



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/723,712	05/28/2015	Yuanfeng Luo	280066-1 (GEL8083.273)	1948
122218	7590	06/17/2020	EXAMINER	
Dority & Manning, P.A. and GEC-Aviation Post Office Box 1449 Greenville, SC 29602-1449			RUFO, LOUIS J	
			ART UNIT	PAPER NUMBER
			1795	
			NOTIFICATION DATE	DELIVERY MODE
			06/17/2020	ELECTRONIC

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

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

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

oc.prosecution@ge.com
usdocketing@dority-manning.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte YUANFENG LUO, STEVEN ROBERT HAYASHI,
ANDREW LEE TRIMMER, DALE ROBERT LOMBARDO, and
JOHN ANTHONY VOGEL

Appeal 2019-004537
Application 14/723,712
Technology Center 1700

Before KAREN M. HASTINGS, MICHAEL P. COLAIANNI, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

DENNETT, *Administrative Patent Judge*.

DECISION ON APPEAL¹

Pursuant to 35 U.S.C. § 134(a), Appellant² appeals from the
Examiner’s decision to reject claims 1–3 and 5–21 of Application

¹ In our Decision, we refer to the Specification filed May 28, 2015 (“Spec.”) of Application 17/723,712 (“the ’712 Application”); the Final Office Action dated May 18, 2018 (“Final Act.”); the Appeal Brief filed November 15, 2018 (“Appeal Br.”); the Examiner’s Answer dated March 21, 2019 (“Ans.”); and the Reply Brief filed May 21, 2019 (“Reply Br.”).

² We use the word “Appellant” to refer to “Applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies General Electric Co. as the real party in interest. Appeal Br. 1.

14/723,712. *See* Final Act. 1;³ Appeal Br. 24. We have jurisdiction under 35 U.S.C. § 6.

For the reasons set forth below, we AFFIRM IN PART.

BACKGROUND

The '712 Application relates to electroerosion machines and, more particularly, to a tube-shaped electrode for electroerosion machines. Spec. ¶ 1. Electroerosion machining can be used to drill extremely hard steels and electrically conductive metals, such as titanium. *Id.* ¶ 2. The '712 Application describes the use of electrical discharge and spark eroding to remove material between a cutting tool electrode anode and a workpiece cathode. *Id.* ¶ 3. Chipped or shaved material removed from the workpiece is conventionally washed away by a continuously flushing dielectric fluid. *Id.* Recycling core material that has been removed from an expensive titanium workpiece is desirable, but recycling small chips and shavings is difficult and cost prohibitive. *Id.* ¶¶ 3, 5. To that end, the '712 Application describes the use of an electroerosion machine said to remove workpiece material in sizes larger than chips and shavings. *Id.* ¶¶ 5, 30.

Claims 1, 12, and 19, reproduced below from the Claims Appendix of the Appeal Brief, illustrate the claimed subject matter.

1. An electroerosion machining system comprising:
 - an electrode assembly configured to machine a desired configuration in a workpiece;
 - a power supply configured to energize the electrode assembly and the workpiece to opposite electrical polarities;

³ Claim 4 has been canceled.

an electrolyte supply that supplies an electrolyte during machining of the workpiece;

a working apparatus configured to move the electrode assembly relative to the workpiece; and

a control system to control the power supply and the working apparatus;

wherein the electrode assembly comprises:

an electrode body in the form of a tube-shaped body that defines a hollow interior, the hollow interior of the electrode body being fluidly coupled to the electrolyte supply such that the electrolyte from the electrolyte supply may flow through the hollow interior and to the workpiece during machining thereof; and

one or more replaceable inserts affixed to the electrode body at a working end thereof positioned adjacent the workpiece and extending out longitudinally past an edge of the working end, the one or more replaceable inserts constructed so as to be selectively attachable and detachable from the working end of the electrode body.

Appeal Br. 25 (Claims App'x.) (emphases added).

12. An electrode assembly for use in an electroerosion machining system, the electrode assembly comprising:

a cylindrical, pipe-shaped electrode body having an outer circumference and a hollow interior extending through at least a portion of a length of the electrode body, with *the hollow interior sized to extend substantially out to the outer circumference of the pipe-shaped electrode body*, and with the pipe-shaped electrode body having a working end positionable adjacent to and facing a workpiece to be machined via an electroerosion machining process; and

one or more replaceable inserts affixed to the electrode body via attachment thereof to the working end to provide a cutting surface, the one or more replaceable inserts constructed

so as to be selectively attachable and detachable from the working end of the electrode body;

wherein the one or more replaceable inserts are affixed to the electrode body at one or more locations around the outer circumference of the electrode body.

Appeal Br. 27 (Claims App'x.) (emphasis added).

