

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WEBER, INC.,
Petitioner,

v.

PROVISUR TECHNOLOGIES, INC.,
Patent Owner.

IPR2022-00599
Patent 8,408,109 B2

Before MITCHELL G. WEATHERLY, FRANCES L. IPPOLITO, and
JON M. JURGOVAN, *Administrative Patent Judges*.

IPPOLITO, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314(a)

I. INTRODUCTION

Petitioner Weber, Inc. filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–17 of U.S. Patent No. 8,404,109 B2 (Ex. 1001, “the ’109 Patent”). Patent Owner, Provisur Technologies, Inc. did not file a Preliminary Response.

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless the information presented in the Petition and any response thereto shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” Taking into account the arguments presented in Petitioner’s brief, we conclude that the information presented in the Petition establishes that there is a reasonable likelihood that Petitioner would prevail in challenging at least one of claims 1–17 of the ’109 Patent as presented in the Petition. Pursuant to § 314, we hereby institute an *inter partes* review as to these claims of the ’109 Patent.

A. Related Matters

The parties indicate that the ’109 Patent has been asserted in *Provisur Technologies, Inc. v. Weber, Inc. et al.*, Case No. 5-21-cv-06113 (WDMO), filed September 21, 2021 (“District Court Litigation”). Pet. 84; Paper 4, 1.

B. The ’109 Patent

The ’109 Patent is entitled “Food Article Feed Apparatus for a Food Article Slicing Machine.” Ex. 1001, code (54). The ’109 Patent discloses that typically, food loaves are sliced, weighed, and grouped, and machines have been used to slice such food articles at high speed. *Id.* at 1:23–25, 32–35. Such machines have an automatically loaded and continuous feed, with “side-by-side upper and lower conveyor pairs” that drive food articles into the cutting plane, and a gate located in front of the conveyors for loading initial food articles. *Id.* at 1:39–47. The ’109 Patent discloses that however,

“it would be desirable to slice up to four food articles or more with independent feeding and weighing capabilities, with hygienic and operational enhancements.” *Id.* at 2:14–19. Thus, the ’109 Patent purports to provide a high speed slicing apparatus that meets these desires. *Id.* at 2:28–31.

Figure 1, reproduced below, shows such a slicing machine.

FIG. 1

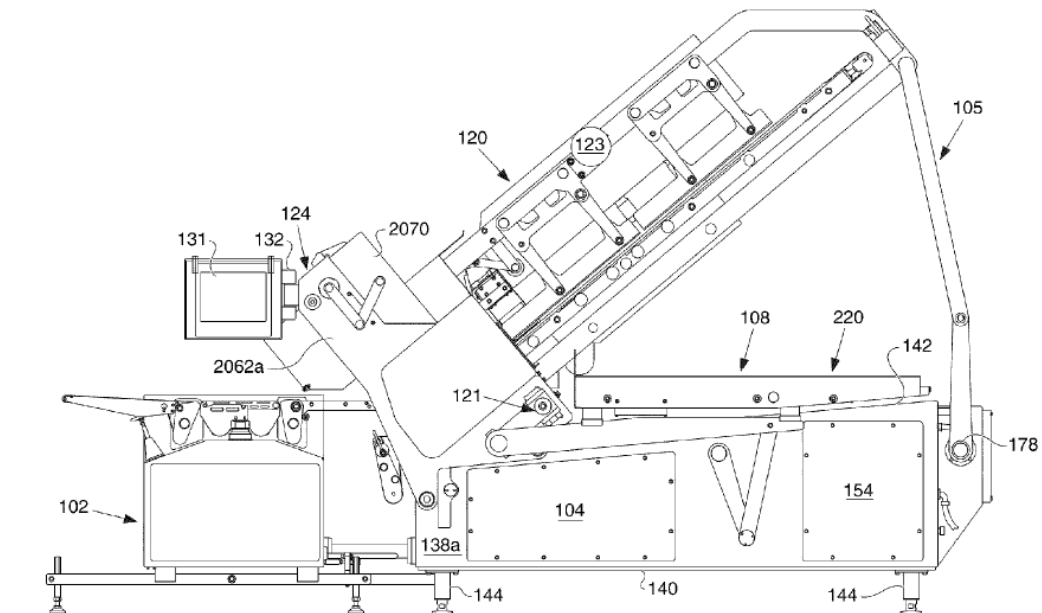


Figure 1 above is “a near side elevational view of a slicing machine and a weighing and classifying conveyor combination.” *Id.* at 3:37–38. The ’109 Patent’s slicing machine and conveyor combination include base section 104, automatic food article loading apparatus 108 that receives food articles to-be-sliced, and food article feed apparatus 120. *Id.* at 6:60–66. The slicing machine and conveyor combination further include a high speed slicing apparatus having slicing head apparatus 124, slice receiving apparatus 130

(identified in Figure 2), and computer display touch screen 131. *Id.* at 6:60–7:4.

Figure 14, reproduced below, shows a food article feed apparatus of the '109 Patent.

FIG. 14

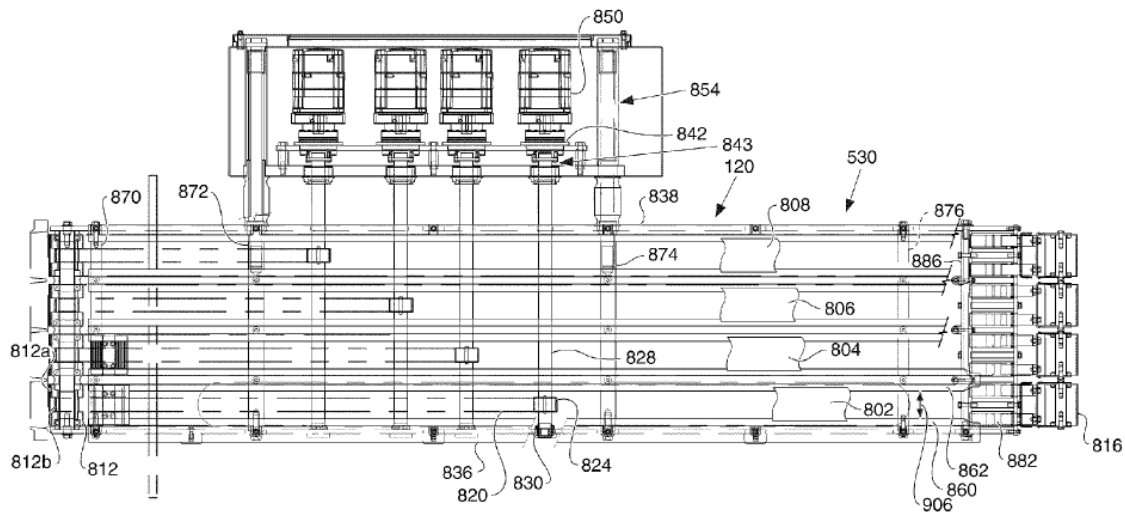


Figure 14 above is a plan view of a food article feed apparatus. *Id.* at 4:4. The '109 Patent discloses that food article feed apparatus 120 shown in Figure 1 includes lower conveyor 530 shown in Figure 14. *Id.* at 12:5–6. Lower conveyor 530 includes four independently driven endless conveyor belts 802, 804, 806, 808 and each of the belts is identically driven as compared to the others. *Id.* at 12:6–9. For example, belt 802 is wrapped around and engaged with toothed front drive roller or pulley 812 and back idler roller or pulley 816. *Id.* at 12:18–21. Drive roller 812 includes toothed outer diameter 812a and toothed, recessed diameter 812b. *Id.* at 12:21–22. Endless drive belt 820 wraps around recessed diameter 812b and operates within the larger operating path of larger endless conveyor belt 802 (shown

in Figure 15A). *Id.* at 12:25–26. Drive belt 820 wraps around drive roller 824 that is fixed to drive shaft 828. *Id.* at 12:27–28. Drive belt 820 circulates within the perimeter defined by the endless belt 802. *Id.* at 12:35–36. Servomotor 850 drives drive shaft 828, which turns drive roller 824, which circulates drive belt 820, which rotates drive roller 812, which then circulates belt 802. *Id.* at 12:37–39. Endless conveyor belts 804, 806, 808 are driven in a similar manner as described above for belt 802. *Id.* at 12:8–9.

Figure 21, reproduced below, shows a gripper attachment to a belt of the '109 Patent.

