

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte BEAT KILCHER, MARCO DA ROLD,
and FELIX ASCHMANN

Appeal 2008-5631
Application 10/393,119
Technology Center 3700

Decided: January 5, 2009

Before ERIC GRIMES, RICHARD M. LEBOVITZ, and JEFFREY N.
FREDMAN, *Administrative Patent Judges*.

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DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving a claim to a dental treatment device, specifically, a rubber dam with covering foil. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

Statement of the Case

Background

“A rubber dam is an auxiliary device used in dental treatments for separating the teeth under treatment from the remainder of the oral cavity” (Spec. 1:6-8). The Specification teaches that the rubber dam “allows the working area to be kept dry and relatively sterile while the patient is protected from swallowing or aspirating cooling water, drilling residues or, as the case may be, from the impact of instruments” (Spec. 1:8-12).

The Claim

Claims 1-14 are on appeal. We will focus on claims 1 and 14, which are representative and read as follows:

1. Rubber dam, comprising a covering foil, wherein the locations of the foil situated above teeth when applied in the mouth are provided with projections or depressions that are intended to be cut off to define apertures for receiving teeth therethrough, the covering foil having portions that will be positioned outwardly of a patient's dental arch relative to the projections or depressions, which portions have substantially uniform radii of curvature laterally of the dental arch, the projections or depressions each having a closed end and at least one sidewall extending therefrom, between the closed end and the covering foil, to define an interior cavity, the closed ends extending away from the covering foil.

14. A rubber dam, comprising:
a covering foil; and
a plurality of projections or depressions formed on said covering foil, said projections or depressions arranged at locations corresponding to the location of teeth in a human mouth;
said projections or depressions each having a closed end extending away from said covering foil and at least one

sidewall extending therefrom, between said closed end and said covering foil, to define an interior cavity that forms an aperture for receiving a tooth therethrough when said closed end is cut off;

said covering foil defining a substantially uniformly flat surface or a substantially uniformly convex surface except for said projections or depressions.

The prior art

The Examiner relies on the following prior art references to show unpatentability:

Craigie	US 741,890	Oct. 20, 1903
Shanel	US 4,512,742	Apr. 23, 1985
Malmin	US 5,078,604	Jan. 7, 1992
Heasley	US 2003/0190584 A1	Oct. 9, 2003

The issues

- A. The Examiner rejected claims 1-13 under 35 U.S.C. § 112, first paragraph as failing to satisfy the enablement requirement (Ans. 3-4).
- B. The Examiner rejected claims 1-13 under 35 U.S.C. § 112, first paragraph as failing to satisfy the written description requirement (Ans. 4).
- C. The Examiner rejected claims 1-4, 6, and 14 under 35 U.S.C. § 103(a) as obvious over Craigie and Malmin (Ans. 4-5).
- D. The Examiner rejected claims 5, 7, 12, and 13 under 35 U.S.C. § 103(a) as obvious over Craigie, Malmin, and Heasley (Ans. 5).
- E. The Examiner rejected claims 8-11 under 35 U.S.C. § 103(a) as obvious over Craigie, Malmin, Heasley, and Shanel (Ans. 5-6).

A. 35 U.S.C. § 112, first paragraph rejection – Enablement

The Examiner rejected claims 1-13 under 35 U.S.C. § 112, first paragraph as failing to satisfy the enablement requirement (Ans. 3-4).

The Examiner found that “[i]n claim 1, portions that will be positioned outwardly of a patient's dental arch "have substantially uniform radii of curvature laterally of the dental arch" is not described in a manner that would enable one of ordinary skill in the art” (Ans. 3).

Appellants “assert that persons skilled in such art would clearly understand how to make and use the rubber dams of the claimed invention, at least by examination of the drawing figures alone” (App. Br. 8).

In view of these conflicting positions, we frame the enablement issue before us as follows:

Did the Examiner err in finding that the disclosure of the Specification and figures failed to enable a rubber dam with “substantially uniform radii of curvature laterally of the dental arch”?

