

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ORSTAR INDUSTRIAL CO., LTD.,
Petitioner,

v.

COSMO LIGHTING INC.,
Patent Owner.

Case IPR2015-01787
Patent 7,926,978 B2

Before JAMESON LEE, JAMES T. MOORE, and JENNIFER S. BISK,
Administrative Patent Judges.

BISK, *Administrative Patent Judge.*

FINAL WRITTEN DECISION

35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

A. *Background*

Orstar Industrial Co. Ltd. filed a Petition to institute *inter partes* review of claims 1–3 (the “challenged claims”) of U.S. Patent No. 7,926,978 B2 (“the ’978 patent”). Paper 1 (“Pet.”). On January 25, 2016, we granted the Petition, instituting trial on whether the challenged claims are unpatentable as obvious over Popovich,¹ Lin-US,² and Lin-CN.³ Paper 15 (“Institution Decision” or “Inst. Dec.”).

During the trial, Patent Owner filed a Response (Paper 19, “PO Resp.”) and Petitioner filed a Reply (Paper 23, “Reply”). We held an oral hearing on October 3, 2016. Paper 29 (“Tr.”).

This is a Final Written Decision pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons set forth the below, we conclude that Petitioner has shown by a preponderance of evidence that the challenged claims are *unpatentable*.

B. *Related Proceedings*

Patent Owner indicates that the ’978 patent is at issue in *Cosmo Lighting Inc. v. Target Corporation*, 2:15-cv-09243-JAK-AJW (C.D. Cal.). Paper 12. Another Petition challenging the ’978 patent was terminated on September 28, 2016. IPR2016-00296, Paper 18.

¹ US Patent No. 7,301,174 B1 (Ex. 1012) (“Popovich”).

² US 2003/0137839 A1 (Ex. 1016) (“Lin-US”).

³ CN 1514498 A (Ex. 1018) (“Lin-CN”). Ex. 1019 is an English translation of Lin-CN and Ex. 1020 is a certification of this translation. For purposes of this Decision, we will refer only to Ex. 1019 when discussing Lin-CN.

C. The '978 Patent

The '978 patent describes a light set with surface mounted light emitting components. Ex. 1001, 1:6–8. According to the '978 patent, at the time of the invention, traditional lighting devices were being replaced with semiconductor light emitting components, including the light emitting diode (“LED”), because of LED’s many advantages, including easy mass production. *Id.* at 1:12–20. The '978 patent states that one drawback to LEDs, however, is that they have insufficient brightness on their own, causing light sets to combine or serially connect multiple LEDs to obtain the desired brightness. *Id.* at 1:32–36.

The '978 patent describes a “conventional LED” as including “an LED dice encapsulated in a lamp-shape package,” with a pair of leads extending from the LED dice through the package to an external power source. *Id.* at 1:21–24. Each of the pair of leads “are separately soldered to a positive conductor and a negative conductor.” *Id.* at 1:24–27. According to the '978 patent, “it is uneasy to control the soldering quality” of these separately soldered leads, resulting in both low reliability and a low production rate. *Id.* at 1:37–45.

The '978 patent purports to solve these problems with a light set that includes two adjacent conducting wires, each of which is enclosed by an insulating layer. *Id.* at 1:56–2:15. Corresponding contact-pad areas are formed at predetermined intervals on each wire by exposing the conductor from the insulating layer. *Id.* The light emitting component is then straddled between two contact pad areas, one lead connected to each conducting wire, thus electrically connecting the two adjacent conducting wires. *Id.* at 2:16–23. In this configuration, “it is not necessary to solder

leads of the surface mounted light emitting components to the two conducting wires.” *Id.* at 2:25–27. “Instead, every surface mounted light emitting component can be directly straddled” on the contact pads of the two wires “via a conductive material,” thus, avoiding the production issues discussed above. *Id.* at 2:27–33. In addition, the ’978 patent states that the configuration allows for relatively large contact areas leading to high reliability of the end product. *Id.* at 2:38–44.

Figure 1, reproduced below, is a perspective view of a light set according to a preferred embodiment of the ’978 patent.