FIG. 21

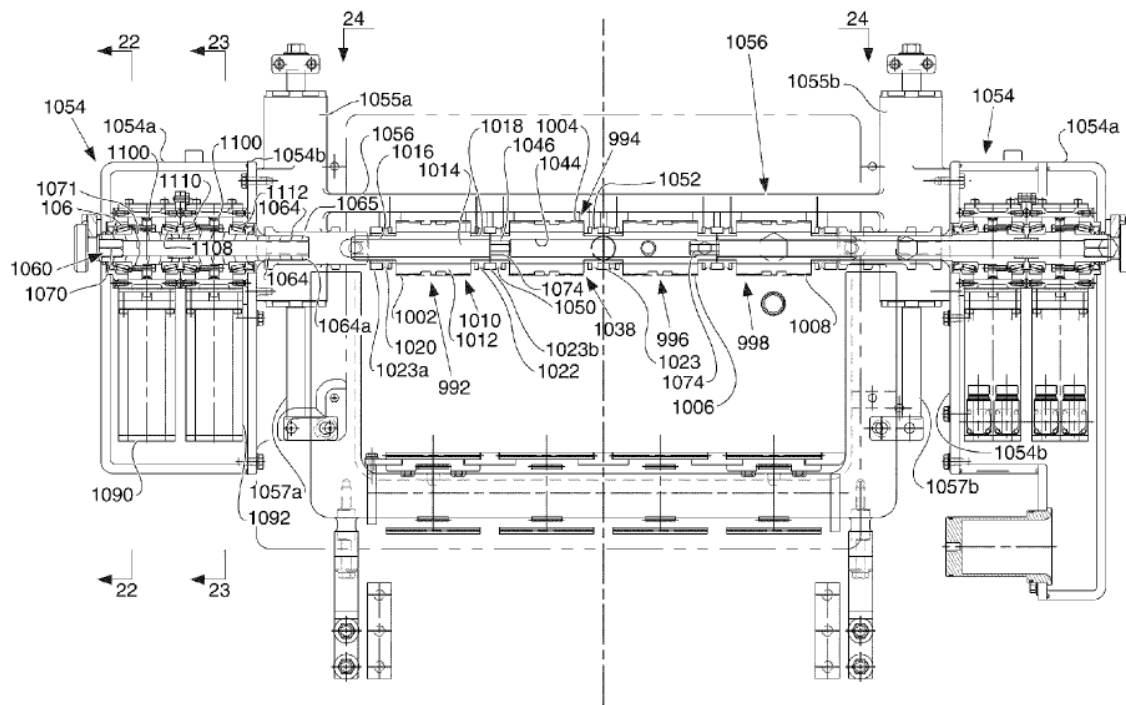


Figure 21 above is a sectional view of a gripper attached to a belt at a front end of food article feed apparatus 120 shown in Figure 1. *Id.* at 4:19–22, 13:24–25. The '109 Patent discloses that four upper feed conveyors 992, 994, 996, 998 have endless belts 1002, 1004, 1006, 1008, respectively,

which are independently driven and are directly opposed to lower conveyor belts 802, 804, 806, 808, respectively, which are shown in Figure 14 and discussed above. *Id.* at 13:26–30. A belt pair, such as upper belt 1002 and lower belt 802 are “circulated in opposite directions to drive a food article clamped there between into the slicing plane.” *Id.* at 13:30–33.

The ’109 Patent further discloses that at a front end of food article feed apparatus 120, a food article gate “is movably positioned to provide a stop for food articles that are loaded onto” conveyor 530 in order to commence slicing of the food articles. *Id.* at 14:63–67. The ’109 Patent further discloses that “a round knife blade” can “be used with the apparatus” for slicing large food articles. *Id.* at 6:25–32.

C. Challenged Claims

Petitioner challenges claims 1–17. Claim 1 and 6 are independent claims. Claim 1 is reproduced below:

1. A food article feed apparatus for conveying food articles in a slicing machine comprising:

a first conveyor having at least one first endless belt that moves to provide a first conveying surface on top of the first endless belt for moving a first food article toward a cutting plane;

a second conveyor having at least one second endless belt that moves to provide a second conveying surface on top of the second endless belt for moving a second food article toward the cutting plane;

said first conveyor driven by rotation of a hollow first shaft; said second conveyor driven by rotation of a second shaft; said second shaft independently operating concentrically within said hollow first shaft;

a first motor driving the hollow first shaft into rotation; and a second motor driving the second shaft into rotation.

Ex. 1001, 24:41–56.

D. Alleged Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–12	103(a)	Pryor, ¹ Reifenhäuser ²
13–15	103(a)	Pryor, Reifenhäuser, Penta ³
16	103(a)	Pryor, Reifenhäuser, Lindee ⁴
17	103(a)	Pryor, Reifenhäuser, Carey ⁵
1–12	103(a)	Wygol, ⁶ Alotto ⁷
13–15	103(a)	Wygol, Alotto, Penta
16	103(a)	Wygol, Alotto, Lindee
17	103(a)	Wygol, Alotto, Carey

Pet. 16. In addition to the references listed above, Petitioner relies on the Declaration of Richard Hooper, Ph.D, P.E. (Ex. 1003). *Id.*

¹ U.S. Patent Appln. Publ. No. 2006/0196328 A1, published Sept. 7, 2006 (“Pryor,” Ex. 1005).

² German Patent Appln. Publ. No. DE 10018568 A1, published Oct. 25, 2001 (“Reifenhäuser,” Ex. 1006). Certified English-language translation of Reifenhäuser also provided in Exhibit 1006.

³ U.S. Patent No. 6,415,711 B1, issued July 9, 2002 (“Penta,” Ex. 1007).

⁴ U.S. Patent Appln. Publ. No. 2004/0055439 A1, published Mar. 25, 2004 (“Lindee,” Ex. 1008).

⁵ U.S. Patent No. 5,481,466, issued Jan. 2, 1996 (“Carey,” Ex. 1009).

⁶ U.S. Patent No. 5,410,954, issued May 2, 1995 (“Wygol,” Ex. 1010).

⁷ International Patent Publ. No. WO 02/10018 A1, published Feb. 7, 2002 (“Alotto,” Ex. 1011).

II. ANALYSIS

A. *Level of Ordinary Skill in the Art*

In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom Accessories, Inc. v. Jeffrey-Allan Indus. Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equip. Co. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioner contends that a POSITA at the time of the invention of the '109 Patent

would typically have had (1) a bachelor's degree (or equivalent) in mechanical engineering (or a similar field) and at least two years of experience working as an engineer (or similar role) on food processing and/or packaging systems (or in a similar field); or (2) at least seven years of experience working as an engineer (or similar role) on food processing and/or packaging systems (or in a similar field).

Pet. 11 (citing Ex. 1003 ¶ 33). Petitioner argues that a POSITA “would have had knowledge of the technical literature concerning food processing and packaging systems, including conveyor mechanisms (in both food processing and packaging machines, as well as other conveying machines)” and “may have worked as part of a multidisciplinary team and drawn upon not only her or his own skills, but of others on the team, e.g., to solve a given problem.” *Id.* at 12 (citing Ex. 1003 ¶¶ 33–68). For purposes of this Decision, we adopt Petitioner's proposal as reasonable and consistent with the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art may reflect an appropriate level of skill in the art).

B. Principles of Law

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness under § 103 that requires consideration of four factors: (1) the “level of ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of non-obviousness such as “commercial success, long-felt but unsolved needs, failure of others, etc.” *Id.* at 17–18. “While the sequence of these questions might be reordered in any particular case,” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007), the Federal Circuit has “repeatedly emphasized that an obviousness inquiry requires examination of all four *Graham* factors and that an obviousness determination can be made only after consideration of each factor.” *Nike, Inc. v. Adidas AG*, 812 F.3d 1326, 1335 (Fed. Cir. 2016).

We note that, with respect to the fourth *Graham* factor, the current record in this proceeding does not include any argument or evidence directed to secondary considerations of nonobviousness. The analysis below addresses the first three *Graham* factors.

C. Claim Construction

For petitions filed on or after November 13, 2018, the “broadest reasonable interpretation” standard has been replaced with the federal court claim construction standard that is used to construe a claim in a civil action under 35 U.S.C. § 282(b). This is the same claim construction standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), and its progeny.

Petitioner proposes construction for the terms “a [first/second] conveying surface on top of the [first/second] endless belt for moving a [first/second] food article.” *See* Pet. 12–14.

For purposes of this decision, we do not expressly construe any terms. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017)) (noting that “we need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy’”) (citing *Vivid Techs.*, 200 F.3d at 803).

D. Overview of the Prior Art

1. Summary of Pryor (Ex. 1005)

Pryor is a reference entitled “Loaf Seam Synchronization Device for Continuous Loaf Feed Slicing Machine.” Ex. 1005, code (54). Pryor discloses that in machines that slice loaves of food, subsequently loaded loaves could be offset resulting in slices that are not neat. *Id.* at ¶ 6. Pryor provides a solution to this problem by allowing parallel loaves to be “engaged by a common loaf feed drive or side-by-side, independent loaf feed drives” that are driven simultaneously. *Id.* at ¶ 7. Pryor explains that its “high speed food loaf slicing machine” includes “a slicing station that includes a knife blade and a knife blade drive that drives the knife blade along a predetermined cutting path” and “a loaf support for supporting a first food loaf and a second food loaf for movement along parallel first and second loaf paths, respectively, into the slicing station for repetitive slicing of both loaves by the knife blade.” *Id.* at ¶ 8. A loaf feed drive is used to advance a first food loaf and a second food loaf along the loaf path and a clamp device “is arranged to clamp the first and second loaves on the first and second loaf paths.” *Id.*

Figure 2, reproduced below, shows such a slicing machine.

