

***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(2) is not binding precedent of the Board.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. 38

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* KEITH E. OLSON, THOMAS R. OAKES,  
DANIEL N. TALLMAN and WILLIAM G. MIZUNO

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Appeal No. 1997-0545  
Application 08/224,063

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HEARD: June 5, 2000

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Before PAK, WARREN and TIMM, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

*Decision on Appeal*

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 92 through 102 and 104 through 113 and refusing to allow claim 103 as amended subsequent to the final rejection. Claim 92 is illustrative of the claims on appeal:<sup>1</sup>

92. A process for manufacturing an improved solid cast alkaline composition, said process comprising the steps of:

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<sup>1</sup> We have reproduced claim 92 as it stands of record in the amendment of January 17, 1995 (Paper No. 25; page 2) wherein it includes the phrase “a alkali metal.”

(i) reacting an alkali metal silicate with an alkali metal hydroxide of the formula MOH, wherein M is a alkali metal, in an aqueous environment to form a reaction product; and

(ii) casting the reaction product into a mold wherein the reaction product is formed and cast without the addition of externally supplied heat and the reaction product solidifies without the use of external cooling.

The appealed claims as represented by claim 92<sup>2</sup> are drawn to a process for forming a solid, cast alkaline composition wherein the reaction of an alkali metal silicate with an alkali metal hydroxide in an aqueous environment is conducted without the addition of externally supplied heat and the reaction product is cast into a solid mold wherein it solidifies without the use of external cooling. According to appellants, the claimed process encompassed by claim 92 “provides for the rapid manufacture of a solid cast alkaline cleaning composition without melting of the cast composition” (specification, page 1).

The references relied on by the examiner are:

Olson	4,933,102	Jun. 12, 1990
Schumann et al (Schumann) <sup>3</sup> (German Offenlegungsschrift)	35 19353	Dec. 4, 1986

The examiner has advanced the following grounds of rejection on appeal:<sup>4</sup> claims 92 through 96, 100 through 102 and 105 through 113 stand under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as being obvious over Schumann; claims 92 through 106 and 108 through 113 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as being obvious over Olson; and claim 107 stands rejected under 35 U.S.C. § 103 as being unpatentable over Olson in view of Schumann.

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<sup>2</sup> Appellants state in their brief (page 5) that they “request that claims 92-113 be grouped together.” Thus, we decide this appeal based on appealed claims 92 and 107. 37 CFR § 1.192(c)(7) (1995).

<sup>3</sup> The examiner and appellants have referred to Schumann as “Henkel.” We refer in our decision to the translation of Schumann prepared by Multilingual Communications Services, Inc., and submitted by appellants in the information disclosure statement of June 7, 1991, filed in grandparent application 07/647,534 (Paper No. 3).

<sup>4</sup> The examiner withdrew the ground of rejection of claim 103 under 35 U.S.C. § 112, second paragraph, in the advisory action of July 17, 1995 (Paper No. 28).

We reverse the ground of rejection of claims 92 through 106 and 108 through 113 under 35 U.S.C. § 102(b) as being anticipated by Olson and affirm all of the other grounds of rejection.

Rather than reiterate the respective positions advanced by the examiner and appellants, we refer to the examiner's answer and to appellants' principal and reply briefs for a complete exposition thereof.

#### *Opinion*

In order to consider the issues in this appeal involved with the application of the prior art to the claimed invention encompassed by appealed claim 92 in the grounds of rejection advanced by the examiner on appeal, we first must determine the invention encompassed by this claim as it stands before us, mindful that we must give the broadest reasonable interpretation to the terms thereof consistent with appellants' specification as it would be interpreted by one of ordinary skill in this art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). In doing so, the terms in the appealed claims must be given their ordinary meaning unless another meaning is intended by appellants. *See, e.g., Morris*, 127 F.3d at 1055-56, 44 USPQ2d at 1029 ("It is the applicants' burden to precisely define the invention, not the PTO's. See 35 U.S.C. § 112 ¶ 2 [statute omitted]."); *Zletz, supra* ("During patent prosecution the pending claims must be interpreted as broadly as their terms reasonably allow. When the applicant states the meaning that the claim terms are intended to have, the claims are examined with that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art.").

