

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PROVISUR TECHNOLOGIES, INC.,
Petitioner,

v.

TEXTOR MASCHINENBAU GMBH,
Patent Owner.

Patent No. 9,457,487

**DECLARATION OF JOHN M. COLLINS, PH.D., IN SUPPORT OF
PETITION FOR *INTER PARTES* REVIEW OF U.S. PATENT NO. 9,457,487**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	SUMMARY OF OPINIONS	1
III.	BACKGROUND AND QUALIFICATIONS	2
IV.	DOCUMENTS CONSIDERED	2
V.	LEGAL PRINCIPLES	3
VI.	CLAIM CONSTRUCTION	4
VII.	LEVEL OF ORDINARY SKILL IN THE ART	4
VIII.	PRIORITY DATE	4
IX.	RESPONSIVE EVIDENCE OF TOOLLESS REMOVABLE CONVEYOR PRIOR ART	4
A.	Konishi and McLaughlin	5
B.	US20080016999A1 (“Mathues”)	8
C.	US20080289619A1 (“Schjerven”)	9
D.	US3162226A (“Toby”)	10
E.	US6755149 (“Herman”)	11
F.	US3601901 (“Rader”)	12
G.	US7621109 (“Momich”)	13
H.	EP1729875B1 (“Gerber”)	14
I.	US20100275789 (“Lee”)	15
J.	US3517605 (“Hursch”)	17
K.	EP2401564B1 (“Candeo”)	18

L.	Obvious Design Options	19
1.	Detent Notch	19
2.	Lock Pin	20
3.	Surface Bolt Latch	20
4.	Spring Biased Horizontal Bolt Latch.....	21
5.	Pivoting Hook/Latch	21
6.	Spring Biased Rotating Hook	22
7.	Threaded Knob.....	22
X.	RESPONSIVE EVIDENCE TO DR. REINHOLTZ FREE BODY DIAGRAM.	22
A.	Konishi Analysis	23
B.	McLaughlin Analysis	28
XI.	SUMMARY OF THE GROUNDS (IN VIEW OF THE MOTION TO AMEND)	31
XII.	GROUND 1: KONISHI ANTICIPATES PROPOSED CLAIMS 25, 29, 30, AND 33.....	31
A.	Independent Claim 25	31
B.	Dependent Claim 29	34
C.	Dependent Claim 30	34
D.	Dependent Claim 33	35
XIII.	GROUND 2: KONISHI AND LINDEE IN LIGHT OF THE KNOWLEDGE OF A POSA RENDERS OBVIOUS PROPOSED CLAIMS 25-34.....	35
A.	Independent Claim 25	36

B.	Dependent Claims 26 and 27	40
C.	Dependent Claims 28 and 32	42
D.	Dependent Claim 29	44
E.	Dependent Claim 30	45
F.	Dependent Claim 31	47
G.	Dependent Claim 33	49
H.	Independent Claim 34	50
XIV.	GROUND 3:MCLAUGHLIN IN LIGHT OF THE KNOWLEDGE OF A POSA RENDERS OBVIOUS PROPOSED CLAIMS 25-34.....	52
A.	Independent Claim 25	52
B.	Dependent Claims 26 and 27	57
C.	Dependent Claims 28 and 32	59
D.	Dependent Claim 29	60
E.	Dependent Claim 30	61
F.	Dependent Claim 31	63
G.	Dependent Claim 33	64
H.	Independent Claim 34	65
XV.	GROUND 4:MCLAUGHLIN AND KONISHI RENDERS CLAIMS OBVIOUS PROPOSED CLAIMS 25-34.	67
A.	Independent Claim 25	67
B.	Dependent Claims 26-33	68
C.	Independent Claim 34	68

XVI. GROUND 5: MCLAUGHLIN, HERMAN, AND THE KNOWLEDGE OF A POSA RENDER OBVIOUS PROPOSED CLAIMS 25-34.....	69
A. Independent Claim 25	69
B. Dependent Claims 26 and 27	83
C. Dependent Claims 28 and 32	84
D. Dependent Claim 29	88
E. Dependent Claim 30	90
F. Dependent Claim 31	92
G. Dependent Claim 33	94
H. Independent Claim 34	95
1. Element 22[C1]	96
2. Element 22[C2]	97
3. Element 22[C3]	99
4. Additional Obviousness Support	100
XVII. GROUND 6: KONISHI AND MATHUES RENDER OBVIOUS PROPOSED CLAIMS 25-34.	104
A. Independent Claim 25	104
B. Dependent Claims 26 and 27	118
C. Dependent Claim 28 and 32	121
D. Dependent Claim 29	126
E. Dependent Claim 30	130
F. Dependent Claim 31	132

G.	Dependent Claim 33	135
H.	Independent Claim 34	139
1.	Element 22[C1]	139
2.	Element 22[C2]	141
3.	Element 22[C3]	142
4.	Additional Obviousness Support	144
XVIII.	CONCLUSION	148

I. INTRODUCTION

I, John M. Collins, Ph.D., hereby declare as follows:

1. I have been retained as an expert witness on behalf of Petitioner Provisur Technologies, Inc. (“Petitioner” or “Provisur”) for the above-captioned *inter partes* review (“IPR”). I am an expert in mechanical engineering. I am being compensated for my time in connection with this IPR at my standard consulting rate, which is \$450 per hour. My compensation is not contingent upon the outcome of this IPR. I understand that the Petition for IPR involves U.S. Patent No. 9,457,487 (EX1001, the “’487 patent”).

II. SUMMARY OF OPINIONS

2. Below, I provide opinions that respond to the points made by Textor and Dr. Reinholtz since my initial declaration about the unpatentability of the ’487 patent. In sum, I maintain my opinion that the relevant claims of the ’487 are not patentable.

3. I also understand that Dr. Reinholtz did not provide any opinions rebutting my analysis of claims 1-4, 6, 9-10, 14-15, and 22. I understand that Dr. Reinholtz’s opinions were limited to the toolless limitation that appeared in cancelled claim 16.

4. Furthermore, I provide opinions that respond to the Textor motion to amend. I understand that Textor cancelled all of the challenged claims except for

claim 22. I understand that Textor's proposed claims incorporate the toolless limitation that was present in cancelled claim 16. I understand that Textor has incorporated the toolless limitation into substitute claims for prior claims 1-4, 6, 9-10, and 14-15. I understand that Textor has proposed that if the Board determines that claim 22 is unpatentable, then the Board should consider whether claim 22 in addition to the toolless limitation is unpatentable. In my view, these additional limitations do not distinguish the claims over the prior art or show that the claims would not have been obvious.

III. BACKGROUND AND QUALIFICATIONS

5. My background and qualifications are discussed in my opening declaration. Section III, ¶¶9-21. A copy of my latest curriculum vitae (CV) with additional details of my education, employment, patents, and recent publications was filed as Exhibit 1032.

IV. DOCUMENTS CONSIDERED

6. When forming my opinion, I considered all of the references cited in my opening declaration and the Petition. I also considered all of the documents cited in this declaration, including the documents listed below:

EX	Description
1036	U.S. Patent No. 3,517,605 ("Hursch")

EX	Description
1037	US20080016999A1 (“Mathues”)
1038	US20080289619A1 (“Schjerven”)
1039	US3162226A (“Toby”)
1041	US6755149 (“Herman”)
1042	US3601901 (“Rader”)
1043	EP1729875B1 (“Gerber”)
1044	EP2401564B1 (“Candeo”)
1045	Deposition Transcript of Dr. Reinholtz (08/23/2024)
1046	U.S. Patent No. 4,195,867 (“Baillie”)
1048	U.S. Patent No. 9,400,456 (“Iwakoshi”)
1049	U.S. Patent No. 9,702,168 (“Jadallah”)
1051	U.S. Patent No. 9,963,919 (“Sugiura”)
1052	U.S. Patent No. 7,621,109 (“Momich”)
1067	Engineer Toolbox Website

V. LEGAL PRINCIPLES

7. I am not an attorney, and I am not offering any opinions on the law in this proceeding. Counsel for Provisur has generally informed me of certain legal standards that are relevant to my analysis. I addressed those legal principles in my opening declaration. Section V, ¶¶23-32.

VI. CLAIM CONSTRUCTION

8. I have applied the plain and ordinary meaning of the claim terms in view of the specification and prosecution history. I am not aware of any claim terms that require me to propose an explicit construction to resolve any issues.

VII. LEVEL OF ORDINARY SKILL IN THE ART

9. I provided a level of ordinary skill in the art in my opening declaration, and I understand that neither Textor nor Dr. Reinholtz has contested that definition.

VIII. PRIORITY DATE

10. As discussed above, I understand that Textor moved to amend the '487 patent. Through conversations with counsel, I understand that Textor's motion to amend only alleged support from an application dated June 26, 2014. Through counsel, I understand that this means the proposed claims can only claim priority as far back as June 26, 2014. Accordingly, I have included prior art that post-dates 2012 but pre-dates June 26, 2014.

IX. RESPONSIVE EVIDENCE OF TOOLLESS REMOVABLE CONVEYOR PRIOR ART

11. I provided an overview of the state of the relevant art before December 3, 2012, in my opening declaration. Section VIII, ¶¶36–61. In addition to that information, I provide further examples of toolless removable conveyor mounts in

the prior art in response to Dr. Reinholtz's deposition testimony and expert declaration, as well as Textor's arguments.

12. For example, I understand that Dr. Reinholtz repeatedly took the position in his deposition that even though a POSA would have been aware of toolless connection/removal components (like latches, detents, friction fits, etc.), they would not have been able to implement a latch such as that taught in Lee because Lee failed to describe a functional latch. (For example, Reinholtz Dep., 91:14-92:3, 168:3-7, 180:20-181:2.) As I outline below, it would have been well within the skill of a POSA to implement a toolless latch in variety of configurations that would ensure that a removable conveyor belt unit is locked in place in a hygienic manner.

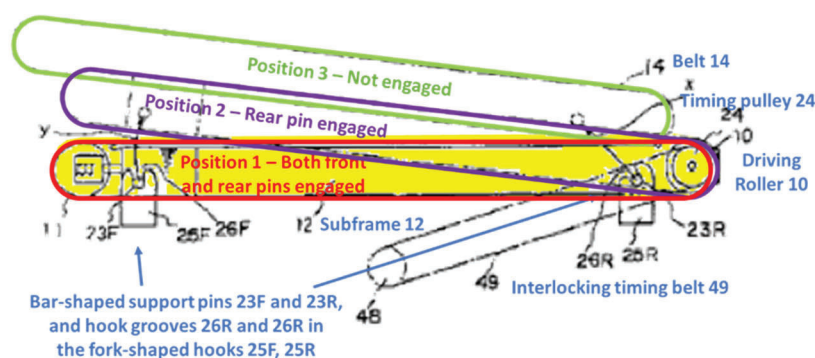
A. Konishi and McLaughlin

13. By way of example, both Konishi's conveyor subframe 12 and McLaughlin's support frame 225 are mounted to their stationary frames via pins engaged in grooves. One groove is oriented at an angle to slidably receive a pin while simultaneously tensioning a drive belt. The other groove is open directly upward to receive the pin which is rotated down into place and reacting the belt tension loads to hold the conveyor in place. As my analysis in Section X shows, the

forces acting on the pin in the vertical slot holds both Konishi's and McLaughlin's conveyor in the place no matter its weight.

14. Below is an annotated Fig. 8 from my first declaration describing the configuration taught by Konishi. It shows the subframe 12 (starting unengaged in position 3 with the belt enveloping the pulley) moving into an engaged position by inserting and sliding the pin 26R into the groove 26R and tensioning the belt (position 2) before rotating the front of the conveyor down to engage the forward pin 23F into the vertical groove 26F to secure it into place (position 1). As I described in my first declaration and deposition, a POSA would have appreciated that the weight of the conveyor and friction may hold the subframe 12 in place relative to the frame in Konishi.

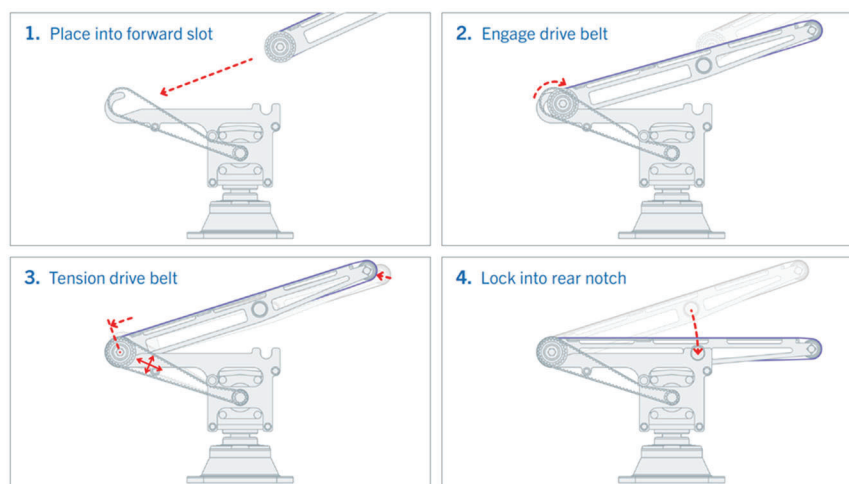
Figure 8



Similarly, below is an annotated figure from my first declaration describing the configuration taught by McLaughlin. It shows McLaughlin support frame 225 placed into the forward slot (1) and then engaging the drive belt on the pulley (2). The

support frame is then moved further into the slot which tensions the drive belt (3).

Finally, the support frame 225 is rotated down to engage the rear-most pin in the vertical groove to secure it into place (4). As I described in my first declaration and deposition, a POSA would have appreciated this configuration may hold the support frame 225 in place relative to the frame in McLaughlin.



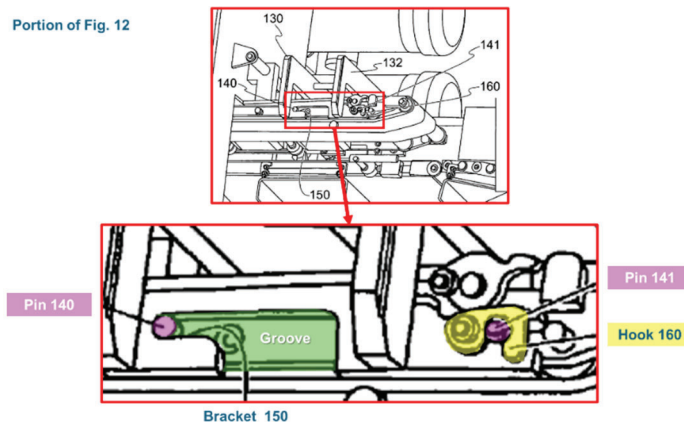
As such, if a POSA wanted to ensure that a removable conveyor frame stayed in place relative to the frame, they would have added a manually operated “toolless” latch which would prevent the pin pivotably engaged in the vertical slot from moving vertically. In my view, a POSA, or actually any DIY’er, would know of many options to keep the equivalent of a pivoting door from being opened without the need of a tool. The removable conveyors of Konishi and McLaughlin do not need such latches to keep them in place. But A POSA would have known they can benefit from them if a POSA wanted to ensure that, for example, a person did not lift a conveyor at an

inappropriate time. Such straightforward mechanical benefits would have been known and obvious to a POSA.

15. While Dr. Reinholtz in his deposition stated that he was not aware of any prior art that taught the application of these well-known techniques to the art of removable conveyors, there is a plethora of art that teaches just that. The following are a few examples of components of machines that are removable without the need of tools that I provide in response to Dr. Reinholtz and Textor.

B. US20080016999A1 (“Mathues”)

16. Mathues is titled “Dual-Mode Feed Mechanism for a Food Slicing Machine” and was published on Jan. 24, 2008. As shown in the blown-up of a portion of Fig. 12 below, it teaches a similar two pin (160 and 161) and groove arrangement as Konishi/McLaughlin to hold a removable conveyor in place. In addition, it teaches simple rotating hooks (160 and 162) to hold the conveyor in place and prevent unintentional removal without the need for tools.



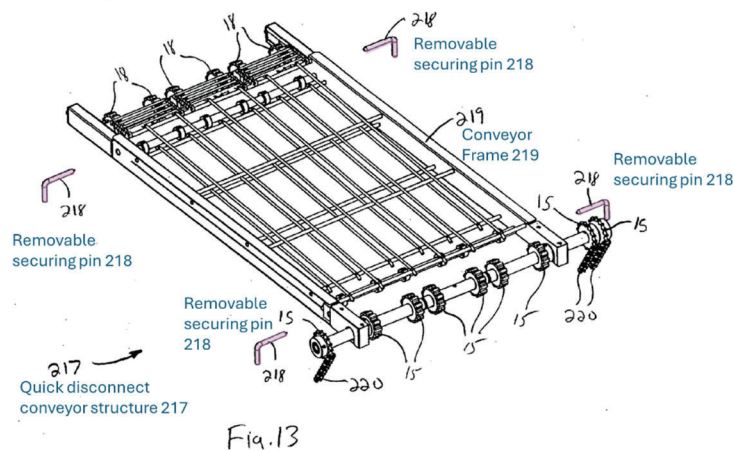
Specifically, Mathues teaches:

Rotatable hooks 160 and 162 are mounted to the brackets 150 and 152 to hook around the pins 141 and 142 when the conveyor is in its installed position, thereby preventing unintentional removal from the brackets 150 and 152. Removal is accomplished by simply unhooking the hooks 160 and 162, sliding the conveyor 30 in the upstream direction and dropping it downwardly for removal. Mathues at [0049].

C. US20080289619A1 (“Schjerven”)

17. Schjerven is titled “Charbroiler” and was published on Nov. 27, 2008.

As shown in the annotated Fig. 13 below, it teaches a quick disconnect conveyor assembly that requires no tools. It teaches a number of removable securing pins 218 to secure the removable frame 219 of the conveyor to the interior side walls of the charbroiler 200 (not shown).



Specifically, Schjerven teaches:

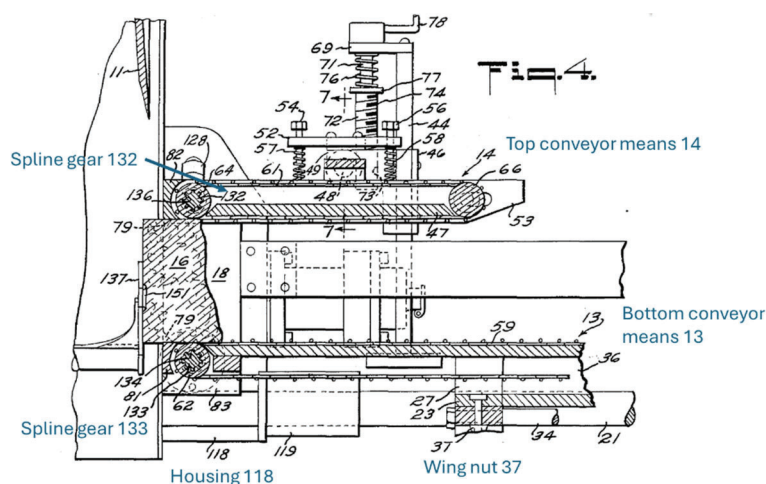
Conveyors 214, 216 may require frequent cleaning due to the build-up of greases and other food product thereon.

The conveyor frame 219 and conveyor belts 214, 216 are easily removable to facilitate cleaning thereof. Schjerven at [0078].

D. US3162226A (“Toby”)

18. Toby is titled “Meat Slicing Machine” and was issued on Dec. 22, 1964.

Toby describes one object of the invention “is to provide feed apparatus as above defined that is readily removable from the slicing machine for easy cleaning and maintenance.” Toby at 2:13-15. As shown in annotated Fig. 4 below, after turning a knob (43) to move the conveyors to a removable position, the conveyors can be lifted off the housing by loosening the wingnuts (37), neither of which requires a tool.



Knob 43 shown in Fig. 5

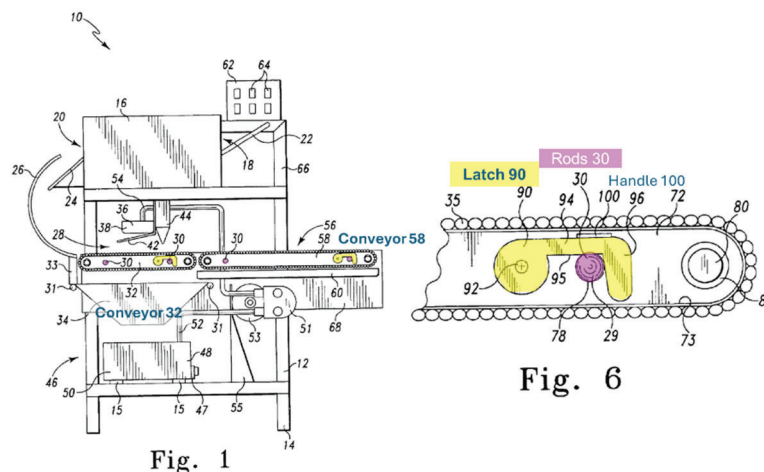
Specifically, Toby teaches:

An important feature of the invention is that the feed conveying assembly, including the top and bottom conveyors is readily removed from the machine for cleaning or maintenance. To accomplish this, the knob 43 is rotated to bring the conveyors to their further most

position from the housing 118. At this point, the spline gears 132 and 133 fall out of engagement with the drive sprockets. It is necessary only to loosen the wing nuts 37 whereupon the conveyors are lifted off the machine. Toby at 7:19-28.

E. US6755149 (“Herman”)

19. Herman is titled “Donut Glazing Machine” and was issued on Jun. 29, 2004. As can be seen in annotated Figs. 1 and 6 below, conveyors (32 and 58) are mounted such that they slide (into and out of the plane of the drawing) on, and are supported by rods (30). The conveyor frames each have a latch (90) that rotates down into a slot (98) on the rod to hold the conveyor in place. The latch has a handle (100) to move the latch by hand and does not require a tool.



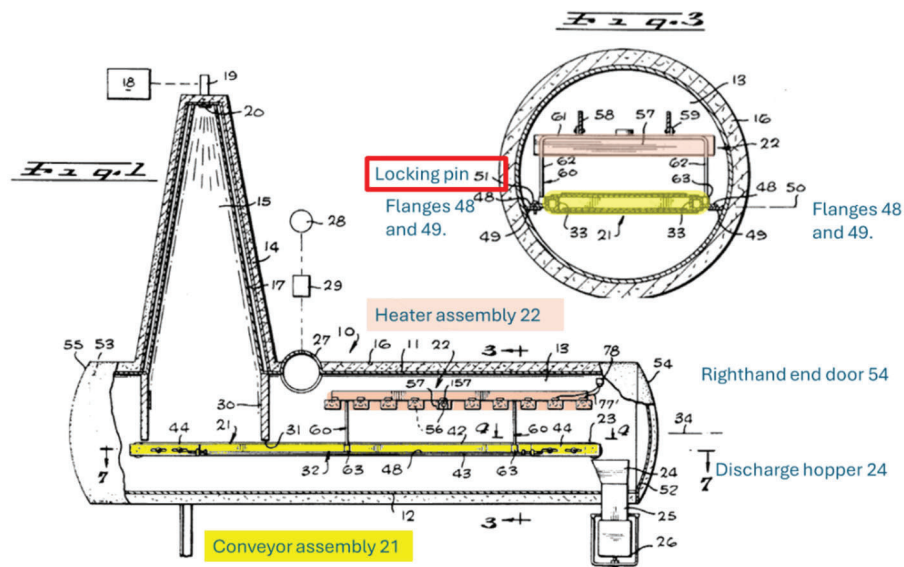
Specifically, Herman teaches:

The latch 90 also includes a handle 100 that permits the latch to be quickly and easily disengaged from the slot 98 to permit removal of the conveyor as a unit from the machine 10. Once removed from the machine 10, the conveyor assembly can be washed in a commercial sink,

or commercial dishwasher without further disassembly.
Herman at 7:35-41.

