



Provisur Technologies, Inc.'s Demonstrative Exhibits

PROVISUR TECHNOLOGIES, INC., Petitioner,

v.

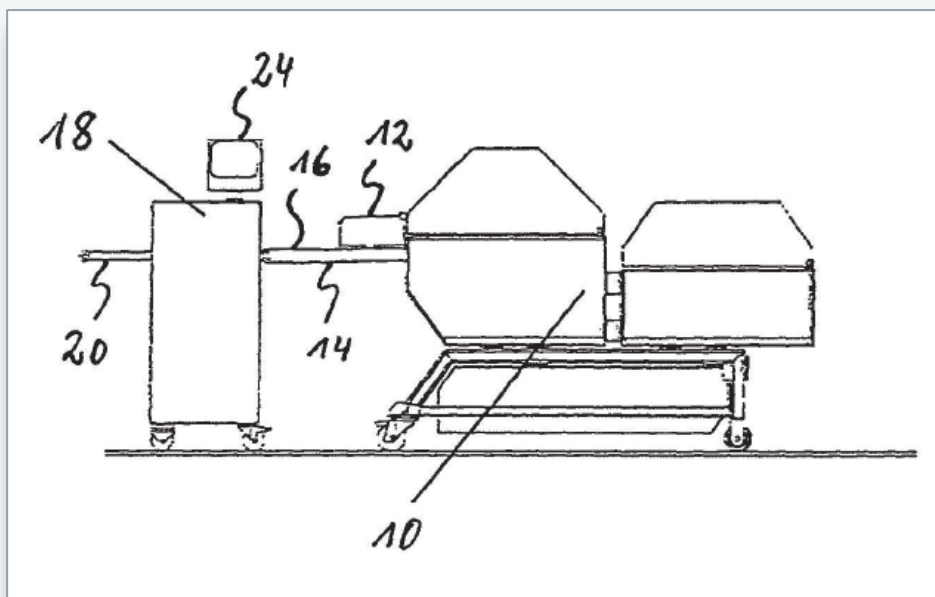
*WEBER FOOD TECHNOLOGY GMBH, Patent
Owner.*