19. An electroerosion machining system comprising:

an electrode assembly configured to machine a desired configuration in a workpiece;

a power supply configured to energize the electrode assembly and the workpiece to opposite electrical polarities; and

a working apparatus configured to move the electrode assembly relative to the workpiece;

wherein the electrode assembly comprises:

a pipe-shaped electrode body having a generally uniform, cylindrical profile along the entire length of the pipe-shaped electrode body and defining a hollow interior sized to accommodate a core of workpiece material therein resulting from one of a trepanning or hole drilling of the workpiece; and

one or more replaceable inserts affixed to the pipe-shaped electrode body at a working end thereof, the one or more replaceable inserts constructed so as to be selectively attachable and detachable from the working end of the pipe-shaped electrode body.

Appeal Br. 28 (Claims App'x.) (emphases added).

REFERENCES

The Examiner relies on the following prior art in rejecting the claims on appeal:

Name	Reference	Date
Bruns et al. ("Bruns")	US 6,413,407 B1	July 2, 2002
Luo et al. ("Luo")	US 2010/0126877 A1	May 27, 2010
Trimmer	EP 2489456 A2	Aug. 22, 2012
Walker, S. & Trimmer, A. (Oct. 2013) "The Blue Arc Machining Process," <i>Titanium USA 2013 Conference Proceedings</i> , Las Vegas, NV ("Walker")		

REJECTIONS

The Examiner maintains the following rejections:⁴

1. Claims 12–18 under 35 U.S.C. § 112(a) for failing to comply with the written description requirement (Final Act. 3);
2. Claims 12–18 under 35 U.S.C. § 112(b) as indefinite (*id.* at 3–4);
3. Claims 12, 14, 16, and 18 under 35 U.S.C. § 102(a)(1) as anticipated by Walker (*id.* at 4–6);
4. Claims 12, 16–19, and 21 under 35 U.S.C. § 102(a)(2) as anticipated by Trimmer (*id.* at 6–8);
5. Claims 1, 3, 5, 6, 10, 11, and 14 under 35 U.S.C. § 103 over Trimmer in view of Walker (*id.* at 8–11);
6. Claim 2 under 35 U.S.C. § 103 over Trimmer in view of

⁴ Because this application was filed after the March 16, 2013, effective date of the America Invents Act, we refer to the AIA version of the statutes.

Walker and Luo (*id.* at 11–12);

7. Claim 13 under 35 U.S.C. § 103 over Trimmer in view of Luo (*id.* at 12);

8. Claim 13 under 35 U.S.C. § 103 over Walker in view of Luo (*id.* at 12–13);

9. Claims 7–9 under 35 U.S.C. § 103 over Trimmer in view of Walker and Bruns (*id.* at 13);

10. Claim 15 under 35 U.S.C. § 103 as obvious over Walker in view of Bruns (*id.* at 14); and

11. Claim 20 under 35 U.S.C. § 103 as obvious over Trimmer in view of Bruns. *Id.* at 14–15.

DISCUSSION

Ground 1: Rejection of claims 12–18 for failing to comply with the written description requirement

The Examiner finds that the '712 Application fails to provide written description for “the hollow interior sized to extend substantially out to the outer circumference of the pipe-shaped electrode body,” a limitation recited in independent claim 12. Final Act. 3. The Examiner also finds that it is unclear how the '712 Application's figures provide support for the limitation “or impart any structural difference of the hollow interior.” *Id.*

In relation to the rejection for lack of written description, Appellant contends that drawings may provide the requisite written description. Appeal Br. 4. Specifically, Appellant argues (*id.* at 3–5) that Figures 3, 4, and 5 of the '712 Application provide written description of the disputed limitation.

Figure 3 is reproduced below:

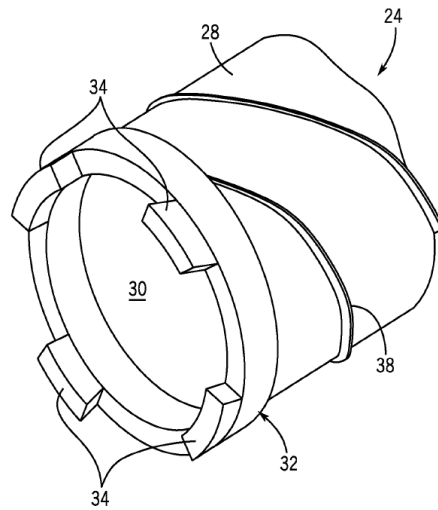


FIG. 3

Figure 3 is a perspective view of an electrode assembly of an electroerosion machining system according to an embodiment of the invention. Spec. ¶¶ 15; 24–26. Figure 3 shows electrode assembly (24), which includes pipe-shaped electrode body (28) and hollow interior (30). *Id.* ¶¶ 24, 26.