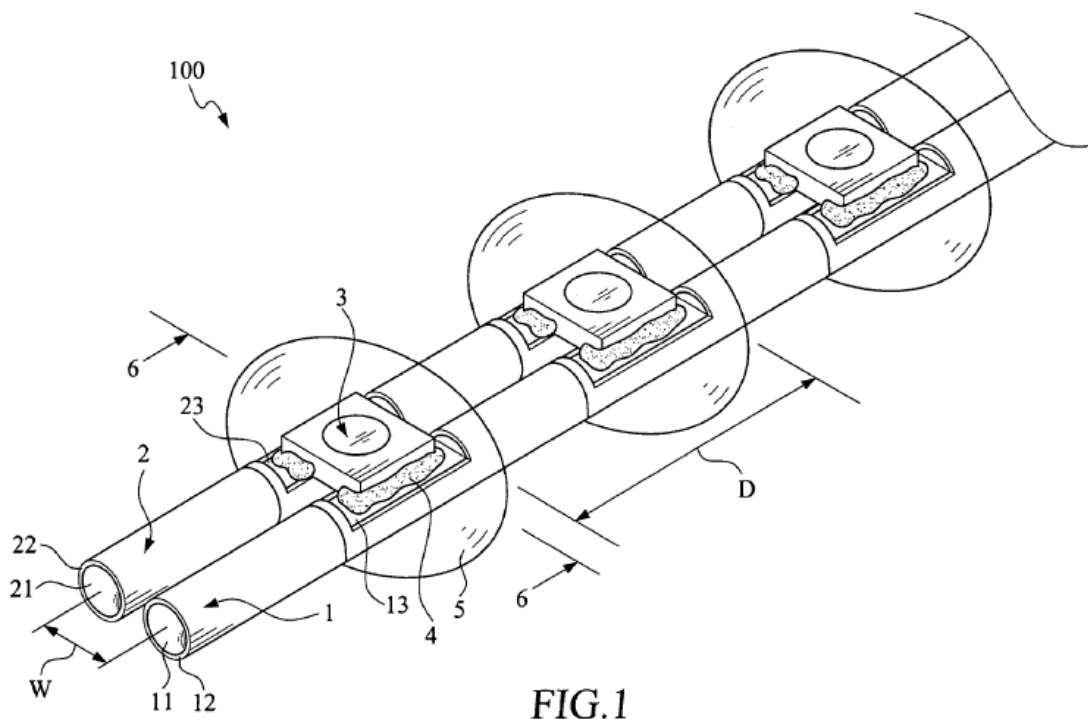


Figure 1 of the ’978 patent shows light set 100, including first conducting wire 1, second conducting wire 2 “parallelly disposed adjacent to” first conducting wire 1, and surface mounted light emitting components 3. *Id.* at 3:8–14, 22–24. The conducting wires include conductors 11, 21, and insulating layers 12, 22. *Id.* at 3:15–31.

Figure 2, reproduced below, shows, in more detail, the two conducting wires of light set 100. *Id.* at 2:56–57.

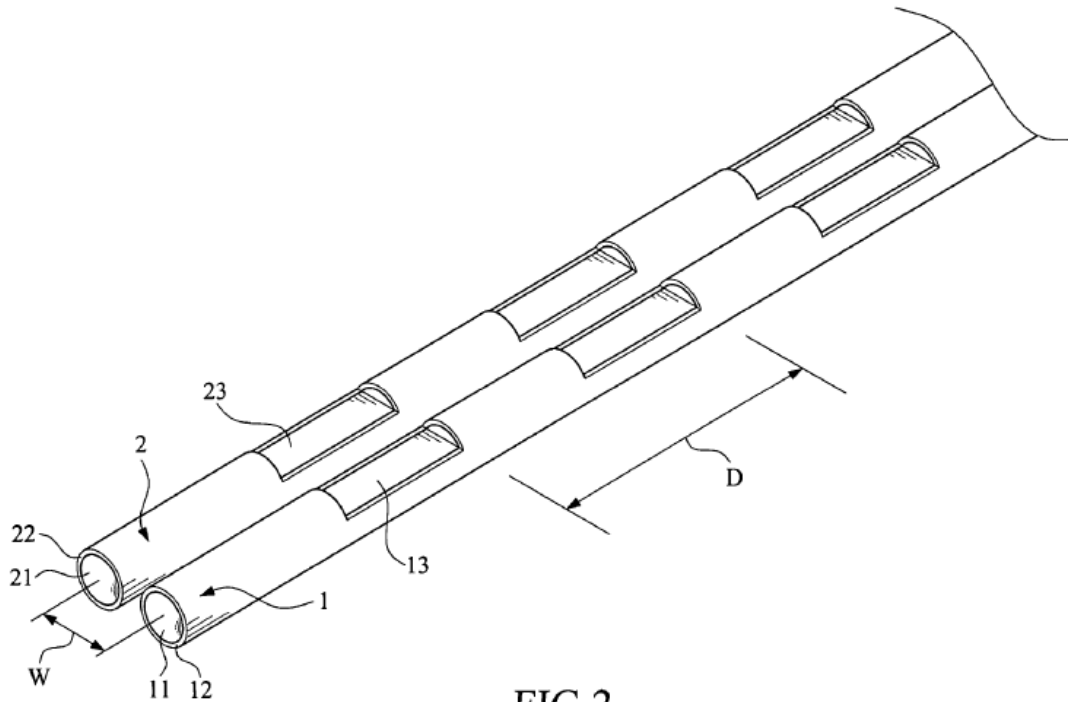


FIG. 2

Figure 2 of the '978 patent shows first and second conducting wires 1, 2, each with a plurality of adjacent contact-pad areas 13, 23 formed at predetermined intervals D. *Id.* at 3:38–42. Each wire's conductor 11, 21 is exposed at each of the contact-pad areas. *Id.* at 3:42–47.

Figure 6, reproduced below, shows an enlarged cross sectional view taken along line 6-6 of Figure 1. *Id.* at 2:66–67.

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