The phrase of claim 92 that is at the center of the arguments submitted by appellants is "wherein the reaction product is formed and cast without the addition of externally supplied heat." We agree with the line of reasoning set forth by the examiner with respect to this phrase (answer, page 5). In this respect, we find that appellants define "the term externally supplied heat . . . [as] the intentional addition of heat to a system from a separate and independent heat source such as steam" (specification, page 9). Appellants "specifically [exclude from the definition] the addition of heat to a system caused by variances in ambient conditions and exothermic reactions occurring between reactants in the system" (*id.*). We observe from appellants' specification (page 13) and from Schumann (e.g., pages 1 ("intrinsic heating") and 8 ("self-actuated heating")) that the reaction between an alkali metal silicate and an alkali metal hydroxide is an exothermic reaction. We further observe that the term "ambient" is defined by

appellants to include “those temperatures (about 10°C to about 50°C) . . . typically encountered in the environment” (*id.*, page 7) which, of course, is a different temperature range than obtained with the exemplified intentional addition of *steam* heat in appellants’ definition.

Accordingly, we find that one of ordinary skill in this art would reasonably have interpreted the term “externally supplied heat” from the definitions in appellants’ specification to specify the intentional application of heat above about 50°C, the highest “ambient” temperature, which heat is not generated by the subject exothermic reaction. Indeed, we find in this respect, that heating the reaction mixture to about 50°C by maintaining the ingredients in an environment having this temperature is equivalent to heating the ingredients separately or combined to about 50°C, and thus such “heating” is not included within the definition of “externally supplied heat.” However, the term as defined would include heating by any means one or both of the alkali metal containing ingredients to a temperature greater than about 50°C prior to mixing wherein the initial temperature of the resulting mixture is greater than about 50°C.

Applying Schumann to the claimed process encompassed by claim 92 as we have interpreted this claim above, we must agree with the examiner that, *prima facie*, the claimed process is anticipated by or, in the alternative, obvious over the process disclosed in Schumann (answer, pages 4-7). *See, e.g., In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992); *In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990). Indeed, Schumann discloses processes for preparing solid cast alkaline compositions which include the step of reacting an alkali metal silicate with alkali metal hydroxide in an aqueous environment wherein the reaction mixture is initially heated to “45 to 48° C without influencing the thereby occurring self-actuated heating to 60 to 65° C” (page 8; see also, e.g., pages 1 and 2). In Schumann Example 1 (page 9), the reaction mixture is initially heated “to about 45°C.” Because the initial heating disclosed by Schumann is within “ambient” conditions as defined by appellants and such heating is without influence on the “self-actuated heating,” that is, heat from the exothermic reaction, it is not “externally supplied heat” as defined by appellants. Accordingly, we find, as a matter of fact, that, *prima facie*, each and every element of the claimed process encompassed by appealed claim 92 is found in Schumann and thus claim 92 is anticipated under § 102(b). *Spada, supra*. Furthermore, the lack of novelty of the claimed process encompassed by claim 92 as evinced by Schumann is, of course, “the ultimate of obviousness,” and thus

claim 92 is obvious under § 103. *In re Fracalossi*, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982).

Turning now to Olson, we find that the processes disclosed in this reference begin with the hydration of alkali metal metasilicate by heating an aqueous solution of anhydrous alkali metal metasilicate to about 35° to 99° C; allowing the temperature of this ingredient to fall below about 65° C; adding a “hydrated alkali metal condensed phosphate having water of hydration sufficient to increase the rate of the solidification of the cast composition;” cooling the mixture “to a temperature below about 55° C, preferably about 48° to 55° C;” adding other ingredients, including alkali metal hydroxides, “anytime after hydration of the metasilicate;” casting the mixture into a mold and cooling, causing solidification (col. 7, lines 1-66; see also Olson Examples 1-4). We find that one of ordinary skill in this art would have reasonably inferred from this disclosure of Olson that the temperature of the hydrated alkali metal metasilicate and hydrated alkali metal condensed phosphate mixture was initially greater than 55° C but could fall, that is, cool, to about 48° to about 55° C prior to the addition of other ingredients such as alkali metal hydroxides.<sup>5</sup>