Before the Patent Trial and Appeal Board

Case IPR No. 2024-00235

Patent No. 8,529,321

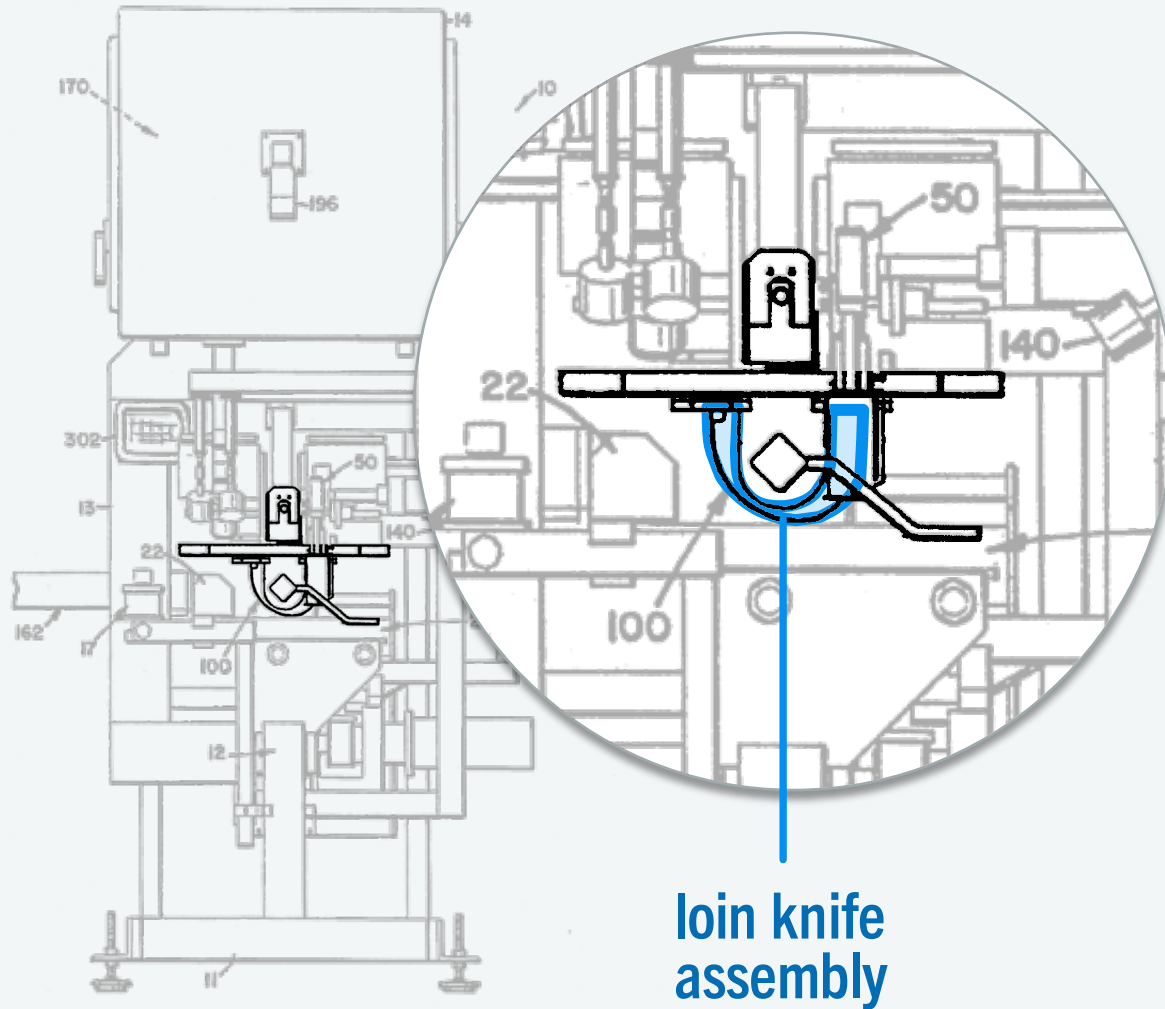
March 5, 2025



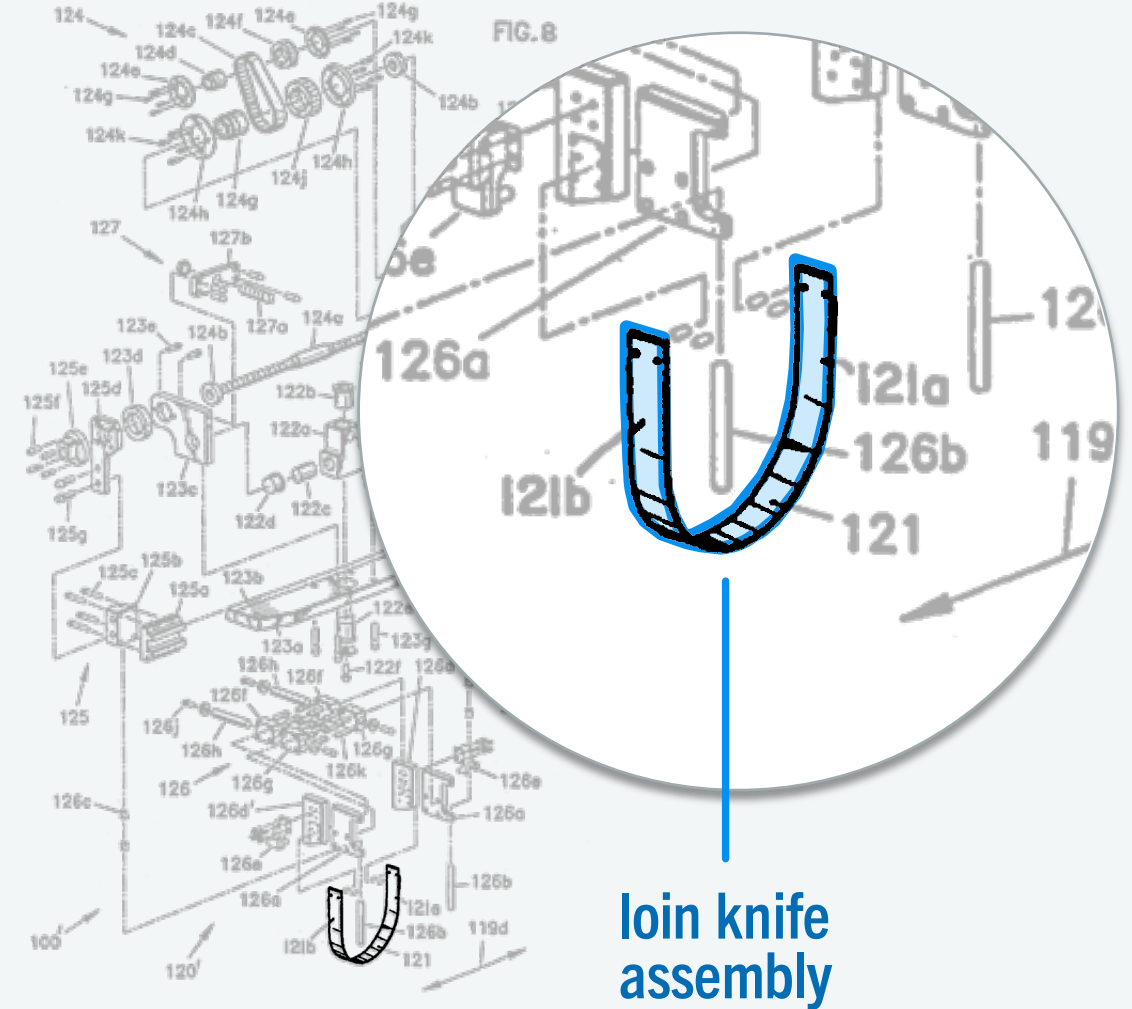
('321 Patent, Fig. 1; Pet., 9)