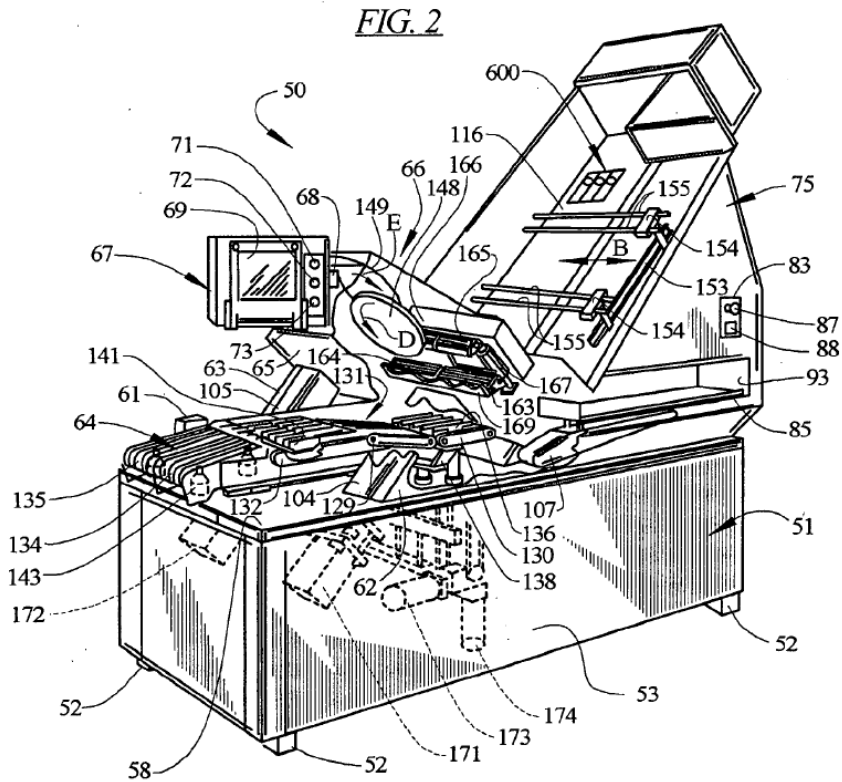


Figure 2 above is a perspective view of Pryor's slicing machine. *Id.* at ¶ 29. Slicing machine 50 includes base 51 that “affords an enclosure for” computer 54. *Id.* at ¶ 37. Slicing machine 50 also includes slicing station 66 and loaf feed mechanism 75. *Id.* at ¶¶ 38, 40.

Figure 3, reproduced below, shows “a simplified, partially exploded perspective view of operating components of the slicing machine” shown in Figure 2. *Id.* at ¶ 31.

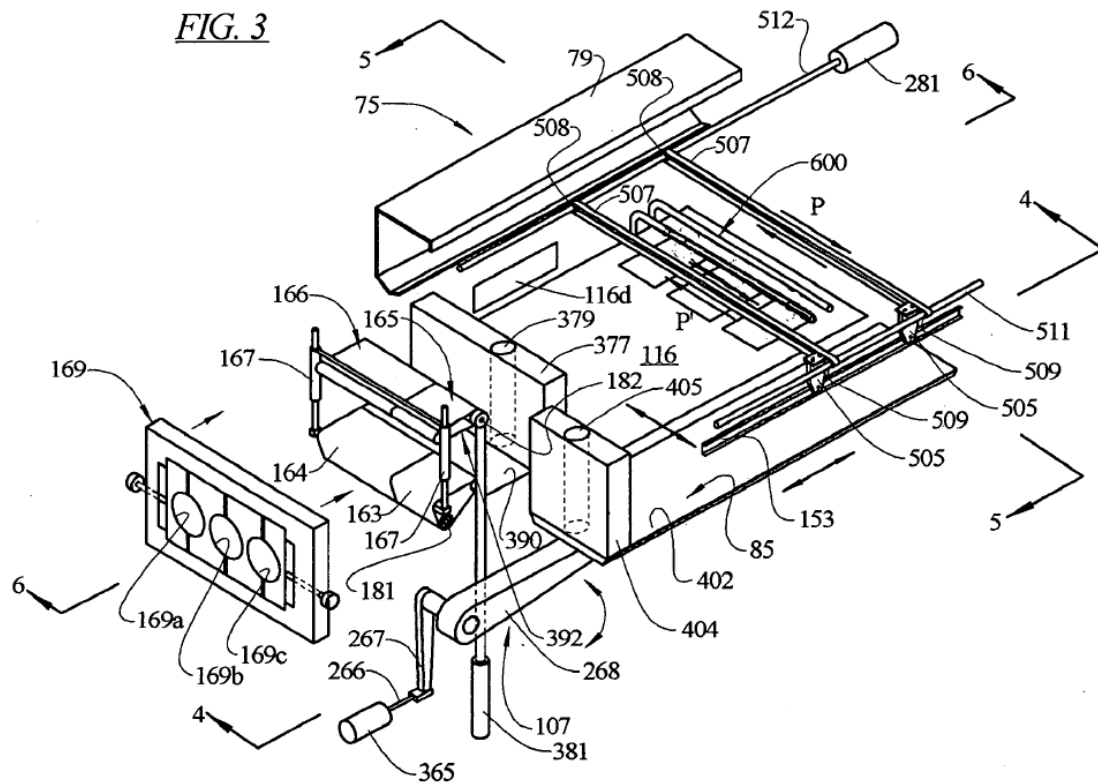


Figure 3 above shows slicing machine 50 of Figure 2 includes “a system of short conveyors for advancing food loaves from loaf feed mechanism 75 into slicing [station] 66” (slicing station 66 is identified in Figure 2). *Id.* at ¶ 51. Pryor discloses that two short lower loaf feed conveyors 163 and 164 are located “on the near and far-sides of slicing machine 50, respectively,” and are also “located immediately below two short upper feed conveyors 165 and 166, respectively.” *Id.*

2. Summary of Reifenhäuser (Ex. 1006)

Reifenhäuser is a German Patent Application Publication that is entirely in German. Ex. 1006, *passim*. Reifenhäuser was accompanied by a certified English translation in the same exhibit. All references in the following summary will refer to the English translation.

Figure 1 of Reifenhäuser is reproduced below.

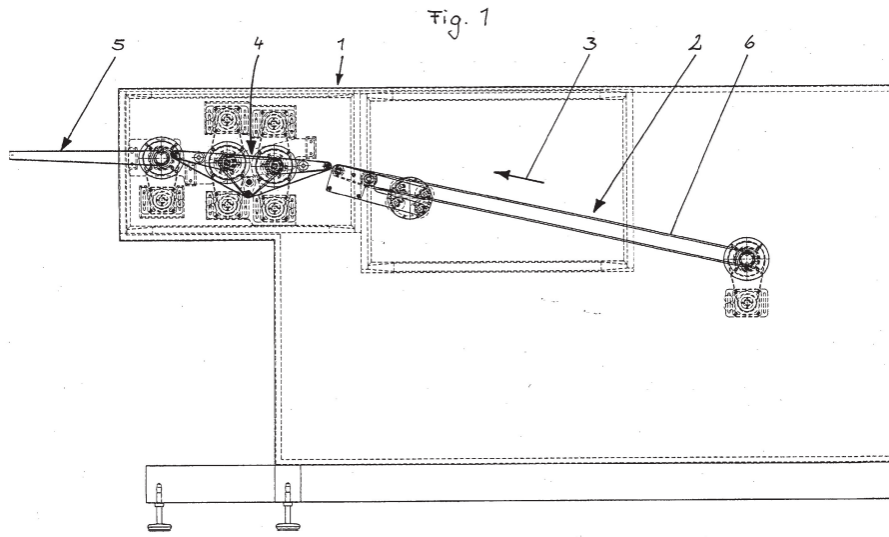


Figure 1 is a front view of transport device 1. Ex. 1006 ¶ 30. Reifenhäuser teaches that transport device 1 includes a cutting device for cutting foodstuff into slices, a scale, and track switch 2 in the form of an upstream conveyor belt and another conveyor belt 5 connected to distributing device 4 for transferring sliced foodstuffs to a packaging part of the line. *Id.*

Distributing device 4 consists of drive part 9 and conveyor part 10. *Id.* ¶ 33.

Figure 5 of Reifenhäuser is reproduced below.

