

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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PROVISUR TECHNOLOGIES, INC.,  
Petitioner,

v.

WEBER FOOD TECHNOLOGY GMBH,  
Patent Owner

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Case IPR2024-00258  
Patent No. 10,647,013

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DEPOSITION OF THOMAS R. KURFESS, Ph.D.

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Pursuant to Notice and the Federal Rules of Civil Procedure, the deposition of THOMAS R. KURFESS, Ph.D., taken by Petitioner, was held at 717 17th Street, Suite 1400, Denver, Colorado 80202, on Wednesday, December 11, 2024, at 9:06 a.m., before Jason T. Meadors, RPR, CRR, CRC, in the State of Colorado.

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**Provisur EX1037**  
**IPR2024-00258**  
**U.S. Patent No. 10,647,013**

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21

22 Also present: Angelina DiNorcia

|    |                              |                                       |      |
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1 MR. THOMAS: For the record, my name's Henry  
2 Thomas. I am an attorney with Wilkie Farr & Gallagher.  
3 I am representing petitioner Provisur Technologies  
4 Incorporated in this matter. Joining me remotely from  
5 our Chicago office is Ren Harn and Kennon Wales, also  
6 attorneys with Wilkie Farr & Gallagher.

7 Counsel, if you want to introduce yourself.

8 MR. HART: Paul Hart with Erise IP for patent  
9 owner in the proceedings. With me today is Angie  
10 DiNorcia, also with Erise IP.

11 THOMAS R. KURFESS, Ph.D.,  
12 having been first duly sworn, testified as follows:

13 EXAMINATION

14 BY MR. THOMAS:

15 Q All right. Good morning. Would you state  
16 your full name for the record?

17 A Sure. Full name is Thomas, middle initial R,  
18 last name, Kurfess.

19 Q And you understand that you're here today to  
20 provide testimony in connection with the proceeding of  
21 the US Patent Office Patent Trial Appeal Board called  
22 Inter Partes Review, correct?

1 A Yes, correct.

2 Q And there are two proceedings involved. One  
3 is IPR 2024 00258. The other is IPR 2024 00269?

4 A Okay.

5 Q And you understand that your testimony  
6 relates to a declaration you submitted in both of those  
7 proceedings regarding two US patents, US Patent Number  
8 10,647,013 and US Patent Number 11,331,823. Is that  
9 right?

10 A Yes, correct.

11 Q Today, if I refer to the '013 Patent or '013  
12 Patents, will you know what I mean?

13 A Yes.

14 Q And what about the '823 patents?

15 A That's fine.

16 Q You understand that these IPRs are between  
17 Weber Food Technology GmbH and Provisur Technologies,  
18 Inc.?

19 A Yes.

20 Q If I refer to Weber Food Technology as Weber  
21 or Patent Owner, will you know what I mean?

22 A Yep.

1 Q And if I refer to Provisur Technologies,  
2 Inc., as Provisur or Petitioner, will you understand  
3 who I'm referring to?

4 A Sure.

5 Q Have you been asked to perform any work for  
6 Weber in relation to the District Court proceedings  
7 involving the -- either the '013 or '823 patents?

8 A No, I don't believe so.

9 Q Okay. But you did do some work for Weber in  
10 District Court proceedings about two years ago. That's  
11 right?

12 A Yes. A couple years ago. Yes.

13 Q You appeared live at trial in Kansas City,  
14 Missouri?

15 A I did.

16 Q Have you read any materials such as briefs,  
17 motions or orders from the current District Court  
18 proceedings which would be Case Number 521-CV-06113?

19 A No, I don't believe so.

20 Q Okay. Are you aware of what, if any,  
21 products are accused by Weber of infringing either the  
22 '013 or '823 patents?

1           A       No, not that I'm aware of.

2           Q       Do you have any awareness of any Provisur  
3 product that uses a paper interleaver?

4           A       Not that I can recall. I've looked at some.  
5 Not for this case, but in the past. But I don't  
6 remember when they had paper interleavers or not.

7           Q       Okay. You don't remember any specific  
8 details about Provisur paper interleaver?

9           A       No, I do not.

10          Q       What about, you know, not talking about  
11 what's drawn in the patents here but what about Weber  
12 interleavers of actual physical machines? Have you  
13 seen any of those?

14          A       I mean, I've seen Weber machines. I can't  
15 recall whether they had interleavers on them or not.  
16 We weren't focusing on interleavers at that point in  
17 time.

18          Q       Okay. So sitting here today, no knowledge of  
19 how either Weber or Provisur interleavers, if they  
20 exist in the wild, how they actually work.

21          A       Yes. I haven't seen the particular machines  
22 and so forth, correct.

1 Q How many times have you had your deposition  
2 taken before, Dr. Kurfess?

3 A I don't know. Maybe 30 times or so. So  
4 between once or twice a year or so.

5 Q Always as an expert or ever as a fact  
6 witness?

7 A I believe always as an expert, yes.

8 Q And what sort of legal areas have those cases  
9 been?

10 A Typically, a lot of work in mechanical  
11 systems, electrical mechanical systems. So all the  
12 sensing, interconnection, you know, communications  
13 between the sensors and actuators, et cetera,  
14 et cetera. Like for mechanical systems, I would say in  
15 general.

16 Q Okay. But in terms of areas of the law, have  
17 been mostly patent cases, product liability?

18 A Mostly, I want to say almost exclusively,  
19 patent cases, yes.

20 Q And a mix of, you know, A to Z IPR  
21 proceedings as well as District Court proceedings?

22 A Yes. So IPR, District Court, then some ITC

1 and so forth, yes.

2 Q Do you tend to represent the patent owner  
3 more than the either patent challenger or accused  
4 infringer?

5 A Yeah, I couldn't really say. I've done both.  
6 It's kind of half and half. Maybe it's 30/70,  
7 something like that. I mean, I've done both.

8 Q Is there one you enjoy more?

9 A No, not really.

10 Q I'm sure it's all so fun and so hard to pick  
11 favorites.

12 A I just like looking at the technology. It's  
13 good stuff.

14 Q What about specifically as a witness for  
15 Weber or its affiliates? How many times have you had a  
16 deposition taken in a Weber matter?

17 A So I think in the Weber matter, it was just  
18 the last one. I think it was once, maybe it was twice,  
19 but once or twice. Yeah. I can't recall specifically.  
20 But definitely had it at least once.

21 Q Would you describe the sort of work as  
22 litigation consulting? Is that a fair way of

1 characterizing it? Or how would you --

2 A Yeah, when people ask me, just expert for  
3 intellectual property and really the focus of the  
4 technical side of things. Yes.

5 Q How much of your body of work today is  
6 comprised of being an expert in litigation versus other  
7 activities?

8 MR. HART: Object to form.

9 A One more time on that, please?

10 MR. THOMAS: Yes. Today, one of the things  
11 you do professionally is you give expert testimony in  
12 litigation; is that right?

13 A Yes.

14 Q Do you do other things professionally?

15 A Oh, yes.

16 Q And what are those?

17 A Well, so my primary job is being a professor  
18 of mechanical engineering over at Georgia Tech. So  
19 there I teach mechanical engineering courses, a lot of  
20 design courses, manufacturing courses. I also do a  
21 fair amount of research in manufacturing and the  
22 machine area and so forth.

1           We support a number of -- of course, I get  
2   paid for being a professor but then there are a lot of  
3   unpaid things I do, including -- so I sit on the  
4   Advisory Committee for Nuclear Security for the  
5   Department of Energy. I sit on the Science and  
6   Technology committee for the Navy. Et cetera,  
7   et cetera. So, and those chew up a huge -- all of that  
8   chews up a huge amount of time.

9           I would say that this work here is a pretty  
10  small, you know, time constraints. Every so often, it  
11  sort of spikes when you have to come in and do this or  
12  work on a report and so forth.

13         Q     Sure.

14         A     But the bulk of it is other things in the  
15  professional area.

16         Q     If you were going to quantify that bulk as a  
17  percentage, what would you say the percentage of your  
18  work spent on litigation consulting is?

19         A     Oh. Maybe 4 or 5 percent. It's a pretty  
20  small number.

21         Q     Okay. That's by hours worked?

22         A     Yeah. I would say, you know, if I take a

1 look at days and so forth, you know, of the year, how  
2 many days, yeah.

3 Q Yes.

4 A And even today, before I came here, I had  
5 several hours with Navy an hour with the Department of  
6 Energy and so forth. So it's been a busy day already.

7 Q Yes. I saw the National Laboratory work in  
8 your report, which, you know, I won't ask about in case  
9 there's nuclear secrets, but it sounds pretty cool.

10 How much or is anything that you're working  
11 on research-wise today, is that in the food industry?

12 A Well, we actually do support a fair amount so  
13 I also oversee all of manufacturing over at Georgia  
14 Tech. So it's a fair amount of food processing and  
15 agriculture and so forth that our operations encompass.

16 So I would say that -- I mean, I'm very well  
17 aware of what we're doing there. Sometimes we provide  
18 input in terms of a lot of similarities on design and  
19 capability and processing and so forth. But I don't  
20 have any, at present, current projects sponsored, let's  
21 say, in the food processing area.

22 Q Okay. You're not the food guy at Georgia

1 Tech but folks who are doing that work might work under  
2 your department umbrella. Is that what you're saying?

3 A Yes, they work under my institute, but you  
4 could consider it a department if you want. And, yeah,  
5 so they will -- they'll typically head up the project,  
6 but they'll bring myself in or various teams in to help  
7 them out in certain areas, you know, in terms of a lot  
8 of the high-speed processing and things like that and  
9 so forth.

10 Q When's the last time you worked directly on a  
11 high-speed food processing project outside of  
12 litigation?

13 A Oh, outside of litigation? I'm just trying  
14 to think. We probably had several discussions of  
15 those, like -- like I was supposed to give a seminar to  
16 a team which was canceled just because it's so close to  
17 Christmas. They said we're not going to get enough  
18 people to join up. But probably within the past few  
19 months, we were engaged with our food processing  
20 people. We're actually putting together a large  
21 proposal right now on AI and manufacturing. And so  
22 we're bringing together our food people and so forth

1 and how do we weave that in and move that forward into  
2 the overall proposal.

3 Q Okay. But your role then is more management,  
4 supervisory, rather than actually doing the research  
5 into food technology?

6 A It's technology integration. Yeah, I have  
7 some of the management stuff but, yeah, they bring me  
8 in there to say, Okay, how do we integrate it together  
9 and use the technology, and so forth. Yeah.

10 Q Just to quickly touch on a few deposition  
11 ground rules. You understand, as I have been saying,  
12 that today I'll be asking you questions and unless your  
13 counsel instructs you not to answer, you'll be giving  
14 me truthful answers to those questions?

15 A That's fine, yes. Of course.

16 Q If you don't understand any of the questions  
17 that I ask, you'll let me know that so I can clarify?

18 A Yes.

19 Q And I'll probably be trying to take a break  
20 every hour or so, but if you need a break at a  
21 different schedule, just let me know. And the only  
22 thing I'd ask is that you finish asking whatever

1 questions is on the table at the moment. Does that  
2 work?

3 A That's fine. Thank you.

4 Q Anything today that would keep you from  
5 giving truthful or accurate testimony?

6 A No. Nothing.

7 Q What did you do to -- what did you do to  
8 prepare for today's deposition?

9 A Went over my declaration. Went over several,  
10 you know, whatever the reports, from the expert. Of  
11 course, reviewed all of the material, the different  
12 patents that are cited in the -- in the other expert's  
13 report. Conversations with lawyers. Just reviewed my  
14 notes and put together different notes and reviewed  
15 those and refined those. That's about it.

16 Q And I see you have in front of you one copy  
17 of your declaration. Your understanding is that that's  
18 identical to -- withdrawn.

19 I see you have one copy of your declaration  
20 and I believe it has an exhibit stamp. What matter is  
21 that stamped from?

22 A When you say, "what matter," do you want the

1 IPR?

2 Q Yes, please.

3 A Yes. IPR 2024-00269.

4 Q Okay. And your understanding is that in IPR  
5 2024-00258, you filed a completely identical expert  
6 declaration; is that right?

7 A Yes, I believe so.

8 Q All right. So we'll work off this one. And  
9 I don't think there will be any need to distinguish,  
10 but if there is, just please let me know, if you need  
11 to say, this is my '013 declaration; this is my '823.  
12 But again, I think they're one and the same.

13 How long did you spend reviewing your  
14 declaration?

15 A Well, probably -- I don't know. I should  
16 have actually added it all up. I'd probably say in  
17 terms of reviewing all the different materials,  
18 probably 15, 20 hours or so. I don't know, just a few  
19 hours here, a few hours there.

20 Q Over the course of about a week or so?

21 A Couple of weeks.

22 Q Couple of weeks?

1 A Yeah.

2 Q Do you recall specifically which exhibits you  
3 reviewed for this deposition?

4 A Well, again, certainly, my report. We looked  
5 at the other experts -- I looked at the other experts'  
6 report. Definitely several of the different patents  
7 that are referenced. And I think -- I also did take a  
8 look at the transcript from the deposition, I think,  
9 from the expert.

10 Q When you said you reviewed some of the  
11 patents, do you recall which ones those were that you  
12 reviewed?

13 A Oh. Let's see. So there was the -- the  
14 Muller patent. The Waffner patent. GEA patent.  
15 The -- I'll have to go back now and -- let's see. I  
16 can pop in here and tell you. But the ones we talked  
17 about in here, I did review.

18 Q Okay. So the ones that are specifically  
19 listed in the section headings?

20 A Yes. Yeah. I mean, yeah. That makes it  
21 easy, right? And I know I'm supposed to go and take a  
22 look at my report and so forth. Yeah, so there's

1 Muller, GEA, I always called it, G-E-A, but I guess  
2 everybody calls it GEA. DePoi. We've got Jordan in  
3 there. And -- I think -- I think that was it, if I'm  
4 not missing any.

5 Q Did you review any document or other  
6 materials that were not disclosed in your declaration?

7 A No, I don't believe so.

8 Q Oh, have you reviewed any of the briefing  
9 submitted as papers in either of these two IPRs?

10 A So just the initial briefings? Or -- I'm  
11 not. . .

12 Q Yes. So -- right. There was the initial  
13 petition.

14 A Yes.

15 Q There was a patent owner preliminary  
16 response. There was a patent owner response. And  
17 there was an institution decision by the board. Of  
18 those four documents, I guess eight documents, because  
19 there's two cases, do you recall reviewing those?

20 A Yeah. I don't recall one or the other. I  
21 really focused on expert reports and what the expert --  
22 that was my, as you know, my task, was to review that

1 report and comment on it, opine on it.

2 Q During the course of your review, did you  
3 speak with any attorneys?

4 A Yes.

5 Q Who?

6 A Well, with the two attorneys here and then,  
7 Nina, what's the --

8 MR. HART: Canina [phonetic].

9 A Canina, yeah.

10 Q (By Mr. Thomas) And about how long did you  
11 spend meeting with them?

12 A Well, I spent the bulk of the day yesterday  
13 and then we probably had several -- several web  
14 meetings, you know, right around an hour apiece or so.

15 Q I recall earlier you said you don't believe  
16 you've considered any of the materials from the  
17 co-pending District Court proceeding. That's right?

18 A Yeah, I don't -- I don't think so. Pretty  
19 much, it was whatever was in the expert's report and  
20 the material that he relied on. As well as his  
21 deposition.

22 Q Do you see on the face of both of these

1 patents that a Mr. Tobias Einloft-Velte and a  
2 Mr. Thomas Nispel are listed as inventors?

3 A Yes.

4 Q Were you aware that those two inventors had  
5 their deposition taken in the District Court?

6 A I don't think so.

7 Q So you don't recall reviewing any of their  
8 deposition testimony about their inventions?

9 A No. No, I don't think so.

10 Q Do you think that deposition testimony from  
11 an inventor would be useful information in determining  
12 how a person of skill would interpret these patents or  
13 the prior art?

14 MR. HART: Object to form.

15 A Yeah, I don't know. I haven't really thought  
16 about it, so -- yeah.

17 Q (By Mr. Thomas) You didn't ask to speak with  
18 the inventors or read their depositions?

19 A No. You know, I was, again, just asked to  
20 take a look at the report of experts and comment on  
21 that or opine on that report.

22 Q Do you have any understanding of who Weber

1 hires as engineers or machine designers?

2 A No. I don't -- I don't believe I have much  
3 of an understanding there.

4 Q So you wouldn't be able to tell one way or  
5 the other if Mr. Einloft-Velte or Mr. Nispel was a  
6 person of ordinary skill?

7 A Once again, given the information that I  
8 have, no, but I think that's a pretty clear definition,  
9 and so I would say if they met that definition that's  
10 been agreed upon, then they would be a person of  
11 ordinary skill in the art.

12 Q Were you aware that another expert was hired  
13 by Weber to provide opinions regarding the validity of  
14 the '013 and '823 patents?

15 A So I know that there are other experts. I  
16 don't know what their particular jobs are.

17 Q Have you ever met Dr. Claire Sands?

18 A No, I don't think so.

19 Q Have you ever read an expert report that  
20 she's authored?

21 A Not -- not that I can recall. At least for  
22 this. Yeah, I don't recall.

1           Q     Do you have any awareness of the positions on  
2     invalidity that Weber is taking from through experts in  
3     the District Court proceedings?

4           A     No, huh-uh.

5           Q     Would it surprise you if your opinions were  
6     inconsistent with theirs?

7           A     You know, my opinions are based on -- I keep  
8     tapping over here, but my opinions in here are based on  
9     the reports. So I'm just commenting on the reports.  
10    So I don't know what their opinions are or what they're  
11    working on and so forth. So I couldn't tell if I'd be  
12    surprised one way or the other.

13          Q     But you have confidence in your opinions?

14          A     Yes, I do.

15          Q     You believe they're correct to a reasonable  
16    degree of engineering certainty?

17          A     Yes. I do.

18          Q     Before your involvement in the litigation  
19    between Provisur and Weber, either this IPR litigation  
20    or the previous one, had you ever heard of the company  
21    Weber?

22          A     So before, by -- this one or the previous one

1 I was in. I don't know. It doesn't particularly sort  
2 of stick out. But we do see a lot of different  
3 equipments and machines across the board, so -- but  
4 nothing particular sticks out.

5 Q What about Provisur?

6 A Again, I don't believe so. But. . . may have  
7 come across it in the past 35, 40 years.

8 Q Formax?

9 A Again, same answer. Don't recall, but  
10 nothing in particular sticks out.

11 Q GEA? G-e-a?

12 A G-e-a. Oh, not "Geea," "Geiya." Is that  
13 right?

14 Q That's I think that's how the Germans say it,  
15 and I defer to that.

16 A No, I have not.

17 Q What about CFS?

18 A No, I don't think so.

19 Q Had you ever seen a high-speed industrial  
20 meat or cheese slicer?

21 A So before the previous one in 2022. I've  
22 been to plenty of processing plants, but I don't think

1 one where we were actually taking a look at specific  
2 meat and cheese slicers at high speed.

3 Q What about any high-speed interleaving  
4 machines?

5 A So you mean where we're putting the paper  
6 down in between product.

7 Q Yeah, I guess we should start there. What is  
8 your understanding of the term "interleaving" as a  
9 verb?

10 A So my understanding is we've got product, in  
11 this particular case it's, you know, meat or cheese or  
12 food slicers. And you want to put that piece of paper  
13 or sheet of something in between the pods. So in terms  
14 of interleaving with food products, no. We have had a  
15 lot of paper handling type of machines with a lot of  
16 research projects with International Paper or Georgia  
17 Pacific.

18 Certainly, when you pack, let's say,  
19 bearings, at least in the old days, we used to pack  
20 them with oil paper covering them. And so you would  
21 interleave the oil paper in between the bearings and so  
22 forth. And that would happen at pretty high rates.

1 Q By hand or by machine?

2 A Oh, by machine.

3 Q So what sort of paper machines have you  
4 examined?

5 A Well, everything from things like copy  
6 machines and printers all the way to big roll-to-roll  
7 printers and paper processors, the types of machines  
8 that actually make the papers and so forth.

9 Q Okay. And in what years have you had those  
10 paper handling experiences?

11 A Well, it's probably up to ending -- it was  
12 probably -- I want to say probably pre-COVID. So last  
13 round in that area was probably in the late teens,  
14 2017, '18, '19. And some of the students and I went  
15 off to Department of Energy in Oak Ridge. I still had  
16 some students wrapping up the project while I was  
17 there. So 2019, 2020.

18 Q What about earlier experiences, sort of  
19 getting prior to at the time of the patent, did you see  
20 in the paper handling?

21 A Yeah. So in terms of paper handling as I  
22 mentioned with bearing, packaging and so forth,

1 material handling, that would have been -- I'm just  
2 trying to think -- probably all the way back into the  
3 mid-to-late '80s.

4 Q Okay. How did the bearing packaging machine  
5 insert those oil paper interleaves between the  
6 bearings?

7 MR. HART: Object to form.

8 A So -- so a bearing typically have a -- these  
9 would be roller bearings that I'll talk about. They  
10 have an inter raceway, which looks like a cone, and  
11 you've got a bunch of rollers that are on top of a cone  
12 that are held on by a cage. And typically, you would  
13 put a -- so you've got -- I apologize.

14 You know, without the video, right, but  
15 you've got a bearing. You sort of stack them together.  
16 And then the cup goes on top of it and that's the part  
17 that sort of comes apart. You would typically put --  
18 you would put an oil paper below the bearing, then  
19 between the cup and the rollers.

20 And then you put the cup down and then you  
21 put the paper on top of the -- on top of the cup and  
22 then it would go into the box for shipping.

1           Q        (By Mr. Thomas) And in terms of the machine  
2 that was actually putting the paper in, how would that  
3 work?

4           A        Oh, gosh. Well, it was basically, it was  
5 a -- it was a paper dispensing machine. We had a big  
6 roll. It was a pretty heavy oil paper. And yeah, you  
7 would feed the paper through, typically you would  
8 have -- you would have a -- you'd want to control the  
9 unrolling, because those rolls are enormous.

10                   They had a lot of inertia, so you would  
11 control the speed of the roll and the paper was pretty  
12 robust. So you could do a little bit of pulling on it  
13 with tension. And then you would have some type of  
14 buffer to make sure that you didn't pull on the roll  
15 too hard to tear the paper.

16                   And then you would go into a separate system  
17 that would isolate the big roll area into the separate  
18 piece of paper where you would actually -- I can't  
19 remember exactly how we would -- where we would cut it  
20 off and so forth, but you'd have a little bit of a  
21 buffer there. And then drop it directly on top of the  
22 packaging area.

1           Q     Okay.  So it sounds like you were describing  
2     a machine that had two buffers?  Or just one buffer?

3           A     You know, it's been some time, but I am  
4     pretty sure that we had a -- we certainly had the big  
5     buffer at the roll and then we would have a -- you  
6     know, we would certainly have a big buffer with the  
7     roll.  And we would probably have something -- I don't  
8     know.  But there was a big buffer with the roll.  We  
9     had our dancer, and so forth with our serpentine belts,  
10    et cetera, et cetera.

11          Q     Okay.

12          A     Not unlike the machines we're looking at  
13    today, right?

14          Q     Do you recall -- an order of magnitude, I  
15    think, is fine, but do you recall sort of what tension  
16    setting that dancer was at in terms of adding tension  
17    to the buffer?

18          A     No, absolutely not.  Yeah.  That's a long  
19    time ago, and so forth.  And, you know, I said you make  
20    sure it didn't rip and these are pretty robust pieces  
21    of paper.  If you think about the paper that we were  
22    looking at, was kind of on the order of how a brown

1 paper bag would be, like a grocery bag, so a little bit  
2 thicker.

3 Q A little bit thicker and more robust than the  
4 types of interleaf you find in meat and cheese?

5 A I think so, yes. I haven't run any types of  
6 tests or anything like that, but they tend to be more  
7 flimsy.

8 Q And in that machine, was there a high  
9 accelerations and high decelerations as paper was being  
10 fed to be cut?

11 A Again, I'm not -- you know, I don't know what  
12 high accelerations and decelerations were, but we were  
13 packing a fairly -- you know, a fairly large quantity  
14 of bearings, an hour per minute and so forth. So  
15 things were moving along pretty quickly.

16 Q Do you think the interleaves per minute, that  
17 rate would be higher than in the food processing prior  
18 art in this case? Lower? About the same?

19 A Oh, I couldn't really tell you.

20 Q Is there any vacuums used in that machine?

21 A I don't recall.

22 Q You don't recall if it was one buffer loop or

1 two?

2 A No, I don't recall the inner workings and so  
3 forth.

4 Q Okay. Do you think either could have been  
5 used?

6 MR. HART: Object to form.

7 A Again, I don't know. I don't have a good  
8 feel for that. It's been some time since those  
9 machines. Yeah.

10 Q (By Mr. Thomas) I think you already said.  
11 What year was this?

12 A It would have been mid-to-late '80s, maybe in  
13 the early '90s.

14 Q Okay. Do you recall any of the sensors that  
15 were used in that machine?

16 A Yeah. Some. There were proximity sensors.  
17 So is something close or not, is it -- we had light  
18 sensors, so does it break the beam of light? Yes. Is  
19 there a material there or not? Which would tell you if  
20 the roll had gone off track. Certainly, we had a  
21 tachometer, which tells us the speed of the roll and so  
22 forth.

1 But that's about it. I'm sure there was a  
2 whole bunch more. It was a very complicated machine.  
3 A lot of things going on with it, but, yeah, I don't  
4 recall the details there.

5 Q Was it controlled by integrated circuits  
6 because of central machine control?

7 A So I would guess that there was an integrated  
8 circuit, you know, on there, but I would say that it  
9 was probably controlled by a PLC, a programmable logic  
10 controller.

11 Q Okay. That 1980s period seems like a turning  
12 point between machines being controlled by chips and  
13 machines not being controlled by chips. Is that a fair  
14 takeaway I've gotten from this all?

15 A Well, no. We had, back in the '70s, we had  
16 computer controlled machines and things like that. It  
17 sort of depends on how much you wanted to do with --  
18 with the computer and so forth.

19 Certainly, today, the machines do a lot more  
20 with the computer than we did, let's say, back in the  
21 '70s and '80s.

22 Q Oh, do you recall if in that ball bearing or

1 bearing interleaving machine, were there any brakes  
2 used on the paper?

3 A That, I -- I don't recall.

4 Q I think you describe in your report earlier  
5 today as well that your background is in high-precision  
6 manufacturing and meteorology systems; is that correct?

7 A Metrology.

8 Q Metrology.

9 A Yes. Metrology is the science of  
10 measurement. Meteorology is the weather.

11 Q I think I split the difference there.

12 A You did. Yes, you did. So people -- they  
13 hear, you're so -- so you're a weatherman. No, I'm an  
14 engineer and so forth. Yes.

15 Q Could you just describe in your own words  
16 what that means, precision manufacturing and metrology?

17 A Metrology.

18 Q Metrology.

19 A We'll get there. It's okay. I know what  
20 you're talking about.

21 Yes. So if you take a look at any  
22 high-precision system, and these exist across the

1 board, certainly, automotive, aerospace. But a lot of  
2 the sensors and so forth and capabilities, even in the  
3 food processing area, how do you control an  
4 electro-mechanical system to give you a part, whether  
5 that part is a high-precision bearing or it's a finely  
6 tuned and controlled slice of meat or cheese to give  
7 you an exact weight, how do you implement that?

8           How do you design a machine to do that? What  
9 sensors are needed? So what types of measurements do  
10 you have to take and how do you take those measurements  
11 and then control your system to give you your desired  
12 outcome?

13           Q     Okay. How would you describe your experience  
14 level in the field of web handling?

15           A     So in terms of web handling, we've done a lot  
16 of work on the machines and web handling, the focus has  
17 been more on the diagnostics. You know, how is the web  
18 handling doing? What types of sensors do we have? Or  
19 even taking information off of the sensors that are  
20 there, and understanding the process better.

21                     So in general, my team comes in to take a  
22 look at those types of machines and figure out how to

1 improve their capabilities, reduce their down time, or  
2 improve their up time. And make sure that, in fact,  
3 really, the overall goal is improve consistency.

4 That's really what manufacturing is all  
5 about. You just want the machine to do the same thing  
6 every time. Hopefully, that same thing is make a good  
7 part.

8 Q What are some of the variables that are  
9 important in improving consistency in web handling?

10 A Oh, gosh, you know. There are a number of  
11 them. It depends on the type of web you're using and  
12 so forth. But certainly, things like the tension on  
13 the -- on the material going through the machine. If  
14 you're actually doing paper processing, you've got --  
15 you're taking a look at -- if I think in processing, I  
16 mean in terms of making the paper, you're looking at  
17 things like water content and so forth of the paper.  
18 Humidity. Temperature.

19 You're going to have to be careful about any  
20 vibration that goes on in your web. You can get  
21 standing waves, so you can get bouncing in your  
22 material and everything like that. Certainly, the

1 velocity of the material going through. I think  
2 acceleration. I think we all remember back in high  
3 school, Newton,  $F = ma$ .

4 So a lot of times, the tension does relate  
5 to, in a big way, to accelerations. Not just velocity,  
6 but acceleration. And there may be positional issues  
7 as well. What is the position of the web, whether  
8 it's, you know, along the path of the web or  
9 dynamically as it aligns to the roller and so forth.

10 Q In what ways does the tension relate to  
11 acceleration?

12 A Well, if you pull on something harder, it  
13 will accelerate more.  $F = ma$ . Force equals mass times  
14 acceleration, for the record. But, yes. So again, you  
15 know, you're pulling something along. If you pull  
16 harder, I mean, we've all, I think, unrolled paper in  
17 various operations, right? If you pull slowly, it  
18 doesn't move very fast. If you pull faster -- I mean  
19 if you pull harder, it moves faster. And if you really  
20 give it a yank, you can actually just tear the paper.

21 Q But the tension would increase too much if  
22 you gave it a yank?

1           A       Yes, and you'd cause the tension to be too  
2   high in the paper and you'd cause it to tear.

3           Q       And one way to avoid that would be to hold  
4   the paper in a low-tension buffer so even when you gave  
5   it a yank, the tension wouldn't increase to a tearing  
6   point. Is that fair?

7           MR. HART: Object to form.

8           A       I'm not sure what a low-tension buffer is.  
9   If you -- I guess -- could you clarify that in terms of  
10   what you're thinking there? I know there are all sorts  
11   of different buffers and things like that. So. . .

12          Q       (By Mr. Thomas) Sure. So it would be  
13   possible to have your web material in a buffer before  
14   whatever roller or motor is accelerating it quickly; is  
15   that right?

16          A       Yes. So if you had a buffer, you know,  
17   where, let's say, the -- the paper is loose and there  
18   was no tension on it. And then if you would pull on  
19   it, certainly, if you accelerated rapidly, there's  
20   still some force through the acceleration but you're  
21   not trying to pull, you know, off of the roll.

22                  Again, I think about paper towels. I can

1 have five paper towels and we've got the perforation in  
2 a roll and if they're not attached to the roll and I  
3 pull it really fast, probably not going to tear along  
4 the perforations unless you pull very, very hard and  
5 accelerate a lot. If it's attached to the roll, and I  
6 think we do this all the time. You give it a quick  
7 yank and it'll tear right at the perforation. So. . .

8 Q So you'd want a low-tension area isolating  
9 the high-inertia roll from the high acceleration  
10 downstream process.

11 A I think you do not want to have that high  
12 acceleration -- that variation, all right, in terms of  
13 acceleration. You don't want that pulling on the roll,  
14 on that high inertial roll. These rolls can be pretty  
15 big, you know.

16 And so, yeah, if you'd really accelerate that  
17 material and try to move that roll quickly, if --  
18 again, you might drive the roll with a motor. Okay,  
19 that's fine and so forth. But, yes, it's nice to have  
20 a buffer in there to make life a little bit easier.

21 Q So the buffer would lower the tension and the  
22 driving accelerations would raise the tension but not

1 enough to break it.

2           A     So -- it's not quite -- so the buffer -- it  
3 decouples the high-inertia part of the roller. Again,  
4  $F = ma$ . Force equals mass times acceleration. If I've  
5 got a high acceleration and I've got a large mass over  
6 here, I'm going to get a large force. If I've got a  
7 buffer in between, and so I'm only accelerating a small  
8 piece of paper, then my force is smaller, a lot  
9 smaller, so I'm not going to tear.

10                So what you're doing is you're making sure  
11 that you don't have the high-speed acceleration that  
12 drops off a piece of paper the size of, let's say, a  
13 slice of cheese in this case.

14                So you're going to accelerate it a little bit  
15 but you're not yanking on the big or pulling on the big  
16 roller at the time. So that's what the buffer is  
17 doing.

18           Q     And if that buffer were controlled with, for  
19 example, a dancer roller, would you want a high-inertia  
20 dancer roller or low-inertia roller for that purpose?