Based on this evidence, we find that the upper portion, that is, above about 50°C, of the temperature range of about 48° to about 55°C within which the mixture of the hydrated alkali metal metasilicate and the hydrated alkali metal condensed phosphate is allowed to cool would provide “externally supplied heat” to that mixture, as we have interpreted this term above. In view of the overlap in ranges wherein external heat may and may not be supplied as specified by the definition of the claim term “externally supplied heat,” the claimed process encompassed by claim 92 is not *described* by Olson within the meaning of § 102(b), and thus we must reverse the ground of rejection under § 102(b) based on this reference (answer, pages 7-9). *See, e.g., In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990); *In re Wertheim*, 541 F.2d 257, 267, 191 USPQ 90, 100 (CCPA 1976).

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<sup>5</sup> In evaluating the teachings of Olson, we must consider the specific teachings thereof and the inferences one of ordinary skill in this art would have reasonably been expected to draw therefrom. *In re Fritch*, 972 F.2d 1260, 1264-65, 23 USPQ2d 1780, 1782-83 (Fed. Cir. 1992); *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

However, based on the evidence of the overlap in temperature ranges between the temperature range of above about 50°C in which heat can not be externally supplied as specified in the claimed process encompassed by claim 92 and the range of 48° to about 55°C in the processes taught in Olson, that includes temperatures at which the heat can be externally supplied, we find that, in the absence of a showing of criticality of the range of temperature above about 50°C, that is, about 50°C to about 55°C, for the claimed process, the claimed process encompassed by claim 92 is *prima facie* obvious as a whole over this reference. *See Woodruff, supra; Wertheim, supra.*

We similarly find on this same evidence in Olson that the claimed process encompassed by appealed claim 7 would have been *prima facie* obvious as a whole over the combined teachings of Olson and Schumann as applied by the examiner (answer, pages 9-10). Indeed, we are reinforced in view by the disclosure in Schumann that the temperature of the reaction mixture of an alkali metal silicate and an alkali metal hydroxide can initially be raised to between 45° and 48°C without influencing the exothermic reaction, and thus one of ordinary skill in this art would have found in the combination the reasonable suggestion to add the phosphonates of Schumann with the mixtures including acrylic acid polymerizates of Olson with the reasonable expectation of arriving at the claimed invention. *See In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531(Fed. Cir. 1988) (“Both the suggestion and the expectation of success must be found in the prior art, not in the applicant’s disclosure.”).

Accordingly, since the examiner has established a *prima facie* case of anticipation and obviousness of claim 92 with respect to Schumann, and a *prima facie* case of obviousness of claim 92 with respect to Olson and of claim 107 with respect to the combined teachings of Olson and Schumann, the burden of going forward has shifted to appellants to submit argument or evidence in rebuttal. In view of the argument and evidence in rebuttal presented in appellants’ main and reply briefs, the patentability of the claimed invention as a whole must again be assessed based on the record as a whole, including all the evidence of anticipation and non-anticipation and of obviousness and nonobviousness, giving due consideration to the weight of appellants’ arguments. *See, e.g., Oetiker, supra; Spada, supra.*

