

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

POSITEC USA, INC. and RW DIRECT, INC.,
Petitioner,

v.

BLACK & DECKER INC.,
Patent Owner.

Case IPR2013-00502
Patent 5,544,417

Before BRIAN J. McNAMARA, RICHARD E. RICE, and
CARL M. DeFRANCO, *Administrative Patent Judges*.

RICE, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73(b)

I. INTRODUCTION

A. Background

Positec USA, Inc. and RW Direct, Inc. (collectively, “Petitioner”) filed a Corrected Petition (Paper 4, “Pet.”) requesting an *inter partes* review of claims 1, 2, 4, 5, 7, 10, 12–14, 16, and 17 of U.S. Patent No. 5,544,417 (Ex. 1008, “the ’417 Patent”). In response, Black & Decker Inc. (“Patent Owner”) disclaimed claims 1, 2, 4, 5, and 12–14. Prelim. Resp. (Paper 8); Statutory Disclaimer (Ex. 2001). We instituted trial for claims 7, 10, 16, and 17 on the following grounds: claims 7 and 10 as unpatentable under 35 U.S.C. § 103(a) as obvious over Laverick¹ and Mack;² and claims 16 and 17 as unpatentable under 35 U.S.C. § 103(a) as obvious over Mack. Decision to Institute (Paper 16, “Dec. to Inst.”) 22–23.

Patent Owner filed a Patent Owner Response (Paper 19, “PO Resp.”). Petitioner filed a Reply (Paper 24, “Pet. Reply”).

In its Response (Paper 19), Patent Owner relied upon the Declaration of Philip J. O’Keefe, PE (Ex. 2002). In its Reply, Petitioner relied upon cross-examination deposition testimony of Mr. O’Keefe (Ex. 1019).

Oral argument was conducted on October 3, 2014. A transcript is entered as Paper 34 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(c). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

¹ GB 2 115 665 A (Ex. 1009).

² US 4,498,237 (Ex. 1010).

We hold that, by a preponderance of the evidence, Petitioner has shown that claims 16 and 17 are unpatentable, but that Petitioner has not shown that claims 7 and 10 are unpatentable.

B. The '417 Patent

The '417 Patent relates to a vegetation cutter/string trimmer, with a motor that is supported within a housing by a mounting plate, “without the need for a plurality of ribs to be formed on interior surfaces of the housing of the string trimmer.” Ex. 1008, 1:23–29. As described in the Specification, a conventional motor-mounting arrangement requires “relatively precisely-positioned ribs on the interior surfaces of the housing” (*id.* at 1:55–56), necessitating use of “complex and expensive molds or dies” (*id.* at 1:58–59) and expensive types of plastic (*id.* at 1:63–2:3). As a solution to these problems of the prior art, the Specification describes a motor-mounting-plate assembly that “allows the motor to be freely supported within the housing halves of the trimmer apparatus housing, thus obviating the need to precisely position the motor over a plurality of outwardly protruding ribs formed on the interior surfaces of the housing halves.” *Id.* at 2:44–49.

Figure 3 of the '417 Patent depicts string trimmer apparatus 10, in which motor 36 is supported within housing half 16b by motor-mounting-plate assembly 38. Interior, circumferential groove 26b is formed between the undersurface 37 of horizontally-extending shoulder portion 28, which extends around interior wall 30 of housing half 16b, and upper edge surfaces 34 of a plurality of spaced-apart, vertically-extending shoulder portions 32. Ex. 1008, 4:14–29, Figs. 2 & 3.

Figure 3 is reproduced below.

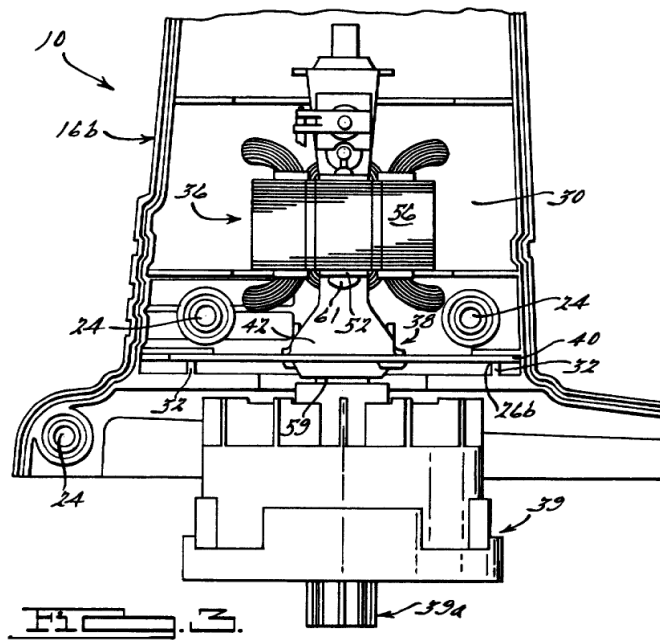


Figure 3 is a side view of the interior of the base of the string trimmer apparatus. *Id.* at 3:30–34, 4:30–33. As shown in Figure 3, motor mounting plate assembly 38 includes planar plate member 40 and U-shaped bracket member 42. *Id.* at 4:30–33, 37–40.

Motor mounting plate assembly 38 is shown in greater detail in Figure 4, which is reproduced below. *Id.* at 3:35, 4:38–40.

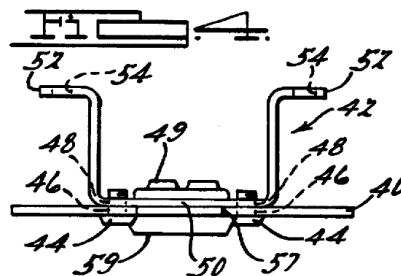


Figure 4 depicts a side view of the motor-mounting-plate assembly. As illustrated in Figure 4, plate member 40 is secured to base portion 50 of

bracket member 42 via threaded screws 44. *Id.* at 4:40–45. The bracket member includes a pair of transversely-extending arm portions 52, each of which includes an aperture 54. *Id.* at 4:45–48. Motor 36 is secured to bracket member 42 via apertures 54 and threaded screws 61. *Id.* at 4:48–50, 5:8–10. “When assembled together, the motor mounting plate 40, the U-shaped bracket member 42 and motor 36 form a rigidly coupled assembly.” *Id.* at 5:5–7.

