

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PROVISUR TECHNOLOGIES, INC.,

Petitioner,

v.

WEBER FOOD TECHNOLOGY GMBH,

Patent Owner

Case IPR2024-00235
U.S. Patent No. 8,529,321

**PATENT OWNER'S RESPONSE
TO PETITION FOR *INTER PARTES* REVIEW**

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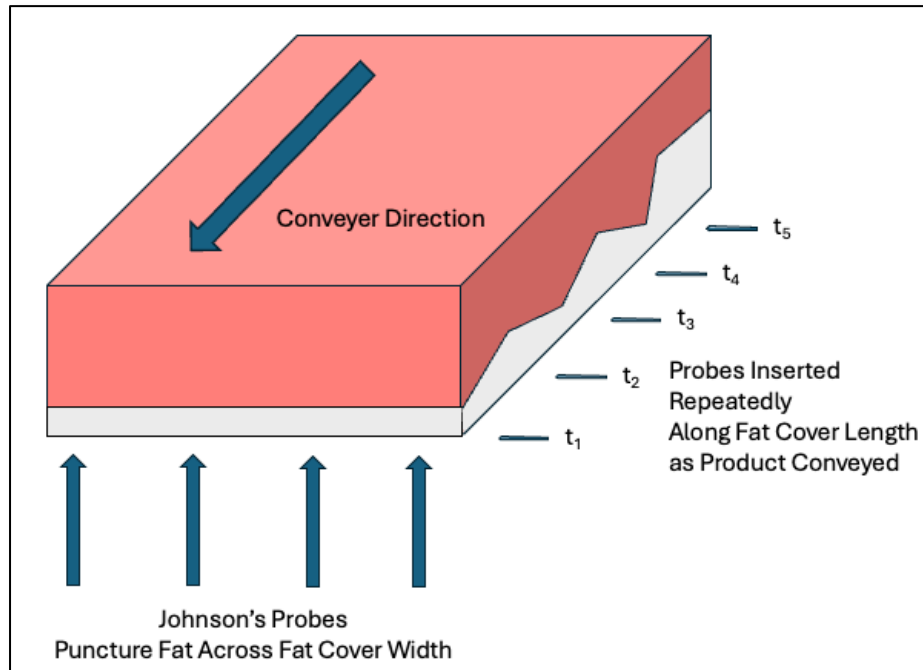
I. INTRODUCTION

Petitioner's proposed grounds fundamentally miss the mark. Grounds 1 and 2 rely on *Young*, which describes a meat processing system that uses a camera to detect the fat/lean separation line and uses this line as a reference to determine where to cut fat from lean. As Petitioner's expert admitted on cross examination, *Young's* cut line does not depend on fat thickness. Ex. 2006, 35:1-20 (admitting that changes in fat thickness do not result in changes to the cut line because "the cut line is *relative to* the lean piece"). Put simply, *Young's* process is agnostic to fat thickness. Fat thickness is a measurement that is never made in *Young's* system and that *Young's* process does not use when identifying a cut line. Fatal to these *Young*-based grounds, the Challenged Claims require (1) determining fat thickness in a contactless manner and (2) separating (i.e., cutting) the fat cover "in dependence on" the measured fat thickness. *See* Ex. 1001, Independent Claims 1, 14.

In an apparent recognition that *Young's* system does not measure fat thickness, Petitioner's Ground 2 briefly—spanning less than three pages—proposes supplementing *Young's* system with *Norrie's* imaging capabilities, which are allegedly used in *Norrie's* system to measure fat thickness. Petition, 51-54. Neither Petitioner nor its expert propose any specific modifications to *Young's* process, nor do they explain how *Young's* fat thickness-agnostic process would make use of fat thickness information. Further, Petitioner's expert admitted that *Norrie's* camera

provides no additional information and that he saw no technical reason to replace *Young's* camera. Ex. 2006, 43:8-11. Because Petitioner has entirely failed to explain what role *Norrie* plays in the proposed combination, Ground 2 does not remedy the fundamental deficiencies in Ground 1.

Finally, Petitioner's Ground 3 proposes replacing *Johnson's* probe-based fat thickness measurement with *Belk's* camera system. In support, Petitioner insists that a POSITA would "expect success in modifying Johnson via removing its probe assembly, and installing a different sensor system, such as Belk's imaging system, with a clear view to capture image data of a meat product as it is conveyed through Johnson's apparatus." Petition, 65. But neither Petitioner nor its expert acknowledge a fundamental incompatibility between *Johnson's* probe assembly and *Belk's* imaging system. *Johnson's* assembly detects fat thickness by physically inserting probes into the skin and through the fat until a fat/lean line is detected. As depicted below, it does this both across the width of the meat product, using an array of probes, and along the length of the meat product, repeatedly probing the fat cover over time (e.g., t_1 - t_5) as the meat product is conveyed:



*Dec.*¹, ¶ 57. From these probe-based measurements, *Johnson* creates a 3D map of the fat cover, capturing fat thickness across the full fat cover of the loin, including fat thickness in the center of the loin. This 3D map is used to control an array of cutting blades, allowing high precision fat trimming that accommodates fat thickness changes across the width and length of the fat cover. In contrast, *Belk's* camera system merely detects the color differences between fat and lean by imaging a ***cross section*** of the meat product. It cannot ascertain fat thickness below the surface of the meat product, meaning it cannot collect any fat thickness data between the edges of the meat product—front-to-back or side-to-side. Accordingly, replacing *Belk's* camera system cannot provide the same information as *Johnson's* probes—in

¹ All cites to “Dec.” refer to the supporting declaration of Dr. Charles Reinholtz, Ex. 2007.

particular, *Johnson's* center probes—and would make it impossible to produce *Johnson's* 3D map. Giving up the 3D map feature in *Johnson's* system by limiting fat thickness information to the surface of the meat product forfeits a significant express advantage of the *Johnson* system—a change no POSITA would accept. This reduced functionality and Petitioner's failure to address it are fatal to Ground 3.

In sum, Petitioner has failed to introduce sufficient evidence demonstrating that any proposed Ground anticipates or renders obvious the Challenged Claims.

II. SUMMARY OF THE '321 PATENT'S INTRINSIC RECORD

A. The '321 Patent Describes and Claims a Fat Removal System and Method That Measures Fat Thickness and Uses This Value as the Reference Point for Fat Removal

The '321 Patent presents a novel apparatus for separating at least a portion of a fat cover from a flesh component of a meat product in an automated process that overcomes many of the drawbacks of conventional systems with “significantly lower economic effort.” Ex. 1001 at Abstract, 2:19-37. A meat product generally comprises three components: rind, fat, and flesh. *Id.* at 1:14-17. To remove portions of the fat cover, i.e., the rind and fat, the '321 Patent explains that conventional systems measured the thickness of the fat cover with an insertable probe that detected changes in brightness of different tissues. *Id.* at 1:18-36. In these systems, the “meat product is damaged by the insertion of the sensor,” particularly when one or more sensors have to be “inserted at multiple sites of the product for a reliable” fat

thickness determination. *Id.* The non-contact measurements in the '321 Patent's invention determine "the thickness of a fat cover of a meat product without damaging the meat product[.]" *Id.* at 1:37-2:5 (describing exemplary optical non-contact measurements using light detectors and a CCD camera), 4:18-5:6.

The measured thickness of the fat cover is then "transferred from the evaluation unit of the measurement device" to a control unit of a cutting device. *Id.* at 5:24-28. This control unit "determines the anatomy of the meat product [] from the measurement result" and then selects a stored "travel profile"—which are "[p]roduct-dependent or anatomy-dependent" profiles that "effect a change in the setting of the cutter bar in dependence on the feed of the meat product [] to be processed[.]" *Id.* at 5:24-43. In this way, the cutting device includes a cutting blade that "is variable relative to a product support" such that the "cutting blade position can be adapted to differently thick fat covers or the thickness can be set" for separation of a portion of the fat cover. *Id.* at 2:46-52.

In other words, the claimed invention measures the thickness of the fat cover and then removes portions of the fat cover based on this measurement. Both independent claims expressly recite this process. Independent Claim 1 recites "a measurement device for automatic *determination of the thickness of the fat cover*²,"

² All emphases added unless indicated otherwise.

a “cutting device . . . for automatic separation of the fat cover from the flesh component *in dependence on the thickness determined by the measurement device*, wherein . . . a control unit [] *control[s] the position of the cutting blade in dependence on the thickness determined by the measurement device[.]*” Independent Claim 14 similarly recites “*determining the thickness of the fat cover . . . [and] setting a position of a cutting blade in dependence on the determined thickness* of the fat cover[.]”