21                MR. HART: Object to form.

22           A     Yeah, I don't know. I'd have to take a look

1 at -- you know, what your definition of high inertia,  
2 low inertia and the whole bit. It's getting a little  
3 bit -- I'm happy to talk about some of the simple  
4 design stuff. We start to get into high inertia  
5 dancers, low inertia dancers, I haven't thought too  
6 much about that.

7 Q (By Mr. Thomas) Without doing the math and  
8 knowing the numbers, you can't really give an opinion?

9 A Exactly, yeah. Because again, if you think  
10 about it, what is a high-inertia roller, what are the  
11 tension levels that you need, and so forth. And so  
12 there's a lot of -- a lot of information that has to  
13 get in there.

14 Q All right. You have in front of you  
15 the '013 Patent, right?

16 A I sure do, yes.

17 Q And you've reviewed and analyzed this patent  
18 before?

19 A Yes.

20 Q How would you describe the invention claimed  
21 in this patent?

22 MR. HART: Object to form.

1           A       Yeah, I mean, I -- I guess I would say, look,  
2       the patent speaks for itself. You know, I wasn't  
3       really just asked to analyze the patent and so forth.  
4       So I'll just say the patent is what it is. You know,  
5       my job was to take a look at the expert's report and  
6       comment on the combinations that the expert put  
7       forward.

8           Q       (By Mr. Thomas) It's an interesting point.  
9       Your report doesn't take the position that the proposed  
10      combination is missing any of the claimed elements from  
11      the patent, right?

12                 MR. HART: Object to form.

13          A       My -- my report is really taking a look at  
14      what the -- what the expert wrote and then just  
15      commenting on -- on the concepts put forth by the  
16      expert.

17          Q       (By Mr. Thomas) And so I think, for example,  
18      one of the things that comes through very clearly to me  
19      in your report, is that you disagree that the  
20      motivations that Mr. Jobin identified, you disagree  
21      that a person of skill would be motivated in that way,  
22      right?

1           A       Yes, through the combinations that he put  
2 forward, yes.

3           Q       But I don't see any opinion in here that,  
4 assuming for argument's sake that that combination was  
5 made, I don't see you take the position that that  
6 combination would not meet the claimed elements of  
7 the '013 Patent. Is that a correct understanding of  
8 your opinions?

9                   MR. HART: Object to form.

10          A       Again, I wasn't asked to -- I don't have an  
11 opinion on that. I wasn't asked to opine.

12          Q       (By Mr. Thomas) Okay.

13          A       On that, yeah.

14          Q       No -- I guess as a lawyer, I would call it a  
15 missing element. No opinions that there are missing  
16 patents and elements from the proposed combination.

17                   MR. HART: Object to form.

18          A       Yeah, once again, I was only asked to take a  
19 look at Mr. Jobin -- Jobin; is that right? His report  
20 and his combinations, so that's what I focused on.

21          Q       (By Mr. Thomas) And the same is true for the  
22 '823 patent. You don't have an opinion that the

1 proposed combination is missing elements claimed by the  
2 '823 patent.

3 MR. HART: Object to form.

4 A Again, yeah, I was only asked to comment on  
5 Mr. Jobin's report. So I did not take a look at those  
6 at all.

7 Q (By Mr. Thomas) You did not take a look at  
8 what at all?

9 A The question you asked. If you could read  
10 back the question.

11 THE REPORTER: "And the same is true for the  
12 '823 patent. You don't have an opinion that the  
13 proposed combination is missing elements claimed by the  
14 '823 patent."

15 A Right. I wasn't asked to do that, so I  
16 didn't do that.

17 Q (By Mr. Thomas) Okay. So to what extent did  
18 you review the '013 Patent?

19 MR. HART: Object to form.

20 A Again, I read it over, but my main focus was  
21 on the report and the combinations that were put  
22 forward in the report.

1 Q (By Mr. Thomas) Have you looked at the  
2 claims of the '013 Patent?

3 A Some time ago.

4 Q In doing so, did you come to a conclusion on  
5 how a person of skill in the arts would understand the  
6 meaning and scope of those claims?

7 MR. HART: Object to form.

8 A Again, I wasn't asked to think about that, so  
9 I really did not focus on -- I keep putting it over  
10 here. This is my declaration. But on the report, yes.

11 Q (By Mr. Thomas) Did you read the file  
12 history that preceded the issuance of the '013 Patent  
13 and '823 Patent?

14 A You know, I can't recall. I may have. My  
15 main focus, again, I know I keep repeating myself, but  
16 just so to be clear. It was really on Mr. -- what's  
17 his name again?

18 Q Jobin.

19 A Jobin. I keep wanting -- I had a colleague  
20 named Tobin. I keep wanting to call him Tobin. But  
21 Mr. Jobin's report is what the focus was on and the  
22 various patents that he put in his report.

1 Q Can you turn to the end of the '013 Patent  
2 and find claim 2?

3 A Yes.

4 Q What's a material store as it's used here?

5 MR. HART: Object to form.

6 A Again, I -- I don't have an opinion on that.  
7 I was not asked to look at it. And I'm just not ready  
8 to give you an opinion on that, just off the cuff here.

9 Q (By Mr. Thomas) Okay. What about a removal  
10 device for a removal of a material web from the  
11 material store?

12 MR. HART: Object to form.

13 A Again, same thing. I was really asked to  
14 comment on Mr. Jobin's report, and not on the patents  
15 or the claims themselves.

16 Q (By Mr. Thomas) Okay. What about a loop  
17 store defining a space for the material web --  
18 withdrawn.

19 What about a loop store defining a space for  
20 the removed material web to form a loop, the loop store  
21 located between the material store and the cutting  
22 region? What's your understanding of the scope of that

1 term as used in this patent?

2 A Once again, I wasn't asked to take a look at  
3 scopes and understanding and hone in on the particular  
4 patents. So I don't have an opinion at this point in  
5 time on that.

6 Q Okay. What about a contact surface having at  
7 least a portion thereof that is air permeable, the  
8 contact surface at least partially bounding the loop  
9 store and at least partially covered by the loop that  
10 contacts the contact surface?

11 A And once again, and I'll just, really, if  
12 it's not in my declaration, then I'm really not -- I  
13 wasn't asked to take a look at it. So I'm not  
14 comfortable at this point in time saying, here's an  
15 opinion on these types of things. My understanding is  
16 we're going to focus on the declaration.

17 Q What about a device for determining a size of  
18 the loop formed in the loop store, the device detecting  
19 changes in at least one of a pressure differential in a  
20 flow condition, the pressure differential being a  
21 difference in pressure between a first side of the  
22 contact surface and a second side of the contact

1 surface, the flow condition being a change of the flow  
2 of air through the air permeable portion of the contact  
3 surface, wherein the changes in the pressure  
4 deferential and/or the flow conditions represent a  
5 varying influence of the material loop on the air  
6 permeable portion on the contact surface that is  
7 provided as a measure for the loop size?

8 MR. HART: Object to form.

9 A Quite the sentence. But once again, I really  
10 haven't formed an opinion there. I wasn't asked to do  
11 so, so I did not do that.

12 Q (By Mr. Thomas) It is quite the sentence.  
13 Any idea of what is meant by that?

14 MR. HART: Object to form.

15 A Again, I think I'm going to pass on that  
16 question, because I really haven't thought about it,  
17 and I just -- you know, I know this is very important  
18 and in order to give you an opinion there, that's  
19 something that I would have to think about.

20 Q (By Mr. Thomas) Okay. On pages 12 and 13 of  
21 your report, you give a, what you describe as a Brief  
22 Overview of the '013 and '823 Patents?

1 A Yes.

2 Q And in your position, sitting here, is that  
3 you did not perform any claim construction of any claim  
4 term from either of those two patents in order to  
5 opine -- to opine on the '013 and '823 patents?

6 MR. HART: Object to form.

7 A Again, I just focused on responding to  
8 Mr. Jobin's report. So I didn't put anything like that  
9 together.

10 Q (By Mr. Thomas) Do you have any  
11 understanding of the legal standard for interpreting  
12 claim terms?

13 A No, I'm not a -- I'm not a legal expert. I  
14 leave that to the lawyers.

15 Q I guess for -- and one moment.

16 And in your report on pages 8 through 12, you  
17 provide an overview of Relevant Legal Principles?

18 A Yes.

19 Q And I don't see there any legal principles  
20 about claim instruction.

21 THE REPORTER: Instruction or construction?

22 MR. THOMAS: I may have said instruction.

1 Withdrawn.

2 Q (By Mr. Thomas) There's no paragraph in this  
3 section for relevant legal principles about claim  
4 construction. That's correct?

5 A Yes. Unless I'm missing it and so forth.  
6 Yeah. I don't think it's there, yeah.

7 Q The attorneys didn't instruct you on how to  
8 construct a claim?

9 A No, I don't believe so.

10 Q I do see, though, in paragraph 21, you write  
11 that you understand that a patent claim is invalid if  
12 it is anticipated or obvious in view of prior art, and  
13 that a claim can be unpatentable even if all of the  
14 requirements of the claim cannot being found in a  
15 single prior art reference. Do you see that sentence?

16 A Yes.

17 Q How can you determine the requirements of the  
18 claim without knowing what those claim terms mean?

19 MR. HART: Object to form.

20 A You know, again, I'm not a legal expert. My  
21 job was to take a look at Mr. Jobin's report and  
22 address what he -- you know, give an opinion of what he

1 wrote in his report, in particular with the  
2 combinations that he put forward.

3 Q (By Mr. Thomas) Do you think that your  
4 declaration and your opinions relate to obviousness?

5 A I -- you know, I don't -- again, we'd have to  
6 go back and take a look. There's obviousness there, so  
7 if you want me -- to point me to a spot where we talk  
8 about it, I'm happy to talk about it in my report.

9 Q Paragraph 21 talks about obviousness. Why is  
10 that?

11 A I think that that's just laying some of the  
12 background information. If you want to specifically  
13 talk about where I opine on obviousness, that would be  
14 great. I'd be happy to talk about it.

15 Q Your understanding, though, is that this  
16 report is not giving an opinion on obviousness.

17 MR. HART: Object to form.

18 A My report is to take a look at Mr. Jobin's  
19 combinations. And that's what I did and talk about  
20 what he did. So my report was focused on his report.

21 Q (By Mr. Thomas) Did you understand from  
22 Mr. Jobin's report that he was giving an opinion that

1 the challenged patents claims were obvious?

2 A I'd have to go back and take a look. Again,  
3 my job was to say, Look, you know, do these come  
4 together? Do they make sense? You know. And would  
5 they -- would they work and, you know, would a person  
6 of ordinary skill in the art, you know, have thought  
7 about combining these? And that's what I commented on  
8 in my report.

9 Q You don't have an opinion that any claim of  
10 the '013 Patent is patentable; is that right?

11 MR. HART: Object to form.

12 A Again, I did not go through the '013 Patent  
13 and do any analysis along these lines.

14 Q (By Mr. Thomas) So that's a "no." You have  
15 no opinion as to whether any claim of the '013 Patent  
16 is patentable.

17 MR. HART: Object to form.

18 A Again, I -- I couldn't say one way or the  
19 other. I don't have an opinion because I wasn't asked  
20 to form an opinion.

21 Q (By Mr. Thomas) You have no opinion one way  
22 or the other as to whether Provisur has met its burden

1 of showing unpatentability for any claim of  
2 the '013 Patent; is that right?

3 MR. HART: Object to form.

4 A Once again, I was not asked to look at that.  
5 I was simply asked to look at Mr. Jobin's report and  
6 comment on, form opinions in his report.

7 Q (By Mr. Thomas) Okay. And you have no  
8 opinion one way or the other as to whether any  
9 challenge claim of the '823 patent is patentable.

10 MR. HART: Object to form.

11 A Once again, I was not asked to look at that,  
12 so I did not form an opinion.

13 Q (By Mr. Thomas) And no opinion one way or  
14 the other whether Provisur has met its burden of  
15 showing that any challenged claim of the '823 patent is  
16 unpatentable?

17 MR. HART: Object to form.

18 A And once again, I was not asked to look at  
19 that, and so I did not form any opinions on that.

20 Q (By Mr. Thomas) Can we go back to paragraph  
21 27 of your report?

22 A Yes.

1 Q You see you use the term "cutting region" in  
2 paragraph 27. Do you see that?

3 A Yes.

4 Q What's a cutting region?

5 A So a cutting region is where cutting is being  
6 done.

7 Q That's your opinion as a person of skill in  
8 the art as to how you use that term?

9 A Yes. You're cutting -- excuse me?

10 MR. HART: Object to form.

11 A Yeah. You're cutting the -- the paper, the  
12 interleave, or you're cutting the food product in the  
13 cutting region.

14 Q (By Mr. Thomas) Does the cutting region have  
15 to cut both paper and food product?

16 MR. HART: Object to form.

17 A So I was not, at least in this general term,  
18 in the view of the '013 and '823 patents, I was not  
19 asked to determine if that was the case or not. I  
20 think we do have a -- I think we do have -- I think  
21 it's Jordan, correct? I'd have to go back and take a  
22 look.

1 But there is an instance where, you know,  
2 that is an issue, and certainly, we can talk about that  
3 specific issue as I respond to Mr. Jobin's report.

4 Q (By Mr. Thomas) By you used these words,  
5 "cutting region," in your report, right?

6 A Yes, to provide background.

7 Q Okay. What about material store? What's a  
8 material store, as you use it?

9 MR. HART: Object to form.

10 A Again, that's just a general term. It  
11 doesn't have any specific meaning here. If we want to  
12 discuss that with respect to Mr. Jobin's report and his  
13 combination of different technologies, I'm happy to do  
14 that.

15 Q (By Mr. Thomas) Do you disagree that a roll  
16 of paper is an example of a material store?

17 A Once again, I'd have to take a look at what  
18 the context is. What the context is and so forth, you  
19 know. I know that there's a lot of -- what I would  
20 call it, pickiness, in terms of all sorts of different  
21 definitions and so forth.

22 So I would have to be given a very specific,

1     you know, content in terms of what we're talking about  
2     for material store.

3           Q     The context, I think, is paragraph 27. You  
4     write a material store, i.e., a roll of paper. You'd  
5     agree that a roll of paper is an example of a material  
6     store?

7           A     Okay. If that's the example, sure.

8           Q     And what about a loop store, which you use in  
9     paragraph 27? What did you mean by a loop store?

10          A     Again, I'd rather not get into generalities.  
11     This is a brief overview of the '013 and '823 patents  
12     to really set the stage. Really, my focus, if you want  
13     to talk about a loop store with any of the patents or  
14     technologies that Mr. Jobin brought up, I'm happy to do  
15     that.

16          Q     Well, I want to talk about a loop store as it  
17     relates to your other overview of the '013 and '823  
18     patents. So what did you mean by loop store?

19          A     If you want, we can go through the '013 -- I  
20     am I'm sorry, the '013 and '823 patents and find loop  
21     store in here. If it's in here then, you know, it is  
22     what it is and so forth.

1           So this is sort of a brief overview to get us  
2   to the, you know, to get us to the discussion of, you  
3   know, of the report.

4           Q     I think I understand that. But when you use  
5   the term "loop store" in your brief overview, what did  
6   you mean by it?

7           MR. HART: Object to form.

8           A     Well, I mean, I think if you want, we can go  
9   into and take a look at -- you know, we can take a look  
10  within the context of the patents and so forth. If you  
11  wanted to zero in on a particular text in the patents.  
12  But really, this was setting the stage to discuss the  
13  other technologies that were brought up. This was what  
14  my focus was on.

15          Q     (By Mr. Thomas) So sitting here -- and  
16  you're welcome to review the '013 or '823 patents. But  
17  sitting here, are you going to give me any meaning for  
18  what you meant by a loop store as you used that in  
19  paragraph 27?

20          MR. HART: Object to form.

21          A     Again, I used that as a general term. If we  
22  want to zero in on some specific technologies that were

1 discussed in the -- in the report, that is really where  
2 I'd be very happy to engage there, but again, this is  
3 general term.

4 I didn't want to provide anything, to say,  
5 well, this is conflicting with this other one and so  
6 forth, because loop store could be multiple things in  
7 some of the different technologies. And so. . .

8 Q (By Mr. Thomas) Right, and I'm asking you  
9 for your understanding of how you used that term in  
10 paragraph 27. Are you prepared to answer that  
11 question?

12 A It's just a general term. Let me go through  
13 the patents here and take a look at what it may be.  
14 Again, I wasn't asked to opine on the patents. It was  
15 a brief overview. But I'm happy to go through the  
16 patent and see if we can get to -- you know, see if we  
17 can get you an answer to that.

18 (Examines a document.) Yeah. So if -- if --  
19 let's see. We'll go back to the report here.

20 So I think if -- components of material  
21 store, a roll of paper or a cutting region. So where  
22 something is cut, and again, I know there were

1 discussions on cutting region, so I want to be careful.  
2 There are going to be very specific questions on the  
3 loop store between the store and the cutting region.  
4 So this is where you might have a loop of material  
5 that's in between the cutting region and the material  
6 region, let's say the roll of paper.

7 And again, I'm very careful about this. I  
8 want to make it very clear because there are all sorts  
9 of different definitions floating around and so forth.  
10 And I want to make sure that coming down the road, you  
11 don't say, Well, gosh, I think you already said that.  
12 Or you said something different.

13 Because there are different loops that are  
14 discussed in the various patents and, you know,  
15 technologies that are brought up. And this is why I'm  
16 being very cautious.

17 Q But as far as how you, Dr. Kurfess, use those  
18 two words in this paragraph, that explanation that you  
19 just gave, that's your opinion.

20 MR. HART: Object to form.

21 A Again, I wasn't asked to form an opinion on  
22 this. I'm just telling you, yeah, when I say that's

1     what we're talking about, that's what we're talking  
2     about. This is a brief overview, right? So is the  
3     brief overview part of my report? Yes.

4             You know, my main technical focus really  
5     starts when I take a look at the, you know, the  
6     proposed grounds and so forth.

7             MR. HART: Can we take a bathroom break?

8             MR. THOMAS: That works for me.

9             THE WITNESS: Sure.

10            THE REPORTER: We're off the record.

11            (Recess 10:12 a.m. to 10:21 a.m.)

12            THE REPORTER: We're on the record.

13            Q     (By Mr. Thomas) Welcome back, Dr. Kurfess.

14     Did you discuss the substance of your testimony with  
15     counsel on that last break?

16            A     No.

17            Q     Okay. And you understand that the IPR  
18     proceeding, you're not permitted to do that while  
19     you're on the clock for the deposition?

20            A     Yes.

21            Q     In the course of preparing for this -- for  
22     your declaration and for this deposition, you've read a

1 number of publications that relate to web handling; is  
2 that right?

3 A Yes.

4 Q For example, Muller, Jordan, Waffner,  
5 Fukuchi, Freyer, Fessler, Krohnert, GEA438 and DePoi  
6 all have web handling disclosures?

7 A Yeah, I believe so. Uh-huh.

8 Q And you were saying earlier that  
9 independently, you have some industry experience with  
10 web handling machines?

11 A Yes.

12 Q You'd agree that using a buffer before a  
13 high-acceleration process was known in the art prior to  
14 the inventions in these patents, right?

15 MR. HART: Object to form.

16 A So, you know, I think it's somewhat of a  
17 relative term, high-acceleration buffer and the whole  
18 bit. I'd really rather focus on -- on what I have  
19 written in my report. If there's a question with  
20 respect to a specific technology that we go over in the  
21 report that you want to point to, I'd be happy to  
22 integrate it in terms of that discussion.

1 Q (By Mr. Thomas) Muller has a buffer before  
2 the cutting area?

3 A Sure. You want to turn to -- shall we pull  
4 up Muller and go over it?

5 Q Eventually, but at a high level, you'd agree  
6 to that, right?

7 MR. HART: Object to form.

8 A Yes. Muller has a couple of buffers in it.

9 Q (By Mr. Thomas) Jordan has a buffer before a  
10 cutting area, right?

11 MR. HART: Object to form.

12 A Again, I'd have to -- I'd really -- my  
13 preference before we get into sort of the high level,  
14 let's go right to the details. If you'd like to pull  
15 it out and take a peek at it, we can take a look at it  
16 and pull it out, I'd be happy to do that.

17 Q (By Mr. Thomas) Understood. But I'd  
18 appreciate if you answered my questions as I asked  
19 them. You'd agree that Jordan has a buffer before its  
20 cutting area?

21 MR. HART: Object to form. The witness has  
22 asked for a copy of the reference. If he's going to be

1 asked questions about the reference, are you refusing  
2 to provide him a copy of the reference?

3 MR. THOMAS: Yes, at this point, I'm going to  
4 ask my questions and you're welcome to consult your  
5 report to answer them. The witness is.

6 MR. HART: He's asked for the reference  
7 specifically that you're asking him about. Are you not  
8 going to give him a copy of that reference? We talked  
9 earlier about what you had for exhibits and what you  
10 did not have. I thought you said you had copies of  
11 everything you'd talk about. Do you not have copies of  
12 Jordan that you could provide?

13 MR. THOMAS: At this time, I'm going to ask  
14 him based on the substance of his reports and if I give  
15 him copies of the references, it'll be later in the  
16 day.

17 MR. HART: Okay. I think that's a clear  
18 record.

19 Q (By Mr. Thomas) So based on your  
20 understanding of Jordan, does Jordan have a buffer  
21 before its cutting region?

22 MR. HART: Object to form.

1           A       That I -- this is very important, and I would  
2       rather not try and go through this out of memory.  
3       Let's take a look at the documents and so forth. And  
4       I'm happy to talk about it with the documents. But I  
5       mean, that's why we have the information in the  
6       documents in front of us, to make sure that we  
7       understand what we're talking about here.

8           Q       (By Mr. Thomas) On page 46 of your report.  
9       This is a figure from Jordan, right, with your  
10      annotations?

11          A       Yes.

12          Q       Does Jordan have a buffer before where the  
13      paper is cut?

14          A       So if I -- if I look at Jordan, we've got a  
15      loop of paper that's highlighted in green. I think  
16      that is 29. Yes, that loop, I would consider that a  
17      buffer.

18          Q       Excellent.

19          A       And this, I just want to make sure, there's  
20      so many different designs and what's a buffer and  
21      what's -- I'm not trying to be difficult. I just want  
22      to make sure that I answer the question correctly.

1           Q     I understand. What about Waffner? Does  
2     Waffner have a buffer?

3                     MR. HART: Object to form.

4           A     Again, where would you like to go to?

5           Q     (By Mr. Thomas) I mean, you're welcome to  
6     your report where you give your overview of Waffner.

7           A     (Examines a document.) Actually, it would be  
8     just so much easier. This is Waffner. Waffner Figure  
9     1. It's so much easier with all these different  
10    figures and all the similarities, if I could have the  
11    patent right in front of me.

12                    Here's Waffner, yes, we'd zero right in on it  
13    and it would be so much easier.

14          Q     Sure. So from that figure 1 of Waffner that  
15    you're looking at right now, can you tell whether  
16    Waffner has a buffer?

17                    MR. HART: Object to form.

18          A     Yes. So -- so here, we do have a -- a  
19    buffer. You know, that's down here in 31. This is a  
20    loop. Or, you know, a -- that allows sort of higher  
21    acceleration without having to accelerate. And again,  
22    this is figure 1. I would sure like to see -- yeah,

1 can I just have the patent, the Waffner patent? Is  
2 there a problem with not showing me the patent?

3 Q (By Mr. Thomas) I'm curious what you need  
4 the patent for.

5 A So I can take a look at the bigger picture of  
6 things and so forth.

7 Q Sure.

8 A Thanks.

9 MR. THOMAS: Let me know if you all want a  
10 copy.

11 MR. HART: I do, thank you.

12 Q (By Mr. Thomas) So the version I have is  
13 marked as Exhibit 1006 from the '013 proceedings.

14 A Thank you.

15 (Examines a document.)

16 Q Take a look through that and let me know if  
17 it changes your opinion on whether or not Waffner has a  
18 buffer.

19 A No, it does not. But again, it's good to  
20 have the whole context here. I know these are so  
21 important and I want to make sure that we do it right.  
22 Thank you.

1           Q     All right. Just so the record reflects, you  
2     spent probably, what, about 30 seconds looking at that  
3     to make a confirmation?

4           A     Yes. And that was just to make sure that I  
5     understood where this was, because different systems  
6     showed different elements and so forth. And I wanted  
7     to make sure I'm not confusing them with any of the  
8     other patents and elements in the patents, so.

9           Q     I'm glad you could quickly orient yourself.

10          A     Yes. I was pretty sure. I was pretty sure  
11     but I wanted to be, you know, a hundred percent for  
12     you.

13          Q     All right. So Muller has a buffer. Jordan,  
14     you point out, a buffer. Waffner, you just pointed out  
15     a buffer. Fair to say, the buffers were known in the  
16     art.

17          A     So, again, buffers are in -- you know,  
18     buffers are in the system, so clearly, if they're in  
19     the systems and that's the art we're looking at, then  
20     they're known in the art.

21          Q     Excellent. And these buffers are all in the  
22     form of a loop of material, right?

1           A       At least the ones that you have brought up,  
2    yes.

3           Q       And in those three that we just looked at,  
4    the -- the loop is not tensioned with a dancer roller  
5    or a similar tensioning device, right?

6           A       Yes. Correct. The loop is -- you know,  
7    it's -- it is a loose loop, so it's open, and it can  
8    flop around, if you will.

9           Q       So loose loops were known in the art?

10          A       Again, if that's our definition of a loose  
11   loop. This loop that we see here, say, 31 on Waffner,  
12   sure, if it's there, then it's known.

13          Q       Was monitoring the length of a loose loop  
14   known in the art?

15          A       So, yes. You could monitor the length of a  
16   loop, sure.

17          Q       What were some of the known ways of doing  
18   that?

19          A       Well, in some instances, so, for example,  
20   with Waffner, we've got -- we've got -- probably the  
21   easiest thing to do is take a look at how it's  
22   described here and make sure we get the numbers right.

1           (Examines a document.) So it's a vacuum  
2 chamber. So it's basically an air permeable vacuum  
3 chamber and as the loop gets shorter, more air is going  
4 to flow through there. So more air is going to tell  
5 you that, yes, the loop is getting shorter.

6           You have, for example, in Muller -- do you  
7 have a copy of Muller?

8           Q     That would help you understand how the loose  
9 loop in Muller is specified?

10          A     Well, you asked about how we sense the size  
11 of a loop. And so -- I just want to specifically point  
12 out where it would be, for example, in Muller.

13          Q     How did Muller sense the position or size of  
14 its loose loop?

15               MR. HART: Object to form.

16          A     Well, I was looking at -- let's see. Oh,  
17 yeah.

18               Oh, there you go. In 12, really, focusing on  
19 12, there's a contacting sensor. So 12 is a smaller  
20 loop on Muller. And they have a contacting sensor that  
21 says, yes, when I'm -- when I'm down and I'm contacting  
22 at this point, then I have got the size that I need.

1 So that's how you're measuring the size of that  
2 particular small loop on Muller.

3 Q (By Mr. Thomas) Is the -- withdrawn.

4 You were, before discussing Muller's loop  
5 sensing, you were discussing Waffner's, right?

6 A Yes.

7 Q Does Waffner disclose a contacting sensor for  
8 sensing the position of its loose loop?

9 A No, I don't believe it does. I believe that  
10 it uses the -- the pressure sensor or the vacuum sensor  
11 in the flow that is in the vacuum chamber.

12 Q Why is that not a contacting sensor?

13 A Well, typically, a contacting sensor is  
14 something that you would say, well, we're contacting,  
15 am I making contact or not, right? So it's typically a  
16 binary on-off, it can be represented by one bit of  
17 information. Do I make contact, yes, no. That's the  
18 real issue of a contacting sensor.

19 Q So you know, based on your skills and  
20 expertise, you define a contacting sensor as a binary  
21 yes/no sensor.

22 A In this particular application, sure.

1           Q     And what do you mean by "in this particular  
2     application"?   Web handling?

3           A     For measuring the length of -- for measuring  
4     of length of a loop, as you asked.   So. . .

5           Q     You'd agree that in Waffner, the loose loop  
6     does contact the sensor, right?

7           A     Yes.   It does contact the sensor.   But that  
8     is not a -- I mean, it's a sensor that makes contact,  
9     but the contacting sensor basically says, do I make  
10    contact or not.   It's a binary sensor.   And certainly,  
11    the sensor in Waffner is not a contact or no-contact  
12    sensor.

13          Q     Because it -- it's essentially an analog  
14    signal.   As opposed to a binary.

15          A     As opposed to -- yes, just a binary, digital,  
16    on-off, one-zero signal.

17          Q     Do you think a person of skill could design  
18    Waffner sensor to be binary?

19                MR. HART:   Object to form.

20          A     Yeah, I'm not -- maybe if you could clarify  
21    that question.   Because I'm thinking that could go all  
22    sorts of different directions.   Could you clarify that

1 in terms of what you would like to see in input versus  
2 output?

3 Q (By Mr. Thomas) Yes, so in Waffner, where  
4 the loose loop is small, the pressure in, looks like,  
5 box 50 is relatively close to atmospheric pressure  
6 because the holes are opened, right?

7 A Yes.

8 Q And when Waffner's loop is big, the pressure  
9 in box 50 is relatively close to a vacuum pressure  
10 because the holes are clogged. Covered.

11 A Yes.

12 Q And I'm certainly not a skilled person in  
13 this art, but it seems to me, like, you could put a  
14 binary sensor in there if the pressure is above a set  
15 point, it's returning false. If the pressure drops  
16 below that set point, it returns true, and there's your  
17 true-false value of, is the loop big enough.

18 A Yeah, I -- yeah, I see what you're getting  
19 at. I think a person who's got some background like,  
20 you know, a POSITA or a POSA or whatever we're calling  
21 them now, they wouldn't go that direction because when  
22 you open up -- first of all, you mention the holes.

1           So when you've got multiple holes, are you  
2   going to say, yeah, it's covered or not covered. If  
3   you would go down to a single hole, you'd say, covered  
4   or not covered. But the response, and it depends on  
5   what the vacuum looks like and the whole bit.

6           But the response time is going to be very,  
7   very slow in comparison to, let's say, an optical  
8   trigger and so forth. And by the way, it's going to be  
9   an awful lot more expensive. These things are probably  
10   pennies but certainly less than a dollar. The  
11   electrical one. The contacting sensor.

12           So, yeah, I mean, possibly it could be done  
13   with lots of caveats, but I don't see where you would  
14   do it.

15           Q     So maybe not the best way? Maybe not the  
16   cheapest way. But could be done?

17           A     Definitely not the best way. Definitely not  
18   the cheapest way. And I would think if somebody said,  
19   Hey, we'd going to do it this way, they'd be a little  
20   bit embarrassed because people would say, No, you don't  
21   want to do it that way. Just stick your sensor in here  
22   and go for it.

1 Q Embarrassment aside, it would be within their  
2 skills to do it.

3 MR. HART: Object to form.

4 A Again, anything is possible. But nothing is  
5 easy. And so the reality is, it just wouldn't be done  
6 that way. I mean, I would design -- even with my  
7 undergraduate students I would bounce it back and say,  
8 No, you don't need this.

9 Q (By Mr. Thomas) Sure. I think you were  
10 speaking metaphorically, but certainly, it's not true  
11 that anything is possible. There were limits to the  
12 skill and ability of a person of skill, right?

13 A Yes. Yes.

14 Q There are some things that a person of skill  
15 just simply could not do of ordinary skill.

16 A Oh, certainly.

17 Q Are you saying that converting Waffner's  
18 sensor into what you described as, your words,  
19 "contacting sensor," but which you've explained as a  
20 binary sensor, are you saying that converting Waffner's  
21 sensor into a binary sensor is beyond the skill of an  
22 ordinary skilled person?

1 MR. HART: Object to form. Lacks foundation.  
2 Lacks relevance.

3 A So I think the real question is, well, what  
4 are the specifications? What do you want out of it?  
5 You know, What's the response time? You know, what are  
6 the specifications? I can tell you, if you said, I'm  
7 just going to use an optoelectronic, just, I'm covered,  
8 I'm not covered, it's going to be able to respond much  
9 faster than any of your mechanical systems, no doubt  
10 about it.

11 With what you're proposing, I would really  
12 need to know, well, okay, how fast do you need to  
13 respond? What's your budget? All sorts of different  
14 things.

15 So if you want to provide that type of  
16 information, we could probably go back and say, here  
17 are the type of calculations you need to do to see if  
18 you could do that, even the size of the hole, the power  
19 of the motor and so forth. It does get to be a very  
20 complicated thing that you're asking because it's --  
21 it's not a particularly good approach.

22 Q You haven't done those calculations.

1           A       Absolutely not.

2           Q       So fair to say that you don't have an opinion  
3       on whether a person of skill would expect success in  
4       making that modification?

5                   MR. HART: Same objections.

6           A       I think a person of ordinary skill in the art  
7       would not do it that way, period. And if they would do  
8       it that way with design review, it would be chopped  
9       down pretty quickly.

10                   But if they have the right skill set, they  
11       could pull it off. Whether it would meet the needs of  
12       this machine is quite questionable, but we don't know  
13       what those specifications are.