During assembly of string trimmer apparatus 10, motor 36 and motor mounting plate assembly 38 are first assembled together and then positioned within housing half 16b, such that plate member 40 is inserted in groove 26b of interior wall 30. *Id.* at 5:8–11, 14–15, Fig. 3. The height of groove 26b is sized preferably “such that a slight degree of force is required to seat two of the edge portions 40a of the mounting plate member 40 in the groove such that the mounting plate member does not wobble or otherwise ‘rock’ in the groove.” *Id.* at 5:21–25. The Specification states that “[o]nce the mounting plate member 40 is inserted in the groove 26b, the entire motor 36 is supported within the housing half 16b such that no portion of the motor 36 touches the interior wall 30 of the housing half 16b.” *Id.* at 5:25–29. The Specification further states that “[a]ccordingly, no other portion of the interior wall 30 of the housing half 16b or any other external component is required to support the motor 36.” *Id.* at 5:29–31.

Claims 7 and 16 are illustrative of the claimed subject matter and are reproduced below.

7. A line trimming apparatus for trimming vegetation, comprising:

- a trimming line;
- a motor drivingly connected to the line;
- a housing having an interior wall surface, said interior wall surface including a mounting area in the form of a groove formed thereon; and
- a mounting plate assembly fixedly secured to said motor for mounting said motor within said housing such that said at least a portion of said mounting plate assembly is supported within said groove in said interior wall surface of said housing such that said motor is supported within said housing without the need for direct contact of any portion of said motor with said interior wall surface of said housing.

16. A method for assembling an outdoor power tool, the method comprising:

- forming a first housing section having a circumferential groove formed in an interior wall thereof;

- forming a second housing section having a circumferential groove formed in an interior wall thereof;

- fixedly securing a motor mounting plate to a motor;

- inserting a portion of said motor mounting plate into said circumferential groove in said second housing section;

- placing said first housing section against said second housing section to cause a portion of said mounting plate to engage within said circumferential groove in said interior wall of said first housing section, to thereby cause said mounting plate to be supported at a plurality of positions by said circumferential grooves, to thereby enable said motor to be supported within said first and second housing sections without said

motor contacting any portion of said interior walls
of said first and second housing sections; and
securing said first housing section to said
second housing section.

Id. at 8:47–67, 10:11–31.

II. DISCUSSION

A. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). Claim terms are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). The words of the claim must be given their plain meaning unless the plain meaning is inconsistent with the specification. *In re Zletz*, 893 F.2d 319, 321 (Fed. Cir. 1989). Any special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

1. “Fixedly secured” and “fixedly securing”

Claim 7 recites “a motor mounting plate assembly *fixedly secured* to said motor” (emphasis added), and claim 16 recites “*fixedly securing* a motor mounting plate to a motor” (emphasis added). Petitioner contends that the broadest reasonable construction of the term “fixedly secure” is

“securely placed or fastened.” Pet. 11; *see* Tr. 8:7–9:1. We do not agree with Petitioner’s claim construction, because it is inconsistent with the plain meaning of “fixedly,” as interpreted in light of the Specification.

As Petitioner points out, the terms “fixedly secured” and “fixedly securing” do not appear in the Specification. Pet. 11. The Specification, however, sheds light on the meaning of these terms where it describes the manner in which motor 36, plate member 40, and bracket member 42 are “secured” to each other and assembled in the housing. Notably, the Specification uses the term “*rigidly coupled*” (emphasis added) to describe the assembly of the motor, the plate member, and the bracket. Ex. 1008, 5:5–7. We understand “rigidly coupled,” in this context, to signify that the coupled components cannot move relative to one another. Consistent with this understanding, the Specification describes the use of threaded screws to assemble motor 36, plate member 40, and bracket member 42. *Id.* at 4:40–42 (“[t]he plate member 40 is secured to the U-shaped bracket member 42 via a plurality of threaded screws 44”), 5:8–10 (“the motor 36 is secured to the U-shaped bracket member 42 via a pair of threaded screws 61”). No other support is needed to prevent the motor from touching the interior wall of the housing when the plate member (with bracket member and motor attached) is mounted in groove 26b such that it does not wobble or rock in the groove, because motor 36, plate member 40, and bracket member 42 cannot move relative to each other. *See id.* at 5:20–31.

In light of the Specification, therefore, the broadest reasonable interpretation of “fixedly secured” is “fastened such that relative movement is prevented.” Thus, in claim 7, which recites “a mounting plate assembly

fixedly secured to said motor,” relative movement between the mounting plate assembly and the motor is prevented. Similarly, the broadest reasonable interpretation of “fixedly securing,” in light of the Specification, is “fastening such that relative movement is prevented.”

Our claim interpretation is consistent with the use of “fixedly secured” in Mack, which is prior art to the claims of the ’417 Patent. Mack uses “fixedly secured” to describe the manner in which inner support plate 95 of cutting means 31 is fastened to the inner wall of casing 11 by screws 105. Ex. 1010, 4:13–14, 20–21, Fig. 3; *see* section II.B.1.b *infra*.

2. “Groove”

Petitioner contends that the claim term “groove” should be construed to mean “a channel or a portion formed by two shoulder portions protruding transversely of the interior walls.” Pet. 12 (citing Ex. 1008, 4:14–29). In a preferred embodiment, groove 26b is formed between horizontally-extending shoulder portion 28 and a plurality of spaced-apart shoulder portions 32. Ex. 1008, 4:14–29, Fig. 2; *see* section I.B *supra*. We are not persuaded, however, that the shoulder portions of the preferred embodiment should be read into our interpretation of the claim term “groove.” *See Superguide Corp. v. DirecTV Enterprises, Inc.*, 358 F.3d 870, 875 (Fed. Cir. 2004). We determine that the broadest reasonable interpretation in light of the Specification of a “groove” is a channel.

3. “Without the need for direct contact”

Neither party proposes a construction for the limitation “said motor is supported within said housing *without the need for direct contact* of any

portion of said motor with said interior wall surface of said housing” (emphasis added), recited in claim 7.