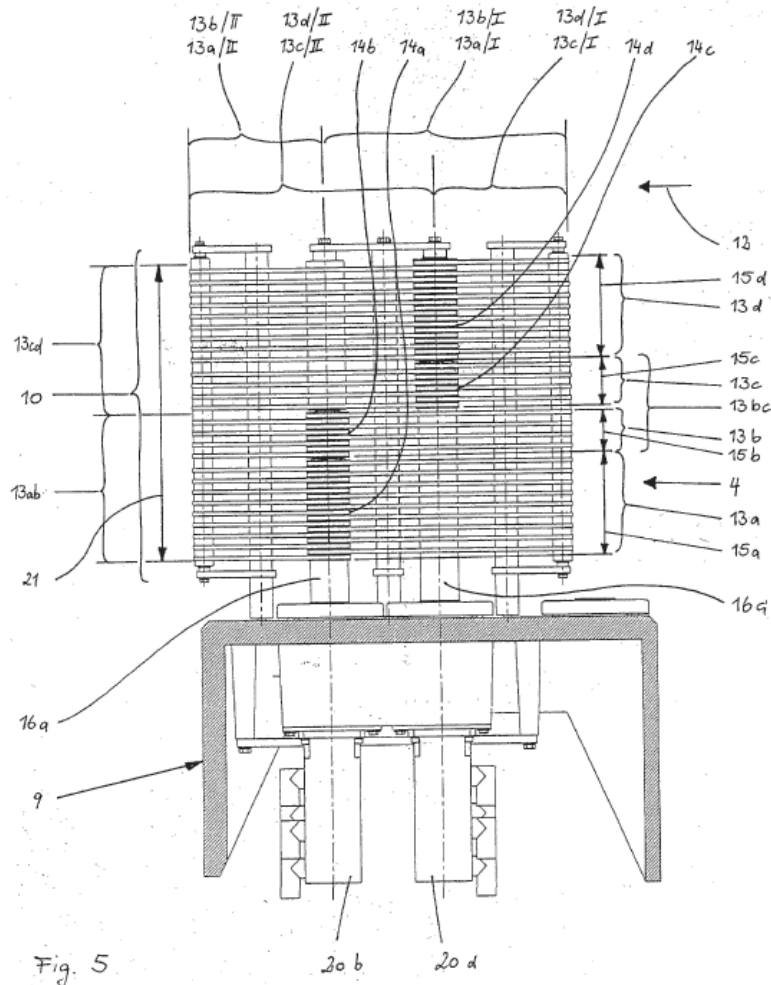


Figure 5 is a top view of distributing device 4. *Id.* ¶ 27. Distributing device 4 includes transport part 10 that is divided into four tracks 13a to 13d running parallel to one another and arranged side by side, each capable of being driven independently of the others. *Id.* ¶ 33. The front and rear sections of each track 13a-13d are driven by the same drive roller 14a-14c. *Id.* ¶ 34. Each drive roller is driven by drive shafts 16a-16d. *Id.* ¶ 35. Pulley 18a is mounted on drive shaft 16a adjacent to wall 17 inside housing 9 and is drivably by drive servomotor 20a via belt 19a. *Id.* ¶ 36. Shaft for deflecting roller 14b passes through pulley 18a and carries its end a pulley 18b which is driven by motor 20b by belt 19b. *Id.*

3. Summary of Penta (Ex. 1007)

Penta is a reference entitled “Cheese Shredder Apparatus.” Ex. 1007, code (54). Penta discloses an apparatus that transports “a block of cheese in a downstream longitudinal direction to a predetermined, first zone” and then “through a fragmentation zone” and then “through a shredding zone.” *Id.* at 3:61–4:10.

Figure 1, reproduced below, shows Penta's apparatus.

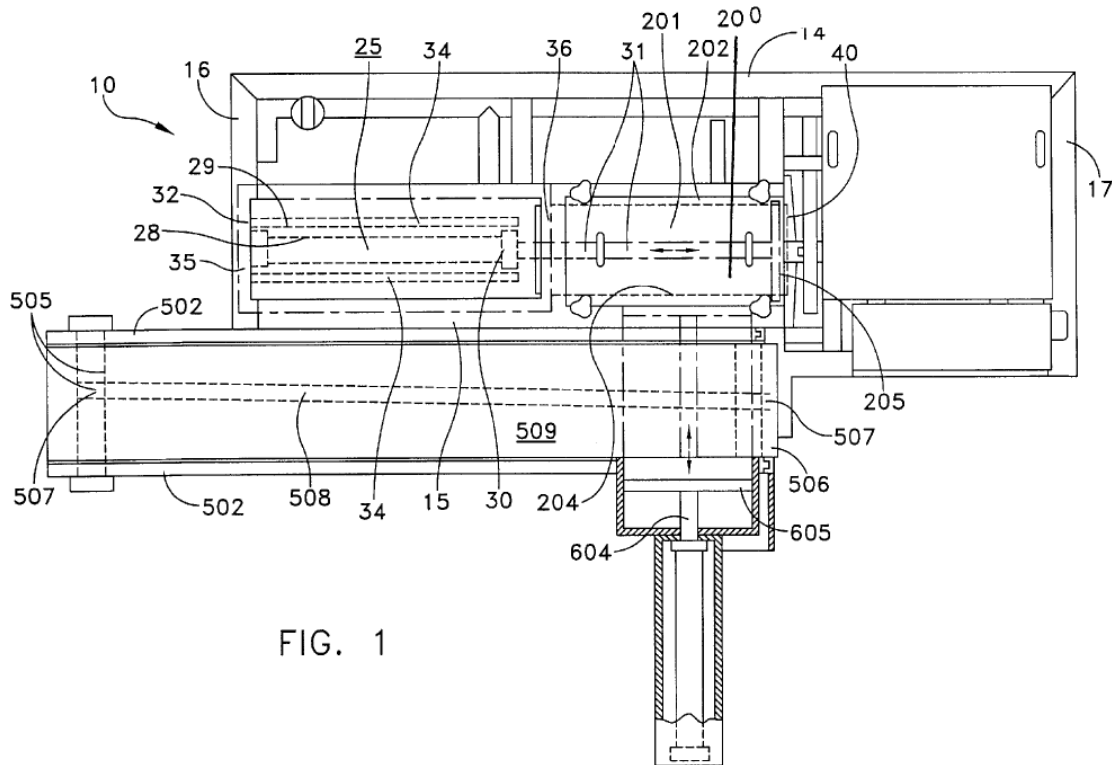


Figure 1 above shows a top plan view, partially broken away of Penta's apparatus. *Id.* at 5:19–20. Cheese extrusion apparatus 10 includes sub-assembly 25, which has primary ram assembly 28, which in turn, has pneumatic/hydraulic cylinder 29. *Id.* at 5:61, 6:7–13. Penta discloses that Figure 1 shows a primary cheese conveying system that includes upstream roller 505 and downstream roller 506, in which each of rollers 505, 506

includes central depression 507 within which drive belt 508 “may be disposed so that it entrains” and drives rollers 505, 506. *Id.* at 8:31–39. Penta further discloses that “[s]uitable means (not seen) which are well-known to those skilled in the art, are used to drive [] drive belt 508” and conveyor belt 509 “includes the usual tension controlling rollers” while entraining rollers 505, 506. *Id.* at 8:39–42.

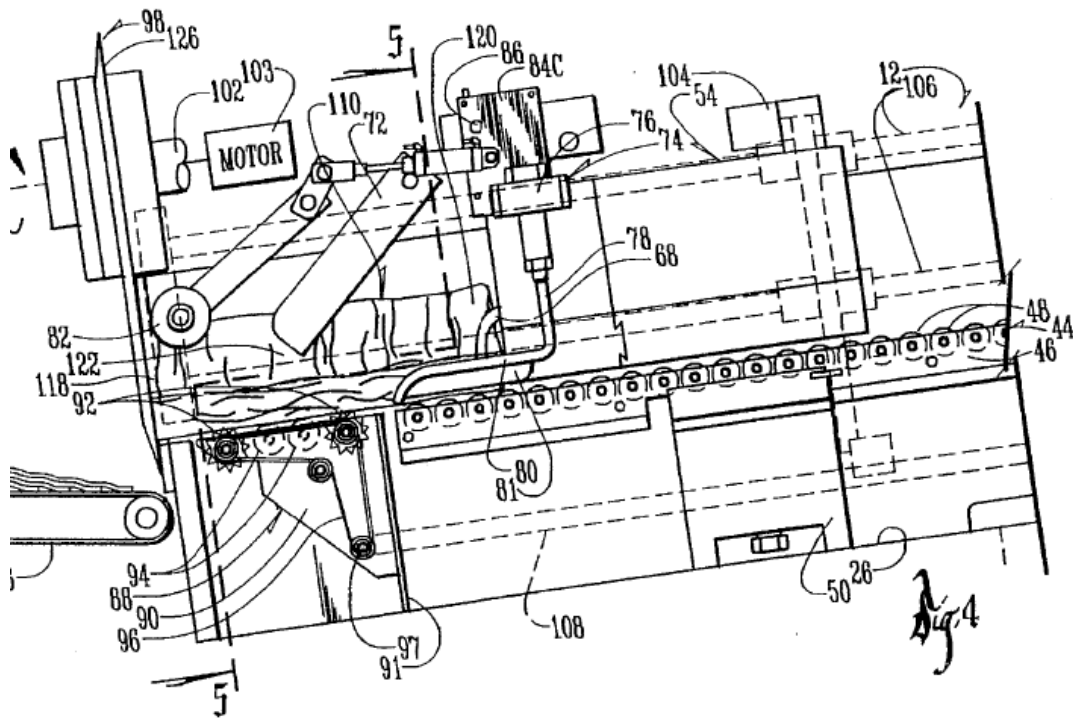
4. *Summary of Lindee (Ex. 1008)*

Lindee is a reference entitled “Reload System for Slicing Machine.” Ex. 1008, code (54). Lindee discloses that when using slicing machines, “[t]he remaining butt end of the food loaf usually should not be sliced” because “it is likely to yield undersized slices.” *Id.* at ¶ 60. To accomplish this, Lindee discloses that when a gripper of a slicing machine reaches its end position, the gripper is tracked by an encoder or by a servomotor “which causes the machine’s computer to stop movement of the loaf toward the slicing station.” *Id.* at ¶ 61.