Figure 4 is reproduced below:

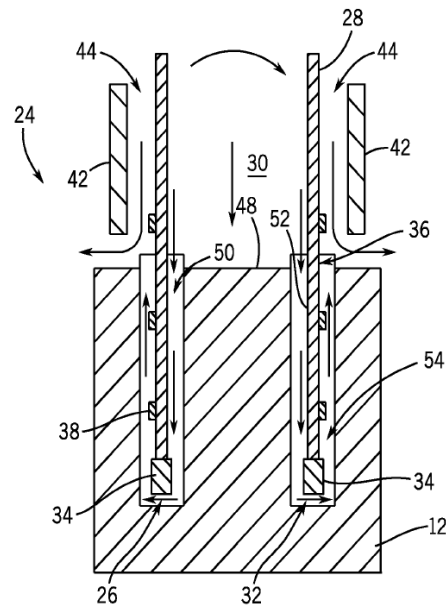


FIG. 4

Appellant contends that Figures 3, 4, and 5 of the '712 Application “clearly illustrate that the hollow interior 30 of the pipe-shaped electrode body 28 is sized to extend substantially out to an outer circumference of the pipe-shaped electrode body.” Appeal Br. 4. Appellant also relies on the description of Figures 3, 4, and 5:

[T]he Specification sets forth that ‘electrode assembly 24 includes a tube or pipe-shaped electrode body 28 that defines a interior hollow portion 30’ and that ‘dimensions of the hollow interior 30 are much larger than the thickness of the wall of pipe-shaped electrode body 28.’

Id. at 5 (quoting Spec. ¶¶ 24, 26). Therefore, according to Appellant, “[t]he Specification [*sic*] and drawings thus set forth with reasonable clarity to those skilled in the art that Appellant was in possession of the claimed” disputed limitation. Appeal Br. 5; *see also* Reply Br. 1–2.

Appellant cites to MPEP 2163 (II)(A)(3)(a), as well as *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555 (Fed. Cir. 1991), *In re Wolfensperger*, 302 F.2d 950 (CCPA 1962), and *Autogiro Co. of Am. v. U.S.*, 384 F.2d 391 (Ct. Cl. 1967) as case law that supports its position. Appeal Br. 4. We address the case law in our analysis.

The Examiner responds that what the Figures 3, 4, and 5 “disclose is not the same, or synonymous as the instant claim limitation.” Ans. 18. The Examiner finds that the description of Figures 3, 4, and 5 “is silent as to how a space, i.e.,] ‘hollow interior’ may perform an action, ‘extend’ in an arbitrary direction without any guidance as to what may or may not be considered ‘substantially.’” *Id.* The Examiner finds that the '712 Application, as filed, does not provide sufficient written description support because the disputed limitation does not recite the dimensions of the hollow interior in relation to the pipe-shaped electrode body’s wall thickness. *Id.*

Appellant fails to show that the Examiner reversibly errs in the rejection. We do not view the case law cited by Appellant as supporting that Figures 3, 4, and 5 of the '712 Application—with or without their descriptions—are sufficient to meet the written description requirement for “the hollow interior sized to extend substantially out to the outer circumference of the pipe-shaped electrode body.”

Vas-Cath concerns whether the drawing in an earlier-filed design patent application provided written description adequate to support claims to a double lumen catheter utility patent including the same drawings. *Vas-Cath*, 935 F.2d at 1559–60. The court in *Vas-Cath* held that “*under proper circumstances*, drawings alone may provide a ‘written description’ of an invention as required by Sec. 112,” noting that drawings in a design application are typically much more detailed than those in a utility application. *Id.* at 1565 (emphasis added). The court quotes its predecessor court, the Court of Customs and Patent Appeals, that: “it should be readily apparent from recent decisions of this court involving the question of compliance with the description requirement of § 112 that each case must be decided on its own facts. Thus, the precedential value of cases in this area is extremely limited.” *Id.* at 1562 (quoting *In re Driscoll*, 562 F.2d 1245, 1250 (CCPA 1977)). The court, *inter alia*, held that the unrefuted declaration explaining in detail what one of ordinary skill in the art would have understood from the drawings in question gave rise to a genuine issue of material fact, precluding grant of summary judgment. *Id.* at 1567.

On the facts before us, we do not agree with Appellant that Figures 3, 4, and 5 of the '712 Application provide written description of “the hollow interior sized to extend substantially out to the outer circumference of the

pipe-shaped electrode body.” Moreover, Appellant offers attorney argument, but proffers no declaration or other evidence to support its assertion of how one of ordinary skill in the art would interpret Figures 3, 4, and 5. “Counsel’s argument cannot take the place of evidence lacking in the record.” *Estee Lauder Inc. v. L’Oreal, S.A.*, 129 F.3d 588, 595 (Fed. Cir. 1997).

The issue before the court in *Wolfensperger* was whether the specification and drawings of the applicant’s patent application disclosing a ball valve supported a claim limitation that, “in untensioned condition,” the O-ring has “a radial width smaller than the radial width of said chamber,” referring to the chamber in which it is positioned when in use.