In contrast with conventional string trimmers in which ribs formed on the interior of the housing “supported and held stationary” the motor within the housing (Ex. 1008, 1:42–51), the Specification describes a motor mounting plate assembly supported in a groove within the housing “such that the mounting plate member does not wobble or otherwise ‘rock’ in the groove” (*id.* at 5:23–25), and “no portion of the motor 36 touches the interior wall 30 of the housing half 16b” (*id.* at 5:27–29). As such, “the mounting plate assembly 38 of the present invention allows the motor 36 to be supported within the housing halves 16a and 16b without the need for a plurality of internally formed ribs to make abutting contact with any portion of the motor.” *Id.* at 5:44–48.

We determine that the broadest reasonable interpretation consistent with the Specification of the “without the need for direct contact” limitation requires the motor to be supported within the housing without use of direct contact between motor and housing to support the motor.

4. “*Without . . . contacting*”

Claim 16 recites “placing said first housing section against said second housing section . . . to thereby enable said motor to be supported within said first and second housing sections *without* said motor *contacting* any portion of said interior walls of said first and second housing sections” (emphasis added). Thus, while claim 7 recites “without . . . *direct contact*” (emphasis added), claim 16 recites “without . . . *contacting*.”

At oral argument, Petitioner suggested that “contacting” in claim 16 could be construed to encompass indirect contact. Tr. 7:12–18. We disagree. If “contacting” were construed to encompass indirect contact, the phrase “without . . . contacting” in claim 16 would require supporting the motor without indirect contact between the motor and the housing, in contradiction of the surrounding language of claim 16 requiring the motor to contact indirectly the housing via an intermediate structure, i.e., a motor mounting plate assembly secured to both the motor and the housing. Such a claim construction also would be inconsistent with the Specification. See Ex. 1008, 5:8–29, Fig. 3 (describing motor 36 as secured to motor mounting assembly 38 and positioned within housing half 16b without touching interior wall 30). Patent Owner’s position at oral argument was that claim 16, like claim 7, requires direct contact. Tr. 52:8–17.

We determine that the broadest reasonable interpretation consistent with the Specification of “contacting” in claim 16 does not encompass indirect contact.

5. *“A method for assembling an outdoor power tool”*

The preamble of claim 16 recites “[a] method for assembling an outdoor power tool.” Patent Owner contends that the preamble is a claim limitation. PO Resp. 47–51. Patent Owner argues that “[i]n method claims all of the elements recited in a preamble are likely to be deemed limitations on the scope of the claim.” *Id.* at 49 (citing *Jansen v. Rexall Sundown, Inc.*, 342 F.3d 1329 (Fed. Cir. 2003)). Patent Owner also argues that “[c]lear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation.”

Id. at 50 (citing *Catalina Mktg. Int’l v. Coolsavings.com, Inc.*, 289 F.3d 801, 808–09 (Fed. Cir. 2002); Ex. 2003 (’417 Patent Pros. Hist.), 30. “To remove any doubt,” Patent Owner “expressly states on the record that claims 16 and 17 . . . are limited to ‘outdoor power tools.’” PO Resp. 51.

Patent Owner has failed to persuade us that the preamble of claim 16 is a claim limitation. First, we are not persuaded that *Jansen* is applicable here. In *Jansen*, the Federal Circuit reasoned that the recitation of a human “in need” in the body of a method claim gave “life and meaning” to the statement of purpose (treating or preventing macrocytic-megaloblastic anemia) recited in the preamble. *Jansen*, 342 F.3d at 1333 (citation omitted). Here, no comparable language in the body of claim 16 gives life and meaning to the statement of purpose in its preamble. Second, we are not persuaded that Patent Owner relied on the preamble during prosecution to distinguish the prior art. We note, for example, that in responding to a § 102 rejection based on Mack (July 10, 1995 Non-Final Act., Ex. 2003, 31, 34), Patent Owner amended claim 16 (e.g., to recite a “circumferential” groove) instead of traversing the rejection based on the preamble language (Sept. 1, 1995 Amendment, Ex. 2003, 39, 45).

We determine that the preamble of claim 16 is not a claim limitation.

6. “Bracket member”

Petitioner contends that the claim term “bracket member” should be construed to mean “a member that is designed to support a component.” Pet. 12–13 (citing Ex. 1008, 4:45–47). Patent Owner does not propose a claim construction for “bracket member.” In a preferred embodiment described in the Specification, U-shaped bracket member 42 comprises a

pair of transversely-extending arm portions 52, which support the vertical load of motor 36. Ex. 1008, 4:45–55, Figs. 3 & 4. Petitioner’s proposed claim construction is overly broad because it would encompass any support member.

We determine that the broadest reasonable interpretation consistent with the Specification of “bracket member” is a support member comprising a transversely-extending arm portion.

B. Obviousness Analysis

To prevail in its challenges to the patentability of claims 7, 10, 16, and 17, Petitioner must establish facts supporting its challenges by a preponderance of the evidence. See 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). A claim is unpatentable under 35 U.S.C. § 103(a) if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. See *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). A patent claim composed of several elements, however, is not proved obvious merely by demonstrating that each of its elements was known, independently, in the prior art. *KSR*, 550 U.S. at 418. In analyzing the obviousness of a combination of prior art elements, it can be important to identify a reason that would have prompted one of skill in the art to combine the elements in the way the claimed invention does. *Id.* A precise teaching directed to the specific subject matter of a challenged claim is not necessary to establish obviousness. *Id.* Rather, “any need or problem known in the

field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.* at 420.

We analyze the instituted grounds of unpatentability in accordance with the above-stated principles.

*1. Asserted Obviousness of Claims 7 and 10
over Laverick and Mack*

We instituted a review based on Petitioner’s contention that the combination of Laverick and Mack renders obvious claims 7 and 10 under 35 U.S.C. § 103(a). Dec. to Inst. 23. Upon consideration of the parties’ arguments and evidence, we determine that Petitioner has not demonstrated that those claims would have been obvious over Laverick and Mack, for the reasons explained below.

a. Overview of Laverick

Laverick discloses a string trimmer apparatus having two “clam-shell” portions 1 and 2, including motor housing portions 3 and 4, joined longitudinally. Ex. 1009, 10:21–32, 92–97, Fig. 2.³ Figure 2 of Laverick, which depicts a string trimmer embodiment, is reproduced below and cropped to show only the bottom end of the string trimmer.

³ We cite to the page numbers of Exhibit 1009 (Laverick) as filed, rather than the published page numbering, which is different.

