

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte BRIAN L. HEFFNER and WAYNE V. SORIN

Appeal No. 1998-2473
Application No. 08/556,890

ON BRIEF

Before HAIRSTON, KRASS and LALL, Administrative Patent Judges.

KRASS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1, 3 and 6. Claims 2, 4, 5, 7 and 8 have been indicated by the examiner as being allowable and are not before us on appeal.

The invention is directed to an apparatus for providing an alignment mechanism for coupling light between an optical fiber and the surface of a physical specimen. An optical signal is applied to the surface and the reflected light is collected and coupled to an optical

fiber. Based on the intensity of the reflected light as measured by a detector, an actuator dithers the position of a lens relative to the proximate end of the optical fiber. The actuator operates at a predetermined dither frequency and moves the lens relative to the fiber along the axis of the fiber and the average position of the lens relative to the proximate end of the fiber along the axis is adjusted so as to maximize the average power detected at the dither frequency.

Independent claim 1 is reproduced as follows:

1. An apparatus for applying an optical signal to a surface and collecting the light emitted by said surface in response to said application of said optical signal, said optical signal and said collected light traversing an optical fiber having an end proximate to said surface, said apparatus comprising:
 - a lens for coupling said optical signal to said surface and for collecting said light emitted by said surface and coupling said collected light into said optical fiber;
 - a detector for measuring the intensity of light collected in said optical fiber and for generating a detection signal indicative of said measured intensity as a function of time; and
 - means for moving one of said lens and said optical fiber relative to the other at a first frequency back and forth along a first axis, said lens having an average position relative to said optical fiber along said first axis controlled by said moving means, said average position being repetitively adjusted to maximize the average power of said detection signal at said first frequency.

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The examiner relies on the following references:

Wilkinson	4,358,774	Nov. 09, 1982
Mickleson et al. [Mickleson]	4,445,209	Apr. 24, 1984

Claims 1, 3 and 6 stand rejected under 35 U.S.C. § 103 as unpatentable over either one of Mickleson or Wilkinson.

Reference is made to the briefs and answer for the respective positions of appellants and the examiner.

OPINION

With regard to the rejection of the claims based on Mickleson, both the examiner and appellants note that Mickleson does not show an optical fiber. However, the examiner reasons that this is a "well known" optical waveguide and appellants do not argue to the contrary.

Appellants do argue, with respect to Mickleson, that the reference teaches away from the instant invention because Mickleson indicates that the technique of moving a lens to vary a focal point location is inadequate and so Mickleson uses a piezoelectric element to effect an alteration of the optical path between two lenses. We have reviewed column 1, line 63 through column 2, line 29 of Mickleson, which describes the prior art to Mickleson, and we agree with the examiner that this section of the reference

does not teach that movement of a lens to vary a focal point location is “inadequate.” It merely indicates that there is need for improvement over the prior art technique of focusing which avoids the use of multiple detectors and lower frequency servo systems. We find no such “teaching away” by Mickleson, as alleged by appellants.

Appellants next argue that if it were obvious to remove Mickleson’s piezoelectric element 25 and simply move lens 31, Mickleson would have utilized this approach since it would have simplified the system and increased the range over which the focal length could be adjusted. We do not find this argument persuasive since obviousness must be determined by the whole of the prior art and knowledge of the theoretical “skilled artisan” and not by looking at one prior art reference and concluding that something is not obvious because that particular reference did not do it and because one particular artisan did not specifically recognize appellants’ improvement.

Finally, appellants argue that the examiner is incorrect in the conclusion that it would have been obvious to replace one moveable element with another. More particularly, appellants argue that that would be correct only if both elements were clear equivalents and would be an obvious design choice only if there was no advantage of one element over the other. However, appellants contend that there are various advantages of the instant claimed invention over anything shown by Mickleson.

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These advantages, contend appellants, include operation at any wavelength for which a suitable lens is available; maximum variation in focal position is greater; and adjustment of the lens position may be made in both perpendicular and parallel directions with respect to the surface. We are again unpersuaded by appellants' argument since it is not clear as to which elements appellants refer, no specific distinguishing claim language is referenced by appellants and the instant claim language contains none of the limitations argued by appellants as distinguishing advantages of the instant claimed invention over that disclosed by Mickleson. For example, there is nothing in the appealed claims relative to adjusting the position of the lens in both perpendicular and parallel directions relative to the surface and there is no language in the claims distinguishing variation in position as being of such a magnitude as to distinguish over a relatively small variation in the focal position suggested by Mickleson.

Since we do not agree with any of the arguments made by appellants regarding the rejection based on Mickleson, we will sustain the rejection of claims 1, 3 and 6 under 35 U.S.C. § 103 over Mickleson. We do not contend that appellants could not have presented arguments that may have distinguished the instant claims over Mickleson. We hold only that, to whatever extent such arguments exist, appellants

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have not made them. Arguments not made are waived. In re Kroekel, 803 F.2d 705, 709, 231USPQ 640, 642-643 (Fed. Cir. 1986).

We now turn to the rejection of claims 1, 3 and 6 based on Wilkinson.

Appellants argue that Wilkinson's detector does not measure the power of the signal at the dither frequency and does not move the lens to maximize that power. In fact, argue appellants, Wilkinson does not measure any quantity at the dither frequency.

Appellants contend that the differences between the instant claimed invention and Wilkinson are more than a matter of design choice. More specifically, appellants point out that Wilkinson requires the surface whose position relative to the lens is being adjusted to also be moving in a direction perpendicular to the light beam so as to generate a time-varying signal whereas the instant invention has no such limitation. Also, according to appellants, Wilkinson can only provide adjustments perpendicular to the disk surface.

We do not agree with appellants as to their argument pertaining to Wilkinson providing adjustments only perpendicular to the surface since the instant claims have no such limitation, requiring movement only "along a first axis."

As to the arguments regarding Wilkinson's failure to measure the power of the signal at the dither frequency and that Wilkinson does not move the lens to maximize

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that power, we find ourselves in agreement with the examiner that Figure 3 of the reference discloses maximum, or “optimum” power at the focal point, at the origin of the coordinate system. As disclosed at column 7, lines 28-31 of the reference, focus of the beam is controlled (which clearly suggests that the lens is moved to effect this focus) and the power of the beam is also controlled to an optimum fifty-percent duty cycle level. Thus, there is a relationship between the duty cycle and focus for a constant maximum power applied to the laser [column 5, lines 53-54]. It appears that there is some relationship between the duty cycle and the dither frequency. Accordingly, it appears reasonable for the examiner to conclude that there is some measure of power of the signal at the dither frequency in Wilkinson and, although contested by appellants, appellants have pointed to nothing that is convincing to the contrary.

Accordingly, we will sustain the rejection of claims 1, 3 and 6 under 35 U.S.C. § 103 over Wilkinson. Again, we do not contend that there may not be better arguments that could have been made regarding the unobviousness of the claimed subject matter over Wilkinson but, to whatever extent such arguments may exist, appellants have not made them.

The examiner’s decision rejecting claims 1, 3 and 6 under 35 U.S.C. § 103 is affirmed.

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

AFFIRMED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
ERROL A. KRASS)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
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PARSHOTAM S. LALL)	
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