III. THE ALLEGED PRIOR ART

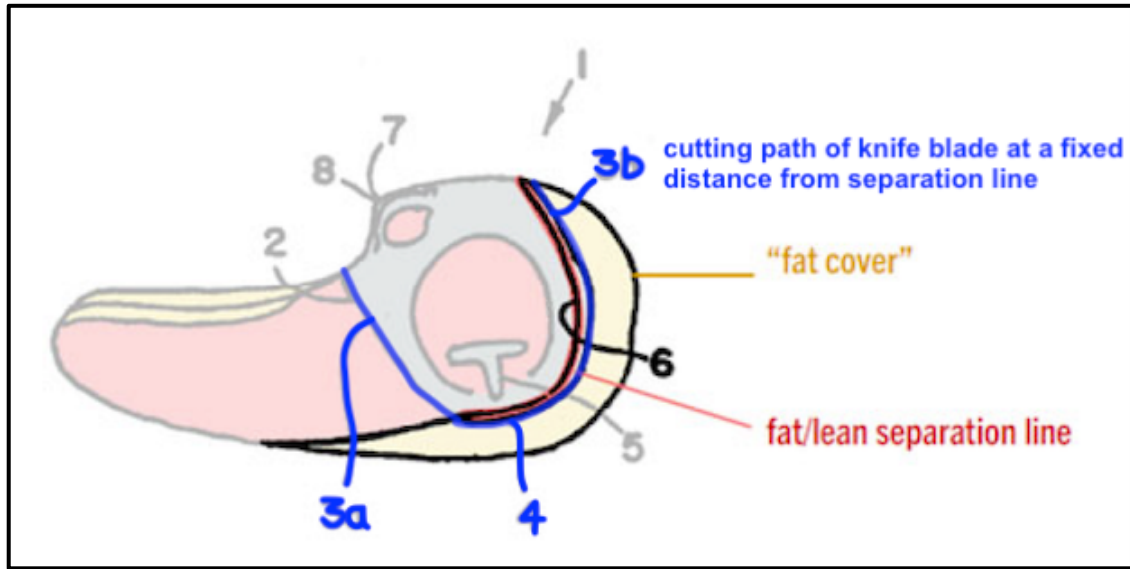
A. Young (Ex. 1004)

Young discloses a loin separation apparatus that simulates the motions of a human operator by addressing the problems of prior art systems by increasing control over its cutting actions. *Young*, Abstract, 2:55-58. *Young* performs its loin separation through the use of a control system including a loin knife assembly possessing a U-shaped knife blade with moving means to direct the cutting of the U-shaped blade in vertical and lateral directions. *Id.*, 4:17-25. *Young*'s embodiments all use imaging to determine or locate “a fat/lean separation line” on the side of meat; such that “the U-shaped knife blade” follows “*a preset distance from the fat/lean separation line[.]*” *Id.*, 3:60-4:61.

Young describes multiple cameras, including fat/lean separation camera 198, which “provide[s] dynamic (real time) image data of the fat/lean separation line for

the pork side proximate the backbone.” *Id.*, 18:33-56. The fat/lean separation camera 198 permits the system to “make real-time adjustments to the profile of the loin knife assembly,” to error correct and ensure “no data conflicts will occur” between the earlier generated “loin knife assembly profile.” *Id.*, 21:62-22:2, 26:41-27:7.

In controlling the loin knife blade 121, *Young* consistently and repeatedly teaches that the *fat/lean separation line* serves as the reference point guiding its knife blade. *Id.*, 20:60-63 (“The left side 121b of *knife blade 121 preferably follows line 3b, which is a fixed distance (preferably 0.1 inch) from fat/lean separation line 6*, and which generally follows the contour thereof.”). The annotated figure 10c below is exemplary of the meat product cut by *Young*, featuring the fat cover (annotated yellow), fat/lean separation line 6 (annotated red), line 3a, 4, 3b (annotated blue) showing the cutting path of *Young*’s knife blade cutting (1) at a fixed distance from line 6 in 3b, (4) below bone 5 proximate the fat/lean separation line, and (2) following the scribe cut of the scribe saw:



Young, Fig. 10c (annotated); *id.*, 20:55-21:2 (describing the same).

Throughout its disclosure, *Young* makes clear that two variables define the cutting profile: the lean/fat separation line and the user-defined preset distance from the lean/fat separation line, which defines how much fat cover remains after cutting. *Id.*, 4:5-13 (“The controller includes image processing means for determining backbone and fat/lean separation lines from the top plan image, profile calculating means for generating profiles for the vertical moving means and the first and second lateral moving means to control ... the second side of the U-shaped knife blade to follow *a preset distance from the fat/lean separation line*”); 4:36-38 (“the second side of the U-shaped knife blade *follows a preset distance from the fat/lean separation line*”); 4:57-59 (“the second side of the U-shaped knife blade to *follow a preset distance from the fat/lean separation line*”); 20:50-53 (“At the entry point into the pork side, the right side of the knife blade 121 enters at the scribe cut, and

the left side of the blade preferably enters 0.1 inches from the fat/lean separation line.”); 25:17-24 (“Moreover, it is preferable to control servos 152, 154, 156 and 157 to locate the right side of the loin knife blade along the scribe cut, *locate the left side of the loin knife blade 0.1 inch from the corner point of the fat/lean separation line generated in routine 240, and locate the bottom of the loin knife blade 0.1 inch from the end fat/lean separation line generated in routine 240.*”); 25:65-26:2 (“The profiles of the right and left sides of the *knife blade are selected to follow fixed distances from* the backbone line and the *fat/lean separation line*, respectively, and the profile data for servos 152, 154, 156 and 157 are generated accordingly.”); 26:13-16 (“During this period, however, the left side of the *knife blade is still controlled to follow the fixed distance from the fat/lean separation line* throughout the remainder of the loin pulling process.”); 26:36-40 (“Returning to block 216 in FIG. 11, the profile data for servos 152, 154, 156 and 157 are preferably dynamically modified to control the left side of the *knife blade to better follow a fixed separation from the fat/lean separation line* of the pork side.”).

B. Norrie (Ex. 1005)

Norrie describes an “[a]pparatus for the separation of back fat from a loin portion of a carcass” and “a device for sensing the thickness of back fat on the loin portion.” Norrie, Abstract. Norrie measures the thickness of the back fat on the loin using “a video camera and light source indicated generally as 54[.]” *Id.*, 3:51-53.

“[T]he camera [] will observe the thickness of fat on the underside of the loin lying on the conveyor” and “will then send appropriate fat signals to the computer.” *Id.*, 4:27-29. The computer then determines whether to adjust the position of blade 34 upward or downward from the conveyor by signaling blade solenoid 41. *Id.*, 4:28-33, 4:46-52. In other words, Norrie uses a basic camera system to move a single blade up or down, depending on the measured fat thickness.

C. Johnson (Ex. 1006)

Johnson discloses an “[a]pparatus 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” and “providing the fat thickness or classification information to a downstream system for performing a fat trimming operation.” *Johnson*, Abstract. Johnson’s apparatus and method for sensing the thickness of fat is based on “a multi-probe mechanism assembly” used “to penetrate the meat cut for measuring the fat thickness.” *Id.*, 1:65-2:2. These probes possess “a somewhat pointed end portion such that when it is pressed against the meat cut penetration occurs into the fat layer and extends through the fat to lean transition.” *Id.*, 2:15-18. They “can be instrumented with a sensor that can determine when the probe extends through the fat to lean interface as well as instrumented with a linear encoder for sensing the amount of extension of the probe or the fat layer depth.” *Id.*, 2:18-22. These probes are “further operable to *send a signal representative of the fat*

thickness or the location of the fat to lean interface.” Id., 2:22-24. Johnson teaches that its probes include sensors for detecting the fat/lean interface:

The probe also has a sensor assembly 252 emitting and receiving sensor signals. The sensor assembly emits a signal through a window of the pointed end of the probe and receives a reflected signal from the meat cut for sensing the fat to [lean] interface. Optical Technology or infrared sensor technology can be utilized or any other appropriate sensor technology.

Id., 7:58-67.

Johnson discloses that the “multiple probe penetrations into the meat cut ... gather[s] data to map the lean to fat interface contour[,]” further noting that “[t]he probes can then communicate the data representative of the lean to fat interface to a controller which is operable to interpret the information and generate a signal responsive to the data or map of the contour that will vary the attack angle or angle of approach of the cutting blade to follow the contour of the lean to fat interface.” *Id., 4:51-59.* Based on a signal of the fat to lean interface, the controller “will control the blade assembly to variably position the blade to follow the contour of the lean to fat interface.” *Id., 5:20-30.*

D. Belk (Ex. 1007)

Belk discloses “[a]n image analysis (IA) system for scoring characteristics predictive of palatability and yield of a meat animal carcass or cut.” *Belk*, Abstract.

This “IA system uses an imaging device [and] a data processing unit for processing image data” where the “results are identified with a particular piece of meat for further grading, sortation and processing.” *Id.* Belk’s image analysis system can use this imaging data to classify the subject meat product in different ways:

Image data can be used in subsequent calculation of the values of characteristics, the values being predictive of palatability, the characteristics including color and color variability of lean tissue, color and color variability of fat tissue, extent of marbling, average number and variance of marbling flecks per unit area, average size of marbling and the variance of average marbling size, average texture of marbling and lean tissue, firmness of lean tissue, density of lean tissue, density of fat tissue, and density of connective tissue.

Id., 4:26-35; *see also id.*, 9:59-10:1.

Belk teaches that its imaging device is “preferably a color video IA system.” *Id.*, 3:54-61. “Where the imaging device 12 is a visible light device such as a color camera, the image data can be analyzed for color scale parameters. If it is desired to conform to international standard, the image data can be analyzed for the color scale parameters L*, a*, and b*, as defined by the Commission Internationale d'Eclairage (CIE).” *Id.*, 8:25-30. Nearly the entirety of Belk’s description of classifying product focuses on this color-based analysis. *See, e.g., id.*, 1:11-17 (“***The field of the present invention is prediction of meat palatability and yield.*** More specifically, the present invention relates to the prediction of meat palatability and yield ***by use of image***

analysis (IA) to determine the color parameters L* (psychometric lightness), a* (red vs. green), and b* (yellow vs. blue) or the tissue density of the lean and fat portions of a meat animal carcass or cut.”); 8:25-9:51 (describing classifications based on color data). Relevant to Ground 3, color data is used in Belk’s system to characterize and distinguish between lean and fat. *Id.*, 9:2-6 (noting that certain “L*, a*, and b* scores [are] suggestive of . . . fat” and can be ignored when attempting to classify lean meat).

In addition to the color image information for classifying tissue types, Belk teaches that density information can be ascertained using imaging in the form of sound waves, tomographic imagers, etc. *Id.*, 9:9:53-58. Neither Petitioner nor its expert discusses these alternative technologies with respect to any claim limitation, focusing their mapping exclusively on the camera-based embodiment.