Ground 1: Anticipation by Young

Young's U-Shaped Knife Blade

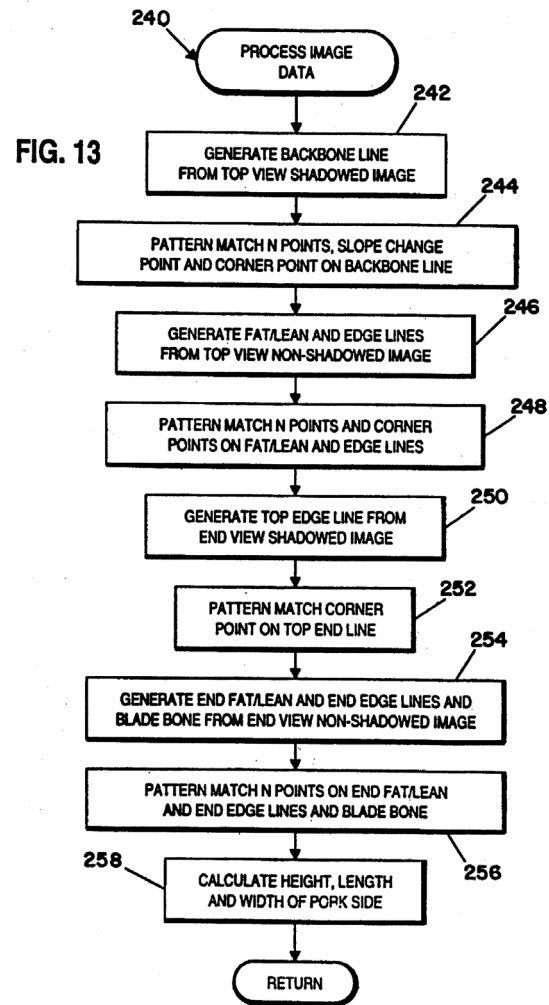


(“Young” EX1004, Fig. 4; Pet., 16)



(“Young” EX1004, Fig. 8; Pet., 15, 37-38)

Young's Determination of the Thickness of the Fat Cover



(“Young” EX1004, Fig. 13; see e.g., Pet., 19)

- ▶ Controller 172, via routine 240, also calculates the height, width, and length of other portions of the meat product such as the distance between the fat/lean separation line, and the edge of the meat product related to the thickness of the fat cover. (Pet., 32; see also “Young” EX1004, 22:53-65, 24:34-39, Fig. 13)
- ▶ The distance between the edge line and the fat/lean separation line corresponds to thickness of the fat cover. (Pet., 31-32; see also Dec. of Dr. Collins, EX1003, ¶¶105-111; “Young” EX1004, 23:20-23)

Next, in block 246, routine 240 generates a fat/lean separation line and an edge line from the non-shadowed top view image. ...

edge line (representing the outer surface of the pork side proximate the fat/lean line)

("Young" EX1004, 23:12-25; see also e.g., Pet., 32)

Next, in block 248, a plurality of points (preferably 20) are generated for each of the fat/lean separation and edge lines

("Young" EX1004, 23:28-30; see also e.g., Pet., 31)

Next, in block 254, the non-shadowed end view image is processed to generate end views of the fat/lean separation and the side edge of the pork side, to respectively generate end fat/lean and end edge lines. ... the end edge line (representing the outer surface of the pork side proximate the fat/lean line)

("Young" EX1004, 23:45-56; see also e.g., Pet., 31)

In block 256, a plurality of points (preferably 20) are generated for each of the end fat/lean separation and end edge lines

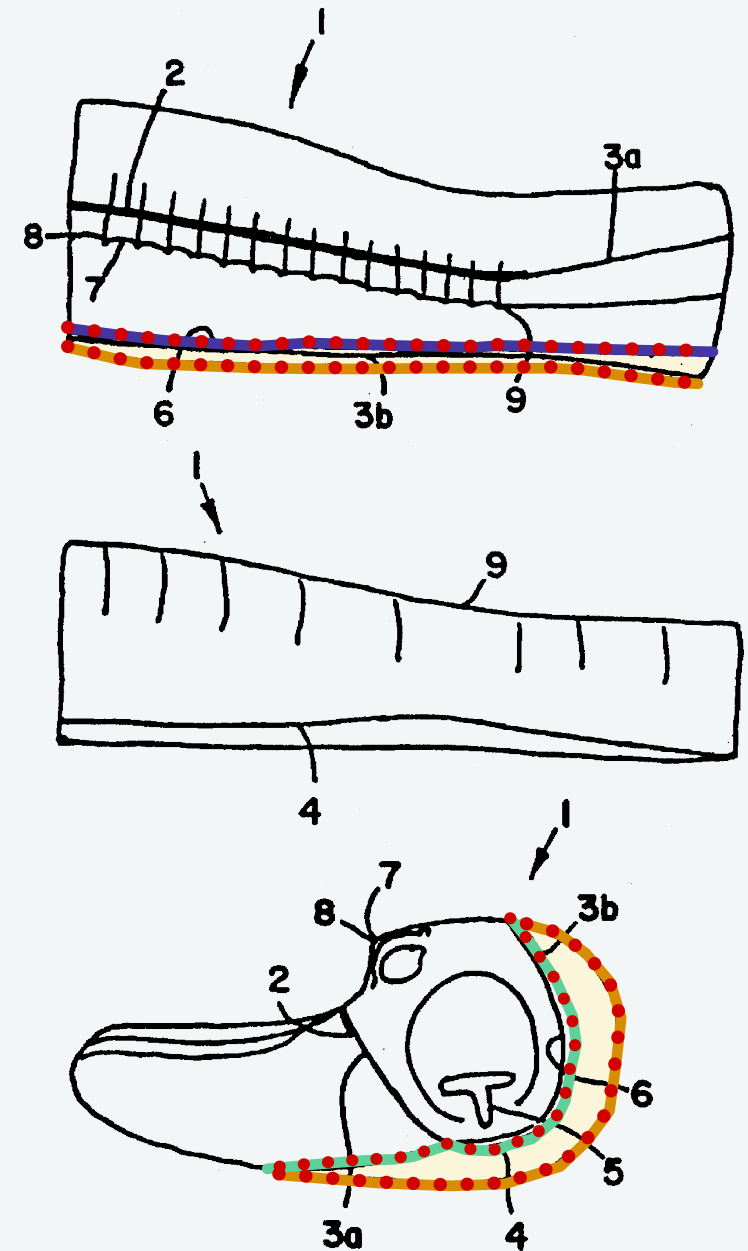
("Young" EX1004, 23:62-64; see also e.g., Pet., 31)

