Transcript of Steven Alan Velinsky, Ph.D, PE

Date: August 19, 2025
Case: Kubota North America Corporation -v- Vermeer Manufacturing Company (PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KUBOTA NORTH AMERICA CORPORATION,	IPR2025-00167; IPR202500168; IPR2025-0169; IPR2025-170; IPR2025-00171; IPR2025-00381
Petitioner,	PGR2025-0016
v.	U.S. Patent No. 11,465,981
VERMEER MANUFACTURING COMPANY,	
Patent Owner.	

DEPOSITION OF STEVEN ALAN VELINSKY, Ph.D, PE

Costa Mesa, California

Tuesday, August 18, 2025

Job No. 594711

Reported by:

Cathy A. Wood, RDR, RMR, CRR

CSR No. 2825

(Also licensed in Nevada, Washington, Texas and Illinois)

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Patent Owner.	

DEPOSITION of STEVEN ALAN VELINSKY, Ph.D., PE, taken on behalf of Patent Owner Vermeer Manufacturing Company, at Haynes & Boone, LLP, 600 Anton Boulevard, Suite 700, Irvine, California 92626, beginning at 9:04 a.m. and ending at 2:07 p.m. on Tuesday, August 18, 2025, before CATHY A. WOOD, RDR, RMR, CRR, Certified Shorthand Reporter No. 2825.

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I N D E X

WITNESS	EXAMINATION
DR. STEVEN VELINSKY	
BY MR. BROPHY	5

E X H I B I T S

NUMBER	DESCRIPTION	PAGE
Exhibit 1	First Declaration of Steven Alan Velinsky, Ph.D., PE	43
Exhibit 2	KR996 Reference	74
Exhibit 3	Patent No. 3,586,195	109
Exhibit 4	Declaration of Steven Alan Velinsky, Ph.d. PE re IPR2025-00169, U.S. Patent No. 9,321,386	134

COSTA MESA, CALIFORNIA, TUESDAY, AUGUST 18, 2025
9:04 a.m.

DR. STEVEN VELINSKY,
having been first duly sworn, was examined
and testified as follows:

EXAMINATION

BY MR. BROPHY:
Q. Good morning.
A. Good morning.
Q. Would you mind please just stating your full name for the record.
A. Sure. Steven Velinsky.
Q. And throughout the day, I'll be referring to you as Dr. Velinsky, is that okay with you?
A. Sure, that's fine.
Q. Would you mind sharing your home address with us?
A. Is that necessary?
Q. If you're uncomfortable providing it, it's okay that you don't. It's a typical question we ask.
MR. O'DELL: It's to identify you if there's a bunch of Steven Velinskys out there. If you want the -- we ask it all the time.

If you don't want to, that's fine.

MR. BROPHY: I'm not gonna freak out if you don't want to give it.

MR. O'DELL: Why don't you give him the city.

THE WITNESS: I live in San Diego.

BY MR. BROPHY:

Q. So I'll go over some ground rules first with you before we get to the meat of the deposition. Have you ever been deposed before?

A. Yes, I have.

Q. How many times?

A. Couple dozen in my career.

Q. So some of these things will be very familiar to you. I'll be asking questions, you'll hopefully be answering those questions. You can always ask me to clarify a question if you don't understand something that I said.

A. Yes.

Q. We'll go about an hour at a time and take breaks. If you ever need to take break before that, just say the word and we'll take a break.

I'll just ask that you obviously answer whatever question is pending before we take that break.

A. Yes.

Q. I think that's about it. Are you on any

medication or suffering from any illness that might compromise your ability to testify truthfully and accurately?

A. No.

Q. Dr. Velinsky, what I'd like to do is started with an understanding of your background, and specifically your work history. I'm particularly interested in understanding what experience you have working in a corporate environment, setting aside academia, actually in a corporate environment.

Do you have any corporate work experience?

A. Yes, I do.

Q. Would you mind talking me through that corporate work experience starting as early as you can and coming up to the present?

A. After I finished up my degree, I did work in industry for, oh, over a year in the aerospace industry.

Q. And about what year was that?

A. 1982 to '83.

Q. Why company did you work for?

A. I worked for Harris in Melbourne, Florida.

Q. And what did you do for them for that year?

A. I was in the analysis and design of satellite systems.

Q. Okay. And after your stint with Harris

Florida, what's the next corporate position that you held?

A. Well, I haven't been in a corporation on a full-time basis since then. I've been a university person and along the way, I've had consulting, but not in a full-time position.

Q. Any consultancy work that you've done that's, I'll say, very significant, meaning months or years in duration?

A. Not that I could think of at this time.

Q. Focusing in a little bit more, I'd like to talk about the experience you have in the industries that we're talking about with respect to this case, so construction equipment, earth-moving equipment, things like that.

A. Yes.

Q. Can you talk to me about what experience you have in that regard?

A. Well, at the University of California Davis, I directed a research center called the Advanced Highway Maintenance Construction Technology Research Center. We worked hand-in-hand with the California State Department of Transportation in the development of advanced technologies for highway operations.

And in doing so, been exposed to many pieces of

equipment, including our design and development of prototypes for testing in the actual work environment of the Department of Transportation.

Q. Can you provide me with a little more clarity on what kind of research and development work you specifically were involved in during that period?

A. There's a wide variety. We would start by identifying problems with the Department of Transportation and then try to develop solutions, including the design and building and testing in highway operations.

And a wide variety of machines from crack sealing equipment to cone placement and retrieval, vacuum debris removal. We developed skid steer devices, all sorts of devices with a primary purpose of converting these highly labor intensive operations to those that would be less dangerous for the workers.

Q. You understand this case between Vermeer and Kubota relates to mini skid steer machines, generally speaking?

A. Yes.

Q. And when I say mini skid steers, does that have a meaning to you?

A. Well, I think that they called it a compact loader, and in my declaration, we clearly point out

what -- what the definition of that device is.

Q. So what -- I'm happy using whichever phrase you you want, how would you like to describe or refer to that kind of machine throughout the day today? Mini skid steer? Compact utility loader?

A. As long as we're referring to the same thing, I don't really care.

Q. Are you okay with mini skid steer?

A. That's fine.

Q. You understand the term mini skid steer is synonymous as a compact utility loader?

A. Yes, as you described.

Q. Have you worked at all in your -- in the experience you described with the California Department of Transportation have you worked at all with mini skid steer machines?

A. Yes.

Q. Can you describe what kinds of interactions you had with them?

A. Well, we -- when I look at the definition of what a compact loader is, many years ago we developed skid steer devices for picking up material from the highway, small amounts of material. So this fit within the definition of less than 1500 kilograms in the definition as I have in my declaration.

Q. Was that a commercially-available machine that you were working with or something designed specifically by the research group?

A. No, it was designed specifically by us.

Q. Is there a name for in a machine or some way I can figure out what it looks like and how it operates?

A. That particular one that I'm thinking about, I can't recall the name. It concerned retrieving the possibly hazardous waste from the pavement and would relieve the necessity of a large number of workers to dress out.

We also developed skid steer devices, I called them tether mobile robots and this was for addressing the crack sealing operation, for one thing, where we had pavement router on this device, but also had the ability to put crack sealant down. So I've been studying skid steer devices for many years.

Q. Are you familiar with any of the specific machines that companies involved in this case manufacture and sell, the Kubota machine or Vermeer compact utility loader machine?

A. In a general sense, are you asking?

Q. Well, let me ask that a different way.

What level of experience do you have with the machines that Vermeer and Kubota manufacture in their

mini skid steer lines?

A. You know, I've -- I've seen pictures of the devices, I may have seen them operating along the way. I've seen a lot of machines in my career with our work with Caltrans, all sorts of machines. So that's --

Q. Have you, in preparation for presenting the opinions that you're providing in your declarations and here today, have you reviewed any specific physical incarnations of mini skid steer machines?

A. No.

Q. Do you know the name or model number of the machine that -- the mini skid steer that Kubota manufactures?

A. No, I don't.

Q. Do you know any of the names of the machines that Vermeer manufactures --

A. No.

Q. -- in their mini skid line, mini skid steer machine?

A. You know, I've operated a lot of machines in my life and career and I -- I don't know if I've ever operated one of them. It's not -- I can't recall a particular instance.

Q. Fair to say you haven't operated any of the machines that are manufactured by Vermeer and Kubota?

A. I would say that's fair.
Q. Okay. Shifting a little bit, I'd like to understand a liability more about other aspects of your technical experience. One is CAD drawing, are you --
(Telephonic interruption.)
MR. BROPHY: Sorry about that.
BY MR. BROPHY:
Q. Do you have experience in doing CAD drawing?
A. Personally, I don't sit at a computer and draw things with CAD, but I have directed my graduate students, my staff and, you know, students to do that.
Being an old guy, back in my day, we did things by hand.
Q. Are you fluent in any kind of programs?
A. No.
Q. Do you have a -- a passable ability to draw things in CAD or is that just not an area that you dabble in?
A. I don't -- I don't do CAD.
Q. If I use the phrase "finite element analysis," do you know what that is?
A. Of course.
Q. Just for the record, what is your understanding of what finite element analysis is?
A. It's a numerical method for analyzing -- well,

could analyze more than mechanical systems, it's just a numerical method for solve partial differential equations.

Q. Are you capable of using the software that's designed to do finite element analysis?

A. I don't regularly do finite element analysis myself. I did teach it in my design class. I know all the -- in my day, we sort of wrote the stuff by hand.

Q. Much slower?

A. Yeah, yeah. But so I don't -- I don't do finite element analysis myself these days.

Q. In conjunction with your work in this case, have you cooperated with anyone to do any CAD drawings?

A. Well, there -- I did communicate through one of the attorneys my desire to have a mechanism drawn and animated that appears in Appendix A in my declaration. But I directed the attorney to produce -- have that produced in the same way that I would tell my graduate students or my staff in the research center, you know, what I was hoping to see, but I had no knowledge of who actually drew that.

Q. What specifically did you -- well, let me back up a little bit. Do you know the name of the attorney you were interfacing with that do that kind of --

A. That was Kelly Lyle.

Q. And do you recall what specifically you asked Miss Lyle to do?

A. Specifically, I don't recall, but generally, the goal was to show that we could lower the fixed pivots on the machine and accomplish the relatively linear motion of four-bar mechanism.

Q. Were you responsible for identifying for Miss Lyle where those points were going to be on the machine or was she tasked with identifying those points?

A. Well, she tasked whoever did the work.

Q. But those points, to be clear, didn't come from you, she or people she worked with identified where those points were gonna be located; is that right?

A. Well, I knew that we could lower the pivot points and attain, you know, a motion that would be consistent with that. So I generally said I'd like them down, I'd like them in this general area, but didn't pinpoint exactly the measurements.

It was really to demonstrate that kinematically we could simulate a four bar mechanism that would give this linear motion or vertical lift as it's referred to.

Q. So if I understand correctly, you asked Miss Lyle to assist in generating a model and the instructions to her, the request to her was to simply get those pivot points lower. And then she worked with

1 others to identify where those points would be and then
2 modeled it; is that fair to say?
3 A. I would say that's fair.
4 Q. Did you provide Miss Lyle with any constraints
5 or restrictions on where she could put those points?
6 A. I don't recall.
7 Q. Do you recall whether she was given unfettered
8 access to put the points wherever she wanted to? Was
9 there any discussion about any limitations on where
10 those points should be?
11 A. Well, generally, you know, looking at the prior
12 art references, there's a number of pieces that point to
13 the pivot points being at relatively the same vertical
14 position on the machine and so on. And so other pivot
15 points were located at what we'll call the rear wand and
16 actuator was attached.
17 And so I gave her a general idea and knowing
18 what to expect where that would be. But specifically
19 left, right, you know, it wasn't -- wasn't a hundred
20 percent delivered to her.
21 Q. What information do you recall that you can
22 share with me today about the restrictions that you did
23 give to her about where those points could be located?
24 A. I don't recall exactly what -- you know,
25 generally, lowering it within, you know, a reasonable

range. And furthermore, understanding that we might have to move the other linkage pivot as well.

Q. In your interactions with Miss Lyle, did you discuss the other components of the mini skid steer that would need to be accommodated by those pivot points? And by other components, I'm referring to engines, hydraulic pumps, motors, things of that nature.

A. You know, clearly there were parts that would need to be avoided, but I was gonna leave the specifics to the person that was moving the links run -- the pivots run.

Q. A little earlier I spoke about finite element analysis, have you yourself or have you directed anyone to do any finite element analysis as part of rendering your opinions in this dispute?

A. No.

Q. So if I asked you questions about the amount of load that would be placed on a given linkage or pivot point or actuator, you wouldn't be in a position to share information about that; is that right?

A. I haven't prepared anything associated with that -- any work associated with that.

Q. Earlier you mentioned that during your time at UC Davis, are you still at UC Davis today?

A. I retired, so I'm not.

Q. Congratulations.
A. Thank you.
Q. I'm jealous.
When you were at UC Davis, you mentioned that you did some work with mini skid steers, I believe, and I think you testified that you also did some design work on those mini skid steer-type machines; is that right?
A. Yes. That I direct a group of engineers, graduate students, post-docs and --
Q. Would you mind providing a little more specificity about the kind of engineering or design work you did within that mini skid steer space while you were at UC Davis?
A. Would you be more specific?
Q. Sure. I'll approach this from the perspective of a Vermeer engineer --
A. Okay.
Q. -- who may be tasked with designing a new mini skid steer machine and does a design for a frame for that machine, decides what kind of power plant is gonna go in it, what kind of you, you know, wheels or tracks are gonna go on it, how big it is, what gauge steel is used, all those things that going into making the machine what it is.
Have you engaged in those kind of design and

engineering efforts with respect to mini skid steer machines?

A. Well, certainly.

Q. So can you just talk to me about that, kind of the experience you have with that.

A. So we -- I mentioned earlier we would embark upon these projects. I would be the principal investigator on a specific project. I would have, typically, an engineer or two from my staff. I had a staff of several engineers. And then several graduate students.

We'd sit together and brain -- you know, typical design process of brainstorming ideas, working through the conceptual part of it, and then enter into the detailed design phase for the purpose of developing a prototype for the purposes of testing.

Q. And is there a way for us to identify the list of machines, mini skid steer machines for which you engage in those kinds of design efforts?

A. (No audible response.)

Q. I'm asking a different question, if that's okay.

A. Yes.

Q. I don't mean to interrupt you, but --

A. That's fine.

Q. -- let's start here.

How many different mini skid steer machines did you engage in the design of, if you recall?

A. So, again, I'm referring to mini skid steer as a skid steer device less than, you know, 1500 kilograms that operates with materials, whatever. So I would say the initial one goes way back early '90s, as I said, this -- this device for retrieving material off the pavement.

The tethered mobile robot projects were mid-'90s, I'd say early the '90s to mid '90s, I did project for crack sealing. I continued working on that type of device for different types of applications, not just lifting material off the pavement, let's say. So tethered mobile robot is one that would come to mind.

Q. So those are, in my mind, two different categories of machine. First was material removal and the second was the crack sealing, would you agree with me?

A. Well, the crack sealing includes routing of the pavement. So you'd have a -- you'd have that aspect, and so there were a couple of them.

