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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ASSAF PREISS, MOSHE ELAZAR, and
ALON SHACHAM

Appeal 2019-001080
Application 14/595,312
Technology Center 3700

Before STEFAN STAICOVICI, JAMES P. CALVE, and
MICHELLE R. OSINSKI, *Administrative Patent Judges*.

CALVE, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the decision of the Examiner to reject claims 1, 4, 6, and 8–12. *See* Appeal Br. 5. Claims 14–18 are withdrawn. *Id.* Claims 2, 3, 5, 7, and 13 are cancelled. *See id.* at 15–17 (Claims App.). We have jurisdiction under 35 U.S.C. § 6(b).

We enter a New Ground of Rejection, and we reverse *pro forma* the Examiner’s prior art rejections of all pending claims.

¹ “Appellant” refers to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Lumenis, Ltd. as the real party in interest. *See* Appeal Br. 3.

CLAIMED SUBJECT MATTER

Claim 1, the sole independent claim, is reproduced below.

1. A device for insertion into a body lumen through an endoscope comprising:
a handpiece adapted to be held by an operator;
a cannula operatively associated with the handpiece;
the cannula including at least two lumens, an optical fiber lumen and an aspiration/irrigation lumen, the lumens being mounted as a unit parallel to one another along a longitudinal axis, the lumens being of a generally circular cross-section and of unequal cross-sectional size such that the circumferential wall sizes are unequal;
wherein the optical fiber lumen is of a smaller cross-sectional and circumferential size and receives an optical fiber with a distal fiber tip which extends through and beyond the distal tip of the optical fiber lumen and the aspiration/irrigation lumen is of a larger cross-sectional and circumferential size and provides for one or more of: (a) irrigation of the body lumen and (b) aspiration of materials from within the body lumen;
wherein the optical fiber receives and transmits a laser light beam through the optical fiber and out the distal end of the optical fiber, the laser light beam being utilized to fragment stones present in the body lumen during a stone fragmentation procedure; and
wherein the optical fiber lumen is formed partially within a circumferential wall of the aspiration/irrigation lumen, wherein the distal end of the circular cross-section of the optical fiber lumen terminates before the distal end of the aspiration/irrigation lumen, wherein the optical fiber lumen continues as a half-circular shaped lumen within the circumferential wall of the aspiration/irrigation lumen from the distal end of the circular cross-section of the optical fiber lumen to the distal end of the aspiration/irrigation lumen,
wherein an operator may view the fiber and a condition of the distal fiber tip outside the distal end of the optical fiber lumen through the endoscope and may advance the optical fiber as the optical fiber tip fragments during the stone fragmentation procedure.

REJECTIONS

Claims 1 and 4 are rejected under 35 U.S.C. § 103 as unpatentable over Goldfarb (US 2007/0293726 A1, pub. Dec. 20, 2007) and Howes (US 4,894,057, iss. Jan. 16, 1990).

Claim 6 is rejected under 35 U.S.C. § 103 as unpatentable over Goldfarb, Howes, and Waxman (US 2006/0235269 A1, pub. Oct. 19, 2006).

Claim 8 is rejected under 35 U.S.C. § 103 as unpatentable over Goldfarb, Howes, Waxman, and Loeb (US 2011/0144630 A1, pub. June 16, 2011).

Claims 9 and 10 are rejected under 35 U.S.C. § 103 as unpatentable over Goldfarb, Howes, Waxman, Loeb, and Speeg (US 2005/0203497 A1, pub. Sept. 15, 2005).

Claim 11 is rejected under 35 U.S.C. § 103 as unpatentable over Goldfarb, Howes, Waxman, Loeb, Speeg, and Mizukami (US 2004/0076377 A1, pub. Apr. 22, 2004).

Claim 12 is rejected under 35 U.S.C. § 103 as unpatentable over Goldfarb, Howes, Waxman, and Arias (US 5,429,596, iss. July 4, 1995).

ANALYSIS

New Ground of Rejection

Claims 1, 4, 6, and 8–12 are Rejected under 35 U.S.C. § 112(b)

Claim 1 uses the term “lumen” in two different and inconsistent ways. First, claim 1 uses “lumen” to mean a cavity, space, or channel within a tube or body organ. However, claim 1 also uses “lumen” to mean a tube or annular-shaped element that contains or forms a cavity, space, or a channel. In other words, claim 1 uses “lumen” to mean both a cavity or space (i.e., an absence of structure) *and* a structure that forms such a space or cavity.

