

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(2) is not binding precedent of the Board.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. 25

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ALLAN S. DEUTSCH and BRETT I. COHEN

Appeal No. 95-2111
Application 07/771,173¹

ON BRIEF

Before STAAB, McQUADE and CRAWFORD, Administrative Patent Judges.

CRAWFORD, Administrative Patent Judge.

DECISION ON APPEAL

¹ Application for patent filed October 3, 1991.

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This is a decision on an appeal from the examiner's final rejection of claims 1-12, which are all the claims pending in the application.

Appellants' invention is an endodontic laser. Claim 1 is exemplary of the subject matter of appeal and reads as follows:

1. An endodontic laser apparatus for removing tissue from a root canal comprising laser light generating means for providing a coherent beam of intense light into an optical fiber, said fiber adapted to conduct the laser light by internal reflection to a distal end terminating in a tip portion adapted to divert the laser light from the optical fiber in an annular pattern not extending a substantial axial distance from the tip of the fiber.

THE PRIOR ART

The following prior art references were relied on by the examiner in support of the rejections under 35 U.S.C.

§ 102(b) and 35 U.S.C. § 103:

Symonds 3, 1931	1,794,557	Mar.
Davies 1987	4,672,961	Jun. 16,
Sinofsky 1989	4,852,567	Aug. 1,
Vassiliadis et al. (Vassiliadis) 1990	4,940,411	Jul. 10,

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THE REJECTIONS

Claims 1-12 stand 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 applicants regard as the invention.

Claims 1-12 stand rejected under 35 U.S.C. § 112, first paragraph, as relying on a specification which fails to adequately teach how to make and use the invention i.e., failing to provide an enabling disclosure.

Claims 1 and 11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Sinofsky.

Claims 1 and 8 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Vassiliadis.

Claims 1-3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Davies.²

Claims 4-7 stand rejected under 35 U.S.C. § 103 as being unpatentable over Davies in view of Symonds.

² The rejection of claims 5 and 11 under 35 U.S.C. § 102(b) as anticipated by Davies made in the Final Rejection (Paper No. 4) was not repeated in the examiner's answer and thus, we assume the rejection as to these claims has been withdrawn by the examiner. Ex parte Emm, 118 USPQ 180, 181 (Bd.App. 1957).

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Claim 10 stands rejected under 35 U.S.C. § 103 as being unpatentable over Vassiliadis.

The examiner's answer contains the following new rejections:

Claim 9 stands rejected under 35 U.S.C. § 103 as being unpatentable over Vassiliadis.

Claim 12 stands rejected under 35 U.S.C. § 103 as being unpatentable over Davies.

Rather than reiterate the examiner's full statement of the above-noted rejections and the conflicting viewpoints advanced by the appellants and the examiner regarding those rejections, we make reference to the Examiner's Answer (Paper No. 13) and the Supplemental Answer (Paper No. 17) for the examiner's complete reasoning in support of the rejections and the Appellants' Brief (Paper No. 11) and Reply (Paper No. 16) for the appellants' arguments thereagainst.

OPINION

At the outset, we note that the appellants have argued that the examiner erred in designating the rejection as final. We do not have jurisdiction to decide this issue. Rather, as the examiner has pointed out in the answer, an

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applicant must petition the Commissioner to obtain review of an examiner's designation of a rejection as final.

We have carefully reviewed the appellants' invention as described in the specification, the appealed claims, the prior art applied by the examiner, and the respective positions advanced by the appellants and the examiner. As a consequence of this review, we make the determinations that follow.

We turn first to the examiner's rejection of claims 1-12 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The examiner states:

The following rejections are based on Appellants contention that the radiation exiting the Davies device "is not an annular pattern" as asserted in the response received September 21, 1992 in the first full paragraph on page 6.

All the claims are indefinite because it is unclear exactly what is to be encompassed by the term "annular".
[Examiner's Answer, page 4].

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The examiner also states that it is not clear exactly what is encompassed by the term "not extending a substantial axial distance from the tip of the fiber."

The definiteness of the language in the claims must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. In re Johnson, 558 F.2d 1008, 1015, 194 USPQ 187, 193 (CCPA 1977). Given the discussions in appellants' specification at page 4, lines 6-8, page 6, lines 22-25, page 7, lines 4-6, and page 8, lines 3-5, we believe a person of ordinary skill in the art would have interpreted and readily understood the phrase "in an annular pattern not extending a substantial axial distance from the tip of the fiber" to mean that the laser energy emerges from the fiber optic "in a pattern transverse to the axis of the fiber with virtually no laser radiation leaving apically from the tip portion of the fiber." In view of the foregoing, we will not sustain the examiner's rejection under 35 U.S.C. § 112, second paragraph, of claims 1-9 and 11-12.

