23 which connects the support frame 12 and the vessel. The skirt rings are welded on one end to the upright end frames and cross supports and along a region near the other end to the vessel and the sills are welded to the center longitudinal beams of the frame and to the vessel.

In proceedings before it, the PTO applies to the verbiage of claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the appellants'

specification. In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997).

Moreover, absent an express definition in their specification, the fact that appellants can point to definitions or usages that conform to their interpretation does not make the PTO's definition unreasonable when the PTO can point to other sources that support its interpretation. Id., 127 F.2d at 1056, 44 USPQ2d at 1029.

Claim 83 requires, inter alia, "an attachment means whereby said attachment means communicates with said support frame and said tank." As the appellants' specification does not define "communicate," we interpret this term as "to be connected"² and thus conclude that the claimed attachment means is fully met by the skirt rings 32, cross supports 25 and sills 23 of Toth. Moreover, as discussed in column 2, lines 45-63, the skirt rings provide for transfer of longitudinal and bearing³ forces across a large portion of the vessel body and secondary mounting of the hopper to the frame is accomplished through the use of side sill angles welded to the center longitudinal beams for efficient transfer of bearing forces, longitudinal and transverse (lateral) forces. Thus, even if the term "communicates" is interpreted as requiring not only connection but also transmission of forces between the tank support frame and the tank, we find that the attachment means comprising skirt rings 32, cross supports 25 and sills 23 of Toth satisfies this limitation.

² Webster's New World Dictionary, Third College Edition (Simon & Schuster, Inc. 1988).

³ The term "bearing" is defined as "that bears and supports weight" (Webster's New World Dictionary, Third College Edition (Simon & Schuster, Inc. 1988)).

Toth discloses "stainless steel, aluminum or similar materials" as suitable materials for the vessel (column 2, lines 22-24). It is also apparent from Toth's disclosure in column 1, lines 52-60, and column 2, lines 13-32, that suitable materials should be corrosion-resistant, relatively light-weight and sufficiently strong to satisfy the testing requirements of organizations such as ISO and AAR. Toth does not specifically disclose 5000 series aluminum alloy and 6000 series aluminum alloy as container assembly materials, as required by claim 83. The examiner, however, concludes that the specific aluminum materials claimed would have been obvious matters of design choice in the Toth device in view of the fact that no particular criticality appears to be associated therewith (final rejection, page 3).

The appellants (brief, page 19) argue that Toth does not teach one skilled in the art that the particular aluminum alloys claimed (the 5000 and 6000 series) would indeed provide the appropriate strength, durability, heat treatability and ability to be artificially aged and welded so as to produce the claimed intermodal container. Additionally, the appellants urge on pages 3 and 4 of their reply brief that the limitation of their claims to only 30% of the large number of known aluminum alloy designations "is a teaching that [the other] 70% will not work with this intermodal container."

The appellants' argument that the limitation in claim 83 to 5000 and 6000 series aluminum alloys is a teaching that the remaining 70% of the known alloys will not work with appellants' intermodal container is not well taken. While the remaining 70% of known

aluminum alloys may fall outside the scope of the claim, this does not, in and of itself, teach that these alloys will not work with appellants' intermodal container. In fact, it is clear from appellants' specification that other types of aluminum are considered suitable materials for the container module. In particular, the specification, on pages 5 and 6, states:

[w]hile other materials could be used, the container module 1 of the invention is particularly suitable for construction essentially from aluminum. To date, container modules for dry flowable product have typically been made of steel or stainless steel. Aluminum provides an advantage in weight and corrosion resistance over steel, and in weight and cost over stainless steel. Aluminum as used herein includes aluminum alloys.

While appellants' specification and claims point to particular aluminum alloys which are suitable materials for the container module, there is no indication that these are the only aluminum materials which will work for the invention.