Q. I see. Different species of that, is that fair to say?

A. Yes, that would be fair.

Q. The first machine for retrieval of materials on the highway --
A. Yes.
Q. -- roughly how heavy was that machine, if you recall, ballpark?
A. Hundred pounds.
Q. How about this tethered mobile robot, how heavy was that machine?
A. Few hundred pounds with the router, yeah.
Q. Fair for me to say that neither of these machines allowed an operator to ride on them?
A. That would be a fair statement.
Q. Were either of these machines a kind where someone would operate it walking behind it with controls on the machine?
A. They were remotely operated, the controls were a separate control station that they carried.
Q. This first machine for retrieval of material, what kind of power plant did it rely on to move and operate?
A. I believe that one had an electric motors, if I recall correctly.
Q. And was that battery powered or was it plugged in somewhere?
A. It was battery powered.

Q. What about the second category of machine, the tethered mobile robots?

A. They were hydraulically actuated, somewhere hydraulic, some were electric.

Q. Were those run off batteries or were those --

A. No, through the tether.

Q. Through the tether. An umbilical cord type of situation?

A. Yes, yes.

Q. The first machine, the material retrieval machine, was it capable of using different attachments -- first of all, do you understand what I mean by that question?

A. Yes.

Q. Was that one capable of using different attachments?

A. Well, there were two different functions. One was a little scoop and the other one was a -- like a syringe for vacuuming up liquid.

Q. Were both of those attachments co-located on the machine at the same time or did you have to swap them out?

A. I don't recall. I know we had two of the machines, but it's been a while.

Q. What about the tethered mobile unit, did it

rely on multiple attachments?
A. Each one was designed for the -- the specific attachment.
Q. So no replacement of attachments for that category of machine?
A. Well, only insofar as you would have a different machine with the other attachment.
Q. Okay, other than those two categories of machine, any other experience that you have doing design and development work with mini skid steers?
A. Not that I can recall.
Q. The tethered machine, which I think occurred temporally later in time; is that right?
A. That -- sorry, could you --
Q. The work you did on the tethered machines came after the work you did on the material removal machines?
A. Yes.
Q. When did the work on the tethered mobile robots conclude, if you recall?
A. It was certainly through the '90s that we had those, but I can't recall specifically the time.
Q. Are you certain that the work on that project ended by the year 2000?
A. No.
Q. What about by 2005?

A. I can't really say at this point. We did -- you know, after the initial machines, we continued to work in that space of skid steer devices and so the number of technical papers where there were other aspects that we studied, so I can't really say specifically what date that was.

Q. Is there a date by which you are certain that program -- your work on that program concluded?

A. Well, certainly when I retired.

Q. What year was that?

A. 2019. But it was a few years before that. I really -- I can't specify exactly the date, I'm sorry.

Q. Did either of these machines have hydraulically-actuated arms or booms on them?

A. Not that I recall.

Q. For the kind of machines that are at issue in this dispute, these ride-on or walk-behind earth moving machines, do you have a general sense of the layout of the components that are inside those machines; engine, hydraulic pumps, things of that nature?

A. Yes.

Q. Can you provide me with your understanding of the general layout of the internal components of this kind of machine, including things like the main engine for the machine, the hydraulic pump for the machine, and

the radiators, cooling system for the machine?

A. Well, I'll say that my knowledge of the layout would be from the prior art patents.

Q. And those are the prior art patents that you've cited in your opinions; is that right?

A. Yes.

Q. So sitting here today, can you provide me with a general understanding of the configuration of those components I identified inside one of these machines?

A. Roughly referred to in specific patents that I could point out which aspect is which, in my opinion, how they lay out.

Q. But without those patents, you're not able to do that just based on what you know in your brain right now?

A. Well, generally, I would say that there's an engine that drives a hydraulic pump and the drive systems have hydraulic motors.

Q. What about the relative location of those things inside the machine, do you have a sense for where those things go? Like is the hydraulic pump more forward than the engine or is the hydraulic pump underneath the engine or on top of it?

A. Those would all be a design choice of a particular machine.

Q. What about radiators for cooling the machine, do you have a sense where those radiators go on these kind of machines?

A. Again, that would be really a design choice based on the person who's designing it.

Q. Do you have an understanding of, generally speaking, how the vast majority of these machines are arranged with respect to the radiator, engine, hydraulic pumps, things like that?

A. Well, generally, the patents point to, you know, the engine being relatively towards the rear of the machine. And this would be consistent with the basic fundamental engineering associated with the task and would be a design choice, obviously.

Q. What about the location of a hydraulic pump relative to that engine; above, below, in front of, behind, to the left or to the right, do you know where it's typically placed?

A. Design choice.

Q. But do you know where it's typically placed in these machines?

A. It could be placed whatever location a person wants. It just needs to be driven by the engine.

Q. But sitting here today, you don't know where it's typically placed in these kinds of machines?

A. Well, typically placed is very general, I can't really answer.

Q. Do you know where any machine that was on the market in 2015 places its hydraulic pump relative to the engine?

A. Any of -- any machine, period?

Q. Any mini skid steer machine.

A. Just from the prior art, looking at the patents, generally knowing where the placement was.

Q. And where was that?

A. Well, the -- towards the rear of the machine. We'd to have look at the patents to point out specifically where the components are shown or located.

Q. And that's where the engine is located, I think you testified to. Sitting here today, can you tell me where any machine that was manufactured and sold on or around 2015 has the hydraulic pump located relative to the location of the engine?

A. I have not looked specifically as to which machine located a pump in a certain location or another.

Q. What about same question for the radiator, can you provide any testimony about where that radiator is on any machine that was made and sold in roughly 2015?

A. Mini skid steer?

Q. Mini skid steer, yes.

A. No.
Q. What about the hydraulic reservoir, same question?
A. Specific to the machine that was -- specific to a commercially-available machine?
Q. In 2015, yes.
A. I haven't looked into that.
Q. Have you done any investigation in preparation for rendering your opinions into the typical types of failures that mini skid steers suffer from?
A. No, I have not.
Q. Do you have any experience dealing with failures in mini skid steer machines of the kinds that are at issue in this dispute?
A. Not that I could recall.
Q. We talked a little bit today about hydraulics, do you understand that hydraulics are something that are used on these mini skid steer machines?
A. Yes.
Q. And what do you understand those hydraulics are used for, just generally speaking?
A. In a general sense, the hydraulics would be used to move the machine and to also actuate the -- we'll call it the loader or the boom, as well as positioning of the tool at the end of the machine, for

example, is just a subset of that.

Q. Would you agree with me that the hydraulics are also used to run certain accessories that the machine might use?

A. Depending on the accessory, yes.

Q. Can you give me some examples of accessories that would use hydraulic power to operate?

MR. O'DELL: Well, I'm going to object to the scope of his declaration. I understand you're interested in his knowledge of mini skid steers, but some of these questions are kind of going well beyond the declaration.

BY MR. BROPHY:

Q. You can still answer.

A. Well, I'd say that there are certainly, in general, in the skid steer area, that there are tools that are operated hydraulically.

Q. Can you give me some examples of those tools?

A. For example, a skid steer might have a jackhammer at the end for breaking up concrete, let's say.

Q. Any others?

A. If -- I think there's probably a wide variety of tools that could use hydraulics as well.

Q. Are there any other names you can name sitting

here today?
A. I haven't prepared to discuss a range of tools that they have.
Q. Are you aware of different mini skid steer accessories requiring some greater and some less amounts of hydraulic power or hydraulic flow to operate?
MR. O'DELL: Repeated objection from before.
THE WITNESS: I would have to know the specific tools that would be attached to understand that.
BY MR. BROPHY:
Q. But sitting here today, you're not aware of certain categories or families of tools that are more hydraulic power thirsty or intensive than others; is that right?
A. I can't specifically point that out. I haven't prepared for that.
Q. If I asked you to describe for me the typical hydraulic flow rates produced by mini skid steer machines, do you have any sense for what those -- the range of flow rates would be?
A. I haven't developed an opinion on that.
Q. When I use the phrase hydraulic flow rate, is that a phrase that means something to you?
A. Sure.
Q. What does it mean to you?

A. It's the amount of hydraulic fluid that is produced by the pump motor to power whatever.

Q. Do you have any familiarity with the different kinds of attachment systems that are utilized on the mini skid steer machines to attach an attachment to the machine?

A. Yes.

Q. What are some examples of the attachments that you're aware of for those mini skid steer machines?

A. Well, in the skid steer realm, there's a plate and the tools are connected to that plate, the various tools. It's the same for regular skid steers.

Q. Are you aware of any other means for attaching attachments to a mini skid steer besides the universal plate type?

A. I'm sure that there would be all sorts of ways, it's just a design decision by that particular company, but I haven't looked at that. I'm not prepared to opine on it.

Q. So if I asked you to describe, for example, a pin-on attachment system, you would not be able to do that, right?

A. A pin-on is what you said?

Q. A pin-on attachment system, yes, sir.

A. As we sit here now, I couldn't opine on that.

Q. Okay. Do you know -- I'm gonna ask about a phrase called lift capacity. Do you know what that phrase means in this context, lift capacity?
A. More specifically, the context.
Q. Well, in the context of a mini skid steer device, do you know what lift capacity refers to?
A. Yes.
Q. What's lift capacity?
A. I would say that it would be the safe load that the skid steer could lift based on the specifications of the device.
Q. Do you know there's a phrase called rated operating capacity, do you know what that is?
A. Not specifically.
Q. Do you know if there's a difference between lift capacity and rated operating capacity?
A. I haven't prepared to present an opinion.
Q. Do you know if there's a standardized method by which manufacturers of mini skid steer machines test, either the lift capacity or rated operating capacity of their machines?
A. I would say yes.
Q. Do you know what that standard is?
A. Well, there's SAE standards and there's ISO standards, and I don't recall as we sit here today

without looking at them, which one specifically talks about the test methods and so on.

Q. But you are aware that at least one of them does articulate a test method?

A. As we sit here today, I believe so, but I can't say definitely.

Q. If I use the phrase tip test, do you know what that phrase refers to in this context?

A. Yeah, I haven't reviewed the standards or understanding the individual tests, but I do recall that there are standard tests that in the industry would use.

Q. Sitting here today, what's your best understanding of what that phrase tip test refers to?

A. So without looking specifically at the standards, I recall reading that you would take the loader and put it at a certain angle on a tilt table or whatever and see if it wouldn't tip over. Can't get more specific than that.

Q. In preparing to develop your opinions for this dispute, did you do anything to investigate the kinds of performance characteristics that customers appreciate in mini skid steer machines?

A. No.

Q. So if I asked you to identify the three to five major performance characteristics that a customer

typically cares about and wants to either maximize or minimize in these machines, are you able to give me that list?

A. Not with specific knowledge of what customers have asked for.

Q. Would you agree with me that lift capacity is an important metric for a mini skid steer machine?

A. I would believe that there are a lot of important metrics.

Q. Do you agree that lift capacity is one of them?

A. It could be, yes.

Q. In your view, is it or isn't it?

A. I'm really not, you know -- it's in the big realm of what a customer would want. I would expect based on my experience of, you know, design engineering, there would be a lot of things that a customer would want.

Q. And sitting here today, you can't opine on whether lift capacity is one of those metrics or not; is that right?

A. In a general sense in machines, I would imagine that it would be important, as would price and other things as well, so there's always tradeoffs when you want to buy something.

Q. But you haven't done any analysis in

preparation for deriving your opinions related to customer demand?

A. No.

Q. Would you agree with me that low weight is an important metric for a mini skid steer machine?

A. Well, based on the -- you know, your prior art, I would say yes.

Q. Do you agree with me that having a machine that has high lift capacity, while at the same time having low weight is an important metric that consumers care about in these machines?

A. You know, I would think that from a -- from an engineering standpoint, the higher the capacity relative to the weight is something is typically what someone wants, sure.

Q. You have not had any conversations with Kubota about these issues; is that right?

A. No.

Q. Have you had any conversations with Kubota engineers after being retained for this matter and leading up to the development of your opinions?

A. No.

Q. Did you ask to speak with Kubota engineers, setting aside whether you spoke with them or not, did you ask to talk to anybody?

A. No.
Q. I'd like to talk a little bit about the kinds of environments you understand that mini skid steers operate within. So if you wouldn't mind just sharing with me the different kinds of environments that you understand these mini skid steers would be required to operate?
A. In a general sense?
Q. In a general sense.
A. They operate in places where there would be certain size constraints that you wouldn't want to bring in a big machine; outside, inside, there's a variety of places where you would use these machines.
Q. What about the kinds of terrain that they would be required to operate on, do you have any views on that?
A. My view would be to say it would be desirable for them to operate on variety of terrains, whether it be rolled or paved, driveways, dirt, wherever.
Q. What about in like a mulched environment?
A. I'm not prepared to speak about specific locations where they would be used.
Q. So are you -- are you testifying that you believe mini skid steer machines are not designed to operate on mulch?

A. No, I'm not suggesting that, I'm saying I'm not prepared to articulate every location that I would expect them to operate in.

Q. Would you agree with me that it would be typical for a mini skid steer to operate on a mulched path or other area?

A. Sure.

Q. What about in a muddy environment?

A. I would imagine they would be used in those environments as well.

Q. What about on gravel?

A. I think that they have a wide variety of application and we can't -- you know, once someone buys one or rents one, they use it wherever they use it.

Q. Is it your opinion that mini skid steers are typically required to operate on gravel or not?

A. What do you mean by "typically required"?

Q. It's a typical design constraint that the engineers are working within, it needs to be capable of operating on gravel?

A. I would imagine in the design process you would want a whole variety of surface types to operate the machine and typically, you would design machines so they would have the widest applicability.

Q. And that includes gravel, right?

A. I imagine gravel would be one, sure.
Q. In your various declarations that you've offered, you've provided a number of opinions about ways in which different machines or components could be modified, do you recall that?
A. Yes.
Q. In your view, is it conceivable that those opinions are not fully informed because you essentially don't know what you don't know, you don't appreciate some aspect of design with respect to a mini skid steer machine that because you don't know about it, you couldn't have anticipated?
A. Maybe you could be more specific or point to a place in my declaration where I've addressed that.
Q. I'll ask it a different way. Do you know everything about mini skid steers?
A. Do I know everything, I don't think I know everything about anything.
Q. And that would apply to mini skid steers right, right, you don't know everything about mini skid steers, is that fair to say?
A. I know what my opinions are in my declaration.
Q. Right.
A. It's restricted to that.
Q. My question is, is it conceivable that your

opinions are not fully informed because there is some aspect of the operation or design or configuration of mini skid steers that you aren't aware of and, therefore, your opinions are not informed by; is that possible?

A. My opinions are based on, you know, the declarations, what I've studied in the prior art and as a person, an engineer or person of ordinary skill in the art, and they are what they are.

Q. But you never spoke to a Kubota engineer about the work they do to design these machines, right?

A. No.

Q. You never spoke with any Vermeer engineers about what they go through to design these machines, right?

A. Well, I've been involved in the development of large numbers of machines. I've educated many students, so I know the machine design process. I know how to design machines. I know what a general practice is, and, you know, common methods. And I think those are applicable to any machine, but I have not spoken specifically to Vermeer or Kubota or anyone else as I -- since I've been retained to have specifically design one of these machines.

