

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex Parte HEINZ LUFT

Appeal No. 2006-1149
Application No. 10/296,406

ON BRIEF

Before HAIRSTON, JERRY SMITH and BLANKENSHIP, Administrative Patent Judges.
JERRY SMITH, Administrative Patent Judge.

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 10-20 which constitute all the claims pending in this application.

The disclosed invention pertains to an adapter for electrical plug-in connections on fuel injectors.

Representative claim 10 is reproduced as follows:

10. An adapter for connecting an electrical plug-in connector of a fuel injector to a counterplug, the adapter comprising:

- a first end pluggable into the plug-in connector of the fuel injector;

Appeal No. 2006-1149
Application No. 10/296,406

- a second end pluggable into the counterplug;
- a first seal situated between the first end of the adapter and the plug-in connector of the fuel injector; and
- a second seal situated within the adapter between the second end of the adapter and the counterplug.

The examiner relies on the following references:

Muzslay	4,959,027	Sep. 25, 1990
Zinn	5,021,923	June 4, 1991

The following rejections are on appeal before us:

1. Claim 20 stands rejected under 35 U.S.C. §112, first paragraph, as containing subject matter not described in the specification in such a way as to enable one of ordinary skill in the art to make and use the invention.

2. Claims 10-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the teachings of Muzslay in view of Zinn.

Rather than repeat the arguments of appellant or the examiner, we make reference to the briefs and the answer for the respective details thereof.

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner and the evidence of obviousness relied upon by the examiner as support for the prior art rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellant's arguments set forth in the briefs along with the examiner's rationale

in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the specification complies with 35 U.S.C. § 112. We are also of the view that the evidence relied upon and the level of skill in the particular art would have suggested to one of ordinary skill in the art the obviousness of the invention as set forth in the claims on appeal. Accordingly, we affirm.

We first consider the examiner's rejection of claim 20 under 35 U.S.C. §112, first paragraph. The examiner asserts that the specification does not disclose how the spring buckle fixes the adapter on the fuel injector [answer, page 3].

With respect to the rejection of claim 20 under 35 U.S.C. §112, first paragraph, appellant argues:

[T]he drawings in Fig. 1 depict a portion of the adapter 1 that is below and in contact with the spring buckle 11. The spring buckle 11 of the adapter 1 is also held against a protruding portion of the plug-in connector 4. The protruding portion of the plug-in connector 4 is located above the portion of the adapter 1 that is below the spring buckle 11. Therefore, after the protruding portion of the plug-in connector 4 is slid past the lower portion of the adapter 1 and then past the spring buckle 11, the spring buckle 11 juts inwardly so that it obstructs a path for sliding the plug-in connector 4 in a reverse direction away from the adapter 1. When the spring buckle is arranged in this manner, the positions of the adapter 1 and plug-in connector 4 with respect to each other are maintained. The adapter is thereby fixed to the plug-in connector 4 [see supplemental brief, pages 4 and 5, and also reply brief, page 2].

The standard for determining whether the specification meets the enablement requirement of 35 U.S.C. 112, first paragraph is whether undue experimentation is needed to practice the invention. In re Wands, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988); United States v. Telectronics, Inc., 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed.

Cir. 1988).

We find that appellant's specification, including the drawings, does provide adequate support for the "spring buckle" recited in claim 20 to enable one of ordinary skill in the art to make and use the invention without undue experimentation. The recited "spring buckle" finds support at two places within the specification, *infra*, in addition to being shown in Fig. 1 as "spring buckle 11." See the instant specification, as originally filed, at page 2, line 13, and the substitute specification at page 2, line 8:

The adapter is advantageously secured on the plug-in connector of the fuel injector by a spring buckle, through which easier connectability to the counterplug of the electrical line may be achieved.

See also the instant specification, as originally filed, page 4, line 7, and the substitute specification, page 3, line 30:

As an additional safety measure, adapter 1 may be secured using a spring buckle 11 or a similar retention device after being plugged into plug-in connector 4 of the fuel injection, which prevents adapter 1 from slipping out of plug-in connector 4 and simultaneously makes plugging counterplug 6 into adapter 1 easier.