F. US3601901(“Rader”)

20. Radar is titled “Freeze Drying Apparatus with Removable Conveyor and Heater Structures” and was issued on Aug. 31, 1971. It describes a heater assembly that is mounted on a removable conveyor unit to facilitate its removal for repair and cleaning. Rader at 1:56-61. It teaches that the heater and conveyor assembly can easily be removed by hand after lifting the locking pin 51. Figs. 1 and 3 below shows the conveyor assembly (highlighted in yellow) and heater assembly (highlighted in pink) in the operating position. Once the righthand end door 54 is unlatched and opened, the locking pin 51 (outlined in red) can be lifted allowing the conveyor/heater assembly to be removed for cleaning or repair. *Id.* at 5:16-32



Specifically, Rader teaches:

“After an extended period of use, it may be desirable to clean or repair the conveyor assembly 21 and/or heater assembly 22. When this becomes desirable, the right-hand end door 54 of FIG. 1 is unlatched and swung to its open position of FIG. 2, locking pin 51 of FIG. 3 is withdrawn upwardly from the registering apertures in flanges 48 and 49, to release the parts for removal, and the entire conveyor assembly 21 and carried heater assembly 22 are pulled rightwardly toward their FIG. 2 removed positions. An operator may easily pull these parts rightwardly, as by grasping the two vertical arms 62 of one of the inverted U-shaped heater mounting elements 60. As the conveyor and heater assemblies move rightwardly, they are guided for the desired movement by sliding engagement of flanges 48 of FIG. 3 on the upper surfaces of flanges 49 provided within the vacuum chamber.” *Id.* at 5:16-32

G. US7621109 (“Momich”)

21. Momich is entitled “Carrier loading cartoner” and was issued November 11, 2009. It describes a cartoner that places a product or products, such as food, pharmaceuticals, beverages and other items into cartons or boxes. Momich at 1:11-18. The cartoner includes a carrier conveyor 50 which move the products that are held in carriers 55 to be transported. *Id.* at 1:61-64. Specifically, Momich teaches:

Preferably, carriers 55 are removable, replaceable and/or interchangeable along carrier conveyor 50 using fasteners, such as with knurled bolts as shown in FIG. 3, and/or toolless quick-release systems, such as a ball detente arrangement, known to those having ordinary skill in the art. *Id.* 4:56-60

H. EP1729875B1 (“Gerber”)

22. Gerber is titled “Blender for ingredients into soft-serve freezer products and method” and was issued on Nov. 24, 2010. It describes “an apparatus for dispensing a chilled confection comprising a blend of frozen edible base product and edible ingredient solids.” Gerber at [0004]. In other words, it dispenses soft serve ice cream with added ingredients such as raisins, M & M’s, chocolate chips, different flavors of fruit bits, different flavors of candy bits and sprinkles. As shown below in annotated Fig. 2A, and the blown-up portion shows that the removable dispensing modules 25 which hold containers 32 (in which the added ingredients are stored) can be removed by loosening the retaining knob 51.

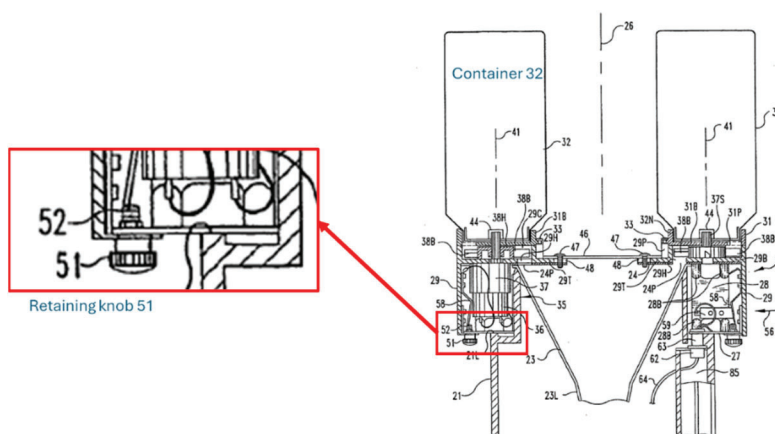


Fig. 2A

Specifically, Gerber teaches:

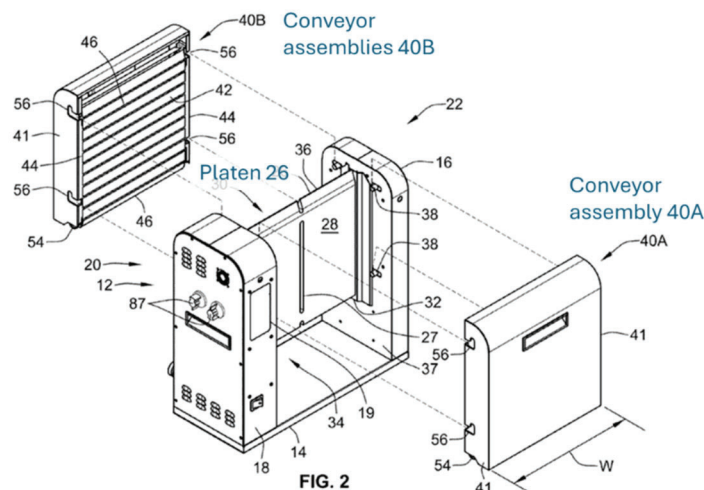
“To refill a container, the module is removed by loosening the retaining knob 51, and pulling the module radially outward. Then it is inverted, so that the container 32 is upright. Then the module is pulled upward off the

container. Then the container can be refilled with the same ingredient, or cleaned and refilled with some other ingredient.” Gerber at [0040].

“The apparatus of claim 15 and wherein: said containers (32) received in said container base sockets (31) are retained by friction fit into said sockets, but each of said modules (25) is removable by hand from the container (32) received in the module socket and without tools, to refill a container (32) with solids when the open end (32N) of the container (32) is facing upward.” Gerber claim 20.

I. US20100275789 (“Lee”)

23. Lee is titled “Toaster with removable and adjustable conveyors” and was published Nov. 4 2010. Lee teaches a toaster that has removable conveyors. Lee at Abstract. As shown in annotated Fig. 2 below, removal of conveyor assemblies 40A and 40B for cleaning and maintenance requires no tools. Lee teaches that its removable conveyor assemblies can be held in place in different manners. As examples, Lee teaches that “the use of one or more hold down springs and/or common barrel-bolt latches” are used to prevent the conveyors from being accidentally lifted out of place. *Id.* at [0047].



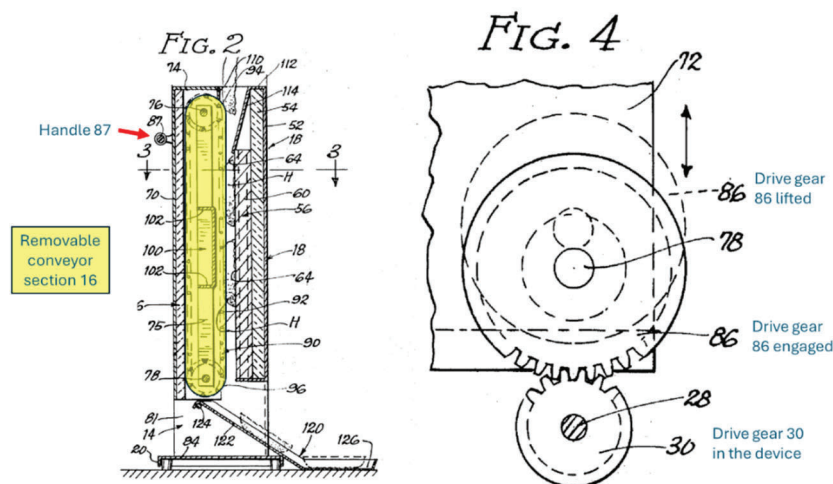
Specifically, Lee teaches:

As can be seen in FIG. 2, the conveyor assemblies 40A and 40B can be removed simply by lifting them upward a slight distance equal to the vertical height (See reference numeral 76 in FIGS. 3A and 3B.) of the saddles 56 to remove the conveyor assembly weight from the mounting pins 38. *Id.* at [0020]

As set forth above, the conveyor assemblies 40 are held in place and the gears engaged to each other solely by the weight of the conveyor assemblies themselves. Alternate embodiments include the use of one or more hold down springs and/or common barrel-bolt latches (not shown in the figures) to prevent the conveyor assemblies from being accidentally lifted out of position. Hold-down springs and/or barrel bolt latches will also reduce the likelihood that a conveyor assembly 40A or 40B might lift itself up and off the mounting pins 38 due to the reactive force created by the friction of a food product against the platen 26. *Id.* at [0047].

J. US3517605 (“Hursch”)

24. Hursch is titled “Bun toaster” and was issued on June 30, 1970. It describes a compact and easily cleaned bun toaster that can produce a large quantity of properly and uniformly toasted bun halves. The toaster is also easily disassembled by sliding conveyor assembly to remove it and expose both the conveyor assembly and the toasting surfaces for cleaning. Hursch at 1:36-45. As shown in Fig. 2 and 4 below, the freely removable conveyor section 16 is simply lifted by handle 87 to remove it. The vertical motion acts to automatically engage or disengage the drive gear 86 in the conveyor with the drive gear 30 in the device.



Specifically, Hursch teaches:

“Only when the freely removable conveyor section 16 is positioned in its seated engagement with the frame as seen in FIGS. 2 and 8 (its downward movement in the keyways being arrested by the lower edge 84 of key bar 80 contacting seat 85 closing the bottom of keyways 82), is the self-coupling driving means including the driven gear,

i.e., conveyor drive gear 86 positioned to be driven by drive gear 30 (see FIGS. 4 and 5) When, as will be explained, the conveyor section is removed for cleaning or the like, conveyor drive gear 86 is freely uncoupled and disengaged from meshing engagement with drive gear 30 simply by lifting the conveyor section by handle 87 as illustrated in phantom in FIG. 4” *Id.* at 4:18-30

K. EP2401564B1 (“Candeo”)

25. Candeo is titled “Refrigeration Appliance” and was published on Dec. 11, 2017. It describes an ice making appliance. As shown in annotated Fig. 2 below, the ice bin 35 and the removable cover 140 can be selectively removed from and secured to the frame 48 as desired. Candeo at 17:16-18.

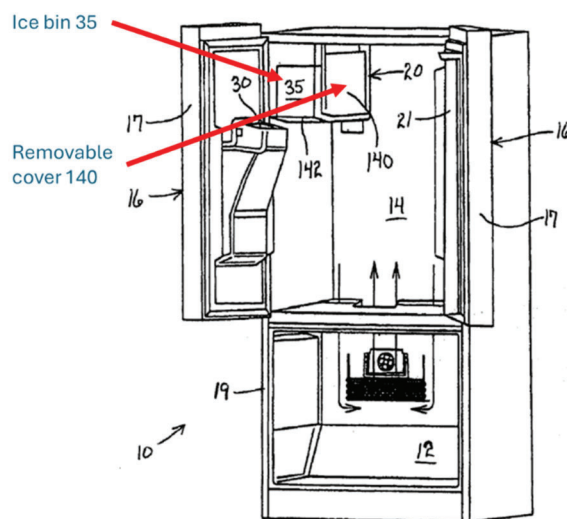


FIG. 2

Specifically, Candeo teaches:

“An illustrative example of the ice maker 20 disposed within the fresh food compartment 14 of the refrigerator 10 is shown in FIG 2. The ice maker 20 can be secured within the fresh food compartment using any suitable

fastener, and includes a removable cover 140 for providing thermal insulation between the fresh food compartment 14 and the interior of the ice maker 20. The cover 140 can optionally be removably secured in place on the ice maker 20 by releasable mechanical fasteners that can be removed using a suitable tool, examples of which include screws, nuts and bolts; or any suitable friction fitting possibly including a system of tabs allowing removal of the cover 140 from the ice maker 20 by hand and without tools.” *Id.* at [0043]

L. Obvious Design Options

26. Contrary to Dr. Reinholtz’s opinion, with all the well-established options used and taught in the prior art, a POSA would have found it obvious to implement several different well-known and conventional designs for a toolless latch to hold a removable conveyor like taught in Konishi and McLaughlin in place. A POSA would have been motivated to prevent the end of the conveyor (opposite the pin on which it pivots) from moving up to secure the device. For example, one obvious design option would have been to prevent the pin that rotates down into the vertical slot during installation from going back up. Some obvious and well-known, conventional options a POSA would have chosen from and easily implemented to this end include the following:

1. Detent Notch

27. A POSA would have known how to create a notch in the side-wall at the bottom of the vertical slot to use the belt tension to hold the pin in place. The

notch makes the vertical slot L-shaped like the saddles 56 taught in Lee. The base of the L-shaped slot is to face away from the pivoting pin. As such, the configuration of the pin and the slot acts like a detent as taught by Momich, with the belt tension pushing the pin into the base of the L-shaped slot. The installation process is the same with no additional steps. To remove the conveyor, the conveyor would just need to be pushed horizontally out of the base of the L-shaped slot against the belt tension and then lifted. This approach requires no tools, requires no additional parts, and automatically locks the pin in place to prevent the conveyor from being lifted.

2. Lock Pin

28. As taught by Schjerven, a POSA would have known to simply create holes in the frame as well as in the sidewall of the conveyor frame that are aligned when the conveyor is in place. After installation, a lock pin is inserted to prevent the conveyor from lifting. The open space inside a conveyor make selection of the holes' location easy.

3. Surface Bolt Latch

29. This approach is typified as a dead-bolt on door and is taught by Lee. A POSA would have known to, just like a door, simply place a surface bolt type latch on the frame such that when extended, the latch bolt extends over the pin (or any other part of the conveyor) and prevents it from moving up. The latch bolt is slid back and forth by hand and requires no tools.

4. Spring Biased Horizontal Bolt Latch

30. This approach acts much like a surface bolt latch but can automatically latch the pin in place during installation, and a POSA would have known how to implement such a device. This can be done the same way conventional door latches works (similar to those in Baillie and Jadallah), with the spring loaded bolt deflecting back when it hits the strike on the door frame and then extends into the strike once it travels far enough. Similarly, to lock a conveyor, the bolt is spring loaded forward to cover the top of the vertical slot and the top of the bolt has an angled/cammed surface. When the pin rotates down it engages the angled/cammed surface to push the bolt back to an open position allowing the pin to enter the vertical slot and then snaps forward once the pin has passed to keep the pin from moving back up. To remove the conveyor, a tab or knob on the latch is pulled back while the conveyor is lifted, which requires no tools.

5. Pivoting Hook/Latch

31. This approach is just like that taught by Herman and Mathues and used extensively in everyday application to keep a lid closed on a container, for example, like a jewelry box. Thus, a POSA would have known how to implement such a device. A rotating hook is mounted on the frame such that after the pin is in place, the hook is rotated so that the pin is in a groove in the hook. The pivot point of the hook is below the pin so that the hook prevents the pin from being lifted. No tool is

required to rotate the hook between the closed position and open position where the conveyor can be installed or removed.

6. Spring Biased Rotating Hook

32. This approach is a simple modification to the pivoting hook approach, such as that disclosed in Matheus. Just like the spring biased horizontal bolt latch, the pivoting hook is spring biased (similar to the spring biased hook in Sugiura) to the locked position with an angled/cammed surface of the top which causes the hook to rotate out of the way when the pin is lowered into the vertical slot. No tools are required, and the conveyor is automatically locked in place when installed and the hook is rotated back by hand to remove the conveyor.

7. Threaded Knob

33. This approach is like that taught by Toby and Gerber, with the pin being long enough to have its end threaded. A knob with a shoulder is rotated by hand to move toward the frame engage a feature on the frame to lock the pin in place. To remove the conveyor, the knob is rotated back and can be used as a handle, as taught by Hursch.

X. RESPONSIVE EVIDENCE TO DR. REINHOLTZ FREE BODY DIAGRAM.

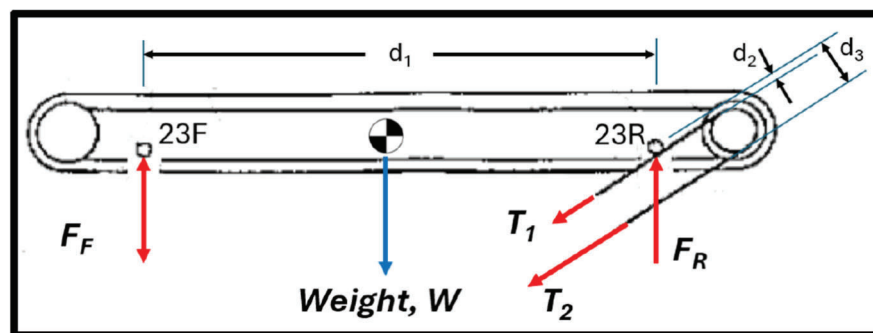
34. In his analysis, Dr. Reinholtz conducted a free-body diagram analyses on Konishi's conveyor subframe 12 (Dr. Reinholtz ¶¶ 63-68) and McLaughlin's

support frame 225 (Ibid. at ¶¶ 69-73). Based on the analysis he concluded that “both Konishi and McLaughlin expressly teach that their conveyor belt units should be lightweight, which would tend to increase the probability they would pop out during operation, absent some physical latching mechanism.” Ibid. at ¶ 68.

35. However, Dr. Reinholtz made the same fundamental error in both analyses by ignoring important forces keeping a conveyor in place. As I described several times in my deposition (for example, pages 30-31, 44 of my deposition, EX2014), friction helps hold a conveyor in place. My analysis shows that his analysis and, therefore, conclusions are incorrect.

A. Konishi Analysis

36. Dr. Reinholtz used the following figure to represent his free-body diagram analysis on Konishi’s conveyor subframe 12. Ibid. at ¶ 64.

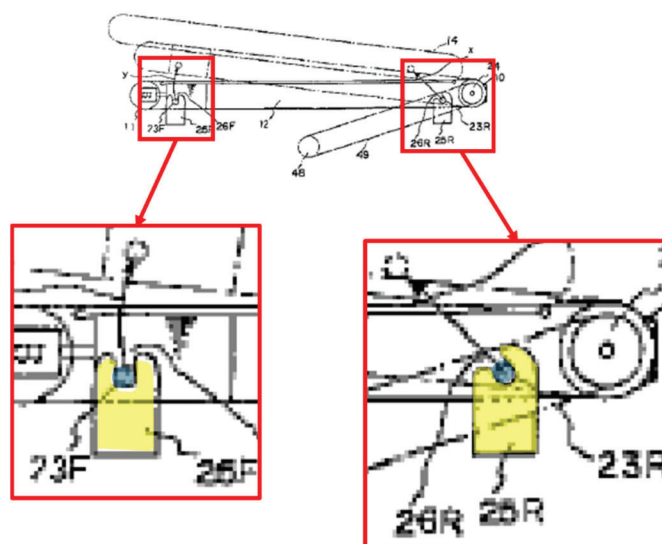


The fundamental error Dr. Reinholtz made in his analysis on Konishi is summarized in his footnote on page 38 which states:

“The belt tension will act to cause pin 23F to slide to the left and out of hook 25R, so a horizontal component of reaction force must also exit at pin 23F. However, for simplicity, this force is not illustrated.”

To start, Dr. Reinholtz does not describe the configuration properly and appears to reference the wrong components. Below is an annotated version of Fig. 8, with blow-ups of the two mounting arrangements at the front and rear. The pins in subframe 12 are highlighted in blue and labeled 23, with the one in the front being 23F and the one in the rear being 23R. They sit in fork-shaped hooks 25 highlighted in yellow attached to frame 9. The front hook 25F has a hook groove 26F that opens straight upward. The rear hook 25R has a hook groove 26R that opens diagonally upward to the left. Konishi at [0021].

【Figure 8】

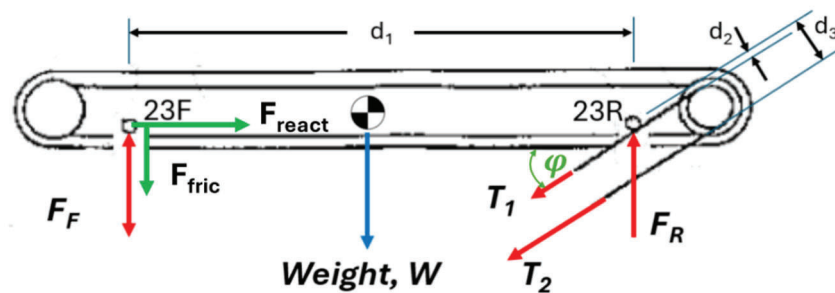


I believe Dr. Reinholtz meant to say the following in his footnote, with the changes emphasized:

“The belt tension will act to cause pin **23R** to slide to the left and out of hook 25R, so a horizontal component of reaction force must also **exist** at pin 23F.”

This statement correctly describes that the force due to the belt tension will try to move the subframe to the left relative to frame 9 and hooks 25. Because the rear hook groove opens diagonally upward to the left, pin 23R cannot react the horizontal force and will otherwise slip out of the groove. However, all of the horizontal belt tension force is reacted by pin 23F. Since that pin sits in a vertical groove, it stays in place and reacts the force generated by the belt tension.

37. I modified Dr. Reinholtz 's free-body diagram to show the reactive forces in green to counteract the horizontal belt tension force (F_{react}) and the resulting frictional force (F_{fric}) between the pin 23F and the wall of hook groove 26F as shown below:



Summing the moments about the rear pin 23R gives the following equation.

$$(F_F - F_{\text{fric}}) * d_1 - W * d_1/2 + T_1 * d_2 + T_2 * d_3 = 0$$

Where the horizontal reaction force (F_{react}) is assumed to act through the axis to pin 23R, so does not create a torque. The friction force to counteract the horizontal forces from the belt tension is given by:

$$F_{\text{fric}} = \mu * F_{\text{react}} = \mu * (T_1 + T_2) * \cos(\varphi)$$

Where μ is the coefficient of friction and φ is the angle of the belts relative to horizontal. Note, the frictional force (F_{fric}) always opposes motion, so, as written would be positive if the pin 23F were to move up.

38. This force balance equation can then be rewritten to determine when the force at 23F (F_F) goes to zero or less, i.e. when the conveyor would lift out of the slot:

$$F_F = W/2 - T_1 * \frac{d_2}{d_1} - T_2 * d_3/d_1 + \mu * (T_1 + T_2) * \cos(\varphi) \leq 0$$

Therefore, the weight can be found at which the conveyor would lift:

$$W/2 \leq T_1 * \frac{d_2}{d_1} + T_2 * d_3/d_1 - \mu * (T_1 + T_2) * \cos(\varphi) < 0$$

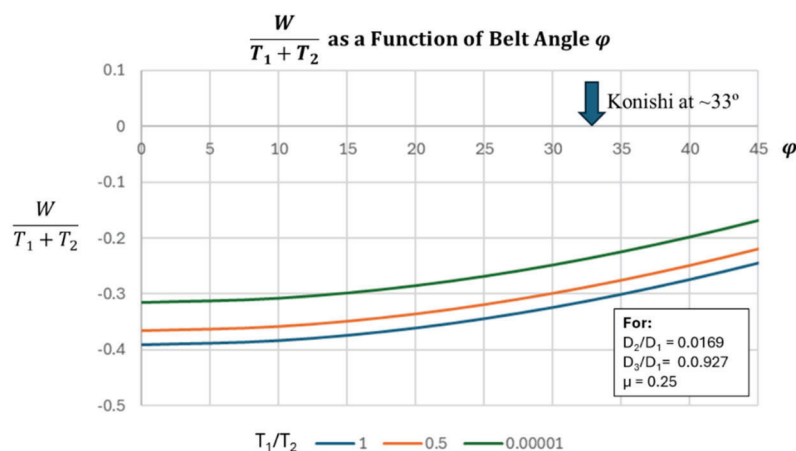
For convenience, the weight below which the conveyor would lift is shown in proportion to the total belt tension force: $T_1 + T_2$:

$$\frac{W}{(T_1 + T_2)} \leq 2 * \left[\frac{d_2/d_1}{\left(1 + \frac{T_2}{T_1}\right)} + \frac{d_3/d_1}{\left(1 + \frac{T_1}{T_2}\right)} - \mu * \cos(\varphi) \right]$$

The chart below plots the results of this equation. For the dimension ratios, I simply scaled them from Dr. Reinholtz's drawing as being representative, but certainly not limiting. I used a conservative estimate for μ , the coefficient of friction between the steel pins and walls of the groove at 0.25. This number is representative for lubricated steel-on-steel friction and is conservative as the friction when dry can be as high as 0.8¹. Some slack-side tension on the belt is highly desirable to ensure enough friction on the pulley to avoid slippage, so it would not be near zero.

