

REMARKS/ARGUMENTS

After the foregoing Amendment, claims 1, 3-6, 8-14, and 21-26 are currently pending in this application. Claims 2 and 7 were previously canceled. Claims 15-20 are canceled without prejudice. Claims 1, 3, and 9-14 are amended. New claims 21 to 26 are added.

All of the amended and added claims are supported at least by the contents disclosed in Figs. 15 and 16 and the corresponding descriptions in Paragraphs [0041] and [0042] of the originally filed disclosure. Thus, no new matter is introduced into the amendments.

In view of the foregoing amendments and the following remarks, reconsideration of the present patent application is respectfully requested.

Claim Objections

The Examiner objected to claim 3 because line 2 should be “set of first zoom elements”. The Applicants have appropriately amended Claim 3 to overcome this issue. The withdrawal of the objection to claim 3 is respectfully requested.

Claim Rejections - 35 USC §103

Claims 1, 3-8, 9-14 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over US 2005/0174775 to Conner (“Conner”) and in further view of US 2010/0165297 to Mizushima *et al.* (“Mizushima”).

Applicants respectfully submit that amended independent Claims 1 and 9 and new independent Claim 21 are patentable over the cited references. The reasons are set forth below.

The present invention provides an apparatus and method for controlling a three-dimensional optical field. Amended Claim 1 claims the apparatus for controlling the three-dimensional optical field, comprising “a light-emission device emitting a light for projecting a light shape; and a set of zoom elements disposed in front of the light-emission device, and focusing the light emitted from the light-emission device and passing therethrough to project the light onto an external object...the external object has an uneven surface, and the light passing through the set of zoom elements is projected onto the uneven surface and maintains the light shape on the uneven surface.”

Conner discloses light-collecting illumination systems including a light source module 72, a first meniscus lens 74 having a convex side 74b and a concave side 74a and a second meniscus lens 76 having a convex side 76b and a concave side 76a. The concave side 76a of the second meniscus lens 76 is adjacent to the convex side 74b of the first meniscus lens 74, and the concave side 74a of the first meniscus lens 74 faces the light source module 72 to receive light(s) emitted therefrom and to direct the light(s) toward an illumination target. See Fig. 3 and the corresponding descriptions of Conner’s disclosure.

Conner fails to disclose the claimed “light-emission device emitting a light having a light shape” and “the light passing through the set of zoom elements is projected onto the uneven surface and maintains the light shape on the uneven surface” as recited in amended Claim 1. Therefore, amended Claim 1 is significantly different from the teachings of Conner.

Mizushima is directed to a laser projector having a laser light source 1, a two-dimensional light modulator 6 modulating light from the laser light source 1, and a projection optical system 7 projecting images onto a display plane 10 by expanding the light modulated by the two-dimensional light modulator 6. A shift of a display position of the two-dimensional light modulation element 6 and a shift of the projection optical system 7 are performed in synchronization with each other so that display positions of the images on the display plane 10 are made substantially identical to each other to remove speckle noise. See Figs. 3 and 9 and the corresponding descriptions in Mizushima.

Mizushima does not disclose or suggest the claimed “light-emission device emitting a light having a light shape” and “the light passing through the set of zoom elements is projected onto the uneven surface and maintains the light shape on the uneven surface” as recited in amended Claim 1. Therefore, amended Claim 1 is significantly different from the teachings of Mizushima.

Since neither Conner nor Mizushima, alone or in combination, discloses any teaching/suggestion/hint regarding the above-mentioned claimed features recited in

amended Claim 1, the skilled person in the field would find it impossible to conceive the apparatus defined by amended Claim 1 based on the disclosures of Conner and Mizushima separately or jointly.

Moreover, according to the illustrations in Figs. 15 and 16 and the descriptions in Paragraphs [0041] and [0042] of the present disclosure, “The light with the shape 100’ passes through a zoom module 20 and then is projected on an object 4’ comprising a higher portion 4’H and a lower portion 4’L. It appears the distance from the zoom module 20 to the higher portion 4’H is shorter than that to the lower portion 4’L, so the degree of illumination at the higher portion 4’H is higher while the size of the light shape 10’H projected on the higher portion 4’H is smaller than that of the light shape 10’L on the lower portion 4’L. Therefore, a homogeneous light shape at the object 4’ cannot be achieved by using the traditional apparatus for controlling a three-dimensional optical field” and “the present invention makes use of the variation of light emission at a two-dimension surface, which is achieved by control(ing) the plurality of light-emission units, to control the light shape and the dark/light distribution, and control the illumination or light intensity by zooming the focal position at the one-dimensional light axis with the aid of the zoom array 7, so as to achieve an efficacy of controlling a three-dimensional optical field”, the skilled person in the art can easily understand that the present invention makes use of the set of zoom elements as recited in amended Claim 1 to control the illumination or light intensity of different portions of the

projected light shape so as to achieve a homogeneous light shape. The above-mentioned technical efficacies brought by the apparatus recited in the amended Claim 1 are unachievable by the disclosures of the cited references, either alone or in combination.

Based on the above, the Applicants respectfully submit that amended Claim 1 is patentable over the cited references.

By the same token, amended independent Claim 9 and new independent Claim 21, both of which recite features similar to those of amended Claim 1, are patentable over the cited references.

Because independent Claims 1, 9 and 21 of the present application are patentable, dependent Claims 3-6 and 8, 10-14 and 22-26, which either directly or indirectly depend from the independent Claims 1, 9 and 21, respectively, are patentable as well.

Based on the above reasons, the Applicants respectfully request a withdrawal of the rejections under 35 U.S.C. §103.

Conclusion

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephonic interview will help to materially advance the prosecution of this

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application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing, Applicants respectfully submit that the present application is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

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