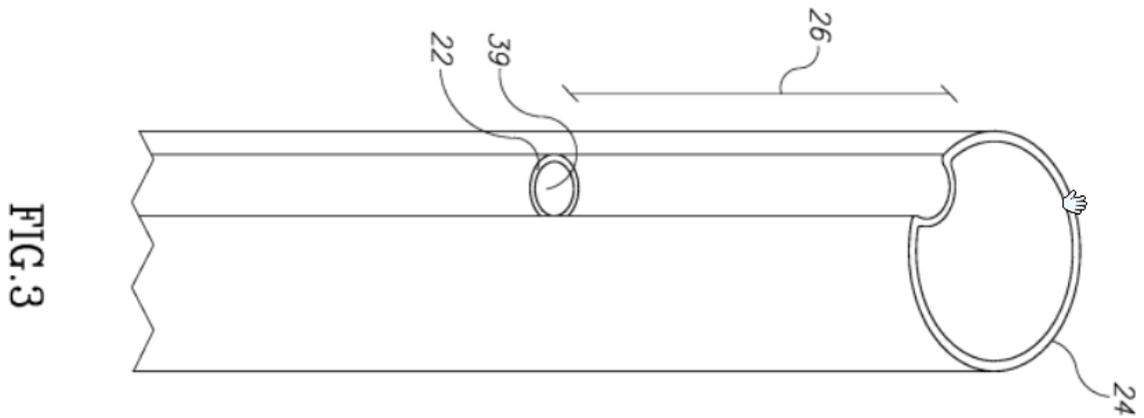
An ordinary and customary meaning of “lumen” includes “the cavity of a tubular organ or part.” Merriam-Webster.com at “<http://www.merriam-webster.com/dictionary/lumen>” (accessed Dec. 5, 2019). Claim 1 uses the term “lumen” in this ordinary, customary way when it recites, for example, “[a] device for insertion into a body lumen” in the preamble. “Lumen” is used in this phrase to mean a space or cavity formed by and within a body.

However, claim 1 also uses “lumen” to mean a tube or element that forms and contains a space or cavity. Thus, “the cannula including at least two lumens, an optical fiber lumen and an aspiration/irrigation lumen, the *lumens being mounted as a unit parallel to one another*” implies, if not actually recites, that the optical fiber lumen and aspiration/irrigation lumen are physical structures rather than a space and the absence of matter. *See* Appeal Br. 15 (Claims App.). Claim 1 also recites that “the *circumferential wall sizes* [of the lumens] are unequal.” *See id.* This usage also indicates that the claimed “lumens” are tubes or physical structures that include walls. It is unclear how a lumen that is a space or cavity can have or form a wall.

The Specification supports both contradictory usages. It describes the device being used to “fragment materials contained within a body lumen” and “remov[e] fragmented materials from the body lumen. Spec. 1:3–6.² This usage is consistent with an ordinary usage of “lumen” to mean a cavity, space, or channel formed by a body organ or part such as a urinary tract. *Id.*

The Specification also describes the optical fiber lumen 22 and the irrigation/aspiration lumen 24 as physical tubes that have distal *ends* and form a cylindrical space therein as illustrated in Appellant’s Figure 3, which is reproduced below.

² Refers to the Specification filed Jan. 13, 2015.



Appellant’s Figure 3 above illustrates the distal end of optical fiber lumen 22 and the distal end of aspiration/irrigation lumen 24. “The distal end of the optical fiber lumen is set back from the plane of the distal end of the aspiration and irrigation lumen by a distance 26.” Spec. 5:17–30. Both lumens 22, 24 are described and illustrated as *tubes* including “distal ends” denoted by the lead lines for numerals 22 and 24. In other words, Figure 3 illustrates the distal ends of both lumens 22, 24 as part of the structure of the *tubes*, *not* as part of the space or cavity formed by or within tubes 22, 24.

