UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/520,719	04/20/2017	Rudiger MOSER	1739/0212PUS1	2174

60601 7590 10/15/2020

Muncy, Geissler, Olds & Lowe, P.C.
4000 Legato Road
Suite 310
Fairfax, VA 22033

EXAMINER	
WARD, THOMAS JOHN	

ART UNIT	PAPER NUMBER
3761	

NOTIFICATION DATE	DELIVERY MODE
10/15/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

MAILROOM@MG-IP.COM

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RUDIGER MOSER, THIBAULT BAUTZE, and MARTIN SCHONLEBER

Appeal 2020-004841
Application 15/520,719
Technology Center 3700

Before JOHN C. KERINS, WILLIAM A. CAPP, and JEREMY M. PLENZLER, *Administrative Patent Judges.*

PLENZLER, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 1–5 and 7–12. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

---

[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Precitec GMBH & Co. Appeal Br. 2.

CLAIMED SUBJECT MATTER

The claims are directed to a device for measuring the depth of a weld seam. Claim 1, reproduced below with emphasis added, is illustrative of the claimed subject matter:

> 1. A device for measuring the depth of a weld seam in real time during the welding or joining of a workpiece by means of radiation, comprising: its measuring light source, the light of which is coupled by a beam splitter into a reference arm and a measuring arm;
>
> an optical waveguide in the measuring arm;
>
> a collimator module having at least one *collimation lens for collimating a measuring light beam*, which is *fed to the collimator module via the optical waveguide* in the measuring arm, and for imaging the measuring light beam, which is reflected from a workpiece to be processed, on an exit/entry surface of the optical waveguide;
>
> a coupling element for coupling the measuring light beam into the beam path of a processing beam;
>
> a focusing lens for the joint focusing of the measuring light beam and the processing beam on the workpiece and for the collimating of the reflected measuring light beam; and
>
> an analysis unit for determining the depth of a weld seam, into which the measuring light reflected from the workpiece is guided with a superimposed, reflected light from the reference arm;
>
> wherein the collimator module comprises means for setting the axial focal position of the measuring light beam, means for setting the lateral focal position of the measuring light beam, and *a field lens*, which *is arranged between the exit/entry surface of the optical waveguide and the collimation lens* and defines the beam widening of the measuring light beam and therefore the focus diameter of the measuring light beam,
>
> wherein the exit/entry surface of the optical waveguide has an angle of inclination in relation to the perpendicular to a fiber axis, and
>
> wherein the exit/entry surface of the optical waveguide is displaceable with an accuracy of ≤ 10 µm in relation to the

optical axis of the collimating lens for the lateral setting of the focal position of the measuring light beam.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Nicolai	US 3,277,392	Oct. 4, 1966
Kojima	US 6,936,152 B2	Aug. 30, 2005
Webster	US 8,822,875 B2	Sept. 2, 2014
Webster ’817	US 9,757,817 B2	Sept. 12, 2017
Elbrecht	US 2002/0013574 A1	Jan. 31, 2002

REJECTIONS

Claims 1, 3, 4, and 8–11 are rejected under 35 U.S.C. § 103 as being unpatentable over Webster, Kojima, and Elbrecht.

Claims 2, 5, and 7 are rejected under 35 U.S.C. § 103 as being unpatentable over Webster, Kojima, Elbrecht, and Nicolai.

Claim 12 is rejected under 35 U.S.C. § 103 as being unpatentable over Webster, Kojima, Elbrecht, and Webster ’817.

OPINION

Appellant identifies a number of problems with the Examiner’s findings related to Webster. Appeal Br. 6–8. The Examiner’s rejections rely on a finding that Webster teaches “a field lens (353), which is arranged between the exit/entry surface of the optical waveguide (310) and the collimation lens (351).” Final Act. 8. Appellant contends that the Examiner’s findings regarding the recited “field lens” are problematic. *See, e.g.*, Appeal Br. 7 (“The sample arm collimator 353 disclosed by Webster (e.g., see Webster at Figure 5, without reference number in Figures 6 and 7, and with reference number 407 in Figure 14) is not a field lens, **arranged**

between the exit/entry surface of the optical wave guide and the collimation lens, but only the collimation lens.").

Appellant's Figure 3 and a portion of Webster's Figure 5 are reproduced below.