IV. PETITIONER’S PROPOSED GROUNDS DO NOT ANTICIPATE OR RENDER OBVIOUS THE CHALLENGED CLAIMS

Each of Petitioner’s proposed grounds suffers at least one fatal flaw. Grounds 1 and 2 are each based on Young—a reference that determines the cut line with reference to an internal lean/fat border, without considering or even calculating the fat thickness. Petitioner makes a very brief (and notably vague) attempt to remedy this deficiency with Ground 2, advancing a combination of Young and Norrie. But Petitioner entirely failed to explain *how* Norrie’s fat thickness determination would be used by Young’s system, and Petitioner’s expert testified on cross examination

that Norrie's camera hardware "is redundant of what's already disclosed in Young" and provides no benefit beyond Young's native camera. Ex. 2006, 41:13-17. With no explanation of how Young *functions* differently in the proposed combination and an express rejection of the Petition's proposed hardware replacement, Ground 2 fails to remedy Young's deficiencies. Ground 3 fares no better. The proposed combination of Johnson and Belk never acknowledges the fundamental incompatibility of the references, and what little detail Petitioner does discuss, mischaracterizes the teachings of the references.

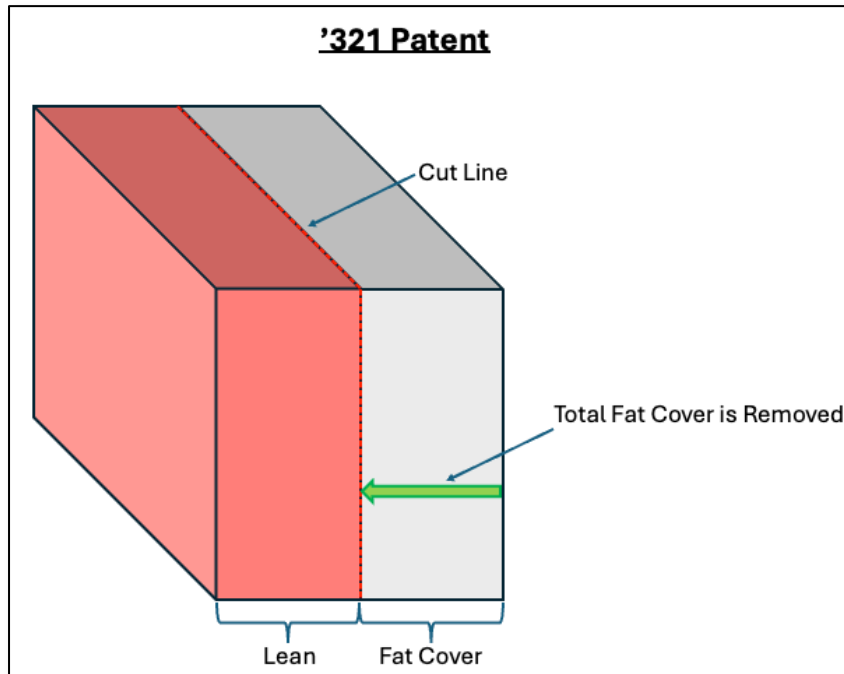
A. Ground 1: Young Does Not Anticipate—It Does Not Measure Fat Thickness or Use Fat Thickness to Determine a Cut Line

Claim 1 of the '321 Patent recites a "measurement device for automatic determination of the *thickness of the fat cover*, wherein the *determination of the thickness* of the fat cover takes place in a contactless manner" (Element 1A³). Ex. 1001 at 6:25-28. A "cutting device" is "coupled to the measurement device for automatic separation of the fat cover from the flesh component *in dependence on the thickness* determined by the measurement device" (Element 1B). *Id.* at 6:29-32. This cutting device is controlled by a "control unit for control of the position of the cutting blade *in dependence on the thickness* determined by the measurement device..." (Element 1D). *Id.* at 6:36-38; *see also* Petition at 10 (identifying

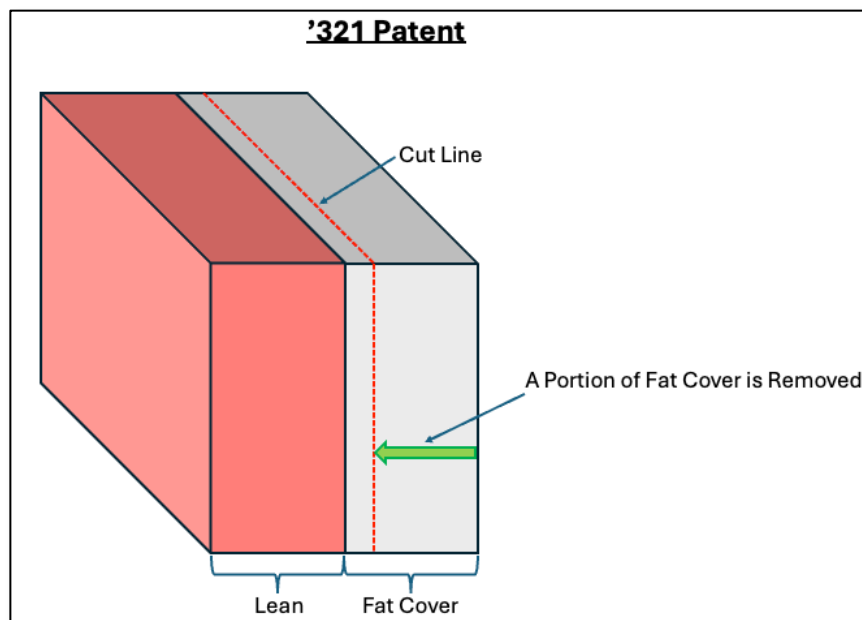
³ For consistency, Patent Owner adopts Petitioner's element references.

commensurate limitations in independent claim 14 which fails for the same reasons herein). The claims on their face openly require (1) the thickness of the fat cover to be determined and (2) the fat to be removed (i.e., cut off) “in dependence on” this determined fat thickness.

A POSITA would understand that *Young's* system, which determines its cut line *without regard for how much fat cover is removed* does not satisfy the '321 Patent's requirement that the cutting be made “in dependence on” the determined fat thickness. *Dec.*, ¶ 38. As Patent Owner's expert explains, a POSITA would understand that the claims do not necessarily require removing all fat after the thickness is determined. *Id.* (noting that the '321 Patent at 5:35-43 acknowledges that some portion of the fat cover may be intentionally preserved after cutting). But the claims *do* require that the cutting line depends on the fat cover. *Id.* In one example consistent with the Challenged Claims, the system determines the fat cover thickness and removes that fat cover in its entirety:



Id. (explaining that a cut line consistent with the Challenged Claims may remove the complete fat cover). In another example consistent with the Challenged Claims, the system determines the fat cover thickness and removes only a portion:



Id. (explaining that a cut line consistent with the Challenged Claims may remove only part of the fat cover). Whether all or part of the fat cover is removed, the cut line depends on the determined fat cover thickness. *Id.* A POSITA would understand that a system that determines its cut line without regard for the thickness of the removed fat cover cannot satisfy the claimed requirement that a fat cover is removed “in dependence on” the determined thickness of that fat cover. *Id.*

Despite the unambiguous claim limitations in the '321 Patent requiring fat removal that depends on determined fat thickness, Petitioner advances an anticipation ground using *Young*—a reference that does not measure the thickness of the fat cover and that is agnostic as to the thickness removed from the meat product. Indeed, Petitioner's own expert admitted that the cut line in *Young* would not change in response to changes in fat thickness. This deficiency is fatal to Petitioner's challenge.

Petitioner relies on *Young*'s “imaging system 190” as the claimed “measurement device for automatic determination of the thickness of the fat cover[.]” Petition, 29-30. Petitioner asserts that this measurement device, through several cameras including “fat line camera 198,” determines “a backbone line and a fat/lean separation line on the side of meat.” Petition, 30-31, 35 (stating camera 198 is “primarily used to provide dynamic (real-time) image data of the fat/lean separation line for the pork side proximate the backbone”). According to Petitioner,

“[c]ontroller 172 uses this information to dynamically modify the cutting profile of loin knife assembly 100 so that the assembly follows a fixed distance from the separation line to provide the optimum fat cover for the loin.” Petition, 35 (citing Ex. 1004, 18:33-36).

Fatal to Petitioner's challenge, Young does not determine the thickness of the fat cover. Nor does Young need to. Young's system simply identifies the line between the fat cover and the lean meat (fat/lean separation line) and uses this internal line as a reference for its cutting path. From this internal reference line, a user-defined offset value is added, allowing the user to define the amount of fat cover left behind after cutting:

The left side 121b of *knife blade 121 preferably follows line 3b, which is a fixed distance* (preferably 0.1 inch) *from fat/lean separation line 6*, and which generally follows the contour thereof. As discussed above, a 0.1 inch fat covering sufficiently keeps the loin from drying out, but doesn't make the loin look too fat. Other fat thicknesses may be desired in the alternative.

Ex. 1004, 20:60-66. Petitioner's expert explained that this fixed distance offset (i.e., the retained fat cover) is defined by the user:

Q. [] Let's talk about this offset. You note [] in paragraph 109 that a specific amount of fat can be retained, and you identified a 0.1 inch setting that allows .1 inches of fat to be retained beyond the fat/lean separation line. Do you see that?