Q. Will you agree with me that when an engineer

1 works in a certain area for a period of time, they
2 develop an expertise in that area? If you work on mini
3 skid steer machines or excavator machines or road-
4 clearing machines, you develop an expertise over time;
5 is that right?
6 A. Yes.
7 Q. And you learn more about the kind of machine
8 that you're working with, the way it operates, uses to
9 which its put, the challenges that are faced when
10 designing those machines, you become a better engineer
11 with respect to that machine, would you agree with me?
12 A. You would develop a better understanding, yes.
13 Q. So is it conceivable that people who actually
14 design mini skid steer machines on a daily basis know
15 something about the restraints or requirements for
16 designing those machines that you don't know?
17 A. The general principles that I know and teach
18 and have worked in for decades apply to machines of
19 these types for sure. If there's specific history
20 associated with the company's machines, I don't have
21 that history. It's possible that they would have
22 knowledge on those types of things, but the general
23 principles apply.
24 Q. Fair to say that if I had you in one office and
25 someone with 30 years of experience designing mini skid

steer machines for Kubota in another office, that that person with all those years of experience would know more about designing mini skid steer machines than you; is that right?

A. I couldn't guarantee that.

Q. You think you would have as much ability to design a mini skid steer machine as that person with 30 years of experience?

A. I couldn't say. It depends on the person.

MR. BROPHY: We'll take a break here. Come back in little bit.

(Brief recess was taken.)

BY MR. BROPHY:

Q. Okay. So I want to switch gears and talk a little bit about the approach that you took to render your opinions. Have you -- I know you mentioned you've been deposed many times, have you been retained to offer opinions in patent cases before?

A. Yes, I have.

Q. Roughly how many times, if you know?

A. Say a dozen, roughly. I don't have the exact numbers with me as we sit here.

Q. Out of curiosity, the cases that you've been involved in that didn't involve patents, what kinds of cases were those?

A. I was involved in product liability.
Q. I see.
A. And years ago, based on my interest in and knowledge in vehicle dynamics, I did a little bit of vehicular things, but I gave that up a long time ago.
Q. Accident reconstruction, those kinds of things?
A. Yes.
Q. I worked with someone that did that and it was fascinating, all the engineering that went into recreating those things and measuring the tire marks and determining velocity, it was cool.
Anyway, the roughly dozen patent matters that you've been involved with, just at a high level, what kinds of technologies were those related to?
A. Just let me think here for a minute. It was mechanical configuration of cameras, trampoline. There was an aspect related to electronics manufacture, but it's all mechanical things. Riding mower.
And this is over, you know, over many years, and I would be involved in, you know, one or two files a year. My job was pretty intense and so it was just a side thing here and there.
Q. Understood. The riding mower case, do you happen to recall the parties that were involved in that case?

A. I believe Toro was one, I don't recall the other.

Q. Do you know how long ago that case occurred?

A. It occurred when the Cleveland Indians won the World Series.

Q. I'm not sports person, but I know that was awhile ago.

A. And it concerned the steering mechanism of a riding mower. Because I was in Cleveland, so --

Q. Got it. Have you been involved in any other patent disputes that relate to earth-moving equipment?

A. Not that I recall -- or let me correct that. It was -- yeah, I can't -- I can't recall.

Q. No problem.

MR. BROPHY: I'm going to hand you what's been marked as Exhibit 1. We're using sticky notes because the lovely court reporter indicates to me that she has some very fancy printing machine at home that will make that look good. So we'll go that route and try not to lose those sticky notes.

THE WITNESS: Okay.

(Exhibit No. 1 (1003); was marked for identification.)

BY MR. BROPHY:

Q. Okay. Dr. Velinsky, I've handed you what's

1 been marked as Exhibit 1. This is also designated as
2 Exhibit 1003, and it's a declaration that you submitted
3 in support of an IPR filed by Kubota.
4 Would you mind take a look at this and just let
5 me know if you recognize it.
6 A. Yes, this appears to be my declaration.
7 Q. Okay, did you write this?
8 A. Yes.
9 Q. Every word of it?
10 A. No.
11 Q. Roughly what percentage of it did you write
12 yourself?
13 A. I couldn't tell. I could discuss how it was
14 written.
15 Q. That would be great.
16 A. So I reviewed the prior art, came up with my
17 opinions, discussed it with the attorney, and we
18 collaboratively wrote this document. I wrote some
19 sections, she wrote some sections, and then we went
20 through a process of refining it.
21 Q. You said she wrote, who's the "she"?
22 A. Attorney Lyle.
23 Q. Would you mind sharing with me the types of
24 materials that you reviewed other than the prior art in
25 preparation for rendering your opinions in these cases?

A. So the -- the patent clearly -- I mean, excuse me -- the declaration clearly lists the materials that I've -- I've reviewed in the patent -- in the case, and they're captured there.

And then, of course, there's all my knowledge and abilities over the many years of engineering that came into play.

Q. I believe if we turn to page 7 of this Exhibit 1, there's a table that continues on to page 8, is that the set of materials that you reviewed?

A. In addition, by item 4, there's some documents as well. Yes, so there's -- these documents.

Q. In that paragraph 4 on top of page 6, Section B, it says you reviewed relevant portions of the prosecution history. Do you see that?

A. Yes.

Q. What do you mean by "relevant portion," did you not review all the prosecution history?

A. As you're aware, the prosecution history is pretty lengthy.

Q. I'm all too aware, my friend.

A. And so I was trying to, you know, go through and look at those key aspects. And I think that within the document, that I pointed out those aspects that were most important.

1 Q. Were you the one that decided which portions of
2 the prosecution history were important and which ones
3 were not, or was that information -- were those
4 decisions made for you?
5 A. No, I believe that we, you know, collaborated
6 on this, but there are only very specific portions of
7 that history that clearly are related to my engineering
8 expertise, so --
9 Q. I think you've referenced this already in your
10 deposition, but do you understand that in order to
11 assess the validity of Vermeer's patents you have to
12 approach that task from the perspective of a skilled
13 artisan? Do you --
14 A. A person of ordinary skill in the art.
15 Q. Talk to me about what that means to you, if you
16 would, please.
17 A. I have addressed that in the document and it's
18 someone who has an engineering degree, either mechanical
19 engineering or agricultural engineering, two years
20 experience, and in the field.
21 Q. That discussion is on page 13 of Exhibit 1; is
22 that right?
23 A. That's correct. And they could have additional
24 education or additional experience.
25 Q. So in paragraph 19, I believe you articulate

1 the level of ordinary skill in this art; is that right?
2 A. Yes.
3 Q. Is that a level of skill that you derived
4 yourself or were you supplied with that level of -- that
5 articulation of the level of skill in the art?
6 A. I believe that I -- I came up with this. It's
7 not inconsistent with the type of technology involved in
8 the patents and what I would expect. That's why I
9 stated it in court, obviously.
10 Q. What did you do to ensure that your opinions
11 were opinions that would have been those of a skilled
12 artisan as opposed to yourself who's obviously very well
13 educated above, perhaps, level of ordinary skill in the
14 art?
15 A. I don't think there's any question that, you
16 know, aspects that I have a lot more knowledge and
17 experience than the person described here. But I have
18 worked with many graduate students over the years. I
19 also taught the senior design project class for about 20
20 years at UC Davis.
21 So I have a very good understanding as to what
22 engineering at that level would -- the average engineer
23 would know. And I think that the technology involved
24 even goes to an undergraduate student would have a lot
25 of the skills to do much of the work.

Q. So did you review any documents or other materials that helps you understand the level of ordinary skill in this art?

A. The materials here that we referenced earlier is what I would -- that's my assessment, yes.

Q. Do you understand that this approach of assessing obviousness from a level of skill in the art has to be done with respect to a certain time frame or time period?

A. Yes.

Q. What do you understand that time period to be in this case?

A. It would be at the time the patent was filed in April of 2015.

Q. And what did you do to ensure the perspective you had on this question of obviousness was informed by that time period as opposed to an earlier or later time period?

A. With respect to the person of ordinary skill in the art we're talking now?

Q. Yes.

A. I was a faculty member, I didn't retire until 2019. So I was exposed to many students over the years and including in the time frame of when this patent was filed.

Q. So what did you do to understand what an ordinary skilled artisan would know as of 2015 as opposed to 2012 or 2019?

A. What I would suggest is that the technology involved, it goes back far before 2015. I think I articulate that in my report and, in particular, related to the application of the four-bar mechanism to a machine.

Q. So when you approached deriving your opinions in this case, was it your view that there had been no developments in the industry that were pertinent to your analysis in the five or ten years before the 2015 time frame?

A. I used the prior art references as my gauge as to what was used in the field or what was known at that time of 2015.

Q. Were any of the documents that you reviewed that are listed in your declaration from the 2015 time frame?

A. I'd have to look at the documents, I mean the 2015 time frame. I'd need to know more specifically, I mean what does that entail. These documents were prior art to that.

Q. If I understand your testimony correctly, it sounds like your opinion is that -- let me back up a

1 little bit.
2 You've expressed opinions that Vermeer's claims
3 are obviousness -- obvious; is that right?
4 A. Yes.
5 Q. And that they would be the obvious combination
6 of certain prior art listed, among other things, in
7 paragraph 4 and 5 of your declaration; is that right?
8 A. Yes, I think that's fair to say.
9 Q. If I understand the testimony you just gave a
10 moment ago, it sounds to me like you're saying that
11 Vermeer's claim would have been obvious if they were
12 viewed through the lens of a skilled artisan in 2015 or
13 through the lens of an artisan in 2010 or through the
14 lens of an artisan in 2015; is that your testimony?
15 A. Yes.
16 Q. And so how do you distinguish between those
17 different time periods and ensure that you're providing
18 opinion testimony based on a skilled artisan in 2015, as
19 opposed to 2010 or 2020?
20 A. Well, the filing date was in 2015. The prior
21 art precedes that. So my perspective is at the time
22 that the patent was filed, what the prior art described.
23 Q. Would you agree with me that over time, skill
24 in the art evolves. As new machines come out, new
25 technologies are developed, new problems arise, would

1 you agree with me in that regard?
2 A. Sure, but the basic engineering skills are
3 still applicable.
4 Q. So, in your view, the 2015 time frame is not
5 particularly relevant to your obviousness assessment
6 because those prior art references predate that 2015
7 time period by so much; is that fair to say?
8 A. Well, there's a whole bunch of prior art
9 references, so it's, you know, some may precede it by a
10 bunch, but the main thing was that they were available
11 at that time.
12 Q. So other than that understanding, that the
13 prior art predates that 2015 time frame, did you do
14 anything else to put yourself in the mindset of a
15 skilled artisan in 2015 specifically?
16 A. I tried to understand what the skill level
17 would be of someone at that time and I could only base
18 it on the patents and the documents that I had and my
19 knowledge of what the skill set would be for the person
20 of ordinary skill in the art.
21 Q. I guess just to put a -- draw this to a
22 conclusion, based on your preparation to derive your
23 opinions, develop your opinions in this case, can you
24 tell me how the skilled artisan's experience would be
25 different in 2015 than it would be from 2010?

A. I would have to look at the, you know, the individual patents to see if that was the case and any other technology that was developed during that time, but I --

Q. Did you do that to prepare for your opinions in this case?

A. No.

Q. In preparing to render your opinion, did you look at any trade journals, industry magazines or things like that related to mini skid steers?

A. No.

Q. None at all? Not just none from 2015, but no trade journals at all?

A. No, I've used the documents that we've already explicitly discussed in the declaration.

Q. I think you testified to this previously, but you didn't seek to have a conversation with Kubota engineers to understand, for example, what problems they were grappling with in 2015; is that right?

A. I didn't speak to any.

Q. Are you familiar with the concept known as hindsight reconstruction in the patent law?

A. No.

Q. You never heard of that before?

A. No.

Q. Is it fair for me to say since you don't know what that phrase is, you didn't do anything to avoid the risk of hindsight reconstruction in this case?

A. I'm not aware of that term specifically.

Q. If we look at your declaration for a moment on Exhibit 1 and turn to where you begin to address individual claims --

A. Okay.

Q. -- which appears first on page 42.

A. Yes.

Q. If we look at page 42, you identify Claim 1 of the '386 patent and the preamble language that begins, "A compact tool carrier configured for a ..."

Do you see that?

A. Yes, I do.

Q. And then below that is an articulation of where you believe that exists in the prior art; is that correct?

A. Could you be more -- in articulation?

Q. Sure. At the bottom of page 42, beginning at paragraph 64, you articulate where, in your opinion, prior art reference KR996 describes what that claim limitation requires; is that right?

A. Yes.

Q. And then if we move to page 45, there's another

1 limitation, this time one that reads, "a loader having
2 an arm ...," do you see that?
3 A. Yes.
4 Q. Then there's a section that follows where you
5 believe that exists in the prior art; is that right?
6 A. Yes, that's correct.
7 Q. And so this is the approach that you take
8 throughout your declaration, you list a limitation and
9 then you find where it is in the prior art, right?
10 A. Yes, that's correct.
11 Q. Do you agree with me that your job of writing
12 this report became easier because you had a list of the
13 limitations that you were trying to find?
14 A. Easier by what?
15 Q. Well, if -- I guess what I am getting at here
16 is in your declaration you already knew about the '386
17 patent, right, because it was published and you reviewed
18 it in preparing your opinions?
19 A. Well, yes, I obviously had to read the patents
20 in order to understand the technology that was at stake.
21 Q. And so you had the claim language when you were
22 off trying to find where certain limitations existed in
23 the prior art, right?
24 A. We had to look to the claims to know what the
25 technology was.

1 Q. And you wouldn't have had that roadmap, if you
2 will, if you engaged in the same exercise before the
3 '386 patent was available, right?
4 A. I wouldn't call it roadmap. I think that the
5 -- you know, it was this prior art that disclosed
6 certain technology and there was the '386 patent, and
7 this is just, you know, a question was whether or not
8 that technology existed prior. Without reading the
9 patent, you wouldn't know what the technology was to
10 determine if it was in existence prior.
11 Q. How is that not using the '386 patent as a
12 roadmap?
13 MR. O'DELL: Objection, it calls for legal
14 conclusion.
15 THE WITNESS: I guess I don't -- I think that
16 the basic technology has to be understood. How would I
17 know what to look for and -- but I wouldn't call it a
18 roadmap.
19 BY MR. BROPHY:
20 Q. Okay. So I guess, if I understand correctly,
21 you're saying the '386 patent just provided what you
22 were looking for; is that fair to say?
23 A. Well, my -- you know, I think I describe what
24 the patent is in -- on page 26 of my report. And that
25 is generally what the patent represents and then the

1 question is whether or not that technology had been
2 known prior.
3 Q. And so you used the claims to know what to look
4 for, right, is what you said?
5 A. Well, to know what the technology was and what
6 was the contribution. But, ultimately, you have to look
7 at the claims to decide if you're -- if you're -- you
8 know, if it was obvious or not, if they didn't --
9 ultimately, that's what it's about.
10 Q. Have you heard of something called objective
11 indicia of non-obviousness?
12 A. Objective indicia. I'd have to recall
13 specifically that term. Is it in my report?
14 Q. Take the time to review whatever you feel you
15 need to.
16 A. Yeah, I don't know if I'm familiar with that
17 term specifically, I know what generally I describe in
18 my report, you know, what I'm looking for as far as
19 whether something's obvious.
20 Q. But that phrase "objective indicia of
21 non-obviousness," that's not a phrase you're familiar
22 with?
23 A. No.
24 Q. What about secondary considerations of
25 non-obviousness?