Wolfensperger, 302 F.2d at 957. The court noted that the appellant did not rely on the drawings alone, having “a clear, correlated pictorial and descriptive dimensional disclosure.” *Id.* The court also found that the drawings “are not in the least sketchy or diagrammatic in character,” and provided “carefully drawn details wherein the relative width and depth of groove 88 is clearly shown.” *Id.* at 957–58.

Thus, *Wolfensperger* does not support Appellant’s argument. Figures 3, 4, and 5 in the ’712 Application are *not* “a clear . . . pictorial dimensional disclosure” that “the hollow interior [is] sized to extend substantially out to the outer circumference of the pipe-shaped electrode body.” The ’712 Application contains no “clear . . . descriptive dimensional disclosure” correlated to Figures 3, 4, and 5 with respect to how much larger the dimensions of the hollow interior must be than the thickness of the wall of a pipe-shaped electrode body. The ’712 Application’s description does not clearly define the relationship between the hollow interior’s proportionality

and the outer circumference of the pipe-shaped electrode body. *See* Spec. ¶¶ 24, 26. Rather, Figures 3, 4, and 5 provide no particular dimensions of the hollow interior and fail to identify what degree of hollow interior sizing is sufficient to warrant a substantial extension out to the pipe-shaped body's outer circumference. *See* Spec. Figs. 3, 4, 5.

Appellant quotes *Autogiro*: “In those instances where a visual representation can flesh out words, drawings may be used in the same manner and with the same limitations as the specification.” Appeal Br. 4 (quoting *Autogiro*, 384 F.2d at 398). However, in the case before us, Figures 3, 4, and 5 are not “fleshing out” words. Instead, Appellant seeks to *substitute* each of these figures for all the descriptive words regarding the hollow interior's size in relation to the outer circumference of the pipe-shaped electrode body. *Autogiro* does not support Appellant's position. Written description that dimensions of the hollow interior are much larger than the thickness of the wall of pipe-shaped electrode body fails to inform one of ordinary skill in the art of what degree of hollow interior sizing is sufficient to warrant a substantial extension out to the pipe-shaped body's outer circumference. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc) (“[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments.”); *In re Lukach*, 442 F.2d 967, 970 (CCPA 1971) (“[T]he description of a single embodiment of broadly described subject matter . . . in a specification might not alone be enough to provide a description of that invention for purposes of adequate disclosure.”).

On the record before us, Appellant does not show reversible error in the Examiner's determination that the disputed limitation: (i) does not appear in the '712 Application as originally filed; (ii) fails to provide clear language regarding the hollow interior's dimensions; (iii) lacks any discussion of a thickness of the wall of the pipe-shaped electrode body; and (iv) is a broader recitation of the structure shown in Figures 3, 4, and 5. *See* Ans. 18.

For the foregoing reasons, we affirm the Examiner's rejection of claims 12–18 for failing to comply with the written description requirement for the limitation “the hollow interior sized to extend substantially out to the outer circumference of the pipe-shaped electrode body.”

Ground 2: Rejection of claims 12–18 as indefinite

The Examiner rejects claims 12–18 as indefinite for reciting the term “substantially.” Final Act. 3–4; *see also* Appeal Br. 27 (Claims App'x). The Examiner finds that one of ordinary skill in the art would not be reasonably apprised of the scope of the invention as the Specification does not provide a standard for determining the requisite degree of a hollow interior's extension. Final Act. 4. According to the Examiner, “it is unclear how ‘extend substantially’ imparts any dimensionality of . . . the instant claim language with respect to describing a space.” *Id.* The Examiner finds that the disputed term does not describe “a physical attribute of the space or electrode body, i.e., explicitly reciting a dimension such as diameter, or ratio of the diameter of the hollow space to the electrode body.” *Id.*

Claim 12 is the sole independent claim rejected as indefinite. Appellant does not argue for separate patentability of any of claims 13–18 based on this rejection. *See* Appeal Br. 5–7. We select claim 12 as

representative. 37 C.F.R. § 42.37(c)(1)(iv). Claims 13–18 stand or fall with claim 12.

Appellant argues that one of ordinary skill in the art would reasonably ascertain the scope of claim 12 based on: (i) Figures 3, 4, and 5, along with (ii) the description of these figures in the '712 Application. Appeal Br. 6–7 (citing Spec. ¶¶ 24, 26). Appellant contends that “the Specification . . . and the drawings . . . provide a clear example/description of the size/thickness of the hollow interior and wall of the electrode body relative to the outer circumference.” Reply Br. 2.

