

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 30

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte VICTOR I. CHORNENKY  
and  
MICHAEL R. FORMAN

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Appeal No. 2002-2152  
Application No. 08/701,764

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ON BRIEF

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Before ABRAMS, BARRY, and DELMENDO, Administrative Patent Judges.

DELMENDO, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 (2002) from the examiner's final rejection of claims 1 through 7, 9 through 21, 38 through 45, and 62 through 66, which are all the claims pending in the above-identified application.<sup>1</sup>

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<sup>1</sup> In reply to the final Office action mailed Jan. 17, 2001 (paper 21), the appellants submitted an amendment pursuant to 37 CFR § 1.116 (2001) on Mar. 19, 2001 (paper 23), proposing a change to claim 11. The examiner indicated that this amendment

The subject matter on appeal relates to a catheter for emitting x-ray radiation in a vascular system. Further details of this appealed subject matter are recited in representative claims 1 and 11, which are the only independent claims on appeal, reproduced below:

1. A catheter for emitting x-ray radiation in a vascular system, the catheter comprising:  
a flexible catheter shaft having a distal end;  
an x-ray unit coupled to the distal end, wherein the x-ray unit comprises an anode, a cathode, an insulator having an external surface, and a conductive coating on the external surface of the insulator, wherein the anode and cathode are coupled to the insulator to define a vacuum chamber and the conductive coating is electrically connected to the cathode.

11. An x-ray catheter comprising:  
a flexible catheter shaft for being advanced through lumens of the vascular system, the catheter shaft having a distal end;  
an x-ray unit coupled to the distal end, the x-ray unit comprising an anode, a cathode, an insulator having an external surface, and a conductive coating on the insulator, wherein the anode and cathode are coupled to the insulator to define a vacuum chamber.

The examiner relies on the following prior art references as evidence of unpatentability:

Forde et al. (Forde)	1,881,448	Oct. 11, 1932
Parker et al. (Parker)	5,090,043	Feb. 18, 1992

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has been entered for purposes of this appeal. (Advisory action mailed Mar. 22, 2001, paper 23.)

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Kittrell et al. (Kittrell)	5,290,275	Mar. 1, 1994
Tang et al. (Tang)	5,729,583	Mar. 17, 1998 (filed Sep. 29, 1995)

Claims 1 through 5, 10 through 16, 18 through 21, 38, 43, and 64 through 66 on appeal stand rejected under 35 U.S.C. § 103 as unpatentable over Parker in combination with Forde and Tang. (Examiner's answer mailed Oct. 24, 2001, paper 28, page 4.) In addition, claims 6, 7, 9, 17, 39 through 42, 44, 45, 62, and 63 on appeal stand rejected under 35 U.S.C. § 103 as unpatentable over Parker in combination with Forde, Tang and Kittrell. (Id. at pages 4-5.)

We reverse these rejections for essentially those reasons set forth in the appeal brief filed Jul 2, 2001 (paper 27).

Rejection Based on Parker, Forde, and Tang

To properly reject claims under 35 U.S.C. § 103 as prima facie obvious in view of a combination of prior art references, an examiner must consider, inter alia, two factors: (1) whether the prior art would have suggested to one of ordinary skill in the art to make the claimed composition or carry out the claimed process; and (2) whether the prior art would also have revealed that, in so making or carrying out, the person of ordinary skill would have had a reasonable expectation of success. In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991)

(citing In re Dow Chemical Co., 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988)). Both the suggestion and reasonable expectation of success must be founded in the prior art, not in applicants' disclosure. Id.

Here, it is our judgment that the examiner has not identified the requisite motivation, suggestion, or teaching in the prior art references to combine the references. Moreover, even if the references could be combined in the manner as suggested by the examiner, the combination would not result in the claimed invention.

Parker, the principal prior art reference, describes an apparatus for treating tumors by low energy, highly absorbable, polychromatic x-rays, which are produced by small x-ray micro-tubes placed within, or adjacent to, a patient's body in close proximity to, or within, a tumor. (Column 1, lines 7-13.) According to Parker, the x-ray tube may comprise an evacuated glass tube 22, a heated filament cathode 24, and an anode 26. (Column 7, line 68 to column 8, line 6; Figure 8a.) Parker further discloses a liquid-cooled micro-tube assembly 84 including a filament cathode 86 supported by a filament support structure 88 within an evacuated glass tube 90, which may be the x-ray tube described in Figure 8a. (Column 10, lines 6-18; Figure 10.)