Claim 1 further recites “wherein the optical fiber lumen is formed partially within a circumferential wall of the aspiration/irrigation lumen,” which may mean that both lumen are physical tubes. Thus, the optical fiber lumen (tube) is formed partially within a circumferential wall that forms part of the tube of the aspiration/irrigation lumen. However, claim 1 then recites

wherein the distal end of the circular cross-section of the optical fiber lumen terminates before the distal end of the aspiration/irrigation lumen, wherein the optical fiber lumen continues as a half-circular shaped lumen within the circumferential wall of the aspiration/irrigation lumen from the distal end of the circular cross-section of the optical fiber lumen to the distal end of the aspiration/irrigation lumen,

It is unclear how a fiber lumen (tube) can end but then continue.

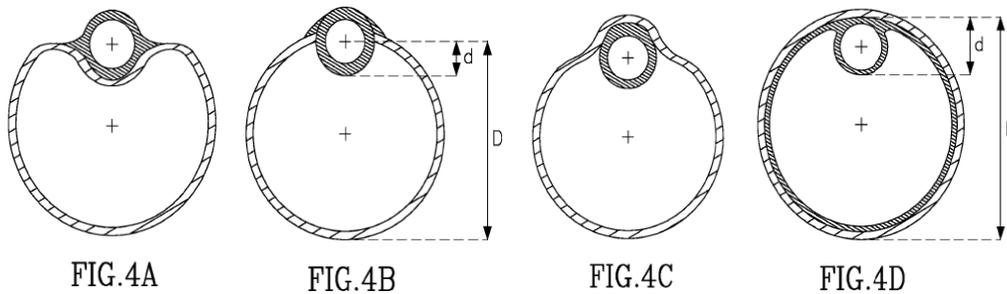
As illustrated in Appellant's Figure 3, which is reproduced above, optical fiber lumen 22 forms a circular *tube* whose distal end (also at 22) terminates before the distal end of aspiration/irrigation lumen 24. However, optical fiber lumen 22 does not continue as a half-circular shaped *tube* that is half of the full lumen 22. Instead, after optical fiber lumen (tube) 22 ends, a half-circular lumen (*space*) continues over the set back distance 26 from the distal end of optical lumen 22 to the distal end of irrigation/aspiration lumen 24. Hence, the term "lumen" is used to describe both a "space" and a "tube" associated with optical fiber lumen 22 as illustrated in Figure 3 above.

If we interpret both lumens 22, 24 to mean a cavity or a space formed by unclaimed tubular structures, it is unclear how irrigation/aspiration lumen 24 can have "a circumferential wall" if lumen 24 is merely a space or cavity, i.e., a complete absence of any structure or matter.

Recourse to the Specification does not clarify this indefiniteness. The Specification does not describe either lumen as forming a wall. Indeed, the term "wall" does not appear in the Specification. Nor does the Specification describe an optical lumen/tube being formed/positioned/located within a wall or other portion of an irrigation/aspiration lumen/tube. *See Spec. 5–6.*

The Specification describes a small diameter lumen (tube/space) that is located *partially* within a larger diameter lumen (tube/space) "allowing the aspiration of larger stones and other materials while maintaining the same overall diameter of the combined lumens as in the prior art devices." *Id.* at 5:30–6:14. No other details are provided for this relationship.

As shown in Appellant's Figures 4A–4D, reproduced below, a smaller lumen tube/space is positioned next to a wall of the larger lumen tube/space and wholly or partially within the area of the larger lumen space.



Figs. 4A–4C illustrate a smaller lumen partly within a larger lumen. Fig. 4D illustrates a prior art smaller lumen contained wholly within a larger lumen that “results in a reduction in the maximum size of stones and other materials which may be aspirated through that lumen.” *Id.* at 6:4–14. The Specification does not indicate whether the lumen are tubes or spaces. Nor does it describe Figures 4A–4C as partially within a *wall* of a lumen. *Id.*

The Patent Laws set forth the standard for indefiniteness as follows:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor . . . regards as the invention.

35 U.S.C. § 112(b). For claims in a pending application that has not issued as a patent, “[a] claim is indefinite when it contains words or phrases whose meaning is unclear.” *In re Packard*, 751 F.3d 1307, 1310, 1314 (Fed. Cir. 2014); see *Ex parte McAward*, 2017 WL 3669566 at *2, No. 2015-006416, slip op. at 11 (PTAB Aug. 25, 2017) (precedential) (same). *Packard*, 751 F.3d at 1311 also held that:

when the USPTO has initially issued a well-grounded rejection that identifies ways in which language in a claim is ambiguous, vague, incoherent, opaque, or otherwise unclear in describing and defining the claimed invention, and thereafter the applicant fails to provide a satisfactory response, the USPTO can properly reject the claim as failing to meet the statutory requirements of § 112(b).

