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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
90/014,104	03/06/2018	9335036	55466-701.999	3838
21971	7590	03/16/2020	EXAMINER	
WILSON, SONSINI, GOODRICH & ROSATI			ENGLISH, PETER C	
650 PAGE MILL ROAD			ART UNIT	PAPER NUMBER
PALO ALTO, CA 94304-1050			3993	
			MAIL DATE	DELIVERY MODE
			03/16/2020	PAPER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte UNITY OPTO TECHNOLOGY CO, LTD

Appeal 2020-001871
Reexamination Control 90/014,104¹
Patent 9,335,036 B2
Technology Center 3900

Before JOHN A. JEFFERY, MARC S. HOFF, and ERIC B. CHEN,
Administrative Patent Judges.

HOFF, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant appeals under 35 U.S.C. § 134 from a Final rejection of claims 1–20. An oral hearing was held on February 10, 2020. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

Appellant’s invention (U.S. Patent No. 9,335,036 B2 to Myers) is a flat light emitting diode (LED) panel and LED driving circuitry. Power

¹ Appellant states that Unity Opto Technology Co., LTD, is the real party in interest. Appeal Br. 4.

circuitry, configured to electrically couple the LED panel to external AC power supply, is disposed within a first channel of a frame. The power circuitry has a length to width ratio of at least 5–1, and optionally at least 10–1. The power circuitry is configured to convert an AC input into a DC output suitable for powering the substantially flat LED panel. *See Abstract.*

Claim 1 is reproduced below:

1. A light fixture comprising:
a frame configured to define a first channel and a second channel on opposite first and second sides of the frame, and a third channel and a fourth channel on remaining third and fourth sides of the frame, wherein the frame is rectangular;
a substantially flat light emitting diode (LED) panel disposed within the frame, including a first array of LEDs disposed adjacent the first side of the frame and a second array of LEDs disposed adjacent the second side of the frame, wherein the first channel is configured to support the first array of LEDs and the second channel is configured to support the second array of LEDs; and
drivers disposed within the third channel and the fourth channel, each driver being configured to electrically couple at least one of the respective first and second arrays of LEDs to an AC power supply; wherein the drivers are sized to be positioned within the third channel and the fourth channel respectively, and have a length and a width, wherein the length-to-width ratio is at least 5 to 1, and wherein the drivers are configured to convert an AC input into a DC output suitable for powering the respective first and second arrays of LEDs.

The prior art relied upon by the Examiner as evidence is:

Name	Reference	Date
Brown	US 6,240,665 B1	June 5, 2001
Schexnaider	US 2005/0219860 A1	Oct. 6, 2005
Spada	US 2008/0101094 A1	May 1, 2008
Peifer	US 2009/0213589 A1	Aug. 27, 2009
Tsai	US 2009/0316396 A1	Dec. 24, 2009
Lv	US 2011/0149596 A1	June 23, 2011
Glory	JP 3140783	Mar. 19, 2008
Jiancheng	CN 2015-13783 U	June 23, 2010
Power Integrations	<i>High Efficiency $\geq 85\%$), High Power Factor (>0.9) 15 W TB Isolated LED Driver Using LinkSwitch™-PH LNK406EG</i>	Oct. 7, 2010

Claims 1–3, 5, 9, and 11 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Tsai, or under 35 U.S.C. § 103(a) as being unpatentable over Tsai.

Claims 4, 6, 7, and 12–19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsai.

Claims 3 and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsai and Peifer.

Claims 1–20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsai and Power Integrations.

Claims 6, 7, and 13–20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsai and Spada, or over Tsai, Power Integrations, and Spada.

Claims 15–20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Brown, Spada, and Power Integrations.

Claims 1–20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lv and Jiancheng.

Claims 3, 8, 11, 19, and 20 rejected under 35 U.S.C. § 103(a) as being unpatentable over Lv, Jiancheng, and Glory.

Claims 6, 7, and 13–20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lv, Jiancheng, Spada, and Schexnaider.

Claims 1–20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Lv, Jiancheng, Glory, and Power Integrations, or over Lv, Jiancheng, Spada, Schexnaider, and Power Integrations.

Throughout this decision, we make reference to the Appeal Brief, filed Aug. 28, 2019 (“Appeal Br.”), the Reply Brief filed Jan. 2, 2020 (“Reply Br.”), and the Examiner’s Answer mailed Nov. 1, 2019 (“Ans.”) for their respective details.

ISSUES

1. Does the combination of Lv and Jiancheng disclose or fairly suggest a frame having a thickness of no more than about 1.0 inches, and an LED driver disposed within said frame?

2. Do the teachings of Lv and Jiancheng lead the person having ordinary skill in the art away from the use of LED drivers that are relatively long and thin?

ANALYSIS

Rejection of claims 1–20 over Lv and Jiancheng

Appellant argues that the Examiner improperly relies on unsupported state-of-the-art allegations to support the proposed modifications. Appeal Br. 44. Appellant refers specifically to the Examiner’s findings that, inter

alia, a person of ordinary skill “would appreciate that minimal overall size is one of the advantages of LED panels,” “dimensions of the frame members can be selected based upon the specific application,” “various length to width ratios . . . could be selected based upon specific applications.” *Id.* at 23–24. Appellant contends that these allegations lack evidentiary support and are contrary to the actual state of the art. *Id.*

Appellant asserts that a person of ordinary skill in the art would not have modified Lv in view of Jiancheng as the Examiner proposes because such modifications would have had various disadvantages including a significant increase in heat generation. Appeal Br. 45.