Appellants do not allege that the 5000 and 6000 series aluminum alloys and their properties, such as corrosion resistance, strength and density and suitability for welding, were not well known at the time of the appellants' invention.⁴ As we see it, one of ordinary skill in

⁴ Although not relied upon in this decision, we note of interest with regard to this issue "Aluminum and Aluminum Alloys" 2 Kirk-Othmer Encyclopedia of Chemical Technology, 129-137, 172-177 and 181-185 (3d ed. New York, John Wiley & Sons, Inc., 1978) and "Welding" 24 Kirk-Othmer Encyclopedia of Chemical Technology, 514-515 (3d ed. New York, John Wiley & Sons, Inc., 1984), copies of which are appended to this decision. In particular, Kirk-Othmer indicates that aluminum alloys have high strength-to-weight ratios as compared with high purity aluminum and are used in transportation and structural applications where weight saving is important (Vol. 2, page 129), aluminum and aluminum alloys are corrosion-resistant (Vol. 2, page 181), aluminum alloys 6061, 6063 and the Al-Mg alloys, which include 5000 series alloys, are used for piping and tanks in the chemical and petrochemical industries because of their resistance to corrosion and mechanical properties, lightweight and thermal conductivity (Vol. 2, page 185) and aluminum and weldable aluminum alloys are used in applications where lightness or atmospheric corrosion resistance are required, such as railroad tank cars, pressure vessels and tanks for storing chemicals and dairy products (Vol. 24, page 514).

the art would have appreciated from Toth's disclosure in column 1, lines 52-60, and column 2, lines 13-32, that suitable materials for the container apparatus should be corrosion-resistant, relatively light-weight and sufficiently strong to satisfy the testing requirements of organizations such as ISO and AAR and would have selected a "stainless steel, aluminum or similar material" possessing such features. Thus, we conclude that to have constructed the container apparatus of Toth using either 5000 series or 6000 series aluminum alloy based upon its suitability for such use in accordance with the teachings of Toth would have been obvious to one of ordinary skill in the art.⁵

For the foregoing reasons, we are satisfied that the evidence relied upon by the examiner is sufficient to establish a prima facie case of obviousness of the subject matter of claim 83.

With regard to the examiner's rejections of claims 108-144, appellants have elected not to separately argue the patentability of the dependent claims apart from independent claims 108, 121 and 132 from which they depend. Therefore, we shall decide the appeal of the rejections of these claims on the basis of representative claims 108, 121 and 132, with claims 109-120

⁵ Mere selection of a known material based upon its suitability for the intended use has been held to be obvious. See In re Leshin, 227 F.2d 197, 199, 125 USPQ 416, 418 (CCPA 1960).

standing or falling with claim 108, claims 122-131 standing or falling with claim 121 and claims 133-144 standing or falling with claim 132.⁶

With respect to each of claims 108, 121 and 132, appellants argue that Toth does not disclose the recited attachment means which communicates with said support frame and said tank. The basis for this argument, in essence, is that Toth does not indicate that the tank itself is in communication with any of the loads, nor is it used as a conduit to transmit those loads (brief, page 22).

The limitation at issue in claim 121 is "an attachment means whereby said attachment means communicates with said support frame and said tank." Claim 108 is more limited than claim 121 in that it requires

an attachment means whereby said attachment means communicates with said support frame and said tank, transmitting lateral and gravity forces which apply pressure to said tank relieving said pressure on said tank by directing said lateral and gravity forces into said end frames wherein said directing substantially reduces the localized effect of said lateral and gravity forces on said tank.

As discussed, supra, with regard to claim 83, we interpret the term "communicates" as requiring no more than connection of the attachment means to the support frame and to the tank. Moreover, as also discussed above, the container apparatus of Toth comprises an attachment means comprised of skirt rings 32, cross supports 25 and sills 23 which connect the support frame 12 and the vessel, wherein the skirt rings provide for transfer of longitudinal and

⁶ See Young and Wood.

bearing forces across a large portion of the vessel body and sills welded to the center longitudinal beams provide for efficient transfer of bearing forces, longitudinal and transverse (lateral) forces. Moreover, as discussed in column 3, lines 64-66, the skirt rings maximize the force bearing area and increase the overall strength of the unit, thereby reducing the localized effect of lateral and gravity forces on the tank. Therefore, Toth meets the communication limitation of claims 108 and 121 as well as the more limited force transmission limitations of claim 121.