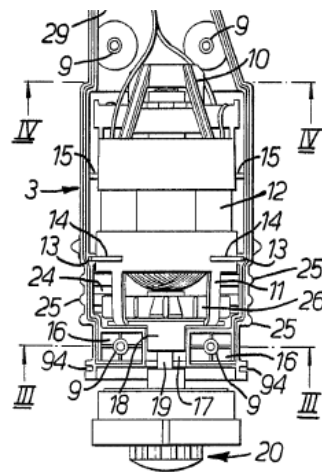


FIG. 2.

Figure 2, as cropped, is a composite side elevation of motor housing portion 3. *Id.* at 10:58–60, 92–97.

Laverick discloses that “portion 3 is contoured internally to support a driving motor.” *Id.* at 11:17–18, Fig. 2. “Portion 3 has an internal groove 13 in which locate flanges 14 on [motor] end cap 11 and has an internal rib 15 that supports the motor in the vicinity of end cap 10.” *Id.* at 11:24–27. Further, as shown in Figure 2, the lower end of motor housing portion 3 is “strengthened by internal transverse walls forming box-like partitions 16 separated by a central gap 17 into which extends a boss 18 of end cap 11.” *Id.* at 11:28–32. Laverick discloses that gap 17 is configured such that the motor is held securely in position when “clam-shell” portions 1 and 2 are secured together:

The gap 17 has a semi-cylindrical part to receive the boss 18 and a narrower part extending from the semi-cylindrical part in which locates one of two projections on the end face of the end cap 11. *In this way, the motor is securely held in position when the portions 1, 2 are secured together.*

Id. at 11:32–38 (emphasis added).

extensions 62a and 62b, which define a groove for insertion of flat portion 45 of gear housing assembly 32. *Id.* at 3:5–7, 21–24.

Figure 6 of Mack is reproduced below:

FIG. 6

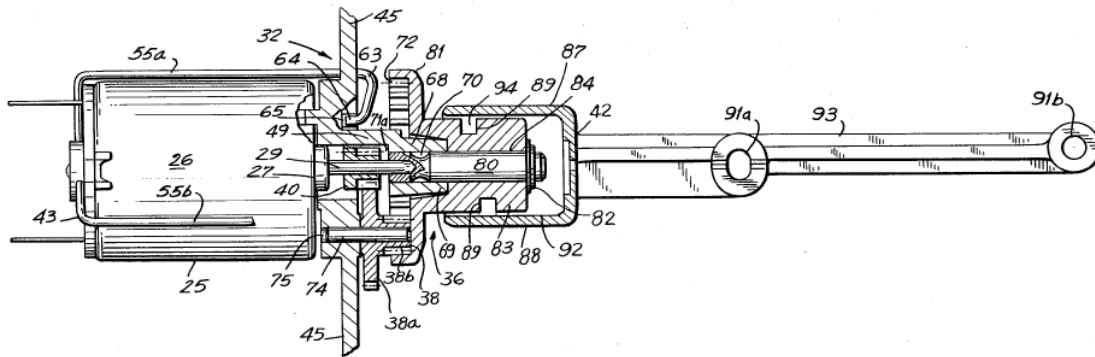


Figure 6 is a cross-sectional view of the main drive assembly.

As depicted in Figure 6, low-voltage DC motor 25 includes bearing portion 27 with rotatable output shaft 29 extending therefrom. *Id.* at 2:59–68. Secured to bearing portion 27 is gear housing assembly 32, which includes motor mounting yoke 43, flat portion 45, and forward extension 49. *Id.* at 3:5–9, Fig. 6. Flat portion 45 includes aperture 47, which receives bearing portion 27 of motor 25. *Id.* at 3:7–8. Yoke 43, “formed from a spring grade wire,” comprises U-shaped portion 51, which engages motor housing 26. *Id.* at 3:9–12. Legs 55a and 55b of yoke 43 extend along opposite sides of motor 25 and include transverse bends 63 that attach to apertures 65 in flat portion 45, as shown in Figure 6. *Id.* at 3:12–18, Fig. 6.

Mack discloses that this configuration positions and supports motor 25 against rotation:

The motor 25 is positioned and supported against rotation by the snug fit of the bearing portion 27 in the aperture 47, tension on the yoke 43 and the sandwiching of the flat portion 45 between inner wall extensions 62a, 62b on inner wall 12a and opposing wall extensions (not shown) on inner wall 17b.

Id. at 3:18–24.

As shown in Figure 6, drive extension 42 has elongated portion 93, which extends downstream of motor 25. *Id.* at 3:60–61, Fig. 6. Elongated portion 93 is secured to cutting means 31, “so as to be restrained against rotational movement while permitting reciprocating axial movement to be transmitted from the drive extension 42.” *Id.* at 3:61–66, Fig. 3. Cutting means 31 includes inner support plate 95, which is “fixedly secured” to the inner wall of casing 11 by screws 105. *Id.* at 4:13–14, 20–21, Fig. 3.

c. Analysis of Claims 7 and 10

Petitioner argues that “the challenged claims are invalid under 35 U.S.C. § 103 because they do nothing more than combine known techniques and apparatuses according to their known and ordinary uses to yield predictable results.” Pet. 18 (citing *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 420 (2007)). Petitioner asserts that Mack “teaches that a motor for hair trimmers may be supported on a mounting plate in a groove without any additional support structures in the housing.” *Id.* at 19. Petitioner also asserts that as shown in Figure 3 of Mack (reproduced above), “the motor is positioned so as not to contact any portion of the inner walls 17a, 17b of the first and second sections 12a and 12b.” *Id.* at 36 (claim chart, element g).

Petitioner asserts that Laverick “discloses a motor mounting assembly for string trimmers that includes a motor mounted on a plate and additionally supported using ribs.” *Id.* at 19. Petitioner also asserts that a person of ordinary skill in the art would have recognized that “the extra supports” in Laverick were “redundant” and inconsistent with alleged objectives of “minimizing contact with the housing,” “simplifying the construction,” and “reducing costs by reducing the number of components.” *Id.* at 20 (citations omitted).

Petitioner argues that one of ordinary skill in the art predictably would have substituted the groove/flange (elements 13 and 14) of Laverick with the groove/plate (elements 62a, 62b, and 45) of Mack, and would have dimensioned the groove/plate in order to freely support the motor within the housing without contacting the interior of the housing. *Id.* at 20–21 (citations omitted). Petitioner also argues that “the challenged claims represent solutions that would have been obvious to try with predictable results.” *Id.* at 17 (citing *KSR*, 550 U.S. at 416).