X and Y coordinates in the top and end view images may be translated to real-world dimensions by a straightforward numerical conversion routine.

("Young" EX1004, 24:20-22; see also e.g., Pet., 31)

Routine 240

- ▶ Imaging system 190 uses routine 240 to calculate the fat/lean separation line and then calculates height, length and width. (Pet., 18).
- ▶ Images are processed via controller 172's image processing routine 240, which corresponds to the "automatic determination of the thickness of the fat cover..." (Pet., 31).
- ▶ Controller 172, via routine 240, also calculates the height, width, and length of other portions of the meat product such as the distance between the fat/lean separation line, and the edge of the meat product related to the thickness of the fat cover. (Pet., 32).
- ▶ a POSA would understand Young as teaching that process image routine 240 determines the thickness of the fat cover defined by the distance between the fat/lean separation line and the edge line. (Reply, 7; see also Pet., 31 (citing Dec. of Dr. Collins, EX1003, ¶¶104-106)).



("Young" EX1004, Fig.10A, 10B, 10C) (annotated)

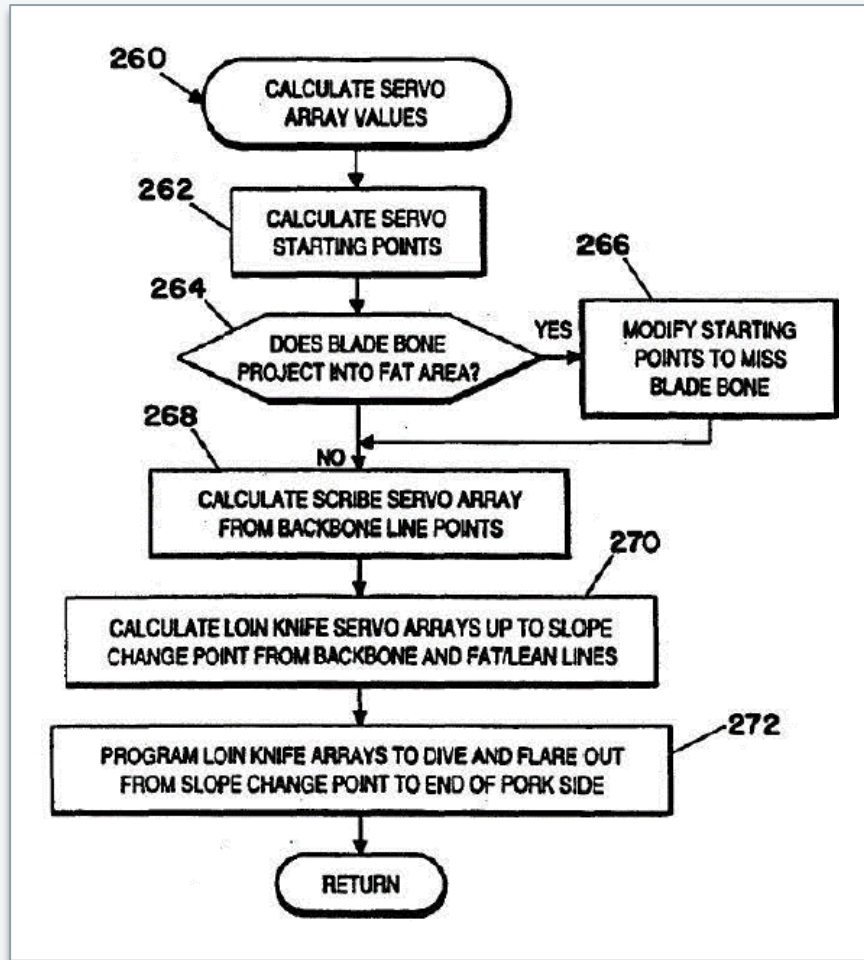
Young's Control of the Position of the Cutting Blade in Dependence on the Thickness

- ▶ The position of the blade, controlled by Controller 172, depends on cutting profiles generated from information received from imaging system 190.