With respect to claim 132, appellants (brief, page 23) urge that Toth does not disclose "gussets" as claimed. We do not agree. As the skirt rings are attached to both the horizontal end units 24 and the vertical end units 22 (column 4, lines 5-13), thereby helping to reinforce the corners of the end frames, they are "gussets"⁷ as claimed.

As to the particular aluminum alloys recited in claims 108, 121 and 132, for the reasons discussed above with regard to claim 83, we conclude that to have constructed the container apparatus of Toth using either 5000 series or 6000 series aluminum alloy based upon its suitability for such use in accordance with the teachings of Toth would have been obvious to one of ordinary skill in the art.

⁷ A "gusset" is a plate for reinforcing a corner or angle in the framework of a structure (Webster's New World Dictionary, Third College Edition (Simon & Schuster, Inc. 1988)).

Having concluded, for the reasons discussed above, that the teachings of Toth are sufficient to establish a prima facie case of obviousness⁸ of the subject matter of independent claims 83, 108, 121 and 132, we recognize that evidence of secondary considerations, when present, must be considered en route to an ultimate determination of obviousness or nonobviousness under 35 U.S.C. § 103. Accordingly, we consider anew the issue of obviousness under 35 U.S.C. § 103, carefully evaluating and weighing both the evidence relied upon by the examiner and the evidence provided by the appellants. See In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984) and Stratoflex Inc. v. Aeroquip Corp., 713 F.2d 1530, 1538, 218 USPQ 871, 879 (Fed. Cir. 1983).

Appellants (brief, page 24) argue that the declaration of Andrew J. Hinkle filed August 31, 1998 (Paper No. 6) is evidence of nonobviousness of the claimed invention over the Toth reference. While the Hinkle declaration appears far less pertinent to claims 83, 108, 121 and 132 than to claims 1, 58 and 70, we have nevertheless carefully reviewed the declaration in reaching our ultimate determination as to the obviousness of claims 83, 108, 121 and 132.

The Hinkle declaration states that the declarant performed a finite element analysis of four embodiments which fall within the scope of the invention disclosed and claimed by

⁸ Like the Court in In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992), we recognize that the concept of a "prima facie" case of obviousness is a procedural tool of patent examination which allocates the burdens of going forward as between the examiner and the appellants, and that the determinative issue regarding patentability in this, and any case based on obviousness, is whether the record as a whole, by a preponderance of the evidence with due consideration to persuasiveness of argument and secondary evidence, supports the legal conclusion that the invention claimed would have been obvious at the time the invention was made to a person having ordinary skill in the art.

appellants and determined that the percentage of load transferred through the hanging means for the examples analyzed ranged from 41% to 72% (declaration, paragraph 14). This discussion, while perhaps indicative of the breadth of appellants' disclosure with regard to the percentage of the load transferred through the hanging means, is not pertinent to the subject matter of claims 83, 108, 121 and 132, which do not specify the percentage of load supported by means of suspension or hanging of the tank. Likewise, the statement in paragraph 17 of the declaration that, in declarant's opinion, Toth does not teach a hanging means as disclosed by appellants and that the cross supports 25 would provide for a de minimis amount of support for the tank as disclosed and claimed in Toth is not commensurate in scope with claims 83, 108, 121 and 132, which do not require a "hanging means" or that the cross supports 25 provide any support, let alone more than a de minimis amount of support, for the tank.⁹ In any event, the statement of opinion in paragraph 17 of the declaration, even if pertinent to the claims, is entitled to little probative weight since it recites conclusions without any facts to buttress those conclusions. See In re Brandstadter, 484 F.2d 1395, 1395, 179 USPQ 286, 292 (CCPA 1973).

Moreover, evidence of secondary considerations are but a part of the "totality of the evidence" that is used to reach the ultimate conclusion of obviousness. See Richardson-Vicks Inc. v. Upjohn Co., 122 F.3d 1476, 1483, 44 USPQ2d 1181, 1187 (Fed. Cir. 1997).

⁹ It is well settled that evidence presented to rebut a prima facie case of obviousness must be commensurate in scope with the claims to which it pertains. In re Dill, 604 F.2d 1356, 1361, 202 USPQ 805, 808 (CCPA 1979). See also In re Grasselli, 713 F.2d 731, 743, 218 USPQ 769, 778 (Fed. Cir. 1983).