14           Q       (By Mr. Thomas) But aside from that  
15       modification, you agree that this type of sensor -- you  
16       know, unmodified, as an analog sensor, would work for  
17       detecting the position of the loop, right?

18                   MR. HART: Object to form.

19           A       It certainly, in this particular case, for a  
20       Waffner system, yeah, it's great that detecting the  
21       position of the loop, that's what they use it for. If  
22       we're talking about something, you know, like, Muller,

1     there's a very small space there, putting that in  
2     there. There's no vacuum space in Muller. It wouldn't  
3     make sense to put it in there at all.

4             It's great for what it's used for in Waffner,  
5     but it wouldn't make sense to put it in this region  
6     where 12 is identified.

7             Q     (By Mr. Thomas) Okay. Detecting the  
8     position of a loose loop in these web handling  
9     applications, a person of skill would understand that  
10    that's a -- some sort of a known problem, a known thing  
11    that has to be solved in engineering these systems,  
12    right?

13            A     Well, I think detecting or estimating, right?  
14    Because I think that we have some that don't have  
15    detection in them, but they've got to estimate the size  
16    of the loop because you don't want to have it too large  
17    and run over. Or you don't want to have it too small  
18    and tear. So that's important, yes.

19            Q     Maybe another way of coming at that.

20                   The Weber inventors of the '013 and '823  
21    patent, their innovation wasn't the idea that you  
22    should be detecting the position of your loose loop.

1 Is that correct?

2 A You know, I have not really looked at those  
3 patents to say, yeah, what's the innovation. My job  
4 was to take a look at, you know, Jobin's report and  
5 just take a look at the combinations that he put  
6 together. So I'm not ready to comment on that question  
7 or opine on that question.

8 Q Okay. What about using a vacuum to add a  
9 breaking force on web material as it's exiting a loose  
10 loop. Is that known from the art?

11 MR. HART: Object to form.

12 A Again, if you want to zero in on a  
13 specific -- one of the specific patents, I know one of  
14 them uses it, happy to talk about that, yes.

15 Q (By Mr. Thomas) Sure.

16 A Right.

17 Q I'll hand you -- a good example of that is  
18 DePoi. And that is -- was Exhibit 1006 in the '823  
19 proceeding, is that the version I'm handing you.

20 A (Examines a document.) Yes. Yes. So I  
21 agree, yes. You do have a braking capability in that  
22 at the exit of the -- of the loop.

1 Q Looking at -- I think it's figure 3 of the  
2 DePoi -- it's the one that's on the cover as well. The  
3 web here is traveling from left to right, right?

4 A Correct.

5 Q And on the right, there's -- looks like a  
6 nipped pair of 30 nipping rollers?

7 A Yes.

8 Q And you understand that those nipping rollers  
9 are relatively rapidly accelerating and decelerating  
10 the paper out of the loop and feeding it toward a  
11 cutter?

12 A Yes.

13 Q And you know, a POSA would know and  
14 understand that one problem with doing that at the  
15 rapid accelerations is, when those nip rollers came to  
16 a rapid stop, the paper itself might have inertia and  
17 continue to rise out of the loop store, right?

18 A Yes.

19 Q And so it was known to address that problem  
20 by using a vacuum to apply a braking force right at  
21 where the paper is exiting the loop.

22 A Yes. Correct.

1 Q Okay. Would that vacuum break provide  
2 additional stability to the paper leaving the loop?

3 A Yes, I would think that it would provide some  
4 additional stability, sure.

5 Q And it would provide sort of a zero-tension  
6 situation where paper is bunching up behind the nip  
7 roller 30.

8 A Could you restate that one? Because when it  
9 bunches up, that tells you that there is no tension  
10 that it's more compression.

11 Q Yes, I'll restate.

12 A Please.

13 Q That would provide sort of a -- withdrawn.  
14 That would prevent sort of a zero-tension  
15 situation where the paper is bunching up.

16 A Yes, the zero-tension situation. I think  
17 that that -- yes, or at least pressure situation. Yes.

18 Q A person in skill would understand that the  
19 pressure situation, low tension result, is undesirable.

20 A Yes.

21 Q And could you turn to page 8 of your  
22 declaration.

1 A Yes.

2 Q And your opinion is, and you state this in  
3 paragraph 19, that you are at least a person of  
4 ordinary skill in the art, as reflected in the '013  
5 patent, right?

6 A Yes, correct.

7 Q And because they share a specification and  
8 are similar, would you say that also applies to  
9 the '823 patent?

10 A Yes.

11 Q Not specifically mentioned here, but you're a  
12 person of skill in both. That's your opinion?

13 A Yes.

14 Q How would you define a person of ordinary  
15 skill in the art with respect to these patents?

16 A Well, I think that it was -- I don't think  
17 actually it's in my report. I think I just agreed with  
18 what we had stated before. And -- or not with what we  
19 had said. I think the parties have agreed with it. I  
20 think it was a bachelor's degree with a couple of years  
21 experience or maybe less than a bachelor's degree in  
22 the area, but with several more years of experience. I

1 can't recall off the top of my head on that one.

2 Q Is that something you reviewed before writing  
3 this declaration?

4 A Yes. It was in a couple of different  
5 documents.

6 Q And I believe for purposes of this IPR, the  
7 board, in granting institution of IPR, that they  
8 adopted this definition of a person of skill, which is,  
9 1: a bachelor's degree or equivalent in mechanical  
10 engineering or a similar field and at least two years  
11 of experience working as an engineer or similar role on  
12 food processing and/or packaging systems or in a  
13 similar field.

14 Or 2: at least seven years of experience  
15 working as an engineer or similar role on food  
16 processing and/or packaging systems or in a similar  
17 field. Do you recall that?

18 A Yes, I do.

19 Q Certainly, you have a bachelor's degree --

20 A Yes.

21 Q -- in mechanical engineering?

22 A Yes.

1 Q And have you spent two years, at least,  
2 working as an engineer?

3 A Yes. Easy question.

4 Q Have you spent two years working as an  
5 engineer on food processing systems?

6 A I'd say probably at this point in my career.  
7 I mean, I've been in -- I've been an engineer at least  
8 in my bachelor's -- '86. I'd say over these 38 years,  
9 I've had at least two years of experience in engaging  
10 with some of the food processing equipment but  
11 certainly way more than that on the packaging side.

12 Q Okay. So you're not relying on the little or  
13 in a similar field parenthetical. You're hitting this  
14 definition from at least the packaging system and  
15 probably also food processing?

16 A Yes.

17 Q Okay.

18 A But we could do it more or in a similar  
19 field, too. There's lots of similarities as we talked  
20 about.

21 Q An impressive resume.

22 A I keep busy.

1           Q     Do you have any disagreement, by the way,  
2     with how the Board drafted or defined a person of skill  
3     in this manner?

4           A     No. I -- I thought it was quite fine. Yeah.

5           Q     Can you take a look at paragraph 28 of your  
6     report.

7                     And I think in this paragraph, you're  
8     describing somewhat how the system that the patents  
9     shared specification sets out, right?

10          A     Yes.

11          Q     How does the loop sensor in the patent  
12     function?

13                     MR. HART: Object to form.

14          A     Not a hundred percent sure. So the -- how  
15     does it -- can you be a little bit -- first of all, I  
16     actually didn't look at loop sensor functions or  
17     anything like that. My job was to look at Mr. Jobin's  
18     report and take a look at what he had to say and opine  
19     on what he had to say there. Not so much on how the  
20     loop sensor functions.

21          Q     You read these patents.

22          A     I did.

1 Q Cover to cover?

2 A I did.

3 Q And did you develop an understanding of how,  
4 in the patents, the position of this loop is sensed?

5 MR. HART: Object to form.

6 A Again, a rudimentary understanding. But my  
7 focus was on what Mr. Jobin had written, so I really,  
8 you know -- you know, I'm not comfortable opining  
9 something -- on something I wasn't asked to put in my  
10 report and discuss how this works; how the sensor  
11 works.

12 Q (By Mr. Thomas) So acknowledging that  
13 there's a rudimentary opinion, I would like to know  
14 what your rudimentary understanding of the sensing  
15 paradigm is in the patent.

16 MR. HART: Object to form.

17 A So -- so. . . one more time on that question.  
18 I will do my best, but understand, this is not what I  
19 was asked to do. And so I haven't thought about this  
20 in quite some time. You look it over and say, okay, I  
21 see that, and off you go. So, you know, and I know  
22 this is an important thing, right? So I don't want to

1 have someone say, Well, this is what their expert said.

2 I think that's the key thing here, probably.

3 We can measure it, you know, and it's along these  
4 lines, you know. But to sort of go to the technical  
5 details, I'm just not comfortable with that at this  
6 point in time.

7 Q (By Mr. Thomas) To the best of your ability.  
8 How does the patent specification describe detecting  
9 the position of the loop?

10 MR. HART: Object to form. Lacks foundation.

11 A (Examines a document.) Okay. So I'm just  
12 going right back to the patent here. One more time on  
13 the -- one more time on your question, please?

14 Q (By Mr. Thomas) Yes. Dr. Kurfess, to the  
15 best of your ability, how does the patent specification  
16 describe detecting the position of the loop?

17 A Okay.

18 MR. HART: Object to form.

19 A So patent specification, says right here in  
20 column 13, was it line 32, The control device 39 can  
21 recognize by means of mention and pressure sensors in  
22 the vacuum chamber 69, which the vacuum chamber 69 is

1 covered by a material web 19, and which is not.

2 And the measure for the current size of the  
3 material loop 20 in the loop region of the loop store  
4 61 can be derived from this information in a simple  
5 manner with sufficient accuracy. The material web 19  
6 drawn as a dashed line is shared with maximum loop  
7 size.

8 I think we can go on from there. Does that  
9 work for you? That's how the specification describes  
10 it.

11 Q (By Mr. Thomas) Okay. Is that similar to  
12 how you were just discussing Waffner detects the  
13 position of its loop?

14 MR. HART: Object to form.

15 A (Examines a document.) So I have not  
16 compared those two. I was not asked to compare those  
17 two. And so, I mean, I would have to take a look at  
18 it. Yeah, I just -- I just couldn't tell you. Yes,  
19 it's using pressure differential. You know, the '823  
20 and the '013 patents are using multiple chambers, so  
21 there's lots of different ways. I don't know. Waffner  
22 doesn't talk about chambers and so forth.

1           Again, I wasn't asked to compare it to, you  
2   know, I wasn't asked to look at Waffner in comparison  
3   to the patent. So I really just don't have the  
4   information in front of me to say, yeah, they work in  
5   the same way. If you want to have a general, yes, it's  
6   a pressure differential, they're using pressure.

7           But I don't know in terms of accuracy,  
8   capability, what they're doing, speed of response, all  
9   of those types of things. I couldn't tell you. I just  
10   haven't considered it.

11          Q     Okay. So if Mr. Jobin had an opinion in this  
12   case that Waffner's sensor works in a similar way to  
13   the sensor described in the patent, he would be the  
14   only expert who has given opinion testimony on that  
15   topic, right?

16          A     So if -- I have no idea. I don't know if any  
17   other experts have given it and so forth. But if  
18   that's his opinion, that's great. That's his opinion.  
19   You know, that's not what I'm addressing here.

20          Q     That's his opinion. You don't have an  
21   opinion on that topic?

22          A     I don't have an opinion on sort of the

1 comparison between the '013 or the '823 patents.

2 Q And I'll represent that you are the only two  
3 experts to have given testimony in these IPRs. Does  
4 that comport with your understanding?

5 A I don't know. But if you say that's true, I  
6 have no reason to doubt you.

7 Q Okay.

8 A And again, my -- just to be real clear and I  
9 know you know this, but I want to make sure it's clear.  
10 I wasn't asked to do anything but look at his report  
11 and say, here's how I put things together. And my job  
12 was to look at it and say, Does this make sense? Do  
13 they fit together? And so forth.

14 Q So if Mr. Jobin has testified that a sensor  
15 built according to Waffner's principles would meet  
16 certain claim elements of the challenged claims, you  
17 don't have a counter-opinion to that.

18 MR. HART: Object to form.

19 A Again, haven't been asked to look at it, so I  
20 couldn't say whether I agree or disagree. I haven't  
21 looked at what he said. I haven't looked at the  
22 technologies and so forth. So I just have been asked

1 to do it.

2 Q (By Mr. Thomas) Okay. Your opinion was just  
3 whether the motivations to combine that Mr. Jobin  
4 discusses are valid.

5 A If -- if they're valid, if they achieve  
6 what's needed to be done, if -- excuse me, a person of  
7 ordinary skill in the art would do it; if it's  
8 mechanically feasible; if it's economically feasible.  
9 All of the things that are laid out in my report. I'm  
10 happy to discuss those.

11 Q What do you mean by mechanically feasible?

12 A Well, you know, are they compatible? So, you  
13 know, would you take one of these big systems, as we're  
14 talking about. . .

15 So if we go back to Muller, Mr. Jobin is  
16 talking about inserting this -- you know, inserting  
17 these other apparatus, Waffner into the region  
18 identified as 12, which I'll call the small loop area,  
19 so this is small. Nominally, as I think about it, this  
20 is a small buffer and it holds one interleave? Is that  
21 a single interleave?

22 Q I think with an F, I've seen it, but perhaps

1     there's no convention.   Interleaf?

2           A     Interleaf.   Yes.   It holds one interleaf,  
3     which I think about as a slice of cheese.   So this is  
4     pretty small.   And he's saying, we're going to put  
5     these big pieces of equipment like Waffner into that  
6     small space.   So how feasible is that?   I don't think  
7     you would look to put that in there.   Do you need it?  
8     No.

9                   But they are addressing something that's  
10    taken care of by Muller, right?   Any one of those.  
11    Muller has got a machine that takes care of the  
12    low-frequency or the large deviations in the loop  
13    with -- with 8 and then the small deviations for the  
14    height -- high-level accelerations for each interleaf  
15    with 12.   And then there's the mention of any of the  
16    vacuum systems and so forth.   So now you're also  
17    inserting a vacuum system.

18                   Really, this is what we're looking at.   What  
19    I'm saying is, would you put it in there?   It doesn't  
20    make sense to put it in there.   It doesn't fit in  
21    there.   Maybe you could expand the machine and then you  
22    would need to add a vacuum system to put in there.   It

1 would be a lot of expense to do all of that to replace  
2 number 12.

3 And I think if anybody would make a  
4 recommendation like that on this type of machine,  
5 they'd send it back to the drawing board.

6 Q The businessmen in charge would shut them  
7 down.

8 A I think the businessmen and engineers in  
9 charge would shut them down and anybody who had to  
10 maintain that machine would shut them down. And  
11 anybody that would have to maintain that machine would  
12 shut them down.

13 Q Okay.

14 A Yes.

15 Q One of the things you did consider, form an  
16 opinion on, was whether the embodiments of the prior  
17 art references would be put together.

18 A Yes.

19 Q Whether the parts that you believe Mr. Jobin  
20 identified were physically combinable?

21 A Yes. Yes. So let's say putting Waffner into  
22 Muller.

1 Q Okay. Another thing you looked at is  
2 whether -- what a person in skill would have a reason  
3 to do that.

4 A Yes.

5 Q Okay.

6 A And then, and of course, the other thing is  
7 how to do it. And I'm really not so concerned about  
8 how to do it. My understanding is that Mr. Jobin --  
9 did I pronounce his name right?

10 Q I think so.

11 A Mr. Jobin should have provided that, this is  
12 how you would do it, and he really didn't provide that  
13 type of information. That's pretty vague.

14 Q So he left some details of the implementation  
15 up to the POSA and didn't --

16 A He left a lot of details of the  
17 implementation up to the POSA, yeah.

18 Q Okay.

19 A This was not a plug-and-play type of thing,  
20 like sticking the USB stick and getting an extra five  
21 gigabytes of RAM on your system or memory on your  
22 system, yeah.

1           Q     You have no opinion as to whether the claims  
2     of either patent required a pressure sensor?

3           A     No. I wasn't asked to opine on that. I  
4     really didn't look into that.

5           Q     Okay. So paragraph 42 of your report or I  
6     guess the section heading immediately before that  
7     subsection B.

8                     Do you know why it's relevant whether or not  
9     Waffner does or does not teach a pressure sensor?

10          A     You know, I couldn't tell you off the top of  
11     my head. I just know that Waffner doesn't teach it.  
12     So. . .

13          Q     Why doesn't Waffner teach a pressure sensor?

14          A     Because there is no pressure sensor in there.  
15     I did not see a pressure sensor in Waffner.

16          Q     What's a pressure sensor?

17          A     It's a sensor that then senses pressure and  
18     provides you with -- you know, with a reading on the  
19     pressure.

20          Q     Does it have to be electronic?

21          A     Well, at some point in time, you know, at  
22     some point in time, you probably converted it into an

1 electrical signal, you know, that goes into your  
2 control system.

3 Q Okay. But a pressure sensor doesn't have to  
4 be electronic.

5 A Well, I mean, I think you have a -- you have  
6 your -- you've probably taken your tire gauge, right,  
7 and you're there, you've taken a look at it and say,  
8 Okay, I see what the pressure is, although your reality  
9 is, your eyes are turning that reading into an  
10 electronic signal that goes to your brain. So yeah.

11 Q So what's the sensor there? The thing I  
12 stick on my tire or my eyes?

13 A I think it's a combination. Your eyes are  
14 your digital converter.

15 Q Maybe, right? Speaking outside the contents  
16 of the patent, I'm sure.

17 A Yes, indeed. I did not opine on that.  
18 So. . .

19 Q Okay. Waffner does have the, I think it's  
20 called, like, a bellows that expands when there's low  
21 pressure and contracts at high pressure?

22 A Yes.

1 Q That's not a pressure sensor?

2 A No, I mean, that's just a -- it's an  
3 actuator. So you're just responding to the physical  
4 presence of that. It's like a spring and so forth.  
5 Yeah.

6 Q What if I was looking at it? Would my eyes,  
7 combined with the bellows, be a sensor?

8 A You know, if you could turn around and say,  
9 yeah, here's the pressure that we have and the whole  
10 bit and do something with it. But I think the reality  
11 is, no, that's a closed pneumatic system that we've  
12 been talking about. It just functions based on laws of  
13 physics. There's no signal coming out that's going to  
14 a controller to make any modifications to the process.

15 Q If a pressure transducer was added to  
16 Waffner's system, would that be a pressure sensor?

17 A I mean, it depends on what you want to do  
18 with the transducer. A transducer converts energy from  
19 one form to another. A transducer, that bellows could  
20 be your transducer, right, because you're putting  
21 pressure in there and it's expanding and it's moving a  
22 little lever, right? So that's a pressure transducer,

1 not a pressure sensor. So you're not sensing pressure  
2 and so forth.

3 Q Okay. What could you add to Waffner to sense  
4 the pressure levels that are changing as that loop  
5 changes?

6 A So, I mean, there are a variety of pressure  
7 sensors that you have. I mean, it -- a typical  
8 pressure sensor is -- it's like a little tin can and  
9 it's got a membrane on it. The higher the pressure the  
10 more the membrane deflects. And you measure that  
11 deflection and it's calibrated to a level.

12 And so then the question is -- and that  
13 sensor would output typically an electric signal that  
14 you would typically pipe into your wire into your  
15 control system and take some action from that -- from  
16 that signal into the control system.

17 Q And if Waffner, if the sort of sensing  
18 principles of Waffner were used, with that design,  
19 where there is actually a pressure sensor that is  
20 outputting a voltage in response to those holes being  
21 covered, would that be a contact sensor or not?

22 MR. HART: Object to form.

1           A       One more time. You took a turn that I was  
2 not -- was not expecting.

3           Q       (By Mr. Thomas) We're going back to contact  
4 sensor.

5           A       No worries. A full-contact discussion here.

6           Q       That's right. So if Waffner's technique,  
7 instead of incorporating the tubes and bellows and  
8 variable sheets, which is not something I know what it  
9 means, but I assume you might.

10          A       I saw that terminology and I did look it up.  
11 I can't recall what it does, but I have an idea. Go  
12 ahead.

13          Q       If Waffner's technique were to instead use  
14 sort of this voltage based pressure sensors that you  
15 described, would that be a contact sensor?

16                   MR. HART: Object to form.

17          A       Again, I do not think so. You're going to  
18 have an analog voltage signal coming out, not yes, I'm  
19 contacting or, no, I'm not contacting. So this would  
20 be a much more complex system than, you know, just a --  
21 you know, than a pressure sensor outputting a voltage.

22                   And that pressure sensor is also going to be

1 a whole lot more expensive and it's going to be  
2 expensive to read because you have an analog to digital  
3 conversion. With a contact, just yes/no, I can feed it  
4 into my digital system, my computer, that says 1 or 0,  
5 and the computer's happy with that.

6 Q (By Mr. Thomas) So as the paper is  
7 contacting the surface and covering the holes and  
8 there's the change in pressure, as the voltage sensor  
9 is -- is detecting that change --

10 A Pressure sensor. As the pressure sensor is  
11 detecting that change.

12 Q Good correction. So as the paper is  
13 contacting the surface and covering the holes and  
14 there's the changing pressure and the pressure sensor  
15 is detecting that change, that would not be a  
16 contacting sensor, as you use the term.

17 MR. HART: Object to form.

18 A Again, that -- that is -- it's detecting the  
19 change. It's creating a voltage that is somehow  
20 related to the pressure. So that's going to be a  
21 numerical range as opposed to contact or no contact.

22 Q (By Mr. Thomas) So not a contacting

1 sensor?

2 A Not a contacting sensor.

3 Q Do you think that an ordinary -- withdrawn.

4 Do you think that an ordinarily skilled  
5 person would agree with that assessment?

6 A Yes, I think so, especially if you're talking  
7 about it being inserted in 12. I don't think anybody  
8 would put that type of an arrangement into Muller to  
9 replace the contacting sensor.

10 It just -- it's way too big. It's way too  
11 expensive. And it just doesn't make sense.

12 Q So not getting into the motivations, but just  
13 in terms of definitionally, you think that an  
14 ordinarily skilled person would agree that detecting  
15 the pressure change continuously as those holes are  
16 covered, a skilled person would not call that a -- a  
17 contact sensor.

18 A Yes.

19 MR. HART: Object to form.

20 THE WITNESS: Sorry.

21 A You know, certainly not in this context,  
22 right. We've got a contacting sensor that just says,

1     yeah, I'm covered; no, I'm not. To put the whole  
2     vacuum chamber, the vacuum that pumps, the sensors,  
3     everything in there, I mean, you're talking in orders  
4     of magnitude more expense in size and everything.

5           Q     (By Mr. Thomas) If someone told you that, in  
6     their view, detecting the pressure change as these  
7     holes are covered did meet the definition of a contact  
8     sensor, would you question their qualifications as an  
9     ordinarily skilled person?

10           MR. HART: Object to form.

11           A     I -- I would question their reasoning, you  
12     know, and then hear them through, and depending on  
13     their answer, then I might question their skill set.  
14     But I would question their reasoning and ask them for  
15     more exploration, because, again, that's something that  
16     doesn't make sense.

17           Q     (By Mr. Thomas) Can you flip to paragraph 34  
18     of your report?

19           A     Yes.

20           Q     And paragraph 35, I think. But it's on the  
21     same page. At the bottom of that page, you talk about,  
22     you quote from Muller contacting sensor, right?

1 A Yes.

2 Q What does Muller say about its contacting  
3 sensor?

4 A I'd have to go back and take a look at -- I  
5 have to take a look at what Muller says.

6 Q Please do. It's paragraph 48 of Muller.

7 A Thank you. Save some time.

8 (Examines a document.) There's one long full  
9 paragraph I'm seeing. Do you have a line number I can  
10 get to it?

11 Q Not really --

12 A That's okay.

13 Q I can find it pretty close from memory.

14 I believe it's on the top of page 4, line 3.

15 A Oh, my gosh. Paragraph 48 goes into page --

16 Q It's a three-column long paragraph or it  
17 spans three, at least.

18 A The length of the loop, so here, they're  
19 talking about -- yeah, the length of loop in 12 is  
20 monitored by a contacting sensor. Yeah. So the length  
21 of the loop is preferably monitored in particular by a  
22 contacting sensor. This buffer preferably has nearly

1 scrip guide 13, et cetera, et cetera.

2 Q Right. So it looks like there's one sentence  
3 in Muller that talks about preferably monitored in  
4 particular by a contacting sensor, right?

5 A Yes.

6 Q In particular, does it say it has to be a  
7 contacting sensor, right? It's just a suggestion?

8 A Yeah. But it's a great suggestion. I mean,  
9 you know, as we've already discussed, you know, there  
10 are other ways to do it, but you just can't beat this  
11 one. I mean, really. You're talking -- this cannot  
12 cost more than a dollar to implement.

13 Q Muller's found the cheapest way to do it.

14 A I would agree with that.

15 Q And doing something that's, you know,  
16 detecting pressure, instead that's going to raise your  
17 price a little bit.

18 MR. HART: Object to form.

19 A So the one -- I think it's the cheapest way.  
20 There might be cheaper, but this is a really  
21 inexpensive way to do it. It is really easy to  
22 implement. It's very robust. For all sorts of

1 reasons. And this is why you would use a contacting  
2 sensor here. Yeah.

3 Q (By Mr. Thomas) Does Muller say anything  
4 else about preferably using a contacting sensor other  
5 than just in this one sentence?

6 A That, I don't know. If you found it, you  
7 could let me know, but I don't recall. But it's been  
8 some time since I've gone through all the details of  
9 Muller.

10 Q Yes, I'll represent that I haven't found it,  
11 and I don't see any citation in your report to a  
12 different --

13 A Okay.

14 Q Do you think that this sentence in Muller  
15 would teach a person of skill away from exploring other  
16 types of sensors?

17 A What do you mean by teach away?

18 Q Would it discourage further investigation?

19 A I mean, I think you look at it and say, yes,  
20 okay. It's -- it's like any simple switch in the  
21 machine. You would look at it and say, oh, that's a  
22 switch, yes, of course. Unless there's really some

1 very good reason for doing it another way.

2 But in general, you'd look at this and you'd  
3 just check the box.

4 Q Okay. So Muller states a preference for this  
5 type of contacting sensor which you believe means a  
6 yes/no --

7 A Yes.

8 Q But it doesn't warn against other types of  
9 sensors.

10 MR. HART: Object to form.

11 A Yeah, I don't know. I think it says what it  
12 says. They're going to use a contacting sensor, and  
13 you read that, and you're saying, of course.

14 Q (By Mr. Thomas) And what it says is, that's  
15 the preference.

16 MR. HART: Object to form.

17 A Again, it's -- yeah, it says the length of  
18 loop is preferably monitored in particular by a  
19 contacting sensor. So. . . maybe the length of loop is  
20 preferably monitored, so that's the preference, is to  
21 monitor it. And you do that, in particular, using a  
22 contact sensor. You know, there's a comma in there and

1 I know you guys love punctuation.

2 Q (By Mr. Thomas) That's true. It's why I  
3 chose law school.

4 A Oh, boy.

5 Q In any event, references like Waffner show  
6 that there were other ways to measure the position of a  
7 loop.

8 A Yes. They show that there are other ways to  
9 measure the loop, which is great. But again, you know,  
10 that doesn't make a whole lot of sense, trying to  
11 insert that into Muller. There are lots of ways to do  
12 it. But I think Muller has got it pretty much down pat  
13 in trying to install this system from Waffner into 12  
14 over in Muller. Just -- it just doesn't make sense  
15 across the board.

16 Q I'm going to hand you what's been previously  
17 marked as Weber Exhibit 2008 in the -- this version is  
18 from the '258 proceeding.

19 A Okay.

20 Q But I believe it's the exhibit to both of  
21 them. And this is an excerpt from the sensor  
22 technology handbook as edited by John S. Wilson. Is

1 that right?

2 A Looks like it, yeah.

3 Q All right. And if you turn to page 322.

4 Page 4 of the exhibit, I suppose. 322 of the book?

5 A Yes.

6 Q You see that there is a grouping of  
7 noncontact device?

8 A You mean in these bullets over here  
9 (indicating)?

10 Q That's right.

11 A Yes.

12 Q And I guess whoever drafted this chapter, but  
13 as edited by editor in chief, Mr. Wilson, included in  
14 the noncontact devices is a photoelectric sensor.

15 A Yes.

16 Q So this reference suggests that a  
17 photoelectric sensor is a noncontact sensor; is that  
18 right?

19 A So I think you have to take a look at the  
20 photoelectric sensor. What you're looking at is when  
21 is it contacting the sensor. So, yes, it's not  
22 contacting it. In fact, you wouldn't contact the

1 sensor. That photoelectric sensor would probably be  
2 behind a plate of Plexiglas or a Lexan or something  
3 like that. But, it's detecting that, you know, it's on  
4 top of it. It's just a nontouching sensor, but it's  
5 saying, yes, I am there.

6 Q So it's a binary sensor, yes/no.

7 A Yes.

8 Q But regardless of the folks who put this  
9 reference together, grouped it with the noncontact  
10 sensors.

11 A Yes. Again, it's listed under noncontacting  
12 sensors, but, you certainly, when you're using it, hey,  
13 am I contacting this part of the machine and am I  
14 contacting at this length and so forth.

15 Q And maybe coming at it from the other end,  
16 this chapter has a type of position sensor also has a  
17 group called contact devices?

18 A Yes.

19 Q And one of those is a resistive position  
20 transducer.

21 A Yes.

22 Q Would that be a binary, yes/no?

1           A       No, that's something like a potentiometer.

2       So it would change -- the resistance changes as you

3       either move linearly or rotated if you put a -- and if

4       you use it in a voltage divider situation. We won't

5       get into the details here, but that is pretty much

6       analog, and it will give you a range of resistances.

7           Q       So authors of this chapter, they thought the

8       analog sensor, that would still count as a contact

9       sensor.

10          A       Yes, but I guess you have to be contacting

11       and driving this up and down. Although, again -- yes.

12       It's moving the resistor around, sure.

13          Q       So it seems to me like the grouping that

14       these authors used was, if the material being detected

15       has to touch the sensor, that's a contacting sensor.

16       If the material being detected does not need to touch

17       the sensor, that's a noncontact sensor.

18          A       So I think, yeah. I think there's some

19       semantics going on here. If I'm not going to contact,

20       then it's noncontacting. If I'm going to contact, it's

21       contacting. But what we're looking at here in Muller

22       is, do we contact this point, and we're putting this

1 loop in 12, I believe, in when that small loop gets to  
2 this point, it's contacting that point, and then you  
3 say, yes, it's big enough, the interleaf is big enough  
4 and be ready to be ejected and sliced. Or sliced and  
5 ejected, however it goes.

6 But the idea is not so much, am I contacting  
7 the sensor; it's not that I'm contacting the sensor,  
8 but I'm contacting the particular point and I'm using  
9 the sensor to identify that I've contacted that point.

10 Q Okay. But your opinion is that a person of  
11 ordinary skill in the contacting sensor from Muller  
12 would take from that that it's your dichotomy of, is it  
13 binary? Is it analog? And would not interpret that as  
14 appears to be the dichotomy used in the handbook, which  
15 is, does the sensor touch the paper? Or does the  
16 sensor use something like ultrasound, lights,  
17 induction, to detect the paper without touching it?

18 MR. HART: Object to form.

19 A So once again, if you look at -- if you look  
20 at the -- at the -- at the patent, in the segment, the  
21 length of the loop that is preferably monitored, in  
22 particular, by a contacting sensor, yes, that's exactly

1 what they would -- that's exactly what they would say.

2 And, you know, it's not going to be, for  
3 example, a limit switch. A limit switch is going to,  
4 that's one of your contacting sensors, you're certainly  
5 not going to use a limit switch there. It's too slow,  
6 too high mass. You're going to use that photoelectric  
7 sensor because it is -- you could all say it's a prox  
8 sensor.

9 The difference between a prox sensor and  
10 photoelectric sensor, that's going to be a matter of  
11 interpretation because a proximity sensor says, Yes,  
12 I'm in proximity. So that could be a photoelectric  
13 sensor as well.

14 So I think here, this is -- this is really  
15 taking it out of context. You have to look at it in  
16 the context of what they have, you know, what he's  
17 written over here. And I'm using a contact sensor.  
18 Yes, it's long enough and it's going to be a  
19 photoelectric. Could be, you know, also be called a  
20 proximity sensor.

21 Q (By Mr. Thomas) So then the person of skill  
22 you sort of put yourself in the shoes, then, would see

1 in Muller, hey, the preference is use a contacting  
2 sensor. And then they would open the sensor technology  
3 handbook and ignore the two options listed under  
4 contact devices and instead choose one of the options  
5 listed under noncontact devices.

6 MR. HART: Object to form.

7 A Yeah, no. I don't agree with that. Here's  
8 the bottom line. That person would look at it and say,  
9 Oh, contacting sensor. Must be photo-optical sensor.  
10 They wouldn't bother opening the book. If they opened  
11 the book, they would not have the right skill set.  
12 There's no doubt about it.