(Pet., 38-39; see also "Young" EX1004, 4:40-42, 5:62-67, 18:36-40)

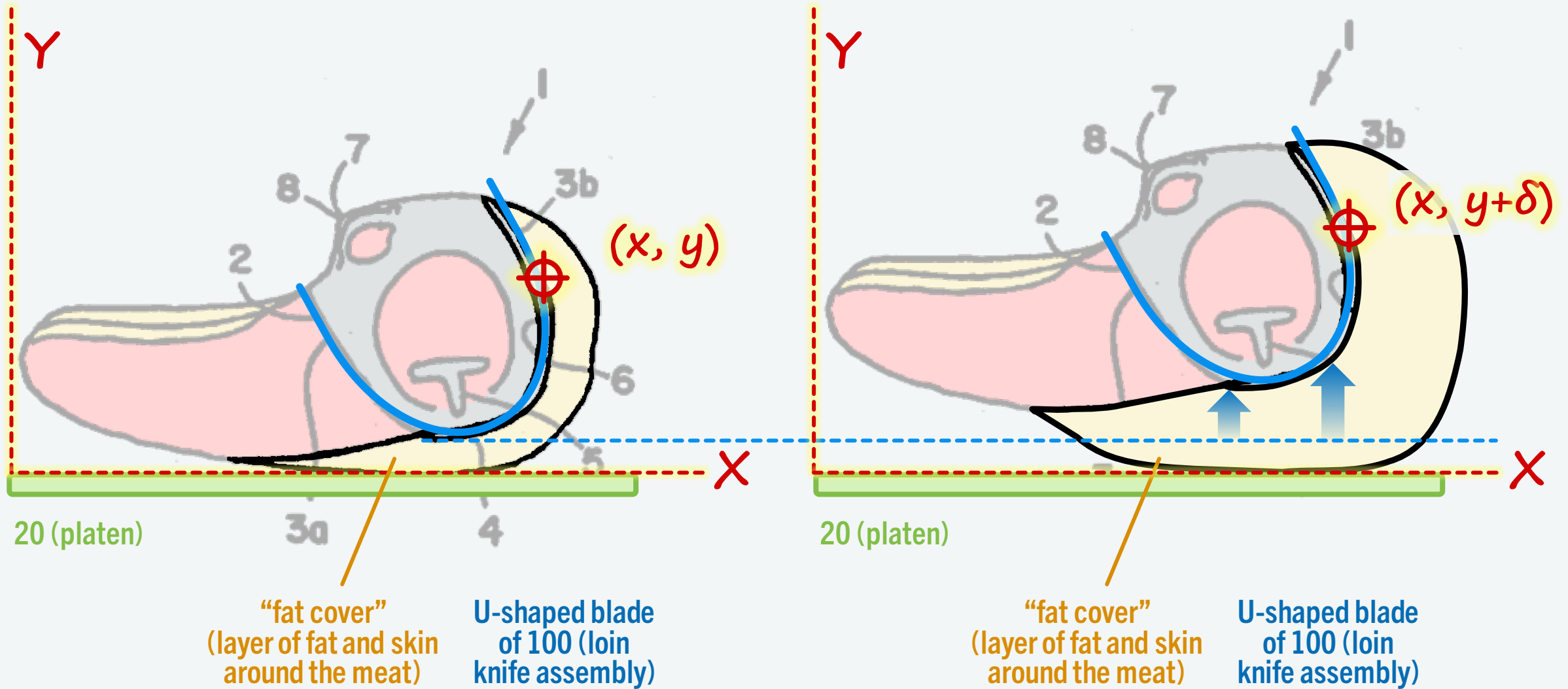
- ▶ Controller 172 uses image data to "dynamically modify the cutting profile of loin knife assembly 100..."

("Young" EX1004, 18:33-40; Pet., 36)



("Young" EX1004, Fig. 14; Pet., 38-39; EX1003, p. 109)

Young's Position of the Cutting Blade



("Young" EX1004, Fig. 10c (annotated); see also POR, 19)