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In regard to claim 10, the examiner contends that the term "its" in line 2 is indefinite as the antecedent thereof is unclear and "the full length" in line 6 lacks positive antecedent basis. Appellants do not dispute the examiner's position. Rather, appellants contend on page 8 of the amended brief that an amendment to the claims was filed and should have been entered and that had the amendment been entered it would have overcome this rejection. Since appellants have not pointed out how the examiner erred in this rejection, and have in effect acquiesced therein, we are constrained to affirm the rejection under 35 U.S.C. § 112, second paragraph, of claim 10.

We turn now to the rejection of claims 1-12 under 35 U.S.C. § 112, first paragraph. In explaining this rejection the examiner states:

Applicant's disclosure has not taught one of ordinary skill to form an "annular pattern" and has not disclosed how to prevent the intense coherent beam of light from burning away the root canal in an annular pattern [Examiner's Answer at page 5].

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It is thus apparent that the examiner's concerns are directed to the enablement rather than the description requirement of the first paragraph of 35 U.S.C. § 112.

Appellant's disclosure states on page 7 that the optical fiber end 12 has a silvered end surface so that virtually no laser radiation leaves the tip portion apically. In addition, appellant's disclosure discusses on pages 6-8 various ways to form an "annular pattern" such as by forming conical indentations on the tip portion, forming the tip portion with a bulbous region having a convex rounded external surface, doping the tip portion, and forming etch markings on the tip portion. In our view, these discussions are sufficient to teach the artisan how to prevent the laser beam from burning away the root of the tooth canal, and how to form an "annular pattern."

The examiner also contends that the specification is nonenabling because the specific energy density and application time of the laser beam is not disclosed. In our view, the Vassiliadis reference cited by the examiner against the claims demonstrates (see, for example, column 5, lines 7-16) that those of ordinary skill in the art at the time of the

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invention would have known how to choose the energy density and application time to achieve the desired outcome. As such, we will not sustain the examiner's rejection of claims 1-12 under 35 U.S.C. § 112, first paragraph.

We turn next to the examiner's rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Sinofsky. Sinofsky discloses a laser apparatus which includes a pump laser 12 for generating a beam of light of a certain wavelength, and an optical fiber 16 for carrying said light (col. 4, lines 40-42; Figure 1). The fiber conducts light to a distal end terminating in a tip portion 62. In one embodiment depicted in Fig. 4, the tip portion 62 is tapered in such a way so as to cause the light to be gradually directed outwardly (col. 6, lines 9-10; 25-30). The light is directed through a mirror 58 to crystal 52 where light of another wavelength is generated, which light of another wavelength is subsequently used to vaporize tissue.

Appellants in effect argue that because the radiation from optical fiber 16 is not used directly to remove tissue, Sinofsky does not anticipate the claimed subject matter. This argument is not persuasive. Claim 1 is set out

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in "comprising" format and thus does not preclude the presence of additional elements such as Sinofsky's second crystal 52. In addition, claim 1 does not recite that the laser light exiting the optical fiber is used directly to cut tissue. Thus, appellants' argument is not commensurate in scope with the actual scope of claim 1. In view of the foregoing, we will sustain the examiner's rejection of claim 1 as anticipated by Sinofsky.

Appellants have not presented arguments directed to the separate patentability of claim 11, thus claim 11 will stand or fall with claim 1. In re Nielson, 816 F.2d 1567, 1570, 2 USPQ2d 1525, 1526 (Fed. Cir. 1987). We will therefore sustain this rejection as it relates to claim 11 as well.

We turn next to the examiner's rejection of claims 1 and 8 as anticipated by Vassiliadis. We find that Vassiliadis discloses a dental laser assembly comprising a laser light generating means 12 that provides a beam of light into an optical fiber 22 which conducts the light to a distal end terminating in a tip portion 212 which in one embodiment depicted in Figure 10 is tapered. The examiner states:

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a tip for performing root canals and apicoectomies...which is illustrated as tapered and thus inherently produces an annular output [examiner's answer at page 6]

In our opinion, the examiner has no reasonable basis for finding that the optical tip in Vassiliades inherently produces an "annular pattern." In contrast to Sinofsky, where the gradually tapered tip 62 is expressly disclosed at col. 6, lines 25-41 as being shaped in a manner which results in light being gradually directed outwardly, no such express disclosure is found in Vassiliadis regarding the direction of light output. The examiner has provided no convincing technical explanation, and none is apparent to us, as to why the relatively bluntly tapered laser tip 212 of Vassiliadis would inherently divert laser light in an "annular pattern" as called for by claim 1. In this regard, and in contrast to the examiner, we do not view Sinofsky as establishing that a tapered tip will necessarily produce an "annular pattern." Accordingly, the examiner's position regarding the inherent characteristics of Vassiliadis is not well founded. It follows that we cannot sustain the examiner's anticipation rejection of claims 1 and 8 based thereon.