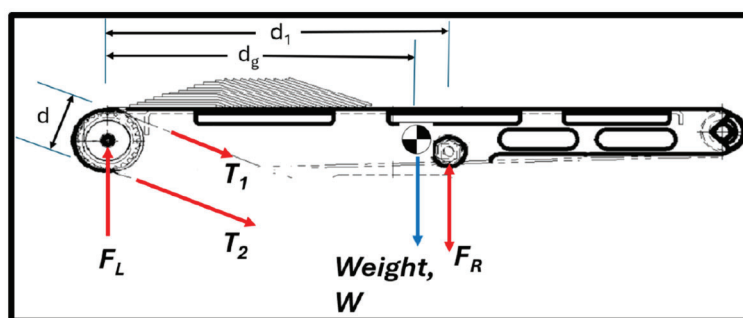
39. The chart plots the ratio of the weight at which the conveyor will lift due to the belt tension as a function of belt angle (φ). The results show that for any T_1/T_2 ratio and at reasonable belt angles, such as illustrated by Konishi at $\sim 33^\circ$, the weight would have to be **NEGATIVE** to satisfy the equation. In other words, one would need to lift the conveyor to have it pop-up in use. There is no weight under which the conveyor will be lifted.

¹ See: https://www.engineeringtoolbox.com/friction-coefficients-d_778.html accessed 8/27/2024.



B. McLaughlin Analysis

40. Dr. Reinholtz used the following diagram to represent his free-body diagram analysis on McLaughlin’s conveyor support frame 225. Reinholtz at ¶¶ 69-73.



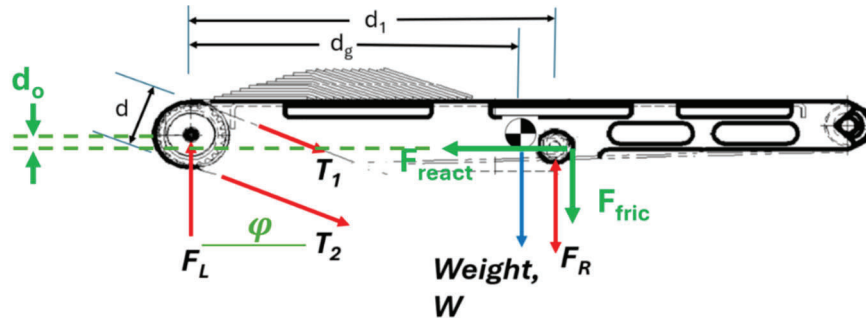
Dr. Reinholtz made the ignored the horizontal reaction and friction forces at the right-most pin in his analysis of McLaughlin. His error analyzing McLaughlin is summarized in his footnote on page 40 which states:

“The belt tension will act to cause the support frame 225 to move to the right with respect to side walls 230. Therefore, a horizontal component of reaction force must

also exit [sic] at the mount at F_R . For simplicity, this component is not shown.”

41. He is correct that the belt tension (T_1 plus T_2) has a horizontal force component that must be reacted at F_R to prevent the support frame 225 from moving horizontally to the right. However, he again incorrectly assumes that the horizontal reaction force at F_R is not significant.

42. I modified Dr. Reinholtz’s free-body diagram to show the reactive forces in green to counteract the horizontal belt tension force (F_{react}) and the resulting frictional force (F_{fric}) at the right-most pin as shown below:



The pin which locks the conveyor in place is vertically offset from the belt pulley center of rotation by an amount I labeled d_o . As such, F_{react} does not act through the center of the pulley and creates a moment to be included. Using the same moment analysis about the belt pulley axis as Dr. Reinholtz, the correct free-body analysis is:

$$F_R * d_1 - W * d_g + (T_2 - T_1) * \frac{d}{2} - F_{\text{fric}} * d_1 - F_{\text{react}} * d_o = 0$$

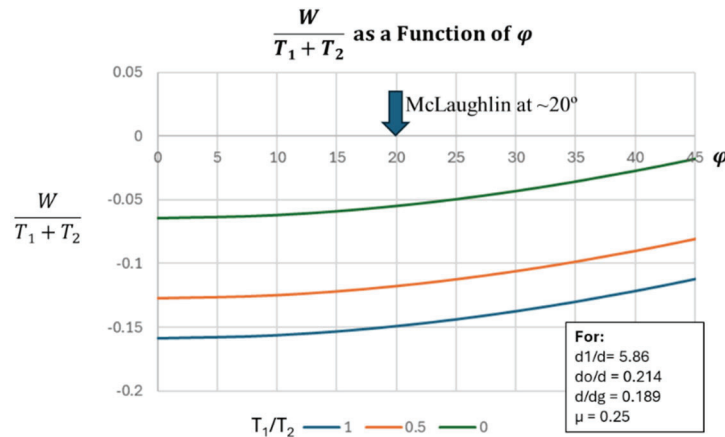
Where $F_{\text{fric}} = \mu * F_{\text{react}}$ and F_{react} is given by:

$$F_{\text{React}} = (T_1 + T_2) * \cos(\varphi)$$

Therefore, as before, the weight at which the conveyor will lift is given by the equation when:

$$\frac{W}{(T_1 + T_2)} \leq \frac{d}{2d_g} * \left[\frac{\left(1 - \frac{T_1}{T_2}\right)}{\left(1 + \frac{T_1}{T_2}\right)} - \cos(\varphi) * \left(\mu * \frac{d_1}{d} + \frac{d_o}{d}\right) \right]$$

As above, the following chart plots this equation for reasonable dimensional ratios scaled from Dr. Reinholtz's illustration with a range of relative tension in the belts (T_1/T_2) and belt angle (φ) with the same conservative estimate of μ as above at 0.25. The results show that for the reasonable belt angles, with McLaughlin at about 20°, at all potential T_1/T_2 ratios the weight would have to be **NEGATIVE** to satisfy the equation. In other words, one would need to lift the conveyor to have it pop-up under use. There is no weight under which the conveyor will be lifted.



XI. SUMMARY OF THE GROUNDS (IN VIEW OF THE MOTION TO AMEND)

43. The below table summarizes the current grounds for unpatentability addressed in my declaration, including the grounds responsive to the motion to amend. A POSA would have known of the below identified prior art, and also would have been aware of the state of the art I discussed in Section VIII.A–C. The discussion of the state of the art is relevant to the entire discussion in my declaration.

Ground	Claims Challenged	35 U.S.C. §	Reference(s)
1	Original: 1, 6, 9, 15-16 Proposed: 25, 29, 30, 33	102	Konishi
2	Original: 1-4, 6, 9-10, 14-16, 22 Proposed: 25-34	103(a)	Konishi, Lindee
3	Original: 1-4, 6, 9-10, 14-16, 22 Proposed: 25-34	103(a)	McLaughlin
4	Original: 1-4, 6, 9-10, 14-16, 22 Proposed: 25-34	103(a)	McLaughlin, Konishi
5	Proposed: 25-34	103(a)	McLaughlin, Herman
6	Proposed: 25-34	103(a)	Konishi, Mathues

Herein, I explain how claims 25-34 of the '487 patent would have been obvious over Konishi and Lindee in light of the knowledge of a POSA.

XII. GROUND 1: KONISHI ANTICIPATES PROPOSED CLAIMS 25, 29, 30, AND 33.

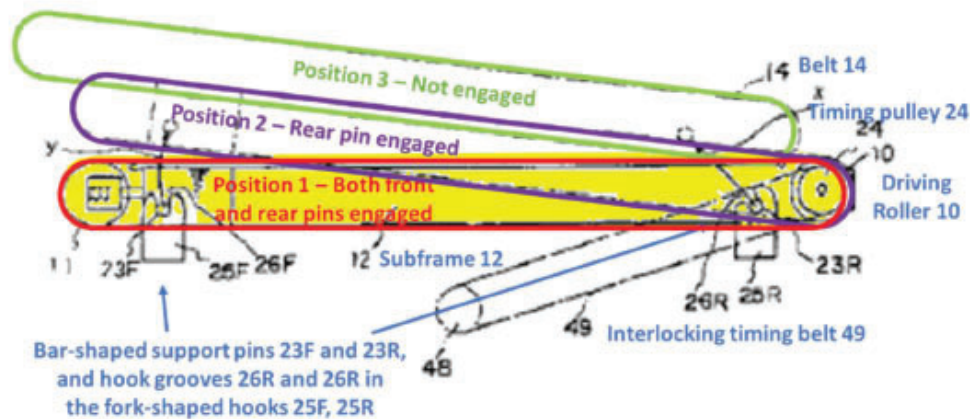
A. Independent Claim 25

44. As reflected in my first declaration, Konishi teaches a removable conveyor belt unit (13) having at least one track and a base (25); a substructure (41) having a mount (11) coupled to the base (25); and a drive (15) coupled to the

conveyor belt unit (13) by a drive belt (27), the conveyor belt unit (13) is configured to be cancelled by relaxing the drive belt (27) and is configured to be established by tautening the drive belt (27), with the relaxing and tautening of the drive belt (27) each being provided by a relative movement between the drive (15) and the conveyor belt unit (13) as in claim 25.

Claim Element	Konishi Exemplary Disclosures
removable conveyor belt unit	conveyor belt 14, subframe 12, and rollers 10-11, timing pulley 24
base	subframe 12
substructure	frame 9
mount	hooks 25R, 25F
drive	drive motor 32
drive belt	timing belt 49, timing pulley 48, conveyor belt 14, timing pulley 24
relaxing/tautening/relative movement	[0033]–[0041]; Figs. 8-9

Figure 8



45. In my first declaration, I noted that Konishi does not expressly disclose a slicing apparatus (such as recited in claim 25), but that Konishi is used in the food industry for confectionaries. I also noted that in Section VI of my first declaration

that the preamble is not a limitation on the scope of the claims. Thus, Konishi does not need to disclose a slicing apparatus to anticipate Independent Claim 25. I also note that Dr. Reinholtz did not opine that the preamble is limiting for any of the claims.

46. Independent claim 25 further recites “wherein the conveyor belt unit (13) is configured to be removed and/or installed without tools.” This limitation adds what I will refer to as the “Toolless Mount” requirement. The addition of this requirement does not change any of my opinions from the first declaration.

47. As shown in my first declaration, Konishi anticipates this claim limitation. Konishi clearly discloses a conveyor that can be installed and/or removed without requiring tools. This is illustrated in my first declaration with the image copied above. And, as I discuss above when rebutting Dr. Reinholtz’s free-body force analysis, a POSA would have understood that the weight and frictional forces at play would have kept the removable conveyor belt unit in place. Konishi teaches that its purpose was to “simplify the structure of the subframe containing the conveyor belt to make it easier to remove the frame.” Konishi, [Purpose]. A POSA would have understood that Konishi’s simple mounting configuration would have not involved tools to install and/or remove the conveyor.

48. As I explained in my first declaration, Konishi extensively describes a toolless installation and/or removal of the conveyor. Thus, Konishi anticipates all elements of claim 25.

B. Dependent Claim 29

49. Dependent claim 29 is anticipated by Konishi.

50. Dependent claim 29 depends from claim 25 and further recites “wherein at least one drive motor (15) for the conveyor belt unit (13) is provided, with the drive motor (15) being directly coupled with the conveyor belt unit (13), and/or unit; and wherein the drive motor (15) is arranged beneath the conveyor belt unit (13).”

51. As discussed in my first declaration in connection with dependent claim 6, and herein, Konishi anticipates these claim limitations. The additional Toolless Mount requirement does not change my opinion, as Konishi already taught a removal process that does not require tools.

C. Dependent Claim 30

52. Dependent claim 30 is anticipated by Konishi.

53. Claim 30 depends from claim 25 and further recites “wherein a respective relative movement is provided between the drive motor (15) and the conveyor belt unit (13) for cancelling and establishing a coupling between a drive motor (15) for the conveyor belt unit (13) and the conveyor belt unit; and wherein

the spacing between the drive axle of the drive motor (15) and a drive axle of the conveyor belt unit (13) is configured to be varied by the relative movement.”

54. As discussed in my first declaration in connection with dependent claim 9, and herein, Konishi anticipates these claim limitations. The additional Toolless Mount requirement does not change my opinion, as Konishi already taught an installation and/or removal process that does not require tools.

D. Dependent Claim 33

55. Dependent claim 33 is anticipated by Konishi.

56. Claim 33 depends from claim 25 and further recites “wherein at least one continuous belt or continuous band (55) or a plurality of parallel continuous straps (57) is/are provided as conveying means of the conveyor belt unit (13).”

57. As discussed in my first declaration in connection with dependent claim 15, and herein, Konishi anticipates these claim limitations. The additional Toolless Mount requirement does not change my opinion, as Konishi already taught an installation and/or removal process that does not require tools.

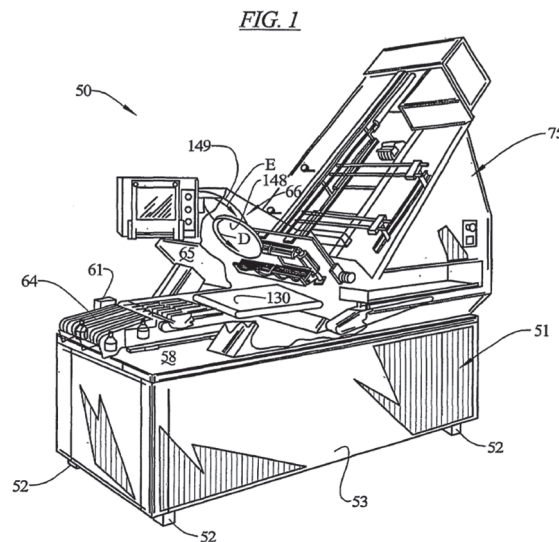
XIII. GROUND 2: KONISHI AND LINDEE IN LIGHT OF THE KNOWLEDGE OF A POSA RENDERS OBVIOUS PROPOSED CLAIMS 25-34.

58. Below, I explain how claims 25-34 of the ’487 patent would have been obvious over Konishi and Lindee in light of the knowledge of a POSA.

A. Independent Claim 25

59. As reflected above and in my first declaration, Konishi teaches the claimed removable conveyor belt unit (13), as in claim 25. Konishi does not explicitly include the non-limiting term in the preamble of a “slicing apparatus for food products.” However, Lindee discloses a slicing apparatus for food products, and would have been obvious to combine Konishi and Lindee with a reasonable expectation of success, as discussed below.

60. As described in my first declaration, Lindee discloses a slicing apparatus for food products. The patent is title “Conveyor system for slicer apparatus.” Lindee, 1. Figure 1 of Lindee shows the slicing apparatus and a number of conveyors.



61. Independent claim 25 further recites “wherein the conveyor belt unit (13) is configured to be removed and/or installed without tools” (the “Toolless Mount” requirement).

62. As shown in my first declaration, Konishi and Lindee in light of the knowledge of a POSA render obvious this claim limitation. Konishi clearly discloses a conveyor mount that does not require tools to install or remove the conveyor. And, as I discuss above when rebutting Dr. Reinholtz’s free-body force analysis, a POSA would have understood that in addition to its weight, friction resulting from forces that react the belt tension forces would keep the removable conveyor belt unit in place at any weight.

63. A POSA would have been motivated to combine Konishi and Lindee using a removable conveyor that can be installed and/or removed without tools for the reasons discussed in my first declaration. For example, Konishi’s purpose was to “simplify the structure of the subframe containing the conveyor belt to make it easier to remove the frame.” Konishi, [Purpose]. A POSA would understand that not needing a tool to install or remove Konishi’s conveyor belt unit would make it easier to install and/or remove because a worker would not need to keep specific tools on them to perform the maintenance and cleaning discussed in Konishi. A POSA would understand that the simplicity of many toolless mount would align with

Konishi's purpose to "simplify the structure" of the subframe. A POSA would have also understood that a more simple mount would not have involved tools. See also Konishi [0047].

64. Additionally, a POSA would have been aware of other prior art that teaches toolless installation and removal. In my first declaration, I mentioned Lee as one example of a reference that, in addition to using gravity alone, also discloses a latch to lock the removable conveyor belt unit in place by a toolless means. Lee discloses that its conveyors were held in place by weight alone, or by a common barrel-bolt latch. Lee, [0020], [0023], [0047]. Further, I address Del Rosso in my first declaration at ¶164. There, I explained that Del Rosso (EX1025) teaches using a latch to secure components related to a weighing conveyor during operation. Del Rosso, 5:19-39. The addition of the Toolless Mount requirement to these claim limitations does not change my opinion.

65. As I explained in my first declaration, these types of removable mounts were well-known in the art at the undergrad level. In addition to Lee and Del Rosso, a POSA would have been aware of all of the toolless prior art I discussed above in the "Toolless Removable Conveyor Prior Art Known by a POSA" section of this declaration. For example, a POSA would have been aware of prior art that teaches pins, grooves, and hooks to lock a removable conveyor belt unit in place. See

Mathues. A POSA would have also been aware of prior art that teaches quick disconnect pins to lock removable conveyor belt units in place. See Schjerven. Further, a POSA would have been aware of knobs and wingnuts used to lock removable conveyor belt units in place. See Toby. A POSA would have been aware of a latch system used to lock removable conveyor belts in place. See Herman. All of these references are part of the knowledge of a POSA described in my combination. Thus, it is my opinion that the combination of Konishi, Lindee, and the knowledge of a POSA (including, but not limited to, the knowledge of Lee, Del Rosso, Matheus, Schjerven, Toby, Herman, and other prior art teaching simple toolless removal) would render obvious independent claim 25.

66. Additionally, as I discussed above in connection with my free-body force analysis, a POSA would have understood that Konishi's conveyor belt would have been designed in a way to stay in place while operating due to its weight and friction, no matter the weight. In my first declaration at paragraph 172, I discussed Lee, which teaches that its removable conveyor belt units were held in place by gravity alone or by a common barrel bolt attachment. See Lee at [0026], [0047]. Specifically, using a toolless mount would only require the known elements of Konishi's removable conveyor and optionally use Lee's latch (or any of the prior art toolless mount I discuss in the "Toolless Removable Conveyor Prior Art Known by

a POSA” section) to lock it in place uses the known methods (such that I describe in the above “Obvious Design Options” section). In other words, implementing a toolless mounting like Konishi (and optionally with a latch like Lee’s or the other prior art’s) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized that the option to include a locking latch or equivalent to Konishi’s toolless mount locks the conveyor in place because the prior art specifically taught this option. For example, Lee [0047]; Mathues [0049].

67. In my first declaration, I provided a number of reasons why a POSA would have been motivated to combine Konishi and Lindee. I also described why a POSA would have a likelihood of success when combining the two references. Therefore, it is my opinion that a POSA would have been motivated to combine Konishi’s removable conveyor belt unit with Lindee’s slicer and had a reasonable likelihood of success for many reasons.

B. Dependent Claims 26 and 27

68. Dependent claims 26 and 27 would have been obvious to a POSA in light of the disclosures in Konishi and Lindee.

69. Claim 26 depends from claim 25 and further recites “wherein the conveyor belt unit (13) is arranged in front of a cutting plane of the slicing apparatus,

viewed in the conveying direction.” Claim 27 depends from claim 25 and further recites “wherein the conveyor belt unit (13) is arranged behind a cutting plane of the slicing apparatus, viewed in the conveying direction.”

70. As discussed in my first declaration with dependent claims 2 and 3, and herein, the combination of Konishi, Lindee, and the knowledge of a POSA render obvious these claim limitations. I also discuss in my first declaration why a POSA would have been motivated to combine Konishi and Lindee in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of toolless removal to these claim limitations does not change my opinion. Adding a toolless mount to a removable conveyor before or after the slicing blade would have been within the skill of a POSA.

71. Using a toolless mount with a removable conveyor before or after the slicing blade would have only required using a conveyor for its intended purpose in a different location. Specifically, using a toolless mount would only require the known elements of Konishi’s removable conveyor. Optionally, the conveyor would be locked in place using Lee’s latch (or any of the prior art toolless mounts I discuss in the “Toolless Removable Conveyor Prior Art Known by a POSA” section) using the known methods described in that prior art (or using the known methods I describe in the above “Obvious Design Options” section) that predictably results in locking

the removable conveyor belt unit. In other words, implementing a toolless mount like Konishi's (and/or using a latch like Lee's or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized that a toolless mount with a locking latch or equivalent would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

C. Dependent Claims 28 and 32

72. Dependent claims 28 and 32 would have been obvious to a POSA in light of the disclosures in Konishi and Lindee and the knowledge of a POSA.

73. Claim 28 depends from claim 25 and further recites "wherein the conveyor belt unit (13) has, viewed in the conveying direction, a belt length or conveyor length which amounts to less than 500 mm." Claim 32 depends from claim 25 and further recites "wherein the conveyor belt unit (13) has a conveying width in the range from approximately 300 mm to 700 mm."

74. As discussed in my first declaration with dependent claims 4 and 14, and herein, the combination of Konishi, Lindee, and the knowledge of a POSA would have rendered obvious these claim limitations. I also discuss in my first declaration why a POSA would have been motivated to combine Konishi and Lindee

in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of a toolless mount requirement to these claim limitations does not change my opinion. Adding a toolless mount to a removable conveyor with the specified dimensions would have been within the skill of a POSA.

75. Using a toolless mount with a removable conveyor with the claimed dimensions would have only required resizing certain components. Specifically, using a toolless mount would only require the known elements of Konishi's removable conveyor and optionally Lee's latch (or any of the prior art toolless mount I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount like Konishi (and optionally with a latch like Lee's or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized these optional toolless locking latches or equivalents would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

D. Dependent Claim 29

76. Dependent claim 29 would have been obvious to a POSA in light of the disclosures in Konishi and Lindee and the knowledge of a POSA.

77. As discussed in my first declaration with dependent claim 6, and herein, the combination of Konishi, Lindee, and the knowledge of a POSA would have rendered obvious these claim limitations. I also discuss in my first declaration why a POSA would have been motivated to combine Konishi and Lindee in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of the Toolless Mount requirement to these claim limitations does not change my opinion. Using a toolless mount with a removable conveyor with a direct coupling would have been well within the skill of a POSA.

78. Using a toolless mount with a removable conveyor with a directly coupled drive would have been nothing more than what is disclosed in the prior art. Specifically, using a toolless would only require the known elements of Konishi's removable conveyor and optionally Lee's latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that

yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount like Konishi's (and optionally with a latch like Lee's or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized a locking latch or equivalent would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

E. Dependent Claim 30

79. Dependent claim 30 would have been obvious in view of Konishi and Lindee in light of the knowledge of a POSA.

80. Claim 30 depends from claim 25 and further recites "wherein a respective relative movement is provided between the drive motor (15) and the conveyor belt unit (13) for cancelling and establishing a coupling between a drive motor (15) for the conveyor belt unit (13) and the conveyor belt unit; and wherein the spacing between the drive axle of the drive motor (15) and a drive axle of the conveyor belt unit (13) is configured to be varied by the relative movement."