A. Yes.
Q. What are those?
A. So it's --
MR. O'DELL: Objection to the last phrase "what are those" to the extent it calls for a legal conclusion.
THE WITNESS: So I understand that secondary considerations include, among other things, "commercial success of the patented invention, skepticism of those having ordinary skill in the art at the time of the invention. Unexpected results of the invention, any long-felt, but unsolved need in the art that was satisfied by the alleged invention, the failure of others to make the alleged invention, praise of the alleged invention by those having ordinary skill in the art and copying of the alleged invention by others in the field."
BY MR. BROPHY:
Q. And you've read that from paragraph 25 of Exhibit 1; is that right?
A. That's correct.
Q. And those were considerations that were identified to you by Kubota's lawyers; is that correct?
A. Excuse me?
Q. Those elements, those secondary considerations,

1 those are elements that were identified to you by
2 Kubota's attorneys; is that correct?
3 A. That's the -- the things that I just recited,
4 those terms?
5 Q. Yes, sir.
6 A. Yes, I would say so.
7 Q. Did you understand that as part of the -- let
8 me ask that a different way.
9 Did you believe you had an obligation to assess
10 those elements before deriving an opinion on obviousness
11 in this case?
12 A. No. The -- I did didn't use that in any way in
13 establishing my opinions in the case.
14 Q. Are you aware that in prior interactions with
15 the Patent Office that Vermeer had submitted to the
16 Patent Office various evidence that it contends relate
17 to these secondary or objective indicia of
18 non-obviousness?
19 A. That's my understanding, yes.
20 Q. Did you review that evidence?
21 A. I believe that I looked through some of that,
22 yes.
23 Q. When you say you looked through some of that,
24 help me understand what you mean by that.
25 A. Yeah, there was discussion of, as I recall, the

1 challenge of putting this four-bar mechanism on this
2 type of device as opposed to the radial lift arm, I'll
3 call it. And but I didn't use that in my analysis of
4 developing my opinions.
5 Q. Is it your opinion that there are no objective
6 indicia that are relevant to obviousness or relative to
7 your opinions on obviousness?
8 A. Yes. I haven't used these secondary
9 considerations.
10 Q. Did you ever reach out to Kubota directly or
11 ask Kubota's attorneys to supply information about any
12 of these considerations?
13 A. No, I did not.
14 Q. Did you engage in any independent investigation
15 to determine whether any evidence existed that relates
16 to these elements?
17 A. No.
18 Q. Are you aware that Toro also makes a mini skid
19 steer machine?
20 A. Just that it was stated. I mean I haven't
21 looked at their machines. But yes, according to reading
22 some of these documents, I understand that they
23 initiated additional, was it ex partes.
24 Q. You're talking about the proceedings they
25 initiated against Vermeer in the Patent Office?

A. Yes, yes.
Q. You haven't done any investigation to determine -- to learn anything about Toro's mini skid steer machine; is that correct?
A. No I have not.
Q. You haven't engaged in any investigation to learn anything about Vermeer's mini skid steer machine?
A. Could you repeat that, please.
Q. You didn't do anything to investigate Vermeer's mini skid steer machines; is that correct?
A. You mean those that are currently marketed?
Q. Yes, sir.
A. No, I have not.
Q. Do you understand that Vermeer and Toro were the first to release a mini skid steer machine to market with vertical lift?
A. The -- I don't, I can't comment on what was commercially available, I can only comment on my analysis of the documents that I reviewed concerning what was -- what technology existed prior to the patents.
Q. Did you undertake any investigation into how the market or the industry at large reacted to the release by Vermeer and Kubota of their respective vertical lift mini skid steer machine?

A. No, I have not.
Q. So no analysis of trade journals, for example?
A. No.
Q. No analysis of any awards that were given to those machines?
A. No.
Q. Do you believe that those kinds of evidence would be relevant to your opinions on obviousness, if it existed -- let me ask that -- I'm gonna ask that differently.
If there were evidence showing that the industry considered a vertical lift mini skid steer machine to be a significant technological achievement, that evidence, that would be relevant to your obviousness assessment in this case?
A. No.
Q. What if you learned that Kubota decided to copy the ideas of either Vermeer or Toro when they released their vertical lift mini skid steer machine, would that be relevant to your assessment of obviousness?
A. I don't know what you mean by copy.
Q. Well, decide -- typical way that you would understand copying, deciding to take ideas, things from the machines that Toro and Vermeer released and incorporate those it into a machine of its own, would

1 that be relevant to your assessment of obviousness?
2 A. No.
3 Q. I'd like to turn to paragraph 161 of your
4 report, please. That begins on page 87 and continues to
5 page 88.
6 A. Okay.
7 Q. Are you there?
8 A. Yes, I am.
9 Q. Okay. So we're kind of diving into the middle
10 of the declaration, so if you need to review other pages
11 to get context, please take the time to do that. But I
12 would like to ask you about a sentence that appears on
13 the very top of page 88 at the end of paragraph 161.
14 You say in that section, "KR8996/JP705 and
15 Beltrami are also analogous art to the '386 patent. It
16 could be reasonably pertinent to the same problem faced
17 by the inventer-producing a vertical lift path for the
18 tool attachment and operation." Do you see that?
19 A. Yes, I do.
20 Q. What do you mean by that?
21 A. Well, I mean I think that the -- the patent
22 refers to this four-bar mechanism, that is generally
23 vertical lift, meaning four-bar mechanism that has a
24 linear portion over which the lifting would occur and
25 that both the Korean patent and the Beltrami patent

1 discuss the same problem.
2 Q. You say that it's the same problem faced by the
3 inventer, is that the inventer of the '386 patent that
4 you're referring to there?
5 A. Yes, I would say so.
6 Q. And is this articulation of the problem that
7 needs to be solved, the one that you used when assessing
8 obviousness in this case?
9 A. Could you repeat that, please.
10 Q. Sure. This articulation of the problem that
11 we've been reading here, that being producing a vertical
12 lift path with the tool attachment in operation, is that
13 the understanding of the problem that you had in your
14 mind when you were assessing whether Vermeer's claims
15 are obvious?
16 A. I think that's a key aspect to their patent
17 claims. There are other aspects to the patents, but if
18 I would look at, you know, one of the key aspects, I
19 believe that that is.
20 Q. I guess I'm not sure that answers my question.
21 I don't mean that in a disrespectful way at all, but
22 is -- when you were assessing whether Vermeer's claims
23 are obvious, was the question you had in your mind or
24 the problem you had in your mind, how do I put vertical
25 lift path on a mini skid steer machine?

A. Well, I would suggest that that's a key aspect. And then, of course, there's all those elements of developing the technology so that you could do that, make it work and so on.

Q. But that -- this problem that you've identified here is kind of the animating problem for your opinions and assessment; is that right?

A. Well --

MR. O'DELL: Objection to the meaning of "animating problems." Can you clarify that?

THE WITNESS: There are other aspects to designing a machine as a whole, but I think that what I state there is -- was clearly a key aspect of what the patent -- we're talking the '386 is about, introducing this vertical lift. And then all those other aspects associated with the packaging of it and so on, it's --

BY MR. BROPHY:

Q. I guess what I'm trying to figure out is whether the question you were answering is would it have been obvious for a skilled artisan to incorporate a vertical lift path on mini skid steer machine. Is that the question you were asking when you were determining whether -- when you were assessing whether the claims are obvious?

A. In the most general sense, I would say yes.

Q. Let's turn now to page 46, please?
A. Yes.
Q. I want to talk a little bit about this term main frame.
A. Okay.
Q. You're familiar with that term?
A. From the patent, yes.
Q. Before -- it was a silly question, I'm not gonna bother answering -- or asking it.
If we look at paragraph 74 of your report and specifically the part of paragraph 74 that appears on page 47, you say that in the third line down, "I understand the patent owner has stated 'main frame is used in the '386 patent to describe the body of the compact tool carrier that supports the loader.'" Do you see that?
A. Yes.
Q. Is that the definition of main frame that you used when you were assessing obviousness of the various Vermeer claims?
A. Well, I think that the claim itself, the main frame supports the loader and it describes it has these different sides and that there's various attachments to the main frame. The primary purpose is to support the loader as described.

1 Q. So I guess I want to make sure that my
2 questions are clear here. Is it your understanding that
3 one of the steps in the process for assessing
4 obviousness is determining the scope of the claims?
5 A. Yes.
6 Q. And part of that process includes interpreting
7 the individual terms of the claims, right?
8 A. Right.
9 Q. So in order to assess obviousness, one of the
10 things you needed to do was determine what you believed
11 a skilled artisan would interpret the term "main frame"
12 to mean, right?
13 A. Yes.
14 Q. Is this sentence that I just read from page 47
15 the interpretation of main frame that you applied when
16 you were assessing obviousness of Vermeer's claims?
17 A. Yes, I would say so.
18 Q. Are you aware that the board at the Patent
19 Office has subsequently rejected this definition and
20 supplied a definition of its own?
21 A. I believe that it's the main frame is a support
22 of the loader, yeah.
23 Q. The main frame is the support --
24 A. The main frame's job is to support the loader,
25 it's a support element.

1 Q. Is that your understanding of the definition
2 supplied by the board?
3 A. Yes. There's hundreds of pages of documents
4 here. I'm trying to recall if I -- I don't recall as we
5 sit here.
6 Q. Is there anything -- well, my understanding is
7 that the Patent Office has provisionally interpreted the
8 main frame term to mean the primary supporting
9 structure, does that phrase ring a bell to you?
10 A. I'm assuming that you're telling me what they
11 decided.
12 Q. But that phrase doesn't ring a bell to you
13 sitting here?
14 A. As we sit here, I don't recall, but I'm -- I've
15 read through a lot of materials, there's a lot in here,
16 but that would be consistent with what I would believe.
17 Q. How would your opinions change from what's in
18 this declaration and your other declarations if -- if we
19 apply that different definition, the -- instead of it --
20 instead of the main frame being the body of the compact
21 tool carrier that supports the loader, now the main
22 frame is the primary supporting structure, how do your
23 opinions change?
24 A. It's primary supporting structure of the
25 loader, that is what you're -- where I said to -- or of

1 the device or of the supporting the loader part?
2 Q. What the board has said is that the main frame
3 is the primary supporting structure, assuming of the
4 device.
5 A. Okay, okay.
6 Q. How does that change your opinion?
7 A. I don't believe it would change my opinion.
8 Q. So the addition of that word primary, that
9 doesn't have any materiality to you?
10 A. Yeah, I think that -- I think that my opinion
11 stays as it is.
12 Q. In your view, are those two definitions the
13 same, the body of the compact tool carrier that supports
14 the loader and primary supporting structure, are those
15 the same, in your view?
16 A. Well, I think that there's many more
17 limitations as to what the main frame supports and so I
18 think that it's consistent.
19 Q. I don't know that I understand your answer.
20 I'm trying to figure out whether as an expert who is
21 opining on obviousness and as part of that, needs to
22 interpret the claims and the terms of those claims to
23 perform that obviousness assessment, is it your opinion
24 that those two definitions I just read are the same?
25 A. The two definitions being the primary --

Q. Primary supporting structure on the one hand and body of the compact tool carrier that supports the loader on the other.

A. Uh, I don't think that there would be a significant difference in any way in terms of my analysis.

Q. So that word primary, that doesn't add anything to the definition in your view of a material nature?

A. I think that it's the main -- primary would say that it would be the main supporting member of the device and I don't think that's inconsistent with how I've analyzed it for this -- developing these opinions.

Q. But you haven't fully considered that because I just told you about that today?

A. Well, I think that the -- you know, the discussion that I have herein really points to this frame member, I'll call it, as being the primary support structure insofar as it supports the loader, it supports motors, you know, and whatever. So I don't think it's inconsistent in any way, shape or form or would change my opinions.

Q. Hearing that definition from the board, the primary supporting structure, do you interpret that as meaning that whatever that structure is, that main frame or that primary supporting structure is necessarily

1 present at all times when the machine's operating?
2 A. Could you just repeat that, please?
3 Q. Sure. Does that definition offered by the
4 board, primary supporting structure, do you interpret
5 that as requiring that the main frame or the primary
6 supporting structure is necessarily present at all times
7 when the machine is operating?
8 A. In terms of performing lifting and doing the
9 work that the machine would do, yes. But that the --
10 you know, as I've stated in my declaration that the KR
11 machine, the main frame is always present when the
12 machine is in operation in terms of it being connected
13 and physically attached.
14 Q. What test would you apply -- or let me put that
15 differently.
16 What test did you apply when assessing whether
17 something was part of a main frame or not for purposes
18 of conducting your analyses and rendering your opinions?
19 A. Well, I had to go to the, you know,
20 specification and how the main frame is described and --
21 Q. So if we just look at page 47 of your
22 declaration.
23 A. Okay.
24 Q. Since we're already there on the top of it
25 there, there's a picture of a figure taken from KR996,

do you see that?

A. Yes, I do.

Q. How did you go about determining what -- of what we see there constitutes main frame and what is not main frame?

A. Well, there's a frame elements that support the machine and the primary elements would constitute the main frame.

Q. And, I guess, how do you know whether something's a primary element or not?

A. Based on my knowledge of engineering, I know that the machine would have to be supported, understanding, generally, how the loads would be transmitted through the machine and the like, that that would lead me to believe what were the primarily structure support members of the machine.

Q. Is that the test you applied, whether the load is moved through a structure, is that what constitutes a main frame or not?

A. Well, if we're talking that it's the primary structural support of the machine, then we've -- yes, it would have to be the -- you know, by support, I mean there's loads, there's weights, there's so on.

Q. So if we look at that figure, if I use the phrase reference numeral, are you comfortable with that

phrase to refer to the numbers that appear on the picture?

A. Sure, that's okay.

Q. So if we look the reference number 45 for a moment, do you see that?

A. Yes.

Q. Is that part of the main frame?

A. No, that's a link.

Q. Okay, well the load goes through that, right?

A. Yes.

Q. So it would meet that test we just talked about?

A. No, I think for -- we're talking about supporting the entire machine.

Q. So that link isn't part of the main frame, in your view?

A. No.

Q. So how -- I guess my question remains, how do I call balls and strikes about pieces that are part of the main frame, and not? What's your test for that?

A. Well, I think that, you know, I would go back and say, well, the patent talks about various components; for example, the loader, I guess they call it, the loader arm, which is not, you know, directly connected to the frame of the machine, this four-bar

linkage. So I wouldn't call those links and those connections to be part of the main frame; therefore, transmitting the loader arm's loads to the machine.