Principles of Law

When rejecting a claim under the enablement requirement of section 112, the PTO bears an initial burden of setting forth a reasonable explanation as to why it believes that the scope of protection provided by that claim is not adequately enabled by the description of the invention provided in the specification of the application; this includes, of course, providing sufficient reasons for doubting any assertions in the specification as to the scope of enablement. If the PTO meets this burden, the burden then shifts to the applicant to provide suitable proofs indicating that the specification is indeed enabling.

In re Wright, 999 F.2d 1557, 1561-62 (Fed. Cir. 1993) (*citing In re Marzocchi*, 439 F.2d 220, 223-24 (CCPA 1971)).

“Although the legal criteria of enablement and written description are related and are often met by the same disclosure, they serve discrete legal requirements.” *Capon v. Eshhar*, 418 F.3d 1349, 1360 (Fed. Cir. 2005).

“[A]n invention may be enabled even though it has not been described.” *Univ. of Rochester v. G.D. Searle & Co., Inc.*, 358 F.3d 916, 921 (Fed. Cir. 2004).

Analysis

There is no evidence on this record to support the Examiner's position regarding enablement. We agree with the Examiner that “many different curvatures are shown, and as shown, these different curvatures do not appear to be uniform” (Ans. 4). However, this simply supports the written description rejection, but does not provide any evidence or reasoning as to why a dam with a “uniform radii of curvature” could not be made.

Conclusion of Law

The Examiner erred in finding that the disclosure of the Specification and figures failed to enable a rubber dam with “substantially uniform radii of curvature laterally of the dental arch.”

B. 35 U.S.C. § 112, first paragraph rejection – Written Description

The Examiner rejected claims 1-13 under 35 U.S.C. § 112, first paragraph as failing to satisfy the written description requirement (Ans. 4).

The Examiner found that in “claim 1, portions that will be positioned outwardly of a patient's dental arch [which] ‘have substantially uniform radii of curvature laterally of the dental arch’ [are] not described” (Ans. 3). The

Examiner found that “the shown smoothly curving surfaces of Figs. 5-10 do not show a uniform radii of curvature because the curvature differs depending on the outward direction taken from the dental arch” (Ans. 6).

Appellants “assert that persons skilled in such art would clearly understand how to make and use the rubber dams of the claimed invention, at least by examination of the drawing figures alone” (App. Br. 8).

Appellants further contend that “persons skilled in the art would understand, at least from the information contained in the drawings, that Appellants had possession of the claimed invention” (*id.*).

In view of these conflicting positions, we frame the written description issue before us as follows:

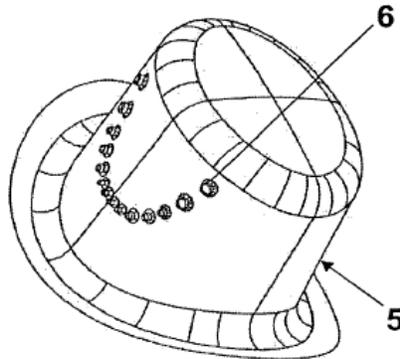
Did the Examiner err in finding that the disclosure of the Specification and figures failed to provide written description support for a rubber dam with “substantially uniform radii of curvature laterally of the dental arch”?

Findings of Fact (FF)

1. The Specification states that “the projections 11 on rubber dam 10 are arranged anatomically . . . [t]he same applies to bag 12 of the rubber dam, which is not arranged and shaped symmetrically with respect to the essentially plane rim 13, but eccentrically and obliquely” (Spec. 6:12-14).

2. Figure 5 of the Specification is reproduced below:

FIG. 5



“Fig. 5 shows cut projections in another rubber dam according to the invention” (Spec. 3:9-10).

3. The Examiner found that “[t]he newly added claim language, ‘have substantially uniform radii of curvature laterally of the dental arch’ is not supported by the disclosure as originally filed” (Ans. 4).

