

United States Court of Appeals for the Federal Circuit

97-1229
(Serial No. 08/162,572)

IN RE CREG W. DANCE, JOHN V. HOEK
and VICTOR R. BLACKLEDGE

Grady J. Frenchick, Stroud, Stroud, Willink Thompson & Howard, of Madison, Wisconsin, argued for appellants Dance, et al. Of counsel on the brief was Karen B. King.

David J. Ball, Jr., Associate Solicitor, Office of the Solicitor, Arlington, Virginia, argued for appellee, Commissioner of Patents and Trademarks. With him on the brief were Nancy J. Linck, Solicitor, Albin F. Drost, Deputy Solicitor, and Scott A. Chambers, Associate Solicitor.

Appealed from: U.S. Patent and Trademark Office
Board of Patent Appeals and Interferences

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DECIDED: October 30, 1998

Before MAYER, Chief Judge, NEWMAN and GAJARSA, Circuit Judges.

NEWMAN, Circuit Judge.

Creg W. Dance, John V. Hoek, and Victor R. Blackledge (collectively "Dance") appeal the decision of the Board of Patent Appeals and Interferences¹ rejecting claims 33 and 35-37 of United States Patent application Serial No. 08/162,572, entitled "Vascular Occlusion Removal Devices and Methods." We affirm the Board's decision.

¹ Ex parte Dance, App. No. 96-3449 (Bd. Pat. App. & Int. Oct. 28, 1996).

BACKGROUND

The subject matter sought to be patented is a catheter for removing an obstruction such as a thrombus in a blood vessel. Figure 2 of the Dance application depicts an embodiment:

[FIGURE 2 DANCE]

In operation, the head of the device is rotated in the vicinity of the obstruction, and fluid is supplied through the catheter tube, whereby structure just behind the head generates turbulence to break up or erode the obstruction. The debris of the obstruction is removed by aspiration through the catheter. Referring to Figure 2, drive cable 14 is attached to catheter head 16 and rapidly rotates the head. Turbulence generating means such as facets, impellers or flats 26 are located at the neck 25 of head 16. Ports 28 direct fluid supplied by the operator to the zone of turbulence. The operator aspirates fluid and debris through aspiration port 21.

Figure 16 of the application is described by Dance as the preferred embodiment, encompassed by dependent claims 36 and 372:

[FIGURE 16 DANCE]

In this embodiment the head 16 is rotated, and fluids to aid in the dissolution course through header 110 to fluid output ports 46. A guide wire is shown at 100.

Claim 33 is representative:

33. A catheter for removing an obstruction in a body vessel comprising:
a flexible, tubular sleeve having distal and proximal ends, said sleeve having extending substantially coaxially therethrough so as to project therefrom;

drive means, said drive means being flexible and rotatable, having fixedly mounted on its projecting end;

head means, said head means comprising a bulbous head, said head being mounted on said drive means so as to be rotated thereby, said head means further including;

turbulence generating means, said catheter further comprising;

2 Although Dance mentions the content of the dependent claims, he does not argue their merits separately from those of independent claim 33, or attempt to distinguish them from the prior art. Nor were the dependent claims argued separately before the Board. Therefore, all claims stand or fall together with claim 33. See In re Kaslow, 707 F.2d 1366, 1376, 217 USPQ 1089, 1096 (Fed. Cir. 1983).

means for delivering fluid proximate to the distal end of said sleeve,
and
means for recovering fluid and debris from proximate the proximal
end of said sleeve.

The examiner rejected the claims as obvious over Kensey, U.S. Patent No. 4,747,821, in view of Sullivan, U.S. Patent No. 4,950,238.3 Figure 2 of Kensey follows:

[FIGURE 2 KENSEY]

The Examiner found that Kensey describes all but one element of claim 33. Described are the rotatable bulbous head driven by a cable, turbulence generating facets, and ports for fluid delivery. Missing is the "means for recovering fluid and debris," which the examiner found in Sullivan.

Sullivan describes a catheter with a rotating head, which may also deploy balloons to surround the obstruction while it is broken up by turbulence created by the rotation.

3 The examiner also rejected the claims for double patenting with U.S. Patent No. 5,273,526 to Dance, from which the claims in suit differ in that they do not contain details of the turbulence generating means. A terminal disclaimer obviated this rejection.