81. As discussed in my first declaration with dependent claim 9, and herein, the combination of Konishi, Lindee, and the knowledge of a POSA would have rendered obvious these claim limitations. I also discuss in my first declaration why

a POSA would have been motivated to combine Konishi and Lindee in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of a toolless mount requirement to these claim limitations does not change my opinion. Using a toolless mount with a removable conveyor that is removed using the described relative motion would have been within the skill of a POSA.

82. Using a toolless mount with a removable conveyor with the claimed relative motion removal would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, using a toolless mount would only require the known elements of Konishi's removable conveyor and Lee's latch (or any of the prior art toolless mount I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount (like Lee's or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized these toolless

locking latches or equivalent would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

F. Dependent Claim 31

83. Dependent claim 31 would have been obvious in view of Konishi and Lindee in light of the knowledge of a POSA.

84. Claim 31 depends from claim 25 and further recites “a mount (11) is provided for the conveyor belt unit (13) which remains at the apparatus with a removed conveyor belt unit (13) and at which the conveyor belt unit (13) is configured to be latched, with the latched connection configured to be cancelled for removing the conveyor belt unit (13) and configured to be established for installing the conveyor belt unit (13).”

85. The arguments that I reference in connection to this claim are equally applicable to independent claim 25, as it would have been an obvious design choice to implement a mount and optionally a locking latch or equivalent that did not require tools.

86. As discussed in my first declaration with dependent claim 10, and herein, the combination of Konishi, Lindee, and the knowledge of a POSA would have rendered obvious these claim limitations. I also discuss in my first declaration why a POSA would have been motivated to combine Konishi and Lindee in the ways

provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of a Toolless Mount requirement to these claim limitations does not change my opinion. Using a toolless mount with a removable conveyor with or without a locking latch or equivalent would have been within the skill of a POSA.

87. Using a toolless mount with a removable conveyor with or without a latch would have required nothing more than adding a simple mechanical component to the combination. Specifically, using a toolless mount would only require the known elements of Konishi's removable conveyor and optionally Lee's latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount (like Lee's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee. A POSA would have recognized these toolless locking latches or equivalent would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

G. Dependent Claim 33

88. Dependent claim 33 would have been obvious in view of Konishi and Lindee and the knowledge of a POSA.

89. Claim 33 depends from claim 25 and further recites “wherein at least one continuous belt or continuous band (55) or a plurality of parallel continuous straps (57) is/are provided as conveying means of the conveyor belt unit (13).”

90. As discussed in my first declaration with dependent claim 15, and herein, the combination of Konishi, Lindee, and the knowledge of a POSA would have rendered obvious these claim limitations. I also discuss in my first declaration why a POSA would have been motivated to combine Konishi and Lindee in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of a toolless mount to these claim limitations does not change my opinion. Using a toolless mount with a removable conveyor with the described conveyor belts or bands would have been within the skill of a POSA.

91. Using a toolless mount with a removable conveyor with the claimed belt types would have only required exchanging the conveyor belts (and potentially other components) for other known belts and adding a latch. Implementing a toolless locking latch or equivalent (like Lee’s or the other prior art’s) would have been a

known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized these toolless mounts would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

H. Independent Claim 34

92. Independent claim 34 would have been obvious in view of Konishi and Lindee and the knowledge of a POSA.

93. Claim 34 claims a device similar to that of claim one, except it has the additional requirements of two drives. Specifically, claim 34 claims: A slicing apparatus for food products, the slicing apparatus comprising: at least one removable conveyor belt unit (13) having at least one track and a base (25); a substructure (41) having a mount (11) coupled to the base (25); and a first drive (15) is coupled to the conveyor belt unit (13) at the left side and at a second drive (15) at the right side, when viewed in the conveying direction, the coupling between the drives (15) and the conveyor belt unit (13) is configured to be simultaneously cancelled and established for at least one of the first drive (15) and the second drive (15); wherein the conveyor belt unit (13) is configured to be removed and/or installed without tools.

94. As discussed in my first declaration with independent claim 22, and herein, the combination of Konishi, Lindee, and the knowledge of a POSA would have rendered obvious these claim limitations. I also discussed in my first declaration why a POSA would have been motivated to combine Konishi and Lindee in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of the Toolless Mount requirement to these claim limitations does not change my opinion. Using a toolless mount with a two-lane, two-drive removable conveyor belt unit would have been within the skill of a POSA.

95. Using a toolless mount with a removable conveyor with two drives would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, using a toolless mount would only require the known elements of Konishi's removable conveyor and optionally Lee's latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless locking latch or equivalent (like Lee's or the other prior

art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized these toolless locking latches or equivalent would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

XIV. GROUND 3: MCLAUGHLIN IN LIGHT OF THE KNOWLEDGE OF A POSA RENDERS OBVIOUS PROPOSED CLAIMS 25-34.

96. Below, I explain how proposed claims 25-34 of the '487 patent would have been obvious over McLaughlin in light of the knowledge of a POSA.

Claim	McLaughlin Exemplary Disclosures
removable conveyor belt unit	conveying surface 210 and support frame 225 of check scale 200
Base	support frame 225
substructure	sidewalls 230, horizontal plate 260, and motor 250
mount	first and second attachment points
drive	motor 250
drive belt	belt 251
relaxing/tautening/relative movement	Figure 2

A. Independent Claim 25

97. As shown in my first declaration, McLaughlin teaches a removable conveyor belt unit (13) having at least one track and a base (25); a substructure (41) having a mount (11) coupled to the base (25); and a drive (15) coupled to the conveyor belt unit (13) by a drive belt (27), the conveyor belt unit (13) is configured to be cancelled by relaxing the drive belt (27) and is configured to be established by tautening the drive belt (27), with the relaxing and tautening of the drive belt (27)

each being provided by a relative movement between the drive (15) and the conveyor belt unit (13). Claim 25. McLaughlin also teaches the non-limiting term in the preamble of a “slicing apparatus for food products.”

98. In my first declaration, I provided a number of reasons why a POSA would have found understood that McLaughlin’s check scale was a removable conveyor belt unit, and that a POSA would have had a reasonable expectation of success making McLaughlin’s conveyor belt removable.

99. Independent claim 25 further recites “wherein the conveyor belt unit (13) is configured to be removed and/or installed without tools.”

100. As shown above and in my first declaration, McLaughlin in light of the knowledge of a POSA render obvious this claim limitation. A POSA would have understood that McLaughlin’s removal process would not require any tools. McLaughlin’s shape and structure of sidewalls 230 and support frame 225 show that those two components are designed to interconnect. I also explained how a POSA would have appreciated that the interconnecting fit between the two components would be designed to be tight enough to not require any additional tools to lock the conveyor belt unit to the substructure. As I explained in my first declaration in paragraph 230, a POSA would have designed the conveyor such that it was held in place by gravity alone. And, as explained above in Section XI, there is no weight

below which the belt tension will cause the conveyor to lift out of engagement. I also explained in paragraph 232 that a POSA would have known of simple, toolless components like “detent fits, snap fits, latches” that would have been used to optionally lock the conveyor belt unit in place. I further explained that the combination of McLaughlin, Konishi, Lee, and other prior art that a POSA would have been aware of would make it well within the skill of a POSA to implement a toolless locking means.

101. Additionally, a POSA would have been aware of other prior art that teaches toolless installation and removal. In my first declaration, I mentioned Lee as one example of a reference that in addition to using gravity alone, also discloses a latch to lock the removable conveyor belt unit in place by a toolless means. Lee discloses that its conveyors were held in place by weight alone, or by a common barrel-bolt latch. Lee, [0020], [0023], [0047]. Further, I address Del Rosso in my first declaration at ¶223. There, I explained that Del Rosso (EX1025) teaches using a latch to secure components relating to weighing conveyors during operation. Del Rosso, 5:19-39. The addition of the Toolless Mount requirement to these claim limitations does not change my opinion.

102. In addition to Lee and Del Rosso, a POSA would have been aware of all of the toolless prior art I discussed above in the “Toolless Removable Conveyor

Prior Art Known by a POSA” section of this declaration. For example, a POSA would have been aware of prior art that teaches pins, grooves, and hooks to lock a removable conveyor belt unit in place. *See* Mathues. A POSA would have also been aware of prior art that teaches quick disconnect pins to secure removable conveyor belt units. *See* Schjerven. Further, a POSA would have been aware of knobs and wingnuts used to secure removable conveyor belt units. *See* Toby. A POSA would have been aware of a latch system used to secure removable conveyor belts. *See* Herman. All of these references are part of the knowledge of a POSA described in my combination. Thus, it is my opinion that the combination of Konishi, Lindee, and the knowledge of a POSA would render obvious independent claim 25.

103. As I explained in my first declaration, it would have been within the skill of a POSA to implement any of these toolless mounts to secure a removable conveyor belt unit in place. In response to Dr. Reinholtz’s opinions, I provide examples of how a POSA would have been able to do this in the “Obvious Design Options” section above. A POSA would have had an expectation of success when implementing any of these toolless mounts because the prior art explicitly teaches how to implement the devices. Further, these types of toolless mounts are well known devices in the art, and would have even been well known at the undergrad level. Implementing a toolless mount would have been well within the skill of a

POSA at the relevant time, and would involve the use of well-known and conventional components in a familiar manner. There would have been no unexpected results stemming from implementing a toolless mount to lock a removable conveyor belt unit in place.

104. Additionally, as I discussed above in connection with my free-body force analysis, a POSA would have understood that Konishi's conveyor belt would be designed in a way to stay in place while operating due to its weight and friction, no matter the weight. In my first declaration at paragraph 172, I discussed Lee, which teaches that its removable conveyor belt units were held in place by gravity alone or by a common barrel bolt attachment. See Lee at [0026], [0047]. Using a toolless mount with a removable conveyor would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, using a toolless mount would only require the known elements of Konishi's removable conveyor and optionally use Lee's latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) to lock it in place uses the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section). It yields the predictable and expected result of locking the removable conveyor belt unit. In other words,

implementing a toolless mounting like Konishi (and optionally with a latch like Lee's or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized these toolless mounts would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

B. Dependent Claims 26 and 27

105. Dependent claims 26 and 27 would have been obvious to a POSA in light of the disclosures in McLaughlin.

106. Claim 26 depends from claim 25 and further recites "wherein the conveyor belt unit (13) is arranged in front of a cutting plane of the slicing apparatus, viewed in the conveying direction." Claim 27 depends from claim 25 and further recites "wherein the conveyor belt unit (13) is arranged behind a cutting plane of the slicing apparatus, viewed in the conveying direction."

107. As discussed in my first declaration with dependent claims 2 and 3, and herein, McLaughlin and the knowledge of a POSA render obvious these claim limitations. I also discuss in my first declaration why a POSA would have been motivated to arrange McLaughlin in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing

so. The addition of a Toolless Mount requirement to these claim limitations does not change my opinion. Using a toolless mount means with a removable conveyor before or after the slicing blade would have been well within the skill of a POSA.

108. Using a toolless mount with a removable conveyor before or after the slicing blade would have required nothing more than relocating the conveyor and using it for the same purpose. Specifically, adding a toolless mount would only require the known elements of McLaughlin's removable conveyor. Optionally, the conveyor would be locked in place using Lee's latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount like McLaughlin's (and/or using a latch like Lee's or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized that a toolless mount with a locking latch or equivalent would improve McLaughlin by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

C. Dependent Claims 28 and 32

109. Dependent claims 28 and 32 would have been obvious to a POSA in light of the disclosures in McLaughlin and the knowledge of a POSA.

110. Claim 28 depends from claim 25 and further recites “wherein the conveyor belt unit (13) has, viewed in the conveying direction, a belt length or conveyor length which amounts to less than 500 mm.” Claim 32 depends from claim 25 and further recites “wherein the conveyor belt unit (13) has a conveying width in the range from approximately 300 mm to 700 mm.”

111. As discussed in my first declaration with dependent claims 4 and 14, and herein, McLaughlin and the knowledge of a POSA render obvious these claim limitations. I also discuss in my first declaration why a POSA would have been motivated to arrange McLaughlin in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of a Toolless Mount requirement to these claim limitations does not change my opinion. Using a toolless mount means with a removable conveyor of the claimed dimensions would have been well within the skill of a POSA.

112. Using a toolless mount with a removable conveyor of the claimed dimensions would have only required resizing parts of the conveyors and adding a latch. Specifically, adding a toolless mount would only require the known elements

of McLaughlin's removable conveyor. Optionally, the conveyor would be locked in place using Lee's latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the predictable and expected result of locking the removable conveyor belt unit. A POSA would have recognized that a toolless mount with a locking latch or equivalent would improve McLaughlin by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

D. Dependent Claim 29

113. Dependent claim 29 would have been obvious to a POSA in light of the disclosures in McLaughlin and the knowledge of a POSA.

114. As discussed in my first declaration with dependent claim 6, and herein, McLaughlin and the knowledge of a POSA render obvious these claim limitations. I also discuss in my first declaration why a POSA would have been motivated to arrange McLaughlin in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of a Toolless Mount requirement to these claim limitations does not change my

opinion. Using a toolless mount means with a removable conveyor with a directly coupled drive would have been well within the skill of a POSA.

115. Using a toolless mount with a removable conveyor with a directly coupled drive would have only required following the prior art's disclosure. Optionally, the conveyor would be locked in place using Lee's latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section). Implementing a toolless mount like McLaughlin's (and/or using a latch like Lee's or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized that a toolless mount with a locking latch or equivalent would improve McLaughlin by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

E. Dependent Claim 30

116. Dependent claim 30 would have been obvious to in view of McLaughlin in light of the knowledge of a POSA.

117. As discussed in my first declaration with dependent claim 9, and herein, McLaughlin and the knowledge of a POSA render obvious these claim limitations. I also discuss in my first declaration why a POSA would have been motivated to arrange McLaughlin in the ways provided by these claims, and I explained why a

POSA would have had a reasonable expectation of success in doing so. The addition of a Toolless Mount requirement to these claim limitations does not change my opinion. Using a toolless mount means with a removable conveyor that is removed using the described relative motion would have been well within the skill of a POSA.

118. Using a toolless mount with a removable conveyor that is removed using the described relative motion would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, adding a toolless mount would only require the known elements of McLaughlin's removable conveyor. Optionally, the conveyor would be locked in place using Lee's latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount like McLaughlin's (and/or using a latch like Lee's or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized that a toolless mount with a locking latch

or equivalent would improve McLaughlin by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

F. Dependent Claim 31

119. Dependent claim 31 would have been obvious in view of McLaughlin in light of the knowledge of a POSA.

120. The arguments that I reference in connection to this claim are equally applicable to independent claim 25, as it would have been an obvious design choice to implement a mound and optionally a locking latch or equivalent that did not require tools.

121. As discussed in my first declaration with dependent claim 10, and herein, McLaughlin and the knowledge of a POSA render obvious these claim limitations. I also discuss in my first declaration why a POSA would have been motivated to arrange McLaughlin in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of a Toolless Mount requirement to these claim limitations does not change my opinion. Using a toolless mount means with a removable conveyor with or without a locking latch or equivalent would have been well within the skill of a POSA.

122. Using a toolless mount with a removable conveyor would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, adding a toolless mount would only require the known elements of McLaughlin's removable conveyor. Optionally, the conveyor would be locked in place using Lee's latch using the known methods described in that prior art that yields the predictable and expected result of locking the removable conveyor belt unit. A POSA would have recognized that a toolless mount with a locking latch or equivalent would improve McLaughlin by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

G. Dependent Claim 33

123. Dependent claim 33 would have been obvious in view of McLaughlin and the knowledge of a POSA.

124. As discussed in my first declaration with dependent claim 15, and herein, McLaughlin and the knowledge of a POSA render obvious these claim limitations. I also discuss in my first declaration why a POSA would have been motivated to arrange McLaughlin in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of a Toolless Mount requirement to these claim limitations does

not change my opinion. Using a toolless mount means with a removable conveyor with the described conveyor belts or bands would have been well within the skill of a POSA.

125. Using a toolless mount with a removable conveyor with the claimed belt types would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, adding a toolless mount would only require the known elements of McLaughlin's removable conveyor. Implementing a toolless mount like McLaughlin's (and/or using a latch like Lee's or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized that a toolless mount with a locking latch or equivalent would improve McLaughlin by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

H. Independent Claim 34

126. Independent claim 34 would have been obvious in view of McLaughlin and the knowledge of a POSA.

127. As discussed in my first declaration regarding independent claim 22, McLaughlin and the knowledge of a POSA would have rendered obvious these claim

limitations. I also discuss in my first declaration why a POSA would have been motivated to arrange McLaughlin in the ways provided by these claims, and I explained why a POSA would have had a reasonable expectation of success in doing so. The addition of the toolless mount requirement to these claim limitations does not change my opinion. Using a toolless mount with a two-lane, two-drive removable conveyor belt unit would have been within the skill of a POSA.

128. Using a toolless mount with a removable conveyor with two drives would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, using a toolless mount would only require the known elements of McLaughlin's removable conveyor and optionally Lee's latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless locking latch or equivalent (like Lee's or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Lee or the other prior art. A POSA would have recognized these toolless locking latches or equivalent would improve

McLaughlin by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049].

XV. GROUND 4: MCLAUGHLIN AND KONISHI RENDERS CLAIMS OBVIOUS PROPOSED CLAIMS 25-34.

129. Below, I explain how claims 25-34 of the '487 patent would have been obvious over McLaughlin and Konishi in light of the knowledge of a POSA.

A. Independent Claim 25

130. I addressed above how McLaughlin discloses or renders obvious every element of claims 25-34. I also addressed above how Konishi discloses and renders obvious every element of claims 25-34.

131. In my first declaration, I provided a number of reasons why a POSA would have been motivated to combine Konishi and McLaughlin. I also described why a POSA would have a likelihood of success when combining the two references. Therefore, a POSA would have been motivated to combine McLaughlin's known structure with the teachings of Konishi (its removal/installation process).

132. In my first declaration, and above, I provided many reasons why a POSA would have been motivated to implement a toolless mount on McLaughlin's removable conveyor belt unit. I provided similar reasons for why a POSA would have been motivated to implement a toolless mount for Konishi's removable conveyor belt unit. For both references, I also provided reasons why a POSA would

have a likelihood of success when making any required modifications. The reasons explained above in Ground 2 and Ground 3 also apply here.

B. Dependent Claims 26-33

133. In my first declaration, and above, I provided many reasons why a POSA would have found it obvious to combine McLaughlin and Konishi in a way that meets the additional limitations of dependent claims 26-33. I also explained how a POSA would have been motivated to implement a toolless mount for McLaughlin's and Konishi's removable conveyor belt units. I also explained how the results of this combination would have been expected and only required the implementation of well-known and conventional devices for their well-known and intended means.

134. All of that applicable analysis is incorporated here by reference.

C. Independent Claim 34

135. In my first declaration, and above, I provided many reasons why a POSA would have found it obvious to combine McLaughlin and Konishi in a way that meets the additional limitations of independent claims 34. I also explained how a POSA would have been motivated to implement a toolless mount for McLaughlin's and Konishi's removable conveyor belt units. I also explained how this would have provided a foreseeable result and been the implementation of well-known and conventional devices for their intended means.

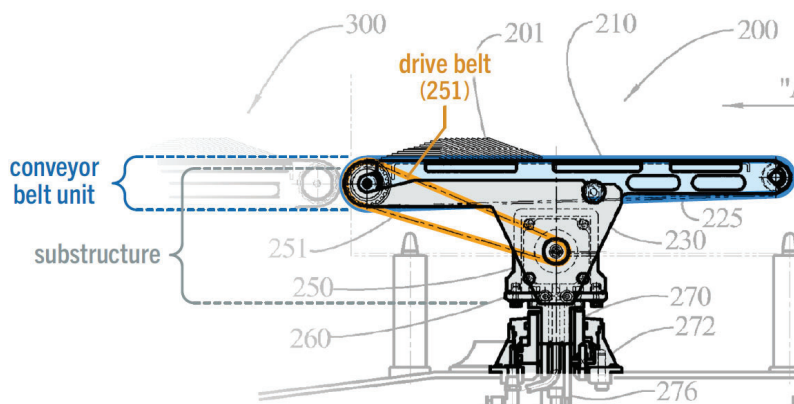
136. All of that applicable analysis is incorporated here by reference.

XVI. GROUND 5: MCLAUGHLIN, HERMAN, AND THE KNOWLEDGE OF A POSA RENDER OBVIOUS PROPOSED CLAIMS 25-34.

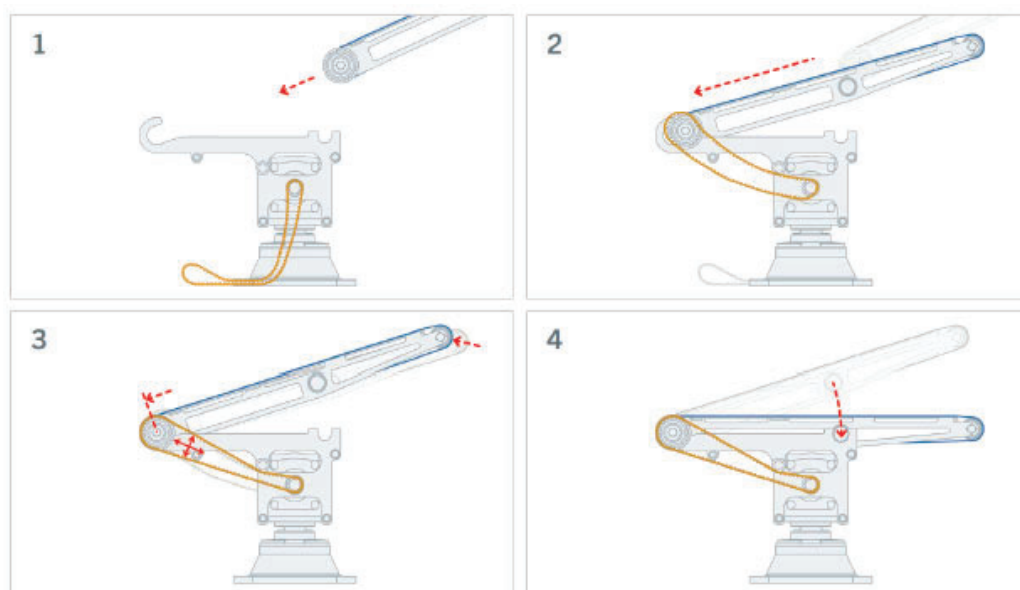
137. Below, in response to the Motion to Amend, I explain how proposed claims 25-34 would have been obvious over McLaughlin, Herman, as well as the knowledge of a POSA. I further explain how it would have been obvious to modify McLaughlin as claimed, if any such modifications are even required. Further, I explain how a POSA would have had a reason to combine and a reasonable expectation of success when making such combination.