5. *Summary of Carey (Ex. 1009)*

Carey is a reference entitled “Meat Slicing Machine and Method of Use Thereof.” Ex. 1009, code (54).

Figure 4, reproduced below (partially cropped) , shows Carey’s meat slicing machine.



Cropped Figure 4 above shows an enlarged scale, partial side elevational view of a meat slicing machine with a slab of meat being sliced. *Id.* at 2:59–61. Meat slicing machine 12 includes slicing blade 98 and gate 72. *Id.* at 3:9, 4:31–32, 5:13. As seen in Figure 4, gate 72 is in an open position so that bacon slab 110 can move towards slicing blade 98. *Id.* at 4:50, 5:13, Fig. 4. Carey discloses that after bacon slab 110 engages gate 72, “the gate moves upwardly to a horizontal position to permit the slab of meat to continue moving towards a slicing location.” *Id.* at 3:58–61.

6. Summary of Wygal (Ex. 1010)

Wygal is a reference entitled “Three Dimensional Automatic Food Slicer.” Ex. 1010, code (54). Wigal relates to “a continuous feed automatic slicer that is capable of slicing food products into cubes.” *Id.* at 1:10–13.

Figure 1, reproduced below, shows Wygal’s slicing machine.

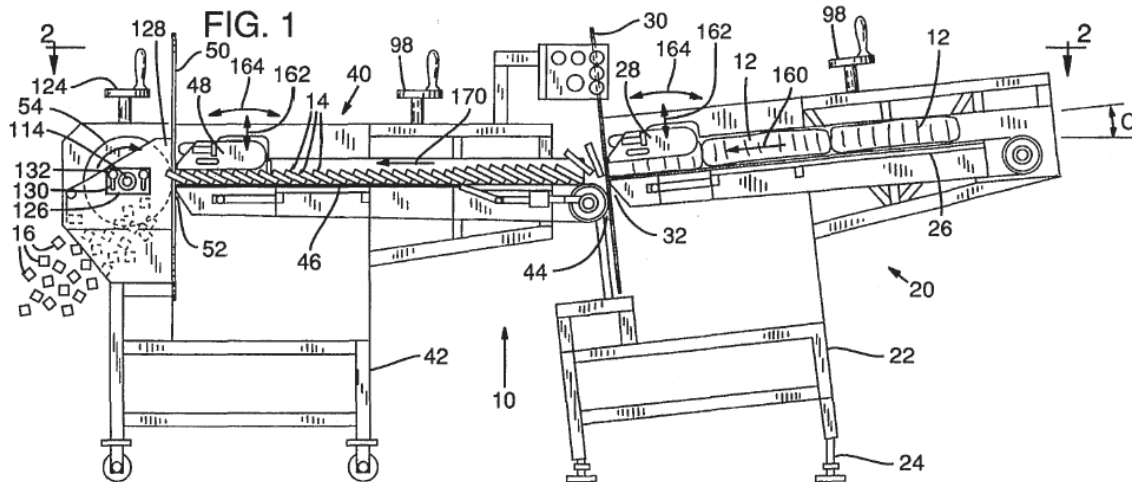


Figure 1 above shows a front view of Wygal's slicing machine. *Id.* at 2:57–58. Machine 10 slices loaf 12 into cubes 16 “in a single continuous operation.” *Id.* at 3:6–8. Machine 12 includes two lower conveyors 26, 46 in which one belongs to first slicing station 20 and the other belongs to second slicing station 40 for producing multiple slices or slabs 14 and multiple cubes 16, respectively. *Id.* at 3:23–24, 33–39. Slicing station 20 also has rotating cutoff knife 30 whereas slicing station 40 has rotating cutoff knife 40. *Id.* at 3:57–59, 6:1–2. Slicing station 20 further includes “floating upper belt type conveyor 28 that is positioned above and strategic to” lower conveyor 26 to accommodate the height of loaf 12 and have “an improved biasing arrangement.” *Id.* at 3:40–56. Lower conveyor 26 and upper conveyor 28 are driven by controlling motor 60 and knife 30 is driven by variable speed motor 64. *Id.* at 4:10–13, 25–27; Fig. 3.

7. Summary of Alotto (Ex. 1011)

Alotto is a reference entitled “System and Method of Feeding a Packaging Machine.” Ex. 1010, code (54). Alotto explains that packaging machine feed systems are known to include “a conveying system.” *Id.* at 1:13–14. Alotto provides a feed system that prevents damage of stacks of objects that are fed while allowing “performance of the follow-up packaging

process.” *Id.* at 1:26–2:16. Alotto discloses that stacks can be “food products arranged one on top of the other.” *Id.* at 4:5–8.

Figure 4, reproduced below, shows an embodiment of Alotto’s system.

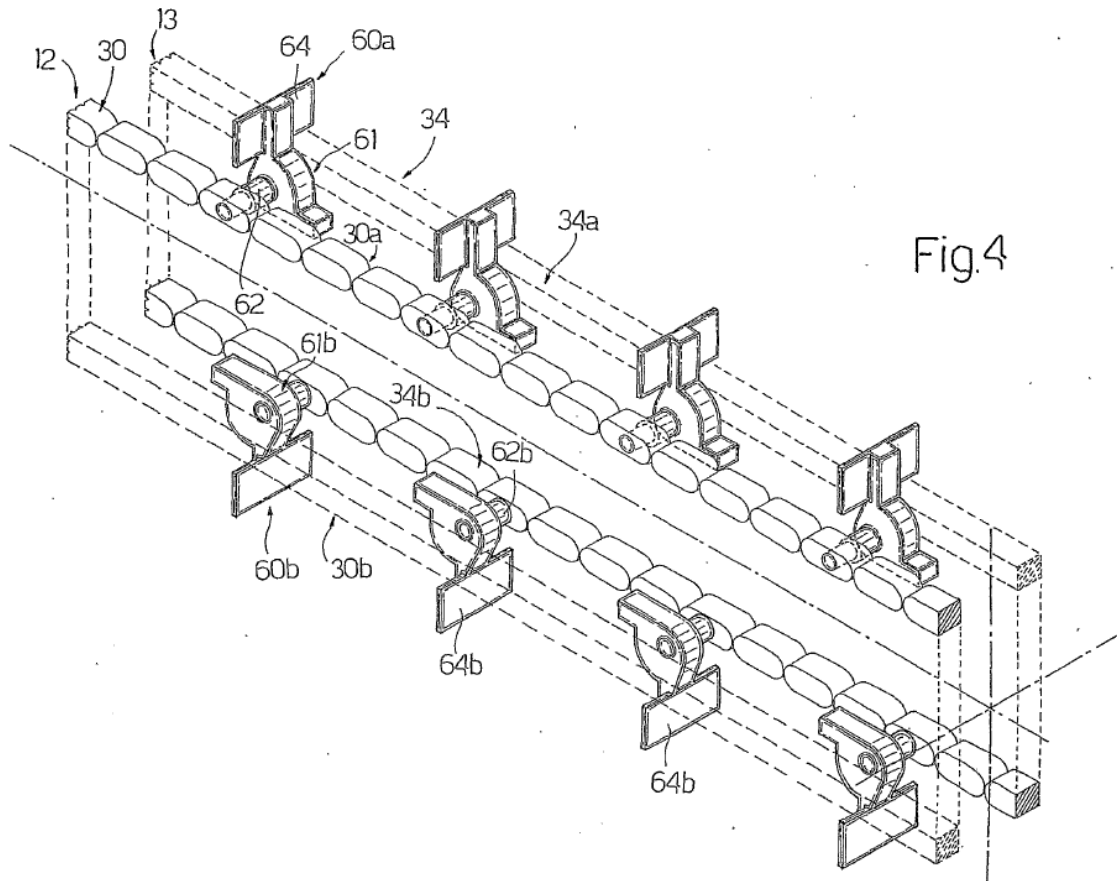


Figure 4 above shows a perspective view of a portion of Alotto’s system. *Id.* at 3:13–14. A feed system includes first straight linear conveying system 12 and second straight linear conveying system 13 “extending parallel to each other.” *Id.* at 4:25–28. First straight linear conveying system 12 includes first powered chain 30 “extending between toothed end pulleys” and second straight linear conveying system 13 includes second powered chain 34 extending between another pair of toothed end pulleys. *Id.* at 5:15–21.