A. I do.

Q. And have I described that accurately, that *that value is the amount of fat that is retained after the cut?*

A. *That's the goal, yes.*

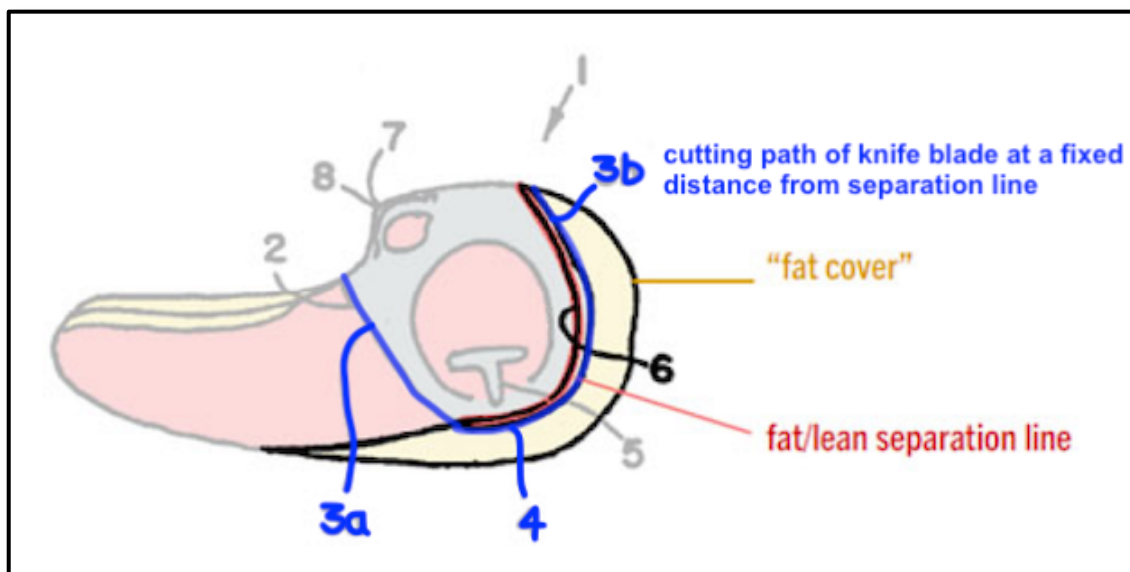
...

Q. And *that layer of fat that is retained is dictated by the value that the user inputs; correct?*

...

A. *That's my understanding.*

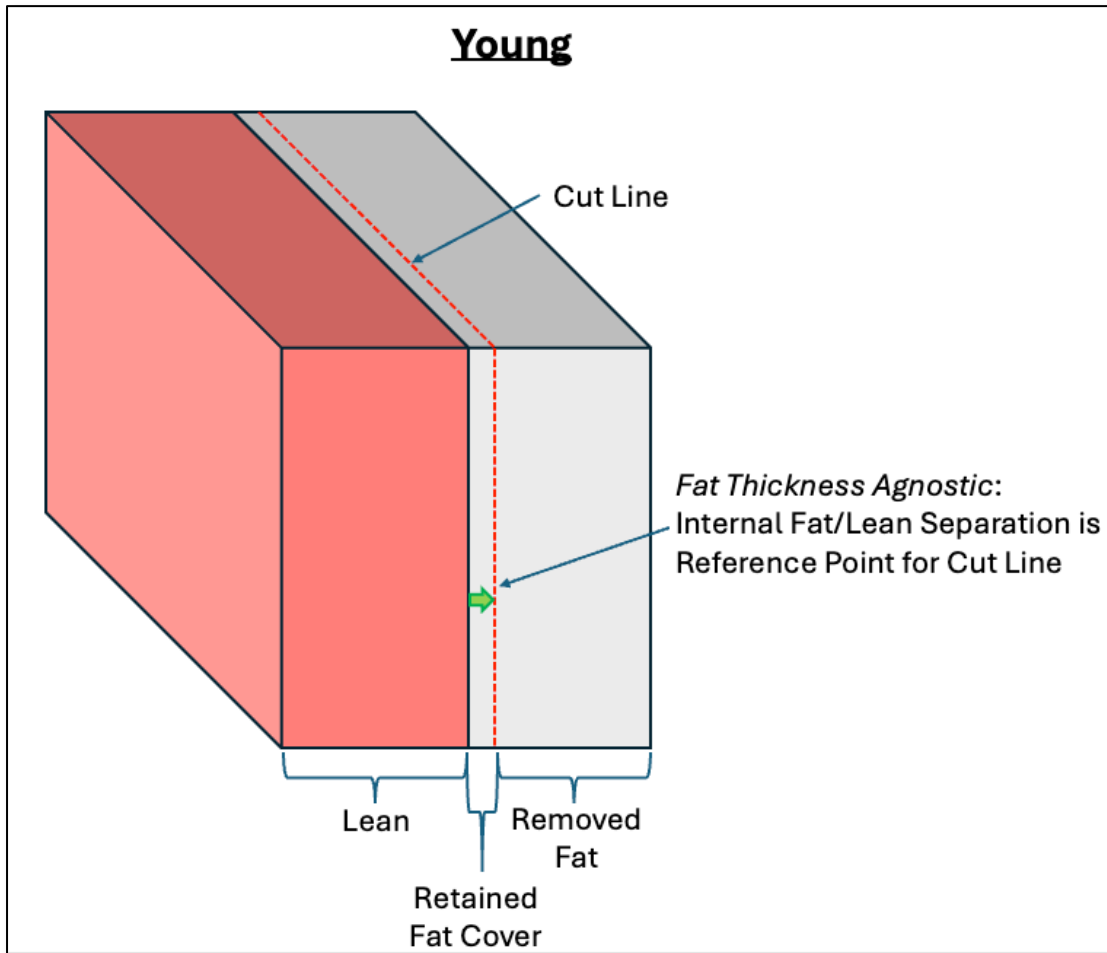
Ex. 2006, 33:7-34:21. Annotated Figure 10c below is exemplary of the meat product cut by *Young*, featuring the fat cover (annotated yellow), fat/lean separation line 6 (annotated red), line 3a, 4, 3b (annotated blue), showing the cutting path of *Young's* knife blade cutting (1) at a fixed distance from line 6 in 3b, (2) below bone 5 proximate the fat/lean separation area in 4, and in the same path of scribe saw cut 2:



Young, Fig. 10c (annotated); *id.*, 20:55-21:2 (describing the same).

As shown, only *two variables* define the cutting profile: the lean/fat separation line and the user-defined preset distance from the lean/fat separation line, which defines how much fat cover remains after cutting. *Id.*, 4:5-13 (“The controller includes image processing means for determining backbone and fat/lean separation lines from the top plan image, profile calculating means for generating profiles for the vertical moving means and the first and second lateral moving means to control ... the second side of the U-shaped knife blade to follow *a preset distance from the fat/lean separation line*”); *see also id.*, 4:36-38; 4:57-59; 20:50-53; 25:17-24; 25:65-26:2; 26:13-16; 26:36-40.

The following figure simplifies this cutting process described by Young:



Dec., ¶ 43 (describing the same, and noting that the cut line uses an internal fat/lean separation line as reference, without regard for the amount of fat being removed). Petitioner's expert confirmed that the cut line uses this internal line as a reference and that the cut line remains the same even if the fat thickness changes:

Q. If the meat product depicted in Figure 10c had an extra two inches of fat to the right, beyond what we're seeing here in Figure 10c, would the cut line change in Young's system?

...

A. Well, this is an illustration. There are no dimensions here.

Q. If we're just considering the dimensions that we can see in Figure 10c, would the cut line change as a result of additional fat cover thickness?

A. Well, again, this is an illustration. It's not a dimension drawing, so I don't know what the thickness is. But the whole idea here is that you want to remove the layer of fat and leave a certain amount behind. So the amount of fat will increase if the -- if the total amount of the -- ***amount of fat removed is going to increase if there's more fat, but the cut line is relative to the lean piece, and that won't change.***

Ex. 2006, 35:1-20.

Based on the use of this internal reference line that does not change with changing fat thickness, a POSITA would understand that Young's system does not set that cut line "in dependence on" a determined fat thickness, as claimed. *Dec.*, ¶ 44. Indeed, there is no teaching or suggestion in Young that its system ever determines how much fat is being removed, how much fat existed to begin with, or any other fat thickness-specific determination. *Id.*

Neither Petitioner nor its expert identifies any such teaching in Young. Petitioner does, however, repeatedly suggest that a user can define the amount of fat cover removed by *Young's* system. This discussion confusingly conflates two distinct "fat covers." Namely, Petitioner repeatedly quotes *Young's* teaching that a specific "fat cover" thickness is used to determine Young's cut line, suggesting that such a process satisfies the claimed process, which requires determining the

thickness of the **removed** fat cover. For example, mapping the Claim 1 preamble, Petitioner initially acknowledges that the claimed “fat cover” is the fat removed from the meat product and then suggests that a user can choose how much “fat cover” is removed in Young’s system:

[T]he claimed “fat cover” corresponds to Young’s “belly” layer that is removed along with fat and skin, and the claimed “flesh component of the meat product” corresponds to Young’s “loin.” (EX1003, ¶¶108-109; EX1004, Fig. 10c, 20:28-37.) As an example, Young states it can remove a fat covering layer thicker than 0.1 inch, and “[o]ther fat thicknesses may be desired in the alternative.” (EX1004, Fig. 10c, 20:28-37, 20:55-66.) A POSA would have appreciated that Young can fully remove the fat cover layer, and/or remove various thicknesses of a fat cover layer, depending on the application and customer need. (EX1003, ¶¶100-102, 108-113.).

Petition, 28. It takes a similar approach with claim 1[B], citing Young’s discussion of a user-defined 0.1 inch “fat covering” and arguing that Young can remove specific fat thicknesses, depending on customer need:

Young states that “knife assembly 100 is used to separate the pork loin from the pork belly. . . . Through control of the knife blade along several axes, assembly 100 preferably produces an optimum separation between loin and belly, with a desired fat covering left on the loin.” (EX1004, 10:33-53.) Young states “preferably .1 inch [thick] fat covering sufficiently keeps the loin from drying out . . . Other fat thicknesses may be desired in the alternative [such as no fat covering

remaining].” (EX1004, 10:33-53, 20:60-66 Figs. 1, 4, 7a-c.) As stated above, *Young can fully remove a fat cover layer of a range of thicknesses, depending on the application and customer need.* (EX1003, ¶¶109.)

