

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. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GARY GREENBERG and ROBERT GINSBERG

Appeal No. 1998-0823
Application 08/630,542

ON BRIEF

Before KRASS, BARRETT, and FLEMING, **Administrative Patent Judges**.

FLEMING, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 22, 24, 28-30, and 35. Claims 22-31 and 33-40 are pending in the application; claims 23, 25-27, 31, 33, 34, and

36-40 have been allowed, or indicated as allowable if amended to include the limitations of a rejected base claim.

The invention relates to light microscopes having dual eyepiece (binocular) viewing and the ability to produce a stereoscopic image that can be viewed and/or photographed in real time. An illuminated object on a specimen plane transmits light to the front element of an objective lens (Specification, page 7, lines 32-34). An image of the rear aperture of the objective lens is projected to a location at or very near the apex of a V-shaped mirror by a set of relay lenses (Specification, page 8, lines 12; Figure 3). The V-shaped mirror directs half the light to the left eyepiece, and the other half to the right eyepiece (Specification, page 8, line 18-21). One embodiment of the invention calls for two cameras to be placed in camera ports located in the path of the divided light beam (Specification, page 11, lines 23-28), one each for the left and right images noted above, such that the user of the microscope may view an image through the eyepieces simultaneously with operation of the cameras. In another embodiment, light transmission to the eyepieces may be

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blocked so that all available light may be directed to the cameras (Specification, page 11, line 29 to page 12, line 1).

In yet another embodiment, the image from the

objective lens may be directed entirely to a single camera (Specification, page 12, lines 8-13). Finally, a third camera port may be added between the objective lens and the beam-splitting V-shaped mirror, and a portion of the available light may be diverted to allow a third camera to take photographs at the third camera port (Specification, page 12, lines 14-27).

Independent claim 22 is reproduced as follows:

22. A stereo pair component for a light microscope which microscope is characterized by a single objective lens with a rear aperture through which light beams pass and which rear aperture is projected by optical relay lenses to an aperture plane remote from the objective lens, the combination comprising:

a beam divider disposed in close proximity to the projected image of the rear aperture of the objective lens and in the path of a light beam passing through the objective lens, said beam divider operative to divide the beam into first and second separate beams wherein said first separate beam includes light passing from one area of the objective lens rear aperture and said second separate beam includes

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light passing from a different area of the rear aperture of the objective lens;

a first camera port disposed in the path of said first separate beam;

a second camera port disposed in the path of said second separate beam.

The Examiner relies on the following references:

Heimstadt 1923	1,470,670	Oct. 16,
Braymer 1956	2,753,760	Jul. 10,
Jakubowski 1974	3,820,882	Jun. 28,
Muller et al. (Muller) 1984	4,448,498	May 15,
Kleinberg 1987	4,688,907	Aug. 25,
Minami et al. (Minami) 1988	4,763,968	Aug. 16,

Claim 22 stands rejected under 35 U.S.C. § 103(a) as being anticipated by Heimstadt in view of Muller. Claim 24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Heimstadt in view of Muller and Braymer. Claims 28 and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Heimstadt in view of Muller and Jakubowski. Claims 30 and 35 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Heimstadt in view of Muller, Braymer,

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and either Minami or Kleinberg.

Rather than repeat the arguments of Appellants or the Examiner, we make reference to the briefs and the answer for the details thereof.

OPINION

After a careful review of the evidence before us, we agree with the Examiner that claims 22, 28, and 29 are properly rejected under 35 U.S.C. § 103(a). Thus, we will sustain the rejection of these claims; but we will reverse the rejection of the remaining claims on appeal for the reasons set forth *infra*.

It is the burden of the Examiner to establish why one having ordinary skill in the art would have been led to the claimed invention by the reasonable teachings or suggestions found in the prior art, or by a reasonable inference to the artisan contained in such teachings or suggestions. ***In re***

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Sernaker, 702 F.2d 989, 995, 217 USPQ 1, 6 (Fed. Cir. 1983).

In addition, the Federal Circuit states that "[t]he mere fact that the prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification." **In re Fritch**, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), **citing In re Gordon**, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984).