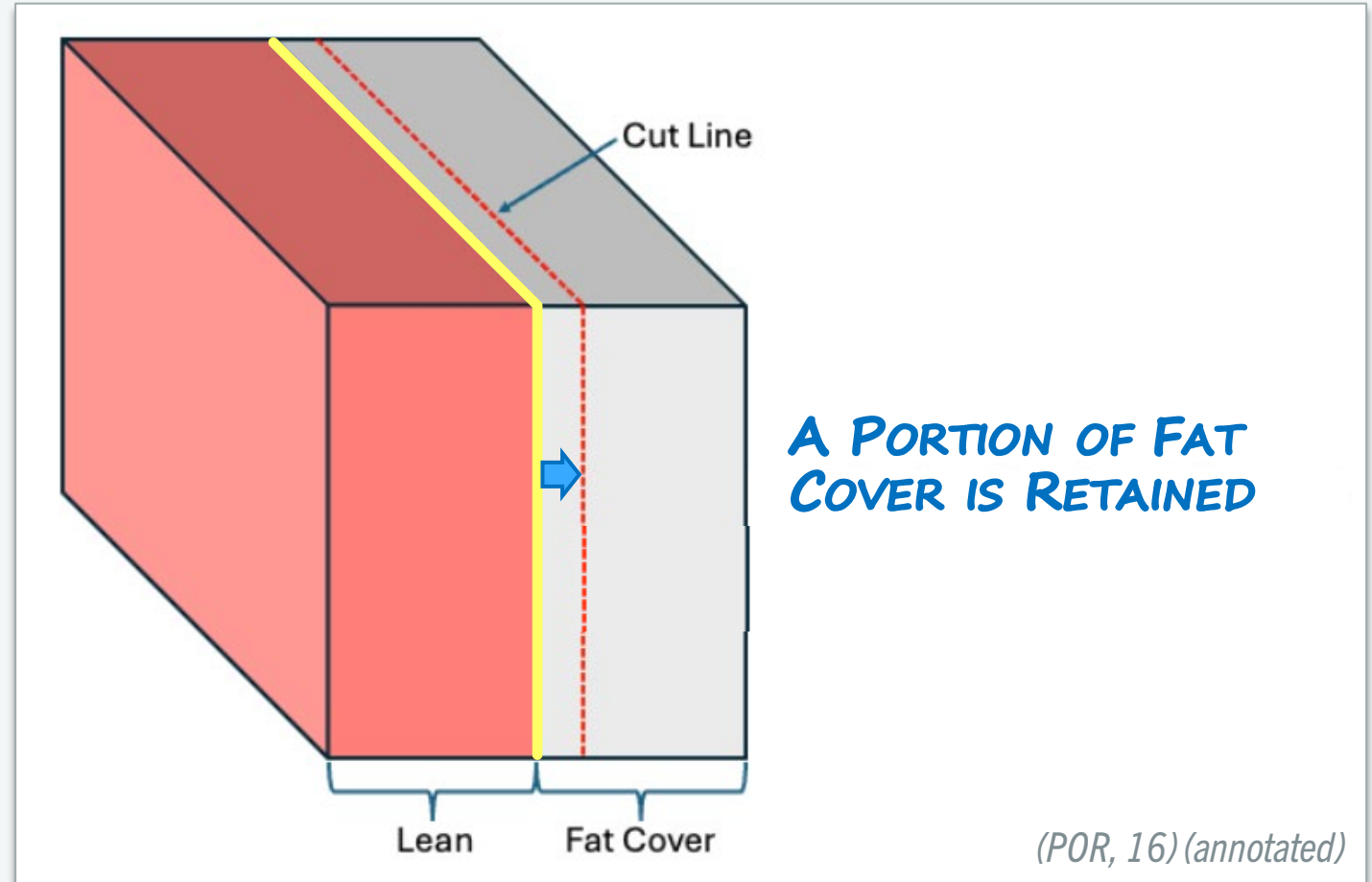
The '321 Patent's "Thickness Remains" Embodiment

The use of blue light is particularly advantageous because the contrast between flesh and fat cover is particularly striking under blue light so that the course of the boundary between flesh and fat cover can be recognized particularly easily.

('321 Patent, 4:34-37)

The control device selects a suitable travel profile with respect to the measured result of the determined anatomy of the meat product **12** and the height of the cutter bar is set by said travel profile in dependence on the thickness and on the shape of the fat cover and in dependence on the product feed so that a fat cover layer of a desired thickness is separated from the meat product **12** or so that a fat cover layer of a desired thickness remains at the flesh component of the meat product **12**.

('321 Patent, 5:35-43)



Ground 2: Obviousness in view of Young and Norrie

A POSA Would Be Motivated to Combine Young & Norrie

ARGUMENT	EVIDENCE	SUPPORT
Young explicitly contemplates adding new systems	“Various modifications and changes may be made to control system 170 consistent with the invention. For example, additional imaging and motion functionality may be included to provide more sophisticated profiles using the scribe saw and loin knife assemblies.”	“Young” EX1004, 20:17-24; <i>see also</i> Pet., 53.
Young identifies Norrie as an example	“To address the problems associated with manual loin separation processes, various automated loin separation systems have been proposed. Examples include [...] U.S. Pat. No. 4,979,269 to Norrie, and U.S. Pat. Nos. 5,234,371 and 5,295,898 to Andre et al., among others.”	“Young” EX1004, 2:18-26; <i>see also</i> Pet., 52-53.
Norrie’s Technique Reduces Waste	Incorporation of additional imaging from Norrie would allow Young to reduce waste using its native multi-axis blade.	Pet., 53; <i>see also</i> Dec. of Dr. Collins, EX1003, ¶¶175-176, “Young” EX1004, 2:43-50, 14:33-40, 20:17-24, 26:42-46.

Overview of Young-Norrie Combination

PATENT OWNER'S FIRST DEPOSITION OF PETITIONER'S EXPERT

Q. Which camera do you propose adding from Norrie into Young's system?

A. . . . [A]gain, I'm not sure if you need to add a camera or just modify [Young's] algorithm to be explicit in providing a dimension of the - of the fat thickness, which, again, I believe Young does anyway.

[Patent Owner asked no further questions on implementing Norrie's algorithm.]

(Collins Dep. Tr., EX2006, 42:12-22)

- ▶ “[A]dditional ... motion functionality may be included to provide more sophisticated profiles...” *Pet., 53 (citing “Young” EX1004, 20:17-24).*
- ▶ “A POSA looking at Young would have been directly led to Norrie to achieve additional imaging functionality, such as Norrie’s thickness sensing, in view of these well-established and explicit stated needs in the art. . . . A POSA would have been able to apply the determination of thickness by the camera and controller taught in Norrie in the context of Young’s camera.” *Pet., 53 (emphasis added).*
- ▶ “This would be a routine software modification within the level of skill of a POSA.” (*Dec. of Dr. Collins, EX1003, ¶ 177).*

Young Identifies Norrie and Contemplates Modifications

To address the problems associated with manual loin separation processes, various automated loin separation systems have been proposed. Examples include U.S. Pat. No. RE 28,508 to Neebel et al., U.S. Pat. No. 3,234,591 to Vogt et al., U.S. Pat. No. 3,685,095 to Metro, U.S. Pat. No. 3,771,196 to Doerfer et al., U.S. Pat. No. 4,189,806 to Van Heyningen, U.S. Pat. Nos. 4,970,755 and 5,090,939 to Leblanc, U.S. Pat. No. 4,979,269 to Norrie, and U.S. Pat. Nos. 5,234,371 and 5,295,898 to Andre et al., among others.