Appellant asserts that it would not have been obvious to modify Lv in view of Jiancheng to have a frame thickness of no more than about 0.5 inches (claim 14), or to have the LED driver housed within a first channel of a frame having a thickness of no more than about 1.0 inches (claim 13). Appeal Br. 46, 47.

Appellant argues that it would not have been obvious to modify Lv in view of Jiancheng to provide a 10:1 length to width ratio, because “there is no indication that Lv’s driver does not already fit.” Appeal Br. 47. Appellant also contends that the Examiner improperly relied on the apparent dimensions of a not-to-scale figure. Appeal Br. 45.

Appellant’s arguments concerning the disadvantages of combining Lv and Jiancheng are not persuasive. Appellant does not argue that Jiancheng teaches away from combination with Lv, and the teachings of the references do not in any event support such a contention. We agree with the Examiner that Lv teaches driving modules 70 disposed within channels 164 on the

frame of a light fixture (Final Act. 16), and that Jiancheng teaches drivers 113 that convert AC voltage to DC voltage. Final Act. 16–17. We further agree with the Examiner that the combined teachings of Lv and Jiancheng suggest the desirability of sizing such drivers so that they may be contained within the channel of a frame, because such a dimension (for example, a thickness no more than about 1.0 inches or 0.5 inches) helps to minimize the overall size of the light fixture, one of the known advantages of LED panels. Ans. 18–19.

We further agree with the Examiner that such a change in dimensions would have been obvious when the change yields only a predictable result. Ans. 18, 20. It would have been similarly predictable that the higher switching frequency resulting from smaller driver components would lead to increased heat generation. The person having ordinary skill in the art would have been aware of a trade-off to be made between driver size and heat generation, and could have selected any of several known methods for dissipating excess heat.

In response to Appellant’s argument that the Examiner relied on unsupported state-of-the-art allegations regarding the desirability of overall smaller size of LED light panels, we determine that the prior art provides implicit motivation to reduce the size of the light panels of the invention. “[A]n implicit motivation to combine exists not only when a suggestion may be gleaned from the prior art as a whole, but when the ‘improvement’ is technology-independent and the combination of references results in a product or process that is more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient.”

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See Dystar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co., 464 F.3d 1356, 1368 (Fed. Cir. 2006). In this case, because the combination of Lv and Jiancheng suggest LED drivers sized to fit within the channels of the light fixture frame, implicit motivation therefore exists to combine the references, resulting in a smaller overall light fixture.

We conclude that the Examiner did not err in rejecting claims 1–20 over Lv and Jiancheng. We sustain the Examiner’s 35 U.S.C. § 103(a) rejection.

OTHER REJECTIONS

Affirmance of the rejection of claims 1–20 based on Lv and Jiancheng renders it unnecessary to reach the propriety of the Examiner’s decision to reject those claims based on other grounds. *See In re Gleave*, 560 F.3d 1331, 1338 (Fed. Cir. 2009) (not reaching an obviousness rejection of certain claims after affirming an alternative anticipation rejection of those claims); *see also Beloit Corp. v. Valmet Oy*, 742 F.2d 1421, 1423 (Fed. Cir. 1984) (approving ITC’s determination based on a single dispositive issue, and not reaching other issues not decided by the lower tribunal).

CONCLUSIONS

1. The combination of Lv and Jiancheng suggests a frame having a thickness of no more than about 1.0 inches, and an LED driver disposed within said frame.

2. The teachings of Lv and Jiancheng do not lead the person having ordinary skill in the art away from the use of LED drivers that are relatively long and thin.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–3, 5, 9, 11	102(b)	Tsai ²		
1–3, 5, 9, 11	103(a)	Tsai ²		
4, 6, 7, 12–19	103(a)	Tsai ²		
3, 11	103(a)	Tsai, Peifer ²		
1–20	103(a)	Tsai, Power Integrations ²		
6, 7, 13–20	103(a)	Tsai and Spada, or Tsai, Power Integrations, and Spada ²		
15–20	103(a)	Brown, Spada, Power Integrations ²		
1–20	103(a)	Lv, Jiancheng	1–20	
3, 8, 11, 19, 20	103(a)	Lv, Jiancheng, Glory ²		
6, 7, 13–20	103(a)	Lv, Jiancheng, Spada, Schexnaider ²		
1–20	103(a)	Lv, Jiancheng, and Power Integrations, or Lv, Jiancheng, Spada, Schexnaider, and Power Integrations ²		
Overall Outcome			1–20	

² As explained above, we do not reach this alternative rejection, for it is merely cumulative to the Examiner’s obviousness rejection of claims 1–20 over Lv and Jiancheng. *See In re Gleave*, 560 F.3d at 1338 (not reaching an obviousness rejection of certain claims after affirming an alternative anticipation rejection of those claims); *see also Beloit Corp.*, 742 F.2d at

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The Examiner's decision to reject claims 1–20 under 35 U.S.C. § 103(a) is affirmed.

Requests for extensions of time in this ex parte reexamination proceeding are governed by 37 C.F.R. § 1.550(c). *See* 37 C.F.R. § 41.50(f).

AFFIRMED

rvb

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1423 (approving ITC's determination based on a single dispositive issue, and not reaching other issues not decided by the lower tribunal).