13 Q (By Mr. Thomas) Why did you cite the book as  
14 an exhibit, then?

15 A This is an example.

16 Q That contradicts your POSA.

17 MR. HART: Object to form.

18 A No, the POSA is not -- if the POSA opens the  
19 book up and, like, yeah, photoelectric. They're not  
20 going to say, Oh, gosh, this is non-contacting, this is  
21 contacting, so it can't be. It's photoelectric. And  
22 again, you've got a contact sensor, but I guarantee you

1     that the actual sensor, all right, and this is really,  
2     you know, I want to really make this point.

3             The actual sensor that's doing the actual  
4     photoelectric sensing if it's sitting right there in  
5     the machine, it's not contacting that paper. There's  
6     going to be some protective coating on it that's going  
7     to keep it from, you know, from the environment and so  
8     forth. So still a contacting sensor. When it comes in  
9     contact with this position, we're good to go.

10            Q     (By Mr. Thomas) Right. Your POSA would use  
11     a contacting sensor that, you wanted to be clear, would  
12     have no contact with the paper. Right?

13            A     The question is, when are we making contact  
14     with this point? Let's use photoelectric sensor.  
15     We're determining contact at that point. Of course,  
16     it's not going to contact it. You've got to have  
17     something protecting the sensor and so forth, from the  
18     environment and from where and so forth.

19                    I think this is really a discussion of  
20     semantics. I think Mr. Wilson, Dr. Wilson, whoever he  
21     is, it's not touching it. But you're interested in  
22     when you made contact with at that point. And this

1 sensor says, yes, making contact at that point. I  
2 don't think even my students wouldn't argue that one.

3 Q In Muller's buffer 12, when the loop is  
4 basically depleted, it's still touching, still  
5 contacting the strip guide, right?

6 MR. HART: Object to form.

7 A So strip guide. Is strip guide 13? Is that  
8 right?

9 Q That's right?

10 A Yes, I believe so.

11 Q And as the loop gets longer, it remains in  
12 contact with the strip guide?

13 A Yes, I guess.

14 Q So what's changing is the degree of contact?

15 A What's -- yeah. And again, as I've already  
16 said, what the contacting sensor says, is when am I  
17 getting to contact a certain point on the strip guide.  
18 That means my interleaf length is I've got my size of  
19 piece of cheese there and I'm ready to go for the next  
20 one.

21 Q I think it's been another hour. I don't know  
22 if lunch is on the way.

1 MR. HART: It's here.

2 THE WITNESS: Oh.

3 MR. THOMAS: If you're up for a break, I am.

4 THE WITNESS: Sure.

5 THE REPORTER: We're off the record.

6 (Recess from 11:33 a.m. to 12:09 p.m.)

7 THE REPORTER: We're on the record.

8 Q (By Mr. Thomas) Welcome back.

9 A Thank you.

10 Q Hope you had a nice lunch.

11 A I did. I hope you had a nice lunch, too.

12 Q It was delightful. Thank you.

13 All right. Can you turn to paragraph 28 of  
14 your report? And in this paragraph, you talk about the  
15 dynamic needs of the cutting area. What did you mean  
16 by that?

17 A So I think what I'm talking about there is  
18 the fact that things are moving very quickly in the  
19 cutting area, so you've got to be able to deploy the  
20 interleaf as a pretty high frequency there.

21 Q Okay. So it's high-speed is one -- it's  
22 moving quickly, like you said, yes?

1 A Yes.

2 Q Also, high acceleration?

3 A Yes.

4 Q And I think the next derivative is --

5 A Jerk.

6 Q Jerk. High jerk as well?

7 A Yes.

8 Q And we don't have to get into jouts

9 [phonetic], which might come back or might not.

10 Okay. So high jerk, high acceleration, and  
11 high speed and those are the dynamic needs of the  
12 cutting area.

13 A Yes.

14 Q Later on, you say the system has to maintain  
15 tension over the loose loop; is that right?

16 A Yes.

17 Q And that gets at what we were addressing  
18 earlier, is that there's a known issue that when you  
19 are having those high dynamic needs, high accelerations  
20 out of the loop, the paper might get pulled out a  
21 little too far and tension my drop below optimal.

22 MR. HART: Object to form.

1           A       Yes. I mean, a couple of things can happen  
2       and they talk about it in the other patents as well.  
3       You could actually go from tension to compression and  
4       things could crumple up. The other thing, though, is  
5       the tension could get too high and then you could tear  
6       the paper and so forth.

7           Q       (By Mr. Thomas) Okay. Go to paragraph 48.  
8       And you see sort of in the middle of that page, you  
9       talk about or you quote, I believe, from the Bryer 2024  
10      reference, mechanically isolates mechanisms having  
11      different acceleration and deceleration  
12      characteristics?

13          A       Yes.

14          Q       So similarly, there's a -- there are  
15      different dynamic needs on one side of the buffer from  
16      the other?

17          A       Yes.

18          Q       And Bryer uses a tape transport system to  
19      maintain a tension there?

20          A       I'd have to go back and -- and take a look at  
21      Bryer.

22          Q       I think I brought that one.

1           A       Great. I haven't thought about Bryer in a  
2 long time.

3                   (Examines a document.) Okay.

4           Q       All right. So is that right? That Bryer  
5 uses a vacuum as well to control tension in that loop?

6           A       (Examines a document.) I think -- if it's  
7 written there and I could go through this. I really  
8 haven't thought about Bryer in a long time, but if it's  
9 there in my report, I believe my report.

10          Q       Do you see the Bryer has a vacuum system,  
11 though, right?

12          A       That's what it says in my report, yes.  
13 Again, my focus here, this is the background and the  
14 whole bit, focus is really on, you know, responding to  
15 Mr. Jobin's report.

16          Q       Got it. Do you recall if you reviewed the  
17 Krohnert reference?

18          A       Not off the top of my head.

19          Q       I'll hand you over Krohnert --

20          A       Okay.

21          Q       -- which is in the '823 IPR was Exhibit 1017.  
22 And I think looking at the front page of the abstract

1 in that picture, it should orient you. But Krohnert's  
2 another example where there is a loose loop before a  
3 cutter, right?

4 A I guess. I would really have to go back  
5 and -- and take a look at that and my focus. Take a  
6 look at this here.

7 (Examines a document.) Is the severing unit,  
8 27.

9 Q Yes.

10 A And. . .

11 (Examines a document.) Yes, so we've got  
12 a -- we've got a loop. Looks like a 15 before the --  
13 before the cutter at 27. Looks like things are flowing  
14 left to right.

15 Q So that cutting region would have -- that  
16 would also have higher accelerations, higher jerk, than  
17 the regions before?

18 MR. HART: Object to form. Lacks foundation.

19 A Yeah, I'd have to go through this. I don't  
20 know -- I have to go through this one again to -- my  
21 focus, once again, was really on responding to  
22 Mr. Jobin's report.

1 Q (By Mr. Thomas) The abstract talks about  
2 continuously and discontinuously operated regions with  
3 a buffer region separating them?

4 A Yes, it does. It doesn't talk anything about  
5 acceleration and so forth.

6 Q Discontinuous would imply acceleration,  
7 starting and stopping, right?

8 A Sure. And whether that's a high degree of  
9 acceleration or not, yeah. I mean, typically --  
10 anyways. Yeah.

11 Q And then exiting the loop and I think this is  
12 shown in figures 4 and figures 3 A, but there's a  
13 vacuum break, 26?

14 MR. HART: Object to form.

15 A Yeah, again, you know, and we can go through  
16 this. I'm not quite sure where you're going with this,  
17 but certainly, I didn't focus on this. These are just  
18 exemplars to talk about what's going on. The focus for  
19 me is on this combination that Mr. Jobin put together.

20 Q Did you see in page 3, the bottom of the  
21 paragraph 44, that breaking of the respective paper web  
22 is realized at the same time by the generation of a

1 negative pressure?

2 A You could tell me what line it is. I'm sure  
3 it's in there.

4 Q Three lines from the bottom of the first  
5 column.

6 A Yeah, again, I don't understand how it has  
7 anything to, you know, go back to the combinations that  
8 Jobin put together, but it's in the patent, sure.

9 Q Sure. So this would be an example of a loop  
10 before a cutting area, and then the paper is braked on  
11 its way out of the loop by a vacuum.

12 A Again, I have to go through this. You know,  
13 I -- I mean, you're reading different sections and so  
14 forth. I have to go through this. I used this as,  
15 look, here's different things that are out there.

16 My focus, again, is on these patents over  
17 here. We can go through these but I'm not ready to  
18 start opining on these types of things. It's not what  
19 I was asked to do.

20 Q Yes, fair answer. Let's look at the DePoi in  
21 paragraph 88 of your report next.

22 A Okay.

1 Q And you quote from DePoi that there's  
2 inertial load and then you talk, from rapid start-stop  
3 motion?

4 A Yes.

5 Q That would be acceleration-deceleration?

6 A Yes.

7 Q And high jerk as well, because it's rapid  
8 starting and stop?

9 A Well, I don't know, right? Rapid start and  
10 stop is high acceleration but, you know, it depends,  
11 so, right? The derivative of acceleration is, you  
12 know, it depends, right? If -- if -- so it depends.  
13 But certainly, rapid start and stop, you do have high  
14 acceleration or deceleration.

15 Q Okay. And in DePoi, as you say, This rapid  
16 deceleration results in a high inertia load on the web?  
17 That's in paragraph 89?

18 A (Examines a document.) Yes.

19 Q And then I think still, that paragraph with  
20 the next page, DePoi has a brake 28 between -- between  
21 the drive 30 and -- or withdrawn.

22 But you'd agree that DePoi has a brake 28 to

1 maintain sufficient web tension during this rapid  
2 deceleration?

3 A Yes.

4 Q So DePoi is another reference, with a cutter,  
5 a loop, and a vacuum brake.

6 MR. HART: Object to form.

7 A Again, DePoi -- I don't know. Let's see.  
8 Does it have a . . . cutter? Well, they do show a  
9 cutter. So that it feeds into and so forth. So it's  
10 got a feeder, it's got a cutter and it's got a brake  
11 that uses vacuum. All those are there.

12 Again, my issue is, you don't insert that in  
13 the Muller. It just doesn't make sense, right? So  
14 it's got all these components, it's great and it  
15 doesn't make sense, economically, technically, but you  
16 can put it forward. But I agree. It's great stuff.

17 Q (By Mr. Thomas) Muller has a cutter, right?

18 A Yeah. I want to -- you want to make sure, in  
19 terms of interleaf cutter making the leaves, yes.

20 Q And paper is rapidly accelerated and  
21 decelerated into that cutter?

22 A Yes. The cutter which occurs after the small

1 buffer 12.

2 Q And there's, yes, the small buffer is a loose  
3 loop before the cutter?

4 A A very small loop.

5 MR. HART: Objection, form.

6 THE WITNESS: Sorry about that.

7 A It is a very small loop in there that's the  
8 size of a leaf, an interleaf.

9 Q (By Mr. Thomas) Okay. But what Muller  
10 doesn't disclose is any sort of vacuum brake after that  
11 small loose loop and before the high  
12 acceleration/deceleration of the cutter.

13 MR. HART: Object to form.

14 A One more time.

15 Q (By Mr. Thomas) What Muller does not  
16 disclose is a vacuum brake after the small loose loop  
17 but before the cutter.

18 MR. HART: Object to form.

19 A Right. They don't disclose that because they  
20 don't need it, based on the design, and you wouldn't  
21 put that in there, right? Nobody would think about  
22 putting one in there.

1           Q        (By Mr. Thomas)   Okay.  So to kind of go  
2       through the ones we talked about.  The folks who  
3       designed Bryer thought it would be useful to put a  
4       vacuum brake before the cutter and after the loose  
5       loop.

6                   The folks who designed DePoi thought it would  
7       be useful to put a vacuum brake before the cutter and  
8       after the loose loop.  But your opinion, as a person of  
9       skill, would look at Muller and conclude that it would  
10      not benefit it the same way.

11                 MR. HART:  Object to form.  Lacks foundation.

12           A        You know, once again, I can't say, especially  
13      with, what was the other one, the -- DePoi, we've --  
14      you know, we've studied and so forth.  It's a  
15      completely different system.  That system is what it  
16      is.  It's a separate system from Muller.  You wouldn't  
17      put that system into Muller.

18                   I don't think anybody would put that system  
19      into Muller, because Muller doesn't need that system.  
20      You're just putting in something that's not needed and  
21      doesn't fit and would cost a lot of money and would be  
22      a pretty price to maintain, too.

1 Q (By Mr. Thomas) Pricey to maintain?

2 A Oh, yeah. You've got to throw in a vacuum  
3 system and the whole bit. I mean, let's put it this  
4 way: It is more price to you. Any anytime you move  
5 more equipment in, more components in, anything like a  
6 vacuum system, it's going to cost you more to maintain;  
7 more parts to break down.

8 Q Can you look at page 37 of your report.

9 A Sure.

10 Q And is it an accurate statement of -- your  
11 opinions that Muller's loop 12 has sufficient tension  
12 control that it does not need a vacuum brake.

13 A Yes. I mean, Muller -- so there is not --  
14 yes. It has actually sufficient control in terms of  
15 just the size. It's one interleaf that's going along  
16 and it doesn't need a vacuum brake in terms of moving  
17 things along. You're just not going to see it crumple  
18 up and so forth because you've got a big flow of  
19 material going.

20 Q Did you run any tests or experiments to see  
21 if when drawing paper from a loop like Muller's at high  
22 accelerations into a cutting regions whether there

1 would be adverse tension effects?

2 A No, I don't really think you need to. You're  
3 talking about a small piece of paper. So in terms of  
4 adverse tension effects like from accel/decel, it's not  
5 going to be there. It's the dynamics demonstrated.

6 Yeah, so, no, I didn't run any experiments.

7 And again, my job wasn't to run the  
8 experiments. My job was to take a look at what  
9 Mr. Jobin said and basically agree or disagree with his  
10 recommendations.

11 And you know, he is putting systems in that  
12 physically wouldn't fit in there that don't have the  
13 support to put in there, and that would just be very  
14 expensive.

15 In fact, it would have been useful if he had  
16 run those experiments then I could have at least  
17 disputed it. But he didn't do that, and I don't even  
18 know how he puts them in there. So it would be great  
19 to understand that.

20 Q I think just to be clear, I'm not at this  
21 point asking about whether what's disclosed in DePoi  
22 would fit or whether it would be expensive. But just

1 your basis for believing that at the acceleration  
2 profiles used in Muller, a POSA would not expect to  
3 experience any tension-related issues of either  
4 overrun, out of loop, causing low tension. Or running  
5 out of loop and causing a high tension. Your POSA  
6 would just not expect that to happen.

7 MR. HART: Object to form.

8 A Again, if you look at it, the machine, the  
9 machine runs properly and so forth. You know, it's  
10 going to be fine. But my -- my job wasn't to take a  
11 look at what the POSA would expect in terms of tension  
12 or not and so forth. It's whether what Mr., you know,  
13 Jobin states make sense and if it goes together, to  
14 comment on his report.

15 So my focus is on his report, not whether the  
16 tension levels are high enough and so forth. In fact,  
17 I would expect the onus is on him to say, it would  
18 actually improve it and here are the levels. But I  
19 don't see any of that in his report.

20 Q (By Mr. Thomas) So regardless of what is or,  
21 you know, may not be in Mr. Jobin's report, are you not  
22 coming to the affirmative opinion that Muller's

1 apparatus teaches sufficient tension control?

2 A So number one is, I can't -- I don't like the  
3 statement regardless of what Mr. Jobin said because  
4 that was my job, is to review what Mr. Jobin said. So  
5 I mean, that's -- that's my task, and that's what I've  
6 done and that's where this report is about.

7 Q Okay. But -- for example, in paragraph 56,  
8 you say, Mr. Jobin describes a situation in which the  
9 loose loop is under too low of tension will tend to  
10 "flop and flutter." And then you cite Mr. Jobin's  
11 report?

12 A Right.

13 Q And then you say, Muller's small loop, on the  
14 other hand, is not subject to the same issues. You  
15 seem to be taking an opinion on whether Muller's loop,  
16 as you understand it, would be subject to issues of  
17 flop and flutter.

18 A Sure. That's fine. Yeah. I mean, something  
19 the size of an interleaf, the size of a piece of  
20 cheese, is just not going to flop and flutter.

21 Q And you didn't run any experiments to  
22 determine what that size was.

1           A     I didn't need to run those experiments.

2     Again, I go back to what Mr. Jobin said. Mr. Jobin is  
3     putting in systems. He's saying, we need to insert  
4     systems that are way bigger than a piece of paper  
5     that's the size of a piece of cheese. So it's a  
6     completely different approach and discussion, the whole  
7     bit.

8                     My comments aren't so much not to whether  
9     this small piece of paper is going to have flutter and  
10    so forth. He's putting in material because you've got  
11    very long pieces of paper, if you will, very long  
12    strips. And it just doesn't make sense, because here,  
13    we're dealing with strips that are much shorter and the  
14    system works just fine.

15          Q     Okay. So you're disclaiming the sentence in  
16    here where you say, Muller's small loop, on the other  
17    hand, is not subject to these same issues. You're  
18    saying that wasn't really your job to figure out.

19                     MR. HART: Object to form.

20          A     No, that's not what I said. I said that  
21    Mr. Jobin is putting in these systems that have very  
22    large pieces of paper, if you will. Very large strips.

1 That is not what Muller has in 12. These are very  
2 small. That's my statement there. And those very  
3 small strips are not subject to the same, what's the  
4 terminology, flop and flutter that the, you know, that  
5 the systems that Mr. Jobin wants to stick in there.

6 Q (By Mr. Thomas) Are they subject to any flop  
7 and flutter?

8 A You know, it -- at that size, they're not  
9 going to be flopping and fluttering. It's the size of  
10 a piece of cheese. It's like a copy paper. You just  
11 don't see a lot of flopping around in your copy  
12 machines and so forth.

13 Q Copy machines aren't running at, you know,  
14 tens of cycles a second, are they?

15 A Some of the high-speed ones do, in terms of  
16 printing systems. Sure.

17 Q And no flopping and fluttering that needs to  
18 be controlled in this.

19 A I think if you talk about small sheets, no,  
20 the dynamics aren't there.

21 Q At what size does flopping and fluttering  
22 stop being an issue, in this sort of situation we're

1 describing, with high accelerations and decelerations  
2 out of the loop?

3 A So, again, I haven't analyzed that. I know  
4 of the small sizes we're talking about, it's not going  
5 to be an issue. At what size, I don't know. But  
6 certainly, once you get to the size of the very large  
7 systems that, again, wouldn't fit into that space on  
8 Muller, you know, then you probably start running into  
9 issues. You know, that's what they're talking about in  
10 there.

11 But for the small -- for the small size of  
12 that interleaf, single interleaf, you just don't have  
13 that issue. That's why the machine is designed that  
14 way.

15 Q You understand that Muller is not a machine,  
16 right? It's a piece of paper with disclosures that a  
17 person of skill might find useful?

18 MR. HART: Object to form.

19 A So Muller is a patent, yes. It's a concept.  
20 But it's -- you know, it's been reviewed. Yes, we're  
21 not looking at a machine here.

22 Q (By Mr. Thomas) Okay. And you believe that

1 a person looking at the disclosures of Muller would not  
2 think that tension issues in its loop 12 could be  
3 improved in any way by adding a brake at the outlet of  
4 the loop to provide an additional tension.

5 MR. HART: Object to form.

6 So my statement is, by adding any of the  
7 systems that Mr. Jobin has, like, the way it has  
8 uprights, but those systems are big, larger loop  
9 systems and so forth; no, they would not give you an  
10 advantage in this particular case.

11 Q (By Mr. Thomas) Is the material in Muller's  
12 loop 12 held at low tension or high tension?

13 MR. HART: Object to form.

14 A Could you be a little bit more clear on that?

15 Q (By Mr. Thomas) What do you require clarity  
16 of?

17 A When you say, low tension, high tension.

18 Always? Sometimes?

19 Q Does the tension change during operation?

20 A Of course.

21 Q Okay. What is the range of tension that a  
22 person of skill would expect to find in Muller's loop

1 12?

2 MR. HART: Object to form.

3 A Once again, I wasn't asked to answer that.

4 It's tension that's less than what's ripping the paper

5 and it's not going to be crumbling up. I couldn't

6 answer that. I wasn't asked to determine that.

7 Q (By Mr. Thomas) How were you able to

8 determine that the tension would be low enough that

9 it's not going to rip and high enough that it's not

10 going to crumple up?

11 A I mean, that is how the machine works. You

12 would not -- or how the system is described. If -- if

13 it doesn't work that way, then the system doesn't work.

14 So you have an assumption that here's a working system.

15 The Patent Office went through it, and said, okay, this

16 is a good system and we're good to go. It's a patent.

17 So there are some basic assumptions I made

18 there to say this is the system we're looking at. It's

19 the same thing that I think Mr. Jobin said we've got to

20 insert this in here because we can do all sorts of

21 things and help it out.

22 Q Do you have an understanding of whether the

1 grant of a patent -- actually, withdrawn.

2 Do you understand that that Muller reference  
3 is not a granted patent?

4 A I don't know one way or the other. I just  
5 know that Mr. Jobin uses this patent combined -- uses  
6 the concepts in the patent, combined with other ones  
7 and says, this is how we'd do it. And my job was to  
8 opine on those combinations.

9 Q Do you believe that every patent application  
10 published by the US Patent Office has a written  
11 description that describes the enabled invention?

12 A I have no idea on that. That's something  
13 that I have not thought about that I'm sure there's a  
14 great legal answer to it, but I'm not a lawyer.

15 Q I mean, you're an engineer and a person of  
16 skill. Do you think it's a fair assumption if  
17 something is printed on a pad or document that a  
18 machine built, you know, with sort of strict literalism  
19 to the pictures and words of that patent, is it a safe  
20 assumption that that machine would work?

21 MR. HART: Object to form. Lacks foundation.  
22 Lacks relevance.

1           A       Again, I haven't thought about it. It seems  
2 more of a legal question. I do know, if I could reach  
3 back in terms of what I remember in all the legal  
4 stuff, is, look, the patent's got a disclosed  
5 out-of-practice concept.

6                   So if you can't do it, well, then, it doesn't  
7 do anybody any good to disclose it, so you've got to  
8 put that out there. But all the other information,  
9 what the details are there, I don't know.

10           Q       (By Mr. Thomas) Do you have an understanding  
11 one way or the other as to whether prior art is prior  
12 art for all that it teaches, even if it is not enabling  
13 prior art?

14                   MR. HART: Object to form.

15           A       Once again, I'm not a lawyer. I was asked to  
16 take a look at Mr. Jobin's report and the combinations  
17 and just opine on those. So I'm not -- you know, I  
18 don't really have a good answer there. I haven't  
19 thought about it. Wasn't asked to opine on it.

20           Q       (By Mr. Thomas) Okay. And instruction on  
21 the law relevant to that question was not one of the  
22 summaries of law that is included in your report,

1 right?

2 A I don't recall if -- if you'd like to point  
3 it out, we could take a look at it. Really, my job was  
4 to take a look at what Mr. Jobin said and to see if it  
5 made sense. And it didn't make sense.

6 (Off the record.)

7 Q (By Mr. Thomas) So you were operating from  
8 the assumption that what is disclosed in the Muller  
9 reference would function without tension issues if  
10 built according to the description in Muller.

11 MR. HART: Object to form.

12 A Again, I didn't assume anything one way or  
13 the other. I am taking a look at what Mr. Jobin put  
14 down and comment on or opined on combining these  
15 different references in a sensical manner.

16 And again, as I've said multiple times and  
17 I'll continue to say it, because it's important to be  
18 clear on it, it just doesn't make sense to put these  
19 together from a variety of different perspectives and  
20 it doesn't help Muller's machine. It doesn't enhance  
21 its performance.

22 Q (By Mr. Thomas) So when you told me earlier

1 that, that is how the machine works. You would not --  
2 or the system is described. If it doesn't work that  
3 way, then the system doesn't work, so you have an  
4 assumption that here's a working system. When you told  
5 me that, that wasn't you making an assumption that what  
6 is disclosed in Muller is a working system?

7 MR. HART: Object to form.

8 A Boy. That was pretty bad English there.  
9 I'll just clarify it.

10 Look, you know, I'm not assuming whether  
11 these systems work or not. I'm assuming this is how --  
12 I mean, this is how the systems work. I don't -- you  
13 know, my job is to take a look at what Mr. Jobin said  
14 and how he inserts it into these systems, and if it  
15 makes sense or not.

16 If it works, you know, and I can tell you  
17 that it is not an economical, not an engineering, it's  
18 not a good solution across the board and a POSA just  
19 would not do something like this. You don't need it,  
20 either. Inserting any of these other systems into  
21 Muller just does not make sense.

22 Somebody would not say, I don't know how much

1 it costs, but let's spend another hundred, thousand,  
2 \$5,000 trying to squeeze something into this little  
3 space, which I don't think you can, and spend money to  
4 improve it? No. It's not going to improve the system,  
5 just add to the system.

6 Q (By Mr. Thomas) Do you disagree that Muller  
7 has a specific teaching of that issues in particular,  
8 of the interleaver strip are prevented at least  
9 somewhat?

10 MR. HART: Object to form.

11 A I don't know. If you wanted to point me to  
12 that, and I could take a look at it and say, yes, it's  
13 there, or no, it's not.

14 Q (By Mr. Thomas) That's not something you  
15 recall considering, though, when you formed your belief  
16 that there are zero flopping and fluttering issues in a  
17 system built to Muller's specification.

18 MR. HART: Object to form.

19 A Again, you've zeroed in on the flopping and  
20 fluttering. The bottom line is, my job is to take a  
21 look at what Jobin put down and whether it makes sense  
22 and it does not make sense. This, the addition of

1 Jobin is not going to change anything in terms of  
2 fluttering or flopping in the area depicted by 12, the  
3 small loop.

4 Q (By Mr. Thomas) So a brake helps with  
5 flopping and fluttering in DePoi, not in Muller?

6 A DePoi is a larger loop system. It's not a  
7 small loop system.

8 Q And you can't tell me, sitting here, what  
9 length that transition happens at, when it becomes a  
10 large loop? When it becomes a small loop?

11 A I cannot. But I can tell you that it  
12 wouldn't fit in there. That is not a large loop. That  
13 is taken out -- the large loop aspect are taken out by  
14 the dancer, serpentine dancer belt in Item 8, in  
15 Muller.

16 So once again, what I can tell you is  
17 sticking DePoi into 12 doesn't make sense. It's  
18 expensive. It would cause a lot of operational issues  
19 in terms of maintenance on the machine and a POSA would  
20 not put it in there. They would not even recommend it.

21 Q Paragraph 56, you say that, The tension on  
22 buffer 12 allows the material to move with ease.

1 Right?

2 A Yes.

3 Q Is that because it has a relatively low  
4 tension or a relatively high tension?

5 A When you say a relative, you mean what?

6 Q I mean, so you wrote that sentence. What did  
7 you mean by that, the tension on buffer 12 allows  
8 the materials to move with ease?

9 A Well, the tension on buffer 12 would be the  
10 relative tension that you'd need to move a small loop,  
11 right, so it's going to be a pretty low tension.

12 Q Okay.

13 A You know, again, if you wanted to accelerate  
14 it and so forth, maybe a higher tension, but it's not  
15 going to be significant.

16 Q So that's your expert opinion, looking at  
17 Muller's buffer 12, is that the paper in there is held  
18 to a pretty low tension.

19 MR. HART: Object to form.

20 A Once again, I'm not, you know, my opinion  
21 here is, you know, the same thing that -- look, it's  
22 not going to tear it, so it's low enough tension that

1 it's not going to tear it. The critical opinion here  
2 is you're not going to be replacing 12 with any of  
3 these other patents or concepts because it doesn't make  
4 sense.

5 Q (By Mr. Thomas) I mean, are you able to  
6 compare the tension in Muller's buffer 12 to the  
7 tension in a loop like DePoi's? One's higher? One's  
8 lower?

9 A Again, I don't think I need to do that  
10 comparison. My job was to take a look at what  
11 Mr. Jobin had written down and to say whether it made  
12 sense or not.

13 Q Do you think you could do that comparison?

14 A I am sure I could, given the time and the  
15 information and the whole bit. But certainly not  
16 today, not in the time we have left.

17 Q So you can't say one way or the other whether  
18 the tension in Muller's buffer 12 would be relatively  
19 higher or relatively lower than the tension in DePoi's  
20 buffer.

21 MR. HART: Object to form.

22 A Again, I wasn't asked to do that. One thing

1 I can say is, these are both functioning systems and  
2 the tension is going to be below the tear tension for  
3 the strip of paper and that's the limiting issue there.

4 Q (By Mr. Thomas) They both have relatively  
5 low tensions?

6 MR. HART: Object to form.

7 A Paper could be fairly strong, yes, but keep  
8 it below the tension that is there. Again, I'm not  
9 really looking at the relatively low or high tension or  
10 so forth. It's what Mr. Jobin has written and what he  
11 combined, and my job was to take a look at his report  
12 and comment on his report.

13 Q (By Mr. Thomas) And then just to go through  
14 the exercise, as compared Muller's buffer 12 to  
15 Waffner's loop, can you say one way or the other  
16 Muller's buffer 12 would be at a relatively higher or  
17 relatively lower tension than Waffner's loop?

18 A Yeah, I don't have an opinion on that. I  
19 wasn't asked to comment on that. Again, I was asked to  
20 respond to Mr. Jobin's report in terms of -- in terms  
21 of the combination of those two. And again, once  
22 again, that combination just doesn't make sense,

1 economically, mechanically, and it doesn't add to  
2 Muller's system at all in terms of performance.

3 Q So it's not your opinion that a small loop  
4 would be at an inherently greater tension than a large  
5 loop.

6 A I wasn't asked to opine on that. It's my  
7 opinion that those systems don't go together, right?  
8 That's the issue. I wasn't asked to opine on tension  
9 levels, small loop, large loop, and so forth.

10 Q And knowing that you can't do it with perhaps  
11 mathematical rigor, sitting here today, do you have a  
12 sense of whether a small loop would be at an inherently  
13 higher tension or lower tension than a larger loop?

14 A Yes, I haven't even thought about it, and I'm  
15 not going to go in that direction. That was not what I  
16 was supposed to be doing, so. . .

17 Q Okay. Are you aware that for a loop like the  
18 loop in Muller, hanging under the force of gravity,  
19 that that can be described what I think is called a  
20 catenary equations?

21 A Yes.

22 Q You didn't attempt to model Muller's loop

1 using catenary equations?

2 A No, it wasn't necessary in reading, you know,  
3 Mr. Jobin's report and so forth. You know, I didn't  
4 have to use any catenary equations to understand that  
5 you would not put those systems together.

6 Q Right. I don't know if I have it as an  
7 exhibit for you. Maybe I do. Maybe I don't. But I  
8 recall reading in one of the references that a -- when  
9 a loop is held only under catenary tension, that is  
10 typically a very low tension compared to a loop held  
11 either under draw tension or dancer tension. Is that  
12 something you agree with?

13 A Yes, I think especially when you use the term  
14 "relatively." Yes.

15 Q So you didn't need to do any equations to  
16 come to a conclusion that Muller's buffer 12 is held at  
17 a relatively low tension.

18 MR. HART: Objection, form.

19 A You know, once again, I think that that's --  
20 it's a very complicated question, because to say, it's  
21 a catenary, but are we accelerating? I think we talked  
22 about the fact that when we accelerate paper, we're

1 generating tension and so forth. So I don't think it's  
2 a particularly good question that you can say yes or no  
3 to.

4 And I'll just go back to the fact that I  
5 really didn't take a look at what the tensions look  
6 like. I went back to what Mr. Jobin wrote and, you  
7 know, the fact that you just cannot put these -- well.  
8 It doesn't make sense to put these together from a  
9 variety of different reasons, including the fact it  
10 just wouldn't enhance Muller's system to do so.

11 Q (By Mr. Thomas) Right. Because you don't  
12 believe that there would be the low tension flops and  
13 flutters or the high tension risk of tears in Muller's  
14 system?

15 A Because I don't believe that the addition of  
16 any of those systems, which are typically large loop  
17 systems, make a lot of sense, you know, in the area of  
18 12, which is a small loop system and has a very  
19 different function. You just don't need that system in  
20 there. It's not of use.

21 Q Take a look at paragraph 76 of your report.

22 The GEA438 references discloses a high

1 acceleration/high deceleration cutting zone, right?

2 A Yes.

3 Q And there's a more sluggish material spool on  
4 the left?

5 A 11, yes.

6 Q Yes. And in GEA, there's a brake that  
7 separates the -- and again, called a delay device that  
8 separates the high dynamic cutting zone from the  
9 sluggish spool, right?

10 A Yeah. Actually, if you wouldn't mind -- can  
11 you dig that patent out? This is an okay figure, but I  
12 think there's a nicer figure.

13 Q I'll hand that over to you once I pull it  
14 out. And this was marked as Exhibit 1005 in the '823.

15 And I guess my question was, in GEA, there's  
16 a brake that separates the high dynamic cutting zone  
17 from the sluggish spool, right?