A. Independent Claim 25

138. Independent claim 25 would have been obvious in view of McLaughlin, Herman, and the knowledge of a POSA. The below chart briefly summarizes the teachings of McLaughlin that correspond to the relevant claim limitations in the '487 patent's independent claim 25:



Claim Element	McLaughlin Exemplary Disclosures
removable conveyor belt unit	conveying surface 210 and support frame 225 of check scale 200
base	support frame 225
substructure	sidewalls 230, horizontal plate 260, and motor 250
Mount	first and second attachment points
Drive	motor 250
drive belt	belt 251
relaxing/tautening/relative movement	Figure 2



139. I incorporate by reference the McLaughlin analysis that I conducted in my first declaration, and I particularly note Section XIII, ¶¶184–197. The above chart and the previously cited sections of my first declaration illustrate how McLaughlin renders obvious the below claim language identified in Patent Owner’s motion to amend:

Inter Partes Review of U.S. Pat. No. 9,457,487

John M. Collins, Ph.D. Declaration

25. (Substitute for Claim 1) A slicing apparatus for food products, the slicing apparatus comprising:
a removable conveyor belt unit (13) having at least one track and a base (25);
a substructure (41) having a mount (11) coupled to the base (25); and
a drive (15) coupled to the conveyor belt unit (13) by a drive belt (27), the conveyor belt unit (13) is configured to be cancelled by relaxing the drive belt (27) and is configured to be established by tautening the drive belt (27), with the relaxing and tautening of the drive belt (27) each being provided by a relative movement between the drive (15) and the conveyor belt unit (13)[[.]];

140. For example, along with the other limitations of original claim 1, claim 25 further recites the limitation “wherein the conveyor belt unit (13) is configured to be removed and/or installed without tools.”

141. As discussed in my first declaration, it is my opinion that McLaughlin renders obvious this claim limitation and the subject matter of the claim as a whole, including the claimed installation and removal process. For example, a POSA would have appreciated that the interconnecting fit between the conveyor belt unit and substructure would have been designed to be tight enough to be secure without any additional tools. These interconnecting fits would have been easily designed to be a snap fit, for example (or any other kind of known fit), that would allow the removable conveyor belt unit to snap into place. A POSA would have known that such a snap fit would require nothing more than the snap fit’s restraint and the weight of the conveyor belt unit to hold that conveyor belt unit in place. Snap fits were common and conventional at the time of the invention. A snap fit is a form of a

toolless detent, and I note that Dr. Reinholtz agreed that toolless detents were known in the art before the '487 patent. Reinholtz Dep 147-149.

142. In addition to McLaughlin on its own rendering this claim limitation obvious, the combination of McLaughlin and Herman in light of the knowledge of a POSA further renders this claim obvious.

143. Herman issued on June 29, 2004. Herman is teaches a conveyor unit in a doughnut glazing machine, and is thus relevant prior art from the food industry. Herman teaches that its conveyor belt units are attached to the rest of Herman's machine by "support rods that project outward from the base" of the conveyor unit and by "a second engagement element to retain he conveyor unit" and that the "second engagement element preferably takes the form of a latch." Herman at 3:24-44. Herman further teaches that the "retention of the conveyor units 32 and 58 on the support rods 30 is facilitated by the use of a latch 90 shown in Figs. 5-7." Herman at 7:17-20.

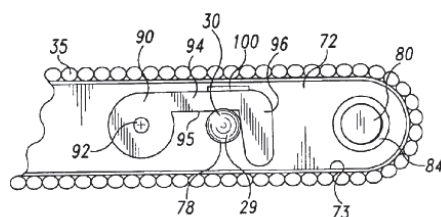


Fig. 6

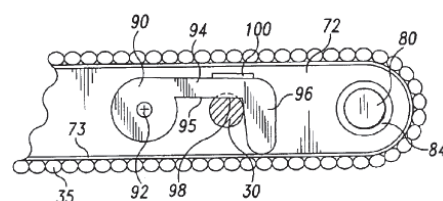


Fig. 7

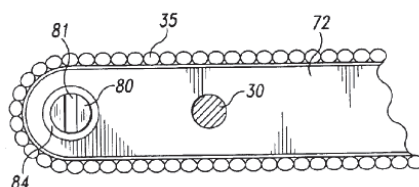


Fig. 8

144. Herman further teaches that its latch has a “handle” and that the handle “permit[s] manual disengagement of the latch from the groove.” *Ibid.* at 3:42-44. Herman teaches that the handle “permits the latch to be quickly and easily disengaged from the slot 98 to permit removal of the conveyor as a unit from the machine 10.” *Ibid.* at 7:30-40. Herman teaches the benefit of the quick and easy removal: “the conveyor assembly can be easily washed...without further disassembly.” *Ibid.* at 38-41. In light of all of these disclosures, a POSA would understand that Herman’s latch is a toolless latch. The explicit discussion of

“manual disengagement” and “quick[] and eas[y] disengage[ment]” would inform a POSA that Herman’s latch did not require tools to latch/unlatch.

145. It would have been obvious to a POSA to use the concept of Herman’s toolless latch with McLaughlin’s removable conveyor. A POSA would have been motivated to combine McLaughlin and Herman because Herman’s latch provides the benefit of locking McLaughlin’s removable conveyor belt unit into its supporting structure. McLaughlin and Herman are both in the same technological field as the ’487 patent, namely including conveyance systems. McLaughlin and Herman also disclose conveyor systems used in the food industry. McLaughlin and Herman are also both relevant to the alleged problem addressed by the ’487 patent—removing conveyors from conveyance lines for cleaning and maintenance.

146. As I discussed above and in my first declaration, McLaughlin discloses a slicer, an apparatus for food products, a removable conveyor belt unit having at least one track and a base, a substructure having a mount coupled to the base, and a drive coupled to the conveyor belt unit that is configured to be cancelled by relaxing the drive belt and is configured to be established by tautening the drive belt, with the relaxing and tautening of the drive belt each being provided by a relative movement between the drive and the conveyor belt unit. In addition, using a toolless latch to lock a conveyor belt unit is disclosed in Herman. Using removable conveyor belt

units in systems similar to both McLaughlin and Herman were also well known in the art. See Konishi; see also Iwakoshi. It would have been obvious to modify McLaughlin to include the concept of Herman's latch to lock the conveyor belt unit so that McLaughlin's removable conveyor is not accidentally lifted out of place. See Lee [0047].

147. A POSA would have been well aware of removable conveyor assemblies. See Konishi, Lindee, McLaughlin, Lee, Herman, Mathues. A POSA would have also known about the advantages of removable conveyor belts, including improving the ease of assembly/disassembly, maintenance, and sanitation. See Konishi [Purpose]; see also Herman Abstract, 1:25-31, 1:58-2:2, 2:18-22, 2:50-52, 7:38-41. This is particularly true and important when dealing with conveyors used in the food processing industry. *Ibid.* Indeed, Konishi explicitly states that its disclosure creates a simple structure wherein the subframe side can be easily disassembled and assembled from the frame, and maintenance such as cleaning of each mechanical part can be performed reliably and efficiently, and the waterproof performance of the weight detector and motor can be ensured with a simple configuration. Konishi [0007], [0013]. And Herman states that its food handling equipment "requires daily cleaning that requires significant non-productive time by personnel." Herman 1:25-31. Thus, a POSA would have understood the

maintenance, cleaning, and other advantages provided by a removable conveyor belt unit by the time of the invention. Further, Herman teaches that its conveyors “are releasable as a unit from the supports to facilitate cleaning of the apparatus.” *Ibid.* Abstract. Herman also teaches that its releasable conveyor units “facilitate cleaning of the conveyor units.” *Ibid.* 2:50-52.

148. A POSA would have also been aware that locking a removable conveyor belt unit using a toolless mechanism would allow for quick and easy removal while preventing the conveyor belt unit from being accidentally knocked out of place during use. See Lee [0047]; Mathues [0049]; Herman 7:34-42. Locking the conveyor belt unit in place would prevent disruption in processes by ensuring that any workers who accidentally bumped into the machine or conveyor belt during operation would not dislodge the belt.

149. A POSA would have also been aware that locking a removable conveyor belt unit using a toolless mechanism would allow for quick and easy removal while preventing the conveyor belt unit from being lifted out of place due to the reactive forces that the conveyor belt unit would experience during normal operation. See Lee [0047]. A POSA would understand from this teaching that a toolless mechanism for locking would secure the conveyor belt unit against a number of reactive forces, including friction due to conveying the food, forces due to

malfunctions of the conveyor belt unit or any surrounding equipment, forces due to food getting lodged between conveyors during normal operation, and similar reactive forces. Because a POSA would have been aware of how these reactive forces can effect removable conveyor units, a POSA would have been motivated to add a toolless mount to McLaughlin's removable conveyor belt unit.

150. There are many reasons a POSA would have been motivated to use a removable conveyor belt unit in the food processing space before the '487 patent. First, for example, a POSA would have been motivated to use a removable conveyor belt unit to simplify assembly/disassembly. Simplifying the assembly/disassembly of a removable conveyor belt unit has many benefits, including reducing the amount of time to complete any task that requires removing/installing the conveyor belt assembly. Such tasks include cleaning and maintenance procedures, and also include things like initial set up of the conveyor system or disassembly/assembly required to relocate the conveyor system.

151. Second, as another example, a POSA would have been motivated to use a removable conveyor belt unit to improve maintenance before the '487 patent. A POSA would have valued having a removable conveyor belt assembly so that the conveyor assembly could be removed to facilitate easy access to other components in the food processing line. Konishi explicitly teaches such advantage: "As described

above, all mechanical parts can be disassembled and assembled as desired. Therefore, maintenance of various parts that cannot be accessed because they are obstructed by other mechanisms or parts in the assembled position, which is a normal state in use, can be easily and reliably performed by exposing them by disassembling the product.” Konishi, [0042]. Not only would the removal the conveyor belt unit provide easier access to other components that require maintenance, but it would also promote easier and more flexible maintenance of the actual conveyor belt unit. If a worker was able to relocate the conveyor belt unit to a separate work surface or area of the factory, the worker would be able to easier manipulate the orientation of the conveyor belt unit to access different sides of the conveyor belt unit. Further, the worker could perform more intense repair/maintenance (like welding a stress fracture, if it occurred) away from the rest of the food processing line, which would reduce the risk of damaging other parts of the food processing line during the more intense repair/maintenance.

152. Third, as yet another example, a POSA would have been motivated to use a removable conveyor belt unit to improve cleaning. Maintaining clean and sanitize equipment is an important consideration in the food processing industry. If equipment is not regularly cleaned and/or sanitized, and food processing company risks an outbreak of bacteria or foodborne-illness, which, at a minimum would harm

the food processing company's reputation, and, at worse, could result in death. Konishi explicitly teaches that the ease of removing the conveyor belt unit promotes efficient cleaning: "In addition, efficient cleaning means such as showering can be used to thoroughly clean the entire area and maintain sanitary management." Konishi, [0042]. Lindee also explicitly teaches that removing conveyor units is part of a regular cleaning procedure: "The conveyor and telescopic drive shaft are removable for cleaning and sanitizing." Lindee, 10. Removing the conveyor assembly allows easy access to portions of the machine that are otherwise obstructed, and that easy access allows for easier cleaning.

153. Fourth, a POSA would have been motivated to use a removable conveyor belt unit to readily facilitate swapping conveyor belt surfaces. For instance, if a drive roller began to fail, a conveyor belt began to fray, or a frame began to crack, a POSA would have recognized that a removable conveyor that could be quickly and easily removed would have decreased the down time for a conveyance line because that conveyor belt unit could be readily swapped with another similar conveyor belt unit.

154. In my opinion, a POSA would have been motivated to use McLaughlin's removable conveyor belt unit with the ideas of Herman's latching

system in order to achieve the benefits discussed above, including improving maintenance, cleaning, and space saving.

155. In addition to the reasons discussed above, is my opinion that a POSA would have recognized that applying the concept Herman's latch to McLaughlin's removable conveyor belt unit is a combination of known elements using known methods that provides foreseeable results. For example, a POSA would have designed the attachment points of McLaughlin such that a pin extended out from the attachment point. A POSA then would have installed Herman's latch on the permanent structure of the slicer and used it to secure the removable conveyor belt unit after it has been installed. Further, if necessary, a POSA would have re-oriented the latch in a manner that would secure the conveyor belt unit against the specific forces that the removable conveyor belt unit would have seen during operation or accidental contact. A POSA would have done this by observing which direction the removable conveyor belt unit was most likely to accidentally be knocked out of place, and then orienting the latch in a way that opposed those forces. Additionally, as I explained in the "Obvious Design Options" section, a POSA would have added a spring to the latch to bias the latch in the closed direction, locking the latch and removable conveyor belt unit. Installing a spring biased latch would have been a simple substitution of one element (Herman's latch) for another known in the field

(a spring biased latch such as Sugiura's) that does provides foreseeable results (locking the removable conveyor belt unit).

156. For similar reasons, a POSA would have recognized that using Herman's known latch to lock McLaughlin's known removable conveyor belt unit would improve McLaughlin in the same way that it improved Herman. Specifically, McLaughlin and Herman are similar devices because they are both conveyors used in the food industry. Herman would add the benefit and function to McLaughlin that was already known in the art, i.e. locking removable conveyor belt units. See Herman; Lee. This would have been nothing more than using a known technique (Herman's latch) to improve a similar device (McLaughlin's conveyor belt unit) in the same way.

157. Therefore, it is my opinion that a POSA would have been motivated to combine McLaughlin's removable conveyor belt unit with Herman's latch in view of the knowledge in the art.

158. In my opinion, a POSA would have had a reasonable expectation of success implementing the concept of Herman's latch into McLaughlin's removable conveyor belt unit. Implementing a removable conveyor belt unit is a common and well-known process that is used in multiple industries, including the food processing industry. See Section VIII.C of first declaration. Implementing a removable

conveyor belt unit simply requires using the same components (belts, supports, rollers, etc.) that are already disclosed in the prior art. Implementing a toolless mount on a removable conveyor belt unit also only requires the addition of well-known, conventional, and simple mechanical components (latches, pins, detents, friction fits, etc.) to the teachings of McLaughlin. In my experience, these sorts of devices used in these systems would have been taught at an undergrad level. The relative motion and toolless securing principles would have also been taught at the undergrad level. Therefore, implementing a removable conveyor belt unit would have been well within the skill of a POSA and would have resulted in foreseeable improvements.

159. My opinion that a POSA would have a reasonable expectation of success in implementing a removable conveyor belt unit is further supported by the fact that the process for how to install and remove a removable conveyor belt unit is explicitly taught in Konishi. Based on Konishi's express teachings, as well as both a POSA's own background knowledge and the background prior art, a POSA would have been well aware of how to implement a removable conveyor belt unit (like that taught in McLaughlin) with a toolless mount (like that taught in Herman).

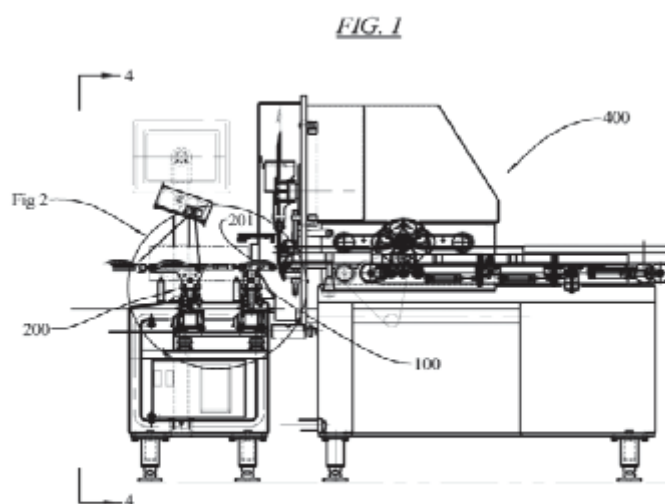
160. For all of the above reasons, a POSA would have had a reason to combine McLaughlin and Herman's teachings to arrive at the claimed invention,

with a reasonable expectation of success. Accordingly, claim 25 would have been obvious over McLaughlin and Herman in light of the knowledge of a POSA.

B. Dependent Claims 26 and 27

161. Dependent claims 26 and 27 would have been obvious to a POSA in light of the disclosures in McLaughlin and Herman.

162. McLaughlin discloses a slicing apparatus with a cutting plane. McLaughlin states “This invention relates in general to slicing systems and methods of weighing sliced food products.” McLaughlin, 1:15-16. McLaughlin’s background of the invention also discusses “slicing machines” such as those disclosed in a patent incorporated by reference. McLaughlin, 1:20-26.



McLaughlin Figure 1

163. McLaughlin illustrates a removable conveyor belt unit. A POSA would have known the benefits of a removable conveyor belt unit that were discussed in

the other relevant prior art discussed above in Section VIII.C. A POSA would have known that those benefits would have been recognized whether the removable conveyor was before or after the cutting plane. For example, Lindee discloses that its conveyor belt unit is removable for sanitation and cleaning. As another example, Konishi also discloses that its conveyor belt units are removable for sanitation and cleaning. In light of this knowledge, a POSA would have been motivated to make the conveyors that are arranged in front of and arranged behind the cutting plane removable. A POSA would have been motivated to make these changes for the reasons discussed above regarding independent claim 25. A POSA would also have a reasonable expectation of success for the reasons that I discussed above regarding claim 25. To create a removable conveyor belt unit that is arranged before the cutting plane, a POSA would have only had to follow the design of Figure 2's check scale 200 and implement such a conveyor before the cutting plane, which would involve simply moving parts, and would not change the purpose of the conveyor belt unit.

164. Accordingly, claims 26 and 27 would have been obvious.

C. Dependent Claims 28 and 32

165. Dependent claims 28 and 32 would have been obvious to a POSA in light of the disclosures in McLaughlin, Herman, and the knowledge of a POSA.

166. McLaughlin does not explicitly state the exact dimensions of its conveyors. However, I note that Lindee discloses the dimensions of its conveyor, and it falls within the scope of claim 4, and renders obvious claim 14. Lindee states that “According to the preferred embodiment, the conveying surface has a working area (X, Y) of about 9 inches (229 mm) by 9 inches (229 mm.)” Lindee, 7. In addition to Lindee’s explicit teaching, implementing conveyors as claimed, which uses a conveyor less than 500 mm long and a width in the approximate range of 300 mm to 700 mm, would have been obvious for a number of reasons.

167. Further, a POSA would have found it obvious to implement conveyors within the claimed standard size dimensions. First, a POSA would have been motivated to implement a removable conveyor belt unit with the claimed dimensions because the claimed dimensions are practical for purposes of installation and removal. A practically sized conveyor would be easier for one person to install or remove. A conveyor significantly larger conveyor would be unwieldy to lift and carry around a factory floor. A conveyor significantly larger would also likely require more than one person to remove and carry throughout a factory floor. It is beneficial to require only one person to remove and carry a removable conveyor belt unit because if the unit needs to be removed for maintenance purposes, only one maintenance person would need to be dispatched to address any issues. Another

benefit of only requiring one person for removal is that one person is able to disassemble and reassemble the conveyor for cleaning. Though there may be reasons to have more than one person involved in the assembly and disassembly of a conveyor belt unit (e.g., safety), the option to have one person preform these actions is a beneficial time saving measures.

168. Additionally, conveyors of a relatively short size are beneficial in many manufacturing and processing applications, including food processing, because floor space on a factory floor is in high demand. Designing machines and conveyors that are of relative short size help to save floor space so that additional manufacturing and processing equipment can be fit into the factory. Additionally, having shorter conveyors on a line saves time during manufacturing and processing. Shorter conveyors can save time because there would necessarily be a shorter overall distance that the objects would need to be conveyed. Increasing the speed of a conveyor can make up for long distances in some cases, but is sometimes disfavored, because faster speed increase the likelihood that the objects being conveyed would be disturbed by higher accelerations and decelerations.

169. Second, a POSA would have been aware of prior art that discloses conveyors with the same dimensions as the conveyors described in the specification and the claims. As I discussed above, Lindee discloses conveyors that fall within the

claim range. For instance, Exhibits 1021 at 64:64-65:1 (“To accommodate as large a proportion as possible of the full range of product items which may need to be scanned, the Hyperlabel scanner 1500 is designed to accurately scan any item which fits on the 500 mm wide conveyor 1014 of the checkout 1000.”), 1022 at 5 (“In the illustrated embodiment, zone conveyors 24 are illustrated at .5 meters in length, but may be of greater or lesser length.”), 1027 at 7-8 (“The conveyor length is not critical; a typical length for conveyors 1163 and 1165, Figure 2, is about twelve inches (30 cm).”), 1028 at 6:49-67 (“Slicing machine 50 further comprises a system of short conveyors for advancing food loaves from loaf feed mechanism 75 into slicing head 66. The short conveyor systems are actually a part of loaf feed mechanism 75.”), and 1029 at 25:57-26:7 (“FIG. 16 illustrates three typical loaf cross-section outlines L1, L2, and L3 that may be sliced in slicing machine 50. The two outlines L1 are illustrative of rectangular loaves approximately four inches (102 mm) in height by six and one-half inches (165 mm) in width.”) disclose conveyors that fall within the claim ranges.

170. Additionally, I understand that the simply rearranging known parts is an obvious matter of design choice, especially if the functionality of those devices remains the same. Here, rearranging the structure of the conveyor belt units by changing the size of the conveyor belt units would not have changed the functionality

of the conveyor belt units. I also note that the '487 patent does not tie any particular advantages to the claimed dimensions. Indeed, in my experience, changing the dimensions of such a conveyor would not change the basic function of the conveyor, or create any unanticipated results.

171. A POSA would have had a reasonable expectant of success to for adjusting the dimensions of a conveyor to meet the claim limitations. There are no changes in principles or relevant physics by decreasing or increasing the size of a conveyor belt unit. Increasing or decreasing the size of a conveyor belt unit would involve all of the same components as the components disclosed in the prior art.

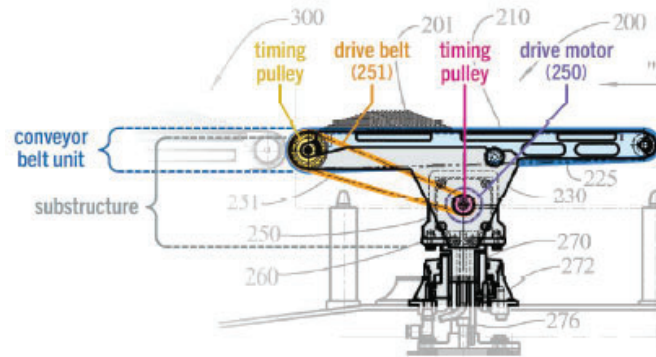
172. Accordingly, claims 28 and 32 would have been obvious.

D. Dependent Claim 29

173. Dependent claim 29 would have been obvious to a POSA in light of the disclosures in McLaughlin, Herman, and the knowledge of a POSA.

174. The '487 patent's specification describes what it contemplates a "direct drive" connection to include: "there is consequently a direct drive connection between the drive motor and the conveyor belt unit 13 via the drive belt 27 which runs around the drive shaft 51 of the motor and the drive wheel 44 of the conveyor belt unit 13." '487 patent, 8:34-38.

175. McLaughlin discloses such a drive motor. McLaughlin states that “The conveying surface is driven by a belt 251 coupled to a motor 250, situated beneath the conveying surface 210.” McLaughlin, 3:40-44. McLaughlin’s Figure 2 illustrates this connection.



McLaughlin Annotated Figure 2

The drive motor 250 is directly coupled with the timing pulley that is a part of support frame 225. Further, as the preceding quote and Figure shows, McLaughlin specifically teaches that its motor is “situated beneath the conveying surface 210.” A POSA would have also been aware of other prior art that discloses arranging a motor beneath a conveying surface. Johnson, 13:30-32, Figure 7; Konishi. Additionally, these teachings would have informed a POSA that such motor placement is an obvious matter of design choice.

176. Additionally, a POSA would have had a reason to place the motor beneath the conveyor belt unit. This would allow for the overall footprint of the machine to be smaller, as compared to having the motor place to the side of the

conveyor belt unit. Reducing machine footprint size is an important consideration in processing and manufacturing facilities where floor space is at a premium. Additionally, a POSA would typically avoid placing a motor above a conveyor belt unit that handles food because any drips or debris coming from the motor (or maintenance of the motor) would fall into the food being conveyed.