4. The Examiner found that “[i]n the embodiment of Figs. 2-4, no curvature is shown, and in the embodiments of Figs. 5-10, many different curvatures are shown, and as shown, these different curvatures do not appear to be uniform” (Ans. 3-4).

Principles of Law

It is the Examiner's “initial burden [to] present [] evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims.” *In re Wertheim*, 541 F.2d 257, 263 (CCPA 1976).

To satisfy the written description requirement, the inventor must “convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of *the invention*.” *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991). “One shows that one is ‘in possession’ of *the invention* by describing *the invention*, with all its claimed limitations.” *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997).

“Although [the inventor] does not have to describe exactly the subject matter claimed . . . the description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.” *In re Gosteli*, 872 F.2d 1008, 1012 (Fed. Cir. 1989).

Analysis

The Examiner has found that the Specification does not provide descriptive support for the newly added claim language that portions of the rubber dam “have substantially uniform radii of curvature laterally of the dental arch” (Claim 1). The Examiner specifically reviewed to the figures and found that they did not provide descriptive support (FF 4).

We agree. The Specification, to the extent that it discusses projections arranged around the dental arch, notes that the projections are arranged anatomically, which would not necessarily or likely have uniform radii (FF 1). This teaching by the Specification tends to teach away from the limitation at issue in claim 1. Our careful review of the figures of this Specification fails to identify any clear showing in any of the figures that “portions have substantially uniform radii of curvature laterally of the dental arch” as required by claim 1. Using figure 5 as exemplary, we find no clear

indication that the radii of curvature are “substantially uniform” lateral of the dental arch (FF 2).

We do not find convincing Appellants’ argument that “the portions of the covering foil . . . are disposed laterally of . . . the arch are clearly defined by the smoothly curving wall of the covering foil, and hence have substantially uniform radii of curvature” (App. Br. 8). Appellants do not specifically identify which portions of which figures show the “smoothly curving wall”. Additionally, it is not clear how the walls shown in figures 1-13 demonstrate “substantially uniform radii” as required by the claim. While a sphere would presumably have a uniform radius of curvature, the non-spherical shapes shown in figures 1-13 do not clearly evidence uniform radii of curvature.

In our opinion, this Specification and claims do not reasonably permit persons of ordinary skill to recognize that these inventors invented the claimed subject matter where portions of the rubber dam “have substantially uniform radii of curvature laterally of the dental arch” (Claim 1).

Conclusion of Law

The Examiner did not err in finding that the disclosure of the Specification and figures failed to demonstrate possession of a rubber dam with “substantially uniform radii of curvature laterally of the dental arch.”

C. 35 U.S.C. § 103(a) over Craigie and Malmin

The Examiner found that “Craigie shows a rubber dam comprising a foil 2 having projections ‘A’ provided at the locations of teeth . . . and that are intended to be perforated” (Ans. 4). The Examiner further found that “Craigie shows uniform flat regions on both sides of the projections, and

therefore, “shows the same radius of curvature as shown in the embodiment of Fig. 2 of the present invention” (Ans. 4). The Examiner found that “[i]t would be obvious to one of ordinary skill in the art to modify Craigie to include sidewalls as shown by Malmin as an art known equivalent way of making structures to be cut for holes for teeth” (*id.* at 4-5).

Appellants contend that “Craigie ‘890 does not teach or suggest each and every element recited in these claims, and . . . the combination of Craigie ‘890 with Malmin ‘604 teaches away from the claimed invention and therefore fails to cure these deficiencies” (App. Br. 10). Appellants further contend that

[I]f a person skilled in the art were led to modify Craigie ‘890 in view of Malmin ‘604, they would be led by Malmin ‘604 to add the special contours disclosed therein to the rubber dam of Craigie ‘890. The addition of these grooves would result in a dam which does not have portions positioned outwardly of a patient's dental arch with “substantially uniform radii of curvature laterally of the dental arch

(App. Br. 12-13).