We find claim 12 to be indefinite because the metes and bounds of the claim are unclear. *See Ex parte McAward*, 2017 WL 3669566, at *5 (PTAB Aug. 25, 2017) (precedential). When a word of degree—such as “substantially”—is used in a claim, the claim is indefinite unless the Specification provides some standard for measuring that degree. *Seattle Box Co. v. Indus. Crating & Packing, Inc.*, 731 F.2d 818, 826 (Fed. Cir. 1984). Appellant’s relied-upon disclosure (*see* Spec. ¶¶ 24, 26) does not clearly define the relationship between the hollow interior’s dimensions, which are somehow sized to “extend substantially,” and the outer circumference of the pipe-shaped electrode body. *See* Appeal Br. 27 (Claims App’x.). As set forth above, Figures 3, 4, and 5 fail to identify what degree of hollow interior sizing is sufficient to warrant a substantial extension out to the pipe-shaped body’s outer circumference. *See* Spec. Figs. 3, 4, 5.

On the record before us, we sustain the rejection of claims 12–18 as indefinite for reciting the claim term “substantially.” Discerning the proper scope of these claims would require undue and improper speculation.

Without reaching the merits, we summarily reverse the rejections over prior art of:

Claims 12, 14, 16, and 18 under 35 U.S.C. § 102(a)(1) as anticipated by Walker (Ground 3);

Claims 12 and 16–18 under 35 U.S.C. § 102(a)(2) as anticipated by Trimmer (Ground 4, leaving claims 19 and 21 to be considered);

Claim 14 under 35 U.S.C. § 103 over Trimmer in view of Walker (Ground 5, leaving claims 1, 3, 5, 6, 10, and 11 to be considered);

Claim 13 under 35 U.S.C. § 103 over Trimmer in view of Luo (Ground 7);

Claim 13 under 35 U.S.C. § 103 over Walker in view of Luo (Ground 8); and

Claim 15 under 35 U.S.C. § 103 as obvious over Walker in view of Bruns (Ground 10).

See In re Aoyama, 656 F.3d 1293, 1298–99 (Fed. Cir. 2011) (explaining that a claim cannot be both indefinite and anticipated and refusing to review an anticipation rejection); *In re Steele*, 305 F.2d 859, 862 (CCPA 1962) (“[W]e do not think a rejection under 35 U.S.C. § 103 should be based on such speculations and assumptions.”).

*Ground 4: Rejection of claims 19 and 21 as anticipated by Trimmer*⁵

The Examiner rejects claims 19 and 21 as anticipated by Trimmer.

Final Act. 7–8.

⁵ As noted, the rejection of claims 12 and 16–18 over Trimmer is summarily reversed because the claims are indefinite.

Anticipation is a question of fact. *In re Suitco Surface, Inc.*, 603 F.3d 1255, 1259 (Fed. Cir. 2010). To serve as an anticipatory reference, “the reference must disclose each and every element of the claimed invention, whether it does so explicitly or inherently.” *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009).

We note that although claim 21 has been rejected as anticipated by Trimmer, the claim from which it depends, i.e., claim 1, has been rejected as obvious over Trimmer in view of Walker in Ground 5. Final Act. 6, 8.

A dependent claim narrows the claim from which it depends—it must “incorporate . . . all the limitations of the claim to which it refers.” 35 U.S.C. § 112(d). Thus, the Examiner’s reliance on Walker for teaching elements of claim 1 that are neither disclosed nor suggested by Trimmer in Ground 5 is inconsistent with the rejection of dependent claim 21 as anticipated by Trimmer alone. *See Gleave*, 560 F.3d at 1334.

We do not sustain the rejection of claim 21 as anticipated by Trimmer.

Appellant argues for separate patentability of claim 19. *See* Appeal Br. 15–17; Reply Br. 9–12.

Trimmer’s Figure 5, as annotated by the Examiner, is reproduced below:

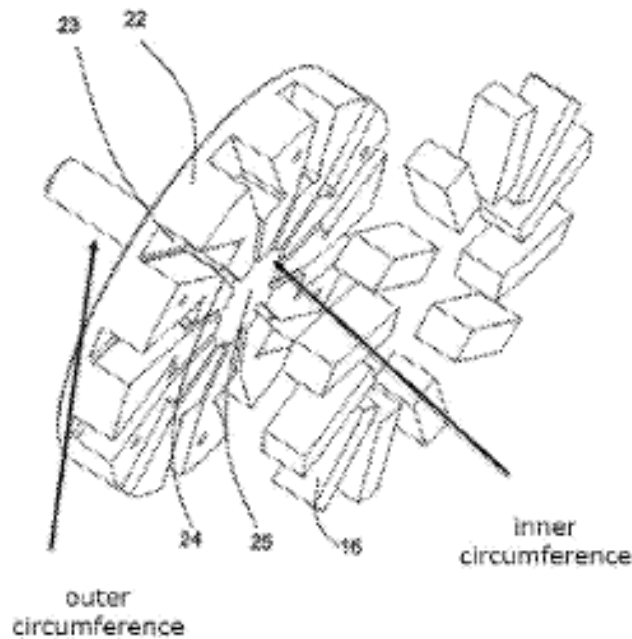


Figure 5 is a schematic diagram of an electroerosion machining system in accordance with an embodiment of the invention. Trimmer ¶ 8. Figure 5 shows base (22) for holding electrodes (16) in a plurality of slots (23). *Id.* ¶ 31.