177. A POSA would have had a reasonable expectation of success when placing the motor beneath the conveyor belt unit because the arrangement is already taught by the prior art. Such an arrangement only requires simply rearranging known parts (motors, belts, supporting structure, etc.). Rearranging those partes does not provide any unforeseeable results.

178. Accordingly, claim 29 would have been.

E. Dependent Claim 30

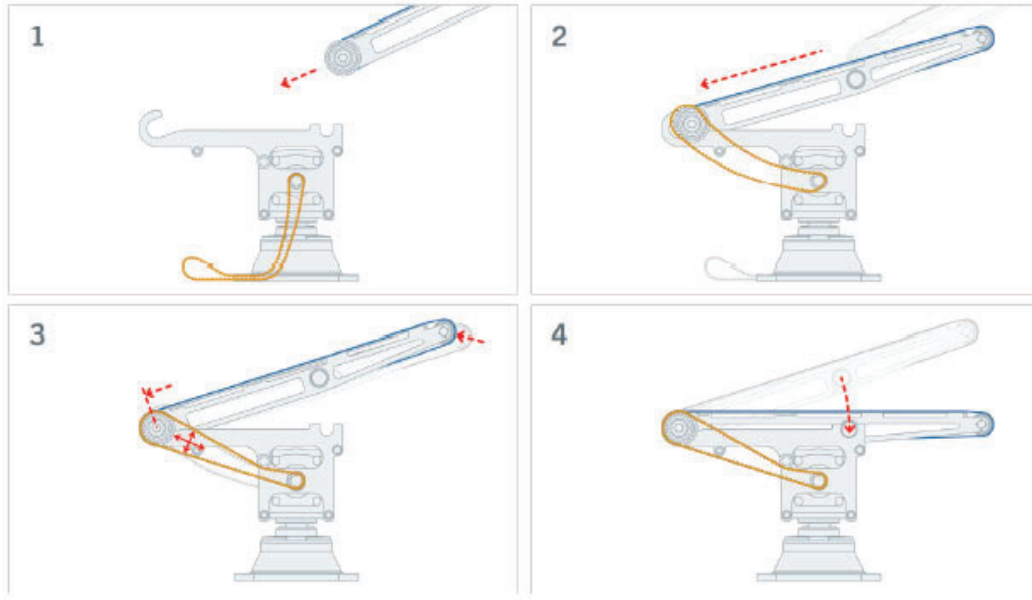
179. Dependent claim 30 would have been obvious to in view of McLaughlin and Herman in light of the knowledge of a POSA.

180. The obviousness support I discuss in connection with claim 25, including the motivation to combine and reasonable expectation of success, applies here.

181. McLaughlin renders obvious the apparatus in accordance with claim 25 further comprising wherein a respective relative movement is provided between the

drive motor and the conveyor belt unit for cancelling and establishing a coupling between a drive motor for the conveyor belt unit and the conveyor belt unit; and wherein the spacing between a drive axle of the drive motor and a drive axle of the conveyor belt unit is configured to be varied by the relative movement. McLaughlin discloses these requirements for all of the reasons I discussed above in connection with Independent Claim 25.

182. McLaughlin renders obvious “wherein the spacing between a drive axle of the drive motor (15) and a drive axle of the conveyor belt unit (13) is configured to be varied by the relative movement.” McLaughlin’s timing pulley that is attached to the conveyor belt unit frame 225 acts as a drive axle for that conveyor belt unit. McLaughlin’s timing pulley that is attached to the drive motor, and the shaft that connects the drive motor to that timing pulley, act as the drive axle for the drive motor. McLaughlin’s conveyor belt unit timing pulley is moved relative to McLaughlin’s drive motor timing pulley and shaft during the removal and installation steps described above in connection with Claim 25. The relative movement discussed in those steps varies the spacing between the conveyor belt unit’s drive axle and the drive motors drive axle.



183. Accordingly, claim 30 would have been obvious.

F. Dependent Claim 31

184. Dependent claim 31 would have been obvious in view of McLaughlin and Herman in light of the knowledge of a POSA.

185. The arguments that I reference in connection to this claim are equally applicable to independent claim 25, as it would have been an obvious design choice to implement a latch that required tools or that did not require tools. An example of the claimed mount is the hooks 25R and 25F from Konishi.

186. A POSA would have been aware of other prior art that discusses latch connections for conveyor belt units. As a first example, Lee teaches removable conveyors. Lee, Abstract. Lee states that its conveyor assemblies can be held in place in different manners disclosed in multiple embodiments. *Ibid.*, [0047]. Lee states

that “the use of one or more hold down springs and/or common barrel-bolt latches” are used to prevent the conveyors from being accidentally lifted out of place. *Ibid.* Lee also teaches that a latch provides the additional benefit of preventing the conveyor from being lifted out of place due to any reactive force created by conveying food product. *Ibid.* Thus, in my opinion, a POSA would have been motivated to add a latch to the McLaughlin for the reasons described in Lee. Using a latch, or other known ways to secure a mechanical structure, was an obvious matter of common sense and would be tailored to the appropriate application by one of ordinary skill.

187. A POSA would have had a reasonable expectation of success when adding a latch, like that disclosed in Lee, to the McLaughlin. Lee already teaches how to implement a latch system for a removable conveyor belt unit. *Ibid.* In my experience, using latches to secure devices would have been well known even at the undergrad level and potentially used in an undergrad design exercises and an obvious design choice. Thus, implementing a latch system to hold a removable conveyor belt unit into place would have been well within the skill of a POSA at the relevant time, and would involve the use of well-known and conventional components in a familiar manner. A POSA would have had a further expectation of success in implementing the latch because other prior art discloses the use of latches to lock conveyors. For

instance, Exhibit 1025 at 5:19-39 discloses using a latch device to lock components related to a weighing conveyor. Also, Exhibit 1024's Abstract discusses a "releasable" conveyor belt system, and discusses using a "quick release" mechanism to release the conveyor belt system.

188. Accordingly, claim 31 would have been obvious.

G. Dependent Claim 33

189. Dependent claim 33 would have been obvious in view of McLaughlin and Herman in light of the knowledge of a POSA.

190. McLaughlin states that "The conveying surface can be on continuous surface or a series of belts arranged longitudinally along the direction of travel, as shown in FIG. 1, or other conveying arrangements commonly known to one skilled in the art." McLaughlin, 4:29-32. Thus, McLaughlin explicitly teaches that its conveyor surfaces would have been either one continuous belt or band or a plurality of parallel continuous straps. Further, a POSA would have been aware of other disclosures in the art, like Lindee, that I discussed above. Lindee states that "The conveying surface 216 is shown schematically as a wide belt, but could also be a plurality of spaced apart ribbons." Lindee, 6. The disclosures in McLaughlin and Lindee show that using either one continuous belt or a plurality of strap belts were known in the art, and known to be interchangeable for most applications.

191. A POSA would have had a reasonable expectation of success in implementing either a continuous belt or a plurality of parallel continuous straps. Using a single conveyor belt or a plurality of continuous straps would have only required substituting one type of conveyor belt for another, along with changing out some of the components of the rollers that directly interface with the conveyor belt. There would have been no unexpected results when implementing either a single conveyor belt or a plurality of continuous straps.

192. Accordingly, claim 33 would have been obvious.

H. Independent Claim 34

193. Independent claim 34 would have been obvious in view of McLaughlin, Herman, and the knowledge of a POSA.

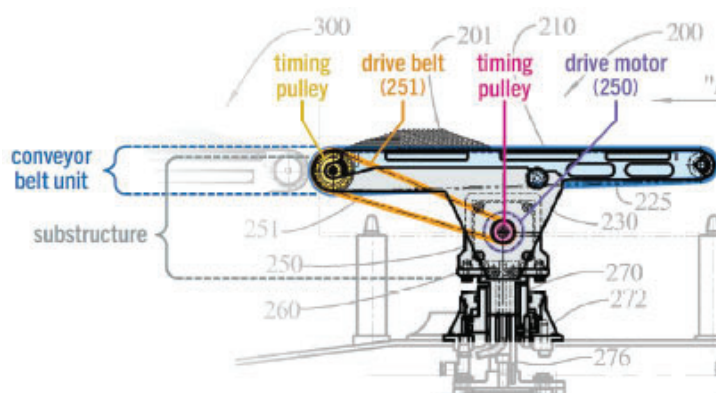
194. As discussed above in connection with Independent Claim 25, McLaughlin and Herman would have rendered obvious all of the elements of Independent Claim 25. The evidence I discussed above for Claim 25's preamble, element 1[A], and element 1[B] applies here to render obvious the claim 34 preamble, element 34[A], element 34[B]. In addition to this evidence, McLaughlin would have rendered obvious the additional elements of claim elements 22[C1], 22[C2], and 22[C3], for the reasons I explain below.

195. A POSA would understand many benefits would be recognized by adding a second lane. For example, a second lane with a second drive would increase production by allowing a second food loaf, sliced food product, or object to be conveyed. As another example, a second lane with a second drive would increase throughput by essentially doubling the number of conveyed food loaves objects that would be conveyed at any given time.

1. Element 22[C1]

196. Element 22[C1] would have been obvious in light of McLaughlin and Herman in light of the knowledge of a POSA at the time of the '487 patent, including “a first drive is coupled to the conveyor belt unit at the left side...when viewed in the conveying direction.”

197. McLaughlin discloses a drive motor that is coupled to its conveyor belt unit at the left side of the conveyor when viewed in the conveying direction.



2. Element 22[C2]

198. Element 22[C2] would have been obvious in light of McLaughlin and the knowledge of a POSA at the time of the '487 patent, including “at a second drive (15) at the right side, when viewed in the conveying direction.”

199. McLaughlin states that its disclosure contemplates multiple drives. McLaughlin states that “In other embodiments, it is possible to have multiple streams of conveying surfaces such that multiple drafts are processed simultaneously using the present invention.” McLaughlin, 5:11-13. Further, a POSA would have been aware of the significant number of references discussed in my first declaration Section VIII.B–C that teach slicers with two individually driven lanes. As one example, Lindee discloses a slicing machine with two independently driven tracks, those motors on either side of the two independently driven tracks, described as a “dual independent feed slicer.” Lindee, 12, Figure 1. Lindee refers to Johnson for this exemplary teaching, a patent that it incorporates by reference. Johnson’s Figure 6 and Figure 7 specifically illustrate motors driven on the left or right side, and, specifically, Figure 6 shows the drive configuration for a two-track conveyor system. Johnson also provide a detailed explanation of Figure 6 at 12:36-53. This kind of two drive system was common in the art by the time of the alleged invention around 2012, as I discussed in my first declaration Section VIII.B.

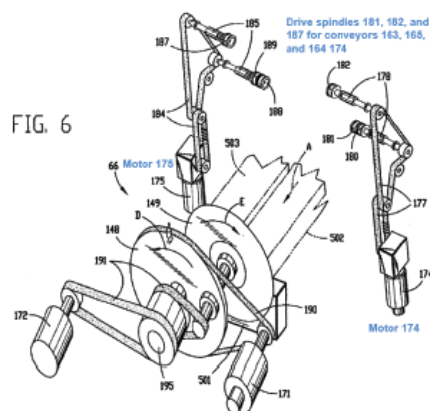
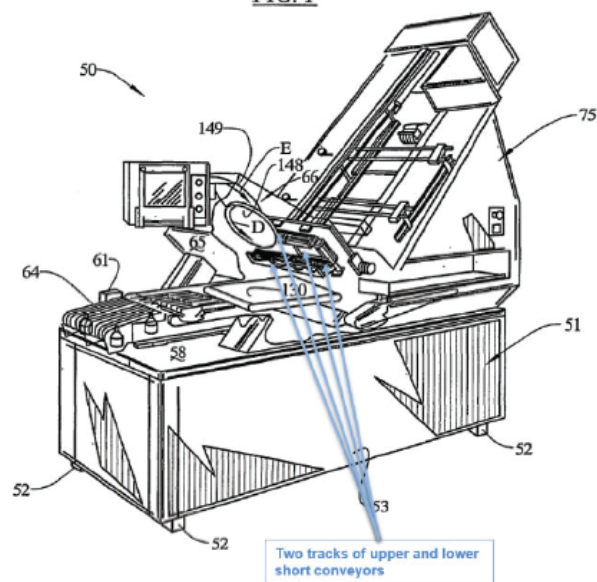


FIG. 1



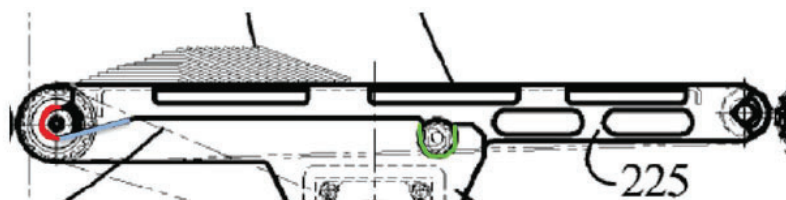
200. Additionally, adding an additional drive motor to McLaughlin would only require mirroring the embodiment shown in Figure 2. This would have only required that the designer flip the drive roller so its drive pulley was on the opposite side of the machine, and that the designer move the motor so that its drive extended from the other side of the machine. This may have required moving some other components, but rearranging components like this would have been well within the skill level of a POSA. Relocating these kinds of parts in this situation is a simple

design technique that would have been taught at the undergrad level, and potentially implemented during a design project. A POSA would have had a reasonable expectation of success because the rearrangement of parts would have been simple.

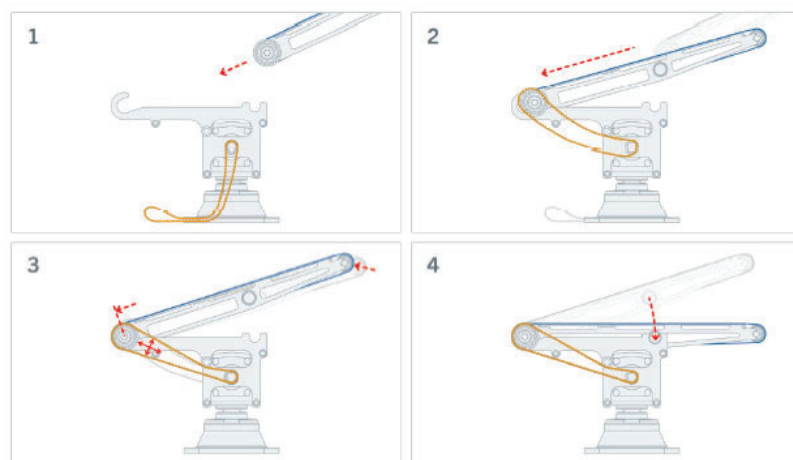
3. Element 22[C3]

201. Element 22[C2] would have been obvious in light of McLaughlin and Herman in light of the knowledge of a POSA at the time of the '487 patent including “the coupling between the drives (15) and the conveyor belt unit (13) is configured to be simultaneously cancelled and established for at least one of the first drive and the second drive.”

202. One means to cancel or establish a drive is by tautening or loosening a drive belt around a timing gear or pulley. McLaughlin teaches this type of cancelling/establishing. As I explained in my first declaration Section XIII.A.5, a POSA would have understood based on McLaughlin's Figure 2 that McLaughlin's removable conveyor belt unit has a drive that is cancelled or established when the conveyor belt unit is moved to the right. I paste below the Figures that illustrate the movement of installing/removing McLaughlin's conveyor belt unit.



McLaughlin Annotated Figure 2.



203. Further, a POSA would have been aware of other prior art that discloses the cancelling and establishing of a drive coupling. For instance, as discussed above, Konishi discloses this.

4. Additional Obviousness Support

204. All of the reasons I discussed above and in my first declaration Section XIII.A.6 also apply here. For those reasons, it would have been well within the skill of a POSA to make any necessary modifications to McLaughlin, and a POSA would have been motivated at the time of the '487 patent to make such a combination.

205. For example, a POSA would have been motivated to implement an embodiment of McLaughlin with two independently driven lanes for multiple reasons. A POSA would have known that a second lane and a second drive would have increased production and throughput without unexpected results or challenges in this circumstance. This is supported by the prior art such as Julian, [0008], and Mueller, [0002]. Productivity would be increased for similar reasons as the throughput increase. I also note that, as I discussed above and in my first declaration Section VIII.B, a number of food slicing machines with multiple lanes were known before the time of the '487 patent.

206. Further, it would have been obvious to a POSA to modify McLaughlin in a manner that would allow for the two drives to be cancelled at the same time. This would have only required a mirroring of McLaughlin's Figure 2 teachings. For example, the POSA would only need to put the second driving roller on the same axis as the first driving roller. The POSA would also only need to put the second drive motor approximately in the same location as the first drive motor. This arrangement would mean that moving the two-lane conveyor belt unit in the way that Figure 2 makes obvious would loosen or tauten the first and second drive melt simultaneously. The simultaneous loosening/tautening would simplify the installation or removal process. Those processes would be simplified because only

one movement would be required to loosen or tauten both belts, as opposed to two or more intervening movements to tighten or loosen the belt. A simpler installation/removal process would provide time saving benefits during maintenance and cleanings.

207. Further, it would be more economical to have two tracks (or lanes) in one machine. Having these two tracks in one machine would take up less overall floor space, as an entire second machine would not be required. Having the second track in one machine would also benefit from efficiencies of sharing components, such as only requiring one machine controller. Therefore, adding a second track would have only required a simple duplication of existing parts at the time of the alleged invention in 2012. A POSA would have had a reasonable expectation of success because it would have only required a duplication of well-known and predictable components.

208. The addition of a toolless mount to these claim limitations does not change my opinion. Adding a toolless mount to a two-lane, two-drive removable conveyor with the described conveyor belts would have been within the skill of a POSA. Adding a toolless mount to a two-lane conveyor would require very similar, if not identical (depending on the arrangement of parts), skills, knowledge, and components as would be required to add a toolless mount to a single lane conveyor.

This is because the supporting structure of the removable conveyor belt unit would be very similar for a single-lane or two-lane conveyor belt unit. Specifically, the side walls of the unit would be constructed in a similar manner, and a POSA would install the toolless mount on the sidewalls of the conveyor unit.

209. Adding a toolless mount to a removable conveyor with the two-lane, two-drive conveyor belt would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, adding a toolless mount would only require the known elements of McLaughlin's removable conveyor or optionally adding the concept of Herman's latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount (like Herman's or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Herman or the other prior art. A POSA would have recognized these toolless mounts would improve McLaughlin by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049]; Herman 7:17-20.

210. A POSA would have had a reasonable expectation of success in implementing a toolless mount to lock a removable conveyor belt unit for the reasons I discussed above in connection with independent claim 25. As an example, a POSA would have had a reasonable expectation of success because implementing a removable conveyor belt unit locked by a toolless means also only requires the addition of well-known, conventional, and simple components (latches, pins, detents, friction fits, etc.) to the teachings already known in McLaughlin.

211. Accordingly, claim 34 would have been obvious.

XVII. GROUND 6: KONISHI AND MATHUES RENDER OBVIOUS PROPOSED CLAIMS 25-34.

212. Below, in response to the Motion to Amend, I explain how claims 25-34 of the '487 patent would have been obvious over Konishi, Mathues, and the knowledge of a POSA. I further explain how it would have been obvious to modify Konishi as claimed, if any such modifications are required. Further, I explain how a POSA would have had a reason to combine and a reasonable expectation of success when making such combination.

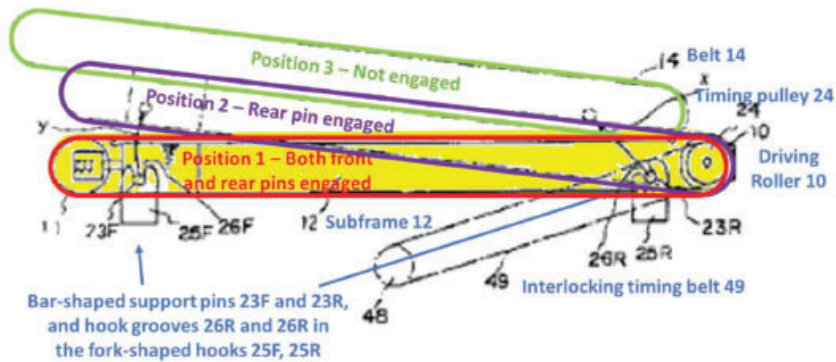
A. Independent Claim 25

213. Independent claim 25 would have been obvious in view of Konishi, Mathues, and the knowledge of a POSA. The below chart briefly summarizes the teachings of Konishi that correspond to and anticipate the relevant claim limitations

in the '487 patent's independent claim 25. As shown below, Konishi discloses the installation and removal process described in claim 25.

Claim Element	Konishi Exemplary Disclosures
removable conveyor belt unit	conveyor belt 14, subframe 12, and rollers 10-11, timing pulley 24
base	subframe 12
substructure	frame 9
mount	hooks 25R, 25F
drive	drive motor 32
drive belt	timing belt 49, timing pulley 48, conveyor belt 14, timing pulley 24
relaxing/tautening/relative movement	[0033]–[0041]; Figs. 8-9

Figure 8



214. I incorporate by reference the Konishi analysis that I conducted in my first declaration, and I particularly note Section XI, ¶¶71–96 of my first declaration. I also note that Dr. Reinholtz did not offer an opinion that Konishi does not render obvious these claim limitations. The above chart and the previously cited sections of my first declaration illustrate how Konishi renders obvious the below claim language identified in Patent Owner’s motion to amend:

Inter Partes Review of U.S. Pat. No. 9,457,487
John M. Collins, Ph.D. Declaration

25. (Substitute for Claim 1) A slicing apparatus for food products, the slicing apparatus comprising:
a removable conveyor belt unit (13) having at least one track and a base (25);
a substructure (41) having a mount (11) coupled to the base (25); and
a drive (15) coupled to the conveyor belt unit (13) by a drive belt (27), the conveyor belt unit (13) is configured to be cancelled by relaxing the drive belt (27) and is configured to be established by tautening the drive belt (27), with the relaxing and tautening of the drive belt (27) each being provided by a relative movement between the drive (15) and the conveyor belt unit (13)[[.]];

215. Claim 25 further recites the limitation “wherein the conveyor belt unit (13) is configured to be removed and/or installed without tools.”

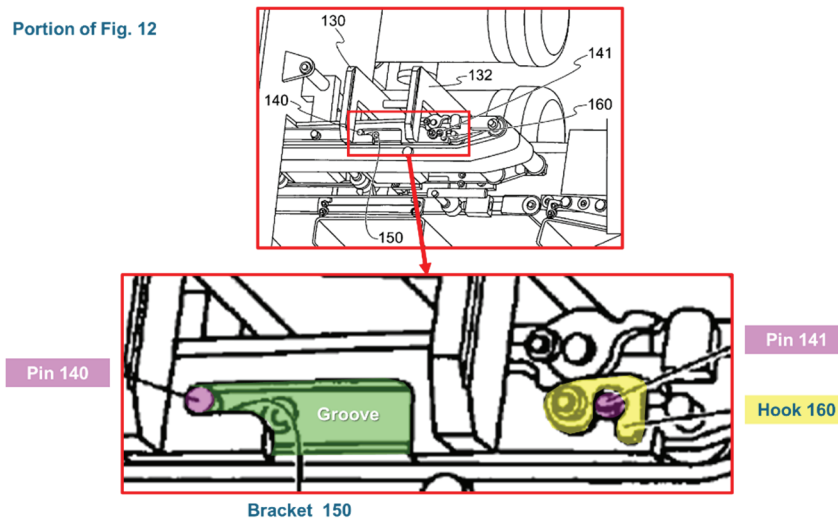
216. As discussed in my first declaration, it is my opinion that Konishi anticipates and renders obvious this claim limitation. For example, a POSA would have appreciated that the extensive description in Konishi for how to install and remove its conveyor belt unit would not have required tools. The removal process described in paragraphs [0033] through [0041], and nowhere does the removal process describe or require the use of tools. For removal, Konishi states that the “front part of the subframe 12 is lightly lifted upward...and the front support pin 23F is removed.” Konishi, [0033]. Konishi states that after the subframe has been lifted up, the timing belt can be removed from the conveyor belt unit. [0034]. Once the timing belt has been removed, “the sub-frame 12 still equipped with the conveyor belt 14, the drive roller 10, and the driven roller 11 can be separated from the frame

9 side.” Ibid., [0034]. None of these steps require tools, and Konishi does not discuss using tools for any of these steps. Indeed, the purpose of Konishi was to “simplify the structure of the subframe containing the conveyor belt to make it easier to remove from the frame.” Konishi, [Purpose]. A POSA would have understood that a more simple removal process would have not involved tools. See also Konishi [0047].