We will not sustain the examiner's rejection of claim 20 under 35 U.S.C. §112, first paragraph, because the operation of spring buckle 11 is apparent from the drawing, as shown in Fig. 1. As plug-in connector 4 begins to engage adapter 1, the protruding portion of plug-in connector 4 engages spring buckle 11 (illustrated as a cross section of a spring ring that can expand and contract back to its original ring diameter). As the slight angle of the protruding portion of plug-in connector 4 begins to engage spring buckle 11, it expands the diameter of circular or oval spring buckle 11. This expansion of the diameter of spring

buckle 11 enables full insertion of the plug-in connector 4 into recess 16 at which point the prongs of plug-in connector 4 engage axial seal 7 to seal the inner portions of the connector from the external environment. At the point of full insertion, spring buckle 11 passes over the protruding portion of plug-in connector 4 and snaps back to its original diameter, thereby fixing adapter 1 securely to plug-in connector 4. As argued by appellant, *supra*, after full insertion spring buckle 11 contracts inwardly so that it obstructs a path for sliding plug-in connector 4 in a reverse direction away from the adapter 1, this orientation essentially locking the adapter into place.

The examiner asserts that the lower portion of adapter 1 (i.e., the small square portion shown in Fig. 1 directly below spring buckle 11 with the same hatching as the upper portion of adapter 1) does not appear to be connected to the adapter and that the specification does not indicate that it is.

However, we agree with appellant that even though the connection of the lower portion of the adapter to the upper portion of the adapter is not shown in Fig. 1, it would be appreciated by one skilled in the art that the lower portion is connected to the adapter at a side of the adapter not shown in the drawings since the relevant portions of the specification, as discussed *supra*, indicate that spring buckle 11 secures the adapter to the plug-in connector.

The examiner further argues that the width of the lateral protrusion of plugin connector 4 is larger than the internal width of the lower portion of adapter 1, as shown in Fig. 1, and this would appear to prevent plugin connector 4 (attached to the fuel injector)

Appeal No. 2006-1149
Application No. 10/296,406

from fully engaging adapter 1 [answer, page 5].

We agree with the examiner that a close inspection of Fig. 1 does reveal that the internal width of the lower portion of adapter 1 is shown as being slightly smaller than the width of the lateral protrusion. However, as appellant has correctly noted, the Court of Appeals for the Federal Circuit has determined that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue. Hockerson-Halberstadt, Inc. v. Avia Group Intern., 222 F.3d 951, 956 (Fed. Cir. 2000), citing In re Wright, 569 F.2d 1124, 1127, 193 USPQ 332, 335 (CCPA 1977) (“Absent any written description in the specification of quantitative values, arguments based on measurement of a drawing are of little value”). We note that the instant specification is completely silent regarding the precise proportions of the elements shown in the drawings.

Accordingly, the examiner’s rejection of claim 20 under 35 U.S.C. §112, first paragraph and the corresponding objections to the drawings under 35 C.F.R. §1.83(a) are without merit.

We now consider the examiner’s rejection based on 35 U.S.C. § 103. In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

Any inquiry into obviousness must ascertain “the scope and content of the prior art,”

Appeal No. 2006-1149
Application No. 10/296,406

the “differences between the prior art and the claims at issue,” and must resolve, “the level of ordinary skill in the pertinent art.” In re Kahn, 441 F.3d 977, 985, 78 USPQ2d 1329, 1335 (Fed. Cir. 2006) citing Dann v. Johnston 425 U.S. 219, 226 (1976) (quoting Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966)).

In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co. and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Id. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984).

The teaching or suggestion to make the claimed combination must be found in the prior art and may not be based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. Medchem S.A. v. Rolabo, S.L., 437 F.3d 1157, 1165 (Fed. Cir. 2006); In re Merck & Co., Inc., 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. In re

Appeal No. 2006-1149
Application No. 10/296,406

Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. See Id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976). Only those arguments actually made by appellant have been considered in this decision. Arguments which appellant could have made but chose not to make in the brief have not been considered and are deemed to be waived [see 37 CFR § 41.37(c)(1)(vii)(2004)].

We consider first the examiner's rejection of claims 10-17, 19, and 20 that stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the teachings of Muzslay in view of Zinn. Since appellant's arguments with respect to this rejection have treated these claims as a single group which stand or fall together, we will consider independent claim 10 as the representative claim for this rejection.

Appellant argues that the Zinn patent pertains to a central current distribution arrangement that is unrelated to the fuel injector plug-in connections disclosed by the Muzslay patent. Appellant asserts that these two references are not from the same field of endeavor and therefore the combination of the Muzslay patent with the radial seal taught by

Appeal No. 2006-1149
Application No. 10/296,406

Zinn does not render claims 10 to 17, 19, and 20 unpatentable [supplemental brief, pages 6 and 7].