Figure 7, reproduced below, shows the pulleys of Alotto’s system.

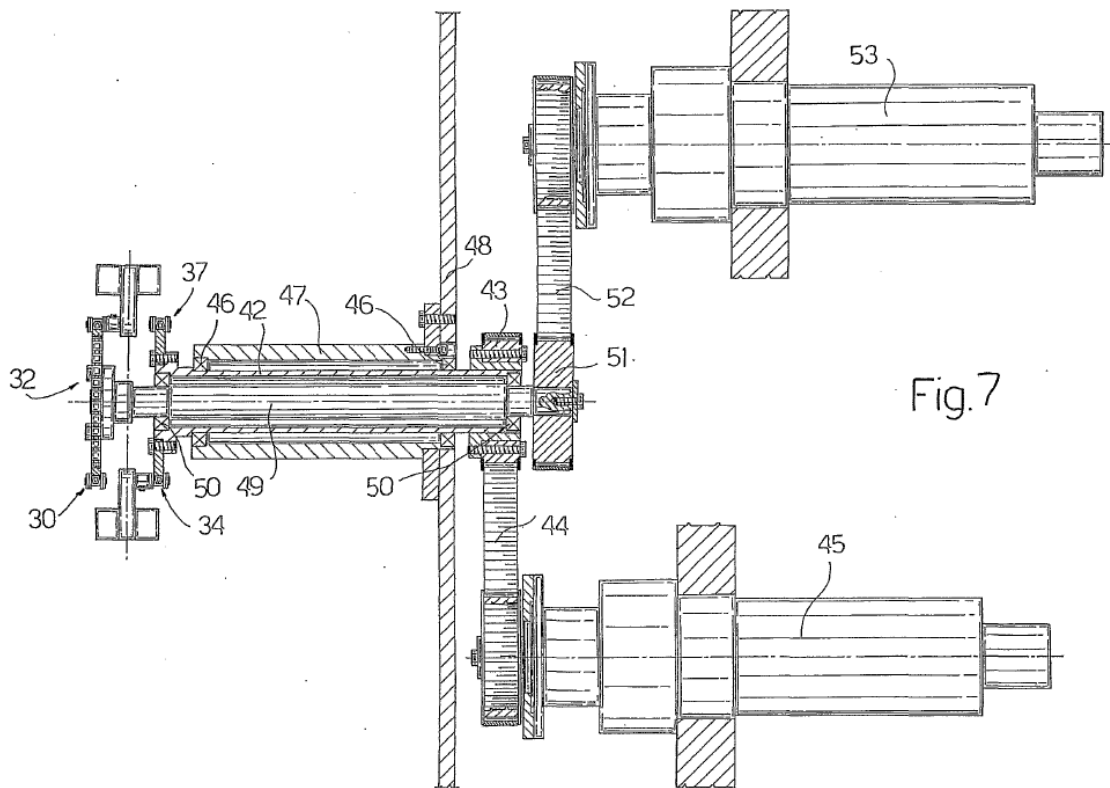


Figure 7 above shows a cross section of one end of Alotto's system. *Id.* at 3:19–20. Pulley 37 is connected to a first end of tubular sleeve 42, which has a second end fitted with toothed pulley 43, which is rotated via toothed belt 44 and electric motor 45. *Id.* at 6:5–8. Pulley 32 is located at a first end of a shaft 49 that is housed coaxially inside tubular sleeve 42, in which shaft 49 is fitted to toothed pulley 51, which is connected by toothed belt 52 and electric motor 53. *Id.* at 6:12–19.

E. Obviousness based on Pryor and Reifenhäuser — Claims 1–12

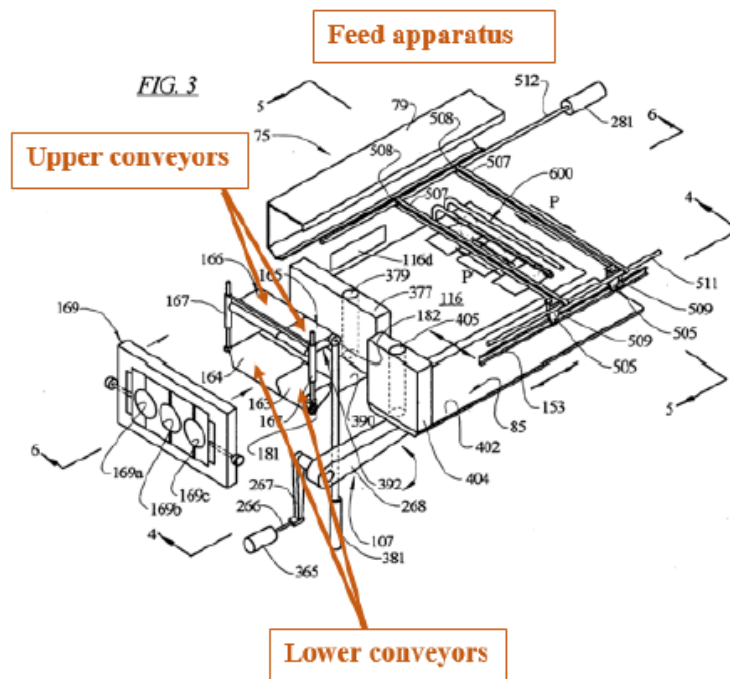
Petitioner asserts claims 1–12 would have been obvious based on the teachings of Pryor and Reifenhäuser. Pet. 17–45. Patent Owner did not file a preliminary response.

Having considered the arguments and evidence before us, we find that the record establishes a reasonable likelihood that Petitioner would prevail

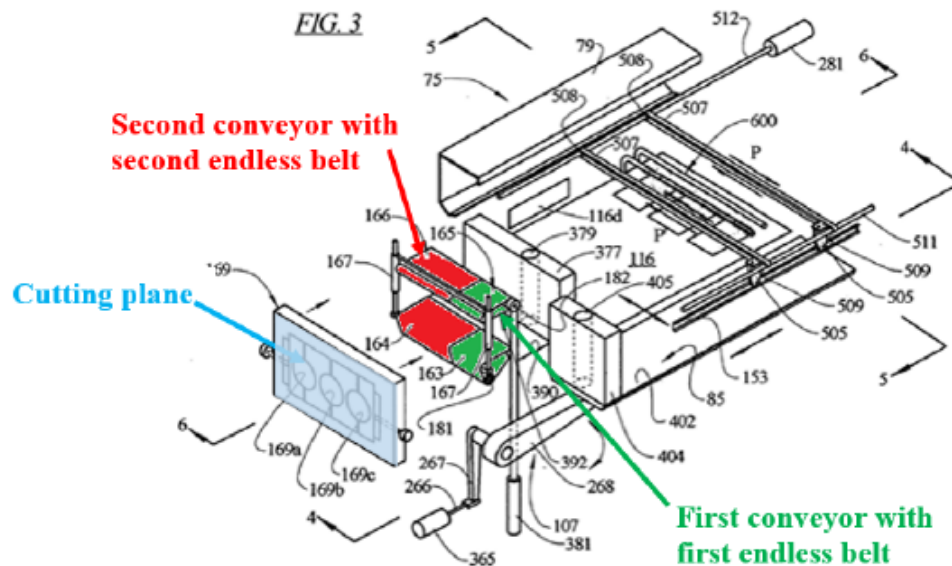
on this asserted ground of obviousness over Pryor and Reifenhäuser, for at least claim 1.

Independent claim 1 is directed to a food article feed apparatus for conveying food articles in a slicing machine that includes “a first conveyor having at least one first endless belt that moves to provide a first conveying surface on top of the first endless belt for moving a first food article toward a cutting plane” and “a second conveyor having at least one second endless belt that moves to provide a second conveying surface on top of the second endless belt for moving a second food article toward the cutting plane.” Ex. 1001, 24:41–50.

Petitioner contends that Pryor’s slicing machine 50 includes short conveyors for advancing food loaves into slicing head 66. Pet. 18 (citing Ex. 1005 ¶ 5; Ex. 1003 ¶ 79). Petitioner’s annotated version of Pryor’s Figure 3 is provided below.