Petition, 33. In fact, *Young* says nothing about removing specific thicknesses of fat cover. Nor does it suggest that the described system ever calculates how much fat is removed. Instead, as Petitioner's expert admitted on cross examination, these references in *Young* to a user desired “fat cover” are the fat that is retained after cutting, rather than the fat cover removed, as required by the Challenged Claims. Ex. 2006, 38:4-13 (conceding that “Young's reference to ‘optimum fat cover for the loin’” is the portion of fat retained after cutting).

As Patent Owner's expert explains, *Young* does indeed determine a specific thickness of fat to be retained on the pork loin after cutting. *Dec.*, ¶ 46. But it does not teach or suggest ever calculating the thickness of fat cover removed from the loin, nor is the cut line made with reference to the fat cover. *Id.* Accordingly, *Young* does not determine a fat cover thickness or separate fat from flesh “in dependence on” such a determination and does not anticipate the Challenged Claims.

B. Ground 2: Petitioner's Proposed Combination of Young and Norrie Fails for Several Reasons

In an apparent recognition that *Young's* system does not measure fat thickness, Petitioner's Ground 2 briefly—spanning only three pages—proposes supplementing *Young's* system with *Norrie's* imaging capabilities, which are

allegedly used in Norrie's system to measure fat thickness. Petition, 51-54. Petitioner has failed to carry its burden to describe with any supporting detail what the combination of *Young* and *Norrie* is or how it would work. *Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017) (holding obviousness determination to be improper where the record lacked a "clear, evidence-supported account" of "how the combination" would work). Neither Petitioner nor its expert propose any specific modifications to *Young*'s process, nor do they explain how *Young*'s fat thickness-agnostic process would make use of fat thickness information. Further, Petitioner's expert admitted that *Norrie*'s camera provides no additional information and that he saw no technical reason to replace *Young*'s camera. Ex. 2006, 43:8-11. Given this lack of detail, Ground 2 cannot make up for Ground 1's deficiencies. Further, *Norrie* was disparaged by *Young*, weighing heavily against the combination.

1. *Petitioner Fails to Explain with Particularity the Proposed Combination, and Its Expert Admits Norrie is Redundant of Young*

"To satisfy its burden of proving obviousness, a petitioner cannot employ mere conclusory statements. The petitioner must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness." *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Focusing on purported benefits without explaining how the combination

would work in the first place cannot satisfy this burden. *The Walt Disney Co., et al. v. WAG Acquisition, L.L.C.*, IPR2022-01346, Paper 12 at 24-26 (PTAB Mar. 10, 2023) (denying institution where a petitioner did not “set forth sufficient details on what aspects from [secondary] would be combined with [primary] and how such aspects would work together”). In *Walt Disney Co.*, the Board faulted Petitioner for failing to state whether the secondary reference was “meant to supplant” functionality in the primary entirely or “whether the two systems are meant to coexist in some fashion.” *Id.* at 25. The Petition here shares these same faults.

Petitioner dedicates less than three pages of analysis to Ground 2. From the backdrop of this sparse record, Petitioner proposes that: (1) *Norrie* discloses “sensing the thickness of back fat” on a loin using a camera and light source 54; (2) *Young* mentions *Norrie* in its background and notes *Norrie*’s advantages over old manual fat measurement systems; (3) *Young* generally describes that its design can be modified; and (4) therefore it would have been obvious “to apply the determination of thickness by the camera and controller taught in *Norrie* in the context of *Young*’s camera.” Petition, 51-54.

What Petitioner does not propose is how *Young* is modified by *Norrie*. The law demands specificity, and Petitioner failed to carry its burden. Further, what little detail the Petition did include was contradicted by Petitioner’s own expert. For example, the Petition suggests that *Norrie*’s camera would supplant one or more of

Young's cameras. Petition, 53 (arguing that “[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” and that the “combination would only require routine modifications, like changing the cameras and connecting the components”). On cross examination, however, Petitioner's expert testified that *Norrie's* camera would provide no benefit to *Young*:

Q. [] *Is there any technical reason to add Norrie's camera 54 to Young's system?*

A. I don't see why. *I think they could use the existing cameras of Young.*

Q. And that -- specifically, that would be *Young's* fat line camera 198 that would be used to serve the same purpose as *Norrie's* camera?

A. Yeah, I'd have to go back and check. I think -- I have to go back and check to see if *Norrie* uses the overall height of the -- of the product in the analysis. I'd have to go back and check.

Q. Okay. Can you check that? I want to just make sure I understand . . . what you[r] theory is here.

A. Yeah, my review of *Norrie*, *I don't believe there needs to be a different camera than the – than the Young fat line camera.*

Ex. 2006, 43:6-44:2.

Regarding proposed functionality that may be ported from *Norrie* to *Young*, Dr. Collins provides only a high-level description of the combination's goal:

As an example *a POSA could modify Young's controller* 172's processing *to determine thickness as in Norrie's* computer 64. This

would be a routine software modification within the level of skill of a POSA.

Ex. 1003, ¶177. But the same basic question remains: How is *Young*'s processing being modified? Without answering this basic question, Petitioner leaves Patent Owner and the Board guessing as to what its combination is. On cross examination, Dr. Collins appeared to concede that no functionality from Norrie would have been incorporated into *Young*, acknowledging that “*Norrie, frankly, is redundant of what's already disclosed in Young*, that everything is disclosed in *Young*.” Ex. 2006, 41:13-17.

If Petitioner and its expert are correct that *Norrie* is functionally redundant of *Young* and adds no additional components to the combination, a POSITA would not have been motivated to combine the two references. *Dec.*, ¶ 52 (explaining that a POSITA would not have made changes to a system like *Young*'s if there were no functional or hardware benefits to making the change). In dealing with a similar circumstance in *South-Tek Systems*, the Federal Circuit noted that the redundant function of a secondary reference already disclosed in a primary reference would not motivate a POSITA to add said redundant function to the combination. *South-Tek Sys., LLC v. Engineered Corrosion Sols., LLC*, 748 F. App'x 1003, 1006-1007 (Fed. Cir. 2018) (“Given the redundant functions of Viking's drum drip and Wood's condensate drain, the Board found a person of ordinary skill would not have been motivated to add a condensate drain to Viking in addition to the system's drum drip

drain.”). This should be especially true when the Petitioner's expert admits that the references are redundant.

Turning to a fair interpretation of the references, it is true that a POSITA would not have been motivated to combine their teachings, but it is not because the teachings are cumulative. A POSITA would not have looked to any fat thickness determination in *Norrie* because *Young's* process is agnostic to fat thickness. *Dec.*, ¶ 53. As set forth above in detail regarding Ground 1, *Young* determines its cut line based on only **two variables**: the lean/fat separation line and the user-defined preset distance from the lean/fat separation line, which defines how much fat cover remains after cutting. *Id.*, 4:5-13 (“The controller includes image processing means for determining backbone and fat/lean separation lines from the top plan image, profile calculating means for generating profiles for the vertical moving means and the first and second lateral moving means to control ... the second side of the U-shaped knife blade to follow **a preset distance from the fat/lean separation line**”); *see also id.*, 4:36-38; 4:57-59; 20:50-53; 25:17-24; 25:65-26:2; 26:13-16; 26:36-40; *Dec.*, ¶ 53 (discussing the same). This fat removal process, which uses an internal line for reference, is agnostic to the amount of fat being removed. *Dec.*, ¶ 53. Accordingly, determining the fat thickness provides no utility to *Young's* process, and a POSITA would not have been motivated to add such a determination to *Young's* system. *Id.*

2. *Young Teaches Away From Norrie*

Beyond the lack of detail, Ground 2 fails because *Young* teaches away from *Norrie*. Petitioner acknowledges that *Young* expressly discusses *Norrie*, but fails to address *Young*'s characterization of *Norrie* as an unsophisticated system that should be avoided. Petition, 52-53. Namely, Petitioner states that a POSITA “would have been directed immediately to *Norrie* for increased imaging functionality.” Ex.1003, ¶176; Petition, 53. In support of this contention, Petitioner cites to *Young*, 2:18-29, which states, in part, that *Norrie* is one example of “[m]any [] systems attempt[ing] to replace human operators with automated loin knives and scribe saws, often resulting in more efficiency and more repeatable results.” Petition, 53; Ex. 1003, ¶176. But Petitioner does not mention that, immediately following this citation, *Young* disparages systems such as *Norrie*: “However, many prior automated systems are **limited in the degree of control** they provide over the loin knife and scribe saw. In particular, many systems only allow adjustment of a loin knife and/or a scribe saw in **at most one or two axes or motion.**” *Young*, 2:30-34. As discussed in Section III, *Norrie* is indeed a system that controls its cutting blade with only one axis of motion. *See also Dec.*, ¶ 54 (explaining that *Norrie* is a single axis of motion system, capable of moving its cutting blade only up or down).