Petitioner contends that expert testimony concerning whether Laverick and Mack can be combined is not required. *See* Pet. Reply 10 (citing *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1239 (Fed. Cir. 2010)). Petitioner asserts that “[l]ogic, judgment and common sense all point a person of ordinary skill in the art to look to other small electric tools or appliances for a possible solution, and combining Mack and Laverick would have been entirely proper.” *Id.* at 11.

i. “*Fixedly Secured*”

Claim 7 recites the limitation “a mounting plate assembly *fixedly secured* to said motor” (emphasis added). Petitioner relies on Mack for that limitation. Pet. 35 (claim chart, element f). In particular, Petitioner relies on Mack’s disclosure of “the snug fit” between bearing portion 27 of motor 25 and aperture 47 of flat portion 45 that secures and supports motor 25 “against rotation”:

The flat portion 45 is fixedly secured to motor 25: “A U-shaped portion 51 of the motor mounting yoke 43 engages the housing 26 of the motor 25. The yoke 43 is formed from a spring grade wire and has opposed legs 55a, 55b extending forwardly on opposite sides of the motor 25 and through opposite slots 56a, 56b, respectively, in the flat portion 45.” [Ex. 1010,] 3:9–14. As shown in [Figure 3] . . . , a flat portion 45 is of dimensions enabling the flat portion to be inserted within the circumferential grooves formed by inner wall extensions 62a, 62b positioned in each of the inner walls 17a, 17b of the first and second sections 12a and 12b. “*The motor 25 is positioned and supported against rotation by the snug fit of the bearing portion 27 in the aperture 47, tension on the yoke 43 and the sandwiching of the flat portion 45 between inner wall extensions 62a, 62b on inner wall 12a and opposing wall extensions (not shown) on inner wall 17b.*” *Id.* at 3:18–24.

Id. (emphasis added). Petitioner provides no expert testimony to show that Mack discloses that flat portion 45 (the asserted mounting plate assembly) is fastened to motor 25 such that relative movement is prevented, as required by the “fixedly secured” limitation. See section II.A.1 *supra*.

Patent Owner disagrees with Petitioner’s analysis of Mack, and asserts that “the miniature, low power DC motor in the hair trimmer of Mack is

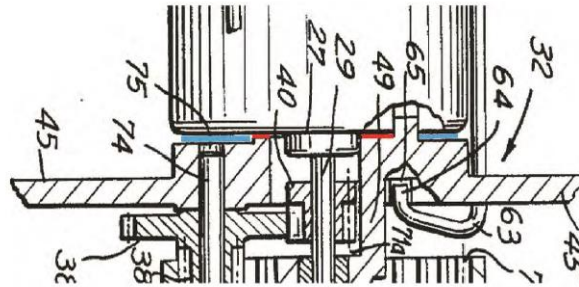
permitted to move or wobble,” relying on the testimony of its Declarant, Mr. O’Keefe. PO Resp. 31–32 (citing Ex. 2002 (O’Keefe Decl.) ¶¶ 24–25). Mr. O’Keefe testifies that the *flex* in the spring grade wire of yoke 43, and the *small contact surface* between motor 25 and flat portion 45, allow the motor both to move axially and to wobble from side-to-side:

24. The fastener of *Mack* that secures the motor to the side (flat portion (45)) of the gear housing assembly (32) is a yoke (43), which is formed from a spring grade wire. *See Mack* (Ex. 1010) column 3, lines 11 and 12. The spring wire yoke (43) must have sufficient flex that it can extend around the side of the gear housing assembly (32), where the ends (64) can retract into recesses or apertures (65) in the gear housing assembly (32), creating a tension on the spring yoke. The spring wire (43) would not be designed to be overly strong as this would make it exceedingly difficult to retract the ends (64) to snap them into the recesses (65) during the manufacturing process. The necessary flex in the spring wire (43) means the motor (25, 26) of *Mack* is unquestionably able to move in relation to the side of the gearbox (45) and housing. For example, the motor can move axially away from and toward the gearbox (left and right in (Ex. 1010) Fig. 6).

25. It is also apparent that the raised contact surface of the side (45) of the gear housing assembly (32) against which the motor is mounted is quite small. In light of the spring wire yoke (43), this means the back of the motor of *Mack* is also able to move up and down in Fig. 6 of *Mack*. (Ex. 1010). I have included below an enlarged portion of Fig. 6 of *Mack* where the raised contact surface is highlighted in red. The space the raised contact surface creates between the motor is highlighted in blue. This configuration facilitates this movement (the rear of the motor moves left and right in the orientation below). In other words, the *Mack* motor is able to wobble.

Ex. 2002 ¶¶ 24 & 25; see Ex. 1019 (O’Keefe Dep. Tr.), 56:12–57:21, 58:24–59:12.

Mr. O’Keefe’s annotated Figure 6 of Mack is reproduced below.



Ex. 2002 ¶ 25.

Mr. O’Keefe’s annotated Figure 6 of Mack shows, in red, the raised contact surface of flat portion 45 that allegedly is in contact with motor 25 and, in blue, the space or air gap where flat portion 45 and motor 25 allegedly are not in contact. Ex. 2002 ¶ 25; Ex. 1019, 58:24–59:12. As quoted above, Mr. O’Keefe testifies that this configuration permits the back of the motor to move, i.e., wobble. Ex. 2002 ¶ 25. At oral argument, Petitioner agreed with Mr. O’Keefe’s analysis of Figure 6 of Mack. See Tr. 14:8–14, 60:21–64:19.

In its Reply, Petitioner contends that Mr. O’Keefe’s “experience is . . . inadequate” and “the generalized conclusions in [Mr.] O’Keefe’s declaration testimony should be afforded no weight.” Pet. Reply 1–2, 11–12.⁴

⁴ Petitioner also directs our attention to three product liability cases in which Mr. O’Keefe was proffered as an expert, but his testimony was excluded. *Id.* at 1–2 (citing Exs. 1021–1023). We are not persuaded that those cases are relevant to this case.

Petitioner, however, has provided evidence that Mr. O’Keefe is a licensed professional engineer, with relevant education and experience in the fields of mechanical and electrical engineering. Ex. 2002 ¶¶ 1–6, App. A. Upon review of the record, we determine that Mr. O’Keefe is qualified to testify in this proceeding as an engineering expert.