"Additionally, when determining obviousness, the claimed invention should be considered as a whole; there is no legally recognizable 'heart' of the invention." **Para-Ordnance Mfg. v. SGS Importers Int'l, Inc.**, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995), **cert. denied**, 117 S. Ct. 80 (1996), **citing W. L. Gore & Assocs., Inc. v. Garlock, Inc.**, 721 F.2d 1540, 1548, 220 USPQ 303, 309 (Fed. Cir. 1983), **cert. denied**, 469 U.S. 851 (1984). In addition, the Federal Circuit reasons in **Para-Ordnance Mfg.**, 73 F.3d at 1087-88, 37 USPQ2d at 1239-40, that for the determination of obviousness, the court must answer whether one of ordinary skill in the art who sets out to solve the problem, and who had before him in his workshop

the prior art, would have been reasonably expected to use the solution that is claimed by the Appellants.

On pages 10 through 19 of the Brief, Appellants argue that the combination of Heimstadt and Muller fails to teach the invention claimed in claim 22. Specifically, Appellants argue that Heimstadt contains no teaching regarding the use of cameras, and that the "image ports" of Muller are not directly in the path of the split light beam from the objective lens. Appellants further argue that the Examiner has engaged in impermissible hindsight reconstruction to arrive at Appellants' claimed invention.

With respect to claim 22, we find that Heimstadt teaches a stereoscopic eyepiece for microscopes, including a beam divider (p_1 , p_2) in close proximity to the projected image of the rear aperture of the objective lens (o) and in the path of a light beam passing through the objective lens; the beam divider producing two separate beams including light from different areas

of the objective lens rear aperture (see page 2, top of right hand column). Heimstadt lacks cameras or "camera ports" disposed in the path of the separate beams; but Muller suggests the use of "photographic, motion picture or television cameras" in the path of light split from the original light from the objective lens rear aperture (see Figure 3, and col. 4, lines 23-29: cameras are to be positioned to use focus at image planes 28, 29).

We find that those skilled in the art having the teachings of Heimstadt and Muller before them would have placed cameras at the locations of the eyepieces of Heimstadt, because of Muller's explicit suggestion that two cameras may be used to photograph the magnified images of a stereo microscope for later viewing.

Therefore, we find that it would have been obvious to one skilled in the art in view of the teachings of Heimstadt and Muller to position cameras (in "camera ports") disposed in the path of two such separate light beams, as recited in claim 22.

On pages 20 to 22 of the Brief, Appellants argue that the combination of Heimstadt, Muller, and Jakubowski fails to

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teach the invention of claims 28 and 29 because of the alleged failings of the Heimstadt and Muller references with regard to claim 22,

from which claims 28 and 29 depend. Appellants assert that "[t]he problems involved in taking quality 2-D and 3-D photographs of specimens through a high power microscope with the best available light are nowhere present and, therefore not surprisingly, unaddressed in Jakubowski." We note that the terms "3-D photographs," "high power microscope," and "best available light" do not appear in claims 22, 28, or 29.

With respect to claims 28 and 29, we find that Heimstadt in combination with Muller teaches the claim limitations noted *supra*, contained in parent claim 22. Neither Heimstadt nor Muller teaches a third camera port disposed in the beam path from the objective lens, between the objective lens and the optical relay lenses, with a beam divider operative to direct a portion of the light beam from the objective lens to the third camera port and the rest of the light beam to the

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optical relay lenses. We find that Jakubowski teaches a camera port disposed in the beam path between an objective lens and the viewport of a microscope, including a beam divider (2) that directs a portion of the light from the objective lens to the camera port, where a camera is mounted (see column 2, lines 22-49).

We find that those skilled in the art, having the teachings of Heimstadt, Muller, and Jakubowski before them, would have included a beam divider between the objective lens and the optical relay lenses, such beam divider operative to direct a portion of the light beam from the objective lens to a camera port because Jakubowski teaches the desirability of a camera at such a position, so that the camera may be controlled without interfering with the surgeons' conduct of an operation (see column 1, line 63 to column 2, line 11). Therefore, we find that it would have been obvious to modify the combination of Heimstadt and Muller, expressed *supra* with respect to claim 22, to include a third camera port, provided

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with light by means of a beam divider disposed between the objective lens and the optical relay lenses, as recited in claims 28 and 29.