Whether a reference in the prior art is "analogous" is a question of fact. In re Clay, 23 USPQ2d 1058 (Fed. Cir. 1992), citing Panduit Corp. v. Dennison Mfg., 810 F.2d 1561, 1568 n.9, 1 USPQ2d 1593, 1597 n.9 (Fed. Cir.), cert. denied, 481 U.S. 1052 (1987). The Court of Appeals for the Federal Circuit has set forth two criteria for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. In re Kahn, 441 F.3d 977, 987, 78 USPQ2d 1329, 1335-36 (Fed. Cir. 2006) citing In re Oetiker, 977 F.2d 1443, 1447 (Fed. Cir. 1992). See also In re Clay, *supra*, at 1060, citing In re Deminski, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed. Cir. 1986); In re Wood, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979).

We find that both the Muzslay and Zinn references pertain to the same field of endeavor. Muzslay teaches an electrical adapter for a fuel injector. Zinn teaches a current distribution arrangement especially for motor vehicles. Both references clearly pertain to the field of automotive electrical art, and particularly to electrical connections and associated connectors in motor vehicles, as pointed out by the examiner [answer, page 6]. We find that the Zinn reference is also reasonably pertinent to the particular problem to be solved, i.e., the problem of sealing an electrical connection from exposure to environmental elements typically associated with a motor vehicle. The oval lip ring seal 64 taught by Zinn clearly

provides such a sealing function [Zinn, col. 4, line 24, Fig. 2].

There must be some teaching, suggestion, or motivation in the prior art (or in the knowledge of those of ordinary skill) to combine the references in the manner suggested. In re Rouffet, 149 F.2d 1350, 1357-59, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998). We agree that the examiner has provided a proper motivation in stating that it would have been obvious to a person of ordinary skill in the art “to form the adapter of Muzsly with a second seal being positioned between the second end of the adapter and counterplug, as taught by Zinn, to provide a liquid-tight connection” [answer, page 4]. One of the main objects of Zinn’s invention is to provide “secure protection against moisture” [Zinn, col. 1, lines 40, 45, 52].

Accordingly, we will sustain the examiner’s rejection of claims 10-17, 19, and 20 for the reasons argued by the examiner.

Claim 18

Dependent claim 18 requires that elastic spring shackles are pluggable into contact tabs of the counterplug. As shown in Fig. 2, elastic spring shackles 12 provide a female receptacle for making an electrical connection with a corresponding male connector shown as contact tab 10.

The instant specification describes this coupling between the elastic spring shackles and the contact tabs at page 5, line 4:

In the preferred exemplary embodiment illustrated in Figure 1, elastic spring shackles 12, into which contact tabs 14 of plug-in connector 4 are inserted, are implemented on contact tabs 10 of adapter 1 facing plug-in connector 4, while on the opposite side, elastic spring shackles 12 are implemented on contact tabs 13 of counterplug 6 facing contact tabs 10 of adapter 1, so that contact

tabs 10 of adapter 1 are plugged into spring shackles 12 of contact tabs 13.

As described in the specification, *supra*, the term “contact tab” may take two forms: as a male connector or as the corresponding female “spring shackles” connector. From the above description of the preferred exemplary embodiment, plug-in connection 4 (attached to the fuel injector) provides two male prongs (contact tabs 14) that plug into two corresponding female receptacles (contact tabs 10 implemented as spring shackles 12) of adapter 1. The top portion of adapter 1 provides two male connectors (contact tabs 10) that plug into two corresponding female receptacles (contact tabs 13 implemented as spring shackles 12) on counterplug 6. Thus, the male connectors at the top of adapter 1 are inserted into the corresponding female connectors on counterplug 6, in the preferred embodiment.

Claim 18 requires that elastic spring shackles (female) are pluggable into contact tabs (male) of the counterplug, thus reversing the female counterplug orientation of the preferred embodiment.

The examiner asserts that there is a reasonable expectation of success for modifying the adapter of the Muzsly patent to include spring shackles at an end that connects to connector 16 and that it would have been within the skill of one of ordinary skill in the art to duplicate the spring shackles of Muzsly on the counter-plug connection side (46), since this only requires providing a similar structure on the counter-plug connection side [answer, pages 6 and 7].

Specifically, the examiner asserts that since Muzsly teaches the use of spring

shackles (60) to connect to the plugin connector (14) that it would have been obvious to a person of ordinary skill in the art at the time the invention was made to “form the adapter of Muzslay having elastic spring shackles being pluggable into contact tabs of the counterplug, in order to provide a resilient connection and efficient electrical continuity” [answer, page 4].