Q. Are you able, sitting here today, to provide me with some test that I could use to assess which components on the machine are a part of the main frame and which are not, or is it a, you know, when it see it situation?

A. Well, I think that I would go to the claims as to see what the main frame is expected to do, as well as the specification. For example, you know, there's brackets attached to it for supporting other things and so on.

MR. BROPHY: We've been going for about an hour why don't we take a break. Is that okay?

MR. O'DELL: Yeah.

THE WITNESS: Sure.

(Brief recess was taken.)

BY MR. BROPHY:

Q. Okay. I would like to hand you now -- I should have prepared this already. Dr. Velinsky, you've been handed what's been marked as Exhibit 2. This is a copy of the Korean KR996 reference.

A. Yes.

///

(Exhibit No. 2 was marked for identification.)

BY MR. BROPHY:

Q. I believe you've seen this before; is that right?

A. I have.

Q. Did you review this reference in rendering your opinions in this case?

A. Yes.

Q. Do you have a general understanding of the invention that is taught in this Korean patent?

A. Yes.

Q. What is it, in your word, the fundamental concept that's being taught in this patent?

A. It relates to this -- what they call green building deconstruction work and they have a -- basically, a -- what we've called a vertical lift loader on a bogey that is separable from this main machine and small -- for small buildings, et cetera.

Q. What is your understanding of the purpose of having this component that detaches from the machine?

A. It could provide the opportunity for changing out tools.

Q. You say it could, it does, right?

A. Yeah -- yeah, yeah, sure. It does.

Q. If you look at the first page of the patent, there's an abstract with the number 57 before it. Do you see that?

A. Yes.

Q. The second paragraph of that abstracts states, "Therefore the present invention can easily and quickly detach the loader unit with a bucket and the arm unit with a breaker installed on a vehicle thereby greatly reducing the economic burden of purchasing heavy equipment and significantly saving time and expenses for the maintenance of heavy equipment." Do you see that?

A. Yes, I do.

Q. Very succinctly, is that the purpose of this invention is to provide those features?

A. I mean, I think, at the highest level, that the idea was that it would be multi-purpose piece of equipment as, you know, the compact loader technology desires.

Q. If you turn to page 5 of this exhibit, you'll see a set of numbered paragraphs there, do you see those?

A. Yes, I do.

Q. Paragraph 1, if you wouldn't just mind reading that to yourself, please.

A. Okay.

1 Q. Do you agree with me that a fundamental purpose
2 of this invention is to allow a machine that can easily
3 attach and detach various dismantling equipment?
4 MR. O'DELL: Objection to the phrase
5 fundamental purpose as calling for a legal conclusion.
6 THE WITNESS: I'd say that it certainly is part
7 of the purpose of this.
8 BY MR. BROPHY:
9 Q. What is the improvement that this Korean patent
10 teaches that it provides over prior art, if you know?
11 A. Well, I think that it -- you know, that's one
12 aspect, and specifically is this detachability of tools,
13 but at the same time, it's the details of the patent,
14 which is this type of lifting arm, how it's attached,
15 and so on.
16 Q. If we turn to the next page and look at
17 numbered paragraph 12, do you see that?
18 A. Yes.
19 Q. There's a section entitled Issue To Be
20 Resolved, do you see that?
21 A. Yes.
22 Q. And that paragraph reads, "The purpose of the
23 purpose of the present invention is to provide
24 construction equipment for green building deconstruction
25 work, which enables the easy and quick attachment and

1 detachment of a bucket and a breaker with a single
2 vehicle to solve the aforementioned problems." Do you
3 see that?
4 A. Yes, I do.
5 Q. That's a primary object of this invention,
6 right, what I just read?
7 A. It's one of the objects, that's the first one
8 that's listed.
9 Q. And by having a machine that can quickly switch
10 attachments, what benefit does the patent teach that
11 that provides to the art?
12 A. The quick attachment, what is that -- what
13 benefit does that involve?
14 Q. What did the patent teach is the benefit that
15 is gained by having that ability?
16 A. Well, I think that prior it talked about, you
17 know, you have equipment that won't need to be sole
18 purpose equipment because, you know, they discuss
19 they're used for a variety of applications in addition
20 to building interior demolition, road maintenance, road
21 removal, towing and so on and so forth.
22 So I think the idea is that it could have a
23 removable tool so that it's not a single-purpose
24 machine; just purely a loader, for example.
25 Q. Would you agree with me that the patent talks

about a prior art situation in which a demolition company has both mini skid steer and an excavator, each of which is used only half of the time because you're doing some demolition and then you're carrying it away with the mini skid steer, do you agree with that?

A. Could you point to, you know, place in the patent where it specifically says that?

Q. Yes.

A. I'm not suggesting that it doesn't, but --

Q. If you look at paragraph 7, it states, "The problem with this conventional work flow," that being having these two different pieces of equipment, "is that the skid loader is idle while the mini excavator is crushing and vice versa. The mini excavator is idle while the skid loader is bucketing."

A. Okay.

Q. So there's an issue of inefficient operation of expensive imported equipment, do you see that?

A. Yes.

Q. That's really what this idea of quick attachment resolves, right, is you have one machine to serve two purposes; therefore, you don't have two machines, one of which is sitting idle. Do you agree with me?

A. Yes, I would agree that's an objective of the

1 patent.
2 Q. Are you familiar with how the KR996 reference
3 teaches the change of attachment, how mechanically that
4 works?
5 A. Yes, I have -- based on the patent, I
6 understand how it would works.
7 Q. Would you, in your own words, just describe how
8 that attachment and detachment process works, please?
9 A. Sure. If we look at Figure 12, it's showing a
10 mechanism where there's a hydraulic cylinder that
11 rotates a locking device to lock the attachment to the
12 tool or -- excuse me -- to the main part of the --
13 the -- the part of the machine that has the controls on
14 it, the wheels, and so on.
15 And there's elements I think 42 or 43 -- I
16 can't tell by the picture, but there's these slides,
17 almost like a dovetail where these things come together.
18 They describe them as being tapered and so that it's
19 easy to pull up onto this -- where these tracks line up
20 and are compatible. That is the part on the machine
21 with the controls and this part, and then once they mesh
22 together, this hydraulically actuated latch the things
23 so that in operation, this is a unified structure.
24 Q. If we turn to paragraph 27 which is on page 7
25 of the exhibit, there's a reference to guide plates. If

1 you want to just read that paragraph for me,
2 paragraph 27, please.
3 A. "Another feature of the present invention's
4 construction equipment for green building deconstruction
5 work is that guide plates are installed on the inner
6 sides of the wheels and both sides of the bogey, which
7 comes into contact with the inner front of the vehicle
8 when the wheels rotate in the forward direction and
9 separate from the front side of the vehicle when the
10 wheels rotate in the reverse direction."
11 Q. Do you understand what that paragraph is
12 talking about?
13 A. I think that we're talking about there are
14 these plates, as I've described, that are compatible;
15 one on the moving part, the part of the machine that has
16 the control panel, and one on the tool part.
17 Q. Is it your interpretation of that language that
18 it's referring to parts 32 or 33 that you referenced
19 earlier?
20 A. Yeah, I believe that that's what they're
21 referring to is a -- oh -- page 43, with support locks
22 so those are the things that interact.
23 Q. I'd like to direct your attention to
24 paragraph 53 then which also talks about these
25 guidelines. Do you see that?

A. Uh-huh.
Q. Do you mind reading that paragraph please?
A. "Between the lower frame and the guide plate that is 31 and 38" --
Q. Actually, I'm sorry, I apologize, would you mind reading paragraph 52 instead, excuse me.
A. "On both sides of the lower frame of the bogey, guide plates are installed. The guide plate contacts the inner side of the wheel and as the wheel rotates in the forward direction, pulls the bogey into the front inner side of the vehicle and as the wheel rotates in the reverse direction, pushes the bogey away from the front of the side of the vehicle."
Q. Does that language there and the identification of the reference numerals change your opinion about what these paragraphs refer to?
A. (No audible response.)
Q. I direct your attention, for example, to drawing 8 which includes the identification of the lower frame, 31, the guide plates, 38, and the liner, 39.
A. What was the question?
Q. I believe earlier you testified that this language we've been reviewing in these various paragraphs relates to portions either 42 or 43, and I'm asking whether looking at the reference numerals causes

you to reevaluate that perspective; in other words, isn't this language referring to a different component --

A. Yes.

Q. -- than the one you initially identified?

A. Yes.

Q. Which component is it referring to?

A. This language is referring to these components of 38 and 39.

Q. Did you, when deriving your opinions in this case, understand that the paragraphs I've referenced referred to that rail portion on the bottom of the bogey?

A. The -- well, I think that this is, you know, an embodiment that they're discussing and the idea is that these things couple and uncouple and then are locked in place by the hydraulics.

Q. Did you understand this functionality when you reviewed this patent for purposes of rendering your opinions or are you learning about this functionality right now?

A. No, I think at the time I understood the functionality.

Q. How does that -- talk me through how that works.

A. What?

Q. Talk me through how this works, how this bogey is pulled into the machine.

A. Well, I think that the vehicle drives up on it. It talks about having these, you know, tapered plates and it drives up and it's -- you know, these are the details of the embodiment of their implementation of the coupling and uncoupling of the device.

Q. Is it your understanding that the discussion in the patent of the tapered plates relates to these 38 and 39 structures?

A. Those are -- you know, it's my understanding those are different plates, the tapered plates are 21, you know, further up.

Q. So A moment ago you referenced the tapered plates, but that's not part of the structure we're talking about?

A. No, that's not.

Q. So do you understand how this aspect of the invention works with respect to the reference numerals 38 and 39 and how they engage with the wheels of the machine?

A. Will, it appears that the wheels are assisting in pulling in the machine so that those other plates could contact them and they could be latched in place.

Q. Is this something that you're realizing for the first time in this deposition, this functionality?

A. I don't recall. You know, I read through a lot of material, but I think that the -- in regards to this patent, my opinion is really that when it's in operation, that it's fixedly attached and that it has a four-bar mechanism that's generally vertically lift device.

Q. Right, but with respect to this specific feature that we're talking about, as you've reviewed the patent, is it now your understanding that the sidewalls of those tires interface with those structures identified at reference numeral 38 to grab the bogey and pull it closer to the machine?

A. That helps pull it in, yes.

Q. And then when you want to move the bogey away from the machine, you put the machine in reverse and the sidewalls of tires frictionally interface with that structure 38 to release the bogey away, right?

A. In addition to releasing the safety latch that couples it and ensures that it's a secure connection, yes.

Q. You've mentioned a couple times the operation of the machine, isn't part of the operation of the machine changing between attachments?

A. Well, yeah, it's -- the changing attachment operation, much like in any other machine where you would be changing attachments, that the machine is in its working operation while you're changing the attachments.

Q. Would you agree with me that the machine that is taught in KR996 reference does a variety of things? One of those things is just, without any attachment, you can drive the thing around, right?

A. Sure.

Q. And then another way in which it operates is you drive it up to a bogey that has this bucket attachment and you latch on the bucket attachment and then you operate the bucket, right, that's something else it does?

A. Yes.

Q. And another thing it does is releases that bucket attachment in the way that that we've described with the sidewalls of the wheels, right?

A. Yes.

Q. And then another component or aspect of its operation is attaching to what they call the breaker and using the breaker, right?

A. Yes. There's another tool that they describe that it could be connected to.

Q. Those are all aspects of the operation of the machine that's taught in KR996, right?
A. Yes, the overall operation, yes.
Q. Okay. Now that we understand how that bogey/sidewall interaction works --
A. Yes.
Q. -- I want to revisit the types of environments within which this machine operates. If we look at drawing 1 which is on page 15 of the exhibit --
A. Yes.
Q. -- do you see reference numeral 42?
A. Yes.
Q. What is reference numeral 42?
A. It's -- it's -- well, they're calling it a lower plate.
Q. Reference numeral 42. I believe there are two 42s.
A. There are.
Q. I'm specifically focused on the reference numeral 42 in drawing 1 that is in the bottom right-most portion of the page.
A. Okay.
Q. What is that structure?
A. It's some sort of wheel.
Q. And do you understand that that wheel is

1 attached to the bogey that holds an attachment?
2 A. Yes.
3 Q. And the purpose of those wheels is what?
4 A. I would imagine that you could move around the
5 attachment when it's dis-attached from the main machine.
6 Q. And, in fact, part of what we just read earlier
7 is that one of the functions of the bogey is that it
8 interfaces with the sidewall of the tire and gets drawn
9 into the machine, right?
10 A. Yes.
11 Q. So the wheels would also be a part of that
12 function, do you agree?
13 A. Wheels 42?
14 Q. Uh-huh, yes.
15 A. If it's moving relative to the ground.
16 Q. So when this machine couples with an
17 attachment, that bogey slides underneath the machine,
18 rails 38 interface with the sidewall of the tire --
19 A. Yes.
20 Q. -- and the two things are pulled together. And
21 so the machine gets closer to the bogey and the bogey
22 gets closer to the machine, right?
23 A. Well, clearly, there's relative motion between
24 them. I can't comment on the -- if the -- we don't know
25 that the bogey is moving, it could be stationary, but

they certainly couple in that manner.

Q. Understood. I want to think very critically for a moment about the way in which that rail 38 interfaces with the sidewall of the tire.

A. Okay.

Q. And if you'll bear with me for a moment while I get a little nerdy, maybe you'll appreciate that, as I do that.

A. Okay.

Q. A machine moves at a rate that is relative to diameter of the wheel that is turning below it, right?

A. Yes.

Q. So if the sidewall of the tire, which is not all the way on the ground, it's some amount up from the ground, is interfacing with that bogey. That means you're gonna have some amount of movement from the bogey as well while the bogey is attaching to the machine; do you agree?

A. Think about this for a second. I would certainly say that the -- the velocity of the machine going forward is higher than the relative velocity between those two objects.

Q. Agreed.

A. The R is greater, the omega is the same.

Q. The same. I'm with you a hundred percent. All

1 right, you and my educations are synced.
2 So that means that as these things are
3 coupling --
4 A. Yes.
5 Q. -- not only are they moving relative to one
6 another, but they're also moving relative -- both of
7 them are moving relative to the ground below, correct?
8 A. Yes.
9 Q. So one of the roles that those wheels, 42, play
10 is allowing that bogey to move during the coupling and
11 decoupling process, do you agree?
12 A. Yes.
13 Q. Now, we talked earlier in the day about the
14 kinds of environment in which these things operate;
15 rocky terrain, debris, gravel, mulch, mud, dirt, lots of
16 different undulating and uneven terrain, right, you
17 remember that conversation?
18 A. That's what you were suggesting, yes.
19 Q. And you agree with me that's the environment
20 within which the mini skid operates?
21 A. I think they operate in a whole bunch of
22 environments.
23 Q. Including those that I have identified?
24 A. Depending on the application, yes.
25 Q. What happens to this configuration that we're

1 looking at here when you introduce the notion of uneven
2 terrain, does it still work?
3 A. It would depend clearly on what we mean by
4 uneven terrain, you know, it's -- any -- excuse me --
5 any machine must have some envelope in which it could
6 work, and by uneven, you'd have to be more descriptive.
7 Q. Well, if we assume for a moment that we're
8 trying to couple an attachment to this machine --
9 A. Okay.
10 Q. -- on someone's lawn, a fairly typical place
11 for a mini skid steer to operate, agreed?
12 A. I would imagine so.
13 Q. Is there, in that hypothetical, is there going
14 to be perfect parallelity between the base plate of the
15 main frame and the base of the bogey?
16 A. Well, I couldn't say, but I mean the
17 application specifics would dictate where you would
18 couple and uncouple. For example, if the skid steers
19 that I discussed that we developed earlier were for
20 operation on the highway, relatively flat and smooth.
21 Q. But what about anywhere else, literally
22 anywhere else?
23 A. Well, I just -- I just think that the -- I
24 don't think the definition of what a mini skid steer has
25 limits it to it has to work on big, you know, rough

terrain specifically.