217. Indeed, Konishi extensively describes its tool-less removal process. Konishi describes that “First...the front part of the subframe 12 is lightly lifted upward...and the front support pin 23F is removed from the hook groove 26F of the hook 25F.” Konishi, [0033]. Konishi then explains that the timing belt is relaxed by the first movement, and that “the timing belt 49 can be easily removed from the timing pulley 24 of the drive roller 10.” Ibid., [0034]. Finally, “the rear part of the subframe 12 is pulled diagonally upward...[and t]herefore the sub-frame 12 still equipped with the conveyor belt 14, the drive roller 10, and the driven roller 11 can be separated from the frame 9 side.” Ibid., [0034]. Konishi also states that performing the operation in reverse would result in removal of the conveyor device. Ibid., [0022].

218. In addition to Konishi rendering this claim limitation obvious, the combination of Konishi and Mathues in light of the knowledge of a POSA renders this claim obvious.

219. Mathues published on January 24, 2008. Mathues is titled “Dual-Mode Feed Mechanism for Food Slicing Machine.” Thus, Mathues is relevant to the food industry, and specifically teaches a food article slicing machine. Mathues teaches that it has “dual, opposing conveyors” that “feed the food product.” Mathues, Abstract. Mathues further teaches that “the upper conveyor can be removed.” Ibid., Abstract. As shown in the blow-up of a portion of Fig. 12 below, it teaches the same two pin (160 and 161) and groove arrangement to hold a removable conveyor in place. In addition, it teaches simple rotating hooks (160 and 162) to hold the conveyor in place and prevent unintentional removal without the need for tools.



Specifically, Mathues teaches:

“Rotatable hooks 160 and 162 are mounted to the brackets 150 and 152 to hook around the pins 141 and 142 when the conveyor is in its installed position, thereby preventing unintentional removal from the brackets 150 and 152. Removal is accomplished by simply unhooking the hooks

160 and 162, sliding the conveyor 30 in the upstream direction and dropping it downwardly for removal.” Mathues at [0049].

220. It would have been obvious to a POSA before 2012 to use the concept of Mathues’ toolless hooks with Konishi’s removable conveyor. A POSA would have been motivated to combine Konishi and Mathues because Mathues’ hooks provide would have provided Konishi with the same benefit explicitly discussed in Mathues—“preventing unintentional removal.”

221. A POSA would have been motivated to combine Konishi and Mathues. Konishi and Mathues are both in the same technological field as the ’487 patent, including conveyance systems within the food processing industry. Konishi and Mathues are also both relevant to the alleged problem addressed by the ’487 patent—removing conveyors from conveyance lines for cleaning and maintenance. Mathues [0068].

222. As I discussed above and in my first declaration, Konishi teaches an apparatus for food products, a removable conveyor belt unit having at least one track and a base, a substructure having a mount coupled to the base, and a drive coupled to the conveyor belt unit that is configured to be cancelled by relaxing the drive belt and is configured to be established by tautening the drive belt, with the relaxing and tautening of the drive belt each being provided by a relative movement between the

drive and the conveyor belt unit. In addition, using a toolless mechanism to lock a conveyor belt unit is disclosed in Mathues. Using removable conveyor belt units in systems similar to both Konishi and Mathues were also well known in the art. See McLaughlin; see also Iwakoshi. It would have been obvious to modify Konishi to include the concept of Mathues latch to provide additional security so that Konishi's removable conveyor is not accidentally lifted out of place. See Mathues [0049]; Lee [0047].

223. A POSA would have also been aware that locking a removable conveyor belt unit using a toolless mechanism would allow for quick and easy removal while preventing the conveyor belt unit from being lifted out of place due to the reactive forces that the conveyor belt unit would experience during normal operation. See Lee [0047]. A POSA would understand from Lee's teaching that a toolless mechanism for locking would secure the conveyor belt unit against a number of reactive forces, including friction due to conveying the food, forces due to malfunctions of the conveyor belt unit or any surrounding equipment, forces due to food getting lodged between conveyors during normal operation, and similar reactive forces.

224. A POSA would have also been aware that locking a removable conveyor belt unit using a toolless mechanism would allow for quick and easy

removal while preventing the conveyor belt unit from being accidentally knocked out of place during use. As discussed above, Mathues specifically teaches that its hooks help to prevent “unintentional removal” of its conveyor unit. Mathues [0049]. See also Lee [0047]; Herman 7:34-42. Locking the conveyor belt unit in place would help to prevent disruptions by ensuring that any workers who accidentally bumped into the machine or conveyor belt during operation would not dislodge the belt.

225. A POSA would have been well aware of removable conveyor assemblies. See Konishi, Lindee, McLaughlin, Lee, Herman, Mathues. A POSA would have also known about the advantages of removable conveyor belts, including improving the ease of assembly/disassembly, maintenance, and sanitation. See Konishi [Purpose]; see also Herman. This is particularly true and important when dealing with conveyors used in the food processing industry. Indeed, Konishi explicitly states that its disclosure creates a simple structure wherein the subframe side can be easily disassembled and assembled from the frame, and maintenance such as cleaning of each mechanical part can be performed reliably and efficiently, and the waterproof performance of the weight detector and motor can be ensured with a simple configuration. Konishi at [0007], [0013]. Thus, a POSA would have understood the maintenance, cleaning, and other advantages provided by a removable conveyor belt unit by the time of the invention. Further, Herman teaches

that its conveyors “are releasable as a unit from the supports to facilitate cleaning of the apparatus.” Herman, Abstract. Herman also teaches that its releasable conveyor units “facilitate cleaning of the conveyor units.” Ibid. at 2:50-52.

226. There are many reasons a POSA would have been motivated to use a removable conveyor belt unit in the food processing space before the '487 patent. First, a POSA would have been motivated to use a removable conveyor belt unit to simplify assembly/disassembly. Simplifying the assembly/disassembly of a removable conveyor belt unit has many benefits, including reducing the amount of time to complete any task that requires removing/installing the conveyor belt assembly. Such tasks include cleaning and maintenance procedures, and also include things like initial set up of the conveyor system or disassembly/assembly required to relocate the conveyor system.

227. Second, POSA would have been motivated to use a removable conveyor belt unit to improve maintenance before the '487 patent. A POSA would have valued having a removable conveyor belt assembly so that the conveyor assembly could be removed to facilitate easy access to other components in the food processing line. Konishi explicitly teaches such advantage: “As described above, all mechanical parts can be disassembled and assembled as desired. Therefore, maintenance of various parts that cannot be accessed because they are obstructed by

other mechanisms or parts in the assembled position, which is a normal state in use, can be easily and reliably performed by exposing them by disassembling the product.” Konishi, [0042]. Not only would the removal the conveyor belt unit provide easier access to other components that require maintenance, but it would also promote easier and more flexible maintenance of the actual conveyor belt unit. If a worker was able to relocate the conveyor belt unit to a separate work surface or area of the factory, the worker would be able to easier manipulate the orientation of the conveyor belt unit to access different sides of the conveyor belt unit. Further, the worker could perform more intense repair/maintenance (like welding a stress fracture, of it occurred) away from the rest of the food processing line, which would reduce the risk of damaging other parts of the food processing line during the more intense repair/maintenance.

228. Third, a POSA would have been motivated to use a removable conveyor belt unit to improve cleaning. Maintaining clean and sanitized equipment is an important consideration in the food processing industry. If equipment is not regularly cleaned and/or sanitized, and food processing company risks an outbreak of bacteria or foodborne-illness, which, at a minimum would harm the food processing company’s reputation, and, at worse, could result in death. Konishi explicitly teaches that the ease of removing the conveyor belt unit promotes efficient

cleaning: “In addition, efficient cleaning means such as showering can be used to thoroughly clean the entire area and maintain sanitary management.” Konishi, [0042]. Lindee also explicitly teaches that removing conveyor units is part of a regular cleaning procedure: “The conveyor and telescopic drive shaft are removable for cleaning and sanitizing.” Lindee, 10. Removing the conveyor assembly allows easy access to portions of the machine that are otherwise obstructed, and that easy access allows for easier cleaning.

229. Fourth, a POSA would have been motivated to use a removable conveyor belt unit to readily facilitate swapping conveyor belt surfaces. For instance, if a drive roller began to fail, a conveyor belt began to fray, or a frame began to crack, a POSA would have recognized that a removable conveyor that could be quickly and easily removed would have decreased the down time for a conveyance line because that conveyor belt unit could be readily swapped with another similar conveyor belt unit.

230. In my opinion, a POSA would have been motivated to use Konishi’s removable conveyor belt unit with the concept of Mathues latching system in order to achieve the benefits discussed above, including improving maintenance, cleaning, and space saving.

231. In addition to the reasons discussed above, and the plethora of toolless mount disclosures in the prior art, it is my opinion that a POSA would have recognized that applying Mathues' groove and hook system to Konishi's removable conveyor belt unit is a combination of conventional parts using known methods that results in predictable changes. For example, above in the "Obvious Design Options" section, I discuss how a POSA would implement the concept of Mathues' hooks into a system, although this is not required to show obviousness. Specifically, a POSA would have design the attachment points of Konishi such that it used a groove system like that illustrated in Figure 12 of Mathues. A POSA then would have installed Mathues' hook on the permanent structure of the slicer and used it to lock the removable conveyor belt unit after it was installed. These simple design considerations and attachment points would have been well within the skill of a POSA to design. Further, if necessary, a POSA would have re-oriented the latch in a manner that would lock the conveyor belt unit against the specific forces that the removable conveyor belt unit would have seen during operation or accidental contact. Additionally, as I explained in the "Obvious Design Options" section, it would have been obvious to add a spring to the hook to bias the hook in the closed direction, locking the hook and removable conveyor belt unit. Installing a spring biased hook would have been a simple substitution of one element (Mathues' hook)

for another known in the field (a spring biased latch such as Suguira's) that does nothing more than yield foreseeable results (locking the removable conveyor belt unit).

232. For similar reasons, a POSA would have recognized that using Mathues' known hook to lock Konishi's known removable conveyor belt unit would improve Konishi in the same way that it improved Mathues. Specifically, Konishi and Mathues are similar devices because they are both conveyors used in the food industry. Mathues would add the benefit and function to Konichi that was already known in the art, i.e. locking removable conveyor belt units. Mathues [0049]; see also Herman; Lee. This would have been nothing more than using a known technique (Mathues' latch) to improve a similar device (Konishi's conveyor belt unit) in the same way.

233. Therefore, it is my opinion that a POSA would have been motivated to combine Konishi's removable conveyor belt unit with the concept of Mathues' hooks.

234. In my opinion, a POSA would have had a reasonable expectation success implementing the concept of Mathues' hooks into Konishi's removable conveyor belt unit. As I stated above and in my first declaration, implementing a removable conveyor belt unit is a common and well-known process that is used in

multiple industries, including the food processing industry. See Section VIII.C of first declaration. Implementing a removable conveyor belt unit simply requires using the same components (belts, supports, rollers, motors, etc.) that are already disclosed and used in the prior art. Implementing a toolless mount to lock a removable conveyor belt unit also only requires the addition of well-known, conventional, and simple components (latches, pins, detents, friction fits, hooks, etc.) to the teachings already known in Konishi. In my experience, the sorts of devices used in these systems would have been taught at an undergrad level. Further, the relative motion and toolless locking principles would have been taught at the undergrad level. Therefore, implementing a removable conveyor belt unit would have been well within the skill of a POSA and would have resulted in foreseeable results and improvements. I note that the well-known components are disclosed throughout the prior art I discussed in Sections VIII.A-C in my first declaration and the prior art section I included in this declaration.

235. My opinion that a POSA would have a reasonable expectation of success in implementing a removable conveyor belt unit is further supported by the fact that the process for how to install and remove a removable conveyor belt unit is explicitly taught in Konishi. Based on Konishi's express teachings, as well as both a POSA's own background knowledge and the background prior art, a POSA would

have been well aware of how to implement a removable conveyor belt unit (like that taught in Konishi) with a toolless mount (like that taught in Mathues).

236. For all of the above reasons, a POSA would have had a reason to combine Konishi and Mathues' teachings to arrive at the claimed invention, with a reasonable expectation of success. Accordingly, claim 25 would have been obvious over Konishi and Mathues in view of the knowledge of a POSA.

B. Dependent Claims 26 and 27

237. Dependent claims 26 and 27 would have been obvious to a POSA in light of the disclosures in Konishi and Mathues.

238. Claim 26 depends from claim 25 and further recites "wherein the conveyor belt unit (13) is arranged in front of a cutting plane of the slicing apparatus, viewed in the conveying direction." Claim 27 depends from claim 25 and further recites "wherein the conveyor belt unit (13) is arranged behind a cutting plane of the slicing apparatus, viewed in the conveying direction."

239. Mathues discloses a food slicing machine. Mathues [0002]. Mathues states that the invention relates to "an apparatus that conveys food products into a moving slicing blade and can operate in a continuous feed mode or in a reciprocating gripper mode." Ibid.

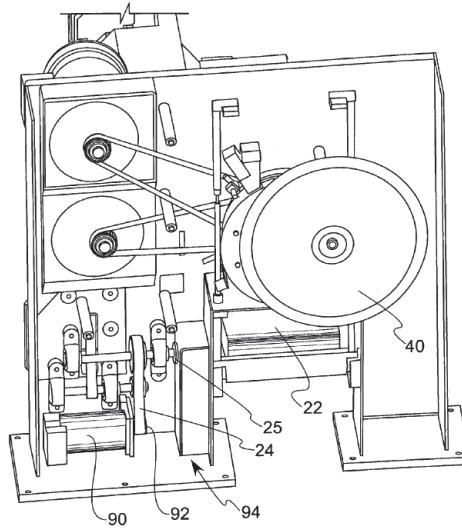


FIG. 2

240. Konishi illustrates a removable conveyor belt unit. A POSA would have known the benefits of a removable conveyor belt unit that were discussed in the other relevant prior art discussed above in Section VIII.C. A POSA would have known that those benefits would have been recognized whether the removable conveyor was before or after the cutting plane, and thus a POSA would have found it obvious to implement a removable conveyor before or after the slicing blade. For example, Konishi also discloses that its conveyor belt units are removable for sanitation and cleaning. As another example, Lindee discloses that its conveyor belt unit is removable for sanitation and cleaning. In light of this knowledge, a POSA would have been motivated to make the conveyors that are arranged in front of and arranged behind the cutting plane removable. A POSA would have been motivated to make these changes for the reasons discussed above regarding independent claim

25. A POSA would also have a reasonable expectation of success for the reasons that I discussed above regarding claim 25. To create a removable conveyor belt unit that is arranged before the cutting plane, a POSA would have only had to follow the design of Konishi's removable conveyor and implement such a conveyor before the cutting plane of Mathues (or other similar prior art that discloses slicers, such as McLaughlin and Lindee). This arrangement would not change the purpose of the conveyor belt unit.

241. The addition of a toolless mount to these claim limitations does not change my opinion. Adding a toolless mount to a removable conveyor before or after the slicing blade would have been within the skill of a POSA.

242. Adding a toolless mount would only require the known elements of Konishi's removable conveyor and Mathues' latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section). In other words, implementing a toolless mount (like Mathues' or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Mathues or the other prior art. A POSA would have recognized these toolless mounts would improve Konishi by locking the belts because the prior

art specifically taught this improvement. For example, Lee [0047]; Mathues [0049]; Herman 7:17-20.

243. A POSA would have had a reasonable expectation of success in implementing a toolless mount to lock a removable conveyor belt unit for the reasons I discussed above in connection with independent claim 25. As an example, implementing a removable conveyor belt unit locked by a toolless means also only requires the addition of well-known, conventional, and simple components (latches, pins, detents, friction fits, hooks, springs, etc.) to the teachings already known in Konishi.

244. Accordingly, claims 26 and 27 would have been obvious.

C. Dependent Claim 28 and 32

245. Dependent claims 28 and 32 would have been obvious to a POSA in light of the disclosures in Konishi, Mathues, and the knowledge of a POSA.

246. Konishi does not explicitly disclose the dimensions of its conveyors. However, I note that Lindee discloses the dimensions of its conveyor, and it falls within the scope of claim 4, and nearly falls within the scope of claim 14. Lindee states that “According to the preferred embodiment, the conveying surface has a working area (X, Y) of about 9 inches (229 mm) by 9 inches (229 mm.)” Lindee, 7. In addition to Lindee’s explicit teaching, implementing conveyors as claimed, which

uses a conveyor less than 500 mm long and a width in the approximate range of 300 mm to 700 mm, would have been obvious for a number of reasons.

247. Further, a POSA would have found it obvious to implement conveyors within the claimed standard size dimensions. First, a POSA would have been motivated to implement a removable conveyor belt unit with the claimed dimensions because the claimed dimensions are practical for purposes of installation and removal. A practically sized conveyor would be easier for one person to install or remove. A conveyor significantly larger conveyor would be unwieldy to lift and carry around a factory floor. A conveyor significantly larger would also likely require more than one person to remove and carry throughout a factory floor. It is beneficial to require only one person to remove and carry a removable conveyor belt unit because if the unit needs to be removed for maintenance purposes, only one maintenance person would need to be dispatched to address any issues. Another benefit of only requiring one person for removal is that one person is able to disassemble and reassemble the conveyor for cleaning. Though there may be reasons to have more than one person involved in the assembly and disassembly of a conveyor belt unit (e.g., safety), the option to have one person preform these actions is a beneficial time saving measures.

248. Additionally, conveyors of a relatively short size are beneficial in many manufacturing and processing applications, including food processing, because floor space on a factory floor is in high demand. Designing machines and conveyors that are of relative short size help to save floor space so that additional manufacturing and processing equipment can be fit into the factory. Additionally, having shorter conveyors on a line saves time during manufacturing and processing. Shorter conveyors can save time because there would necessarily be a shorter overall distance that the objects would need to be conveyed. Increasing the speed of a conveyor can make up for long distances in some cases, but is sometimes disfavored, because faster speed increase the likelihood that the objects being conveyed would be disturbed by higher accelerations and decelerations.

249. Second, I understand that the simple structural rearrangement of parts is an obvious matter of design choice, especially if the functionality of those devices remains the same. Here, rearranging the structure of the conveyor belt units by changing the size of the conveyor belt units would not have changed the functionality of the conveyor belt units. I also note that the '487 patent does not tie any particular advantages to the claimed dimensions. Indeed, in my experience, changing the dimensions of a conveyor would not change the basic function of the conveyor, or create any unanticipated results.

250. Third, a POSA would have been aware of prior art that discloses conveyors with the same dimensions as the conveyors described in the specification and the claims. As I discussed above, Lindee discloses conveyors that fall within the claim range. For instance, Exhibits 1021 at 64:64-65:1 (“To accommodate as large a proportion as possible of the full range of product items which may need to be scanned, the Hyperlabel scanner 1500 is designed to accurately scan any item which fits on the 500 mm wide conveyor 1014 of the checkout 1000.”), 1022 at 5 (“In the illustrated embodiment, zone conveyors 24 are illustrated at .5 meters in length, but may be of greater or lesser length.”), 1027 at 7-8 (“The conveyor length is not critical; a typical length for conveyors 1163 and 1165, Figure 2, is about twelve inches (30 cm).”), 1028 at 6:49-67 (“Slicing machine 50 further comprises a system of short conveyors for advancing food loaves from loaf feed mechanism 75 into slicing head 66. The short conveyor systems are actually a part of loaf feed mechanism 75.”), and 1029 at 25:57-26:7 (“FIG. 16 illustrates three typical loaf cross-section outlines L1, L2, and L3 that may be sliced in slicing machine 50. The two outlines L1 are illustrative of rectangular loaves approximately four inches (102 mm) in height by six and one-half inches (165 mm) in width.”) disclose conveyors that fall within the claim ranges.

251. A POSA would have had a reasonable expectant of success to for adjusting the dimensions of a conveyor to meet the claim limitations. There are no changes in principles or relevant physics by decreasing or increasing the size of a conveyor belt unit. Increasing or decreasing the size of a conveyor belt unit would involve all of the same components as the components disclosed in the prior art.

252. The addition of a toolless mount to these claim limitations does not change my opinion. Adding a toolless mount to a removable conveyor with the specified dimensions would have been within the skill of a POSA.

253. Adding a toolless mount to a removable conveyor with the specified dimensions would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, adding a toolless mount would only require the known elements of Konishi's removable conveyor and Mathues' latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount (like Mathues' or the other prior art's) would have been a known technique to improve similar devices (conveyor

units) in the same manner as Mathues or the other prior art. A POSA would have recognized these toolless mounts would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049]; Herman 7:17-20.

254. A POSA would have had a reasonable expectation of success in implementing a toolless mount to lock a removable conveyor belt unit for the reasons I discussed above in connection with independent claim 25. As an example, a POSA would have had a reasonable expectation of success because implementing a removable conveyor belt unit locked by a toolless means also only requires the addition of well-known, conventional, and simple components (latches, pins, detents, friction fits, hooks, springs, etc.) to the teachings already known in Konishi.

255. Accordingly, claims 28 and 32 would have been obvious.

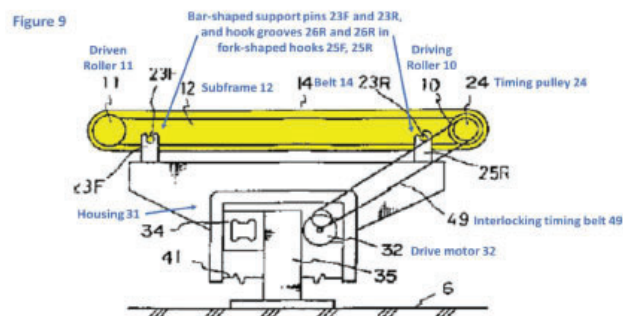
D. Dependent Claim 29

256. Dependent claim 29 would have been obvious to a POSA in light of the disclosures in Konishi, Mathues, and the knowledge of a POSA.

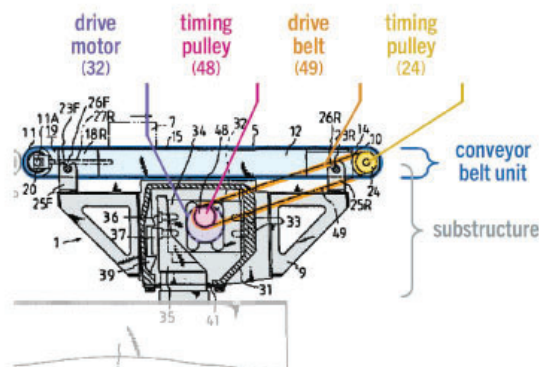
257. Konishi discloses “further comprising wherein at least one drive motor (15) for the conveyor belt unit (13) is provided, with the drive motor (15) being directly coupled with the conveyor belt unit” for the reasons discussed above in my first declaration’s Section XI.A.3. For example, Konishi discloses a drive motor 32.