Appellant distinguishes, *inter alia*, Trimmer’s electroerosion machine from the subject matter of claim 19, which requires “a pipe-shaped electrode body having a uniform, cylindrical profile along the entire length of the pipe-shaped electrode body.” Appeal Br. 15. Appellant additionally cites dictionary definitions in support of the argument that “[o]ne skilled in the art would . . . recognize that a proper interpretation of a pipe-shaped electrode body having a ‘uniform cylindrical profile’ is a pipe-shaped electrode body having a non-varying or constant outline/circumference.” *Id.* at 16.

The Examiner responds by arguing that “the actual limitation in question recites ‘generally uniform, cylindrical profile.’” Ans. 24. The Examiner reasons that “if a profile is composed of two sections, each

cylindrical but different sizes, the profile itself thereby may be considered ‘generally uniform’ in that the cylindrical profile does not change throughout.” *Id.* According to the Examiner, “uniform” can be defined as “‘having always the same for[m], manner, *or* degree, . . . [t]hus, the form is the same in both sections of [Trimmer’s] Fig. 5, i.e.[,] both [the unnumbered pipe and base 22] have a cylindrical profile.’” *Id.*

Appellant counters that the claim terms “uniform, cylindrical” are coordinate adjectives that each separately modify the claim term “profile.” *See* Reply Br. 11 (citing B. Mills, “Commas with Adjectives,” *Quick and Dirty Tips*, (Feb. 2011) available at www.quickanddirtytips.com/education/grammar/commas-with-adjectives).

During prosecution, the PTO gives the language of the proposed claims “the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art.” *In re Morris*, 127 F.3d 1048, 1054–55 (Fed. Cir. 1997). Appellant identifies error in the Examiner’s construction of “generally uniform, cylindrical profile” as unreasonably reading the term “uniform” out of claim 19. Reply Br. 11. Trimmer’s unnumbered pipe and base 22 also does not show that the pipe-shaped electrode body possesses a generally uniform, cylindrical profile *along its entire length*, as required in claim 19. Thus, the Examiner has not established that each and every element, as specified in claim 19, is disclosed within Trimmer, either expressly or inherently.

We do not sustain the rejection of claim 19 as anticipated by Trimmer.

Ground 5: Rejection of claims 1, 3, 5, 6, 10, 11, and 14 as obvious over Trimmer in view of Walker and

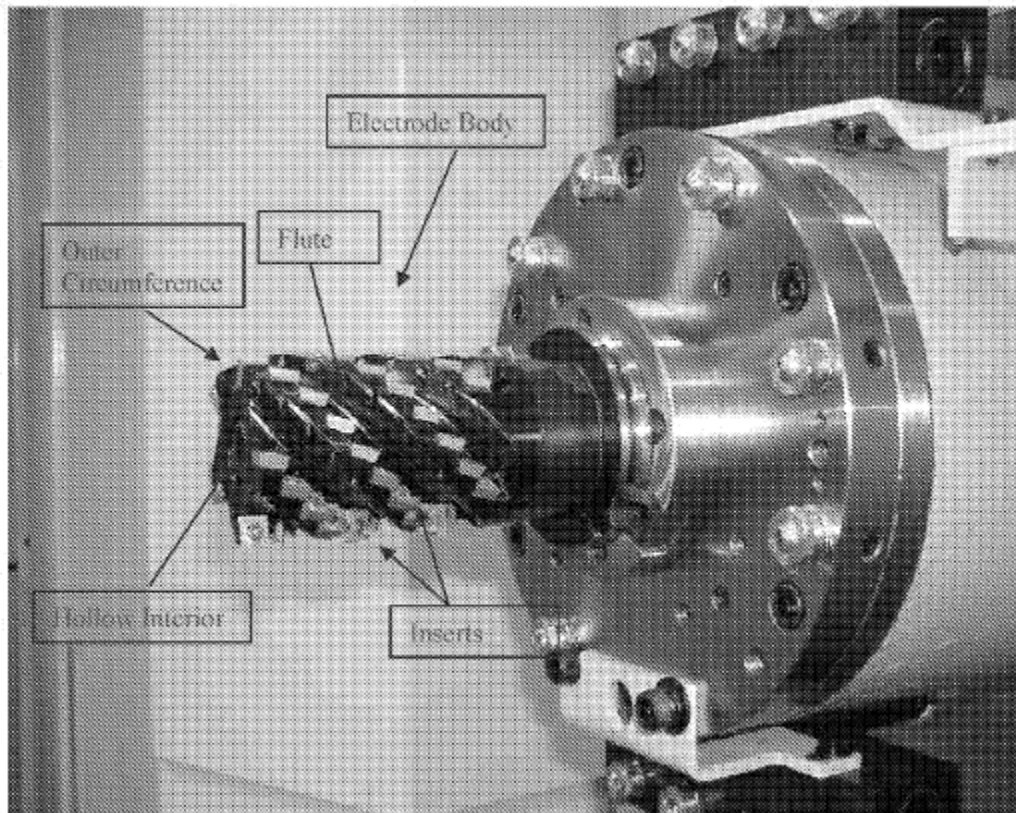
Ground 6: Rejection of claim 2 as obvious over Trimmer in view of Walker and Luo