The examiner admits that Parker does not describe a conductive coating as recited in the appealed claims. (Answer, page 4.) Nevertheless, the examiner attempts to make up for this difference by relying on the teachings of Forde and Tang. Specifically, the examiner held (id.):

Forde et al teach providing a conductive shroud around a distal cathode (see figure 8, element 21, lines 11-98 on page 3 thereof). Tang et al teach providing an electrode as a coating on the surface of an insulator (see figure 3a and column 4, lines 12-34, wherein the anode is formed as a coating). It would have been obvious to form the conductor as a coating on the insulator, since this is a known structure which supports and fixes the conductor and to provide a distal cathode with a conductive shroud in the form of a coating, since this confines the electric field and to couple the outer conductor of a coaxial cable to the cathode, since this is a standard configuration and prevents interference with the signal to the anode, thus producing a device such as claimed.

This position lacks merit. The examiner has not identified any acceptable reasoning or objective evidence to support the notion that one of ordinary skill in the art would have been led to combine the teachings of Parker, Forde, and Tang. In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("T]he best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references."); In re Rouffet, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998) ("T]he

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Board must explain the reasons one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious."); In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) ("teachings of references can be combined only if there is some suggestion or incentive to do so.") (quoting ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984)); In re Warner, 397 F.2d 1011, 1016, 154 USPQ 173, 177 (CCPA 1967) ("Where the invention sought to be patented resides in a combination of old elements, the proper inquiry is whether bringing them together was obvious and not, whether one of ordinary skill, having the invention before him, would find it obvious through hindsight to construct the invention from elements of the prior art.").

While the examiner would have us believe that "[i]t would have been obvious to form the conductor as a coating on the insulator, since this is a known structure which supports and fixes the conductor and to provide a distal cathode with a conductive shroud in the form of a coating..." (answer, page 4), this position is not based on any objective evidence. In re Lee, 277 F.3d 1338, 1343, 61 USPQ2d 1430, 1433 (Fed. Cir. 2002).

Even assuming that there is some motivation in the prior art to combine the references, the combination would not result

in the claimed invention. In particular, Forde describes an x-ray device for diagnosing and treating lesions of a pathological nature occurring with various body cavities or orifices of the human body. (Page 1, lines 44-54.) Although Forde discloses a "thin-walled molybdenum cup 21" (element 21, Figure 8), there is no teaching in this reference of a "conductive coating on the external surface of the insulator, wherein...the conductive coating is electrically connected to the cathode," as required by the appealed claims.

Tang's teachings are equally ineffective to support the examiner's position. Tang describes an x-ray head including an evacuated chamber in which an anode and a cathode are disposed and electrical connections from the anode to the cathode extend through the wall of the evacuated chamber. (Column 2, lines 2-7.) Tang teaches: "The anode 12 may be a metal foil separate from the wall 10 or may be a metal film deposited on a part of the inside surface of the wall 10 by vacuum evaporation or another known technique." (Column 4, lines 24-27.) Like Forde, however, Tang lacks any teaching with respect to a "conductive coating on the external surface of the insulator, wherein...the conductive coating is electrically connected to the cathode," as required by the appealed claims.

For these reasons, we hold that the examiner has not made out a prima facie of obviousness within the meaning of 35 U.S.C. § 103. In re Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984).

Rejection Based on Parker, Forde, Tang, and Kittrell

The examiner's basic position is (answer, page 5):

It would have been obvious to the artisan of ordinary skill to include a catheter centering means and a guidewire channel since these are not critical, are well known features for catheters and provide no unexpected result and to provide the claimed dosage and coaxial cable, since these are not critical, thus producing a device and as claimed.

Again, the examiner's conclusion is not based on any objective evidence. Moreover, the examiner's position does not address the fundamental deficiency in the combination of Parker, Forde, and Tang with respect to the conductive coating recited in the appealed claims.

Accordingly, we cannot uphold this rejection.

Summary

In summary, we reverse the examiner's rejections under 35 U.S.C. § 103 of: (i) claims 1 through 5, 10 through 16, 18 through 21, 38, 43, and 64 through 66 as unpatentable over Parker in combination with Forde and Tang; and (ii) claims 6, 7, 9, 17, 39 through 42, 44, 45, 62, and 63 as unpatentable over Parker in combination with Forde, Tang, and Kittrell.

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The decision of the examiner to reject the appealed claims  
is reversed.

REVERSED

NEAL E. ABRAMS	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
	)	BOARD OF PATENT
LANCE LEONARD BARRY	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
	)	
ROMULO H. DELMENDO	)	
Administrative Patent Judge	)	

rhd/vsh

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