In view of these conflicting positions, we frame the obviousness issue before us as follows:

Did the Examiner err in finding that it would have been obvious to combine the flat sheet rubber dam of Craigie with the sidewalls of Malmin?

Findings of Fact

5. Craigie teaches to use “a thin sheet of rubber perforated at intervals and force it around a tooth to exclude the saliva from the cavity under treatment” (Craigie, col. 1, ll. 21-24).

6. Craigie teaches “a series of annular ridges or projections A . . . disposed at suitable intervals corresponding to the teeth over which the dam is to be fitted. The projections may be round, oval, square or any other suitable configuration” (Craigie, col. 1, ll. 36-43).

7. The Examiner found that “Craigie shows uniform flat regions on both sides of the projections, and therefore, shows the same radius of curvature as shown in the embodiment of Fig. 2 of the present invention” (Ans. 4).

8. The Examiner acknowledged that “Craigie does not show sidewalls on the closed projections” (Ans. 4).

9. Malmin teaches “preformed, contoured dental oral barrier drape devices for isolating particular portions of a patient’s mouth and teeth” (Malmin, col. 1, ll. 7-9).

10. Malmin teaches that in the device, the “upper alveolar ridge **1** is formed with convex tooth perforation guides **3**, for example” (Malmin, col. 7, ll. 23-25).

11. The Examiner found that in figure 2, “Malmin shows sidewalls on markings 3, the closed top portions are for being cut off, and the sidewalls extend down from the closed tops” (Ans. 4).

12. Malmin teaches that “U.S. Pat. No. 741,890 issued . . . to Henry Craigie discloses a rubber dental dam having annular rings . . . [t]he annular rings are cumbersome to fit, tend to ride up over the teeth and place too much dam material in the interproximal regions. The device prevents full preparation of the crown portion of the tooth” (Malmin, col. 1, l. 64 to col. 2, l. 5).

13. Malmin teaches that “[f]lat sheet dental rubber dams are difficult to place due to the resilient nature of the materials utilized. A flat sheet does not easily adapt to the complexities and varieties of curvatures and contours of the human oral cavity” (Malmin, col. 2, ll. 30-34).

14. Malmin teaches that “the resilient nature of the rubber dam material exerts a tension in the material when stretched over a tooth . . . and requires the use of strong, spring steel clamps to retain the rubber dam in position over a tooth” (Malmin, col. 2, ll. 36-40).

15. Malmin teaches that “[i]n addition to the tendency of the rubber dam to slip off of a tooth, the use of an external peripheral frame creates additional tension in the dam material which also tends to lift the clamping device off of the tooth thereby releasing the dam” (Malmin, col. 2, ll. 40-45).

16. Malmin teaches that clamps used to hold flat sheet rubber dams in place “are often painful to the patient due to sensitive root surfaces. The clamps can incise the gingival tissues and chip or cut the surface of the root thus damaging the tooth” (Malmin, col. 2, ll. 56-60).

17. Malmin teaches that a “likelihood exists that the clamps may become detached and inadvertently be ejected from the mouth or into the throat of the patients where they have been known to lodge in the trachea and lungs or the alimentary canal and stomach” (Malmin, col. 2, ll. 60-64).

Principles of Law

As the Court in *KSR* stated,

[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary

skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. *See In re Kahn*, 441 F.3d 977, 988 (CA.Fed.2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”).

KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1740-41 (2007).

A reference is not limited to the disclosed preferred embodiments. *See Merck & Co., Inc v. Biocraft Laboratories, Inc.*, 874 F.2d 804 (Fed. Cir.), *cert. denied*, 493 U.S. 975 (1989). *Also see In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994) (“A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.”).

Analysis

Claim 1

Craigie teaches a flat rubber dam with projections that are intended to be cut off to define apertures for teeth (FF 5-7). While Craigie does not teach sidewalls (FF 8), Malmin teaches a rubber dam which reasonably contains sidewalls (FF 9-11).