“[A] patent does not satisfy the definiteness requirement of § 112 merely because ‘a court can ascribe *some* meaning to a patent’s claims.’” *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (quoting *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 911 (2014)). Rather, “[t]he claims, when read in light of the specification and the prosecution history, must provide objective boundaries for those of skill in the art.” *Id.* (citing *Nautilus*, 572 U.S. at 911 & n.8 (determining that an indefiniteness problem exists “if the claim language might mean several different things and no informed and confident choice is available among the contending definitions” (internal quotations and citation omitted))).

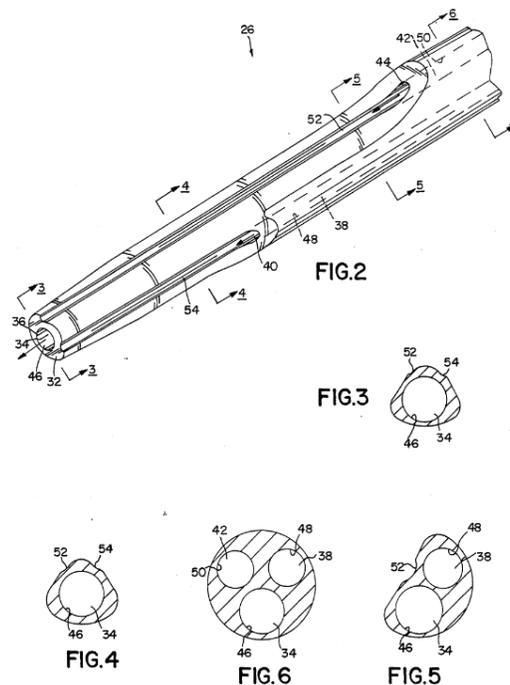
Claim 1, as read by a person of ordinary skill in the art in light of the Specification, lacks objective boundaries to interpret “lumen.” No informed or confident choice can be made as to whether “lumen” means a “tube” or a “space.” If “lumen” means “space,” claim 1 is nonsensical to claim a space having a wall. *See Trustees of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1367 (Fed. Cir. 2016). If “lumen” means tube, it is unclear how a lumen tube can terminate then continue as a space.

For the foregoing reasons, claim 1 fails to particularly point out and distinctly claim the subject matter regarded as the invention. Thus, claim 1, and its dependent claims 4, 6, and 8–12, are rejected as indefinite.

Prior Art Rejections of Claims 1, 4, 6, and 8–12

Because the term “lumen” is indefinite, we reverse the prior art rejections. *In re Wilson*, 424 F.2d 1382, 1385 (CCPA 1970) (“If no reasonably definite meaning can be ascribed to certain terms in the claim, the subject matter does not become obvious—the claim becomes indefinite.”).

Before a proper review of these rejections can be performed, the subject matter encompassed by the claims on appeal must be reasonably understood without resort to speculation. The use of “lumen” in claim 1 to mean either a tube or a space formed by a tube is relevant to the prior art rejections because Howes teaches a smaller lumen (tube) formed partially within a *wall* of a larger aspiration/irrigation lumen (tube) as illustrated in Figures 2–6, which are reproduced below.



Figures 2–6 show lumen 42 “located in the outer wall of the distal end portion” of lumen 34. Howes, 4:28–62 (emphasis added). Figure 6 shows lumen 42, 34 formed by a common tube wall that separates their respective lumen (spaces). This wall teaches “the optical fiber lumen is formed partially within a circumferential wall of the aspiration/ irrigation lumen” if “lumen” means a tube that has a circumferential wall. Figures 2–6 also show circular lumen 42 terminating at terminus 44 and continuing as a half-circular groove 52 (space) located partially within the wall of lumen 34.

On the other hand, if the claimed “lumen” means a space or cavity with no structure, Howes does not disclose a smaller lumen (space) that is partially within the wall (space) of a larger lumen (space). The circular space of lumen 42 is separated from the circular space of lumen 34.