Q. So your opinion is that a mini skid steer can still be a mini skid steer if only ever works on flat concrete?

A. Well, I think by the definition, it doesn't say that it has to work on this or that.

Q. Would that be a very attractive machine to someone skilled in this art?

A. Well, it depends on what they were designing the machine for.

Q. And if you're designing the machine in the context of the mini skid steel art, which is what we're dealing with here, that wouldn't be a very attractive machine, would it? It can only ever work on concrete and nowhere else.

A. Well, I mean this -- this Korean patent is for a mini skid steer for the construction environment and evidently they felt this was a good machine.

Q. Do you know if this machine was ever built?

A. I don't know.

Q. Do you know if it was commercialized?

A. I don't know.

Q. Do you know if a single physical example of this machine ever existed in the world?

A. I don't know.

Q. So we don't know whether this works or not, right, this device?

A. Well, we know that it's patented and it was from a patent, it's reduced to practice. But I think the issue is that it's a patent and it's prior art and so then the question is whether or not it has features that were present prior to the patents at issue in this case.

Q. So we got into this discussion because we were talking about the issue of where this machine would work, and I think your testimony was, well, this one would work on flat concrete ground. Remember that testimony?

A. This particular machine?

Q. Yeah.

A. Well, we said that it was in construction, deconstruction, whatever, but they just say that generally they're also, you know, in paragraph 0002, that snow removal, towing, interior dec -- you know, these kind of these things, gardening, landscaping is what --

Q. Let's use landscaping, which was my example.

A. Okay.

Q. We're gonna use this machine on someone's lawn.

A. Okay.

Q. That is an uneven terrain, would you agree? It undulates and you've got grass bumps and dirt patches and things like that, right?

A. It could have that, yes.

Q. What happens to the functionality of this machine when you put it in an environment in which there is not perfectly level ground? Does the bogey still work to attach and detach attachments for the machine?

A. I couldn't tell you, you know, it's -- I couldn't say that it's gonna work a hundred percent of the time and I couldn't say it's not gonna work.

Q. Let me give you some hypotheticals. I didn't mean to interrupt you if you weren't finished with your answer. Sorry.

A. That's fine.

Q. Let's assume for a moment that this machine is being used in the exact environment the patent teaches which is some kind of demolition space. So they use the breaker, they're breaking up concrete, creating rubble, right?

A. Yes.

Q. And then now they need to change the attachment out to remove the breaker and put on the bucket attachment so they can remove the rubble?

A. Okay.

Q. Are you with me?
A. I hear you.
Q. What happens when the bogey gets pushed up on a piece of rubble while the machine is trying to couple with it? Will the bogey still fit under the machine?
A. (No audible response.)
Q. It won't, will it?
A. It may be, you know, difficult or not possible easily, sure.
Q. Well, not possible period, right? If it's stuck on a piece of rubble and canted upwards, it's not gonna fit underneath the machine where it needs to, to be able to change attachments, right?
A. Yeah, depending on the orientation, there has to be some limitations on the orientation for the two parts to couple.
Q. So the same would hold true if they put this in a grass environment where the bogey is canted at an angle and trying to couple with the machine, it wouldn't work they're there either, right?
A. There's a possibility it couldn't, sure. I mean at the same time, any tool attachment, there's some limitations.
If we had -- if we this was a unitary structure and we're replacing the bucket with something else,

there would be some limitations on how we could attach the bucket. If it was sitting in an odd orientation, it would have the same problem.

Q. So now I want to talk about No. 39, reference numeral 39, which we already read about.

A. Yes.

Q. What is 39, if you recall?

A. It was -- I think they called it a rail.

Q. I think that's 38, 39 is a different structure?

A. A liner.

Q. And do you know the purpose of that liner?

A. (No audible response.)

Q. Direct your attention to paragraph 53 which addresses that component.

A. Okay.

Q. What's the purpose of that liner 39?

A. To adjust the gap between the guide plate and the inner side of the vehicle's wheel.

Q. Do you understand why that's necessary?

A. It's my understanding so this thing could adequately mate up with the receiving bar.

Q. Would you agree with me that it's to allow for fine-tuning of the distance between those 38 rails so that they interface correctly with the sidewall of the tire?

A. Yes.
Q. And I guess I should have said this earlier, but you agree with me that when a machine is driving on the ground, that the wheel -- when the part of the wheel that's up in the air, the sidewall is narrow and then as it comes down, that sidewall squishes out a little bit, do you agree with me?
A. The tire you're talking about?
Q. The tire, yeah. Is that a yes, sorry? That was a yes?
A. No, you're talking about the tire?
Q. The tire sidewall, yeah.
A. Okay. And so there's -- you know, in the location where it contacts the ground that, yes, under load and the contact patch is not the same shape as the tire in free space.
Q. You get a bulge in the sidewall, right?
A. Uh-huh, the pressure.
Q. That bulge is the part that is touching these rails 38, right?
A. I can't really say.
Q. Well, if you just understand the mechanics of it, necessarily isn't that the part that's gonna be touching these rails, if you look at the pictures?
A. Well, a portion of the tire will be contacting

1 according to what it describes, whichever portion that
2 is.
3 Q. And is it your understanding that the purpose
4 of these liners 39 is to move those rails 38 in and out
5 to make sure that they're in contact with that sidewall
6 tire sufficiently to do the things that are described in
7 the patent?
8 A. I think that it's for proper alignment of the
9 detached tool with the part that has the control panel
10 on it, that's how I see it.
11 Q. And why is that alignment important, in your
12 view?
13 A. Well, ultimately, these parts have to be
14 aligned in such a way that I could fixedly attach the
15 elements together so an operation that could work.
16 Q. And so if the rails 38 are too narrow, they
17 won't engage with the tires, and if they're too wide,
18 then the tires will run over them, right? There's like
19 a sweet spot they need to be in to engage in the side
20 wall correctly, correct?
21 A. Generally, I would say yes.
22 Q. What happens when the tires get muddy?
23 A. There's mud on them.
24 Q. And that causes the sidewall to be thicker than
25 it normally would be, right, because there's mud on it?

A. It's -- sure, it's possible.
Q. And then that fine-tuning you did with the liners 39 no longer works, right, because you've got additional material that's changing the thicknesses from what you had dialed them in to be?
A. I don't know if the -- I can't say unequivocally that's the case. Just mud attached to it -- a tire would be easy to knock off if that was necessary.
Q. Have you ever used a mini skid steer in a muddy environment?
A. I don't know if I have or not.
Q. Do you know how much mud gets caked onto the side of a wheel or tire during that exercise of operating the mini skid steer in a muddy environment?
A. We've operated lots of machine in tough terrain, there's mud and there's dirt on them.
Q. Do you agree with me that in that muddy environment, when the sidewalls are increased in thickness because of that mud, that the bogey would not fit below that machine anymore?
A. Well, the -- you know this is hypothetical of how it's gonna work or not gonna work, but I would suggest that if it was in a muddy environment, you drive -- the machine is connected and you drive onto

that muddy environment do your thing.

So I can't really say that it's regard to do this or that, I just know that if you had the machine and you had it coupled, it's gonna operate.

Q. It's not too far-fetched to suggest that this machine would be asked to operate in a muddy environment, do you agree, as a mini skid steer?

A. I think that it discusses the environments that it's expected to work in; construction equipment, green building deconstruction work, particularly for construction equipment.

Q. Earlier you testified that this patent teaches it would also be used in road maintenance, snow removal, towings, gardening, fruit farming, landscaping, do you remember that?

A. Yes, it's in one of the other paragraphs describing the machine.

Q. And, certainly, gardening, fruit farming, landscaping, sometimes you interface with mud in those environments, right?

A. Yes.

Q. What about snow removal? Snow removal, you get ice with snow removal, right?

A. Yes.

Q. And you have the same problem with mud and ice,

right, it changes the thickness of those rails and the sidewalls of the tires and would cause that alignment to go out of whack, right?

A. It could. I mean this is -- again, this is an embodiment that they're showing for this particular --

Q. Are you aware of any other embodiment that doesn't rely on this bogey?

A. Oh, of this machine?

Q. In this KR996 reference.

A. Well, the -- yes. On the later figures, there's a different bogey.

Q. Which figure are you referring to?

A. Figure 14. I should say a different tool.

Q. But that has the same rails --

A. I correct myself, yes.

Q. Every embodiment taught in this patent requires this bogey with these rails, with these liners to interface with the wheels and anything other than a perfectly flat, clean surface, you'll agree with me that there are gonna be problems getting that to align properly and operate?

A. The -- the coupling and uncoupling process would be -- would have limitations depending on the surface, much like any other machine.

Q. And those caster wheels that we looked at which

are designated here at 52, those are small relative to the wheels of the machine, right?

A. Yes.

Q. And they're small because they have to fit under the machine during attachment the detachment, right?

A. That's correct.

Q. So will you agree with me when a wheel's diameter is smaller, it has a tendency to sink deeper into a surface that is not perfectly solid?

A. With the same load?

Q. With the same load, sure.

A. Yes.

Q. And let's talk a little bit about those pieces. If we go back to drawing 1 --

A. Okay.

Q. -- let's reference drawing 3, which shows 42 and 43. I believe you were identifying 43 as those tapered rails that slide into the machine, right?

A. Yes, that's what it appears, uh-huh.

Q. What happens to those rails and the alignment of those rails with the machine when the bogey is on uneven terrain and at a different angle than the machine?

A. Well, if it was a significant enough angle, it

1 would be unable to couple.
2 Q. Is this the type of machine, given this bogey
3 issue that we've discussed, that in your opinion, a
4 skilled artisan would gravitate towards as a machine to
5 rely on to develop other machines from?
6 A. Skilled art -- you need to be more specific,
7 I'm sorry.
8 Q. Sure. Yeah, so you have a number of opinions
9 in your declarations that rely on this 996 reference,
10 right?
11 A. Yes.
12 Q. And I believe your opinion is that someone --
13 some skilled artisan would look to this reference and
14 use it and then improve on it, right?
15 A. Yes.
16 Q. That's part of your opinion?
17 A. That's correct.
18 Q. Is that still your opinion given what we've
19 talked about today about the fundamental problems in
20 using this attachment system on anything other than a
21 perfectly flat, perfectly dry, perfectly mud-free
22 environment?
23 A. Yes.
24 Q. Your opinion is still that a skilled artisan
25 would gravitate towards this reference and use it as the

basis for their design?

A. Yes.

Q. These things that we've discussed today, these challenges presented by using the machine on uneven terrain, muddy terrain, in icy environments, is that something that you considered when you were deriving your opinions or is it something I've educated you on today for the first time?

A. What aspects are you talking about?

Q. Just the challenges associated with uneven terrain and how this bogey would interface with the machine in those kinds of environments, did you have that in your mind when you were rendering your opinions?

A. Well, I looked at the field of the technology and how this thing would -- the loader part of it would operate while these things were coupled together and the machine was working. I wasn't concerned about the coupling, uncoupling in that manner.

Q. So this is something new that I'm introducing to you for the first time today; is that fair to say?

A. Not entirely. I mean clearly, I was interested in the fact that it couples and uncouples and fixedly locks in place so that you have this rigid structure that could operate and operate the loader.

Q. But specifically the challenges presented by

1 different environments and different surfaces that the
2 machine is operating on, that's something new, right,
3 that's a new issue that you've --
4 A. I've said in the past that it describes, that
5 it, in these various types of applications, your
6 hypotheticals of the orientation, the surface, and so on
7 was not something that I was particularly interested in.
8 Q. So you weren't interested in whether or not the
9 machine would work in the types of environments that the
10 patent teaches it should be used in?
11 A. Well, I was in terms of it's -- as a overall
12 machine, clearly, that was something that I was
13 interested in. It's a compact loader and how it would
14 operate, yes.
15 Q. I'd like to turn now to figure 14, this is the
16 figure that shows the breaker attachment; is that right?
17 A. Yes.
18 Q. But the breaker isn't on there, is it?
19 A. No.
20 Q. And the breaker wouldn't fit on there, would
21 it?
22 A. Well, I don't know if it would or wouldn't, I
23 haven't --
24 Q. Did you assess that as part of your work in
25 this case?

A. No, I did not.

Q. If you look at the next page -- actually, if you go to Figure 20, drawing 20, you'll see that the breaker is now installed and if you compare the size of the breaker, the angle of the breaker relative to the various components of the arm and look again at, for example, drawing 15, which shows the arm in its stowed position, would you agree with me that that breaker would not fit on the bar when it's installed on the bogey?

A. You'd have to be more specific, sorry.

Q. I don't know if I can be. I guess my question is just so you agree with me that when the breaker attachment is stowed on its bogey, it cannot also have the breaker itself, the tool, installed on the arm?

A. Well, I think it depends on what you mean by the stowed position.

Q. What I mean is that the breaker attachment has been stowed on the bogey as is shown in, for example, drawing 14.

A. I haven't really -- I haven't really looked at this before. So it would take more time for me to really study that aspect of it because I haven't really looked at it.