Petitioner adds that *Young* would look to add additional imaging or motion functionality “to provide **more sophisticated profiles** using the preferred scribe saw

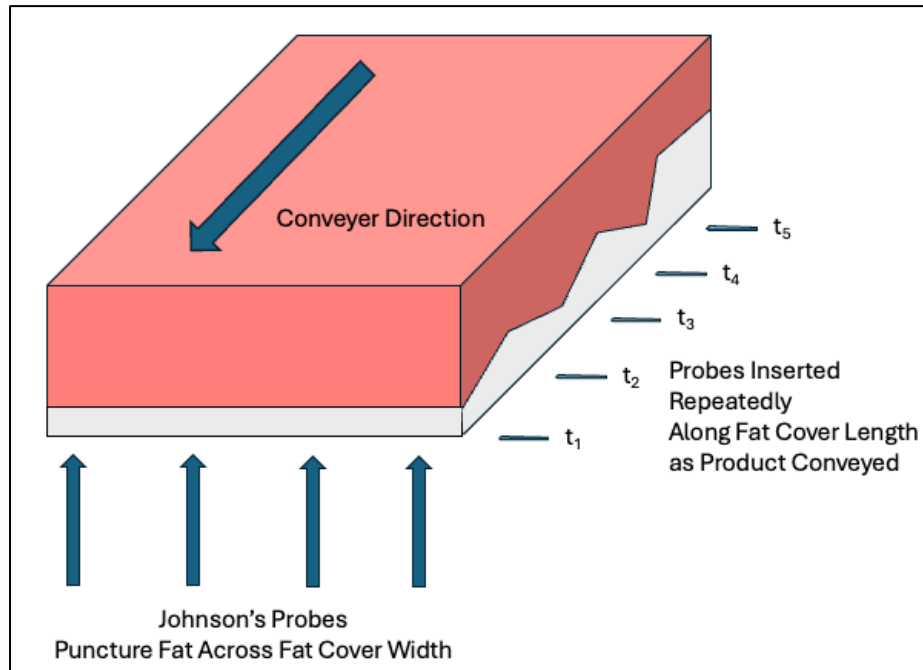
and knife assemblies.” Petition, 53. However, as *Norrie*’s cutting profile is limited to a single axis of motion, a POSITA would have understood that *Norrie* did not provide a more sophisticated profile but a simpler, less sophisticated profile. *Dec.*, ¶ 55. A POSITA would have understood that *Norrie*’s limited control directly corresponds to *Norrie*’s simplistic imaging system, which only controls a single up-down blade solenoid. *Id.* Indeed, Young describes “conventional automated systems” like *Norrie*, “are **limited in the degree of control they provide** over the loin knife and scribe saw” and “are not capable of separating [meat products] at the optimum points of separation, **often resulting in unacceptable waste product and lower yields.**” *Id.*, 2:28-43.

When a POSITA, “upon reading the reference, would be discouraged from following the path set out in the reference” a prior art reference is said to teach away. *AstraZeneca AB v. Mylan Pharms. Inc.*, 19 F.4th 1325, 1337 (Fed. Cir. 2021) (citing *Meiresonne v. Google, Inc.*, 849 F.3d 1379, 1382 (Fed. Cir. 2017)). Here, Young expressly identifies *Norrie* as a known prior art system and criticizes systems like *Norrie* for their lack of control, resulting in “unacceptable waste product and lower yields.” *Dec.*, ¶ 56. A POSITA would have agreed with *Young*’s assessment of *Norrie*—*Norrie*’s single axis blade movement is a less sophisticated approach to the problem that *Young* sought to improve upon. *Id.* In light of *Young*’s clear disparagement of *Norrie* (and other systems like *Norrie*), a POSITA would have

been discouraged from implementing *Norrie's* simple approach in *Young's* more sophisticated system. *Id.*

C. Ground 3: Johnson and Belk are Technically Incompatible

Petitioner's Ground 3 proposes replacing *Johnson's* probe-based fat thickness measurement with *Belk's* camera system. Petition, 54-55 (proposing that "Johnson's loin separator . . . is improved with Belk's imaging capabilities"). In support, Petitioner insists that a POSITA would "expect success in modifying Johnson via removing its probe assembly, and installing a different sensor system, such as Belk's imaging system, with a clear view to capture image data of a meat product as it is conveyed through Johnson's apparatus." Petition, 65. But neither Petitioner nor its expert acknowledge a fundamental incompatibility between *Johnson's* probe assembly and *Belk's* imaging system. *Johnson's* assembly detects fat thickness by physically inserting probes into the skin and through the fat until a fat/lean line is detected. As depicted below, it does this both across the width of the meat product, using an array of probes, and along the length of the meat product, repeatedly probing the fat cover over time (e.g., t_1 - t_5) as the meat product is conveyed:



Dec., ¶ 57. From these probe-based measurements, *Johnson* creates a 3D map of the fat cover, capturing fat thickness across the full fat cover of the loin, including fat thickness in the center of the loin. This 3D map is used to control an array of cutting blades, allowing high precision fat trimming that accommodates fat thickness changes across the width and length of the fat cover. In contrast, *Belk's* camera system merely detects the color differences between fat and lean by imaging a ***cross section*** of the meat product at a single face of the meat product. It cannot ascertain fat thickness below the surface (i.e., the interior) of the meat product, meaning it cannot collect any fat thickness data between the edges of the meat product—front-to-back or side-to-side. Accordingly, *Belk's* camera system cannot provide the same information as *Johnson's* probes—in particular, *Belk's* camera system images only the outermost face while *Johnson's* probes measure the interior of the meat

product—and would make it impossible to produce *Johnson's* 3D map. Giving up the 3D map feature in *Johnson's* system by limiting fat thickness information to the surface of the meat product forfeits a significant express advantage of the *Johnson* system—a change no POSITA would accept. This reduced functionality and Petitioner's failure to address it are fatal to Ground 3.

1. Johnson is Designed to Probe Beef Strip Loins Across Their Width and Length to Detect and React to Changes in Fat Thickness

As an initial matter, the purpose and operation of *Johnson* is critical to understand why Ground 3 fails. *Johnson* begins by noting that the contours of fat/lean on a beef strip loin are unpredictable, requiring difficult manual removal in the prior art:

The contour of the fat/lean on a beef strip as well as on other meat cuts *is erratic* and testing has shown no correlation. Therefore humans need to physically remove the thick fat cover from the beef strip and similar cut of meat.

Ex. 1006, 1:18-21. To account for this fat/lean variability, *Johnson* proposes repeatedly detecting the fat depth as the product travels down the conveyor:

The present invention is a meat cut classification and fat trimming method and apparatus for *sensing or classifying the thickness of a layer of fat* of a cut of meat *and the various contours thereof as it travels along a conveyance path* and providing the fat thickness or

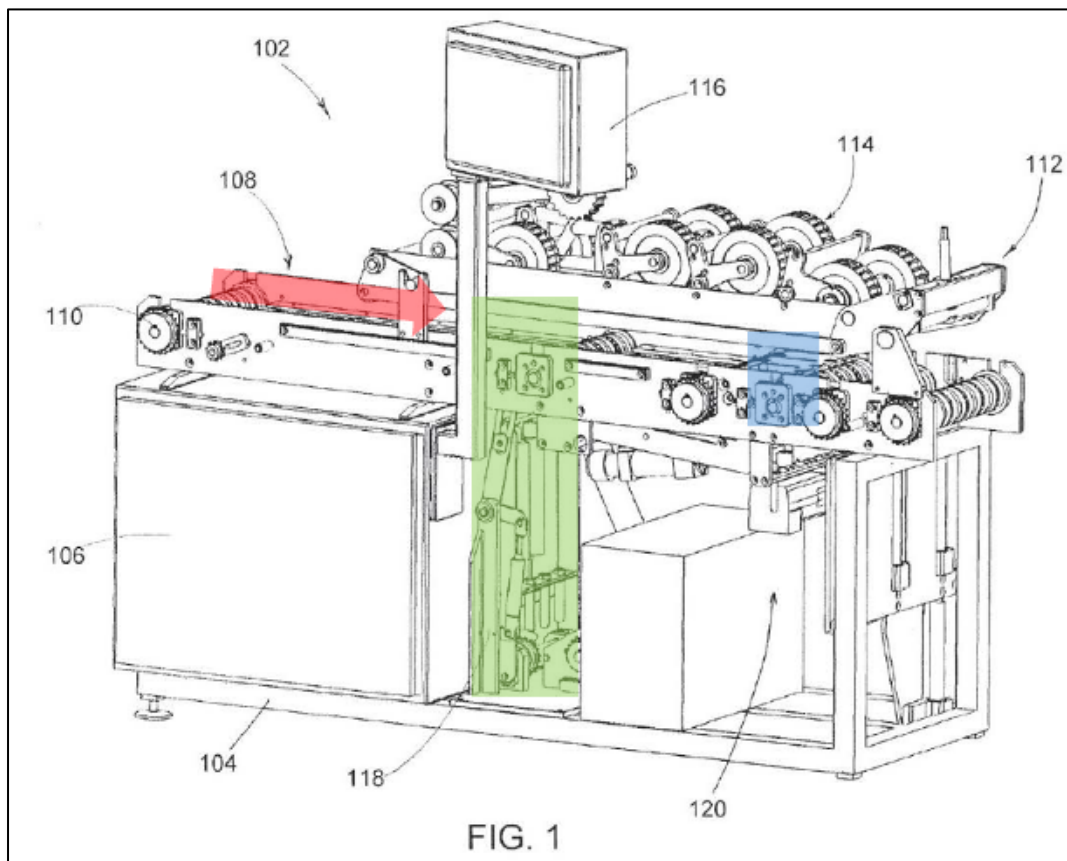
classification information to a downstream system for performing a fat trimming operation.