18 A Yes.

19 Q Paragraph 67 of your report, you write that  
20 GEA lacks any loop at all. Is that right?

21 A Yes.

22 Q Okay. But GEA does have a vacuum brake,

1 right?

2 A Yes.

3 Q And that brake is designed to keep the  
4 material at all times tensioned.

5 A Yes. That's correct.

6 Q Okay. So GEA has no loop at all. And still,  
7 in your opinion, GEA has no loop at all, and still uses  
8 a vacuum brake to impart a tension.

9 A And I still -- my opinion is still that you  
10 wouldn't take this system, and I'm looking at figure 1,  
11 but any of the figures in there, you wouldn't take that  
12 system and insert it into 12 on the Muller patent. It  
13 just doesn't make sense to put in there.

14 Q So DePoi is a big loop and it makes sense to  
15 use a vacuum brake. GEA has no loop. Makes sense to  
16 put in a vacuum brake. But your opinion is that  
17 Muller, because it's in between -- it's not a big loop,  
18 and it's a little loop. It's the perfect size that it  
19 doesn't need a vacuum brake at all.

20 MR. HART: Object to form.

21 A That's not what I said, right?

22 Q (By Mr. Thomas) Explain it to me.

1           A       I sure will. So what I said is you take  
2 either, you know, DePoi or you take GEA and you stick  
3 it into where 12 is. So first of all, the Muller  
4 system accomplishes everything on its own that GEA or  
5 DePoi have, so why would you put a redundant system in  
6 there.

7                   The next thing is they're both using vacuum  
8 systems and you see this in the Muller system, so now  
9 you've got to add a vacuum system. The next thing is,  
10 you take a look at these systems and they're big.  
11 They're not going to fit in the small loop area 12.

12                  So you're going to have to refigure, redesign  
13 the machine, make it bigger, if you can do if at all.

14                  And I wasn't asked to do it. In fact it  
15 would have been wonderful if Mr. Jobin would have said,  
16 Here's how I would do it. But he doesn't even show us  
17 how to do it. He just says, No, you can do it. And to  
18 me, I don't see how this is the way to go.

19           Q       Other than the, I guess, size difference of  
20 the loop, that mesh's loop is bigger than no loop at  
21 all. But you say, smaller than DePoi's loop. That's  
22 what you're relying on to come to the conclusion that

1 all the tension control benefits that you see from  
2 these vacuum brakes are redundant to what Muller  
3 discloses.

4 MR. HART: Object to form.

5 A Once again, my statement here is, Mr. Jobin  
6 is saying, put these in there, in location 12, to  
7 replace location 12. And what I'm saying is, you don't  
8 need it there. It's not necessary. It's already taken  
9 care of. These are really big systems. They don't fit  
10 in there. You need to put in pneumatic systems or  
11 packing systems in there to try to make these work.  
12 And frankly speaking, it just doesn't make sense.

13 And once again, it would have been great if  
14 Mr. Jobin said, Here's why you put them in there,  
15 because we've got this lacking. Or here's what we need  
16 to do to fit this in there. But he doesn't give us any  
17 idea. He just says, This can go in there.

18 Q (By Mr. Thomas) You say the issue of tension  
19 in the loop is already taken care of in Muller. What's  
20 taking care of it?

21 A The -- I mean, it's the -- the -- in terms of  
22 the small loop, it's addressed by having the small loop

1 in there. And the small loop is the size of an  
2 interleaf. And the interleaf, that size is measured by  
3 the contact sensor.

4 Q Right. So at the root of it, your opinion  
5 is, you have determined that that loop is, because of  
6 the size that you believe it to be, already taken care  
7 of these tension issues.

8 A So in my opinion, the root of it is that  
9 Mr. Jobin is recommending combinations that don't make  
10 sense. That don't -- that don't address -- they don't  
11 fit into this area 12 for the small loop, which is  
12 already working just fine, and he's sticking in larger  
13 loop type of systems into this area.

14 And he's not telling us how to do it or how  
15 one would move forward with it. And he's recommending  
16 things that just don't make sense. That's my opinion.  
17 And that's what I was asked to opine upon.

18 Q And I think that the particular part of that  
19 answer that I'm interested in is when you say, Muller's  
20 is working just fine. What did you do to reach that  
21 opinion?

22 A So Muller takes care of -- of the large loop,

1 the small loop, and again, I am looking at this and  
2 saying, Mr. Jobin is inserting. He's inserting these  
3 larger systems into the smaller loop, and I was asked  
4 to opine on that. And he doesn't make sense. It  
5 doesn't make sense to replace it. You know. That was  
6 my -- that was my job.

7 Q How is Muller taking care of its small loop?

8 A I don't understand the --

9 MR. HART: Object to form.

10 A I don't understand the question.

11 Q (By Mr. Thomas) You say that Muller takes  
12 care of the small loop. You say that, you know,  
13 Muller's is working just fine. You say Muller, you  
14 know, is working, and wouldn't be improved with a  
15 brake.

16 What is your basis of saying Muller is  
17 working just fine?

18 A I think that's not the right question. The  
19 real question is, what is the improvement that comes  
20 through by inserting these other systems? You know,  
21 how are these systems improving Muller, and they don't.  
22 They don't address anything that, you know, that isn't

1 already addressed in terms of the large loop, small  
2 loop system. And Mr. Jobin hasn't said anything about  
3 it.

4 My job was to say, well, is -- you know, what  
5 has he done here? Has he given us how to do it? Why  
6 it makes sense and the whole bit. And he hasn't  
7 convinced me there. He hasn't said how it takes care  
8 of 12. Why would you put it in there? I was asked to  
9 opine about what he said. And he didn't give me the  
10 information. He didn't tell me how to do it.

11 Q Okay. Can you look at paragraph 31 of your  
12 report?

13 And then you used the terms in paragraph 31,  
14 and this is the second page of it, but a coarse level  
15 of control and a finer level of control.

16 A Yes.

17 Q Those aren't terms from Muller, right?

18 A No. I don't believe so.

19 Q So it's more of a scare quotes around  
20 "coarse" there? It's you not actually quoting from  
21 Muller that it describes it as a coarse level?

22 A Yes, I think so. We can go back and take a

1 look. You've got 8 which is the coarse level that  
2 deals with the big roll that's going along and then you  
3 have 12 which is dealing with a very small lever on the  
4 size of an interleaf.

5 Q So what's your definition? How are you using  
6 these phrases, "coarse level" and "finer level"?

7 A So the finer level would be the size of an  
8 interleaf. Right around there. Interleaf or two. And  
9 then the coarse level would be sort of be bigger than  
10 that.

11 Q So it's just a size thing? Coarse and fine?  
12 Big and small?

13 A It's the, yeah, sort of the length of the  
14 strip, if you will. Size of the loop; small loop,  
15 large loop. Same type of thing.

16 Q Buffer 8 in Muller, it's not subject on  
17 either end to sort of a high acceleration/high  
18 deceleration movement profile, right?

19 A I mean, normally, no. That's why I have  
20 buffer 8 in there.

21 Q Right. So buffer 8 is, it's isolated from  
22 the cutting area.

1 A Yes.

2 Q And the buffer 12, is in turn, isolated from  
3 buffer 8. In terms of tension.

4 A Yes, well, that would be -- yes, that's the  
5 idea.

6 Q So I guess, and I think in figure 1, either  
7 in your report or in Muller, there's sort of one zone  
8 of tension leaving the spool and going to drive 6?

9 A Yes.

10 Q Then there would be a second zone of tension  
11 which is buffer 8 that's held under tension by, you  
12 know, festoons or a series of dancers, right?

13 A Yes.

14 Q And that is -- that goes up to drive 11,  
15 between drive 6 and drive 11, buffer 8?

16 A Yes.

17 Q And then beginning at drive 11 and going  
18 through drive 15, that is a third tension zone, and  
19 which include buffer 12, right?

20 A Yes.

21 Q And it's that third tension zone that is  
22 subject to the high acceleration/high deceleration, at

1 drive 14.

2 A Yes. The start and stop.

3 Q And it's the first tension zone, so between  
4 the spools and drive 6, that's known as what's subject  
5 to the sluggishness and high inertia of the rolls,  
6 right?

7 A Of the rolls, yes, whatever they are. Number  
8 3, I think -- 2. I see. There's 2. Yeah.

9 Q Okay. So it's three zones to isolate those  
10 specific issues.

11 A Well, you have two buffers. One side of the  
12 first buffer then between the two buffers and then to  
13 the left and this figure of the second buffer. So  
14 you've got your three zones.

15 Q Okay. Can you look at paragraph 58 of your  
16 report?

17 Actually, before you do that. You can read  
18 through your report at your leisure, of course. I was  
19 going to try and write down what we had just discussed.  
20 You can keep going.

21 A Shall I go to 58?

22 Q If you want to, but no need at the moment. I

1 was going to keep talking about the figure 1.

2 A Okay.

3 Q And if you could take your own copy of  
4 Muller. Have you got a pen or something to write with?

5 A Yes.

6 Q Black pen?

7 A Yes.

8 Q Could you draw sort of curly brackets around  
9 these three tension zones we just discussed?

10 A (Complies.)

11 Q Okay. And so just to confirm that you have  
12 what I've expected, zone 1 is between the top of the  
13 spool and drive section, right?

14 A Yes.

15 Q And zone 2 is between drive 6 and drive 11?

16 A God, where did I put it? Yeah. I -- I did  
17 not have between 6 and 11 because, you've got various  
18 tension happening as the dancer is moving around. But,  
19 yeah, I mean, that's fine by me. We can put it in  
20 there as well.

21 Q Yes, so the tension might not be constant  
22 through that, but it's not isolated.

1 A Right.

2 Q It's treated as a zone.

3 A Right.

4 Q And the final zone would start at drive 11  
5 and go up to drive 14, right?

6 A Yeah. So that's fine. We're going through  
7 the small loop buffer in there, too. 15, yes.

8 Q Okay. Those are the three isolated zones in  
9 this machine.

10 A Right.

11 Q If you could take a look at paragraph 58.  
12 And you write toward the middle of that paragraph,  
13 Muller explains its -- sorry.

14 A This. . .

15 Q Page 38, which is paragraph 58?

16 A Okay. Yes. This kind of goes there -- all  
17 right. We're over here. Good.

18 Q Muller explains its interleaf reel is braked  
19 automatically as soon as there is no need for the  
20 interleaver strip. For example, when a product change  
21 is taking place in the cutting device, you cite Muller  
22 and you say, More specifically, Muller avoids the need

1 for braking on the ascending portion of the loop by  
2 including, deliberately, so much friction that in the  
3 event of a consumption stop or a reduction in  
4 consumption of the interleaver strip, the reel overruns  
5 only so slightly. Did you see all that?

6 A Yes.

7 Q So fair to characterize this as you're  
8 pointing to a disclosure in the Muller reference as  
9 some sort of brake.

10 MR. HART: Object to form.

11 A I think what I'm pointing on -- you know, in  
12 that, it's got friction, right, so there's enough  
13 friction. So there's no active braking. You've just  
14 got friction so there's rubbing. If you want to call  
15 that breaking, that's you know, yeah.

16 Q (By Mr. Thomas) And shockingly, I don't want  
17 to fight you on semantics here. You're describing  
18 friction at the spools, right?

19 A Yes.

20 Q So could you draw an arrow to where in the  
21 Muller system this sort of friction phenomenon you're  
22 describing in figure 8, where that is acting on.

1           A     Let's see. I'll have to take a look over  
2     here to make sure we get it right.

3           Q     Of course.

4           A     (Examines a document.) Okay. Now I've got  
5     to go find -- he talks about the interleaver reel?

6           Q     Reference number 1, I believe, is the helpful  
7     list of designations at the bottom of page 4.

8           A     Okay. So when they're talking about friction  
9     to the interleaver reel, that would be the friction on  
10    this reel over here (indicating).

11          Q     Can you draw an arrow pointing to that and  
12    label it paragraph 58, Friction?

13          A     (Complies.)

14          Q     Thanks. And so you agree that the friction  
15    you're describing in paragraph 58 is --

16          A     I believe so. Yeah. That's the interleaver  
17    reel, and that's number 1. We're pretty good there.

18          Q     Excellent. If you look at paragraph --  
19    actually, now is a fine time for a break if you want to  
20    take one or we could keep going. It's up to you.

21               MR. HART: Yeah, a break's good.

22               THE WITNESS: Okay.

1 THE REPORTER: We're off the record.

2 (Recess 1:13 p.m. to 1:20 p.m.)

3 THE REPORTER: We're on the record.

4 Q (By Mr. Thomas) Could you take a look at  
5 paragraph 28 of your report?

6 A Okay.

7 Q Did you do any analysis on how large of a  
8 loop is disclosed in the patents?

9 MR. HART: Object to form.

10 A As I said before, my job was to take a look  
11 at Mr. Jobin's report and comment or opine on the  
12 combinations that he put forward. So, no, I didn't do  
13 any analysis there. I wasn't asked to do any analysis  
14 there.

15 Q (By Mr. Thomas) And do you know whether the  
16 patent claims require a loop of a particular size?

17 A Once again, I didn't look at that, so I don't  
18 know off the top of my head.

19 Q What about paragraph 35, if you could take a  
20 look that.

21 A Uh-huh.

22 Q I think this is something you've been

1 referring back to all day. But it's your opinion that  
2 Muller's buffer 12 comprises substantially less  
3 material than the amount in buffer 8; is that right?

4 A Yes, I believe so.

5 Q Does Muller state that buffer 12 has to be  
6 substantially smaller? Or is that just a preference?

7 MR. HART: Object to form.

8 A I -- I don't know. I'd have to go back and  
9 take a look at it. But normally, the way it's drawn,  
10 it's a much smaller loop than 8. And again, I think  
11 the key thing here, is not so much which one is bigger  
12 and smaller and so forth, but where Mr. Jobin is  
13 inserting these large-loop systems into the small loop  
14 element of Muller into that small space. You know, I  
15 think that that's the key point here, not the  
16 difference, the size, between 12 and 8.

17 Q (By Mr. Thomas) Okay. So you based your  
18 understanding of the size of buffer 12 on what's shown  
19 in that picture?

20 MR. HART: Object to form.

21 A I didn't base my size, my estimation of the  
22 size of buffer 12. It's the small loop buffer, so it's

1 going to be smaller. And in a small loop, we're  
2 looking at something the size of an interleaf, which is  
3 the size of a piece of cheese. So that's sort of what  
4 we're looking at, which, again, is substantially  
5 smaller than any of the systems that Mr. Jobin wants to  
6 insert in there.

7 Q (By Mr. Thomas) On looking at, staying with  
8 Muller, but the bottom of page 3, last line and on to  
9 the top of page 4, first line.

10 A Hang on, two seconds.

11 Q Yes.

12 A Bottom of 3. Okay.

13 Q Provided downstream of the first buffer 8 is  
14 a further buffer 12, a loop here, which preferably has  
15 a substantially lower capacity than the buffer 8 and  
16 preferably buffers only as much interleaver material as  
17 is needed for the injection of an interleaver. Is that  
18 right?

19 A Yes, that is correct.

20 Q So that sentence uses preferably twice,  
21 right?

22 A Yes, I believe so.

1           Q     So Muller expresses a preference that buffer  
2     12 is substantially lower capacity than buffer 8 and a  
3     preference that buffer 12 buffers only as much  
4     interleaver material as is needed, right?

5           A     As is needed for an interleaf, right?

6           Q     You agree with that?

7           A     I would say 12 is of that size, yes.

8           Q     And that's the stated preference in Muller.

9           A     Yes. And that that's the stated preference  
10    in Muller, and again, we're -- I'm not super-concerned  
11    about sort of the preferences of 8 and 12 and so forth.  
12                But the fact that we're going to stick in the  
13    DePoi or Waffner or so forth in 12, which as they say,  
14    is about the size of an interleaf.

15          Q     Preferably about the size.

16          A     Preferably about the size of an interleaf.

17          Q     There's no teaching in Muller that buffer 12  
18    cannot be larger, correct?

19          A     Again, if you're looking at -- I mean,  
20    normally, they talk about a small loop. So if you're  
21    looking at it and you want to talk about the figure  
22    being somewhat accurate, your large loop is going to be

1 8. Your small loop is going to be 12. 12 is going to  
2 be significantly smaller than 8.

3 And some of these systems, in fact, these  
4 systems, DePoi, Waffner, and so forth, they are  
5 replacing -- excuse me, large loop, and so they are  
6 going to be big.

7 And I think any POSA looking at this, looking  
8 at large versus small, is going to say, yes, it's going  
9 to be significantly smaller and those systems are going  
10 to have a very hard time fitting in that small area.

11 Q Unpacking that a little bit.

12 A Sure.

13 Q I think you said Muller is nominally  
14 referring to a small buffer. Do you recall just saying  
15 something along those lines?

16 A Something along those lines, yes, in terms of  
17 12 being a smaller buffer.

18 Q Is it your opinion that Muller describes  
19 buffer 12 as a small buffer?

20 A So it's described, you talk about enough for  
21 an interleaf, right? So this is going to be smaller.  
22 The other with an dancer and so forth is going to be

1 much bigger if you take a look at it with their  
2 function and the whole bit. I don't know how anybody  
3 would turn around and say, Oh, no, no, one is the same  
4 size, or one is smaller or bigger. My interpretation  
5 in the figures is that they're somewhat to scale.

6 Q Do you know if that's legally supportable in  
7 patent law that these figures are drawn to scale?

8 MR. HART: Objection. Form and foundation.

9 A Again, I think if a POSA would look at this  
10 and say, yes, of course, this is going to be smaller.  
11 And if you just take a look at -- I mean, for example,  
12 I would look at the roll in -- this is Waffner, right,  
13 the roll in Waffner, the roll in Muller, you know. Are  
14 they the same size?

15 Well, at least their width, you would say  
16 there's the width, which is the width of a piece of  
17 cheese, so it looks like they're about the same size.  
18 And so I would say that that roll is about the same  
19 size as 8 and it's much smaller than 12.

20 So I think looking at these things is,  
21 there's an indication there. But again, you know, it  
22 gets back to what Mr. Jobin wrote, and he said, hey,

1 we're going to put these into the small buffer, in  
2 the -- would you say in buffer 12? We don't have to  
3 say small buffer 12.

4 It doesn't make sense to put this big roll  
5 system in there. You've already got the roll here with  
6 the high-capacity, you know, dancer in 8. So it just  
7 doesn't make sense.

8 Q (By Mr. Thomas) Some of your analysis  
9 depends on assuming that the figures in the patent are  
10 drawn to scale.

11 A Well, and that they're -- I mean, some of  
12 the -- so the answer is no. My analysis was to go  
13 to -- I mean, what I just talked about, yes, drawn to  
14 scale. What I was asked to do was to see what  
15 Mr. Jobin said and to agree or disagree with it.

16 And I think what Mr. Jobin said doesn't make  
17 sense. He doesn't show us how he would do it. You  
18 have to put a systems in there, your vacuum system and  
19 so forth in there, and a POSA just wouldn't do this.

20 Q Okay. The bottom of page 4, there's a list  
21 of designations on Muller.

22 A Which, 4 of? Muller?

1 Q Yes.

2 A Thank you. Column. . .

3 Q It's at the very bottom of page 4, the  
4 right-hand column.

5 A I'm sorry. Which. . .

6 Q So list of designations --

7 A Oh, column 4. I'm sorry. I'm getting --  
8 those are page numbers. I'm sorry. I was thinking  
9 columns. My apologies. Yes.

10 Q And in this list of designations, feature 8  
11 is called the buffer, right?

12 A Feature 8 is called the buffer, yes.

13 Q Feature 12 is called the buffer kind of loop?

14 A Yes.

15 Q It's not called the small buffer?

16 A It's called the buffer loop and that is where  
17 Mr. Jobin was saying he was going to put these other  
18 large systems in there, correct.

19 Q And under that one sentence at the top of  
20 page 4, that's preferably, that buffer 12 is smaller  
21 than buffer 8. So there's a preference for a smaller  
22 buffer.

1 MR. HART: Objection. Form.

2 A Again, it's going to be smaller than buffer  
3 8. Buffer 8 is -- is, you know, deals with the large  
4 inertia in there, just by the physics and definition.  
5 But I'm not really here to talk about all these  
6 different designs. What I'm talking about here is what  
7 Mr. Tobin -- Jobin has put forward, it doesn't make  
8 sense in the 12 area.

9 But clearly, because you're dealing with the  
10 high inertia rollers and stuff, 8 is going to be bigger  
11 than 12.

12 Q (By Mr. Thomas) Does Muller say anywhere  
13 that making buffer 12 larger would be incompatible with  
14 the nature of Muller's design?

15 A Once again, Muller doesn't say it, but it's  
16 specifically designed to deal with pieces of paper the  
17 size of an interleaf. So it doesn't make a whole lot  
18 of sense to make it bigger unless you're trying to  
19 insert one of these systems that Mr. Jobin says he  
20 wants to insert, which, again, doesn't make a lot of  
21 sense.

22 And again, I'll point out, I wish he had

1 shown us how to do it, because it would have given us a  
2 little bit more to talk about today.

3 Q So also the top of page 4.

4 A Yes.

5 Q Muller describes that its preference is for  
6 buffer 12 to buffer only as much interleaver as needed  
7 for the injection of an interleaver. Is that right?

8 A I'm sure it is.

9 (Examines an exhibit.) Where is that over  
10 here? Let me put my glasses on. I'm sorry. I do not  
11 doubt that you're correct on that.

12 Q Right after the bold numeral 8 on the next  
13 line?

14 A There we go. Yes.

15 Q And you understand that to mean that in  
16 this -- in this embodiment, buffer 12, the amount of  
17 paper in that buffer would be basically exactly equal  
18 to the length of your piece of cheese interleaf.

19 A Yes. About. Sometimes they're bigger or  
20 smaller when you open up a pack of cheese and the paper  
21 is sticking out.

22 Q Right.

1           A       But roughly the same size.

2           Q       But if the interleaf is 3 inches, then there  
3 would be 3 inches of material in the loop.

4           A       Yes.

5           Q       Okay. Wouldn't that result in the material  
6 being drawn taut when the paper is fed? Like, the  
7 buffer would be completely empty?

8           A       Oh. So -- you know, so if you say exactly, I  
9 would say that there's probably tolerance on it, from  
10 exact down to, you know, instead of plus or minus this  
11 distance, it's probably this distance plus some.

12          Q       Okay. You didn't do any calculations as to  
13 what that tolerance would be?

14          A       No. I mean, the contacting sensor would be  
15 set up such that you have the right amount of material  
16 every time. So, in one instance, you would be a little  
17 bit too much and then index some more and give you the  
18 right amount every time.

19          Q       Got it.

20          A       Roughly speaking, within the spec tolerance.

21          Q       Do any of the proposed patent claims of  
22 Muller claim a loop of a certain size?

1           A     I don't know. I actually, I -- I don't know  
2     that I went through the proposed patent claims. I  
3     basically looked at Mr. Jobin's report and looked at  
4     what he wrote about integrating the different concepts  
5     together. And just opined on if it made sense and if  
6     he gave us enough information to do that integration,  
7     which I think we've said, he did not.

8           Q     You've said that.

9           A     I know.

10          Q     Muller doesn't describe its invention as  
11     being a small buffer loop, right?

12          A     I don't know.

13          Q     Do you -- withdrawn.

14                     Would you look at paragraph 42.

15                     MR. HART: In the declaration or Muller?

16                     MR. THOMAS: Great clarification.

17          Q     (By Mr. Thomas) Could you look at paragraph  
18     42 of your declaration, particularly the portion that  
19     leads on to page 26.

20          A     (Examines a document.) Yes.

21          Q     And you write -- you're talking about  
22     eliminating the need to modify buffer 12?

1           A       Yes. I think this goes to Mr. Jobin's point  
2       of inserting pressure sensors and things like that from  
3       some of the other patents in there.

4           Q       So you agree, at least, though, that it would  
5       be at least possible to modify buffer 12. A person of  
6       skill could do that.

7                   MR. HART: Object to form.

8           A       So if you have the budget to do it, if you  
9       could expand out, it's not clear -- in fact, it's  
10      pretty clear that the systems they're talking about in  
11      Waffner or DePoi and so forth are not going to fit into  
12      that small little area. So you'd have to be able to  
13      expand that area out.

14                   But I mean, mechanically, I think it could be  
15      done. And once again, it would be great to know how,  
16      you know, if -- you know, Mr. Jobin had an idea how to  
17      do it in that small little space and insert vacuum  
18      components and the whole bit, it would have been very  
19      useful to hear that from him.

20           Q       (By Mr. Thomas) You don't know what, if any,  
21      maximum size Muller's buffer 12 could be at which point  
22      it would stop functioning, do you?

1 MR. HART: Object to form.

2 A No, once again, I wasn't asked to take a look  
3 at that. I was asked to see if these different systems  
4 would fit in there and make sense. And they don't, if  
5 Mr. Jobin provided us with a means to do that.

6 Q (By Mr. Thomas) You didn't analyze whether  
7 Muller would be operable if buffer 12 was sort of  
8 longer than your assumption of what buffer 12 is?

9 MR. HART: Object to form.

10 A No, I mean, I would have analyzed it if, you  
11 know, Mr. Jobin would have said, here's how we put it  
12 in there and here's how to modify buffer 12. But there  
13 was no basis for me to do that analysis.

14 Q (By Mr. Thomas) How long is the strip guide  
15 in Muller?

16 A So the. . .

17 Q Yes. As you see it, how long is that strip  
18 guide, length-wise?

19 A Drawn on -- this is strip guide 13? Is that  
20 right?

21 Q It is, yes.

22 A You know, it's roughly the size of a piece of

1 cheese, right? So an interleaf, roughly speaking.

2 Q So how many inches?

3 A I -- I don't know. I guess it depends on how  
4 big of a piece of cheese you're going to cut. You  
5 know, I don't know. I wouldn't -- again, I wasn't  
6 really asked to opine on the size of that thing.

7 But again, we know what the block of cheese  
8 or a stack of cheese that you buy in a store and so  
9 it's roughly on that scale. But in inches, I don't  
10 know. I haven't gone -- I should have maybe gone to  
11 the store and taken a ruler out and measured some  
12 cheese before I came here.

13 But in all reality, it's about that size. My  
14 thinking here is, again, Mr. Jobin said, we can stick  
15 these big enormous vacuum systems in here, and  
16 certainly, they're not going to fit in there, whether  
17 they're 6 inches, 9 inches, or 4 inches, right?

18 Q Do you think that Mr. Jobin ever referred to  
19 the system as "big enormous vacuum systems"?

20 A No. I don't think so. Because if he did, he  
21 would not have written -- he wouldn't have put down  
22 this recommendation.

1 Q That's your gloss on his --

2 A It is. Yes. That's fair enough. That's  
3 fair enough. We can put that in italics, yes.

4 Q Is it possible that the strip guide in  
5 Muller's buffer 12 is a foot long?

6 A I just don't know. I haven't been asked to  
7 think about it and so forth. Yeah, I couldn't tell  
8 you. Foot, 11 inches, 11 and a half, 12 and a half  
9 inches. I just don't have a good feel for that.

10 Q 10 feet long?

11 A I don't think -- I don't think 10 feet long.

12 Q 1 inch long?

13 A We could venture on numbers all day, but  
14 really, I wasn't asked to take a look at the size. I  
15 was asked to take a look at what Mr. Jobin said, and,  
16 you know, what he said just doesn't make sense.

17 Q But order of magnitude, you think less than  
18 10 feet.

19 A I would say --

20 MR. HART: Object to form.

21 A -- less than 10 feet, sure.

22 THE WITNESS: Sorry about that.

1 Q (By Mr. Thomas) How much space does an edge  
2 take up?

3 MR. HART: Object to form.

4 A I don't quite understand the question.

5 Q (By Mr. Thomas) Sure. Can you look at  
6 paragraph 39?

7 A Okay.

8 Q Page 22 of your report. And I think one of  
9 the things you're talking about in paragraph 39 is the  
10 longitudinal edges that are a part of Waffner's  
11 teaching.

12 A (Examines a document.) Okay.

13 Q And so how much space does the longitudinal  
14 edge require?

15 MR. HART: Object to form.

16 A (Examines a document.) So. . . so I think  
17 there are a couple of things we look at here. If you  
18 look at Waffner, figure 1. We've got this longitudinal  
19 edge that this is the surface, I guess it would be, 8.  
20 And there's sort of 8 and 6 and so forth. This big  
21 long surface here that is going vertically. And so  
22 that -- I don't know. I really don't have a good

1 estimate there.

2 If we take a look at 5, that's our interleaf.

3 And you see the width there. So it's multiple widths

4 of an interleaf long. You've got 8 -- what is 8 -- 8

5 is -- 9 is the fan. I know that. But let's get down

6 to. . .

7 (Examines a document.)

8 Q (By Mr. Thomas) And I guess to clarify, I  
9 think your paragraph 39 was talking about Waffner, and  
10 you have GEA --

11 A Do I have GEA? I'm sorry. Thank you very  
12 much. Thank you.

13 So -- so here, you know, in terms of edge and  
14 space and so forth, I mean, you've got. . .

15 (Examines a document.) Yes. So again, to  
16 your point, the figures are to scale and so forth, but  
17 you've got the width of the interleaver going over the  
18 pressure sensor and so forth. So that's, you know,  
19 height-wise, probably 2, 3, interleaver widths.

20 But if you look at -- if you look at -- then  
21 the cross-section figure 1, you've got the roller  
22 system driven by motor 39; another motor system driven

1 by motor 38. You've got the loop in there. That's, as  
2 you correctly pointed out is going to be a catenary.

3 So there's a length issue. So top to bottom.  
4 And there's also a width issue in there. So it's going  
5 to take a fair amount of space. And then you're going  
6 to have to bring in all of the connections for the  
7 vacuum and so forth to drive this, and then actually,  
8 integrate it back into -- well, they don't show you  
9 integrating it back into, I guess, the dancer would be  
10 farther to the left.

11 So it sort of depends on if you're really  
12 talking about taking this whole system here, which I  
13 think you probably are, and squeezing down into 12.

14 Q So I think maybe getting away from the  
15 specific chamber in Waffner, but generally speaking, a  
16 vacuum chamber with longitudinal edges, do you know if  
17 there's a minimum size for that?

18 MR. HART: Object to form. Lacks foundation.

19 A You know, certainly, there's going to have to  
20 be some minimum. I don't know what it is, but I wasn't  
21 asked to opine on the minimum. In fact, it would have  
22 been very useful if, you know, Mr. Jobin would have

1     said, yes, this will all fit in here because I can put  
2     this little vacuum chamber in there, et cetera,  
3     et cetera, et cetera.

4                 But I don't think it's going to fit in there.  
5     I could give you an opinion on it, but he hasn't told  
6     me how he's going to do this. Just put it in.

7                 Q     (By Mr. Thomas) Do you think a vacuum  
8     chamber could be designed to be less than 1 inch  
9     tall?

10                A     Tall. Well, I think with a vacuum chamber  
11     the key thing is going to be volume not just height.

12                Q     Do you think a vacuum chamber could be  
13     designed to be less than 1 inch cubed?

14                A     It depends on, you know, your vacuum  
15     specifications and how big your holes are and things  
16     like that, and what you're trying to do with it.

17                         Again, I -- I was not asked to give an  
18     instruction, but I'm thinking about this and if you  
19     want to use this in terms of controlling and breaking  
20     and so forth, you've going to have to have holes of  
21     enough size to create suction in there.

22                         And you're going to have to have enough

1 volume so when the holes open up, you know, or they're  
2 clogged up, you know, that you can change that pressure  
3 pretty rapidly given the fan system that you have.

4 Q You're not able to put a number, though, in  
5 terms of inches on what that minimum size would be.

6 A My hope would be, again, that Mr. Jobin could  
7 have done that so I could have agreed or disagreed with  
8 him, but I didn't see that at all. I was only asked to  
9 opine on what he recommended.

10 Q So that's a no. You can't put a size --

11 A I wasn't asked to do that. I was asked to  
12 look at what he recommended. He didn't put a  
13 recommendation on there, so I can't do that analysis.

14 Q You mentioned the longitudinal edges of a  
15 vacuum box. Would the length of the latitudinal edges  
16 matter in whether the vacuum box could fit in the  
17 buffer 12 space?

18 A I think it gets back to, you're talking about  
19 volume, so I think there would be a fair amount of work  
20 you'd have to do, which appreciated, you know, that I  
21 could take a look at. But the reality is, it's going  
22 to go back to the volume and so forth.

1 I think you have to be careful not only to  
2 talk about just the box, but okay, how are you going to  
3 connect it? What about the holes? What about the  
4 guides that sort of keep the paper along this thing.  
5 So there are a lot of things you have to take into  
6 consideration.

7 Q Okay. So going back to your comment about  
8 the volume. Volume is a variable there. If you  
9 increase the volume, that's, all else equal, what is  
10 going to increase the braking effect and if you  
11 decrease the volume, decrease the braking effect?