Q. Would you agree with me, though, that -- let's

1 assume for a moment it doesn't fit, I'm not saying that
2 that's something you expressed, just assume --
3 A. As a hypothetical?
4 Q. As a hypothetical, let's assume it doesn't fit.
5 A. Okay.
6 Q. That then means that there's a two-step process
7 to getting the breaker to work with this machine. First
8 you have to install the breaker arm and then you have to
9 install the breaker attachment on the breaker arm,
10 right?
11 A. If indeed -- if you're saying if it was in a
12 fully stowed position without the breaker arm, you would
13 need to attach the breaker arm, is that what you're
14 saying?
15 Q. Well --
16 A. The breaker part, 72?
17 Q. What I'm asking is if you would agree with me
18 that if we're in the process of making this machine
19 switch from using the bucket attachment to using the
20 breaker attachment, it's a two-step process where the
21 first step is you remove the bucket attachment and you
22 install the breaker attachment arm.
23 A. Okay.
24 Q. And then there's a second step of actually
25 installing the breaker onto the breaker arm because the

1 breaker doesn't fit on the breaker arm when the breaker
2 arm is stowed. Are you with me?
3 A. (No audible response.)
4 Q. That would be a two-step process?
5 A. Yeah, I don't know what the -- I don't know if
6 it details the operation of connecting it or
7 disconnecting it, so --
8 Q. Could you agree with me that that would be
9 unattractive to a skilled artisan, having to take two
10 separate steps to get that breaker attachment
11 operational?
12 A. Well, I think if the purpose of the machine was
13 that we had this base machine with the drive system and
14 the operator controls, and I think that we discussed the
15 fact that it is not sole purpose just for a loader, but
16 it has these other purposes that there could be other
17 tools that attach to it, it's a matter of, you know,
18 actually doing the attachment itself.
19 But it still provides that functionality of
20 having multiple attachments to an individual overall
21 unit. That's all I can say.
22 Q. Okay, let's take a look at something else.
23 MR. O'DELL: Is this a good time for a break?
24 MR. BROPHY: Sure, no problem.
25 MR. O'DELL: Why don't make it a few minutes

1 longer and make it a lunch break, but it will be a fast
2 lunch.
3 MR. BROPHY: You want to do that?
4 THE WITNESS: Yes.
5 (Lunch recess was taken.)
6 BY MR. BROPHY:
7 Q. So before the break, we were talking about the
8 KR996 reference and I think you'll agree with me that
9 throughout your various declarations, you've articulated
10 a number of modifications that you believe a skilled
11 artisan would make to the machine identified in that
12 reference, is that fair to say?
13 A. Yes.
14 Q. And if you can't answer this across the board
15 and we need to dig into more of the details, that's
16 perfectly fine, but I'm trying to understand whether
17 this attachment and detachment feature that we've talked
18 about today --
19 A. Okay.
20 Q. -- is a feature that, in your opinion, would
21 survive those modifications or would be removed as part
22 of the process of making modifications, in your opinion,
23 or have you considered that?
24 A. You know, I -- I hadn't really considered that
25 level of detail. But it was more of the fundamental

mechanism that I felt was important.

Q. Sitting here today, with that question kind of floating in the air, what is your sense for which way you would go; yes, it would be retained or no, it would not be retained?

A. I haven't really thought about it, and I think that it would clearly depend on the application, specifics and what the desire for the machine was to be.

Q. Next I'm going to hand you what has been a marked as Exhibit 3 this is a copy of US Patent No. 3,586,195 with the first named inventer Beltrami.

A. Right.

Q. You've seen this reference before, I assume?

A. Right.

(Exhibit No. 3 was marked for identification.)

BY MR. BROPHY:

Q. You've seen this reference before, I assume?

A. I've seen it.

Q. At a high level, in your own words, what does the Beltrami patent teach or relate to?

A. Well, at a high level, I believe it's this vertical lift mechanism is what is this binary objective, as far as I see it, that the bucket would take a substantially vertical path.

Q. In the Beltrami reference, does the patent teach attaching the actuator -- let me -- I'm gonna say that a different way, otherwise it will be confusing.

If we look, for example, at Figure 1, Figure 1 is identified on page 2 as prior art, do you see that?

A. Yes.

Q. And what do you understand that figure to represent?

A. I think they refer to this as a radial lift rotor, I believe, and so there's a lift arm which is called 10 with a bucket at the end, and then there's an actuator 13 that's coupled to that lift arm.

Q. And is it your understanding that this is the design that Beltrami is intended to improve on?

A. Yes, that's what I would say, uh-huh.

Q. In other words, the Beltrami reference is all about making an improvement to the radial lift design and, therefore, evolving to a four-bar linkage vertical lift-type design, is that fair to say?

A. I mean that's how I -- yeah, I would say that's fair to say, that's how I looked at, the four-bar linkage as opposed the radial lift. And they point that out right from the start as to the shortcomings of the radial lift.

///

BY MR. BROPHY:

Q. So if we look at column 1 -- and, by the way, I'll be referring to here by column and line number, are you familiar with that approach?

A. Yes.

Q. So if we go to column 1 at line 16, you'll see a line that begins, "As already well known," do you see that?

A. Yes.

Q. It states there, "As already well known, the digging and lifting devices of the type above described generally comprising arm or a pair of arms, adapted for supporting the bucket and having their opposite ends pivotally connected with a stationary pivot point, which is usually located for the highest possible level on the vehicle body in order to attain the greatest possible lifting height to the smallest possible arm length."

Do you see that?

A. Yes, I do.

Q. Do you understand that to be an articulation of the prior art radial lift device?

A. That's my understanding.

Q. In the paragraph that follows, do you agree with me that the patent identifies several drawbacks of that prior art design?

A. Yes.

Q. What are some of those drawbacks?

A. That the bucket would undergo some sort of curve path, and so it's talking about it not allowing, you know -- well, it says, "easy formation of suitable and convenient soil escarpments."

You know, and the difficulty, perhaps, of dumping the soil after you've picked it up is what they're describing there.

Q. And the issue with dumping soil is that on a radial machine when the bucket is highest, it's closest to the machine, right? It doesn't have reach, would you agree with that?

A. (No audible response).

Q. And that a problem that plagues a radial machine, right?

A. It's the general peripheral curvilinear path that it extends and it's -- in the transverse plane, it moves up and down.

Q. If we look at column 1, line 41, it says, "A further drawback inherently caused by said curved path of conventional buckets is represented by the highly erratic positions taken by the center of gravity of digging equipment in the course of operations." Do you see that?

A. Yes, I do.
Q. Can you describe, in your own words, what you understand that to refer to?
A. Well, as it -- as we just spoke, this -- in the -- you know, looking at it in the transverse plane, as this arm swings up, that the bucket moves fore or aft relative to the machine. And in doing so, it could move the center of gravity -- it will move the center of gravity of the machine forward and back, depending on the position and is pointing that that's not desirable.
Q. And the -- if I understand you correctly, the issue presented by that CG shift is that you would have a heavy amount of load in a bucket, for example, and as you lift it up, that load moving further away from the machine causes the center of gravity of the entire machine to shift forward and possibly tip the machine over; fair to say?
A. That's a fair explanation, yes.
Q. Immediately below what we just read, it says that, "that center of gravity shifting results in undesirable instability of the equipment and in heavy wear of load-bearing transmission elements." Do you see that?
A. Yes.
Q. What's your understanding of heavy lift

load-bearing transmission elements to refer to?

A. Well, I think that they're -- what it could mean is that there's a cyclic type of loading on various parts due to this movement in the center of gravity.

Q. And what's the issue with that cyclic loading?

A. Well, you could have fatigue of the parts, for example. They're calling wear, I don't know also if -- I don't know exactly what they mean by that, that's one possibility.

Q. For what it's worth, that's how I read it too.

A. Yeah.

Q. Okay. So let's move down to column 1, line 54, approximately, it begins, "The above and further drawbacks," do you see that?

A. Yes, I have.

Q. It says, "The above and further drawbacks of the already known digging equipments are obviated by the device, according to the invention, which also provides novel and advantageous features for said digging and lifting means. The device, according to the invention, is essentially characterizing that the arm or each arm by which the bucket or like lifting means is supported is pivotally linked to at least one pair of connecting rods, which are, in turn. Pivotally connected to the vehicle frame in such a manner to form an articulated

quadrilateral therewith." Do you see that?

A. Yes, I do.

Q. Is that fancy language for we made a four-bar linkage instead?

A. Yes.

Q. So do you agree with me that these patents and these passages we've referred to teach the benefits of moving from a radial-style machine to a four-bar linkage vertical-style machine?

A. Yes, I think that's what we're talking about.

Q. I'd like to move now to column 2, and specifically to line 63, you'll see where it says, "Due to such restrictions," do you see that?

A. Yes.

Q. It says, "Due to such restrictions imposed upon the size of arm 10, the pivot point 12 thereof usually needs to be located at an inconveniently high level in order to allow the bucket 11 to be raised to a sufficient height for a convenient dumping without requiring a too large extension of piston rod of hydraulic jack 13."

Do you understand that to be referring again to that prior art Figure 1 radial lift design?

A. Yes, I think that's what they're talking about, yes, that's correct.

Q. If we continue on in that same passage, it says, "Further ill effects of the already-known drive means are to be traced back to the shifting of the equipment gravity center in respect to a vertical plane when the bucket is being lifted, which results in a marked instability of the equipment, as well as in heavy wears of the load-carrying transmission elements." Do you see that?

A. Yes, I do.

Q. Is that the same thing we referred to earlier, this notion of the center of gravity shifting forward and backward as a result of the accurate path of that load?

A. I believe so, yes.

Q. This is teaching that by going to a four-bar linkage, the pivot point doesn't need to be as high and also, because the lift path is more vertical, you don't have that arcuate path in the CG shift forward and aft of the machine; is that right?

A. Yes. And they're also pointing out that the load-carrying transmission elements are subjected to variable stresses or weight, which would get back to that fatigue item that we discussed earlier.

Q. And your understanding of this patent -- is it your understanding of this patent that those problems

that we've just read, the heighth of the pin for a radial arm and the movement of the CG, are problems that are addressed by incorporating a four-bar linkage-type mechanism?

A. Yes, that's what it would appear. That's how it would appear, yes.

Q. So that four-bar linkage is the solution to the problem the patents identify, right?

A. Yes, I would agree.

Q. Do you know if anywhere in this Beltrami patent it teaches attaching an actuator to a loader arm as opposed to an intermediate rod or linkage? Do you know what I mean by that question?

A. Yes, I know what you mean.

Well, the -- you know, Figure 2 clearly shows the actuator connected to one of the links and not directly to the loader arm. So I would have to read through all the details of it, but I don't recall as we sit here now they talked about it connecting to a -- you know, to the loader arm directly. I don't recall.

Q. So if we look on column 3, line 40 --

A. Okay.

Q. -- it says -- it begins, "It is clear that," do you see that?

A. Yes.

1 Q. It says, "It is clear that by connecting the
2 connecting jack 28 to the middle of connecting rod, a
3 relatively short stroke movement is obtained. Such
4 stroke movement permits the use of a sturdier lifting
5 arm or jack than is employed with prior art devices."
6 Do you see that?
7 A. Yes.
8 Q. What is that -- let me ask two questions.
9 No. 1, do you agree with me that this is an
10 example of the Beltrami reference teaching the benefits
11 of attaching the actuator to the rod or linkage so that
12 you can have a shorter stroke actuator?
13 A. That is what it says, yes.
14 Q. Would you agree with me that the patent is also
15 teaching that that shorter stroke actuator is
16 advantageous because it permits use of a sturdier
17 lifting arm or jack than is employed with prior art
18 devices?
19 A. That's what it says, yes.
20 Q. Okay, I'd like to go now back to the Korean
21 KR996 reference for just a moment, please.
22 A. Okay.
23 Q. And I'd like you to look at page 15 which shows
24 drawing 1. And what I'd like you to do, if possible, is
25 take the pen that I stole from the Marriott, and if you

1 would, color in -- doesn't need to be perfect -- those
2 portions on this picture that you believe constitute the
3 main frame of the device that's shown in drawing 1.
4 A. Color in the main frame of the device that
5 shows shown in Figure 1?
6 Q. Yes, please.
7 A. I'll circle it or --
8 Q. Whatever you think is most appropriate. I
9 would recommend -- I would typically go to shading it
10 in, but if you have a different view of what's most
11 effective, you can do whatever you think is best.
12 A. (Witness complies).
13 I think you get the general idea. I can't do
14 it both sides.
15 Q. If I could impose on you to do the same thing
16 with respect to drawing 14, please.
17 A. Okay.
18 Q. Would you mind if I took a look at that just a
19 second?
20 A. Yeah. My drawing isn't --
21 Q. I won't judge you on your drawing skills.
22 A. I just kinda shaded it.
23 Q. So you've shaded, if we look back at -- let me
24 go back for a moment.
25 You've shaded both parts shown on the main

1 machine shown on the left of the figure and also on the
2 right Figure 1; is that right?
3 A. That's correct.
4 Q. And for drawing 14, you shaded things on the
5 left main machine and on the right side.
6 A. I have done that, yes.
7 Q. Is it your opinion that those portions that
8 you're shaded on the right in both drawings 1 and 14,
9 are part of the main frame even though they sit on the
10 side and are not part of the machine while the other
11 attachment is being used?
12 A. Well, it's -- they're part of the main frame
13 when the machine is in operation and they're coupled
14 together when it's in use.
15 Q. So when the machine is using the buckets, there
16 are portions of that bucket attachment that you contend
17 are the main frame, part of the main frame, but when
18 that attachment is set aside and another attachment is
19 used, you contend that part of the bucket is no longer
20 part of the mainframe and instead, part of the breaker
21 becomes part of the main frame; is that right?
22 A. Yeah, I think that they're two separate ports
23 and they're uncoupled, but when they are coupled
24 together, that's when the machine is operable and
25 they're part of the main frame, yes, that's my opinion.

Q. Okay. Let's go now to paragraph 56, Exhibit 1, your declaration, please.

A. Page 56, you said?

Q. I'm sorry, paragraph 56. Excuse me.

A. Oh, okay. Okay.

Q. In paragraph 56 you're talking about the type of power supply that provides the energy to move the KR996 machine around and operate its attachments; is that right?

A. That's correct.

Q. And is it fair for me to say that your opinion is that the KR996 device is powered by a gas-powered engine?

A. Yes.

Q. And one other alternative you considered is an electric-powered device; is that right?

A. Yeah, same with the choices that are available.

Q. And the reason that you -- let me back up.

Would you agree with me that the KR996 reference didn't expressly say which of these options it actually relies on?

A. As we sit here now, to the best of my recollection, I don't recall if it discusses that, but there was another Korean publication, as we noted, that, you know, shows specifically an engine, so --

Q. But not the KR996, right?
A. It's just looking at the figures, there's components up there and doesn't specifically say that that is a gasoline-powered engine.
Q. Would you agree with me it's possible that this could have been intended as an electric-powered machine as well?
A. In the same manner it doesn't suggest that that's the case. It has hydraulic -- I think it's hydraulically actuated. Based on the packaging, it's really not apparent. I think the primary aspects of the patent are, you know, the mechanism involved, so --
Q. It's just, I guess, if I understand your testimony correctly, your view is it's just not clear from the disclosure what type of engine the machine relies on?
A. Yeah, I think it's based on the discussion that I have here, that for it to be used in the application that is discussed, no following and so on, the likelihood is that it would be an engine. And then this other Korean patent by the same company clearly shows the engine.
So that's why I'm assuming, based on the application, the common, you know, compact loaders, mini skid steers, that that would be something they would

1 have.
2 Q. Would you agree with me that the primary intent
3 behind this KR996 device is to be used indoors for
4 demolition?
5 A. It says, "green building deconstruction work,
6 particularly to construction equipment and can enter a
7 narrow building," and so on, but that's certainly one of
8 the applications. And they're generally used for these
9 other applications as well.
10 Q. If you look at paragraph 4 on page 5 of the 996
11 reference, it states, "The conventional mini loader or
12 skid loader, as described above, performs the work of
13 dismantling the internal structure of a building." Do
14 you see that?
15 A. Yes.
16 Q. Do you understand that to mean that the machine
17 would be driven into a building and then used to
18 complete destruction of a building once inside?
19 A. Yes, that's what it appears.
20 Q. Would you agree with me that in that context,
21 it would be beneficial to have an electric-powered
22 machine over a gas-powered machine because you would
23 avoid the fumes that would be created by a gas-powered
24 machine in that enclosed space?
25 A. That would certainly be one of the

1 considerations in your, you know, design of a machine,
2 the operating environment.
3 Q. Do you agree with me, in the application of a
4 machine being used inside a building where an operator
5 is right there operating it, that it would be preferred
6 to have an electric machine over a gas-powered machine
7 to operate those machines?
8 A. Generally, in an enclosed environment, that you
9 would likely not want to have the fumes of the machine,
10 yes.
11 Q. Have you had occasion to stand next to some
12 earth-moving piece of equipment when it's operational
13 and generating exhaust?
14 A. I'm sure I have.
15 Q. It's pretty bad, right, you don't want to be
16 around it?
17 A. Okay, I'll --
18 Q. Do you agree with that?
19 A. Sure, I'll go along with that.
20 Q. Okay. So if we move to page 42 of your
21 declaration and at paragraph 62 which ends at the top of
22 page 42, you're talking about combining aspects of the
23 JP705 reference with the KR996 reference. Do you see
24 that?
25 A. Yes.