("Young" EX1004, 2:18-26; Pet., 52-53)

Various modifications and changes may be made to control system **170** consistent with the invention. For example, additional imaging and motion functionality may be included to provide more sophisticated profiles using the preferred scribe saw and loin knife assemblies. Also, the design of control system **170** may be modified to incorporate different accessory components on apparatus **10**. Other modifications will be appreciated by one skilled in the art.

("Young" EX1004, 20:18-24; Pet., 53)

Ground 3: Obviousness in view of Johnson & Belk

Johnson & Belk Disclose All Limitations

CLAIM LANGUAGE

JOHNSON & BELK EXEMPLARY DISCLOSURES

apparatus for separation	Johnson: Loin separation apparatus 10
measurement device	Belk: imaging device 12
cutting device/cutting blade	Johnson: Blade assembly
control unit	Johnson: Controller
variable position relative to product feed	Johnson: The entire blade assembly elevates or lowers about a pivot point 45 established by the device 706 (Fig. 10)
travel profile	Johnson: Fat/lean interface

(Pet., 55)

Belk Teaches Thickness

BELK'S DISCLOSURE

- ▶ “The color parameters L^* , a^* , and b^* , or the tissue density 40 parameters can also be used to calculate the values of factors predictive of yield, such as the cross-sectional area of a muscle of interest and other surrounding organs such as fat, bone, and connective tissue.”

“Belk” EX1007, 4:39-43 (emphasis added); see also e.g, Pet., 64.

BELK'S PURPOSE

- ▶ “USDA Graders are required to compute Yield Grades. . . . Factors used to determine Yield Grades include . . . Subcutaneous fat thickness[.]”

(“Belk” EX1007, 2:41-48; Pet., 63)

A POSA Would Recognize the Disadvantages of Johnson's Probes

- ▶ Patent Owner Claims: **“Only the Challenged Patent says anything about probe-based systems. Accordingly, Petitioner’s purported motivation . . . is supported only by the Challenged Patent.** *(Sur-Reply, 21)*

BUT

- ▶ **“The probes required multiple physical insertions into the meat, which was known to cause potential damage to the meat and was known to be a potential source of contamination.”** *(Pet., 62-63) (emphasis added) (citing Dec. of Dr. Collins, EX1003, ¶245; “Cate” EX1014 1:28-42; “Barten” EX1018, 1:31-2:8; “Gorl” EX1022, 1:6-45)*

Prior Art Recognizes Contamination Risk of Probes

Such known testing methods and apparatus have in common the disadvantage that they can only be carried out by intimate contact with the test object . . . [b]y the utilization of probes which, for example, must be brought into definite electrical contact with the surface of the test object, . . . it is regarded as a particular disadvantage that . . . such apparatus parts must be carefully cleaned after each use...

("Barten" EX1018, 1:46-63) (emphasis added)

A POSA Would Recognize Johnson's Probes Damage Product

- ▶ Patent Owner Claims: **“Only the Challenged Patent says anything about probe-based systems. Accordingly, Petitioner’s purported motivation . . . is supported only by the Challenged Patent.** *(Sur-Reply, 21)*

BUT

PRIOR ART

“A distinct disadvantage of these probes is that they puncture the product to be trimmed and cause 40 damage to the product”

(“Cate” EX1014, 1:39-41; see also Pet., 63)

Petitioner's Expert Agrees with these Motivating Factors

DEPOSITION OF PATENT OWNER'S EXPERT

Q. Understood. Are there any other disadvantages to probe measurement systems that you're aware of, sitting here today?

A. I don't recall it being discussed in the '321 Patent, and I may just be forgetting some passage here. But probes also have the disadvantages that they can become contaminated. So depending on the type of sensor they use, they may require cleaning and maintenance more frequently than a noncontact sensor.

(Reinholtz Dep. Tr., EX1036, 96:8-17)

DEPOSITION OF PATENT OWNER'S EXPERT

Q. Generally, probes are disadvantageous because it reduces the quality of the meat product; is that right?

A. The meat can be damaged by the insertion of the probe, and that may reduce the quality, yes.

(Reinholtz Dep. Tr., EX1036, 96:3-7)

Johnson Patent Owners Arguments Are Factually Incorrect

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

a 3D map of internal variations in the fat cover. *POR*, 39-44. Thus, Petitioner’s proposed modification of Johnson using Belk’s teachings would destroy Johnson’s entire purpose: generating a 3D map of a meat product that includes fat cover thickness measurements to guide fat trimming. *Johnson*, 1:50-55, 2:15-35. As such, a POSITA would not have been motivated to combine Johnson’s probe-based fat thickness measurement with Belk’s system. *See Medtronic, Inc. v. Teleflex Innovations S.a.r.l.*, 69 F.4th 1341, 1347–50 (Fed. Cir. 2023) (affirming the Board’s