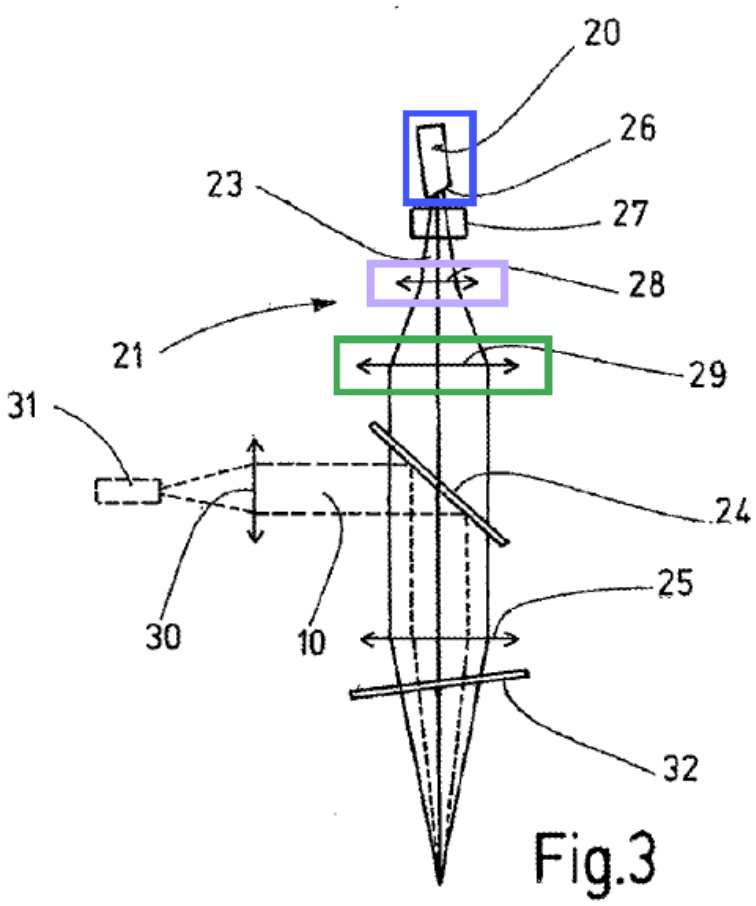
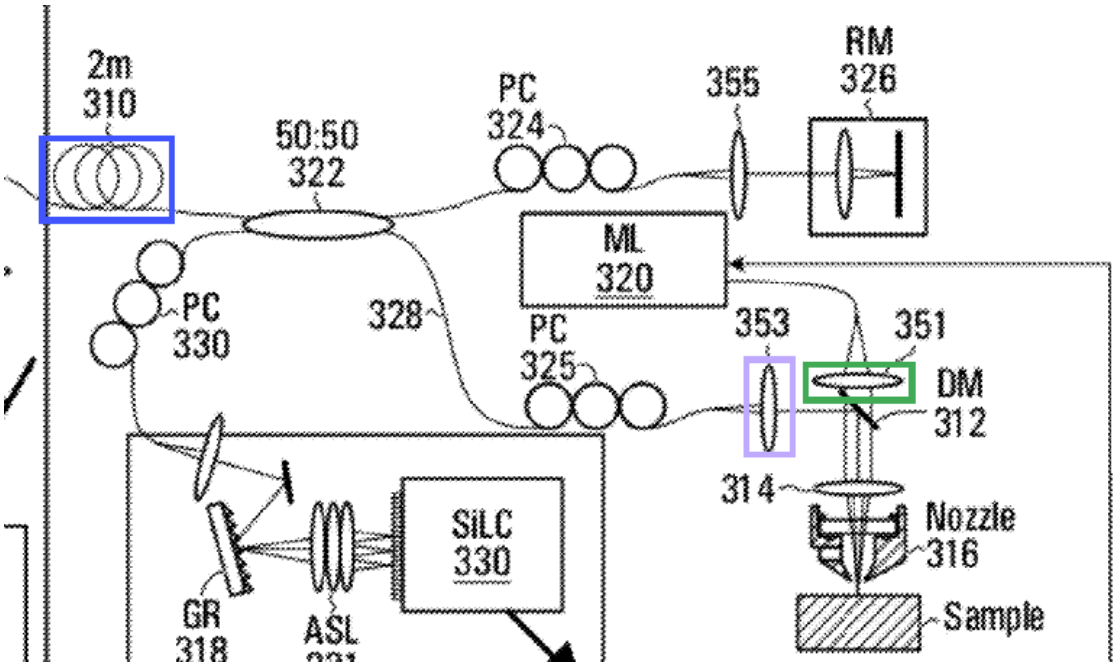


Fig.3

The figure reproduced above is Appellant's Figure 3, which "shows a schematic illustration of a welding head having an optical system for coupling in a measuring light beam for the welding penetration depth measurement" (Spec. 8:3–5), along with out annotations, which include a blue box around optical waveguide 20, a purple box around field lens 28, and a green box around collimation lens 29. Reference numeral 23 is the measuring light beam.



The figure reproduced above is a portion of Webster's Figure 5, which is a "block diagram[] of [a] material processing system[] featuring feedback control from an inline coherent imaging system" (Webster 14:7–9), along with our annotations, which include a blue box around optical fiber 310, a purple box around collimator 353, and a green box around collimator 351. The colored boxes in our annotated figures illustrate the Examiner's mapping of Webster's elements to those in Appellant's arrangement. The Examiner finds that Webster's reference numeral 328 corresponds to the recited measuring light beam (*see* Final Act. 7), which is reference numeral 23 in Appellant's Figure 3.

Claim 1 requires an optical waveguide that provides a measuring light beam to a field lens and a collimation lens, with the field lens "arranged between the exit/entry surface of the optical waveguide and the collimation lens." It is readily apparent that Webster's Figure 5 does not teach such an arrangement because collimator 353 (considered the field lens by the

Examiner) is not arranged between the exit/entry surface of optical fiber 310 (considered the optical waveguide by the Examiner) and collimator 351 (considered the collimation lens by the Examiner).[2]

For at least these reasons, we do not sustain the Examiner's decision to reject claim 1. The stated bases for the rejection of the remaining claims do not remedy the deficiency noted above.

CONCLUSION

The Examiner's rejections are reversed.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 3, 4, 8–11	103	Webster, Kojima, Elbrecht		1, 3, 4, 8–11
2, 5, 7	103	Webster, Kojima, Elbrecht, Nicolai		2, 5, 7
12	103	Webster, Kojima, Elbrecht, Webster '817		12
Overall Outcome				1–5, 7–12

REVERSED

[2] In the Answer, the Examiner references collimator 351 as the field lens. *See, e.g.*, Ans. 8 ("the collimation lens 351 of Webster can be considered a field lens"). Assuming this was an intentional change in findings, it does not remedy the deficiency noted above.