Konishi, [0003], Fig. 11. Konishi states that “a drive motor 32 is attached to a subframe extension 12a...and this drive motor 32 and the drive roller 10 of the conveyor belt 14 are interlocked via a belt 49.” EX1004, [0003]. The interlocked connection via belt 49 corresponds to the claimed “directly coupled” connection, while the drive roller 10 is connected to Konishi’s subframe, all of which corresponds to the claimed “conveyor belt unit.”

258. Konishi also discloses wherein the drive motor is arranged beneath the conveyor belt unit. For example, Figure 1 shows Konishi’s drive motor 32 arranged beneath the subframe 12. Figures 4 and 9 show similar arrangements.



Annotated Konishi Figure 9



Annotated Konishi Figure 1

259. Additionally, a POSA would have had a reason to place the motor beneath the conveyor belt unit. This would allow for the overall footprint of the machine to be smaller, as compared to having the motor place to the side of the conveyor belt unit. Reducing machine footprint size is an important consideration in processing and manufacturing facilities where floor space is at a premium. Additionally, a POSA would typically avoid placing a motor above a conveyor belt unit that handles food because any drips or debris coming from the motor (or maintenance of the motor) would fall into the food being conveyed.

260. A POSA would have had a reasonable expectation of success when placing the motor beneath the conveyor belt unit because the arrangement is already taught by the prior art. Further, there would be a reasonable expectation of success because a POSA would generally be aware of the drive and supporting components required to place a motor on any side of the conveyor belt unit, including beneath a conveyor belt unit.

261. The addition of a toolless mount to these claim limitations does not change my opinion. Adding a toolless mount to a removable conveyor with a directly coupled motor arranged beneath the conveyor belt unit would have been within the skill of a POSA.

262. Adding a toolless mount to a removable conveyor with a directly coupled motor arranged beneath the conveyor belt unit would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, adding a toolless mount would only require the known elements of Konishi's removable conveyor and Mathues' latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section). A POSA would have recognized these toolless mounts would improve Konishi by locking the belts because the prior art specifically taught this improvement. For example, Lee [0047]; Mathues [0049]; Herman 7:17-20.

263. A POSA would have had a reasonable expectation of success in implement a toolless mount to lock a removable conveyor belt unit for the reasons I discussed above in connection with independent claim 25. As an example, a POSA would have had a reasonable expectation of success because implementing a removable conveyor belt unit locked by a toolless means also only requires the addition of well-known, conventional and simple components (latches, pins, detents, friction fits, hooks, springs, etc.) to the teachings already known in Konishi.

264. Accordingly, claim 29 would have been obvious.

E. Dependent Claim 30

265. Dependent claim 30 would have been obvious to in view of Konishi and Mathues in light of the knowledge of a POSA.

266. Konishi discloses the apparatus in accordance with claim 25 further comprising wherein a respective relative movement is provided between the drive motor and the conveyor belt unit for cancelling and establishing a coupling between a drive motor for the conveyor belt unit and the conveyor belt unit; and wherein the spacing between a drive axle of the drive motor and a drive axle of the conveyor belt unit is configured to be varied by the relative movement. Konishi discloses these requirements for all of the reasons I discussed above in connection with Independent Claim 25.

267. Konishi discloses “wherein the spacing between a drive axle of the drive motor (15) and a drive axle of the conveyor belt unit (13) is configured to be varied by the relative movement.” Konishi’s timing pulley 24 is attached to the end of a shaft 10A of the conveyor belt units drive roller 10. Konishi, [0020]. This shaft 10A acts as a drive axle to drive the drive roller 10. Konishi’s timing pulley 48 and rotary shaft 62 extend from the motor 32. The rotary shaft acts a drive axle for the drive motor. Konishi’s shaft 10A is moved relative to rotary shaft 62 during the removal and installation steps described above in Section XI.A.4. Konishi states

“since the timing prefix 24 fixed to the shaft 10A of the drive roller 10 moves diagonally downward, the interlocking timing belt 49 stretched between the timing pulley 24 and the timing pulley 48 fixed to the rotating shaft 62 on the sub-housing 42 side becomes loose, and the timing belt 49 can be easily removed from the timing pulley 24 of the drive roller 10.” *Ibid.*, [0033-34].

268. The addition of a toolless mount to these claim limitations does not change my opinion. Adding a toolless mount to a removable conveyor that is removed/installed using the described relative movement would have been within the skill of a POSA.

269. Adding a toolless mount would only require the known elements of Konishi’s removable conveyor and Mathues’ latch (or any of the prior art toolless mounts I discuss in the “Toolless Removable Conveyor Prior Art Known by a POSA” section) using the known methods described in that prior art (or using the known methods I describe in the above “Obvious Design Options” section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount (like Mathues’ or the other prior art’s) would have been a known technique to improve similar devices (conveyor units) in the same manner as Mathues or the other prior art. A POSA would have recognized these toolless mounts would improve Konishi by locking the belts

because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049]; Herman 7:17-20.

270. A POSA would have had a reasonable expectation of success in implement a toolless mount to lock a removable conveyor belt unit for the reasons I discussed above in connection with independent claim 25. As an example, implementing a removable conveyor belt unit locked by a toolless means also only requires the addition of well-known, conventional, and simple components (latches, pins, detents, friction fits, hooks, springs, etc.) to the teachings already known in Konishi.

271. Accordingly, claim 30 would have been obvious.

F. Dependent Claim 31

272. Dependent claim 31 would have been obvious in view of Konishi and Herman in light of the knowledge of a POSA.

273. The arguments that I reference in connection to this claim are equally applicable to independent claim 25, as it would have been an obvious design choice to implement a latch that required tools or that did not require tools. For example, the claimed mount is the first and second attachment points shown in McLaughlin.

274. A POSA would have been aware of other prior art that discusses latch connections for conveyor belt units. As a first example, Lee teaches removable

conveyors. Lee, Abstract. Lee states that its conveyor assemblies can be held in place in different manners disclosed in multiple embodiments. *Ibid.*, [0047]. Lee states that “the use of one or more hold down springs and/or common barrel-bolt latches” are used to prevent the conveyors from being accidentally lifted out of place. *Ibid.* Lee also teaches that a latch provides the additional benefit of preventing the conveyor from being lifted out of place due to any reactive force created by conveying food product. *Ibid.* Thus, in my opinion, a POSA would have been motivated to add a latch to the Konishi for the reasons described in Lee. Use of a latch, or other known ways to secure a mechanical structure, was an obvious matter of common sense and would be tailored to the appropriate application by one of ordinary skill.

275. A POSA would have had a reasonable expectation of success when adding the concept of a latch, like that disclosed in Lee or similar, to Konishi. Lee already teaches how to implement a latch system for a removable conveyor belt unit. *Ibid.* In my experience, using latches to secure devices would have been well known even at the undergrad level and potentially used in an undergrad design exercises and an obvious design choice. Thus, implementing a latch system to hold a removable conveyor belt unit into place would have been well within the skill of a POSA at the relevant time, and would involve the use of well-known and

conventional components in a familiar manner. A POSA would have had a further expectation of success in implementing the latch because other prior art discloses the use of latches to lock conveyors. For instance, Exhibit 1025 at 5:19-39 discloses using a latch device to secure components related to a weighing conveyor. Also, Exhibit 1024's Abstract discusses a "releasable" conveyor belt system, and discusses using a "quick release" mechanism to release the conveyor belt system.

276. The addition of a toolless mount to these claim limitations does not change my opinion. Adding a toolless mount to a removable conveyor would have been within the skill of a POSA. The toolless mount could be the latch I discussed above in connection with Lee, or any of the other latches that I discussed in the prior art section of this declaration.

277. Adding a toolless mount to a removable conveyor in the form of a latch would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, adding a toolless mount would only require the known elements of Konishi's removable conveyor and Mathues' hooks (which could also be referred to as a latch, or some of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options"

section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount (like Mathues' or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Mathues or the other prior art. A POSA would have recognized these toolless mounts would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049]; Herman 7:17-20.

278. A POSA would have had a reasonable expectation of success in implement a toolless mount to lock a removable conveyor belt unit for the reasons I discussed above in connection with independent claim 25. As an example, a POSA would have had a reasonable expectation of success because implementing a removable conveyor belt unit locked by a toolless means also only requires the addition of well-known, conventional, and simple components (latches, pins, detents, friction fits, etc.) to the teachings already known in Konishi.

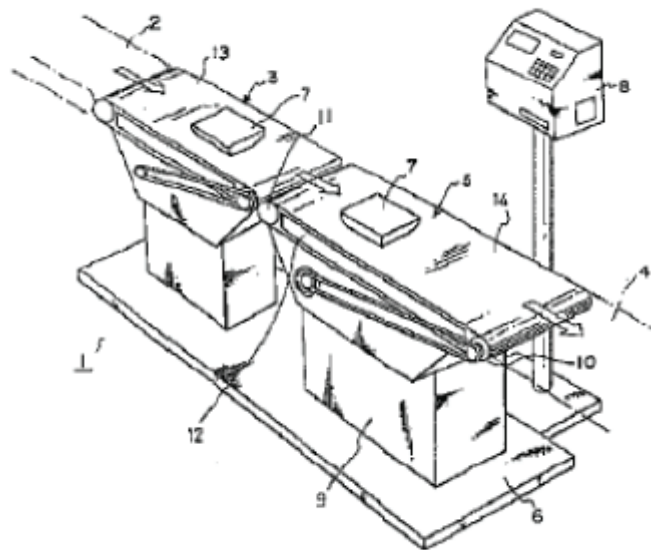
279. Accordingly, claim 31 would have been obvious.

G. Dependent Claim 33

280. Dependent claim 33 would have been obvious in view of McLaughlin and Herman in light of the knowledge of a POSA.

281. Konishi discloses wherein at least one continuous belt or continuous band (55) or a plurality of continuous straps (57) is/are provided as conveying means of the conveyor belt unit (13). Konishi states that it includes at least one continuous belt provided as conveying means of the conveyor belt unit. For example, Konishi states that the product 7 is placed on the conveyor belts 13 and conveyed continuously. Konishi, [0002]. Konishi's figures 1, 6, 9-10 also show that the conveyor belts 13 and 14 are continuous belts. These are considered continuous belts because they are endless belts that wrap around rollers.

【Figure 10】



Konishi Figure 10

282. Further, a POSA would have been aware of other disclosures in the art, like Lindee, that I discussed above. Lindee states that “The conveying surface 216

is shown schematically as a wide belt, but could also be a plurality of spaced apart ribbons.” Lindee, 6. The disclosures in McLaughlin, Konishi, and Lindee show that using either one continuous belt or a plurality of strap belts were known in the art, and known to be interchangeable for most applications. Thus, it would have been obvious to a POSA at the time of the ’487 patent to use a plurality of straps or a continuous band on Konishi’s removable conveyor belt unit.

283. A POSA would have had a reasonable expectation of success in implementing either a continuous belt or a plurality of parallel continuous straps. Using a single conveyor belt or a plurality of continuous straps would have only required substituting one type of conveyor belt for another, along with changing out some of the components of the rollers that directly interface with the conveyor belt. There would have been no unexpected results when implementing either a single conveyor belt or a plurality of continuous straps in this situation.

284. The addition of a toolless mount to these claim limitations does not change my opinion. Adding a toolless mount to a removable conveyor with the described conveyor belts would have been within the skill of a POSA.

285. Adding a toolless mount to a removable conveyor with the described conveyor belts would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results.

Specifically, adding a toolless mount would only require the known elements of Konishi's removable conveyor and Mathues' latch (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount (like Mathues or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Mathues or the other prior art. A POSA would have recognized these toolless mounts would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049]; Herman 7:17-20.

286. A POSA would have had a reasonable expectation of success in implement a toolless mount to lock a removable conveyor belt unit for the reasons I discussed above in connection with independent claim 25. As an example, implementing a removable conveyor belt unit locked by a toolless mount also only requires the addition of well-known, conventional, and simple components (latches, pins, detents, friction fits, latches, hooks, springs, etc.) to the teachings already known in Konishi.

287. Accordingly, claim 33 would have been obvious.

H. Independent Claim 34

288. Independent claim 34 would have been obvious in view of Konishi, Mathues, and the knowledge of a POSA.

289. As discussed above in connection with Independent Claim 25, Konishi and Mathues would have rendered obvious all of the elements of Independent Claim 25. The evidence I discussed above for Claim 25's preamble, element 1[A], and element 1[B] applies here to render obvious the claim 34 preamble, element 34[A], a element 34[B]. In addition to this evidence, Konishi would have rendered obvious the additional elements of claim elements 22[C1], 22[C2], and 22[C3], for the reasons I explain below.

290. A POSA would understand many benefits would be recognized by adding a second lane. For example, a second lane with a second drive would increase production by allowing a second food loaf, sliced food product, or object to be conveyed. As another example, a second lane with a second drive would increase throughput by essentially doubling the number of conveyed food loaves objects that would be conveyed at any given time.

1. Element 22[C1]

291. Element 22[C1] would have been obvious to a POSA at the time of the '487 patent in light of Konishi and Mathues in light of the knowledge of a POSA,

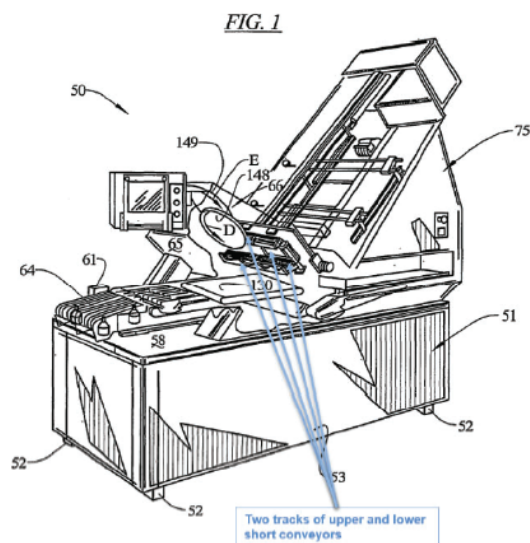
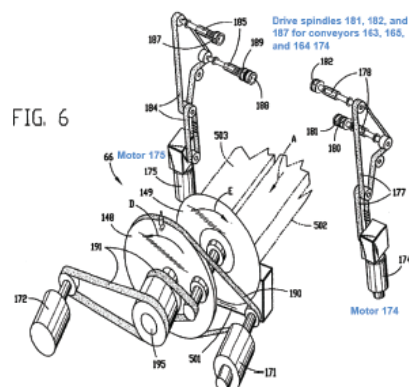
including “a first drive is coupled to the conveyor belt unit at the left side...when viewed in the conveying direction.”

292. Konishi discloses a drive motor that is coupled to its conveyor belt unit at the right side of the conveyor when viewed in the conveying direction. It would have been a matter of obvious design choice to implement the drive motor at the left side when viewed in the conveying direction. This would have only required that the designer flip the drive roller so its drive pulley was on the opposite side of the machine, and that the designer move the motor so that its drive extended from the other side of the machine. This may have required moving some other components, but rearranging components like this would have been well within the skill level of a POSA. Relocating parts is a simple design technique that would have been taught at the undergrad level, and potentially implemented during a design project. A POSA would have had a reasonable expectation of success because the rearrangement would have been simple. Additionally, McLaughlin discloses driving a conveyor belt unit from the left side when viewed in the conveying direction. A POSA would have been aware of McLaughlin, and if required, the POSA would have relied on McLaughlin for how to design a conveyor belt unit with a drive on the left side.

2. Element 22[C2]

293. Element 22[C2] would have been obvious to a POSA at the time of the '487 patent in light of Konishi and Mathues in light of the knowledge of a POSA including "at a second drive (15) at the right side, when viewed in the conveying direction."

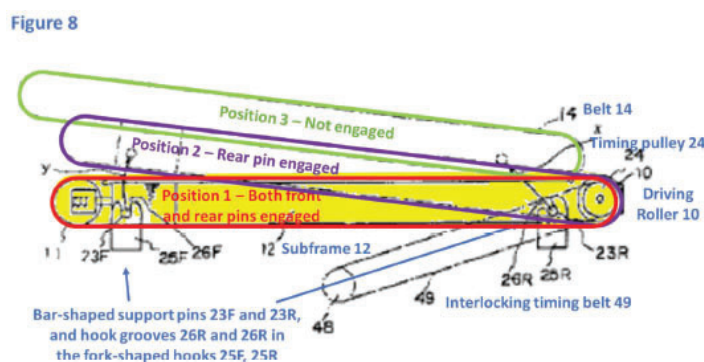
294. The plethora of prior art with two drives for a two lane conveyor belt unit would provide a POSA with the knowledge to render obvious this limitation. For example, Lindee discloses a slicing machine with two independently driven tracks, those motors on either side of the two independently driven tracks, described as a "dual independent feed slicer." Lindee, 12, Figure 1. Further, Lindee refers to Johnson for this exemplary teaching, a patent that it incorporates by reference. Johnson's Figure 6 and Figure 7 specifically illustrate motors driven on the left or right side, and, specifically, Figure 6 shows the drive configuration for a two-track conveyor system. Johnson also provides a detailed explanation of Figure 6 at 12:36-53. This kind of two drive system was common in the art by the alleged invention around 2012, as I discussed in my first declaration Section VIII.B. As the below Figure 6 shows, creating a two-lane conveyor system would only require the duplication of drive components and would be an obvious matter of design choice.



3. Element 22[C3]

295. Element 22[C3] would have been obvious to a POSA at the time of the '487 patent in light of Konishi and Mathues in light of the knowledge of a POSA, including “the coupling between the drives (15) and the conveyor belt unit (13) is configured to be simultaneously cancelled and established for at least one of the first drive and the second drive.”

296. One means to cancel or establish a drive is by tautening or loosening a drive belt around a timing gear or pulley. Konishi teaches this type of cancelling/establishing. For example, Konishi states: “[S]ince the timing prefix 24 fixed to the shaft 10A of the drive roller 10 moves diagonally downward, the interlocking timing belt 49 stretched between the timing pulley 24 and the timing pulley 48 fixed to the rotating shaft 62 on the sub-housing 42 side becomes loose, and the timing belt 49 can be easily removed from the timing pulley 24 of the drive roller 10.” Konishi, [0033], [0034]. Konishi also discloses this movement in its Figure 8, which I annotated below.



Position 1 above shows when the timing belt 49 would be “established.” Position 2 above shows when the timing belt would begin to loosen on removal and tighten on installation. The belt would loosen during removal in position 2 because the point of rotation, 23R, is close to the motor than the drive roller 10. As the rear of the conveyor belt unit is lifted upward, the driving roller 10 would rotate about the axis of the pin that keeps it in place, which would result in a decrease in the linear distance

between driving roller 10 and the motor, with the opposite during installation. Position 3 above shows when the entire conveyor belt unit has been removed from the supporting structure and fully disengaged.

4. Additional Obviousness Support

297. It would have been well within the skill of a POSA to combine Mathues and Konishi to arrive at a two-lane, two-drive removable conveyor belt unit, and a POSA would have been motivated at the time of the '487 patent to make such a combination.

298. A POSA would have been motivated to include a second lane with a second drive in the single conveyor belt unit (such as Lindee's second lane) for a number of reasons. A POSA would have known that a second lane and a second drive would have increased production and throughput. This is supported by the prior art such as Julian, [0008], and Mueller, [0002]. Productivity would be increased for similar reasons as the throughput increase. These benefits would be magnified by allowing each food loaf to be individually driven at its own unique speed. Allowing each food loaf to be driven at its own rate would allow for the slicer to adjust the thickness of slices to get on weight portions. Mueller, [0002]. I also note that, as I discussed in my first declaration, a number of food slicing machines with multiple lanes were known before the time of the '487 patent.

299. Further, it would have been obvious to a POSA to combine Konishi and Mathues in a manner that would allow for the two drives to be cancelled at the same time. This would have only required a mirroring of Konishi's teachings regarding its drives, drive belts, and attachment points, and implementing those teachings in a single conveyor belt unit. For example, the POSA would only need to put the second driving roller on the same axis as the first driving roller. The POSA would also only need to put the second drive motor approximately in the same location as the first drive motor, and arrange the drive pulleys on the conveyor belt unit. This arrangement would mean that moving the two-lane conveyor belt unit in the way shown in Figure 8 would loosen or tauten the first and second drive melt simultaneously. The simultaneous loosening/tautening would simplify the installation or removal process. Those processes would be simplified because only one movement would be required to loosen or tauten both belts, as opposed to two or more intervening movements to tighten or loosen the belt. A simpler installation/removal process would provide time saving benefits during maintenance and cleanings. In fact, I note that Konishi states that the purpose of the invention is to make it "easier" to remove its conveyor belt unit from the surrounding structure. Konishi, [Purpose]. Konishi's teaching would have further motivated a POSA to simplify the installation/removal process of a two-lane conveyor belt unit.

300. I also understand that the duplication of parts is generally considered to be obvious absent some technical reason that the duplication would have been difficult or provided some unanticipated benefit. A POSA would have had a reasonable expectation of success in implementing a two track removable conveyor because it would have only required a simple duplication of parts, or mirroring of teachings in the prior art. This duplication of parts would yield readily foreseeable results. Further, Konishi discloses a conveyor, and Lindee discloses sets of conveyors. Adding additional conveyors has the benefit of increasing throughput and productivity, as I discussed above. Further, it would be more economical to have two tracks (or lanes) in one machine. Having these two tracks in one machine would take up less overall floor space, as an entire second machine would not be required. Having the second track in one machine would also benefit from efficiencies of sharing components, such as only requiring one machine controller. Therefore, adding a second track would have only required a simple duplication of existing parts by the time of the alleged invention.

301. The addition of a toolless mount to these claim limitations does not change my opinion. Adding a toolless mount to a two-lane, two-drive removable conveyor with the described conveyor belts would have been within the skill of a POSA.

302. Adding a toolless mount to a removable conveyor with the two-lane, two-drive conveyor belt would have been nothing more than a combination of familiar elements according to known methods that yields predictable and expected results. Specifically, adding a toolless mount would only require the known elements of Konishi's removable conveyor and Mathues' hooks (or any of the prior art toolless mounts I discuss in the "Toolless Removable Conveyor Prior Art Known by a POSA" section) using the known methods described in that prior art (or using the known methods I describe in the above "Obvious Design Options" section) that yields the predictable and expected result of locking the removable conveyor belt unit. In other words, implementing a toolless mount (like Mathues' or the other prior art's) would have been a known technique to improve similar devices (conveyor units) in the same manner as Mathues or the other prior art. A POSA would have recognized these toolless mounts would improve Konishi by locking the belts because the prior art specifically taught this. For example, Lee [0047]; Mathues [0049]; Herman 7:17-20.

303. A POSA would have had a reasonable expectation of success in implement a toolless mount to lock a removable conveyor belt unit for the reasons I discussed above in connection with independent claim 25. As an example, a POSA would have had a reasonable expectation of success because implementing a

removable conveyor belt unit locked by a toolless means also only requires the addition of well-known and conventional, simple components (latches, pins, detents, friction fits, etc.) to the teachings already known in Konishi.

304. Accordingly, claim 34 would have been obvious.

XVIII. CONCLUSION

305. By signing this declaration, I recognize that my declaration will be filed as evidence in a contested case before the United States Patent and Trademark Office's Patent Trial and Appeal Board. I also recognize that I may be subject to cross-examination in the case. If cross-examination is required of me, I will appear for cross-examination within the United States during the allotted time.

306. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine of imprisonment, or both, under Section 1001 of Title 18 of the United States Code. I am over the age of eighteen years old, and I am competent to make this Declaration.

Date: September 27, 2024

DocuSigned by:

2BB201035C4A4E1...
John M. Collins, Ph.D.