Because the claims fail to satisfy the requirements of 35 U.S.C. § 112(b), however, we must reverse the prior art rejections because they are necessarily based on speculative assumptions as to the scope of the claims. *See In re Steele*, 305 F.2d 859, 862–63 (CCPA 1962) (determination of obviousness was based on unsupported speculative assumptions where the claims did not particularly point out and distinctly claim the invention). Our decision is *pro forma* based solely on the indefiniteness of the claims, and does not reflect on the adequacy of the prior art applied in the rejections.

CONCLUSION

Claims Rejected	35 U.S.C. §	Reference/Basis	Affirmed	Reversed	New Ground
1, 4	103	Goldfarb, Howes		1, 4	
6	103	Goldfarb, Howes, Waxman		6	
8	103	Goldfarb, Howes, Waxman, Loeb		8	
9, 10	103	Goldfarb, Howes, Waxman, Loeb, Speeg		9, 10	
11	103	Goldfarb, Howes, Waxman, Loeb, Speeg, Mizukami		11	

Claims Rejected	35 U.S.C. §	Reference/Basis	Affirmed	Reversed	New Ground
12	103	Goldfarb, Howes, Waxman, Arias		12	
1, 4, 6, 8–12	112(b)	Indefiniteness			1, 4, 6, 8–12
Overall Outcome				1, 4, 6, 8–12	1, 4, 6, 8–12

This decision contains a new ground of rejection entered pursuant to 37 C.F.R. § 41.50(b). Section 41.50(b) provides that “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.” Section 41.50(b) also provides:

When the Board enters such a non-final decision, the appellant, within two months from the date of the decision, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. The new ground of rejection is binding upon the examiner unless an amendment or new Evidence not previously of Record is made which, in the opinion of the examiner, overcomes the new ground of rejection designated in the decision. Should the examiner reject the claims, appellant may again appeal to the Board pursuant to this subpart.

(2) *Request rehearing.* Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. The request for rehearing must address any new ground of rejection and state with particularity the points believed to have been misapprehended or overlooked in entering the new ground of rejection and also state all other grounds upon which rehearing is sought.

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Further guidance on responding to a new ground of rejection can be found in the MANUAL OF PATENT EXAMINING PROCEDURE § 1214.01 (9th Ed., Rev. 08.2017, Jan. 2018).

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).

REVERSED; 37 C.F.R. § 41.50(b)

Notice of References Cited	Application/Control No.	Applicant(s)/Patent Under Patent Appeal No.	
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lu·men | \ 'lū-mən  \

plural lumens also lumina \ 'lū-mə-nə  \

Definition of *lumen*

1 : the cavity of a tubular organ or part the lumen of a blood vessel

2 : the bore of a tube (as of a hollow needle or catheter)

3 : a unit of luminous flux equal to the light emitted in a unit solid angle by a uniform point source of one candle intensity

[↓ Other Words from *lumen*](#) [↓ Did You Know?](#) [↓ More Example Sentences](#) [↓ Learn More about *lumen*](#)

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Other Words from *lumen*

luminal or less commonly luminal \ 'lū-mə-nəl  \ adjective

Did You Know?

There are two common units for measuring light, the candela and the lumen. Both are recognized as standard international units, which also include the second (for time), the kilogram (for weight), and the meter (for length). The *candela* is a measure of intensity; an ordinary candle gives off light with the intensity of about one candela. The lumen is a measure of "luminous flux;" a standard 100-watt lightbulb gives off 1500–1700 lumens. Luminous flux indicates how much light is actually perceived by the human eye. Technologies vary in how efficiently they turn electricity into light; halogen lights produce about 12 lumens per watt, ordinary incandescent lightbulbs produce about 15 lumens per watt, and compact fluorescent bulbs produce about 50 lumens per watt.

Examples of *lumen* in a Sentence

Recent Examples on the Web The Set Is a Star, Too A scene change in the middle of Act II revealed the dazzling imperial throne room, which throws off something like a zillion *lumens*. — [Michael Cooper, *New York Times*, "The Met's Herculean Task: 4 Operas in 48 Hours," 25 Oct. 2019](#) Brightness With a max output of 150 *lumens*, the Iota is sufficient for camp use and occasional night hiking. — [Andrew Skurka, *Outside Online*, "Review: Black Diamond Iota Headlamp," 29 Aug. 2019](#)

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First Known Use of *lumen*

1873, in the meaning defined at [sense 1](#)

History and Etymology for *lumen*

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