Petitioner’s annotated version of Pryor’s Figure 3 appears on page 19 of the Petition with upper and lower conveyors marked. Pet. 19. According to Petitioner, Pryor’s feed system includes “two short lower loaf feed conveyors 163 and 164” that “are located immediately below two short upper feed conveyors 165 and 166.” *Id.* at 20 (citing Ex. 1005 ¶ 51, Figs. 2–3). Petitioner adds that “[e]ach of these conveyors has an endless belt.” *Id.* (citing Ex. 1005, Fig. 3; Ex. 1003 ¶¶ 81–82). Additionally, Petitioner provides another annotated version of Figure 3, which is reproduced below.



Petitioner’s annotated version of Figure 3 from page 20 of the Petition marks a second conveyor with second endless belt in red and marks in green a first conveyor with first endless belt. *Id.* at 20.

Claim 1 further recites

said first conveyor driven by rotation of a hollow first shaft; said second conveyor driven by rotation of a second shaft; said second shaft independently operating concentrically within said hollow first shaft;

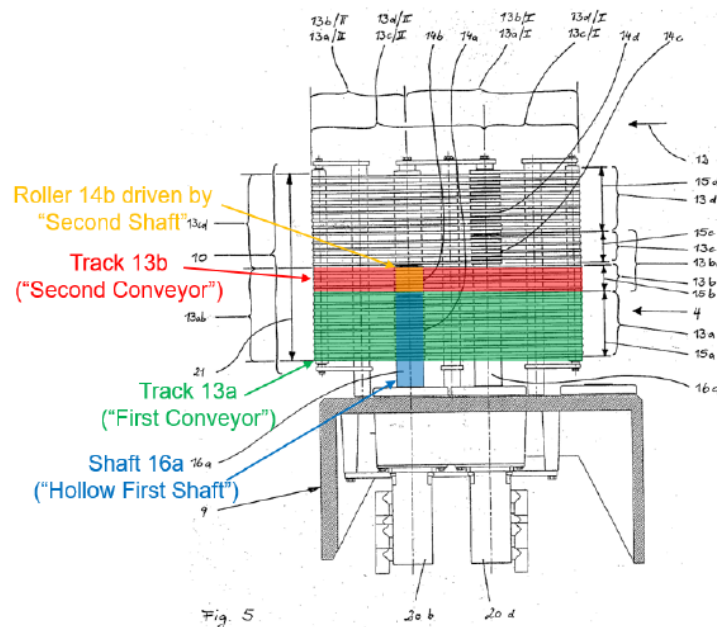
a first motor driving the hollow first shaft into rotation;
and a second motor driving the second shaft into rotation.

Ex. 1001, 24:41–56.

For these limitations, Petitioner asserts that

Reifenhäuser's system includes four conveyors or "tracks 13a to 13d running parallel to one another and arranged side by side, each of which can be driven independently." EX1006, ¶33. Each track is made of multiple narrow endless belts and driven by one of the drive rollers 14a to 14d, which are in turn driven by drive shafts. EX1006, ¶¶33-35.

Pet. 22. Petitioner further provides an annotated version of Reifenhäuser's Figure 5.



On page 23 of the Petition, Petitioner has marked a first conveyor (green), second conveyor (red), hollow first shaft (blue), and second shaft (yellow) on Reifenhäuser's Figure 5. According to Petitioner, Reifenhäuser teaches that track 13a is driven by drive roller 14a, which is driven by hollow drive shaft 16a. Pet. 23 (citing Ex. 1006 ¶¶ 34–35, Fig. 5). Petitioner further argues that track 13b is driven by roller 14b that is driven by a drive shaft

“aligned coaxially with respect” to hollow shaft 16a. *Id.* (citing Ex. 1006 ¶¶ 34–35, Fig. 5).

Petitioner further contends that Reifenhäuser’s drive motor 20a drives “hollow drive shaft 16a (and thus drive roller 14a and track 13a) into rotation via belt 19a and pulley 18a.” Pet. 24 (citing Ex. 1006 ¶¶ 34–36, Figs. 5–7; Ex. 1003 ¶ 92). Similarly, Petitioner asserts that Reifenhäuser also teaches drive motor 20b “that drives the inner shaft for roller 14b (and thus drive roller 14b and track 13b) into rotation via belt 19b and pulley 18b.” *Id.* (citing Ex. 1006 ¶¶ 34–36, Figs. 5–7; Ex. 1003 ¶ 93).

Petitioner acknowledges that “Pryor discloses the food article feed apparatus recited in claim 1 except for the arrangement between the motors and the conveyors of a hollow first shaft with a second shaft that is concentrically within the hollow first shaft.” Pet. 24 (citing Ex. 1005 ¶¶ 8, 51–53, Figs. 2–3; Ex. 1003 ¶¶ 94–95). Petitioner contends that Reifenhäuser discloses this arrangement and that it would have been obvious to a POSITA “to combine Reifenhäuser’s teachings with Pryor to take advantage of hollow shafts ‘permit[ting] other shafts to operate through the interior.’” Pet. 24–25 (citing Ex. 1019, 216–217; Ex. 1003 ¶ 96). According to Petitioner, Reifenhäuser discusses advantages to using concentric drive shafts because “[w]ith the aid of this principle involving hollow shafts, adjacent tracks can be provided with their drives at aligned positions.” *Id.* at 25 (citing Ex. 1006 ¶ 17). Relying on Dr. Hooper’s testimony, Petitioner argues that “concentric drive shafts can directly connect to concentric drive inputs of adjacent tracks, which allows the drive components to be located in a single area by the motors, away from the feed path.” *Id.* (citing Ex. 1006, Figs. 4–7; Ex. 1003 ¶ 96). Petitioner adds that “[a] POSA also would have understood the space saving advantages with such alignment of drives.” *Id.* (citing Ex.

1003 ¶¶ 99–102). Petitioner further contends that POSA would have had a reasonable expectation of success in implementing Reifenhäuser’s concentric shafts teachings with Pryor’s conveyor system teachings. Pet. 28 (citing Ex. 1003 ¶ 111). According to Petitioner, “[a]lthough Reifenhäuser’s conveyor is downstream from the cutting plane, the same principles apply in an upstream conveyor, such as Pryor’s Moreover, a POSA would have been able to implement concentric drive shafts and motors in a way that accounted for the adjustability of Pryor’s upper conveyors.” Pet. 28 (citing Ex. 1003 ¶¶ 112–113).

Based on the preliminary record and Petitioner’s arguments and evidence discussed and cited above, Petitioner has demonstrated a reasonable likelihood that it would prevail with respect to this challenge at trial. *See* Pet. 17–29.

Independent claim 6 includes limitations similar to those recited in claim 1. *See* Ex. 1001, 24:41–56, 25:19–40. As such, Petitioner relies on nearly the same arguments and evidence discussed above for claim 1, which are sufficiently supported by the preliminary record for this stage of the proceeding. Pet. 29–33.

With respect to dependent claims 2–5 and 7–12, we conclude that Petitioner has also provided sufficient argument and evidence to demonstrate a reasonable likelihood that it would prevail with respect to this challenge at trial. *See* Pet. 33–34 (claims 2 and 7), 35 (claims 3 and 8), 35–36 (claims 4 and 9), 36–42 (claims 5 and 11), 43 (claim 10), 43–45 (claim 12).

F. Obviousness based on Pryor, Reifenhäuser, and Penta — Claims 13–

15

Petitioner asserts claims 13–15 would have been obvious based on the teachings of Pryor, Reifenhäuser, and Penta. Pet. 45–50.

Claim 13 depends from claim 12 and further recites “wherein at least one of said lower conveyors comprises a drive belt for connecting a drive source to a first drive roller, and a first conveyor belt; said first drive roller for driving said corresponding conveyor.” Ex. 1001, 26:27–31.

For claim 13, Petitioner contends that

Penta discloses a conveyor (e.g., primary cheese conveying system 500) that comprises (1) a drive belt (e.g., drive belt 508) for connecting a drive source (e.g., unseen “[s]uitable means” that drive the drive belt 508) to a first drive roller (e.g., roller 505 or roller 506), and (2) a first conveyor belt (e.g., conveyor belt 509) Penta’s rollers are for driving the conveyor.

Pet. 45–46 (citing Ex. 1007, 8:28–47, Fig. 1; Ex. 1003 ¶ 188).

Petitioner adds that “a POSA would have had a reason to combine a drive belt (as in Penta) with Pryor’s conveying system.” *Id.* at 47 (citing Ex. 1003 ¶ 189). Petitioner contends that “[a]lthough concentric drive shafts have benefits, it would be difficult to fit concentric drive shafts (and their motors) for the lower conveyors in addition to the upper conveyors, especially when loaves with a smaller height are being sliced.” *Id.* (citing Ex. 1005 ¶ 51, Figs. 2–3; Ex. 1003 ¶ 189). Petitioner asserts that a POSITA would have been motivated to use an alternative drive arrangement for the *lower conveyors* that spaced the motors and drive shafts along the length of the conveyor. *Id.* (citing Ex. 1003 ¶ 189). “An interior drive belt, like Penta’s, is one of the options that facilitates spacing the motors along the conveyor length because the drive shaft does not need to be coaxial with a drive roller at the end of the conveyor.” *Id.* (citing Ex. 1003 ¶ 190), *see also id.* (“Penta’s arrangement was particularly advantageous for driving an interior conveyor that did not have immediate access to the drive rollers via a side of the conveyor. . . . Indeed, using interior drive belts was a well-

known technique to drive conveyor belts.”) (citing Ex. 1007, 8:28–47, Fig. 1; Ex. 1015, 6:35–7:13, Figs. 10–11; Ex. 1003 ¶ 190).