12 A No, I don't think so.

13 Q Does the volume have any impact on braking  
14 effect?

15 A So the volume is going to give you what one  
16 might call a fluid capacitance, right? If you had a  
17 volume the size of this room, you know, you'd still  
18 drill those little holes there and still have a braking  
19 effect as a volume half size of this room.

20 But if you have something the size of a soda  
21 can and you took the paper off the holes, well, that  
22 vacuum would go away much faster than if we had to

1 vacuum the size of this room.

2 Q Okay. So in terms of the braking effect to  
3 the variables that matter, are the size, the number of  
4 holes, and the strength of the suction.

5 A Yeah, I would say the pressure differential,  
6 but sure.

7 Q And increasing the pressure differential  
8 decreases the force, all else being equal?

9 A Yes, I would think so.

10 Q Increasing the area that is holes --

11 A Making holes bigger.

12 Q Making the holes bigger?

13 A There you go.

14 Q Makes the braking stronger?

15 A Yes. Nominally. You can only make them so  
16 big before you suck paper. These are the things that I  
17 would hope that Mr. Jobin would have put forth to say,  
18 here's how you do it.

19 Q You don't think his analysis should have left  
20 setting those variables up to the POSA?

21 A I would've loved to have seen some analysis.  
22 So, I mean, yeah. I would have just -- I mean, I don't

1 think this is analysis. It's there's not much analysis  
2 there. Just, we'll put these things together.

3 Q And in terms of the ability to detect  
4 pressure changes. What are the variables that impact  
5 the magnitude of pressure change?

6 A I'm not quite sure I understand that one.  
7 That question. Excuse me.

8 Q So is that where the volume of the chamber  
9 comes into play, that a smaller chamber will more  
10 rapidly respond to or more rapidly have a measurable  
11 pressure change where the holes are plugged?

12 A Yes. Yes.

13 Q Okay. And all else equal, a larger chamber  
14 would have a less detectable or less rapidly detectable  
15 pressure changes when the holes are plugged.

16 A Yes.

17 Q Okay. Any other variables that impact --

18 A I don't know. I mean, they're lots. Your  
19 motor size and, you know, the whole bit in terms of it.  
20 How much vacuum you could pull and so forth. Again, I  
21 didn't get into that. That was not what I was asked to  
22 do. Would have been great if I had some of those

1 numbers to do a few more calculations, but I was not  
2 asked to do that.

3 Q Okay. And just, in terms of which direction  
4 those variables take us, is a stronger vacuum, would  
5 that lead to a more detectable vacuum signal or a less  
6 detectable vacuum signal as those holes are covered?

7 MR. HART: Object to form.

8 A So if I had a stronger vacuum pump, so I  
9 could evacuate more air, then as the holes would be  
10 covered, of course, you would pull more air out,  
11 generating a bigger pressure differential or faster.  
12 But again, you know, I want to remind you that means  
13 that we have to put in a vacuum system and so forth in  
14 there.

15 And so it's not just an issue of inserting a  
16 box with some holes in it. You've got to connect the  
17 vacuum system up. You've got to buy the vacuum system.  
18 You have to run the vacuum system. You have to  
19 maintain the vacuum system. And none of those issues  
20 were discussed by Mr. Jobin.

21 Q (By Mr. Thomas) He didn't discuss the  
22 expense of the vacuum system?

1 A No.

2 Q Maintenance. The expense of maintenance.

3 And you think he should have.

4 A I think if you're saying, hey, you could  
5 substitute these together and the POSA would have done  
6 this, you would have said, yes, it's obvious. It's  
7 cost-effective and here's how you do it to make it real  
8 easy, and there you go. I'm going to hand it off to  
9 you with a nice little ribbon on top of it.

10 Q You'd agree that the vacuum source can be  
11 located remotely from the vacuum chamber and attached  
12 with a vacuum line, right?

13 A So I think at least most of the systems, but  
14 I'm not sure -- this has a vacuum line but the other  
15 two didn't have a fan right there. But, yes, you can  
16 have a vacuum line attached to it, yes. But you still  
17 need a vacuum system.

18 Q Can you look at paragraph 83 of your report?

19 A (Examines a document.)

20 Q And in paragraph 83, you are discussing the  
21 vacuum manifold 44, the pneumatic manifold 44 in DePoi.  
22 That's one of the things you discuss?

1 A Let's get DePoi here. Yes.

2 Q And do you have an opinion on whether there  
3 is a minimum size that a vacuum manifold has to be to  
4 provide a braking effect as taught in DePoi?

5 A No, I wasn't asked to analyze that.

6 Q Okay.

7 A In fact, it would have been great if I had  
8 something to analyze to say this meets the minimum or  
9 doesn't meet the minimum. But no such information from  
10 Mr. Jobin.

11 Q And I think you're actually already begun  
12 talking about it when you had the GEA reference pulled  
13 up. But on paragraph 69, you're talking about the  
14 suction plate 6 and negative pressure generating unit  
15 of GEA, right?

16 A I think we've been there before. Yes.

17 Q And just to confirm, you haven't come up with  
18 some sort of minimum size that a suction plate has to  
19 be in order to apply a braking force as taught by GEA.

20 A And you know, same as my other answers. It  
21 would have been great if I could have done that  
22 calculation and so forth because that's what Mr. Jobin

1 recommended.

2 But, no, my job was to take a look at what he  
3 wrote. And he didn't make any mention of that in terms  
4 of how you would integrate these together.

5 Q And you didn't independently try to determine  
6 a minimum size for a suction plate or for a vacuum  
7 manifold or for a vacuum chamber that would work  
8 according to the teaching of Waffner, DePoi or GEA.

9 A Right. That wasn't part of my charge. My  
10 charge was to review what Mr. Tobin -- anyway. Boy, I  
11 really have a hard time with his name. But, anyway,  
12 yes. Jobin. There he is, right there. I have to  
13 write this down so I don't forget it.

14 Q I promise I won't have to make that an  
15 exhibit. That can be here.

16 A You can take my napkin. If you want to take  
17 my napkin, that's pretty funny.

18 Q I don't have any stamps for it anyway.  
19 Paragraph 39. This is where it leads over onto the  
20 second page.

21 A Got it. Would you like to do the first page  
22 or the second page?

1           Q     Second page. And you have sort of a  
2 composite picture there of --

3           A     Yes.

4           Q     You cut and paste a portion of Waffner's  
5 figures and paste them over a portion of Muller's  
6 figures, right?

7           A     Yes.

8           Q     You didn't do any calculations to determine  
9 the scale at which you copied that over, did you?

10          A     I think no, with the exception that the width  
11 of the interleavers are the same. You know. But maybe  
12 they have different interleaver widths. I don't know.  
13 But should be sort of roughly the right scale.

14                But the idea here is to show the complexity  
15 and so forth of trying to slip something in there that  
16 is basically a small loop system with a contact sensor.  
17 Yes. Just the photoelectric contact sensor as opposed  
18 to all of this other stuff in there.

19          Q     So that picture shows what would happen if  
20 you physically incorporated Waffner's buffer, took it  
21 out of Waffner and stuck it into the electric --

22          A     This is what you've have to -- I think it's

1 more these are things you'd have to consider and so  
2 forth, and it's nontrivial.

3 Q Yes. Is that going to be a similar answer to  
4 your picture in paragraph 83 of, I suspect, no.  
5 Withdraw that.

6 Is that going to be similar to your picture  
7 in paragraph 70?

8 MR. HART: Object to form.

9 Q (By Mr. Thomas) Of -- here, you've  
10 superimposed the GEA delay unit on top of the buffer 12  
11 in Muller.

12 A (Examines a document.) Yes. This is  
13 showing -- that's exactly right. So putting the GEA  
14 unit in there. The idea, I don't know how you would  
15 do. My expectation was that Mr. Jobin was supposed to  
16 provide that to us.

17 But this is saying, look, this is what you  
18 have to do. Here are the difficulties you're being  
19 faced with. This is not, this is how you do it,  
20 because, you know, I don't know how you do it and I'm  
21 not asked how you do it. But these are the things  
22 you'd have to think about and look at and this is what

1 it would entail.

2 Q So if you were to incorporate Gea's delay  
3 unit bodily into Muller's buffer, this is what it would  
4 look like.

5 MR. HART: Object to form.

6 A Again, it is a schematic of what it would  
7 look like. These are things you would have to  
8 consider. Whether you have to do some reconfiguration.  
9 You have to make this area 12 larger and so forth.  
10 Where you would put your vacuum, et cetera, et cetera,  
11 the fans and so forth, you know, that's all up to  
12 design. But the idea was, here are all the different  
13 things you've got to consider. This is not a trivial  
14 insertion.

15 Q And all the different things are a negative  
16 pressure units, fluid line, and suction openings and a  
17 suction plate. Those three things?

18 MR. HART: Object to form.

19 A Again, I don't know if that's all of them but  
20 the ideas we're highlighting are, look, this is all of  
21 the things you have to be thinking about. Frankly  
22 speaking, this is pretty simple, right? A pretty

1     simple schematic.

2                 I suspect you really get into it and say,  
3     let's figure it out. It's not as easy as saying, let's  
4     throw a few things in there and then you're good to go.

5                 Again, I'm not here to say this is how you do  
6     it. I'm here to say, Tell me how you're going to do it  
7     and I'll agree or disagree with you.

8                 Q     (By Mr. Thomas) Do you think it would be  
9     beyond a skilled person's ability to add a vacuum brake  
10    to Muller that included a negative pressure unit, a  
11    fluid line, and suction openings in a plate?

12                A     So I think it's just going to depend on how  
13    well you can shoehorn that in there, and I just don't  
14    know. You know, I just don't know. Technically, if  
15    you had the space and so forth, sure. Financially,  
16    you're asking for it. And again, trying to maintain  
17    it.

18                The question you have to ask when you  
19    redesign something is to say, Well, how is this  
20    benefiting the system? And the answer is, it doesn't.  
21    So it doesn't make sense to put it in there. Yeah,  
22    maybe if the space is there, you could insert this

1 thing, but you wouldn't do it.

2 Q Okay. And I guess, similar question as to a  
3 sensor according to Waffner's vacuum sensing technique.  
4 Technically, you could do it, but financially, it  
5 wouldn't make sense and you're not convinced that there  
6 would be a motivation to do.

7 A Yeah, the other thing is, why would you have  
8 a vacuum sensor in your system if you don't have a  
9 vacuum system. You're asking me about the vacuum  
10 sensor in Muller?

11 Q According to Muller's teachings, yeah.

12 A But there's no vacuum in Muller, so. . .

13 Q I probably misspoke.

14 A Or maybe I'm -- maybe I'm getting the wrong  
15 one here.

16 Q My question was about Waffner's technique of  
17 sensing loop position using vacuum.

18 A Oh.

19 Q Would you have a similar opinion that it  
20 would be technically possible to build that technique  
21 into a buffer like Muller's buffer 12, but it would be  
22 economically not justified and you don't think that

1     there would be a motivation to make that change?

2                   MR. HART: Object to form.

3           A     Yeah, so -- so if you were to put

4     Waffner's -- I've got to get these names right.

5     Waffner's system in -- excuse me, Waffner's system into

6     Muller and say, all right, we've got a vacuum going on

7     here. We're going to use a vacuum sensor and so forth.

8                   Well, again, that's if you've got the vacuum

9     sensor there and the whole bit. I mean, I could use a

10    sensor there, but why would you do that when I could

11    take a 50-cent --

12           Q     Yeah.

13           A     -- you know, photoelectric sensor and just do

14    it with a small loop like they're doing it now.

15           Q     (By Mr. Thomas) You teach undergraduate

16    engineers or graduate?

17           A     Both.

18           Q     You think if you took one of your graduate

19    engineers and said, hey, your project for this

20    semester, unlimited budget, but I want you to take an

21    interleaver like Muller's and design it to work with a

22    vacuum-based loop-like sensor. Do you think they would

1 be able to do that?

2 A So I think if I said, yes, I will give you an  
3 A if you do this, they would go and do it, yes. If I  
4 would ask them, you know, what the advantages are, you  
5 know. But, yeah, we have them do all sorts of things  
6 in the labs in our classes that don't make sense out in  
7 the real world. But we have them do it because they're  
8 simple, safe, easy, low-cost exemplars of, you know, to  
9 give them some experience in certain areas.

10 Yeah. I think -- I think that they -- I  
11 think that they could do it. But it's going to be a  
12 lot of thinking about it and so forth. And part of the  
13 key there is a unlimited budget and as long as we have  
14 enough space to put it in there. It's amazing what you  
15 can do with unlimited budget.

16 Q Still no fusion, but maybe the labs are  
17 working on that.

18 A Well, we can talk about something like that.  
19 Yes. It seems to be a universal constant that fusion  
20 is 30 years away.

21 Q Do you think that in a hypothetical situation  
22 or -- I'll withdraw that. Let's go a little bit more

1 grounded.

2 Looking to Waffner, which does disclose the  
3 technique of using vacuum signal as a proxy for loop  
4 length, right?

5 A Okay.

6 Q And figure 3 of Waffner shows, it looks like,  
7 one, two, three, four, five, six holes over the vacuum  
8 chamber?

9 A Oh, yeah. Uh-huh.

10 Q How many of those holes would need to go from  
11 covered to uncovered for there to be a detectable  
12 vacuum signal?

13 A You know, I really haven't thought about it.  
14 I'd have to take a look at all the different  
15 configurations, sensitivity of the sensor. What the  
16 pressure differential looks like. The size. As we  
17 said, right, those are three small or six small little  
18 holes in this wall over here, it's going to be a long  
19 time before you get it to have anything. So, yeah,  
20 there's not a simple answer to that one and I really  
21 haven't thought about it.

22 Q Got it. Can you look at paragraph 54 of your

1 report?

2 A Got it.

3 Q Yes. And then the second page of this  
4 paragraph, so page 36 of your report.

5 A Okay.

6 Q A POSITA, P-O-S-I-T-A, would understand that  
7 at most, having a vacuum system on the ascending side  
8 of the loop would impact threading only at that portion  
9 of the web handling device. Do you see where you wrote  
10 that?

11 A Yes.

12 Q So you would agree that adding a vacuum  
13 system would impact threading at least at that portion?

14 A Yes. I think adding a vacuum would impact  
15 threading. It impacts threading in both a positive way  
16 and a negative way. You're trying to thread your paper  
17 through. And so if you -- if you slip, it's going to  
18 hold the paper on there. On the other hand, you've got  
19 to push the paper through.

20 So you know, there are pluses and minuses to  
21 having vacuum running during threading operation.

22 Q Okay. And then paragraph 55, the first

1 sentence there, is that adding a vacuum chamber system  
2 to strip guide 13 in Muller would likely hinder the  
3 movement of the strip guide.

4 A Sure.

5 Q Do you see where you wrote that? Do you  
6 believe it would be beyond the skill of a POSA to add a  
7 vacuum chamber system to strip guide 13 that still  
8 permitted the rotation up and down of the strip guide?

9 A No, I mean, I think you could move it up and  
10 down. You'd have to be careful, of course, because  
11 you're going to have some connections one way or the  
12 other, if you've got the fan right on there.

13 Then you're going to have electrical  
14 connections or you're going to have some vacuum  
15 connections on there. So you'd have things like  
16 fatigue and so forth to catch it on certain things.  
17 But I think it's possible.

18 Again, it would be great if Mr. Jobin would  
19 have said that's how he would have done it one way or  
20 the other. That would have been very useful.

21 Q Did you do any quantification of how much  
22 adding a vacuum system would cost?

1 A No. In terms of cost, no. I did not.

2 Q You don't look at any catalogs to determine  
3 what vacuum generators cost at this time?

4 A You know, I don't think that would have been  
5 particularly useful. But I had no idea what this thing  
6 would look like. Again, if Mr. Jobin had said, This is  
7 what we're going to do, I could have gone and looked at  
8 the cost of some of the components and so forth. And  
9 made an estimate, yeah, this is going to be expensive  
10 or not.

11 But the reality is, it's going to add  
12 expense. And I can tell you with my work in industry  
13 every time you say, you ask a plant manager to add cost  
14 to a piece of equipment or to one of his lines, they're  
15 not going to be happy with you. And you have to  
16 determine the return on investment, ROI. This is not  
17 going to give you an ROI.

18 Q No, you say it's an important part of the  
19 engineering process for things used in industry as, you  
20 know, whether it's good business?

21 A Technoeconomic analysis.

22 Q Is that the same thing I said?

1 A Yes, but without geeky terms, yes.

2 Q That's true. I'd take your class. How much  
3 does a fan cost?

4 A Again, it depends on what kind of fan you  
5 want and so forth. Does it look like a computer fan?  
6 Is it a bigger fan? You know, and again, if I had a  
7 feel for what he was calling out we could get a  
8 better -- I mean, I can't tell you off the top of my  
9 head anyway, but I could go to the catalog and look it  
10 up pretty quick.

11 Q You didn't do that for your report?

12 A No. It doesn't make sense if I don't know  
13 what he's talking about.

14 Q The GEA438 that's in the reference. That's a  
15 food processing space, right? It's a food interleaver?

16 A Yes. I have to go back and take a look,  
17 but. . .

18 This is the one where he -- this is -- Bader,  
19 is that right? "Bauder"?

20 Q I think he might have been the inventor, yes.

21 A Okay. I keep looking for GEA. Everything I  
22 have is all electronic, so I see the GEA and click on

1 it, and there it is, but I keep hearing, we've heard  
2 about Bader, or Bader.

3 Q Bader. Never thought of it before, but I  
4 assume he's German if he's working for GEA.

5 A Well, think, but never know.

6 Q The GEA438 interleaver is for a food slicer.

7 A Yes.

8 Q And there's no caution in there that adding  
9 the suction unit is cost-prohibitive, is there?

10 A No, not in here. But again, you know, I  
11 would've, I think the key thing is if you're going to  
12 implement it, this is my expectation, this is what  
13 Mr. Jobin would have said, Yeah, here's the cost and  
14 here's what you're going to do.

15 Q I need a moment to arrange my exhibits here.  
16 All right. While you still have the GEA  
17 reference open, can you look at figure 1?

18 A Yes.

19 Q Does figure 1 show a loop?

20 MR. HART: Object to form.

21 A If you look at figure 1, and this is  
22 something that we had a lot of discussion on because

1 you have figure 1, and then you have figure 2 right  
2 below it.

3 And so in one instance, you see number 4 and,  
4 I don't know what do they call number 4 here, rolls.  
5 Technical term for them. Deflection roll. So, and  
6 then you look at figure 1 and you don't see the  
7 deflection rollers there. So then the statement is,  
8 well, at 2, is that a loop?

9 And I think really what we're looking at here  
10 is not so much a loop control but we're actually doing  
11 tension control on this. So we're generating the  
12 appropriate amount of force, you know, along this, you  
13 know, along sort of 6 and 8 over here. And if the  
14 force goes higher, if we want to roll more material  
15 off, we slowed the fan down. I believe that's how it  
16 works on fan number 9.

17 You slow down to slow the suction so the  
18 things move faster with the same amount of tension;  
19 move faster and then the roll 11 will speed up. So  
20 back to this loop thing, you can look at that and say  
21 that's a loop, but I don't think that's a loop in the  
22 classic sense of what we've been calling loop

1 control.

2 Q (By Mr. Thomas) Okay.

3 A Which is more of a tension control system.

4 Q The supply roll 11 would have an inertia to  
5 it? It would be sluggish?

6 A Yes.

7 Q So would you expect, as this system operates,  
8 that as the speed to the cutting blade increased, that  
9 speed might change faster than the speed of material  
10 leaving the roll would change?

11 MR. HART: Object to form.

12 A Well, and in -- so, again, I'm not -- I'm not  
13 really here to opine on how this works, just that you  
14 insert it and, you know, it's -- it's, you know, it  
15 doesn't fit in particularly well, you know, in the  
16 small loop 12 of Muller.

17 But I think that the two things, like I said,  
18 this is a tension control and so you'll control the  
19 rotational velocity of 11 in conjunction with the  
20 tension on the machine. So it's a different approach  
21 to control, but again, I didn't get too much into it.

22 It was really -- you know, does this fit in?

1 How do you fit it in? Does it make sense to fit in?

2 You know, to integrate it in. And I don't see it, you  
3 know, and it's not explained to me how it's done.

4 Q (By Mr. Thomas) How the combination is  
5 done?

6 A Yes, how you would physically insert this  
7 into Muller.

8 Q Okay. Just sticking with GEA reference. So  
9 as the paper travels down and then reaches a lowest  
10 point, it begins traveling up. That's what this figure  
11 shows?

12 A Yeah. I mean, if we look at it, it goes over  
13 roller 4, it travels down over roller 4, a second  
14 roller 4, and goes through -- what is that called,  
15 number 1, in all this great terminology. Yeah, two  
16 deflection rollers.

17 So I think those deflection rollers probably  
18 bounce around a little bit to give you a little bit of  
19 a buffering capability to delay unit 1, right? So to  
20 delay unit 1 is what you're looking at. Yes.

21 Q All right. So a skilled person reading this  
22 would not assume that that length is perfectly static.

1 They would assume some buffering capability around  
2 those rollers.

3 A Again --

4 MR. HART: Object to form.

5 THE WITNESS: Pardon me?

6 MR. HART: Object to form.

7 A Yeah. Again, I -- I don't know what somebody  
8 would assume and so forth. I really wasn't, you know,  
9 looking at all the technical details on this. You've  
10 got deflection rollers. That tells me there's some  
11 deflection going on. But in general, you're  
12 controlling this.

13 It's a tension control on this -- on this --  
14 you know, on this strip of paper and you're controlling  
15 it with a combination of the speed of your roller 11  
16 and the amount of friction that you're generating in  
17 the -- in the delay unit. Delay unit 1, right?

18 Q (By Mr. Thomas) So when you just told me  
19 that the deflection rollers probably bounce around a  
20 little bit to give you a little bit of buffering  
21 capability, do you stand by that?

22 A Again, I don't know if they're called

1 deflection rollers, so I would think they must deflect,  
2 but I don't know. Again, my job wasn't to say how does  
3 it work or does it fit in and so forth. It was  
4 actually, Mr. Jobin is the one who said this works, how  
5 this fits in and how you would do it, and I didn't see  
6 that.

7 Q So you don't think your job here was to  
8 determine how the GEA interleaver worked?

9 A My job was to take a look at what Mr. Jobin  
10 wrote and to say it makes sense or not. And it doesn't  
11 make sense in terms of what he wrote and also to say,  
12 you know, how do we put this together? Does that work?  
13 And in there, I don't know. He hasn't told me how we  
14 put this together.

15 Q And as part of your process for analyzing  
16 Mr. Jobin's opinions, you didn't determine what Bader  
17 is teaching?

18 A So Bader is teaching tension control system.  
19 So they're controlling the tension on the strip of  
20 paper. Basically -- yeah. Go ahead.

21 Q You read Bader.

22 A Yes.

1 Q Cover to cover?

2 A Yes.

3 Q You understand Bader?

4 A Yes.

5 Q So I'm curious from your understanding, do  
6 you think that the bottom of that loop is static? Or  
7 do you think, as I believe you told me earlier, that  
8 you think there's at least some buffering capability as  
9 it moves up and down?

10 A Well, it's called a -- let's see what it  
11 says -- I think it only calls out a deflection roller  
12 number 4. But it is really controlling it. The  
13 control is -- it is a tension control system.

14 So it is not a loop control system. It's not  
15 controlling a loop. There is no feedback on the loop.  
16 The feedback is all on the tension that is going on.

17 (Examines a document.) Yes. So it doesn't  
18 talk about a loop and deflection rollers. Deflection  
19 rollers, one would say they probably deflect. Nothing  
20 it perfectly rigid, so they would probably move around  
21 a little bit.

22 But the reality is, this talks about a

1 tension control system that's controlled by a  
2 combination of the suction fan on number 1 and the  
3 rotational velocity on the roller which is 11, or the  
4 roll of paper, right, which is roller 11.

5 Q Okay. But understanding the focus of Bader,  
6 I certainly agree, it's on the delay unit. But Bader  
7 does describe in his pictures of the path the paper  
8 takes to reach that delay unit. And I'd like to know,  
9 you know, yes or no, does that path include a portion  
10 that is looped and moves up and down to provide a  
11 buffering capability?

12 MR. HART: Objection.

13 A Again, the only thing I can tell you is what  
14 the patent says. It's got deflection rollers on it and  
15 so forth, and you know, it is -- this is a tension  
16 control system. It's not a buffer control system.  
17 It's not a buffering system. There is always some  
18 compliance in the system. Also compliance in the paper  
19 itself. So one could say that's the buffer as well.

20 So given that there might be some compliance  
21 in there, if you want to call it a buffer, that's fine  
22 from a physics perspective. But, you know, the design

1 of this system is for tension control on the paper.

2 Q (By Mr. Thomas) So after reading through  
3 Bader -- withdraw that.

4 After reading through the GEA reference and  
5 developing an understanding of what it discloses, and  
6 drawing on your own background as an expert, as a more  
7 than skilled person in this, yes or no, do you believe  
8 that the bottom of that loop moves up and down during  
9 the operation of the GEA interleaver?

10 A So the bottom line, I was not asked to opine  
11 on that. It doesn't say on the patent, but I'm not  
12 here to say whether it does or not. I wasn't asked to  
13 opine on that. I was asked to understand how this  
14 works and it's a tension control system and that's what  
15 I took it at face value for.

16 Q I mean, you recall in your report that you  
17 say that the GEA438 does not have any loop.

18 A Yes.

19 Q And is that based on a determination that you  
20 came to that the bottom of that looped area does not  
21 move up and down?

22 A So I think you're asking a couple of

1 different questions and I want to be clear about this.

2 There's deflection roller. Maybe that moves. Maybe it

3 doesn't. I don't know. I didn't look into it. Every

4 system has compliance. There is no loop. This is not

5 a loop control system. There's no a large loop; no

6 small loop; no loose loop. Bader has tension control

7 on it. So -- and that was it. So that was my opinion.

8 I wasn't asked to determine if the motion of

9 a deflection roller could be considered a loop. The

10 system's going to have some compliance. There's going

11 to be some kind of motion there. But I don't know what

12 it is. I wasn't asked to opine on it.

13 Q Can you look at paragraph 89 of your report?

14 A Pardon me?

15 Q Could you look at paragraph 89 of your

16 report.

17 A Sure.

18 Q You'd agree that in DePoi, the vacuum brake

19 is used to maintain sufficient web tension during rapid

20 deceleration?

21 A Right. You know, before roller 30, correct?

22 Q Yes.

1 A Yeah.

2 Q And in DePoi, if there were no vacuum brake,  
3 would you agree that web 18 could continue to travel up  
4 and above the loop even after rapid deceleration?

5 A Yes, I think given the appropriate  
6 circumstances and so forth, sure.

7 Q That would change the amount of material in  
8 the loop? If more paper exited?

9 A Yes, if more paper exited, sure.

10 Q So in DePoi, the brake helps ensure that the  
11 loop doesn't become too small, right?

12 A Yes, I think that's fair enough.

13 Q Okay. Going back to paragraph 78 of your  
14 report. You'd agree that the purpose of the brake in  
15 the GEA438 reference is to control the transporting  
16 speed, right?

17 A Yes. So -- yeah. I mean, I think all these  
18 are great with the brakes and so forth for each  
19 individual patent. But when you want to insert them  
20 into Muller, it doesn't matter, brake or no brake. It  
21 doesn't make sense to put them in there.

22 Q And in a system like Muller's now with that

1 sort of loop as in buffer 12, the transporting speed of  
2 paper out of that loop would determine how much paper  
3 is left in the loop, right?

4 A The transporting speed of the paper out of  
5 the loop -- sure, that would be one of things that  
6 would determine how much paper is left in the loop.

7 Q So controlling the transport speed of paper  
8 out of Muller's loop would help ensure that the correct  
9 amount of paper remains in the loop?

10 MR. HART: Object to form.

11 A I think the combination of controlling the  
12 speed and the duration of, you know, the -- it's  
13 basically the integral of the speed, right? Integral  
14 to the velocity over time, in combination with your  
15 position sensor to make sure you have the appropriate  
16 amount of material in there would ensure that you'd be  
17 good to go there.

18 Q (By Mr. Thomas) So, yes, in addition to  
19 those other variables, one thing that would impact how  
20 much paper is in the loop is the transporting speed of  
21 paper out of the loop.

22 A Well, the transporting speed and the time

1 that you're transporting at the speed.

2 Q Okay. Perfect. Thanks. Fair to say that in  
3 your work on this case, you've reviewed a lot of  
4 material about interleaving in the food processing  
5 space?

6 A Yeah, I would say so.

7 Q Would you agree that by 2017, it was known by  
8 POSAs to use the same blade to cut both food and  
9 interleaf?

10 A I'd have to think about that. I just don't  
11 know.

12 Q The system in GEA shows food at interleaf  
13 being cut by --

14 A The same blade? Okay.

15 Q Do you agree with that? I think figure 2  
16 shows food coming in.

17 A Yeah (Examines a document.) Yes. Cover  
18 figure 2. Sure.

19 Q Yes.

20 A And that was, what, 2019, or is it some  
21 other -- no, there it is. The file date is 2017. Just  
22 barely made it. December 20th, huh.

1           Q     And in Muller, that's another reference where  
2     food and paper are both cut by the same blade?

3           A     Well, I don't -- if you could point that one  
4     out to me. Again, I didn't really focus on food and  
5     paper getting cut by the same blade. I just focused on  
6     what Mr. Jobin was writing down. So that's, I'm a  
7     little reticent to say, yes, of course.

8           Q     Maybe paragraph 2 would be a good place to  
9     look. The interleaver being cut off from a interleaver  
10    strip preferentially simultaneously with the respective  
11    slices of food?

12          A     Okay. Sure.

13          Q     Is that enough to give you assurances that  
14    Muller discloses preferentially cutting off food and  
15    interleaver at the same time with the same blade?

16          A     Yes, I think that's fine. Sure.

17          Q     And Muller is a 2016 reference?

18          A     It sure is.

19          Q     And Bader is also a 2016 reference if you  
20    look at that foreign application priority dates. At  
21    GEA '438.

22          A     Oh, I'm sorry. 438, Bader. Yes, there it

1 is. Yes.

2 Q So in 2016, we have two references where  
3 food, paper, cut with the same blade, right?

4 A Yes.

5 Q Have there been improvements in web handling  
6 since 1970s?

7 A Oh, I would say so, yes.

8 Q Have there been improvements in industrial  
9 food processing since the 1970s?

10 A Yes, I would say so.

11 Q What are some of the most important  
12 improvements, in your opinion?

13 MR. HART: Object to form. Foundation.  
14 Relevance.

15 A You know, I -- again, I really haven't been  
16 asked to opine about this and haven't really thought  
17 much about it. But I would say things like speed and  
18 accuracy and so forth. I mean, that's typically any  
19 manufacturing process is what you look at in terms of  
20 improvement.

21 Q (By Mr. Thomas) More effective machine  
22 control?

1           A     Well, that would give you your speed and  
2 accuracy, sure, or precision.

3           Q     Can you say one way or the other if,  
4 generally speaking, there are benefits to adding  
5 additional points of tension control in web handling  
6 machines?

7           A     I really haven't thought much about that in  
8 terms of what I was asked to do. So I'm not ready to  
9 opine on anything like that.

10          Q     Even from your own personal work on paper  
11 handling machines? Have you considered whether there  
12 are benefits to adding tension control points?

13          A     Again, I haven't thought about it and how it  
14 would apply here, so it just doesn't -- yeah, I'm just  
15 not comfortable answering that.

16          Q     I think earlier today, you had told me that  
17 you didn't really consider the claim elements of the  
18 challenged patents, what the scope of those claims  
19 were, right?

20               MR. HART: Object to form.

21          A     Yeah, once again, I was asked to review  
22 Mr. Jobin's report and comment on if it made sense; how

1 things came together. And if a POSA would have thought  
2 about doing things that way. And that's what I stuck  
3 to in terms of my efforts.

4 Q (By Mr. Thomas) Okay. So sort of  
5 specifically following on to that, you didn't form an  
6 opinion one way or the other whether the Fukuchi  
7 reference discloses a removal device in the manner  
8 claimed by the patents, did you?

9 A No, I don't think -- that's not in my report.  
10 I would not have an opinion on it.

11 Q Okay. You didn't offer any opinions on  
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6 whether a person of skill would see a benefit or not in  
7 making a removal device? So removing material from the  
8 spool with a two-part device instead of a one-part  
9 device? You don't have opinions on that, correct?

10 A Yeah, again, if it's not in my report, I  
11 don't have an opinion on it.

12 Q You don't recall that being in your report?

13 A I don't, but if it's there, you can point it  
14 out to me. And we can talk about.

15 Q I -- I didn't see it. And it sounds like you  
16 spent a lot of time looking at your report, and you  
17 didn't --

18 A Yeah, I like this report.

19 Q You haven't offered an expert opinion in this  
20 case whether the tension control in Fukuchi is  
21 redundant of the tension control in Jordan?