Applying the *KSR* standard of obviousness to the findings of fact, we conclude that the use of the Malmin sidewalls in the flat rubber dam of Craigie represents a combination of known elements which yield the predictable “way of making structures to be cut for holes for teeth” (Ans. 5).

Such a combination is merely a “predictable use of prior art elements according to their established functions.” *KSR*, 127 S. Ct. at 1740.

Appellants argue that Malmin teaches away from the use of flat rubber dams such as those of Craigie (*see* FF 12-17). Appellants correctly point out that Malmin notes that flat rubber dams not only prevent proper exposure of teeth (FF 12), but require steel clamps to fit the contours of a mouth (FF 13-14). Malmin further teaches that clamps used to secure the flat rubber dams slip off teeth (FF 15), may cause pain to the patient (FF 16) and may enter the patient’s lungs or alimentary canal (FF 17).

We are not persuaded, however, that Malmin teaches away from the combination. “A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use.” *In re Gurley*, 27 F.3d 551, 553 (Fed.Cir.1994). “Thus, a finding that the prior art as a whole suggests the desirability of a particular combination need not be supported by a finding that the prior art suggests that the combination claimed by the patent applicant is the preferred, or most desirable, combination.” *In re Fulton* 391 F.3d 1195, 1200 (Fed. Cir. 2004).

In fact, in *Gurley*, the court found that “[e]ven reading Yamaguchi's description as discouraging use of epoxy for this purpose, Gurley asserted no discovery beyond what was known to the art.” *Gurley*, 27 F.3d at 553. Similarly, Appellants have asserted no discovery beyond what was known to Malmin and Craigie.

In the instant case, it is predictable that inclusion of the Malmin sidewalls into the Craigie rubber dam would enhance the function of the

Craigie rubber dam. “The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *KSR*, 127 S. Ct. at 1739.

Claim 14

The Examiner finds that claim 14 is obvious because “Craigie shows a uniformly flat surface” (Ans. 5). The Examiner relies upon the flat surface of Craigie in order to satisfy the limitation in claim 14 that the rubber dam comprises a “covering foil defining a substantially uniformly flat surface or a substantially uniformly convex surface except for said projections or depressions.” However, as we have discussed above, the combination of Malmin and Craigie teaches the claimed limitations.

Conclusions of Law

The Examiner did not err in finding that it would have been obvious to combine the flat sheet rubber dam of Craigie with the sidewalls of Malmin.

D. 35 U.S.C. § 103(a) over Craigie, Malmin, and Heasley

The Examiner rejected claims 5, 7, 12, and 13 under 35 U.S.C. § 103(a) as obvious over Craigie, Malmin, and Heasley (Ans. 5).

Claims 5, 7, 12, and 13 either directly or indirectly depend from claim 1. As we have affirmed the rejection of claim 1 over Craigie and Malmin, and Appellants do not identify how Heasley fails to teach the dependent claim limitations, we also affirm the rejections of these claims as well.

E. 35 U.S.C. § 103(a) over Craigie, Malmin, Heasley, and Shanel

The Examiner rejected claims 8-11 under 35 U.S.C. § 103(a) as obvious over Craigie, Malmin, Heasley, and Shanel (Ans. 5-6).

Claims 8-11 either directly or indirectly depend from claim 1. As we have affirmed the rejection of claims 1 over Craigie and Malmin, and Appellants do not identify how either Heasley nor Shanel fail to teach the dependent claim limitations, we also affirm the rejections of these claims as well.

SUMMARY

In summary, we reverse the rejection of claims 1-13 under 35 U.S.C. § 112, first paragraph, enablement. We affirm the rejection of claim 1 under 35 U.S.C. § 112, first paragraph, written description. Pursuant to 37 C.F.R. § 41.37(c)(1)(vii)(2006), we also affirm the rejection of claims 2-13 as these claims were not argued separately. We affirm the rejection of claims 1-4, 6, and 14 under 35 U.S.C. § 103(a) as obvious over Craigie and Malmin. We also affirm the rejections of claims 5 and 7-13 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(2006).

AFFIRMED

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