We have carefully considered all of appellants' arguments. We cannot subscribe to appellants' characterization of the process of Schumann as involving "heated 'melt' mixing" with the use of an "external heat source" (principal brief, pages 6-8; see also reply brief, pages 2-3 and 4-6). Indeed, Schumann discloses the range of "45 to 48° C" and teaches that it is without influence on the exothermic reaction between the alkali metal silicate and alkali metal hydroxide in an aqueous environment. Not only does this range fall within the "ambient" temperature range defined by appellants in the specification (page 7), but it is significantly below all of the maximum temperatures "attained by the reaction mixture due to an exothermic reaction" in specification "Experimental Procedure (Trials 30-57)" as reported in specification Table 9. We further observe from specification Table 9 that more than half of the reported maximum temperatures fall within the temperature range of "92 [sic, 90]-100°C" that appellants allege to form part of Schumann's own process (principal brief, page 8), but this range in fact is found in Schumann's discussion of a prior art reference (pages 4 and 8). Thus, there is no evidence that the initial heating of the reaction mixture to "45 to 48° C" as disclosed by Schumann involves melting either the reaction mixture or the reaction product as appellants allege (principal brief, page 9). Accordingly, the process disclosed by Schumann clearly anticipates the claimed invention encompassed by appealed claim 92, and the lack of novelty of the claimed process so evinced further establishes the obviousness of that process. We note here that it is well settled that arguments based on allegations of unexpected results and teaching in the reference leading away from the claimed invention are not relevant to a rejection under § 102(b). *See, e.g., Celeritas Technology Ltd. V. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522 (Fed. Cir. 1998); *Fracalossi, supra*.

With respect to Olson, we agree with appellants that there was "an addition of externally supplied heat" in the processes of this reference because, in our view, it resulted from residual heat remaining in the hydrated alkali metal silicate medium to which other ingredients were added, as we discussed above in reversing the ground of rejection under § 102(b). However, we cannot agree that such external heating due to the hydrated alkali metal silicate medium is "heated melt mixing" (principal brief, 11-12; see also reply brief, pages 5-6) and thus that the claimed invention encompassed by claim 92 is nonobvious over this reference. Indeed, here, as was the case with the appellants' characterization of the disclosure in Schumann, appellants' arguments involve the notion that the

temperature of about 55° C used in the reaction mixture of Olson is equivalent to the external heating employed in the “heated melt mixing” discussed with respect to one prior art method in their specification (page 3) and the prior art discussed in Schumann. As we found above with respect to the temperature range in Schumann, in view of the temperature range in appellants’ definition of “ambient” in the specification and the maximum temperatures reported in specification Table 9, there is no basis in the record for the submitted arguments based on “heated melt mixing.” Furthermore, we do not find in such argument any evidence of the criticality of the mixture temperature at the highest “ambient” temperature of about 50° C vis-à-vis the upper portion of the Olson range of about 48° to about 55°C, that is, of about 50° C to about 55° C. Accordingly, in the absence of a showing of the criticality of using no externally supplied heat, through “ambient” temperatures or other source, above about 50° C, that is, about 50° C to about 55° C, we must affirm the rejection under § 103 based on Olson. *See Woodruff, supra.*

We are no more persuaded by appellants’ arguments with respect to externally supplied heat with respect to the ground of rejection of claim 107 under § 103 based on the combined teachings of Olson and Schumann which are essentially the same arguments submitted with respect to these references individually (principal brief, pages 12-13). Thus, in the absence of a showing of the criticality of the temperature range as we discussed with respect to Olson above, we must also affirm this ground of rejection. *See Woodruff, supra.*

Therefore, based on our consideration of the totality of the record before us, we have weighed the evidence of anticipation and obviousness found in Schumann and the evidence of obviousness found in Olson and in the combined teachings of Olson and Schumann with appellants’ countervailing evidence of and argument for non-anticipation and nonobviousness, and conclude that the claimed invention encompassed by appealed claims 92 through 96, 100 through 102 and 105 through 113 are anticipated as a matter of fact under 35 U.S.C. § 102(b) and would have been obvious as a matter of law under 35 U.S.C. § 103 over Schumann; that claims 92 through 106 and 108 through 113 would have been obvious as a matter of law under 35 U.S.C. § 103 over Olson; and that claim 107 would have been obvious as a matter of law under 35 U.S.C. § 103 over the combined teachings of Olson and Schumann.

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Accordingly, we have affirmed all of the examiner's grounds of rejection with the exception of the ground of rejection under § 102(b) based on Olson which we have reversed.

The examiner's decision is affirmed.

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

*AFFIRMED*

CHUNG K. PAK	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
CHARLES F. WARREN	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
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