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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* TOMOYUKI KOBAYASHI

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Appeal 2018-003591  
Application 13/639,031  
Technology Center 3700

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Before STEFAN STAICOVICI, MICHELLE R. OSINSKI, and  
LEE L. STEPINA, *Administrative Patent Judges*.

STEPINA, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 25, 26, and 28–35.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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<sup>1</sup> We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Sekisui Chemical Co., Ltd. Appeal Br. 2.

<sup>2</sup> Claims 1–12 and 27 are cancelled, and claims 13–24 are withdrawn. Appeal Br. 14–16 (Claims App.); *see also* Final Act. 1.

CLAIMED SUBJECT MATTER

The claims are directed to a lining material for rehabilitating deteriorated host pipe, in particular, underground pipe. Spec. ¶ 1. Under the heading “TECHNICAL PROBLEM,” the Specification states “it is an object of the present invention to provide the lining material for rehabilitating a host pipe composed of a thermosetting resin to substitute a petroleum-based synthetic resin.” *Id.* ¶ 11.

Claim 25, reproduced below, is the sole independent claim on appeal:

25. A lining material for rehabilitating a host pipe, which comprises:

(i) a resin absorbing base material impregnated with (iii) an uncured furan resin composition; and

(ii) a liquid-tight film coating formed on one surface of said base material (i), wherein said uncured furan resin composition comprises a furan-based resin and a curing agent and has a viscosity of 830 to 3000 mPa·s and a moisture content of 10 % by weight or lower when impregnated into said resin absorbing base material, and wherein the furan-based resin is at least one selected from the group consisting of an unmodified furan resin, an epoxy-modified furan resin, a phenol-modified furan resin, an aldehyde-modified furan resin, an urea-modified furan resin and a melamine-modified furan resin.

Appeal Br. 14 (Claims App.).

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Armbruster	US 4,495,316	Jan. 22, 1985
Friedrich	US 5,799,705	Sept. 1, 1998
McCrary	US 2010/0065271 A1	Mar. 18, 2010
Yoshida	US 2013/0008625 A1	Jan. 10, 2013
Aarsleff	EP 2 141 404 A1	Jan. 6, 2010

### REJECTIONS<sup>3</sup>

I. Claims 25 and 28–34 are rejected under 35 U.S.C. § 103(a) as unpatentable over Aarsleff and McCrary.

II. Claims 26 and 35 are rejected under 35 U.S.C. § 103(a) as unpatentable over Aarsleff, McCrary, and Friedrich.

III. Claims 25 and 28–34 are rejected under 35 U.S.C. § 103(a) as unpatentable over Aarsleff, McCrary, and Yoshida.

IV. Claims 26 and 35 are rejected under 35 U.S.C. § 103(a) as unpatentable over Aarsleff, McCrary, Yoshida, and Friedrich.

V. Claims 25, 28–32, and 34 are rejected under 35 U.S.C. § 103(a) as unpatentable over Aarsleff and Armbruster.

VI. Claims 26 and 35 are rejected under 35 U.S.C. § 103(a) as unpatentable over Aarsleff, Armbruster, and Friedrich.

### OPINION

#### *Rejection I; Aarsleff and McCrary*

The Examiner finds that Aarsleff discloses many of the elements recited in claim 25, but does not disclose “the physical properties or type or species of the uncured furan resin.” Final Act. 3. To remedy this deficiency, the Examiner turns to McCrary, which, the Examiner finds, discloses another uncured furan resin which is produced as a coating material for liquid containers. *Id.* (citing McCrary ¶¶ 2–4). The Examiner

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<sup>3</sup> A rejection of claim 27 under 35 U.S.C. § 112, 4th paragraph, as being in improper dependent form is rendered moot as a result of the cancelation of this claim. *See* Final Act. 2; Advisory Act. 1.