Petitioner does not dispute Mr. O’Keefe’s testimony in regard to Mack’s disclosure. See Ex. 2002 ¶¶ 22–25, 27, 29; Ex. 1019, 56:12–57:21, 58:24–59:12; Pet. Reply 1–15.⁵ Indeed, at oral argument, Petitioner relied on Mr. O’Keefe’s analysis of Mack to support Petitioner’s challenge to claim 10. Tr. 60:21–64:19. We credit Mr. O’Keefe’s testimony with respect to Mack’s disclosure. See Ex. 2002 ¶¶ 22–25, 27, 29; Ex. 1019, 56:12–57:21, 58:24–59:12.

We also credit Mr. O’Keefe’s testimony with respect to Laverick’s disclosure, discussed below. See Ex. 2002 ¶¶ 18, 19; Ex. 1019, 39:18–49:17; section II.B.1.c.ii *infra*.

ii. “Without The Need For Direct Contact”

Claim 7 recites “said motor is supported within said housing *without the need for direct contact* of any portion of said motor with said interior

⁵ Mr. O’Keefe analyzed commercial DC motors used in hair trimmer products and compared them to commercial AC motors used in string trimmer products. See, e.g., Ex. 2002 ¶¶ 36–47. Petitioner argues that Mr. O’Keefe analyzed an irrelevant hair trimmer and that his analysis omitted relevant measurements. Reply 12–15. Although Petitioner did not file a motion to exclude (see 37 C.F.R. § 42.64), we have not considered Mr. O’Keefe’s analysis of commercial motors or products in rendering our decision in this case.

wall surface of said housing” (emphasis added). This limitation requires the motor to be supported within the housing without use of direct contact between motor and housing to support the motor. *See* section II.A.3 *supra*.

At oral argument, the parties disagreed as to the location and function of the support structures disclosed in Laverick that directly contact the motor. Petitioner argued that groove 13 and rib 15 contact and completely support the motor, while box-like partitions 16 function only to strengthen the housing. Tr. 9:20–10:24, 24:14–25:4. Patent Owner, however, persuasively argued that box-like partitions 16 as well as groove 13 and rib 15 directly contact and support the motor. Tr. 37:12–38:23, 41:15–43:16. Patent Owner explained that box-like partitions 16 securely hold the motor in position and provide critical lower axial support for the motor (Tr. 37:12–38:2 (citing Ex. 1009, 11:28–38)), that groove 13 engages flange 14 on the side of the motor to ensure that the motor stays tight against the box-like partitions and to prevent the motor from moving upward when the string trimmer is bounced on the ground (*id.* at 38:8–12, 42:25–43:11), and that ribs 15 engage the upper part of the motor and prevent it from wobbling (*id.* at 42:6–9). Petitioner has not persuaded us that box-like partitions 16 function only to strengthen the housing.

iii. Obviousness Analysis

Petitioner has failed to show that the combination of Laverick and Mack includes the limitations “a mounting plate assembly fixedly secured to said motor” and “said motor is supported within said housing without the need for direct contact of any portion of said motor with said interior wall surface of said housing.”

As discussed above, Petitioner relies on Mack for the “fixedly secured” limitation. *See* Pet. 35 (claim chart, element f). In our Institution Decision, we stated:

Mack discloses that motor mounting yoke 43 in cooperation with other elements, including flat portion 45, supports motor 25 against rotation. *See* Ex. 1010, 3:18–24. However, this disclosure falls short of establishing that flat portion 45 (the asserted motor mounting plate) is fastened to motor 25 such that relative movement of the mounting plate and the motor is prevented, as claim 16 requires. Petitioners have not persuaded us that, in the orientation depicted in Mack’s Figure 6, the rear end of motor 25 necessarily does not move up or down relative to flat portion 45.

Dec. to Inst. 12–13. Upon consideration of the full record after a trial, Petitioner has not persuaded us that Mack discloses the “fixedly secured” limitation. Rather, we agree with Patent Owner that flat portion 45 and motor 25, as disclosed in Mack, are *not* fastened to each other such that relative movement is prevented. *See* Ex. 2002 ¶¶ 24, 25; Ex. 1019, 56:12–57:21, 58:24–59:12; section II.A.1 *supra*. Accordingly, any combination of Laverick and Mack involving mere substitution of the groove/plate (elements 62a, 62b, and 45) of Mack for the groove/flange (elements 13 and 14) of Laverick (*see* Pet. 19–20) would not have included “a mounting plate assembly fixedly secured to said motor.”

In response to questioning by the panel at oral argument, Petitioner clarified its position as to how one of ordinary skill would have needed to modify Laverick in order to arrive at the claimed invention. Tr. 54:8–20. Petitioner argued that one would have needed to substitute the groove/plate

of Mack for the groove/flange (elements 13 and 14) of Laverick, “recognizing that this is a bigger motor and, therefore, would need to be securely fastened to its mounting plate assembly.” *Id.* Petitioner further explained:

When you size up to the bigger motor that has more torque . . . , *it would be obvious . . . to just make the support that connects the motor to [the] plate beefier or more substantial by directly connecting it . . . [and] that you don’t need all the other pertinent touch points along the length of that motor.*

Id. at 56:17–25 (emphasis added). Petitioner acknowledged having no evidence to support its position, but argued that “common sense” was sufficient “in lieu of expert testimony” under *KSR* and that: “This is not rocket science. It is a step up, a scale up. It is a difference in size, but not in kind.” *Id.* at 58:2–9.

We are not persuaded that one of ordinary skill in the art would have arrived at the “fixedly secured” and “without the need for direct contact” limitations simply by scaling-up Mack’s mounting plate assembly for use with Laverick’s bigger motor. First, Petitioner has not explained adequately why a person of ordinary skill in the art would have substituted Laverick’s flange, which is integrally formed on Laverick’s motor (Ex. 1009, 11:25, Fig. 2; Ex. 2002 ¶ 18), with Mack’s plate, which is attached to Mack’s motor with a yoke comprising spring grade wire (Ex. 1010, 3:5–24, Fig. 6; Ex. 2002 ¶ 24). As discussed above, the evidence of record shows that the groove/plate of Mack secures Mack’s motor against rotation, but does not prevent the motor from moving axially or wobbling from side-to-side. Ex. 1010, 3:18–24; Ex. 2002 ¶¶ 24 & 25; Ex. 1019, 56:12–57:21, 58:24–59:12.