Sullivan shows a return channel for removing the obstruction debris from the sealed area.

The examiner held that Sullivan's teaching of debris recovery "from the blockage released by the turbulent flow of the fluid," col. 3, lines 7-8, for purposes of observation and analysis by the physician, id. at lines 10-11, provided the suggestion or motivation to combine Kensey's catheter with Sullivan's recovery means. The examiner summarized the basis of his conclusion of obviousness as follows:

Kensey et al. discloses (Figure 2) a catheter (20) for removing an obstruction in a body vessel comprising a flexible, tubular sleeve (30) having distal and proximal ends, drive means (48) extending substantially coaxial through said sleeve, head means (24) comprising a bulbous head mounted on said drive means, turbulence generating means (Col. 5, lines 48-56) and ports (61) in the head means for delivering fluid proximate said distal end

Kensey et al. does not disclose fluid recovering means. Sullivan discloses a similar device in which means for recovering fluid and debris are provided (Col. 3, lines 6-12). It would have been obvious to one of ordinary skill in the art to have modified the device of Kensey et al. with a fluid recovery means such as that disclosed by Sullivan in order to allow for the withdrawal of debris from the blockage for subsequent observation and analysis by a physician.

Before the Board, Dance argued that the examiner's mode of analysis by combining the Kensey and Sullivan devices constituted an improper hindsight reconstruction of the claimed invention. Dance also argued that Kensey teaches away from the addition of another channel to recover the debris, because (1) Kensey teaches that in its catheter the particles of the blockage are repeatedly broken down until they become part of a highly emulsified solution that does not require recovery, and (2) a stated advantage of Kensey is the simplicity of his device and its mode of operation. Dance states that his device eliminates disadvantages of both the Kensey and Sullivan catheters. Dance states that

he obtains at least partial disintegration of the obstruction by turbulent or vortex action, and then removes the particles lest they enter the bloodstream.

The Board rejected Dance's argument that Kensey by its emulsification of debris teaches away from the addition of a channel for recovering fluid and debris, reasoning that such emulsification would not have discouraged an artisan from recovering the debris as taught by Sullivan. The Board also rejected the argument that Kensey's goal of simplicity teaches away from the addition of another channel, stating that an artisan would recognize the "trade-off" as a matter of "common sense." The Board found that Sullivan provides "more than ample motivation to the artisan to provide the vascular catheter of Kensey with an additional channel in order to achieve Sullivan's expressly stated advantage of enabling the debris not only to be removed from the occlusion site, but also to be filtered out for the purpose of observation and analysis," and held the Dance device unpatentable for obviousness.

DISCUSSION

Obviousness is a question of law based on findings of underlying facts relating to the prior art, the skill of the artisan, and objective considerations. See Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966). To establish a prima facie case of obviousness based on a combination of the content of various references, there must be some teaching, suggestion or motivation in the prior art to make the specific combination that was made by the applicant. In re Raynes, 7 F.3d 1037, 1039, 28 USPQ2d 1630, 1631 (Fed. Cir. 1993); In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Obviousness can not be established by hindsight

combination to produce the claimed invention. In re Gorman, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). As discussed in Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ 543, 551 (Fed. Cir. 1985), it is the prior art itself, and not the applicant's achievement, that must establish the obviousness of the combination.

The teachings of the references, their relatedness to the field of the applicant's endeavor, and the knowledge of persons of ordinary skill in the field of the invention, are all relevant considerations. See In re Oetiker, 977 F.2d at 1447, 24 USPQ2d at 1445-46; In re Gorman, 933 F.2d at 986-87, 18 USPQ2d at 1888; In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991). When the references are in the same field as that of the applicant's invention, knowledge thereof is presumed. However, the test of whether it would have been obvious to select specific teachings and combine them as did the applicant must still be met by identification of some suggestion, teaching, or motivation in the prior art, arising from what the prior art would have taught a person of ordinary skill in the field of the invention. In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988).

Dance argues that the Board incorrectly approached the determination of obviousness. According to Dance, the Board combined the teachings of Kensey and Sullivan although neither of these references, nor any other source, suggested combining their teachings. Dance states that the Board followed an erroneous analytic path, by first combining these references based on the Board's knowledge of Dance's invention, and then asking whether one of ordinary skill in the art would find the Dance invention obvious

in light of the combination that was made by the Board. Dance states that the correct question is whether the prior art suggested making the Dance catheter, not whether parts of the Dance catheter can be found in assorted references.