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finds McCrary discloses that its resin has a viscosity range of within the claimed range. *Id.* (citing McCrary ¶ 107). The Examiner also finds that McCrary teaches that the moisture content of the resin affects the resin's viscosity, and that the resin can be chosen from the groups recited in claim 25. *Id.* (citing McCrary ¶¶ 88, 98). The Examiner reasons it would have been obvious to a person of ordinary skill in the art to provide the lining material disclosed by Aarsleff "with an uncured furan resin of the claimed type and viscosity range as, for example, taught by McCrary in order to provide a specific recipe for making a suitable furan resin." *Id.*

Appellant argues that the Examiner erred in relying on McCrary because this reference is non-analogous art under either prong of the analogous art test. Appeal Br. 7–10. To be analogous art and qualify as prior art in an obviousness rejection, a reference "must satisfy one of the following conditions: (1) the reference must be from the same field of endeavor; or (2) the reference must be reasonably pertinent to the particular problem with which the inventor is involved." *K-TEC, Inc. v. Vita-Mix Corp.*, 696 F.3d 1364, 1375 (Fed. Cir. 2012) (citation omitted).

*McCrary—Not in Relevant Field of Endeavor*

Appellant contends that McCrary is not in Appellant's field of endeavor because this reference relates to proppants—small particles designed to keep an induced hydraulic fracture open in an oil well. Appeal Br. 9. Appellant asserts that the field of endeavor of proppants is not the same as Appellant's field of endeavor, namely, the field of rehabilitating a host pipe. *Id.* at 8.

In response, the Examiner states "McCrary is analogous first because it is in the field of using furan resins, like the base reference to Aarsleff, and

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merely provides an example of adjusting the physical properties of furan to yield a workable resin.” Ans. 9–10.

Appellant has the better position on this point. We do not agree with the Examiner that the relative field of endeavor is “using furan resins.” Paragraph 1 of the Specification, under the heading “TECHNICAL FIELD,” states that the “invention relates to a lining material for rehabilitating a host pipe.” Although claim 25 requires a furan resin, claim 25 also includes various other limitations and descriptive language relating to components other than a furan resin. The Examiner’s characterization of the relevant field of endeavor only in terms of using furan resin omits other relevant considerations, such as the technical field described in the Specification, the requirement for “a liquid-tight film,” and the phrase “[a] lining material for rehabilitating a host pipe” in the preamble of claim 25. Based on Appellant’s Specification, the preamble of claim 25, and other limitations recited in this sole independent claim, we understand the relevant field of endeavor to be the rehabilitation of pipe.

*McCrary—Not Reasonably Pertinent to the Problem Solved*

Appellant contends “[t]here is simply no disclosure in McCrary that would indicate that a problem with which the present inventors were concerned could be solved by McCrary’s fracking materials.” Appeal Br. 9.

In response, the Examiner states that McCrary uses furan resins “to coat underground storage formations to prevent leakage which is similar to coating a deteriorated underground pipeline for rehabilitation as disclosed in [Appellant’s] Technical Field, paragraph 1 . . . and [F]igures 5 and 6.” Ans. 10. Thus, according to the Examiner, the claimed invention addresses the problem of unwanted leakage, and McCrary addresses the same problem.

Even assuming, for the sake of argument, that the problem addressed by the inventor is *unwanted leakage*, the Examiner’s finding that McCrary discloses providing a coating that prevents leakage is not supported by a preponderance of the evidence. As correctly noted by Appellant, McCrary provides proppants within well holes in order to *prevent the walls of the wells from closing*. See Appeal Br. 9 (citing McCrary ¶¶ 2–3). The Examiner does not identify any disclosure in McCrary, and we find none, in which McCrary’s proppants or any other furan-coated structure is used to *seal* an opening or prevent leakage.

Accordingly, as McCrary meets neither prong of the test set forth in *K-TEC*, we agree with Appellant that McCrary is non-analogous art. Consequently, we do not sustain the rejection of independent claim 25 and claims 28–34 depending therefrom, as unpatentable over Aarsleff and McCrary.