Second, Petitioner has failed to account for the different support functions of the groove/plate of Mack and the groove/flange of Laverick. In contrast with Mack's groove/plate, which secures Mack's motor against rotation, the groove/flange of Laverick is just one component of a composite support structure comprising precisely molded supporting ribs, protrusions, and surfaces that, together, function to clamp Laverick's motor along its length and to prevent the motor from wobbling or otherwise moving and causing vibration. Ex. 1009, 11:17–44; Ex. 1019, 39:18–49:17; Ex. 2002 ¶¶ 18 & 19; see PO Resp. 33–34. It is undisputed that Laverick's ribs 15, for example, engage the upper part of the motor and prevent it from wobbling. Ex. 1009, 11:24–27, Fig. 2; Pet. 19; Tr. 9:25–10:5, 24:25–25:4, 42:6–24. No evidence of record supports Petitioner's theory that substituting the groove/plate of Mack for the groove/flange (elements 13 and 14) of Laverick would have prevented wobbling of the motor in the absence of ribs 15. Further, Petitioner has failed to show that a person of ordinary skill in the art, in substituting the groove/flange of Laverick with the groove/plate of Mack, would have known to make all of the functional and structural changes needed to prevent relative movement between the plate and the motor and to support the motor without use of direct contact with the housing, as required by claim 7.

To the extent Petitioner argues that claims 7 and 10 would have been obvious to try (see Pet. 17), Petitioner has failed to show that that modifying Mack's groove/plate and substituting it for Laverick's groove/flange, as discussed above, was one of "a finite number of identified, predictable solutions" for solving any of the alleged design needs relating to Laverick's

contoured internal-housing support structure, such as minimizing contact, simplifying construction, or reducing cost. *KSR*, 550 U.S. at 421; see Pet. 20.

Upon consideration of the parties' arguments and evidence, we determine that Petitioner has not demonstrated by a preponderance of the evidence that claim 7 and its dependent claim 10 are unpatentable under 35 U.S.C. § 103 as obvious over Laverick and Mack.

*2. Asserted Obviousness of Claims 16 and 17
over Mack*

We instituted a review based on Petitioner's contention that Mack renders obvious claims 16 and 17 under 35 U.S.C. § 103(a). Dec. to Inst. 22–23. Upon consideration of the parties' arguments and evidence, we determine that Petitioner has demonstrated that those claims would have been obvious over Mack, for the reasons explained below.

a. Analogous Art Issue

Patent Owner contends that Mack is not analogous art and, therefore, may not be used as evidence with respect to the question of obviousness under § 103 of claims 16 and 17. PO Resp. 13 (citing *In re Bigio*, 381 F.3d 1320, 1325 (Fed. Cir. 2004); *In re Clay*, 966 F.2d 656, 658 (Fed. Cir. 1992)). Patent Owner argues that under the Federal Circuit's well-established two-step analysis a reference is analogous art only if it is: (1) within the same field of endeavor as the claimed invention; or (2) reasonably pertinent to the particular problem with which the inventor is involved. *Id.* at 14 (citations omitted).

With respect to the first step of the analysis, Patent Owner asserts that Mack is not within the same field of endeavor as the claimed invention because Mack “relates generally to a hair cutting unit” (*id.* at 18 (citing Ex. 1010, 1:6–7)) and the ’417 Patent “is directed to an outdoor power tool in the form of a string trimmer” (*id.* (citing Ex. 1008, 1:22–24)). As described expressly in the Specification, however, the scope of the invention of the ’417 Patent extends virtually to any form of small electric tool or appliance that includes an internally-mounted electric motor:

While the motor mounting plate assembly 38 has been described in connection with a string trimmer apparatus 10, it will be appreciated that the assembly 38 is applicable, with little or no modification, to *virtually any form of small electric tool or appliance which includes an internally mounted electric motor*. The teachings of the invention described in connection with the preferred embodiments are further particularly applicable to any form of tool or appliance having an electric motor, where an armature shaft of the motor must absorb not only radial thrust loads, but axial thrust loads as well.

Ex. 1008, 6:66–7:9 (emphasis added); *see* Pet. Reply 6. Patent Owner has failed to persuade us that a person of ordinary skill in the art would have understood the words a “small electric tool or appliance” in the above-quoted passage to refer solely to an outdoor power tool in the form of a string trimmer. *See* PO Resp. 21.

Patent Owner further argues, based on the prosecution history and the preamble of claim 16, that claims 16 and 17 relate to “an outdoor power tool.” PO Resp. 23 (citing Jan. 19, 1995 Prelim. Amendment, Ex. 2003, 21–30). Patent Owner has failed to persuade us that the preamble of claim 16 is

a claim limitation. See section II.A.5 *supra*. Further, we are not persuaded that “the inventor limited the invention in the course of prosecution.”

Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed. Cir. 2005); see *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003) (requiring a disavowal of claim scope to be clear and unequivocal for the doctrine of prosecution disclaimer to attach).

For the foregoing reasons, we are persuaded that Mack is within the same field of endeavor as the invention of claims 16 and 17. See Pet. Reply 7.

With respect to the second step of the analysis, Patent Owner asserts that Mack is not “reasonably pertinent” to the problem faced by the inventors of the ’417 Patent. PO Resp. 24–30 (citations omitted). We determine, however, that Mack is reasonably pertinent to the problem of mounting a motor within a housing without use of internal ribs on the inner walls of the housing to support the motor. See Ex. 1008, 44–51; Ex. 1010, 3:18–24, Fig. 3.

For these reasons, we determine that Mack is analogous art with respect to claims 16 and 17.

b. Obviousness of Claim 16

Petitioner contends that Mack discloses or renders obvious all of the features recited in claim 16, including the steps of “*fixedly securing* a motor mounting plate to a motor” (emphasis added) and “placing said first housing section against said second housing section . . . to thereby enable said motor to be supported within said first and second housing sections *without* said motor *contacting* any portion of said interior walls of said first and second

housing sections” (emphasis added). Pet. 49–51, 58–59. In response, Patent Owner argues that Mack fails to disclose or suggest a method for assembling an outdoor power tool. PO Resp. 47–53. As discussed above, however, claim 16 is not limited to a method for assembling an outdoor power tool. See sections II.A.5 and II.B.2.a *supra*.