BUT



US006929540B2

(12) United States Patent	(10) Patent No.:	US 6,929,540 B2
Johnson et al.	(45) Date of Patent:	Aug. 16, 2005
(54) AUTOMATED CLASSIFIER AND MEAT CUT FAT TRIMMING METHOD AND APPARATUS	4,718,146 A *	1/1988 Adkison 452/152
	4,939,574 A *	7/1990 Petersen et al. 452/152
	4,962,568 A *	10/1990 Rudy et al. 452/157
(75) Inventors: John E. Johnson, Jefferson, SD (US);	4,970,755 A *	11/1990 Leblanc
Chris Vandenberg, Beverly Hills, MI (US)	4,979,269 A *	12/1990 Norrie
	5,090,939 A *	2/1992 Leblanc
	5,429,545 A *	7/1995 Long et al.
	5,476,417 A *	12/1995 Long et al.
(73) Assignee: Tyson Fresh Meats, Inc., Springdale, AR (US)	5,580,306 A *	12/1996 Young et al.

(57) ABSTRACT

Apparatus and method for a meat cut classification and fat trimming for sensing the thickness of a layer of fat of a cut of meat and the various contours thereof as it travels along a conveyance and providing the fat thickness or classification information to a downstream system for performing a fat trimming operation. The meat cut classification system comprises a split/multi-belt conveyor having split/multi-belts proximately spaced apart extending in the same direction and having a uniform equidistant gap there between and said conveyor having a drive for conveying the meat cut through the classification system and a multi-probe mechanism assembly.



Provisur EX1006
U.S. Patent No. 8,529,321

Sur-Reply, 23

(“Johnson” EX1006, Cover Page, Abstract)

Belk Is Not Limited To its Camera Embodiments

- ▶ **“Belk states imaging device 12 is preferably a video camera, but also may be any imaging device known to a POSA.” *Pet.*, 56.**
- ▶ **“An apparatus for use in the present invention comprises an imaging device 12 and a data processing unit 16. The imaging device 12 can be any such imaging device known to those of skill in the art, such as a camera, tomographic imaging (i.e. CAT, PET) device, magnetic resonance imaging (MRI) device, sound wave imaging device, radio wave imaging device, microwave imaging device, or particle beam imaging device”
*“Belk” EX1007, 5:9-16.***

Legal Authority

Legal Authority: Teaching Away

- ▶ **A reference that “does not criticize, discredit, or otherwise discourage investigation into’ the claimed invention does not teach away.”**

See Meiresonne v. Google, Inc., 849 F.3d 1379, 1382 (Fed. Cir. 2017);
see also Reply, 14.

Legal Authority: Notice

- ▶ Patent Owner has sufficient notice of Petitioner’s position when Petitioner relies “on the same references, the same disclosures, and the same obviousness theories advanced by the petition and debated by the parties.” *See Corephotonics, Ltd. v. Apple Inc.*, 84 F.4th 990, 1010 (Fed. Cir. 2023) (citing *Arthrex v. Smith & Nephew, Inc.*, 935 F.3d 1319, 1328 (Fed. Cir. 2019); *see also* Reply, 18).
- ▶ Further, when Patent Owner is able to “depose[] and cross-examine[] [Petitioner’s] expert” and address Petitioner’s arguments in a sur-reply the “‘newness’ restriction on what is proper in an IPR reply” is satisfied. *Id.* (citing *Henny Penny v. Frymaster LLC*, 938 F.3d at 1330-31 (Fed. Cir. 2019)).

Legal Authority: Bodily Incorporation

- ▶ **Obviousness does not require petitioner to prove the teachings of one reference “could be ‘bodily incorporated’ into” the other reference.** *See Intel Corp. v. PACT XPP Schweiz AG*, No. 2022-1038, 2023 WL 2198649, at *3; *see also* Reply, 18.
- ▶ **“Claims may be obvious in view of a combination of references, even if the features of one reference cannot be substituted physically into the structure of the other reference. What matters . . . is whether a person of ordinary skill in the art, having all of the teachings of the references before him, is able to produce the structure defined by the claims.”** *Orthopedic Equip. Co. v. United States*, 702 F.2d 1005, 1013 (Fed. Cir. 1983) (citations omitted); *see also* Reply, 27.

Legal Authority: Particularity

- ▶ **Where a Petition “contains a detailed mapping for the claims, and an explanation for the motivation to combine,” the petition “contains sufficient particularity.”**

See Sage Prods., LLC v. Purewick Corp., IPR2020-01426, Paper 30, 50 (PTAB Feb. 14, 2022); *see also* Reply 17-18 (*citing Corephotonics, Ltd. v. Apple Inc.*, 84 F.4th 990, 1003 (Fed. Cir. 2023)).

Legal Authority: “Entire Premise”

- ▶ “[T]he destruction of [a reference’s] ‘entire premise’” is not determinative of obviousness, rather where a reference “teaches against” combinations that “might produce safety concerns,” that is a **factor in the obvious analysis.** *Medtronic, Inc. v. Teleflex Innovations S.À.R.L.*, 69 F.4th 1341, 1349-50 (Fed. Cir. 2023).
- ▶ “The fact that the motivating benefit comes at the expense of another benefit, however, should not nullify its use as a basis to modify the disclosure of one reference with the teachings of another. Instead, the benefits, both lost and gained, should be weighed against one another.” *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (citing *Winner Int’l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 n. 8 (Fed. Cir. 2000)).