Id., 1:50-55. To obtain this continuous information across the beef strip's complete fat cover, *Johnson* uses a series of probes that repeatedly puncture the fat side of the strip during conveyance—both across the width via multiple probes and along the length via multiple punctures over time as the meat is conveyed:

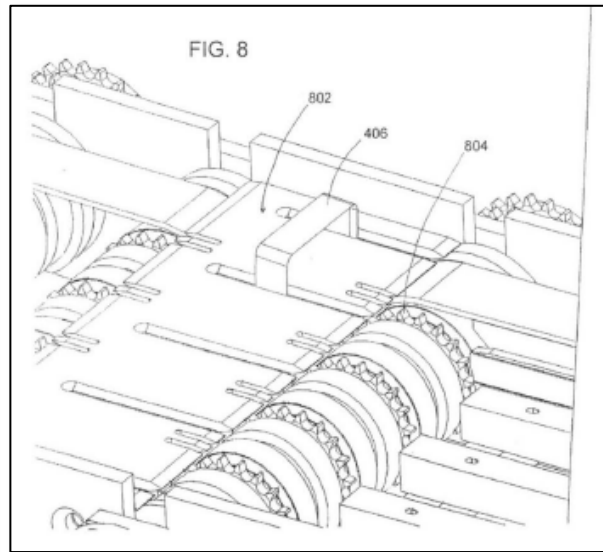
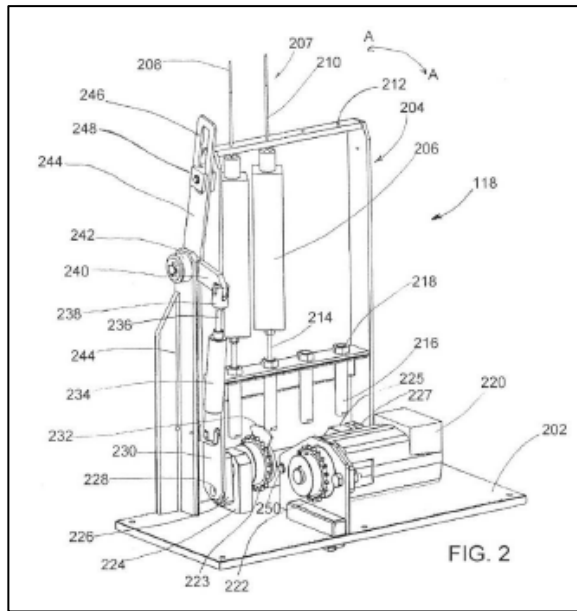
The probe can be an elongated instrument having a somewhat pointed end portion such that when it ***is pressed*** against the meat cut penetration occurs ***into the fat layer and extends through the fat to lean transition***. ***The probe can be instrumented with a sensor that can determine when the probe extends through the fat to lean interface*** as well as instrumented with a linear encoder for sensing the amount of extension of the probe or the fat layer depth. The probe is further operable to send a signal representative of the fat thickness or the location of the fat to lean interface. ***Multiple probe insertions into the meat cut are utilized to gather multiple data points for creation of a continuous function three dimensional (3D) map***.

This device can utilize optical probing or other probing technology to determine the fat/lean interface on a meat cut such as a beef strip loin. ***Multiple laterally aligned probes can be utilized to repetitively penetrate the meat cut***. The output signal can be processed by a controller to form a map of the fat to lean interface contour. ***The controller then articulates the cutting blades to follow the fat/lean interface map***.

Id., 2:15-35. Annotated Fig. 1 illustrates (1) the **direction of meat conveyance** (red), (2) the **probe assembly** (green), mounted under the meat conveyor for puncturing the fat layer with probes as the meat passes by, and (3) the multi-blade **cutting mechanism** (blue) that responds to probe-based fat depth measurements to accurately remove the fat layer:

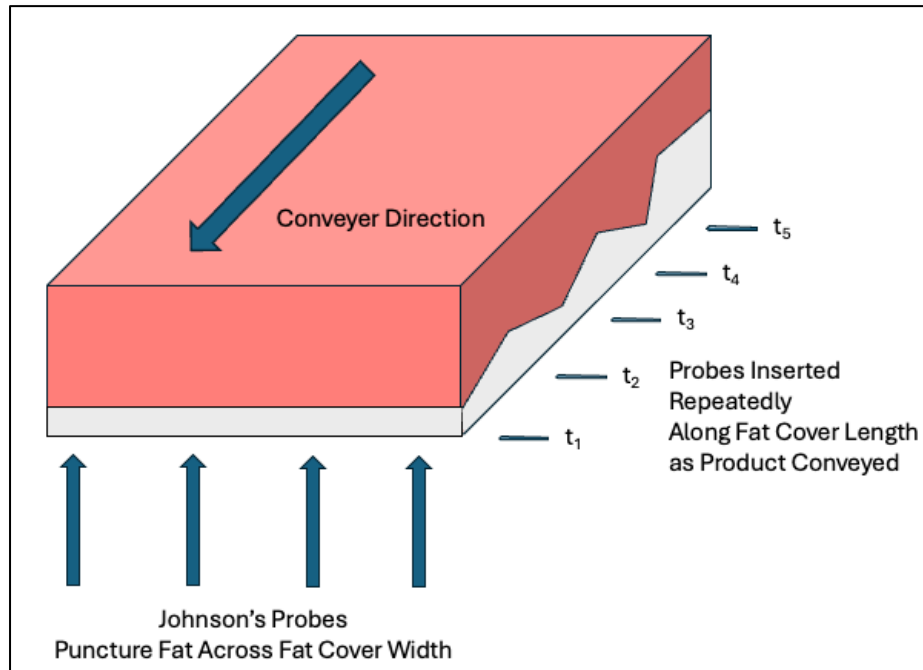


Ex. 1006, Fig. 1 (annotated); *Dec.*, ¶ 58 (explaining *Johnson's* operation). Figs. 2 and 8 below provide more detailed views of the **probe assembly** and one **cutting blade** 407:



Ex. 1006, Figs. 2, 8; *Dec.* ¶ 58. As shown in Fig. 2, *Johnson* depicts two full probes and mounting locations for two additional probes (e.g., four total probes). *Dec.*, ¶ 58. Similarly, Fig. 8 depicts a single cutting blade and additional slots to accommodate four total cutting blades. *Id.* (noting that *Johnson* at 8:51-53 explains that, while only “[o]ne cutting blade 406 is shown installed[,] there are positions for three other blades”).

Focusing on the meat product conveyed through *Johnson*’s system, the following illustration shows how *Johnson*’s probes puncture the fat layer to detect changes in fat thickness as the meat is conveyed toward the cutting blade:



Dec., ¶ 59 (explaining that the variability in fat thickness identified by *Johnson* is detected and accounted for in a cutting map by repeatedly puncturing the fat cover as the beef strip is conveyed). A POSITA would recognize that the probes provide important *internal* information about the fat cover that is otherwise unavailable by imaging the surface of the meat product. *Id.* This comprehensive data across the width of the beef strip allows *Johnson's* system to utilize multiple, independently controlled blades that track variations in fat thickness across the beef strip width. *Id.* (noting *Johnson* at 9:25-27 teaches that, “[p]referably, . . . multiple blades are utilized to allow a more accurate cut dictated by the fat/lean interface map”). Indeed, *Johnson* expressly teaches that using multiple probes advantageously permit “controlled blades that are capable of following a three-dimensional fat/lean interface map.” Ex. 1006, 2:37-49; *Dec.*, ¶ 59 (discussing the same, and noting that

Johnson's Fig. 2 depicts four probes and *Johnson's* Fig. 8 depicts positions for up to four cutting blades, where each blade is independently controlled based on data from the probes used to generate a fat to lean interface contour map).

2. *Ground 3 Proposes Supplanting Johnson's Probe Assembly with Belk's Color Camera*

As described above in Section III.D, *Belk* teaches that its imaging device is “preferably a color video IA system.” *Id.*, 3:54-61. This color image data is used by *Belk's* system to characterize and distinguish between lean and fat. *Id.*, 9:2-6 (noting that certain “L*, a*, and b* scores [are] suggestive of . . . fat” and can be ignored when attempting to classify lean meat). In addition to the color image information for classifying tissue types, *Belk* teaches that density information can be ascertained using a “sound wave imager, tomographic imager, magnetic resonance imager, radio wave imager, microwave imager, or particle beam imager[.]” *Id.*, 9:53-58; *see also id.*, 5:24-27 (listing exemplary density-determining embodiments, including “x-ray tomography, and particle beam tomography, such as computer axial tomography (CAT) or positron emission tomography (PET)”).

Neither Petitioner nor its expert discusses these alternative technologies with respect to any claim limitation, focusing their mapping exclusively on the camera-based embodiment. Indeed, the only specific imaging embodiment identified by Petitioner with reference to limitation 1[A]'s measurement device is *Belk's* “video camera” embodiment. Petition, 56. This focus on *Belk's* camera embodiment is

consistent through Ground 3, and is in fact mandated by certain challenged dependent claims. For example, Dependent claims 2 and 3 require the fat thickness determination “takes place optically” and uses a “light detector,” respectively. In its mapping, Petitioner discusses only *Belk*’s camera embodiment, noting it “measures the meat product visually, i.e. optically.” Petition, 66-67. Dependent claim 4 requires a “camera.” The Petition discusses only *Belk*’s “camcorder or video camera” in its mapping of this claim. *Id.*, 67. Dependent claim 6 requires a light source in the form of an LED. The Petition argues that it would have been obvious at the time of the ’321 Patent to use “light emitting diodes” with *Belk*’s camera. Notably, *Belk*’s density-focused imaging embodiments (e.g., PET scans, CAT scans, X-rays, sound waves, etc.) are not technologies that operate in the same spectrum as LEDs. Indeed, as of October 24, 2007 (the priority date of the ’321 Patent), light emitting diodes were known to emit light in a limited band of the electromagnetic spectrum that does not coincide with these alternative *Belk* embodiments. *Dec.*, ¶ 61 (discussing the limitations of LEDs and the requirements imposed by *Belk*’s alternative imaging embodiments).

Because Petitioner focused exclusively on *Belk*’s camera-based embodiments, as mandated by certain dependent claims it challenged, Ground 3 must be limited to these camera-based embodiments.

3. *Belk's Camera Cannot Provide the Necessary Data to Support Johnson's Process*

Petitioner insists that a POSITA would “expect success in modifying Johnson via removing its probe assembly, and installing a different sensor system, such as Belk’s imaging system, with a clear view to capture image data of a meat product as it is conveyed through Johnson’s apparatus.” Petition, 65. Neither Petitioner nor its expert attempt to explain where *Belk's* camera would be placed within *Johnson's* system. At best, this vague passage suggests that *Belk's* camera would simply be installed in the same location as *Johnson's* probes. If they were so installed, a POSITA would understand *Belk's* cameras would be facing the fat side of the beef strip as it is conveyed through *Johnson's* system. *Dec.*, ¶ 63 (explaining that *Johnson's* probes penetrate the fat as the product is conveyed and noting that *Belk's* camera in this position would obtain image data of that fat cover as it is conveyed).