22 A No, I don't believe that I've talked about

1 that.

2 Q Do you understand that Jordan discloses a  
3 magazine roll 23, that's what they call that spool?

4 A I don't know. We could take a peek at that  
5 and so forth.

6 Q Take a quick peek.

7 A Sure. And if you could point to in my report  
8 where we discuss it, that would be great too.

9 Thank you.

10 Q So do you see feature 23 in Jordan?

11 A There it is. Yes.

12 Q And then I think toward the end of Jordan,  
13 column 5, it talks about the paper feed?

14 A For a magazine roll 23. Yes.

15 Q Yes. And then, the Fukuchi reference, do you  
16 recall if that also discloses a roll of web material?

17 A No, that, I don't recall at all.

18 Q Let's see if I can get that one for you.

19 Here's Fukuchi, and I think it's feature 16,  
20 which is called a delivery bottom.

21 A (Examines a document.) Delivering a  
22 belt-like material, paper 16, bound in a roll. It's

1 column 5.

2 Q Okay. And to preface, I don't see it in your  
3 report.

4 A Yeah, I don't recall having it in my report.

5 Q Do you believe you offer any opinion in this  
6 case as to whether there's material differences between  
7 the roll in Fukuchi, which is feature 16, and the roll  
8 in Jordan, which is feature 23?

9 A Not that I recall.

10 Q They both appear to be spooled web material,  
11 that is drawn off of, right?

12 A Yes.

13 MR. HART: Object to form. Foundation.

14 A So I mean, they are, this is sort of chip  
15 material and so forth, but if they are paper that goes  
16 in between the food then, you know, I think they're  
17 pretty similar in nature.

18 Q (By Mr. Thomas) I think Fukuchi might  
19 actually be tobacco. I think it's filter paper as I  
20 recall?

21 A Yes.

22 Q Anyway, it's a roll of paper products?

1 A Yes.

2 Q And sitting here today, do you think there's  
3 sort of a material difference between those two rolls  
4 as far as they affect patentability?

5 MR. HART: Object to form. Lacks foundation.

6 A I tell you, you know, that sounds like a  
7 legal question. I'm not a lawyer, and it's not part of  
8 what I had to do.

9 Q (By Mr. Thomas) Not an opinion you formed?

10 A Right.

11 Q All right. Excellent.

12 MR. THOMAS I could probably take a little  
13 break now.

14 MR. HART: Okay. Sounds good.

15 THE WITNESS: Sure.

16 THE REPORTER: We're off the record.

17 (Recess 2:40 p.m. to 2:48 p.m.)

18 THE REPORTER: We're on the record.

19 Q (By Mr. Thomas) All right. Can you take a  
20 look at paragraph 63 of your report?

21 A Yes.

22 Q You have a sentence in there, put simply,

1 Jordan describes what it describes. Do you see that?

2 A (Examines a document.) Yes.

3 Q And by that, do you mean that you're focused  
4 on what is specifically mentioned in the Jordan  
5 reference?

6 MR. HART: Object to form.

7 A I think it kind of speaks for itself. It  
8 describes what it describes. I'm not sure how else to  
9 say it. It's got a description, and that's what it is.

10 Q (By Mr. Thomas) So what is specifically  
11 written in Jordan, that is a description?

12 A Yes. I mean, that's -- yeah.

13 Q Can you turn back to your section on legal  
14 standards toward the beginning of your report,  
15 paragraph 20?

16 A (Examines a document.)

17 Q There are a couple of these I want to just  
18 make sure I understand what opinions you've given in  
19 this case. So if you look at paragraph 26, about  
20 secondary considerations. You don't believe you've  
21 provided opinions on secondary considerations, have  
22 you?

1           A       (Examines a document.) Yeah, I don't think  
2   so. Yeah. I'm not a lawyer and so forth. I've looked  
3   at what Mr. Jobin has said. And my job was to  
4   understand what he wrote and to agree, disagree, and  
5   comment on that. So --

6           Q       Okay.

7           A       Yeah, none of these legal terms.

8           Q       All right. Can you read through paragraph 25  
9   about when a reference teaches away?

10          A       (Examines a document.) Okay.

11          Q       Does that paragraph accurately capture your  
12   understanding of the legal doctrine of teaching away?

13          A       Yes, my poor nonlawyer engineer understanding  
14   of it.

15          Q       Do you believe that you offer opinions in  
16   this report of any of the reference teach-away from the  
17   patented combination?

18                 MR. HART: Object to form.

19          A       One more time on the question? I'm sorry.

20                 MR. THOMAS: Actually, if you could explain  
21   your objection so I could ask a better question.

22                 MR. HART: Yes. So I think you said, you

1 asked whether he had proffered an opinion that the  
2 prior art teaches away from the patented combination?  
3 I think the standard for teaching away is from the  
4 combination, the proposed combination, not the  
5 challenged claims, but the combination of prior art  
6 references.

7 MR. THOMAS: Got it.

8 MR. HART: Does that make sense?

9 MR. THOMAS: In hindsight, perfect sense. So  
10 I'll reask my question.

11 Q (By Mr. Thomas) Do you believe you offer any  
12 opinions that any of the references you considered  
13 teach away from the proposed combination?

14 A Yeah, I'm sort of struggling, because there  
15 are definitions here and the whole bit. So let's be  
16 clear. Teach away is --

17 Q As you understand it from paragraph 25?

18 A It's unlikely to be productive --  
19 reference -- yeah. So -- reference will teach away.  
20 So the combinations, yeah, the combinations that were  
21 proposed are -- well, at least as far as I can tell,  
22 they're not going to work particularly well and you

1 wouldn't implement them and so forth.

2           If there was more detail, say, yeah, this is  
3 how you're going to do it and maybe he has a clever way  
4 of doing it and I'm just not seeing it. But, you know,  
5 then okay, that would be fine. But there's just not  
6 enough information to say, yeah, that's going to work.  
7 So based on everything that I've seen, these  
8 combinations don't make a lot of sense.

9           Does that give you the right answer? Or does  
10 that give you the answer you're looking for?

11         Q     Maybe. So you're not saying that the Muller  
12 reference would teach a person of skill away from  
13 exploring that vacuum sensors.

14         A     Oh. I mean, in the sense that -- you know,  
15 the question comes up, why would you put a vacuum  
16 sensor on there. The vacuum sensor doesn't improve  
17 Muller in any way. So if that counts as teaching away,  
18 you know, it doesn't say you can't do a vacuum sensor.

19               But it certainly doesn't make sense to put  
20 the vacuum sensor on there, at least as far as I can  
21 tell, and I just don't get any relief of that from  
22 Mr. Jobin's report.

1           Q     Yes, I think cutting through the legalese a  
2     bit, that's maybe the distinction there, is the  
3     difference between -- how did you say it -- the  
4     difference between saying you can't or you shouldn't do  
5     the vacuum sensor, versus in your opinion, whether  
6     there's a motivation to do it. That's not a question.  
7     So withdrawn. But. . .

8                     You don't believe that you're applying the  
9     teaching away doctrine.

10          A     Yeah, not saying don't do this -- I guess I'm  
11     saying don't do this, but for reasons that you just  
12     wouldn't do it.

13          Q     Paragraph 23, the second bullet point. You  
14     said you understand that it's necessary to specifically  
15     identify which elements of the patent claim appear in  
16     each of the asserted references.

17          A     Which one are we looking at here?

18          Q     Paragraph 23.

19          A     Okay. There it is. Yes.

20                     (Examines a document.)

21          Q     So focusing on what you mean by appearing in,  
22     as you use it there, for an element to appear in the

1 reference, do you believe that the reference has to  
2 specifically talk about or mention that element?

3 MR. HART: Object to form.

4 A One more time. Which bullet are we looking  
5 at?

6 Q (By Mr. Thomas) Bullet 2. Specifically  
7 identified --

8 A 2. Sorry.

9 (Examines a document.) And now your question  
10 once again is?

11 Q Is, when you talk about whether an element  
12 appears in an asserted reference. And your  
13 understanding for an element to appear in the  
14 reference, does that mean that the reference is  
15 specifically mentioning the existence of that element?

16 MR. HART: Object to form. Foundation.  
17 Relevance.

18 A And again, I -- I'm not a lawyer here. You  
19 know. I wasn't asked to sort of do the legal part of  
20 it. I was told to look at Mr. Tobin's -- or, I'm  
21 sorry, Jobin's report, but my engineering understanding  
22 is that, you know, the elements of a claim, hey, the

1 claim says this, and yeah, here it is in this  
2 particular invention or system.

3 Q (By Mr. Thomas) So in coming to an  
4 understanding of what these references taught, you  
5 focused on what was specifically written, mentioned,  
6 talked about, in those references.

7 MR. HART: Object to form.

8 A I focused on what Mr. Jobin said and how you  
9 would put it together. And my job was, do they go  
10 together? Does it make sense, you know. And would  
11 somebody do it. And would it really improve the  
12 system, right? So you can bolt a whole bunch of things  
13 on there, but if it doesn't change how the system  
14 operates or if it doesn't give the system advantage or  
15 improve its performance then, you know, how does it all  
16 come together.

17 So that was my job, to look at those things.  
18 I don't think -- I don't think that I looked at claims  
19 and said, Here's this claim, here's that claim, and  
20 sort of element, and so forth.

21 Q (By Mr. Thomas) So do you believe that there  
22 are any elements that Mr. Jobin said were taught by a

1 reference and you disagree. You say, no, that  
2 reference doesn't teach the existence of that element?

3 A I can't recall saying that, but if it's in my  
4 report and you want to bring it up, that would be fine  
5 to do that. Again, I think I've told you what I was  
6 hired to do and that's what's in the report.

7 Q Yes. A specific example I'm thinking about  
8 is with Jordan. I think Mr. Jobin's opinion is that  
9 Jordan teaches the element of a single cutting area  
10 that cuts both food and --

11 A Right.

12 Q -- interleaf. Is your opinion that Mr. Jobin  
13 is incorrect in that Jordan does not teach that  
14 element?

15 A Well, I think it's -- I think the term was  
16 preamble, but I can go back and take a look.

17 (Examines a document.) Make sure I'm going  
18 through the right stuff here. Yeah.

19 So and again, a lot of this is -- the legal  
20 terminology and so forth, but it's, you know, if you  
21 take a look at paragraph 60, it says I've been asked to  
22 assume that the preambles of each independent

1 challenged claim are limiting.

2 And so we go through the whole explanation  
3 and so forth. But my understanding is that this is  
4 talking about cutting the paper or the interleaver and  
5 the food product in the same area. And so if you do  
6 that, if we look at Jordan, Jordan talks about, we --  
7 and I'm looking here on the -- on the cover page of  
8 Jordan. But I think that's what figure 2 -- oh, no,  
9 it's figure 1 all squished together. But that is  
10 figure 1.

11 And so the assumption with Jordan is that a  
12 sliced food product is going to come in, it's going to  
13 be weighed, and then it's going to be carried over,  
14 vacuum system, so sort of an inverted conveyor belt.  
15 And then if it's of the right size, it'll get dropped  
16 down and then the paper is sliced, and the interleaver  
17 is dropped on top -- yes, on top of the food product,  
18 and the next one is put together.

19 So my understanding is that both the food  
20 product and the paper are not sliced in the same area.  
21 And in order to do that -- I think it's my figure. . .

22 Yeah. In order to have that in place, you'd

1 have to take out -- so the slicing of the food would  
2 have to come after the weighing and sort of depositing  
3 and so forth of the material. You'd have to take all  
4 of this out and you'd really pretty much eliminate what  
5 you have going on with Jordan.

6 That was sort of my understanding and I was  
7 told, this is how it works. That's the preamble and so  
8 forth, think about it this way, and that's how I  
9 thought about it.

10 Q So in terms of your understanding of what the  
11 Jordan reference teaches about where cutting is taking  
12 place, you came to that understanding by focusing on  
13 what is specifically written down and drawn in Jordan,  
14 rather than considering generally what a person of  
15 skill in this area would know about food slicers in  
16 early 2017.

17 MR. HART: Object to form.

18 A So I -- I think that I -- I came to an  
19 understanding of Jordan by reading Jordan, right? And  
20 so I mean, I guess, the document says what it says,  
21 right? So there's no food slicing in here. You say,  
22 okay, well, there's no food slicer on here.

1           And I was told with the preamble, et cetera,  
2   et cetera, that, you know, the food product and the  
3   paper need to be sliced in the same area. So that's,  
4   well, there is no food slicing here.

5           So it's that -- yeah. I mean it's -- I think  
6   it's pretty straightforward. I read this. No food  
7   slicing. Okay.

8           Q     (By Mr. Thomas) Got it. You can go through  
9   section 4, the relevant legal principles, to confirm.  
10   But it's correct that you have not been provided a  
11   legal definition of reasonable expectation of success,  
12   right?

13          A     Yeah, I don't recall, but -- I don't recall  
14   getting that information. We can go look at it if you  
15   want me to go look at my report. If my report says it,  
16   I agree with my report.

17          Q     You don't believe you've offered any opinions  
18   regarding reasonable expectation of success in this  
19   report, correct?

20          A     Expectation of success of? Like -- like,  
21   what Mr. Jobin's been writing about, that this is going  
22   to work? Because I don't believe he's going to be

1     successful on it. But if he gave me some more  
2     information, maybe he'd be successful. Is that what  
3     we're talking about? Clearly not.

4           Q     No, not who is more reasonable to be  
5     successful in litigation. That's the context there.  
6     No. What I'm asking is, do you offer any opinions on  
7     whether a person of skill asked to make this  
8     combination, the proposed combination, would have a  
9     reasonable expectation that they could succeed in  
10    making that combined system?

11          A     With your one addition of an infinite budget,  
12    or no?

13          Q     Can you answer both ways?

14          A     I can answer -- yeah, if I have an infinite  
15    budget and I could expand the machine out and so forth,  
16    I think that, yeah. . . yeah. I think it might take a  
17    little bit more than a bachelor's with a couple of  
18    years experience, but it could be done.

19                I think someone with six years of experience,  
20    or six or seven years of experience, could do it with a  
21    big budget and the whole bit. But the question is:  
22    Would they do it? And the answer is no.

1 Q And as far as could they do it, that's just  
2 you sort of speculating across the table today. You  
3 don't have a opinion written down in your reports.

4 A No. No, I mean, you know the reality is it  
5 would be great because I could give you a better  
6 opinion if they showed us how to do it.

7 Q Okay. But no opinions on expectation of  
8 success.

9 A No.

10 Q Okay. I think this topic has probably come  
11 up at the margins throughout today, but if you look at  
12 paragraph 29, for example, you -- it's -- you write  
13 that the, Petitioner fails to explain with  
14 particularity the proposed combination.

15 Do you understand the degree of particularity  
16 required in a petition to be a legal issue or an  
17 engineering issue?

18 A Look, I'm not a lawyer, so I'm looking at it  
19 from an engineering perspective.

20 Q Okay. Do you believe that that's the correct  
21 standard for the Board of Administrative Patent Law  
22 judges to be looking at it from?

1 MR. HART: Object to form.

2 A Again, I'm not a lawyer, so I just don't have  
3 an opinion on that.

4 Q (By Mr. Thomas) Okay. Do you feel like you  
5 came to an opinion based on your engineering background  
6 as to whether the petition was reasonably particular?  
7 Sufficiently particular?

8 A Yes.

9 Q And what sort of engineering knowledge did  
10 you apply to reach that conclusion?

11 A Well, much of what, and I agree, we've sort  
12 of touched on this around the borders and so forth.  
13 You know, what are the sizes of certain things. You  
14 know, how would they fit together. You know, what  
15 additions would you need. I think the other thing --  
16 and, you know, to give you a feel for costs, will it  
17 fit in -- in the space that's provided.

18 And I think the other important part is,  
19 really, what does it add to the system? And again, I  
20 think that Muller is sort of the foundational system or  
21 basis of what you want to look over. You know, what is  
22 the inserted system added to Muller when you put them

1 together? So how do you get a better system? It just  
2 wasn't really described.

3 Q So I think we can break that down into two  
4 parts. You understand that Jobin, Mr. Jobin, opines  
5 that the system would be improved because of better  
6 control of the length of loop, better control of the  
7 tension on the loop, and threading benefits. Correct?

8 A That's his opinion, yes. And the question  
9 that I have is, well, what's the improvement? How much  
10 improvement is it, right? And so he doesn't -- it will  
11 be improved. You know, there's no metric there to  
12 understand what that improvement is or how it's going  
13 to come about.

14 Q But he's at least particular about the three  
15 areas of improvement.

16 MR. HART: Object to form.

17 A Again, he talks about the areas of  
18 improvement but he doesn't say what those improvements  
19 are.

20 Q (By Mr. Thomas) In terms of like a  
21 magnitude?

22 A This car is better than this other car. What

1 does that mean? Is it got better fuel efficiency? Is  
2 it faster? Better acceleration? You know, what is it?  
3 And do you really need it? Right? This car can go 300  
4 miles an hour as opposed of 200 miles an hour. I'm  
5 never going to go 200 miles an hour on these roads  
6 anyway. You know, the reality is, would you do that?  
7 I don't know. What's the improvement and how much  
8 improvement do we see.

9 Q So you view Mr. Jobin's declaration as just  
10 saying the proposed Cognex combination would be a  
11 better interleaver and giving no specific reasons why.

12 A No, I don't think that I said that. He said,  
13 Well, I'm going to improve the loop control. And my  
14 question would be, Well, how is it going to improve the  
15 loop control? To what extent is it going to improve  
16 the loop control? And, you know, does that make the  
17 machine better.

18 And if, by the way, I would put all of this  
19 in there and it would cost me X dollars, would a  
20 customer pay that extra money to get that extra  
21 improvement and control, whatever it might be?

22 Q I guess I'm struggling to compare that to the

1 car analogy you just gave, because it seems you would  
2 be fine with someone saying the benefits of my new car  
3 are better speed and better gas mileage.

4 But you have a problem with Mr. Jobin saying  
5 the benefits of the modified interleaver are better  
6 tension control, better loop length determination, and  
7 better threading.

8 A So let's get more specific. Better gas  
9 mileage. What gas mileage are you looking for? You  
10 know, are we going from 1 mile per gallon to 2 miles  
11 per gallon? Are we going from 20 to 30 or 40? In  
12 terms of what he's talking about in terms of loop  
13 control, how much improvement is it going to be and are  
14 we really going to benefit from it? I don't know,  
15 right?

16 Is it a tighter loop by a meter? A  
17 centimeter? A micron? A nanometer? You know? And  
18 what's it worth paying for? So it's great to say I'm  
19 going to do this and move it forward, but what's the  
20 metric? If -- even if you say it's going to improve by  
21 50 percent, 50 percent of what? This is always a  
22 question.

1           When we do a review, whether it's over on a,  
2   you know, on an industrial system or a military system,  
3   you want to know what the improvement is and what's  
4   your metric. And typically, there are several metrics  
5   and you're going to see the trade-offs. In this  
6   particular case, trade-off is going to be performance,  
7   downtime, maintenance, cost, you know, and speed. So,  
8   look, or precision. If I can slice things more  
9   precisely, okay.

10          Q     So you would have liked to see Mr. Jobin  
11   quantify his proposed benefits with numbers.

12          A     So I, number one, numbers would be great, but  
13   at least say, were these great, okay, better loop  
14   control. What is that going to give me? Is it going  
15   to reduce the amount of paper that I'm going to be  
16   using?

17                I mean, again, I realize if you've got  
18   thousands of slices or tens of thousands of slices a  
19   day and you can save a millimeter of paper on each  
20   slice because I've got tighter loop control. I don't  
21   know, right, what the answer is, but that would be  
22   something that I would love to see.

1           And he doesn't need to say a millimeter. He  
2    would just need to say tighter loop control would allow  
3    you to get more accurate on your paper instead of more  
4    consistent with that. But I didn't see any of that in  
5    there.

6           Q     Did you read the institution decisions for  
7    these two cases?

8           A     I don't think so. I may have, but I don't --  
9    I don't recall.

10          Q     Are you aware that in their preliminary  
11    response, Weber argued that the two petitions lacked  
12    particularity?

13          A     No, I'm not aware of that.

14          Q     Were you aware that in their institution  
15    decision, the Board made the determination that the  
16    petitions were sufficiently particular to institute?

17               MR. HART: Object to form. Foundation.  
18    Relevance.

19          A     Yeah, once again, I don't recall. I mean, I  
20    know something went on there, but I don't -- you know,  
21    my focus was on Mr. Jobin's report. So. . .

22          Q     (By Mr. Thomas) Yes. I'll hand you what is

1 page 9 in the '013. It's the institution decision.

2 Can you turn to page 8 of this?

3 A (Examines a document.)

4 Q And can you read the paragraph underneath the  
5 table?

6 A Sure. Provisur also enumerates the specific  
7 elements of independent claims and explains in greater  
8 detail with annotated figures, how Muller and/or  
9 Waffner teaches each of those claim elements, See ID at  
10 28 through 38 claim 2, 47 through 52, claim 17, 53  
11 claim 19.

12 And Provisur provides credible and unrebutted  
13 testimony from its expert as to why one of ordinary  
14 skill in the art would have combined the teachings of  
15 Muller and Waffner with an expectation of success.  
16 See ID at 38 through 42, citing Exhibit -- is that  
17 right, Exhibit 1003, 199 -- paragraphs 199 through 228  
18 and 233 through 238.

19 Q Do you disagree with the conclusion in that  
20 paragraph?

21 MR. HART: Object to form. Foundation.  
22 Relevance.

1           A       Yeah, I mean, this is the first time I've  
2       looked at it, so I have -- you know, I haven't thought  
3       about it and so forth. And you know, I -- you know, I  
4       just really haven't, you know, looked at this or  
5       anything. So I'm not going to agree or disagree with  
6       this.

7           Q       (By Mr. Thomas) But sitting here today, it's  
8       your opinion that the petition was not sufficiently  
9       particular?

10          A       I. . . I don't know. I mean, I really don't  
11       know. This is the first time I've seen it, this one  
12       paragraph, so I just don't know.

13          Q       Okay. The corresponding document. This is  
14       paper 9 from the -- what did I just do with it. This  
15       is paper 8 from the '823.

16          A       Thank you.

17          Q       And can you turn to page 16 of this document?

18          A       Yes.

19          Q       And you see where it discusses in regard to  
20       independent claim 1 of the '823 patent using Provisur's  
21       number designation that are above, Provisur maps the  
22       claim preamble and limitations 1.1 material store and

1 1.2 removal device to Muller. Petition 24 through 28.

2 In addition, Provisur maps limitations 1.3, a  
3 loop store having a break for the material web that  
4 actively increases the friction for the material web  
5 and 1.4, wherein the loop store comprises a contact  
6 surface belonging to the brake for the material web to  
7 the combination of Muller and GEA438 in at 28 through  
8 31.

9 Provisur's arguments regarding the alleged  
10 impediment ability of the claim 1 of the '823 Patent  
11 are further supported by the as yet unrebutted  
12 declaration testimony of Mr. Jobin, see petition 24  
13 through 36, who has 32 years of experience in product  
14 and technology development as a mechanical engineer,  
15 consultant, and entrepreneur.

16 Do you see that paragraph?

17 A Yes.

18 Q That, today, is the first time you're reading  
19 that?

20 A Yes, I'm pretty sure.

21 Q And you understand that the Board considered  
22 the issue -- I'll withdraw that.

1           You have no understanding as to whether the  
2   Board previously considered the issue of particularity  
3   and institute of petition, correct?

4           A     Correct.

5           MR. THOMAS:  Probably close to wrapping up,  
6   but if I could take five to make sure I didn't miss  
7   anything.

8           THE REPORTER:  We're off the record.

9           (Recess 3:20 p.m. to 3:26 p.m.)

10          THE REPORTER:  We're on the record.

11          MR. THOMAS:  I really appreciate your time  
12   today.  I don't have any further questions for you.

13          THE WITNESS:  Oh, okay.  Thank you very much.

14          MR. HART:  Nothing from Patent Owner in the  
15   proceeding.

16          THE REPORTER:  Reading and signing?

17          MR. HART:  Sure.

18          (Deposition adjourned at 3:27 p.m.)

19                           \*                   \*                   \*

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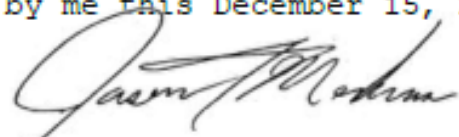
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# APPENDIX A



US 20160023370A1

(19) **United States**(12) **Patent Application Publication**  
**Müller**(10) **Pub. No.: US 2016/0023370 A1**(43) **Pub. Date: Jan. 28, 2016**(54) **UNREELING DEVICE FOR AN  
INTERLEAVER REEL, AND SYSTEM  
CONSISTING OF A SLITTING DEVICE AND  
THE UNREELING DEVICE**(30) **Foreign Application Priority Data**

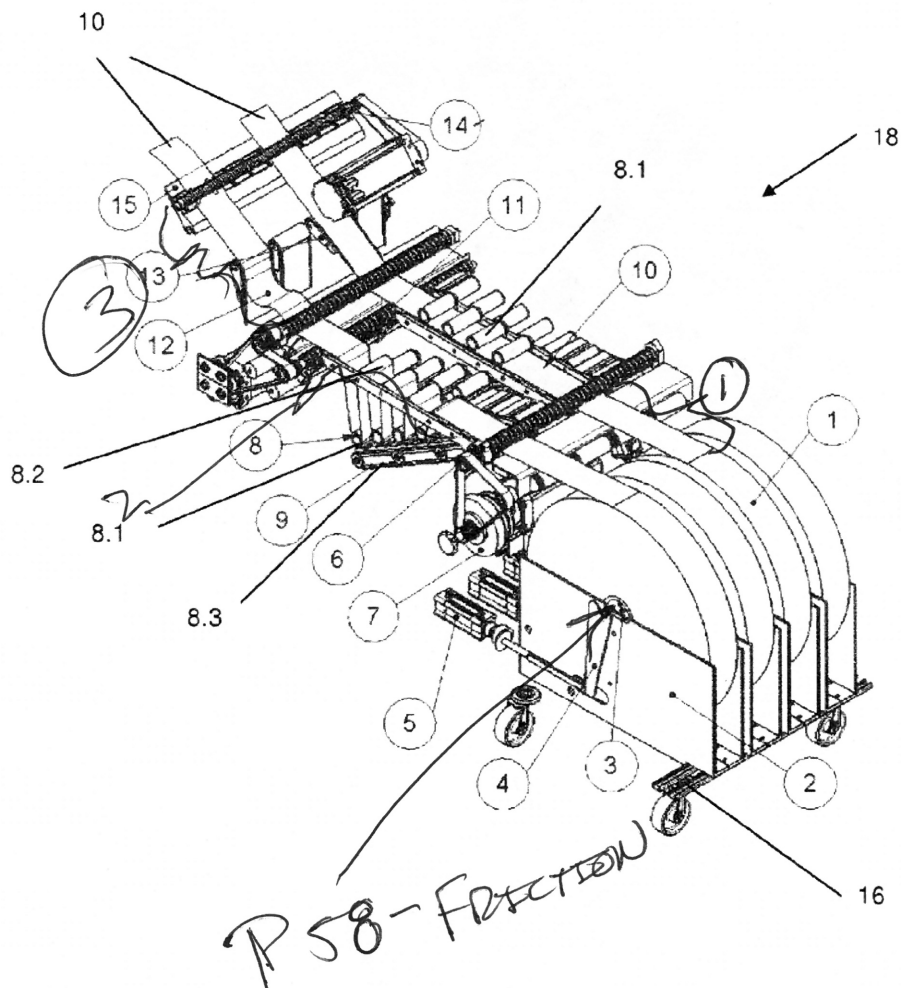
Mar. 20, 2013 (DE) ..... 10 2013 204 956.0

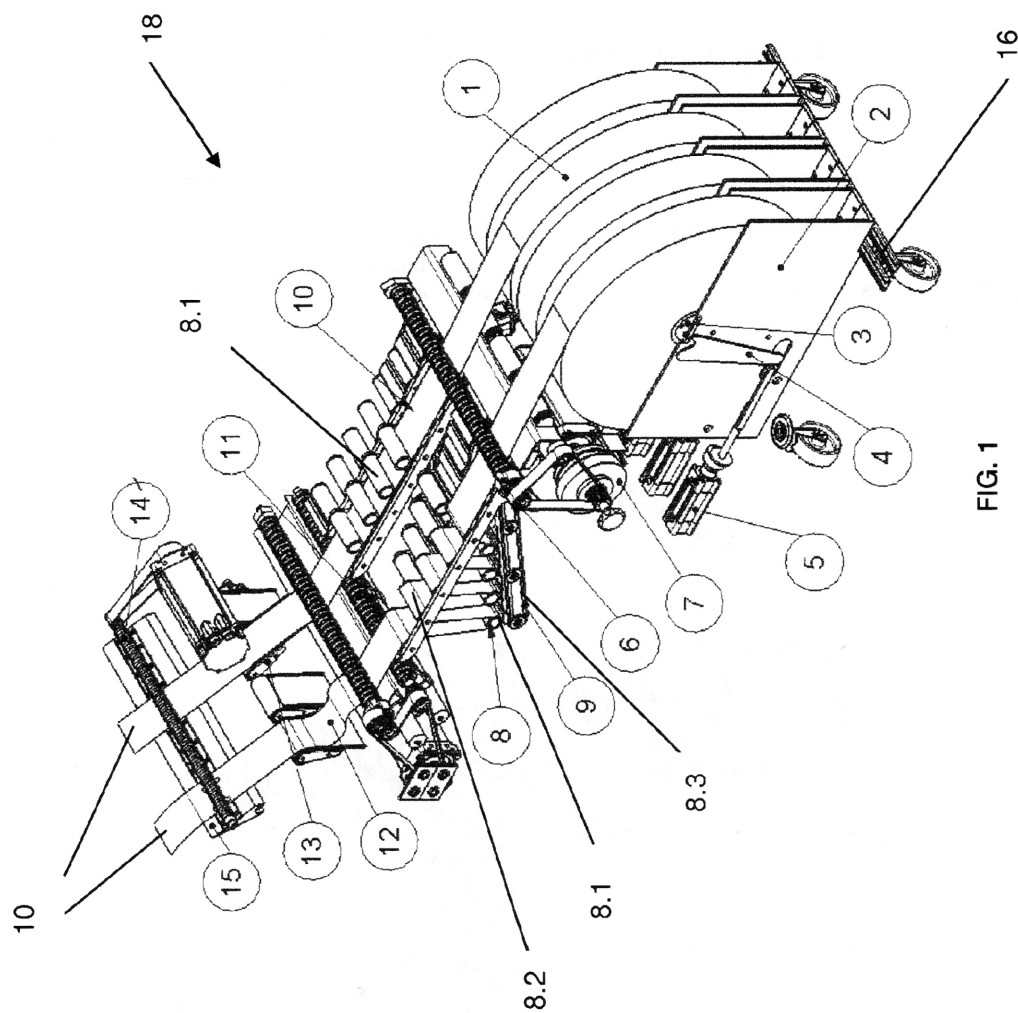
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CPC ..... **B26D 7/325** (2013.01); **B65H 16/023**  
(2013.01); **B65H 23/04** (2013.01); **B65H 26/00**  
(2013.01); **B65H 35/06** (2013.01)(57) **ABSTRACT**

The present invention relates to an unreeling device, by way of which an interleaver strip is unreeled from an interleaver reel. Furthermore, the present invention relates to a system consisting of a slitting device and the unreeling device.