The Examiner finds that claims 1, 3, 5, 6, 10, and 11 would have been obvious over Trimmer in view of Walker. Final Act. 8–11. Claim 1 is the only independent claim rejected as obvious in Ground 5. Appellant does not argue for separate patentability of any claim based on the rejections in Ground 5 and Ground 6. *See* Appeal Br. 17–21. We select claim 1 as representative. 37 C.F.R. § 42.37(c)(1)(iv). Claims 2, 3, 5, 6, 10, and 11 stand or fall with claim 1.

With respect to claim 1, the Examiner finds that Trimmer discloses an electroerosion machining system. Final Act. 8–9. The Examiner finds that Trimmer’s electrode assembly includes one or more replaceable inserts 16 affixed at the working end of an electrode body. *Id.*; *see also id.* at 6.

The Examiner finds that Walker discloses an electrode assembly for use in an electroerosion machining system. *Id.* at 9. The Examiner finds that Walker’s electrode body includes “one or more replaceable inserts affixed to the electrode body at a working end thereof positioned and extending out longitudinally past an edge of the working end.” *Id.*

Walker’s Slide 12, as annotated by Appellant, is reproduced below:



ANNOTATED SLIDE 12

Slide 12 is photograph of an electroerosion cutting tool. Reply Br. 4; *see also* Ans. 20; Final Act. 9. Slide 12 shows an electrode body with a hollow interior therein. Reply Br. 4; *see also* Final Act. 9. Slide 12 shows an electrode body comprising flutes and inserts placed along an outer circumference of the body. Reply Br. 4; *see also* Final Act. 9.

The Examiner determines that

[I]t would have been obvious to one of ordinary skill in the art to have either used [the] electrode assembly of Walker OR the replaceable inserts of Walker for the electrode assembly OR the replaceable inserts of Trimmer because they are both recognized for their intended purpose of performing electrochemical machining and thus suitable for the intend[ed purpose] . . . where the inserts provide a design choice of methods of attachment and positioning relative [to] the working end of the electrode assembly in forming electrode assemblies suitable for

electrochemical machining in accordance with Trimmer OR Walker.

Final Act. 9–10.

Referencing Trimmer’s Figure 5, Appellant first argues that Trimmer does not disclose “that electrodes 16 are affixed to base 22 so [they] extend out longitudinally past an edge of the base 22.” Appeal Br. 19.

Appellant’s argument does not identify reversible error in the Examiner’s findings. The Examiner correctly construes the claim as not specifying which edge of the working end the replaceable inserts must extend longitudinally past. Ans. 17, 24–25. As the Examiner explains, the working end is the end of the electrode body which is designed to perform the operation, and may have any number of edges. *Id.* at 17. The insert may extend in any direction, past any edge of the working end, and satisfy the claim limitation, so long as the extension may be considered in a longitudinal direction *past* an edge. The Examiner’s rejection, furthermore, is based on the obviousness of using either Walker’s electrode assembly or Walker’s replaceable inserts for Trimmer’s electrode assembly or Trimmer’s replaceable inserts. Final Act. 9–10.

Referencing Walker’s Slide 12, Appellant argues that Walker’s replaceable inserts do not extend longitudinally past an edge of the electrode body’s working end. Appeal Br. 20. Appellant also argues that Walker’s outermost replaceable inserts do not extend longitudinally past an edge of the working electrode body that is adjacent a workpiece. *Id.* at 21.

These arguments of Appellant are based on interpreting the term “longitudinally” more narrowly than is warranted, as discussed above. One of ordinary skill in the art at the time of the invention would have understood that the effective use of either Walker’s or Trimmer’s

replaceable insert necessitates positioning the insert adjacent to a workpiece to provide a machining surface. “A person of ordinary skill is also a person of ordinary creativity, not an automaton.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007). “[A] court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *Id.* at 418. We note that Trimmer teaches the use of “a plurality of abrasive elements 20 disposed separately around and integrated with the electrode.” Trimmer ¶ 26; *see also id.* ¶ 33; Figs. 4 (showing abrasive element 20 removing adjacent workpiece 100), 5. The skilled artisan would have understood from Trimmer’s disclosure that the replaceable insert is positioned adjacent to a workpiece to facilitate the removal of workpiece material. Therefore, Appellant’s position that Walker’s alleged silence with respect to insert positioning adjacent a workpiece does not persuade us that the Examiner reversibly erred in determining that it would have been obvious to position either Trimmer’s or Walker’s replaceable inserts longitudinally past the electrode body’s working end adjacent to a workpiece for electrochemical machining. *See* Final Act. 9–10.