Appellant argues that the combination of the Muzslay patent and the Zinn patent does not disclose or suggest elastic spring shackles pluggable into contact tabs of the plug-in connector of the fuel injector, and that there is not a reasonable expectation of success for modifying the adapter of the Muzslay patent to include spring shackles at an end that connects to the connectors 16 of the Muzslay patent, as suggested by the Examiner [reply brief, page 3]. Appellant asserts that because the Muzslay patent teaches an adapter for connecting a straight fuel injector with a connector that projects at a 45 degree angle, the success of modifying the Mozslay adapter so that each side is similarly structured cannot be expected [reply brief, page 3].

Appellant also argues that there is no reason to provide spring shackles at the upper contact part 56, as suggested by the examiner, because there is no male connector on which to latch [supplemental brief, page 8].

The Muzslay patent teaches contacts 52 and 54 that each have a lower part 60. The lower contact part has a terminal-receiving hole 64 that receives a terminal 24 of the fuel injector [col. 2, lines 44-50]. Thus, the Muzslay patent teaches the use of female connectors on the side of adapter 14 that connects to male connectors 24 and 26, as shown in Fig. 1.

Evidence of a motivation to combine prior art references "may flow from the prior art

Appeal No. 2006-1149
Application No. 10/296,406

the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved." Brown & Williamson Tobacco Corp. v. Philip Morris Inc., 229 F.3d 1120, 1124-25, 56 USPQ2d 1456, 1459 (Fed. Cir. 2000). An obviousness determination requires not only the existence of a motivation to combine elements from a different prior art reference, but also that a skilled artisan would have perceived a reasonable expectation of success in making the combination. Medchem S.A. v. Rolabo, S.L., 437 F.3d 1157, 1165 (Fed. Cir. 2006). While the definition of "reasonable expectation" is somewhat vague, it does not require a *certainty* of success. Id. at 1165 citing In re O'Farrell, 853 F.2d 894, 903-04 (Fed. Cir. 1988). ("Obviousness does not require absolute predictability of success.... All that is required is a reasonable expectation of success."). Whether an art is predictable or whether the proposed modification or combination of the prior art has a reasonable expectation of success is determined at the time the invention was made. Ex parte Erlich, 3 USPQ2d 1011 (Bd. Pat. App. & Inter. 1986).

We will sustain the examiner's rejection of claim 18 for the reasons argued by the examiner and also because we find that one of ordinary skill would readily discern from the nature of the problem to be solved that reversing the connection orientation of male and female electrical connectors would be required in certain applications. If a person of ordinary skill in the art is presented with a female connector on an automotive wiring harness, they will instantly recognize that a male connector is required to connect with the female connector and vice-versa. It is unclear how the design choice of substituting a male connector for a female connector would be materially impacted by the angle of the

Appeal No. 2006-1149
Application No. 10/296,406

connector, as argued by Appellant. As a design choice, such reversed orientation of electrical connectors would clearly have a reasonable expectation of success with predictable results that would be well within the knowledge of one of ordinary skill in the art at the time of the invention. See Graham v. John Deere Co., 383 U.S. 1, 86 S.Ct. 684 (1966); In re Gazda, 42 CCPA 770, 773, 219 F.2d 449, 451 (1955); See also In re Kuhle, 526 F.2d 553, 555 (CCPA 1975).

In summary, we have not sustained the examiner's rejection of claim 20 under 35 U.S.C. § 112, but we have sustained the examiner's rejection of all the claims on appeal under 35 U.S.C. § 103. Therefore, the decision of the examiner rejecting claims 10-20 is affirmed.

No time period for taking any subsequent action in connection with this appeal may

Appeal No. 2006-1149
Application No. 10/296,406

be extended under 37 CFR § 1.136(a)(1)(iv) (2004).

AFFIRMED

KENNETH W. HAIRSTON
Administrative Patent Judge

JERRY SMITH
Administrative Patent Judge

HOWARD B. BLANKENSHIP
Administrative Patent Judge

)
)
)
)
)
) **BOARD OF PATENT**
) **APPEALS AND**
) **INTERFERENCES**
)
)
)
)
)

JS/rwk

KENYON & KENYON LLP
ONE BROADWAY

Appeal No. 2006-1149
Application No. 10/296,406

NEW YORK, NY 10004