Claim 14 depends from claim 13 and further recites, “wherein said first drive roller comprises: an outer diameter and a recessed diameter; said drive belt is connected around said recessed diameter; said first conveyor belt is connected around said outer diameter.” *Id.* at 26:32–36.

For claim 14, Petitioner argues that Penta’s drive rollers 505, 506 have a central depression 507, which creates an outer diameter and a recessed diameter. Pet. 49 (citing Ex. 1007, 8:36–37; Ex. 1003 ¶ 194). Petitioner adds that Penta’s drive belt 508 is disposed within the central depression 507 (i.e., connected around the recessed diameter). *Id.* (citing Ex. 1007, 8:37–39).

Claim 15 depends from claim 13 and further recites, “wherein said drive belt operates in a path that is within an operating path of said first conveyor belt.” *Id.* at 26:37–39.

For claim 15, Petitioner refers to Penta’s Figure 1, which shows the dotted lines for drive belt 508 located between rails 502 and within conveyor belt 509. Pet. 50 (citing Ex. 1007, Figs. 1–2).

Based on the preliminary record, including Petitioner’s arguments and evidence discussed and cited above, Petitioner has demonstrated a reasonable likelihood that it would prevail with respect to this challenge at trial. *See* Pet. 46–50.

G. Obviousness based on Pryor, Reifenhäuser, and Lindee — Claim 16

Petitioner asserts claim 16 would have been obvious based on the teachings of Pryor, Reifenhäuser, and Lindee. Pet. 50–54.

Claim 16 depends from claim 12 and further recites:

a machine control for controlling each said upper and lower conveyor; and

the machine control having instructions ending machine slicing of all loaves on the food article feed apparatus when the shortest food article is sliced to a minimum length.

Ex. 1001, 26:40–47.

Petitioner argues that Pryor teaches computer 54 connected to “a cycle stop switch 72,” “a loaf feed on-off switch,” and “an emergency stop switch” 87 “for interrupting all operations of slicing machine 50.” Pet. 51 (citing Ex. 1005 ¶¶ 37, 39–40, 42). Petitioner further asserts Lindee discloses that a “remaining butt end of [a] food loaf usually should not be sliced” because “it is likely to yield undersized slices.” *Id.* at 52 (citing Ex. 1008 ¶ 60). Petitioner argues that Lindee discloses when its gripper “reaches its end position 151A” (which is “selected to coincide closely with the end of effective slicing size for the food loaf,” *id.*), “it is tracked by an encoder (not shown) or by a servomotor, which causes the machine’s computer program to stop movement of the loaf toward the slicing station” and discard the butt end of the food loaf. *Id.* (citing Ex. 1008 ¶ 61). Petitioner adds that “[a] POSA would have been motivated to modify Pryor’s machine control to include instructions ending machine slicing as taught in Lindee to ensure that ragged or unsightly slices are not produced by the machine.” *Id.* (citing Ex. 1005 ¶ 7; Ex. 1003 ¶ 206).

Based on the preliminary record, including Petitioner’s arguments and evidence discussed and cited above, Petitioner has demonstrated a reasonable likelihood that it would prevail with respect to this challenge at trial.

H. Obviousness based on Pryor, Reifenhäuser, and Carey — Claim 17

Petitioner asserts claim 17 would have been obvious based on the teachings of Pryor, Reifenhäuser, and Carey. Pet. 54–60.

Claim 17 depends from claim 6 and further recites

a food article gate for separating said slicing station from said food article feed apparatus;

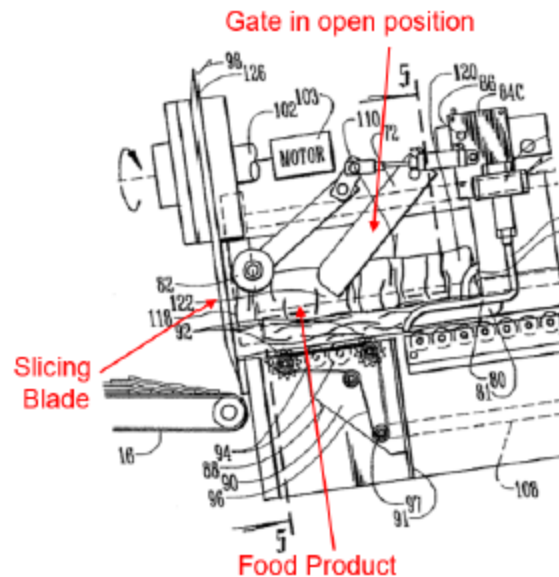
said food article gate having a closed position and a withdrawn position;

said closed position located between and separating said slicing station from said food article feed apparatus;

said withdrawn position being raised horizontally and recessed longitudinally toward said slicing station whereby food articles may pass into said slicing station.

Ex. 1001, 26:48–58.

Petitioner asserts that Pryor discloses “[e]ach loaf path is closed off, near the slicing station 66, by the gate 377,” to keep food from “slid[ing] down unexpectedly and prematurely into slicing station 66.” Pet. 54 (citing Ex. 1005 ¶ 60, Fig. 3). Petitioner acknowledges that Pryor’s withdrawn gate 377 is not raised horizontally and recessed longitudinally toward the slicing station. *Id.* at 56. Petitioner contends that Carey discloses a gate with these features. *Id.* (citing Ex. 1003 ¶ 213; Ex. 1009, 3:36–61, 4:32–38, 5:11–13, 5:54–56, Figs. 3–4). Petitioner’s annotated version of Carey’s Figure 3 is provided below:



Annotated version of Carey’s Figure 3 provided on page 58 of the Petition has the “Gate in open position,” “Slicing Blade,” and “Food Product” marked in red. Pet. 58. Petitioner further argues that

a POSA would have been motivated to use Carey’s configuration, in which both the closed and withdrawn positions are easily cleaned. EX1009, 6:54-61, FIGs. 3-4; EX1003, ¶218. In implementing Carey’s gate, a POSA would have found it appropriate to place the gate after Pryor’s upper conveyor so that the gate does not interfere with the conveyors. EX1003, ¶218.

Pet. 59.

Based on the preliminary record, including Petitioner’s arguments and evidence discussed and cited above, Petitioner has demonstrated a reasonable likelihood that it would prevail with respect to this challenge at trial.

I. Obviousness based on Wygal, Alotto, Penta, Lindee, or Carey

Petitioner asserts claims 1–17 would have been obvious based on various combinations of the teachings of Wygal, Alotto, Penta, Lindee, and Carey. Pet. 60–80 (Claims 1–12 based on Wygal and Alotto), 80–81 (claims

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13–15 based on Wygal, Alotto, and Penta), 81–83 (claim 16 based on Wygal, Alotto, and Lindee, 83 (claim 17 based on Wygal, Alotto, and Carey).

Patent Owner did not submit a preliminary response.

Pursuant to USPTO policy implementing *SAS Institute, Inc. v. Iancu*, 138 S.Ct. 1348 (2018), we must “either (1) institute as to all claims challenged in the petition and on all grounds in the petition, or (2) institute on no claims and deny institution.” PTAB Consolidated Trial Practice Guide (Nov. 2019) (“CTPG”), 5–6, 64. We “will not institute on fewer than all claims or all challenges in a petition.” *Id.* at 5, 64; *see also PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1359–60 (Fed. Cir. 2018) (stating a decision to institute is “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”). Thus, because we have decided to grant institution on Petitioner’s Grounds 1–4 against claims 1–17, we must do the same for these challenges. Accordingly, we institution trial on these challenges.

III. CONCLUSION

Petitioner demonstrates a reasonable likelihood of prevailing in showing the unpatentability of at least one of the challenged claims of the ’109 Patent. At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claim or any underlying factual or legal issues.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–17 of the '109 Patent is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of the '109 Patent shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

PETITIONER:

Ralph Powers
Donald Banowit
Kyle Conklin
Trevor O'Neill
STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.
tpowers-ptab@sternekessler.com
dbanowit-ptab@sternekessler.com
kconklin-ptab@sternekessler.com
toneill-ptab@sternekessler.com

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Patent 8,408,109 B2
PATENT OWNER:

Michael G. Babbitt
Sara T. Horton
Ren-How H. Harn
Mitchell M. Feldhake
WILKIE FARR & GALLAGHER LLP
MBabbitt@wilkie.com
SHorton@wilkie.com
RHarn@wilkie.com
MFeldhake@wilkie.com
ProvisurPTAB@wilkie.com