The Commissioner responds that the motivation to combine the Kensey catheter with a debris-recovery system resides in Sullivan's teaching of recovery of the debris when a catheter breaks up a blockage. The Commissioner reasons that since both the Kensey and Sullivan references relate to catheters for breaking down obstructions in blood vessels, Sullivan's recovery of the debris provides the suggestion that would have made it obvious to similarly recover debris with a Kensey-type catheter.

We agree that when the references are in the same narrow field as the applicant's invention, knowledge thereof may be presumed. However, Dance argues that Kensey "teaches away" from the addition of a channel to Kensey's catheter for recovery of debris, because Kensey extols the simplicity of his structure, including the simplicity of emulsification of the debris so that it is carried into the bloodstream without risk to the patient. See In re Dow Chemical Co., 837 F.2d 469, 473, 5 USPQ2d 1529, 1532 (Fed. Cir. 1988) ("Evidence that supports, rather than negates, patentability must be fairly considered."); see also In re Gurley, 27 F.3d 551, 553, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994).

The Board held that a teaching of emulsification is not a "teaching away" from debris recovery, and that a person of ordinary skill in this field would have realized the trade-off between simplicity of the device and having the capability of debris recovery. Although we do not endorse the Board's reliance on a "trade-off" as a criterion of

obviousness, we agree with the Board that Kensey's teaching of emulsification of the debris does not teach away from recovery of the debris. Although statements limiting the function or capability of a prior art device require fair consideration, simplicity of the prior art is rarely a characteristic that weighs against obviousness of a more complicated device with added function.

Dance also argues that the examiner and the Board erred in finding that Kensey discloses or renders obvious the "bulbous" head of claims 33 and 35-37. Dance states that the "bulbous" head of his catheter, see Figure 2 of Dance, supra, is described in his patent application as "substantially smooth, i.e., having no cutting or shearing structure intended physically to cut or erode an obstruction were it to come into contact therewith." In contrast, Dance argues, the head shown in Kensey "comprises a convex shaped tip of a generally hemispherical shape and having a pair of generally planar diametrically disposed side faces . . . [which] taper toward each other," col. 8, lines 11-22, and is designed to create a vortex action. The following front elevational view is Figure 6 of Kensey:

[FIG. 6 KENSEY]

Dance argues that Kensey is distinguished from the Dance device on this ground, in that the shape of the Kensey head contributes directly to breakdown and emulsification of the blockage material, whereas the Dance head simply produces turbulence.

The Commissioner replies that the patent examiner is obliged to give Dance's claims their broadest reasonable interpretation in view of the specification and prosecution history, In re Zletz, 893 F.2d 319, 322, 13 USPQ2d 1320, 1322 (Fed. Cir. 1990), and that the shape of Kensey's head falls within a broad reasonable interpretation of bulbous. In fact, both Dance and Kensey have illustrated their heads as having a diversity of shapes. Dance describes his bulbous head as spherical or elliptical, and also states that "head 16 could be hollow, cone-shaped, or of a mushroom configuration." Kensey in turn states that his head can take other shapes, such as "conical" or "ovoidal," and that the side faces shown in Figure 6 can be curved. Kensey, col. 11, lines 32-37.

Dance's usage of bulbous to include hemispherical and conical is not irregular, for the inventor may be his own lexicographer, and may use common words in uncommon ways, provided only that the intended meaning is clear. See Intellical, Inc. v. Phonometrics, Inc., 952 F.2d 1384, 1387-88, 21 USPQ2d 1383, 1386 (Fed. Cir. 1992). Dance does not contest that the term "bulbous head" is correctly interpreted to include hemispherical and conical heads, for Dance so uses the term. No significant distinction has been drawn from the rounded or conical heads of Kensey. Although Kensey does not show the identical head shapes of the Dance drawings, Dance defines "bulbous" broadly enough to include a variety of shapes including the conical shapes illustrated in Kensey. The differences in the shape of the head are not argued by Dance to be of

patentable significance. We conclude that the detailed differences in shape do not impart non-obviousness to Dance's claims.

CONCLUSION

The decision that claims 33 and 35-37 are unpatentable on the ground of obviousness is affirmed.

No costs.

AFFIRMED