After reviewing all of the evidence before us, including the totality of the appellants' evidence, it is our conclusion that, on balance, the evidence of nonobviousness fails to outweigh the evidence of obviousness discussed above and, accordingly, the subject matter of claims 83, 108, 121 and 132 would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103 at the time the appellants' invention was made. See Id.

Therefore, we shall sustain the examiner's rejection of these claims, as well as claims 84, 86, 87, 90-96, 98, 99, 102-107, 145, 146, 148, 149 and 152-156 which stand or fall with claim 83, claims 109, 111, 112 and 114-120 which stand or fall with claim 108, claims 122, 124, 125 and 127-131 which stand or fall with claim 121 and claims 134, 135 and 137-144 which stand or fall with claim 132, under 35 U.S.C. § 103 as being unpatentable over Toth.

As appellants have not separately argued the patentability of claims 85, 88, 97, 100, 110, 113, 123, 126, 133, 136, 147 and 150 apart from claims 83, 96, 108, 121, 132 and 145 from which they depend, we shall also sustain the examiner's rejection of these claims under 35 U.S.C. § 103 as being unpatentable over Toth in view of Gerhard.

NEW GROUND OF REJECTION

Pursuant to our authority under 37 CFR § 1.196(b), we enter the following new ground of rejection.

Claims 1 and 47-82 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the appellants regard as the invention.

The phrase "essentially mostly" used in these claims is a term of degree. When a word of degree is used in a claim, it is necessary to determine whether the specification provides some standard for measuring that degree. See Seattle Box Company, Inc. v. Industrial Crating & Packing, Inc., 731 F.2d 818, 826, 221 USPQ 568, 573-74 (Fed. Cir. 1984).

In Seattle Box, the court set forth the following requirements for terms of degree:

When a word of degree is used the district court must determine whether the patent's specification provides some standard for measuring that degree. The trial court must decide, that is, whether one of ordinary skill in the art would understand what is claimed when the claim is read in light of the specification.

In the present case, we have reviewed appellants' disclosure to help us determine the meaning of the above-noted terminology. The appellants' specification states, at page 10, lines 14-16, that

[w]hile there may be some degree of settling of the tank 5 onto these elongate members 73, the tank is essentially mostly suspended by the hangers 47.

The appellants' disclosure does not provide explicit guidelines defining the terminology "essentially mostly." Furthermore, there are no guidelines that would be implicit to one skilled in the art defining the phrase "essentially mostly" as used in the claims that would enable one skilled in the art to ascertain what is meant by that phrase. While one of ordinary skill in the art might infer that "mostly" requires a majority (i.e., greater than 50%), the degree to which the term "essentially" broadens or narrows that term would require speculation. Moreover, according to the Hinkle declaration submitted by appellants on August 31, 1998 (Paper No. 6), finite element analyses performed on four examples falling within the scope of appellants' disclosure yielded suspension or hanging load percentages ranging from as low as 41% to as high as 72%. As there is no indication that the above-cited statement on page 10 of appellants' specification is limited only to certain embodiments of the invention, all of the finite element examples discussed in the Hinkle declaration would appear to fall within the scope of intermodal containers wherein the tank is "essentially mostly" suspended by the hangers 47. In view of this broad range of percentages, which includes a value under 50% and a value as high as 72%, and in the absence of explicit guidelines, we are of the opinion that a skilled person would not be able to determine the metes and bounds of the claimed invention with the precision required by the second paragraph of 35 U.S.C. § 112.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1, 47-88, 90-100, 102-150 and 152-156 under 35 U.S.C. § 103 is affirmed as to claims 83-88, 90-100, 102-150 and 152-156 but reversed as to claims 1 and 47-82. A new ground of rejection of claims 1 and 47-82 is entered pursuant to 37 CFR § 1.196(b).

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; 37 CFR § 1.196(b)

NEAL E. ABRAMS
Administrative Patent Judge

JOHN P. McQUADE
Administrative Patent Judge

JENNIFER D. BAHR
Administrative Patent Judge

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JDB:pgg
Tracey D. Beiriger
Aluminum Company of America
Alcoa Technical Center
100 Technical Drive
Alcoa Center, PA 15069-0001

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