Patent Owner also argues that Mack does not disclose fastening a motor mounting plate to a motor so that relative movement is prevented, as required by the “fixedly securing” limitation. PO Resp. 53. For the reasons discussed above, we agree. See section II.B.1.c.iii *supra*. We are persuaded, however, that Mack suggests the limitation. One of ordinary skill in the art would have known to fasten plate 45 to motor 25 of Mack so that relative movement is prevented in order to support motor 25 against rotation as taught by Mack. See Ex. 1010, 3:18–24 (teaching that motor 25 is supported against rotation by the snug fit of bearing portion 27 in aperture 47 of plate 45); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (“[W]hen a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.”) (quoting *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976)); Pet. 49–51, 58–59. A person of ordinary skill would have known, for example, that plate 45 could have been secured fixedly to motor 25 using bolts or screws instead of spring grade wire. See Ex. 2002 ¶ 68 (“If a person of ordinary skill in the art were going to modify Mack to involve ‘fixedly securing’ . . . the motor to the side (45) . . . , the fastener (i.e., Mack’s yoke (43) made of spring wire) would be replaced with bolts.”); Ex. 1010, 4:13–14, 20–21, Fig. 3

(describing inner support plate 95 of cutting means 31 as “fixedly secured” to the inner wall of casing 11 by screws 105).

With respect to the “without . . . contacting” limitation, Petitioner relies on Figure 3 of Mack, reproduced above, and asserts that “the motor is positioned so as not to contact any portion of the inner walls 17a, 17b of the first and second sections 12a and 12b.” Pet. 59 (claim chart, element 16.h). Patent Owner disagrees and asserts that Mack “is ambiguous as to whether any part of the motor of Mack touches the housing or not near its rear end.” *Id.* (citing Ex. 2002 ¶ 23).

We are persuaded that a person of ordinary skill in the art would have understood from Figure 3 of Mack that, as clearly shown, the relative sizes of motor 25, plate 45, and casing section 12a provide a space or clearance between the motor and the inner walls of the casing or housing. *See In re Mraz*, 455 F.2d 1069, 1072 (CCPA 1972) (holding that structures shown clearly in patent drawings are not to be disregarded in a patentability analysis). As such, we also are persuaded that a person of ordinary skill would have known that “fixedly securing” plate 45 to motor 25 of Mack predictably would have reduced or prevented movement of motor 25 relative to the inner walls of the housing and, therefore, would have reduced or prevented direct contact between motor and housing. We determine that a person of ordinary skill could have implemented the “without . . . contacting” limitation as a predictable variation of Mack. *See KSR*, 550 U.S. at 417 (“If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.”), 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”); Pet. 49–51.

Upon consideration of the parties' arguments and evidence, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 16 is unpatentable under 35 U.S.C. § 103 as obvious over Mack.

c. Obviousness of Claim 17

Claim 17 recites:

17. The method of claim 16, further comprising the steps of:
fixedly securing said motor to a bracket member prior to placing said motor within said second housing section; and
securing said bracket member fixedly to said motor mounting plate prior to placing at least a portion of said motor mounting plate in said groove in said interior wall of said second housing section.

Claim 17, in relevant part, requires fixedly securing a bracket member to each of the motor and the motor mounting plate prior to installation of the motor within the housing.

Petitioner contends that U-shaped portion 51 of Mack's motor mounting yoke 43 is a bracket member that, as suggested by Figure 3 of Mack, can be secured to each of motor 25 and plate 45 prior to installation of the motor within the housing. Pet. 59–60 (claim chart, elements 16.b and 16.c). As discussed above, legs 55a and 55b of yoke 43 extend along opposite sides of motor 25 and include transverse bends 63 that attach to apertures 65 in flat portion 45. *Id.* at 3:12–18, Fig. 6; see section II.B.1.b *supra*.

In response, Patent Owner argues based on Mr. O’Keefe’s testimony that any modification of Mack to meet the “fixedly securing” limitation of claim 16 would have eliminated U-shaped portion 51 of Mack’s motor mounting yoke 43 (the alleged bracket member). PO Resp. 54 (citing Ex. 2002 ¶ 68). Mr. O’Keefe testifies:

If a person of ordinary skill in the art were going to modify Mack to involve “fixedly securing” (“fastening such that relative movement is prevented”) the motor to the side (45) of the gear housing assembly (32), the fastener (i.e., Mack’s yoke (43) made of spring wire) would be replaced with bolts extending through the side (45) of the gear housing assembly (32) and into the stator of the motor (25, 26). In other words, such a modified version of Mack would not include any bracket member whatsoever.

Ex. 2002 ¶ 68.

There is other evidence of record, however, that “fixedly securing” plate 45 to motor 25 would *not* have necessitated eliminating Mack’s yoke 43. The other evidence of record, which we credit, shows that a person of ordinary skill in the art would have substituted the spring grade wire of yoke 43 with material that does not flex, increased the size of the contact area on plate 45 against which motor 25 is mounted, and retained Mack’s yoke 43, as modified, for use in fixedly securing plate 45 to motor 25. See Ex. 2002 ¶¶ 24, 25. Patent Owner does not sufficiently rebut this evidence. Moreover, Patent Owner has not explained why bolts or screws could not have been used to secure fixedly plate 45 to motor 25 of Mack, while retaining yoke 43 for additional strength and support.

Upon consideration of the parties' arguments and evidence, we determine that Petitioner has demonstrated by a preponderance of the evidence that claim 17 is unpatentable under 35 U.S.C. § 103 as obviousness over Mack.

III. CONCLUSION

Petitioner has *not* proved, by a preponderance of the evidence, that claims 7 and 10 of the '417 Patent are unpatentable for obviousness over Laverick and Mack. Petitioner has proved, by a preponderance of the evidence, that claims 16 and 17 of the '417 Patent are unpatentable for obviousness over Mack.

IV. ORDER

For the reasons given, it is

ORDERED that claims 7 and 10 of U.S. Patent No. 5,544,417 are *not* determined to be unpatentable; and

FURTHER ORDERED that claims 16 and 17 of U.S. Patent No. 5,544,417 are determined to be unpatentable.

This is a Final Decision. Parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2013-00502
Patent 5,544,417

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