We agree with Appellants' characterization of the relevant case law concerning hindsight, and especially with Appellants' contention, at page 15 of the Brief, that "hindsight reconstruction is improper when the suggestion for the combination cannot be shown to have come from the references themselves, as opposed to Appellant [sic] disclosure." In each of

the claims affirmed *supra*, however, we find, and have provided appropriate explanation, that the suggestion for the combinations advanced is present within the prior art references applied.

On pages 19 and 20 of the Brief, Appellants argue that the combination of Heimstadt, Muller, and Braymer fails to suggest the invention recited in claim 24, because Braymer is directed to a telescope, and because the references do not

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suggest selectively deflecting the available light to only one of two camera ports. On pages 22 to 25 of the Brief, Appellants argue that the asserted combination of Heimstadt, Muller, Braymer, and either Minami or Kleinberg fails to teach the invention of claims 30 and 35 essentially because Muller, Minami and Kleinberg are directed to low power surgical microscopes, and Braymer is directed to a telescope, such devices asserted to be unrelated to Appellants' invention, characterized as a "high power microscope."

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." **Fritch**, 972 F.2d at 1266, 23 USPQ2d at 1783-84, **citing Gordon**, 733 F.2d at

902, 221 USPQ at 1127. "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." **Para-Ordnance**, 73 F.3d at 1087, 37 USPQ2d at 1239, **citing W. L. Gore & Assocs.**, 721 F.2d at 1551, 1553, 220

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USPQ at 311, 312-13.

Turning to Appellants' claim 24, we note that the claim further limits parent claim 22 by reciting a beam deflector selectably positionable into the path of a light beam from the objective lens between the objective lens and said beam divider and operative to deflect the light beam into only one of [said] camera ports. At page 12, lines 9-13 of the specification, Appellants disclose that, should a user desire to take two-dimensional high resolution photographs with a single camera, polyhedron dividing mirror 67 may be provided with "an integral 45 degree reflective surface deflector 75 which when rotated into the path of the light beam 60 . . . directs the light beam 60 directly into camera 46a."

As discussed *supra*, Heimstadt in combination with Muller teach a stereoscopic microscope in which two cameras are used to take simultaneous, stereoscopic photographs. The Examiner

advances the argument that Heimstadt and Muller may be

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combined with the Braymer reference to achieve the invention recited in claim 24. We agree with the Examiner that the proposed combination of Heimstadt, Muller, and Braymer teaches all of the elements of the claimed invention. We fail to find, however, that any reference suggests modifying a stereo microscope to use a single camera instead of two, so that two-dimensional high resolution photographs may be taken. Braymer teaches (at column 3, lines 45-62) a multiple image telescope with a prism slidable such that a user may either view the image received by the telescope directly, or take a photograph of that image. Braymer is directed to a telescope, rather than a microscope, and is therefore directed to solving a different lighting problem than that solved by Heimstadt or Muller who have more control over the amount of light received by their apparatus. Further, because the Braymer patent is directed to an apparatus having a single viewpiece (or camera port), Braymer does not provide motivation for the person skilled in the art to modify the two-camera system of Heimstadt and Muller so that all available light is deflected

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away from one of the cameras and into the other. Therefore, we will not sustain the rejection of claim 24 under 35 U.S.C.

§ 103(a).

Turning now to Appellants' claims 30 and 35, we note that independent claim 30 contains limitations similar to those expressed in independent claim 22, as well as some further limitations. Most notably, claim 30 contains language similar to that found in claim 24, i.e., "a beam deflector selectably positionable into the path of the light beam from the object to be viewed before it is divided by said beam divider and operative to deflect the light from the object to be viewed into only one of said camera ports." As noted *supra*, we fail to find any suggestion in the art cited by the Examiner to selectably divert the light supplied to the two eyepieces or camera ports of a stereoscopic microscope to only one of said eyepieces or camera ports. Thus, we will not sustain the rejection of claims 30 and 35 under 35 U.S.C. § 103(a).

In view of the foregoing, the decision of the Examiner rejecting claims 22, 28, and 29 under 35 U.S.C. § 103 is

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affirmed; the decision of the Examiner rejecting claims 24,
30, and 35 under U.S.C. § 103, however, is reversed.

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

AFFIRMED-IN-PART

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