Critically, as *Belk* explains and Petitioner’s expert admits, *Belk's* cameras cannot ascertain fat thickness from the angle of *Johnson's* probes. Indeed, Dr. Collins’s declaration explains that “subcutaneous fat depth [i.e., fat depth below the skin] ***cannot be determined by analyzing surface images alone.***” Ex. 1003, ¶86. *Belk* confirms this, teaching that subcutaneous fat depth (i.e., fat depth below the skin’s surface) cannot be determined analyzing images alone:

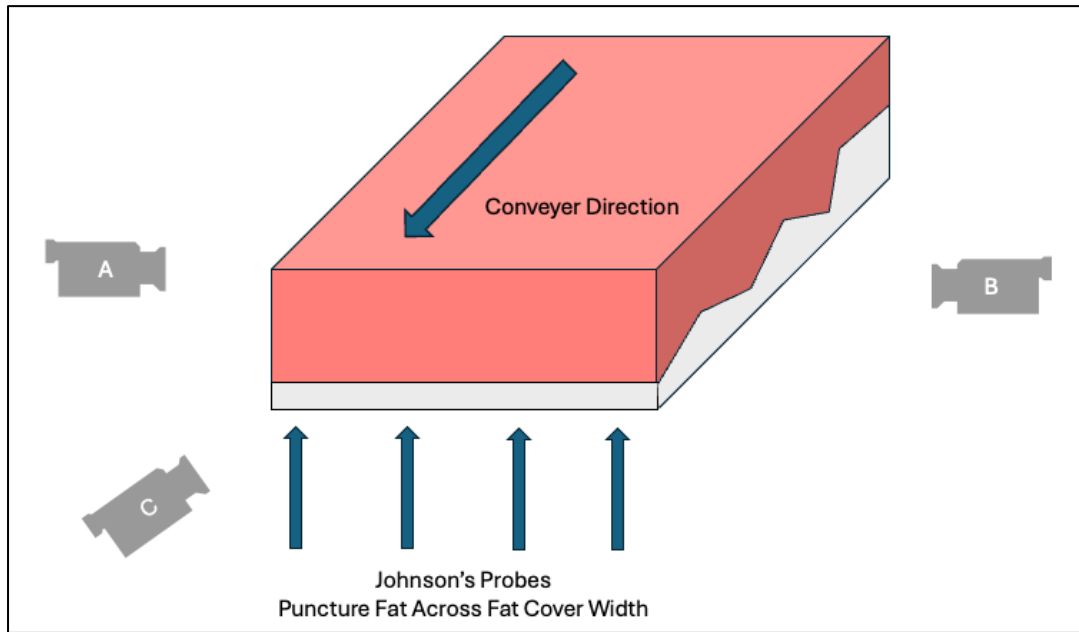
Further, ***other parameters not determinable by means of analyzing the image data*** may be used to augment the characteristics determined from

the image data, *including*, but not limited to, *subcutaneous fat depth*.

These additional characteristics of the meat may be used singly or in combination to improve the accuracy of prediction of Yield Grades over that obtained solely using characteristics measured from the image data.

Ex. 1007, 10:57-64. A POSITA would have understood that, consistent with *Belk's* and Dr. Collins's explanations, *Belk's* camera embodiments capture only surface information of the meat product and cannot be used to determine fat depth below the surface. *Dec.*, ¶ 64. Accordingly, were *Belk's* camera placed in the same location as *Johnson's* probes, no information regarding fat depth could be obtained. *Id.*

Although Petitioner does not propose any other location for *Belk's* camera within *Johnson's* system, a POSITA would have understood that there is no location at which *Belk's* cameras could provide the same information as *Johnson's* probes. *Dec.*, ¶ 65. The following illustration proposes possible locations for *Belk's* camera. Locations A and B capture side views of the beef loin and location C captures the front of the beef loin as it is conveyed.



Dec., ¶ 65. A POSITA would have understood that there is no angle that can generate fat thickness data that can replace the data obtained by *Johnson's* probes. Indeed, even assuming for the sake of argument that *Johnson's* system accommodates meat products with side cross sections that visually indicate fat thickness (a fact not of record), locations A and B could at best, obtain fat thickness information isolated to the sides of the meat product. *Id.* Because these cameras obtain only surface data, they cannot be used to determine, as *Johnson's* probes can, fat thickness in the center of the meat product. *Id.* Similarly, mounting Belk's camera in location C, observing the front edge of the meat product cannot obtain any information regarding fat thickness as it changes along the length of the beef loin. *Id.* There are simply no possible mounting locations for *Belk's* cameras (even if multiple cameras are used) that can provide fat thickness information beyond the edges of the meat product. *Id.*

Because *Johnson's* probe assembly can obtain this information and touts this as a benefit, allowing multiple blades to be independently controlled to track a 3D fat thickness map, a POSITA would understand that replacing *Johnson's* probes with *Belk's* camera would forfeit this important feature in *Johnson's* native system. A POSITA would have recognized that this 3D accuracy across the whole fat cover is one of the primary improvements *Johnson's* system contributes to the art. *Id.* (noting that *Johnson's* Background and Summary of Invention sections focus on the erratic nature of fat cover and propose an accurate system that efficiently and precisely accommodates this erratic and inconsistent fat placement). Accordingly, a POSITA would not have been motivated to make the combination set forth in Ground 3. *Id.*

4. *Petitioner Misconstrues Johnson's Sensor Teachings, Incorrectly Insisting That Johnson Expressly Motivates the Combination*

Separate from the technical incompatibility of the Ground 3 combination, Petitioner advances a motivation to combine argument that fundamentally mischaracterizes *Johnson's* teachings. Namely, Petitioner claims that “Johnson foresaw the potential to replace its probe assembly with alternate sensor devices with superior sensing or functionality, and expressly indicates its apparatus may function with ‘any other appropriate sensor technology.’” Petition, 65 (further arguing that *Belk's* imaging sensors are a natural fit as an alternative sensor device that *Johnson* expressly contemplates). The sensor discussion in *Johnson* is not referring to sensors

as an alternative to its probes but is instead contemplating sensors *inside Johnson's* probes.

Johnson is focused on a method of using physically penetrative probes to collect data on the meat product, and uses sensors to detect when the probe reaches the fat/lean interface:

The probe can be an elongated instrument having a somewhat pointed end portion such that when it *is pressed* against the meat cut penetration occurs *into the fat layer and extends through the fat to lean transition*. *The probe can be instrumented with a sensor that can determine when the probe extends through the fat to lean interface* as well as instrumented with a linear encoder for sensing the amount of extension of the probe or the fat layer depth.

Ex. 1006, 2:15-22. Consistent with this basic framework, the portion cited by Petitioner explains that a variety of sensors *within the probes* may be used:

The probe includes an elongated member or probe lead 207 having a substantially pointed end for penetrating the meat cut. *The probe also has a sensor assembly 252 for emitting and receiving sensor signals. The sensor assembly emits a signal through a window of the pointed end of the probe* and receives a reflected signal from the meat cut for sensing the fat to lean interface. *Optical Technology or infrared sensor technology can be utilized or any other appropriate sensor technology.*

Id., 7:59-67.

A POSITA would have understood that Johnson's sensor discussion is limited to sensors mounted within its probes. *Dec.*, ¶ 68. There is no teaching or suggestion in Johnson that the reference contemplated a non-probe system. *Id.* Indeed, all sensor discussions expressly reference the probe assembly and are described within the context of the probe-based system. *Id.* Accordingly, a POSITA would not have interpreted Johnson to motivate a wholesale replacement of its probes with separate sensors, as Petitioner contends. *Id.*

V. CONCLUSION

For all the reasons stated herein, Petitioner has failed to establish that the challenged claims of the '321 Patent are unpatentable. Patent Owner respectfully requests the Board find the challenged claims patentable over the grounds in the petition.

Respectfully submitted,

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ATTORNEYS FOR PATENT OWNER

APPENDIX OF EXHIBITS

Exhibit 2001	<i>Provisur Tech., Inc. v. Weber Inc. et al.</i> , Case No. 5:21-cv-06113, Dkt. 166, Transcript of Scheduling & Discovery Dispute Hearing, June 20, 2023
Exhibit 2002	<i>Provisur Tech., Inc. v. Weber Inc. et al.</i> , Case No. 5:21-cv-06113, Dkt. 216, Transcript of Scheduling Hearing, September 5, 2023
Exhibit 2003	<i>Provisur Tech., Inc. v. Weber Inc. et al.</i> , Case No. 5:21-cv-06113, Dkt. 214, Supplemental Scheduling Order, September 5, 2023
Exhibit 2004	<i>Provisur Tech., Inc. v. Weber Inc. et al.</i> , Case No. 5:21-cv-06113, Provisur Invalidity Contention Cover Pleading
Exhibit 2005	<i>Advanced Notice of Proposed Rulemaking 13</i> (“ <i>A Sand Revolution</i> ” stipulation, April 21, 2023
Exhibit 2006	Deposition Transcript of Dr. John Collins
Exhibit 2007	Declaration of Dr. Charles Reinholtz
Exhibit 2008	Light-emitting Diodes: A Primer
Exhibit 2009	Principles of Physics
Exhibit 2010	An aluminium nitride light-emitting diode with a wavelength of 210 nanometres

CERTIFICATION OF WORD COUNT

The undersigned certifies pursuant to 37 C.F.R. § 42.24 that the foregoing Patent Owner's Preliminary Response to Petition for *Inter Partes* Review, excluding any table of contents, mandatory notices under 37 C.F.R. § 42.8, certificates of service or word count, or appendix of exhibits, contains 9,506 words according to the word-processing program used to prepare this document (Microsoft Word).

Dated: August 22, 2024

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing PATENT OWNER'S RESPONSE TO PETITION FOR INTER PARTES REVIEW was served on August 22, 2024, by email on the following counsel of record for Petitioner:

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