*Rejections II–IV; Aarsleff, McCrary, Yoshida, and Friedrich*

The Examiner relies on the same findings of fact with respect to McCrary in Rejections II–IV as discussed above. See Final Act. 4–6. Because McCrary is non-analogous art, we do not sustain Rejections II–IV.

*Rejections V and VI; Aarsleff, Armbruster, and Friedrich*

The Examiner finds that Armbruster discloses certain recited limitations of the furan resin required by independent claim 25. See Final Act. 7. Appellant contends that Armbruster is non-analogous art. Appeal Br. 10–12.

*Armbruster—Not in Relevant Field of Endeavor*

Appellant contends “Armbruster relates to ‘acid-curable resin binder compositions useful in a no-bake foundry process.’” Appeal Br. 11. In response, the Examiner states, “Armbruster is analogous because it is *in the*

*field of using furan resins*, like the base reference to Aarsleff, and merely provides an example of adjusting the physical properties of the furan to yield a workable resin.” Ans. 10 (emphasis added). Thus, the Examiner again determines the relevant field of endeavor to be “using furan resins.” As discussed above, we do not agree that this is the inventor’s field of endeavor. Rather, the inventor’s field of endeavor is the rehabilitation of pipe (a field unrelated to Armbruster). Accordingly, Armbruster does not qualify as analogous art under the first prong of the test set forth in *K-TEC*.

*Armbruster—Not Reasonably Pertinent to the Problem Solved*

Appellant argues “Armbruster is silent regarding the use of its acid-curable resin binder system to rehabilitate a host pipe, and is not reasonably pertinent to any of the problems with which the present inventors were involved with respect to the presently claimed invention.” Appeal Br. 11.

In response, the Examiner finds “[t]he furan resin in Armbruster is used to coat or rehabilitate a surface, such as a foundry mold, to enable the mold to better hold liquids.” Ans. 10. The Examiner explains, “one of ordinary skill in the art would be led to consider the type and properties of the furan coatings in Armbruster as pertinent to the furan coatings used in Aarsleff.”<sup>4</sup> *Id.*

Appellant has the better position because the Examiner’s finding that Armbruster uses furan resin to better hold liquids is not supported by a preponderance of the evidence. Rather, Armbruster teaches coating particles

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<sup>4</sup> Although the “reasonably pertinent” prong of the analogous art test requires the prior art to be reasonably pertinent to the particular problem with which the *inventor* is involved (*see K-TEC*, F.3d at 1375), the Examiner appears to base the conclusion that Armbruster is analogous art on finding that the disclosure of Armbruster is pertinent to the disclosure in Aarsleff.

that are used in mold-making in order to bind the particles together without baking. *See* Armbruster 2:9–15, 53–56, 4:58–62. Accordingly, even assuming that the problem addressed by the inventor is prevention of unwanted leakage, the Examiner has not shown that Armbruster is reasonably pertinent to the particular problem with which the inventor is involved.

For the reasons discussed above, Armbruster meets neither prong of the test set forth in *K-TEC*, and we agree with Appellant that Armbruster is non-analogous art. Accordingly, we do not sustain the rejection of independent claim 25 and claims 28–32, and 34 depending therefrom, as unpatentable over Aarsleff and Armbruster (Rejection V) or the rejection of dependent claims 26 and 35 as unpatentable over Aarsleff, Armbruster, and Friedrich (Rejection VI).

### CONCLUSION

The Examiner’s rejections are reversed.

More specifically,

### DECISION SUMMARY

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
25, 28–34	103(a)	Aarsleff, McCrary		25, 28–34
26, 35	103(a)	Aarsleff, McCrary, Friedrich		26, 35
25, 28–34	103(a)	Aarsleff, McCrary, Yoshida		25, 28–34
26, 35	103(a)	Aarsleff, McCrary, Yoshida, Friedrich		26, 35

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<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
25, 28–32, 34	103(a)	Aarsleff, Armbruster		25, 28–32, 34
26, 35	103(a)	Aarsleff, Armbruster, Friedrich		26, 35
<b>Overall Outcome</b>				25, 26, 28–35

REVERSED