Appellant contends that Walker’s “slide 12 does not clearly show inserts extending out longitudinally past an edge of the working end of the electrode body so as to provide proper support for the rejection, as required under MPEP [§] 2125(I).” Reply Br. 13. According to Appellant, the Examiner can only apply drawings and pictures that clearly show a claimed structure. *Id.*

Appellant’s reliance on MPEP § 2125(I) is misplaced. MPEP § 2125(I) provides that “[d]rawings and pictures can *anticipate* claims if they clearly show the structure which is claimed.” (emphasis added). As the

Examiner's rejection is based on a determination that the combined teachings of Walker and Trimmer would have rendered claim 1 obvious, MPEP § 2125(I) is not dispositive. Rather, drawings and pictures can render claim 1 obvious if they disclose or suggest the structure claimed. We agree with the Examiner that "it appears the inserts of Walker do in fact extend past the bottommost edge of the electrode." Ans. 25.

We sustain the rejection of claim 1 as obvious over Trimmer in view of Walker. For the same reasons, we sustain the rejections of claims 3, 5, 6, 10, and 11 in Ground 5 and claim 2 in Ground 6.

Ground 9: Rejection of claims 7–9 as obvious over Trimmer in view of Walker and Bruns

Claims 7–9 depend from claim 1 and further require a shield member as identified positions. Appeal Br. 26 (Claims App'x).

The Examiner determines that claims 7–9 would have been obvious over Trimmer in view of Walker and Bruns. Final Act. 13. The Examiner finds that the combination of Trimmer and Walker "fails to explicitly disclose a shield positioned about at least a portion of the electrode body to define a gas channel through which a protective gas may be provided so as to prevent oxidation of workpiece debris." *Id.* The Examiner finds that Bruns's elongate electrode tool 20 is provided with a shield 16, which permits entry of a gas to prevent further electroerosion of the workpiece. *Id.*; see Bruns Fig. 13. The Examiner determines

[I]t would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the shield to form gas passage along the finished area as taught by Bruns in the apparatus of Trimmer, as modified by Walker, in order to prevent any additional electrochemical machining and provide additional cooling of the electrode tool.

Final Act. 13. The Examiner finds that Bruns's shield 16 is capable of performing the functional limitations recited in claims 7–9. *Id.*

Appellant argues for separate patentability of claims 7 and 8. Appeal Br. 22. Appellant contends that Trimmer in view of Walker and Bruns fails to disclose a shield that is a part of an electrode assembly. *Id.* Appellant argues that Bruns's structure 16 is not the claimed shield, but is actually “an entry manifold 16 mounted to a frame 14[] within which the electrode tool 20 is positioned.” *Id.* (citing Bruns 2:44–61; Fig. 1).

Limitations not appearing in the claims cannot be relied upon for patentability. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982). Here, the instant claims do not require that the claimed shield is structurally part of an electrode assembly. Rather, claim 7 requires that “the electrode assembly further comprises a shield member positioned about at least a portion of the electrode body.” Appeal Br. 26 (Claims App'x.). Likewise, claim 8, which depends from claim 7, similarly requires that “the shield member is spaced apart from the electrode body.” *Id.* One of ordinary skill in the art would have readily recognized from Bruns's Figure 13 that entry manifold 16 is positioned about at least a portion of and spaced apart from electrode body 20. *See* Bruns Fig. 13.

We sustain the rejection of claims 7–9 as obvious over Trimmer in view of Walker and Bruns.

Ground 11: Rejection of claim 20 as obvious over Trimmer in view of Bruns

The Examiner rejects claim 20 as obvious over Trimmer in view of Bruns. Final Act. 14–15. We have not sustained the rejection of claim 19, from which claim 20 depends, as anticipated by Trimmer in Ground 4. The

Examiner does not rely on Bruns in Ground 11 to cure the deficiencies of Trimmer in Ground 4. Final Act. 14–15.

Having found deficiencies in Trimmer with respect to claim 19, *supra*, we do not sustain the rejection of claim 20 as obvious over Trimmer in view of Bruns.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
12–18	112(a)	Written Description	12–18	
12–18	112(b)	Indefiniteness	12–18	
12, 14, 16, 18	102(a)(1)	Walker		12, 14, 16, 18
12, 16–19, 21	102(a)(2)	Trimmer		12, 16–18, 19, 21
1, 3, 5, 6, 10, 11, 14	103	Trimmer, Walker	1, 3, 5, 6, 10, 11	14
2	103	Trimmer, Walker, Luo	2	
13	103	Trimmer, Luo		13
13	103	Walker, Luo		13
7–9	103	Trimmer, Walker, Bruns	7–9	
15	103	Walker, Bruns		15
20	103	Trimmer, Bruns		20
Overall Outcome			1–3, 5–18	19–21

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED IN PART