1 Q. And as I understand it, your opinion is a
2 skilled artisan would be motivated to add the engine
3 brackets of the Japanese reference to the KR996 machine;
4 is that right?
5 A. That's what this part -- part of the report --
6 declaration addresses, but, you know, you have to mount
7 an engine in any machine that has an engine. I think
8 that, you know, that's well understood and an engineer
9 in his common day-to-day practice would know that you
10 have to mount the engine.
11 And so there's various ways of doing it and
12 having, you know, engine brackets from the side, not
13 dissimilar than a car that has engine mounts on the
14 side, would be a design choice and one that would be
15 likely one that someone would take for various reasons I
16 discussed in there; being able to maintain the engine
17 and so on. But the Japanese patent specifically points
18 to this bracket.
19 Q. The sentence that I'm curious is the very last
20 one at the top of page 42, where you say, "Further, in
21 evaluating the suggested frame of the KR996, person of
22 skill in the art would recognize there is available
23 space on the KR996 frame to provide JP705's mounting
24 parts extending therefrom." Do you see that?
25 A. Yes.

Q. Did you do any analysis to assess whether there is or is not space to accommodate the JR -- I mean the JP705 mounting parts on the KR996?

A. Well, just, you know, I have looked at the figures and it -- Figure 20, for example, that clearly shows that there is the potential for putting those brackets in there and mount the engine.

The engine has to be mounted in some way in that machine anyway and so while it's not a hundred percent visible, it's possible that there's a side bracket that already mounts an engine in that machine.

Q. I guess my question is did you do any analysis to assess where all the components of the KR996 machine are and whether, therefore, there is space for an additional engine bracket?

A. Well, and/or the replacement of existing parts in there with the engine bracket. Just from the standpoint -- I haven't laid out measurements, these are just embodiments of the machine so we can't take it totally to scale on CAD drawings.

So, in that regard, having done the same thing that an engineer would do using CAD drawings of the machine. It's a packaging problem.

Q. Would you agree with me that the figures of KR996 do not depict all elements of components that

1 would be inside a mini skid steer machine?
2 A. Yeah, I agree with that.
3 Q. For example, hydraulic hoses are missing?
4 A. Right.
5 Q. There are a number of items that are missing
6 that would also need to be packaged into that same
7 space?
8 A. I agree, I agree.
9 Q. Okay. Let's move to paragraph 104 of your
10 declaration which appears on page 60. In this section,
11 you're addressing Claim 2 of the '386 patent which
12 requires the main frame to be a single weldment, do you
13 see that?
14 A. It says, "incorporates a single weldment."
15 Q. Do you have -- I feel like I was corrected
16 there. Do you have a different perspective on what that
17 limitation requires?
18 A. Yeah, I mean so I think I discuss it that, you
19 know, in the document that incorporates a single
20 weldment means that it includes a single weldment on
21 that frame somewhere. And that could be it's not
22 limited to just a single weldment, could have more
23 weldments, but it does incorporate -- I see it as
24 includes and, you know, at the same time, I think that
25 it's just a design choice if it's -- if one wants to

1 weld a whole frame together, that's a design choice.
2 You know, there are plenty of frames where
3 parts bolt together or it's welds, you know, it's just a
4 design choice, basically.
5 Q. I want to make sure I understand your opinion
6 really well here. So your interpretation of Claim 2, is
7 it that the entirety of the main frame must be welded
8 together or that the main frame can, in part, be bolted
9 together, but other parts of it at least need to be
10 welded together?
11 A. Well, I think that either/or, okay.
12 Q. You think the scope of the claim encompasses
13 both options?
14 A. By saying incorporates a single weldment, I
15 believe it means it includes a single weldment because I
16 don't think that that language is as explicit as saying
17 that it is a unified, you know, welded structure.
18 That's how I look at it, but at the same time,
19 even if it would mean that and this is something that --
20 you know, I think that it would be something that a
21 person of ordinary skill in the art would say well,
22 that's just a design choice.
23 And we could look at, you know, all sorts of
24 system -- for instance, a car, you know, where there's
25 parts of it that it's a welded frame and there's other

1 places bolted together. It's just a matter of whether
2 or not your design choice, what your capabilities are,
3 what materials are available -- you know, so on and so
4 forth. That's how I see it. It's a design choice
5 whether or not the entire frame is a single, unitized,
6 welded structure. But as I read that, there's some
7 confusion. It could also just mean that there is at
8 least one place where there's a weld on it, so --
9 Q. In this portion of your declaration, you're
10 talking about moving pivot points of a KR996 device
11 lower. Do you see that?
12 A. Yes.
13 Q. In this figure configuration that's shown in
14 paragraph 192 -- well, let me back up. I'm sorry.
15 Did you do this drawing or did someone else do
16 this drawing?
17 A. Someone else did the drawing.
18 Q. Who did that drawing, if you know?
19 A. I don't know.
20 Q. Did you specify where those points would be or
21 were those points provided to you?
22 A. Well, as we discussed earlier, since I don't do
23 CAD, we might have someone draw this thing up. And
24 there would need to be a process like any, you know,
25 person of ordinary skill in the art would be able to

1 perform is a kinematic analysis of the four-bar
2 mechanism.
3 In this case, what I -- you know, directions
4 were passed through the attorney to the person doing
5 this, I don't know, that I want these pivot points;
6 particularly, the front one, lower on the body of the
7 machine, generally in this region, you know, generally
8 within a fair amount of distance fore and aft, but lower
9 on the machine to demonstrate -- strictly a
10 demonstration that by doing so, you could kinematically
11 develop a mechanism that would have a very comparable
12 path for the -- I'll call it the point -- that's the
13 point where the bucket is attached and rotates.
14 Q. This figure that's shown on the left here with
15 the pivot points lower, does that implementation of --
16 say that differently.
17 The figure up here that shows the pivot points
18 lower, does that hypothetical design still incorporate
19 the attachment and detachment feature of the KR996
20 device or not?
21 A. Well, I think that is just a demonstration of
22 the kinematics that this is a standard mechanical
23 engineering practice of someone with ordinary skill in
24 the art would be able to generate the dimensional
25 synthesis of this device to provide a generally vertical

lift, and that the intent wasn't to suggest that everything that is in that particular embodiment of the KR would be the same.

Q. Did you do an assessment to determine whether all of the componentry and mechanics that allow for that attachment and detachment mechanism would still fit on this machine with the pivot points located lower where they are?

A. No, but this is a packaging problem that you know mechanical engineers do all the time. There's nothing to suggest that those links, like the blue and the green, the two links, couldn't have shapes that are out of plane; for example, it has a jog in it.

And I think that it's -- you know, looking at some of the KR figures, you can see where they already have that. So I just view it as a packaging problem demonstrating that we could get a motion and the results are exactly as I expected, that it's not something that's -- it's clearly something that's attainable.

Q. Just to be clear, sitting here today, you haven't done an analysis of how that packaging would be achieved, right?

A. The specific details of that?

Q. Yes.

A. No, I have not.

Q. Did you do any calculations for this alternative design that's presented in paragraph 192 relating to the forces, stresses or strains that would be applied to the linkages and actuators of this alternative design?

A. No, I have not.

Q. In this design, would you agree with me that it assumes that the actuator is attached to the loader arm and not any of the linkages of the design?

A. Yes, that is the intent.

Q. And that is a way that it differs from the configuration taught in Beltrami, which teaches an actuator connected to one of the linkages or rods, rather than the loader arm, right?

A. Well, as I stated in the section where I discussed four-bar mechanisms, either a rotational motor or actuator object would be used at one of the pivots of what you're calling the linkages, the crank and the follower and, but if you use a linear actuator, it could be attached to any of the links; that being the crank, the follower or the coupler which is the same thing as the lift arm in this case.

Q. But just to be clear, this paragraph 192 shows an actuator attached to the loader arm, correct?

A. Yes, yes, it does.

Q. And that differs from what Beltrami teaches which is connecting the actuator to a linkage, correct?

A. Yes, that's correct. Well, to one of the links with a fixed pivot point.

Q. Okay, let's now go to page 108, please. At the top of page 108 there's a figure there, do you see that?

A. Yes, I do.

Q. You have a yellow highlighted triangle portion, do you see that?

A. Yes.

Q. You characterized that as the "supporting frame portion," do you see that?

A. Yes.

Q. What does that mean? Why did you choose those words?

A. You know, as we sit here right now, I don't recall why we chose those words, but it is to show that this is part of the main frame or the supporting frame of the machine that includes the upper pivot point.

And so I think elsewhere, it's talking about the main frame that supports the loader and that since that forward-most link is attached, that that would be part of that. And in lowering the pivot point, then we're eliminating that portion of the frame that's not necessary.

Q. Am I correct in stating that the motivation you've identified for moving those pivot points lower is the teachings in Beltrami and its four-bar linkage?

A. Well, I think that it was -- there are other references as well that talk about lowering the attachment points of the linkages, it could increase visibility, stability, and there's Komatsu reference which bears. So I think it was pretty commonly known in the art that that would be beneficial.

Q. Let me hand you what's been marked as Exhibit 4. And this is another one of your declarations, this time --

A. Okay.

Q. -- for IPR2025169.

A. Uh-huh.

(Exhibit No. 4 was marked for identification.)

BY MR. BROPHY:

Q. And I'd like to go to Ground 2 which is on page 72, please. You're welcome to review this to the extent you need to. This is a combination you propose of the KR996 reference, the JP705 reference, Behrs and Beltrami. Do you see that?

A. Yes.

Q. In this section, your opinion is that a skilled

artisan would be motivated to take the tracks taught in Behrs and apply those tracks to the machine taught in the KR996 disclosure; is that right?

A. That's a fair assessment.

Q. In fact, if you turn to page 89, I believe what you've done is taken the tracks from the Behrs reference and pasted them over the figure from KR996; is that right?

A. Yes.

Q. Have you done any analysis to assess whether those tracks in that configuration would be compatible with the internal configuration and structure of the machine taught in the KR996 patent?

A. I haven't specifically done, gone through, because, you know, the patent is not a CAD drawing, it's just an embodiment that describes how the machine works.

And, again, I think that within a person of ordinary skill in the art would understand that it's a packaging problem and this is something that we run into all the time, how you move parts around, where you place them, so on.

Q. Would this alternative device that you've opined that a skilled artisan would be motivated to create, would this device retain the connect/disconnect feature for attachments taught in the KR996 patent or

have you considered that?

A. I haven't really considered that.

Q. Given the conversation that we had earlier about the way in which the sidewall of the tire interfaces with those rails, 38, do you agree with me that that system would no longer work because now we have treads instead of tires?

A. I haven't evaluated that and I can't say that, you know, unequivocally that the treads would be -- the treads are moving to provide the machine motion relative to the ground. So I can't say unequivocally that it could work, but I haven't assessed whether or not it would absolutely work as such.

Q. Would you agree with me that unlike the sidewall of a tire which can flex, the tracks of a machine like that taught in Behrs do not flex?

A. Do I agree with you that the --

Q. That a difference when you switch from going to tires with a flexible sidewall, when you transition from that to a set of treads or tracks that you don't have that same flexible sidewall that you had before because the tracks are much more firm, rigid?

A. It would depend on the tracks that you pick and I think there are rubber tracks, you know, those are very specific details and I can't really say

unequivocally one way or the other.

Q. Needless to say, you haven't considered that sitting here today?

A. That would be a fair statement.

MR. BROPHY: I'm getting very close to the end, maybe we could just take a break for a minute.

MR. O'DELL: Okay.

(Brief recess was taken.)

BY MR. BROPHY:

Q. Okay. Dr. Velinsky, I'd like you to go back to the KR996 reference for just a moment. Please turn to drawing 18, if you would, please.

A. I'm there.

Q. If you look at drawing 18, you'll see there are these cylinders that are co-linear with the rotational axes of each of the wheels. Do you see that?

A. (No audible response.)

Q. My interpretation is that those are showing hydraulic motors for the wheels.

A. Yes.

Q. Is it your understanding that this machine has four-wheel drive given this kind of presentation of where the hydraulic motors are?

A. It would appear that way from this figure, that particular embodiment has at least three-wheel drive.

Q. And although it may seem pedantic, it would obviously be bizarre for a machine to have three wheels driven and not the fourth wheel, right?

A. I would agree, yes.

Q. If we can just keep looking at that page, go to drawing 17 if you would, please. You'll see at the back portion of the machine there is a triangle right above the rear wheel, do you see that?

A. Yes.

Q. Triangular volume?

A. Yes.

Q. Do you know what that volume is intended for? For example, does it store hydraulic fluid or diesel fuel or anything like that, do you have a sense?

A. It's unclear. It could -- could do any of those.

MR. BROPHY: Thank very much for your time today, those are all the questions that I have.

THE REPORTER: do you wish copy transcript?

MR. O'DELL: Eventually, yes.

But not expedited. No redirect.

(Deposition concluded at 2:07 p.m.)

DECLARATION UNDER PENALTY OF PERJURY

I, STEVEN VELINSKY, Ph.D., PE, do hereby declare under penalty of perjury that I have read the foregoing transcript; that I have made any corrections as appear noted, in ink, initialed by me, or attached hereto; that my testimony as contained herein, as corrected, is true and correct.

EXECUTED this_____day of_____, 20___, at_____,_____.
(City) (State)

_____
STEVEN VELINSKY, Ph.D., PE

REPORTER'S CERTIFICATE

I, CATHY A. WOOD, CSR No. 2825, a Certified Shorthand Reporter of the State of California, do hereby certify:

That the foregoing proceedings were taken before me at the time and place herein set forth; that any witnesses in the foregoing proceedings, prior to testifying, were duly sworn; that a record of the proceedings was made by me using machine shorthand which was thereafter transcribed under my direction; further, that the foregoing transcript is a true record of the testimony given.

Further, that if the foregoing pertains to the original transcript of a deposition in a Federal Case, before completion of the proceedings, review of the transcript [ ] was [X] was not requested.

I further certify I am neither financially interested in the action nor a relative or employee of any attorney of this action.

IN WITNESS WHEREOF, I have this date subscribed my name. Dated: August 23, 2025

_____

CATHY A. WOOD
CSR No. 2825