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We will now address the rejection of claims 1-3 under 35 U.S.C. § 102(b) as anticipated by Davies. We find Davies discloses laser apparatus comprising a laser light generating means 21 which directs a beam of light into optical fibers 19 (Figure 1). The optical fibers conduct laser light to a distal end 46 terminating in a tip portion which is adapted to divert laser light from the optical fiber in an "annular pattern" (Figure 3). In view of the foregoing, we find that Davies discloses each and every element of claim 1.

Appellants argue that Davies does not disclose an apparatus that is capable of cutting precisely to the end of a finite channel. We do not find this argument persuasive because it is not commensurate with the actual scope of claim 1 which does not recite that the apparatus is capable of cutting precisely to the end of a finite channel. Thus, we will sustain the examiner's rejection of claim 1 under 35 U.S.C. § 102(b) as anticipated by Davies.

As appellants have not argued the separate patentability of claims 2-3, these claims will stand or fall with claim 1 and thus we will sustain the rejection as these

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claims as well. See Nielson, 816 F.2d at 1570, 2 USPQ2d at 1526.

We turn now to the examiner's rejection of claims 4-7 under 35 U.S.C. § 103 as being unpatentable over Davies in view of Symonds. We find that Symonds discloses a quartz rod for use with ultra-violet lamps in which the lateral portions are formed to distribute rays evenly through the sides (Page 1, lines 13-15). In two embodiments depicted in Figures 4 and 11, the lamp has a convex bulbous termination.

It is the examiner's opinion that:

It would have been obvious to the artisan or ordinary skill to configure the end of the Davies radiator as taught by Symonds, since these are equivalents... [Examiner's Answer at page 7].

Appellants argue that there is no suggestion to combine the teachings of Symonds and Davies. We find ourselves in agreement with appellants that there is no suggestion to combine the teachings of Davies and Symonds. The lateral portions of the lamp disclosed in Symonds are formed to distribute rays evenly through the sides (Page 1, lines 13-15). The device in Davies is configured to focus the laser energy on a focal point 37 (Col. 2, lines 66-67). As

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Davies does not desire to distribute rays evenly, there would be no reason for a person of ordinary skill in the art to modify the Davies structure so as to obtain this result. In view of the foregoing, we will not sustain the rejection under 35 U.S.C. § 103 of claims 4-7 as unpatentable over Davies in view of Symonds.

We will now address the rejection of claims 9 and 10 under 35 U.S.C. § 103 as unpatentable over Vassiliadis.

Claim 9 (by its dependence on claim 1) and claim 10 recite that the laser light is diverted from the optical fiber in an annular pattern. We have found above, that the optical tip of Vassiliades does not inherently produce an "annular pattern." We also discern no suggestion in Vassiliades of forming an "annular pattern." As such, we will not sustain this rejection.

Finally, we address the examiner's rejection of claim 12 under 35 U.S.C. § 103 as unpatentable over Davies.

It is the examiner's opinion that:

Davies teaches a method such as claimed except for the recitation of the step of inserting the fiber into the full length of the channel to its optical tip. It would have been obvious to the artisan of

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ordinary skill to, when treating lesions in a fully occluded artery, to insert the device the full length of the channel, thereby allowing treatment of the largest portion of the occlusion possible and subsequent treatment of the full occlusion with a larger diameter catheter, thus producing a method such as claimed.
[Examiner's Answer at pages 8-9].

The appellants argue in the Reply that there is nothing to suggest the step of "withdrawing the optical fiber from the channel while the laser is energized." We agree with the appellants and thus we will not sustain this rejection.

In summary,

(1) The examiner's 35 U.S.C. § 112, second paragraph, rejection of claims 1-9 and 11-12 is not sustained.

(2) The examiner's 35 U.S.C. § 112, second paragraph, rejection of claim 10 is sustained.

(3) The examiner's 35 U.S.C. § 112, first paragraph rejection of claims 1-12 is not sustained.

(4) The examiner's 35 U.S.C. § 102(b) rejection of claims 1 and 11 as anticipated by Sinofsky is sustained.

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(5) The examiner's 35 U.S.C. § 102(b) rejection of claims 1 and 8 as anticipated by Vassiliadis is not sustained.

(6) The examiner's 35 U.S.C. § 102(b) rejection of claims 1-3 as anticipated by Davies is sustained.

(7) The examiner's 35 U.S.C. § 103 rejection of claims 4-7 over Davies in view of Symonds is not sustained.

(8) The examiner's 35 U.S.C. § 103 rejection of claims 9 and 10 over Vassiliades is not sustained.

(9) The examiner's 35 U.S.C. § 103 rejection of claim 12 over Davies is not sustained.

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

AFFIRMED-IN-PART

LAWRENCE J. STAAB)
Administrative Patent Judge)
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