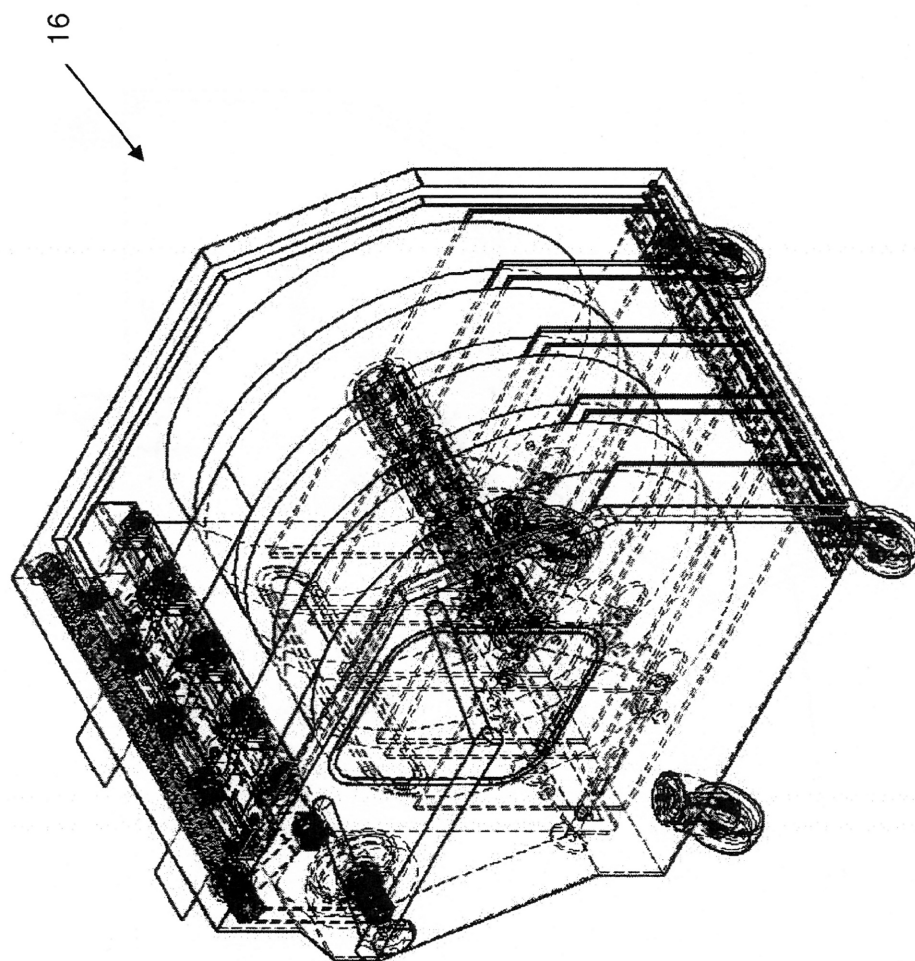


FIG. 2

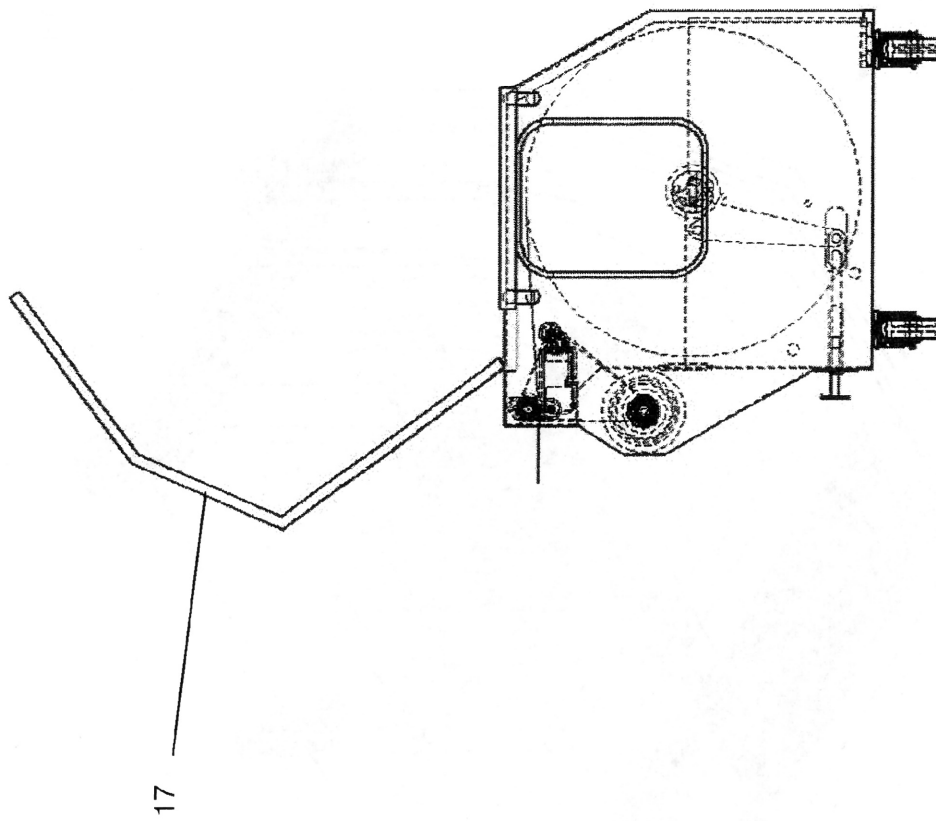


FIG. 3

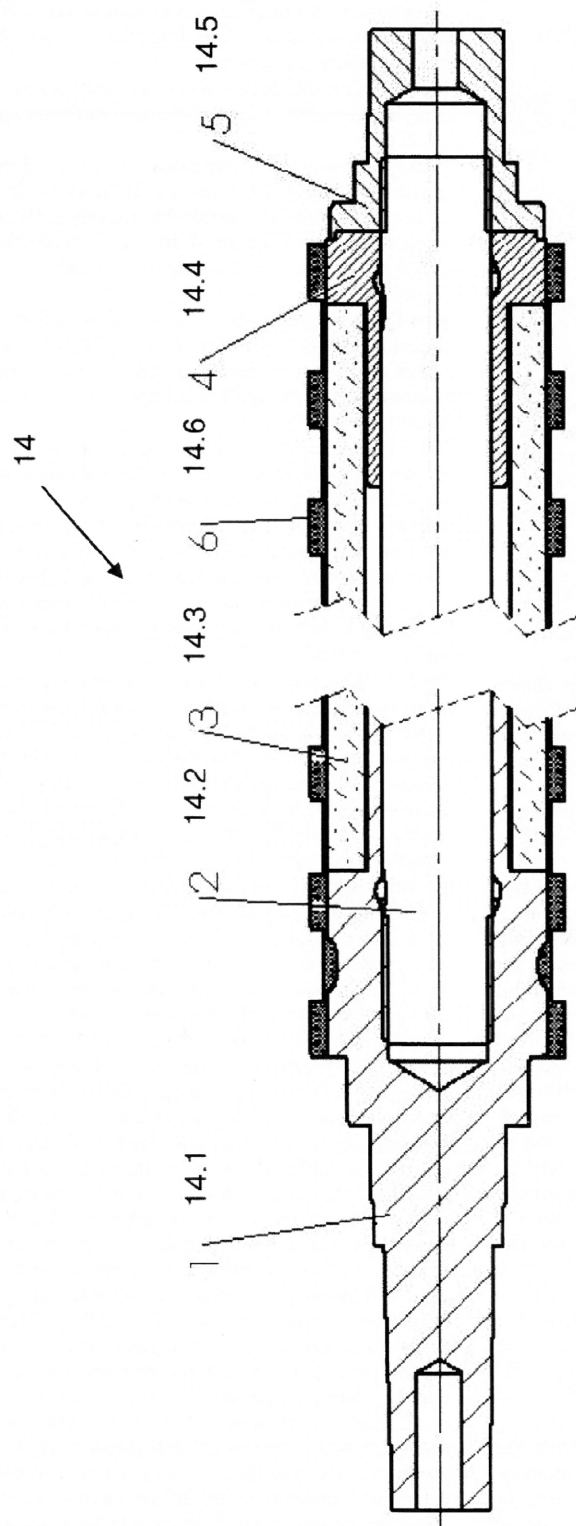


FIG. 4

**UNREELING DEVICE FOR AN  
INTERLEAVER REEL, AND SYSTEM  
CONSISTING OF A SLITTING DEVICE AND  
THE UNREELING DEVICE**

**[0001]** The present invention relates to an unreeling device with which an interleaver strip is unreeled from an interleaver reel. Furthermore, the present invention relates to a system comprising a cutting device and the unreeling device.

**[0002]** Interleavers, for example pieces of paper, are placed between two slices of food, for example, in order to reduce the adhesion thereof to one another, and are known from the prior art, for example from BP 1 940 685 B1. This insertion is carried out generally as a product is cut up into a multiplicity of slices of food, by the interleaver being cut off from an interleaver strip, preferably substantially simultaneously with the respective slices of food. The interleaver then falls together with the respective slice of food, for example onto a deposit table, on which a plurality of slices of food are configured to form a portion. Nowadays, the cutting devices are normally provided in multi-track form, i.e. a plurality of products are at least partly cut up simultaneously, so that an interleaver strip has to be provided per track.

**[0003]** Since the interleaver reels are finite, they have to be replaced from time to time, which was very complicated in the past.

**[0004]** It was therefore the object of the present invention to reduce the outlay when changing the interleaver reels.

**[0005]** The object is achieved with an unreeling device which has a multiplicity of cartridges, in which an interleaver reel is rotatably mounted in each case and the interleaver reel rotates as it is unreeled, the interleaver reel being braked automatically as necessary.

**[0006]** The explanations given in relation to this subject of the present invention apply equally to the system according to the invention and vice versa.

**[0007]** The present invention relates to an unreeling device for a plurality of interleaver reels. For this purpose, the unreeling device has a plurality of cartridges, in which preferably respectively one interleaver reel is rotatably mounted per cartridge. The interleaver reel rotates as the interleaver strip is unreeled. The cartridges are preferably arranged parallel to one another on the unreeling device and can be removed from the latter, preferably respectively individually. The unreeling device is preferably not a part of the cutting device but can be moved independently of the latter. The unreeling device preferably has rollers or the like, on which said device can be moved toward the cutting device and away from the latter.

**[0008]** Each cartridge provides the interleaver strip for one track of the cutting device, in which a product, for example a block of sausage, cheese or ham is respectively cut up. The cutting speed of the respective product in the respective track can be the same or different.

**[0009]** As soon as an interleaver reel has been used up, either this reel or the respective cartridge in which the used-up interleaver reel is located can be replaced, alternatively, however, the entire unreeling device can also be replaced as soon as at least one interleaver reel has been used up.

**[0010]** According to the invention, the respective cartridge has no brake, instead the interleaver reel is braked automatically as soon as there is no need for interleaver strip, for example when a product change is taking place in the cutting device.

**[0011]** The braking of the interleaver reel is preferably carried out by means of an appropriate frictional pairing between

the interleaver reel, and the shaft on which the interleaver reel is mounted. Astonishingly, the interleaver reel is consequently not mounted with as little friction as possible; instead a certain friction is desired.

**[0012]** The interleaver reel preferably has a paperboard core, which rotates on a rigid shaft, in particular an aluminum shaft.

**[0013]** Preferably, the interleaver reel is driven as far as possible without momentum, i.e. is driven as slowly as possible - with the lowest possible fluctuations and without peaks, so that the unreeling speed does not exceed the transport speed of the interleaver strip or exceeds the same only slightly.

**[0014]** A further subject of the present invention is an unreeling device which has a multiplicity of cartridges, in which an interleaver reel is rotatably mounted, in each case, wherein each cartridge has a braking means which is activated individually.

**[0015]** Preferably, the torque of the brake is a function of the weight of the reel, i.e. the further the consumption of the respective interleaver reel has progressed.

**[0016]** In a preferred embodiment of the present invention, the unreeling device and/or the respective cartridge has no dedicated drive for the interleaver reels and/or no drive for the respective braking means. As a result, the unreeling device according to the invention can be implemented very simply and economically.

**[0017]** The drive for the interleaver reels and/or for the braking means of the respective cartridge is preferably provided by the cutting device. For example, the cutting device has a rotary or linear drive per cartridge, which drives the respective braking means. Preferably, the cutting device has a drive for all the interleaver reels, wherein, particularly preferably, the respective interleaver reel can be connected individually to this drive, for example by a magnetic coupling.

**[0018]** A further subject of the present invention is a system comprising a cutting device, in which a knife severs slices of food from a block of food, which slices are arranged, at least partly overlapping, to form a portion of a plurality of slices of food, therein an interleaver (10) is respectively provided between two slices of food, and comprising an unreeling device as claimed in one of the preceding claims.

**[0019]** This subject of the present invention relates to a cutting device with which blocks of food, for example blocks of cheese, sausage and/or ham, are cut up into slices of food. For this purpose, the cutting device has, for example, a rotating cutting knife, which severs the slices of food from the front end of the block of food. Here, the cutting knife interacts with what is known as a cutting edge, which functions as an opposing knife and, together with the cutting knife, defines the so-called cutting plane. Provided between the cutting knife and the cutting edge is an adjustable cutting gap, which should be as small as possible, in order to prevent the slices being "chopped off". The cutting gap must however be sufficiently large that contact between cutting knife and cutting edge is reliably prevented. The cutting knife is arranged on a rotor. This rotor is preferably what is known as an idle cut rotor, with which the cutting knife is spaced axially apart from the front end of the block of food and the cutting plane, for example to transport a finished portion of slices of food away out of the cutting area of the cutting knife. In the spaced-apart position, the cutting knife continues to rotate with an unchanged rotational speed but does not sever any slices of food from the block of food. This movement of the cutting

knife is designated an "idle cut". As soon as the outward transport of the portion of slices of food has been completed, the cutting knife is moved back into the cutting plane again and the cutting device is continued. The cutting device has a plurality of tracks, which each have a dedicated drive that transports the product to be cut up in the direction of the cutting knife. With this forward drive, the thickness of the respective slice of food to be cut off is determined, corresponding to the forward drive of the respective product between two cuts. The forward drive can be different for each track, so that the respective products can also be cut up at different speeds.

[0020] Consequently, the consumption of the respective interleaver reel and the drive thereof can also be different.

[0021] The slices of food that are cut off are configured to form portions of a plurality of slices of food, wherein the slices of food of a portion at least partly overlap. For instances, the slices of food are stacked or shingled. An interleaver, for example a piece of paper, is arranged respectively between two slices of food and/or between portion and a support, in order to reduce the adhesion between the slices of food and/or a package.

[0022] This interleaver is preferably cut off, by the same knife which exits off the slices of food, from an interleaver strip which, for this purpose, is preferably inserted intermittently into the cutting place as soon, as the knife is no longer located in the area of the interleaver strip outlet. This insertion must then be completed at the latest when the knife enters the area of the interleaver strip outlet again. The insertion of the interleaver strip is preferably carried out individually for each track of the cutting device.

[0023] Preferably, a means which respectively drives the braking means of a cartridge is provided on the cutting device. This embodiment of the present invention has the advantage that each interleaver reel can be unreel at an individual speed. In addition, the unreeling device does not have to have a drive for the brake of the respective cartridge, so that the latter can be designed more simply and more easily.

[0024] Preferably, the system according to the invention, in particular the cutting device, has a sensor which respectively determines the interleaver reel circumference. By using the signal from this sensor, for example, the drive of the braking means and/or the drive means for the respective interleaver reel can be controlled. In addition, by using this signal, the progress of the consumption of the respective interleaver reel can be monitored and, for example, a replacement can be initiated in good time.

[0025] Preferably, the cutting device has a drive for the interleaver reels, which it rotates in order to unreel the interleaver strip. Particularly preferably, the number of drive means is smaller than the number of interleaver reels which have to be driven. Quite particularly preferably, only one drive is provided for all the interleaver reels. Preferably, between the drive and the respective interleaver reel there is provided a coupling, which can be activated as desired and with which the respective interleaver reel can optionally be driven. As a result, the time period and/or the speed at which the respective interleaver reel is driven can be adjusted individually.

[0026] Preferably, at least two accumulators per interleaver strip are provided between the interleaver reel and the location at which the interleaver strip is inserted into the cutting plane. These accumulators preferably have different storage capacities, a buffer having a small storage capacity preferably

being provided upstream of the insertion location in relation to the transport direction of the interleaver strip, and a further accumulator with a higher storage capacity preferably being provided upstream of the first buffer in relation to the transport direction of the interleaver strip. By means of the buffers, damage, in particular tearing of the interleaver strip, is prevented and/or the unreeling of the interleaver reels can be evened out, at least somewhat. At least one of the two buffers, preferably both buffers, is/are provided for each track and independently of each other.

[0027] Preferably, each buffer having the higher storage capacity has a dancer, which is preferably provided with position sensing, the signal from which is used to control the unreeling of the interleaver reel of the respective track. Preferably, rollers are provided on the dancer and the buffer additionally has farther stationary rollers. The interleaver strip is led around the rollers on the dancer and around the stationary rollers.

[0028] Preferably, the dancer has a drive, with which the position thereof can be changed independently of the interleaver strip. Therefore, the dancer can for example be moved into a threading position, which it assumes when a new interleaver strip is introduced into the system.

[0029] Preferably, the dancer has a drive, for example a belt, with which at least one roller of the buffer can be driven, in particular when the dancer is located in its threading position.

[0030] Preferably, the dancer is a multiple dancer, i.e. it has a plurality of rollers around which an interleaver strip respectively wraps. As a result, the buffer has a higher buffer capacity.

[0031] As a rule, the system, in particular the cutting device, has a guide for the interleaver strip, along which said strip is guided on its path from the interleaver reel as far as the insertion area. Preferably, this interleaver strip guide is provided so as to be partially movable, in particular pivotable, so that the length thereof can be changed. This change is made, in particular, in the area of the first buffer. As a result, the path of the interleaver strip can be lengthened or shortened. Preferably, the interleaver guide is shortened, is particular when threading the interleaver strip, and then lengthened again.

[0032] Preferably, the cutting device has docking means her the unreeling device, which ensure that the unreeling device is located in a defined position relative to the cutting device. This docking device preferably acts in two or three spatial directions which, in particular, are provided at an angle of 90° to one another. Particularly preferably, the cutting device and/or the unreeling device has/have means which fix the unreeling device as soon as the latter has assumed the defined position.

[0033] A still further subject of the present invention is a method for unreeling an interleaver reel, in particular by using the system according to the invention, wherein as the interleaver reel is unreel, a buffer is operated such that, in the event of an emergency stop, it buffers the overrun of the reel.

[0034] The disclosure made in relation to this subject of the present invention applies equally to the other subjects of the present invention and vice versa.

[0035] According to the invention, in the method according to the invention a buffer which is provided downstream of the interleaver reel for the interleaver strip is operated in such a way that it compensates for a difference between the unreeling speed and the consumption of the interleaver strip but at the same time has a residual buffer capacity that is sufficiently

large that, in the event of a necessary stop, it buffers the overrun of the interleaver reel, which is braked only by friction.

[0036] Preferably, the unreeling of the interleaver reel is carried out at least virtually without momentum, i.e. the third derivative of the distance/time graph of the interleaver strip is zero or virtually zero.

[0037] A further subject of the present invention is a cutting device, with which a product is cut up into a multiplicity of slices of food, in which the product is transported in the direction of a moving, preferably rotating, knife, which severs the slices of food from the front end of the product, which slices fall onto a supporting surface and are configured there to form portions of a plurality of slices of food, characterised in that at least one, preferably moving, part of the cutting device at least partly made of a material with a high strength and preferably a comparatively low density, in particular of ceramic, is provided.

[0038] The disclosure made in relation to this subject of the present invention applies equally to the other subjects of the present invention and vice versa.

[0039] The present invention relates to a device for cutting up products, in which at least one part made of a material with a high strength and preferably a comparatively low density, at least partly, is provided. Preferably, this is a moving, for example rotating, component which, quite particularly preferably, is driven intermittently. Further preferably, the part is provided so as to be very stiff and is particularly preferably subjected to very high accelerations.

[0040] Preferably, the part is at least partly made of ceramic. In particular, this is a ceramic with a comparatively low density, for example SiC or SiSiC or  $Al_2O_3$ .

[0041] Preferably, the part, in particular the part made of ceramic, is prestressed, in particular prestressed in compression.

[0042] Furthermore, the ceramic part is preferably connected to another part by an integral connection, in particular by adhesive bonding.

[0043] Preferably, the ceramic part is provided on the outer circumference of a rotating component.

[0044] The inventions will be explained below by using FIGS. 1 to 4. These explanations are merely exemplary and do not restrict the general idea of the invention.

[0045] FIG. 1 shows the system according to the invention.

[0046] FIGS. 2 and 3 each show illustrations of the unreeling device according to the invention.

[0047] FIG. 4 shows the drive shaft for the interleaver strip.

[0048] FIG. 1 shows, schematically, the system according to the invention. This comprises a cutting device and the unreeling device 16. The cutting device in the present case has four tracks, into which it is respectively possible to insert a product which is transported in the direction of a cutting knife, for example a rotating cutting knife, which severs slices of food from the front end of the product. The feed rate of the products per track can thus be different. The slices cut off fall, for example, onto a deposit table and are configured there to form portions of a plurality of slices. For example, the portions are arranged as stacks or as shingled portions. According to the invention, provision is now made for a so-called "interleaver" to be placed between two slices in each case. The interleaver is, for example, paper, in particular coated paper or a film, which reduces the adhesive forces between two slices of food. As a result, it becomes simpler for the user to separate a slice of food from the portion. The interleaver is

provided as interleaver strip 10, which are preferably inserted intermittently into the cutting plane of the knife which severs the respective interleaver from the interleaver strip. The interleaver that is cut off falls onto the deposit table together with the slice that is being cut off. An interleaver strip is provided for each track. Each interleaver strip 10 of the respective track is unreeled from an interleaver reel, here a paper reel, which is respectively provided in a cartridge 2. The cartridges 2 are arranged beside one another on the unreeling device 16. In the present case, the unreeling device 16 has rollers, with which it can be rolled to the cutting device. Each cassette 2, which is provided in the shape of a U in the present case, has a rotary bearing for the interleaver reel and a braking means 3, for example a brake blade 3, which brakes the respective interleaver reel as desired. Preferably, the braking torque here depends on the progress of the consumption of the respective interleaver reel. For example, the cutting device has a sensor which monitors the progress of the consumption of each interleaver reel 1. Preferably, the unreeling device 16 has no dedicated drive for the interleaver reels and/or no dedicated drive for the respective braking means. As a result, the unreeling device can be provided very simply and economically. Those skilled in the art will understand that, preferably, each interleaver reel has its own braking means, so that said reels can be braked individually and independently of the other reels. The drive 6, 7 of the interleaver reels and/or the drive 5 of the brakes is preferably provided on the cutting device. The fact that the unreeling device according to the invention preferably has no dedicated drive means that said device can be implemented very simply and has a low weight, which is advantageous for the onward movement of the unreeling device by a worker. The drive 5 of the brake of the respective film reel in the present case is a brake cylinder, which drives a lever 4 which in turn interacts with the brake blade and brakes the respective film reel. The interleaver reels in the present case have a common drive 6, wherein the torque provided by the drive is transmitted to the respective interleaver reel as desired by means of a magnetic coupling. Thus, each reel can be driven individually, in order, for example, to control the buffered interleaver strip length per track individually and/or to be suitable for the different cutting speed per track. As can be seen in particular by using the left-hand interleaver strip, after the interleaver strip has been unreeled from the reel, it runs through a buffer 8, in which interleaver strip material is buffered. In the present case, this buffer 8 is by way of stationary rollers 8.2 and movable rollers 8.1 which, in the present case, are provided rotatably on a dancer 8.3. The dancer 8.3 is provided on the cutting device, rotatably here, and preferably has a sensor with which one position thereof can be established, so that the signal from this sensor can be used to control the drive 6, 7 of the respective interleaver reel. The dancer preferably has a drive 9, for example a belt, in particular a tangential belt, which, driven by a drive 11, can run around the dancer. This drive 11 can set the stationary rollers 8.1 rotating, which is advantageous in particular when threading a new interleaver strip, which in the illustration according to FIG. 1 is currently taking place in the right-hand interleaver strip 10. The drive for the tangential belt is the drive means 11, a roller here, which is able to interact with the drive of the dancer when the latter is in its non-buffering position, the horizontal position here, and the interleaver strip moves through the buffer 8 without any turns. Provided downstream of the first buffer 8 is a further buffer 12, a loop here, which preferably has a substantially lower

capacity than the buffer 8 and preferably buffers only as much interleaver material as is needed for the ejection of an interleaver. The length of the loop is preferably monitored, in particular by a contacting sensor. This buffer 12 preferably has an interleaver strip guide 13, which is provided so as to be movable and which is able to enlarge or reduce the path of the interleaver strip. In the present case, this guide is a plane, which is provided such that it can rotate on the cutting device and which can be moved from a buffering position (left-hand interleaver strip) in to a non-buffering position (right-hand interleaver strip). Also provided downstream in relation to the direction of movement of the interleaver strip, preferably immediately adjacent to the cutting plane, is an interleaver ejection roller 14 on an interleaver ejection unit 15. Preferably, the roller is a roller having a very low weight, for example a ceramic or steel roller, which has a very low mass moment of inertia with a high stiffness. As a result, it is possible to insert the interleaver strip into the cutting plane with a very high acceleration.

[0049] According to another subject of the present invention, not shown, the reel of each cartridge has no braking means, instead is mounted in the cartridge such that there is deliberately so much friction that, in the event of a consumption stop or a reduction in consumption of the interleaver strip, the reel overruns only so slightly that the excess can be shored in the buffer 8. The buffered interleaver strip can then be used to accelerate the interleaver reel as far as possible without momentum in the event of an increase in demand. For example, each cassette has a rigid shaft made of metal, preferably of aluminum, on which the core, in particular a core of paperboard, rotates. This frictional pairing is sufficient to be able to operate the cartridge without any brake.

[0050] FIG. 2 shows the unreeling device according to the invention which, in the present case, has four cartridges, in each of which an interleaver reel 1 is rotatably mounted. Each cartridge has its own braking means, but which has no drive. Each cassette can be provided on the unreeling device such that it can be mounted/dismounted individually. The cartridges can be loaded with an interleaver reel and then mounted on the unreeling device. Preferably, the distance between the cartridges is adjustable. Preferably, the unreeling device has a sensor which monitors the progress of the consumption of the individual interleaver reel and in particular is connected to the open-loop/closed-loop control system of the system according to the invention, which outputs an appropriate signal as necessary when one or more cartridges have to be replaced or refilled. The unreeling device according to the invention preferably has no type of power supply. Preferably, means are provided in the unreeling device in order to connect the unreeling device to the cutting device and/or to achieve an exact alignment of the unreeling device relative to the cutting device, so that a reliable drive of the interleaver reels, a secure connection, to the braking means and/or twist-free unreeling of the interleaver material are possible. Preferably, the cutting device has a sensor which establishes that the unreeling device is decked correctly on the cutting device.

[0051] As can be gathered in particular from FIG. 3, the unreeling device 16 according to the invention can be covered by a folding cover 17. As a result, the device according to the invention satisfies the hygienic requirements in an operation processing foodstuffs.

[0052] FIG. 4 shows an example of part of a cutting device which is at least partly produced from a high-strength material. In the present case, this is the interleaver strip ejector

roller, which inserts the interleaver strip or strips between two slices of food. This is carried out intermittently and the respective interleaver strip must be inserted very quickly, so that the interleaves strip ejector roller is intermittently subjected to very high acceleration. The interleaver strip ejector roller in the present case has a rotary bearing, here a shaft journal 14.1, which is preferably made of metal, in particular of steel. The rotary bearing preferably has a seat for a ceramic sleeve 14.3, wherein the ceramic sleeve is particularly preferably connected integrally to the seat, in particular by adhesive bonding. Provided within the ceramic sleeve in the present case is a tie rod 14.2, with which the ceramic sleeve can be prestressed in compression, so that the stiffness thereof, in particular against deflection, is increased. The tie rod interacts firstly with the bearing 14.1 and secondly with a pro-stressing nut 14.5, which at the same time acts as a bearing which is located opposite the bearing 14.1. Provided between the pre-stressing nut 14.5 and the ceramic sleeve 14.3 here is an adapter 14.4, which is preferably likewise connected integrally to the sleeve. The adapter 14.4 is preferably made of lightweight metal or plastic. Preferably provided on the circumference of the ceramic sleeve 14.3, of the bearing 14.1 and/or of the adapter, in particular at least, in some sections, is a functional surface, for example a coating, e.g. a rubber coating or a plastic, preferably provided with a structured surface which, here, interacts frictionally with the interleaver strip.

[0053] The interleaver ejector roller 14 described is used here for the interleaver strip ejection and is subjected, to extremely high accelerations with a slim design. Here, the interleaver ejector roller is about 600 mm long and only 40 mm in diameter. It must exhibit extremely high bending stiffness, since if is necessary to press on the paper over the entire width with a mating shaft.

[0054] Further uses of a part which is at least partly provided from ceramic are slim shafts for the portioning bands, wherein the transitions from hand to band must be kept as small as possible and therefore the shaft diameters are chosen to be the smallest possible. Nevertheless, shafts up to 600 mm long or mere are also needed here. Here, too, high acceleration is needed for the fast transport away of the portions.

[0055] A further application is the deflection rollers of the traction belts, i.e. the belts which guide the product toward the knife.

#### LIST OF DESIGNATIONS

|        |                                     |
|--------|-------------------------------------|
| [0056] | 1 Interleaver reel, paper reels     |
| [0057] | 2 Cartridge                         |
| [0058] | 3 Braking means, brake blade        |
| [0059] | 4 Lever                             |
| [0060] | 5 Drive for the brakeing means      |
| [0061] | 6 Drive of the interleaver strip 10 |
| [0062] | 7 Coupling                          |
| [0063] | 8 Buffer                            |
| [0064] | 8.1 Movable roller                  |
| [0065] | 8.2 Stationary roller               |
| [0066] | 8.3 Dancer                          |
| [0067] | 9 Drive, belt, tangential belt      |
| [0068] | 10 Interleaver strip                |
| [0069] | 11 Drive means, roller              |
| [0070] | 12 Buffer, loop                     |
| [0071] | 13 Interleaver strip guide          |
| [0072] | 14 Interleaver ejector roller       |
| [0073] | 14.1 Bearing, shaft journal         |

- [0074] 14.2 Pulling means, tie rod
- [0075] 14.3 Supporting body
- [0076] 14.4 Adapter
- [0077] 14.5 Prestressing nut
- [0078] 14.6 Functional surface
- [0079] 15 Interleaver ejector unit
- [0080] 16 Unreeling device
- [0081] 17 Cover
- [0082] 18 System

What is claimed is:

1. An unreeling device comprising: a multiplicity of cartridges; and an interleaver reel rotatably mounted in each cartridge, wherein the interleaver reel in each cartridge rotates as an interleaver is unreeled therefrom, and wherein the interleaver reels are braked automatically as necessary.
2. The unreeling device as claimed in claim 1, wherein the interleaver reel in each cartridge has a core that rotates on a rigid shaft, wherein the core is a paper core and the shaft is an aluminum shaft.
3. The unreeling device as claimed in claim 1, wherein each of the cartridges has a braking means that is activated individually.
4. The unreeling device as claimed in claim 3, wherein a torque of the braking means is a function of a weight of the interleaver reel in a corresponding cartridge.
5. The unreeling device as claimed in claim 1, wherein the unreeling device is free of a drive for the interleaver reels.
6. A system comprising:
  - i. a cutting device including a knife that severs slices of food from a block of food, the slices are arranged so that the slices at least partly overlap to form a portion of a plurality of the slices of food, wherein an interleaver is provided between two of the slices of food, and
  - ii. an unreeling device comprising:
    - one or more cartridges;
    - an interleaver reel rotatably mounted in each of the one the interleaver reel includes an interleaver, wherein the interleaver reel is automatically braked with a braking means when there is no need for the interleaver.
7. The system as claimed in claim 6, wherein the system includes a means that drives the braking means, which is provided on the cutting device.
8. The system as claimed in claim 6, wherein the system has a sensor that determines a circumference of the interleaver reel.
9. The system as claimed in claim 6, wherein the cutting device has a drive for the interleaver reel.
10. The system as claimed in claim 6, wherein the system has at least two buffers per interleaver reel.

11. The system as claimed in claim 10, wherein at least one of the buffers has a dancer.

12. The system as claimed in claim 6, wherein the system includes an interleaver strip guide that is partly movable, pivotable, or both.

13. A method comprising:

unreeling an interleaver from an interleaver reel that is supported on an unreeling device, wherein the unreeling device comprises a cartridge rotatably supporting the interleaver reel; wherein the interleaver reel is braked automatically when there is no need for the interleaver, and wherein as the interleaver reel is unreeled, a buffer is operated such that, in the event of an emergency stop, the buffer buffers an overrun of the interleaver reel.

14. The method as claimed in claim 13, wherein the unreeling step is carried out at least virtually without momentum.

15. A cutting device, with which a product is cut up into a multiplicity of slices of food, in which the product is transported in a direction of a moving, rotating knife, which severs the slices of food from a front end of the product,

wherein the slices fall onto a supporting surface and are configured there to form portions of a plurality of the slices of food, and

wherein at least one moving part of the cutting device is at least partly made of a material with a high strength and low density ceramic.

16. The unreeling device as claimed in claim 1, wherein the unreeling device includes at least one buffer,

wherein after the interleaver is unreeled from the interleaver reel, the interleaver runs through the at least one buffer to buffer the interleaver.

17. The unreeling device as claimed in claim 16, wherein when threading a new interleaver, the at least one buffer is moved so that the new interleaver is not buffered.

18. The unreeling device as claimed in claim 1, wherein friction between the interleaver reel and a corresponding cartridge causes the interleaver reel to brake automatically when there is an interleaver consumption stop, or a reduction consumption of the interleaver.

19. The system as claimed in claim 11 wherein the dancer includes one or more stationary rollers and one or more moveable rollers,

wherein after the interleaver is unreeled from a corresponding interleaver roller, the moveable rollers are moved so that the interleaver is buffered, and

wherein when threading a new interleaver, the moveable rollers are moved so that the new interleaver is not buffered.

20. The method as claimed in claim 13, wherein the method includes a step of moving one or more rollers when threading a new interleaver so that the new interleaver is not buffered.

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