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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GODBERSEN-SMITH CONSTRUCTION COMPANY
d/b/a GOMACO CORPORATION,

Petitioner,

v.

GUNTERT & ZIMMERMAN CONST. DIV., INC.,

Patent Owner.

Case IPR2024-00835
U.S. Patent No. 11,535,318

DEPOSITION OF KENNETH BRYDEN, Ph.D., taken at
311 South 17th Street, Ames, Iowa, commencing at
9:00 a.m., May 5, 2025, before Michele L. Proesch,
Certified Shorthand Reporter of the States of Iowa
and Illinois.

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APPEARANCES

DAVID K. MROZ, of the firm of Finnegan, Henderson,
Farabow, Garrett & Dunner, LLP, 901 New York Avenue,
NW, Washington, DC 20001, appeared on behalf of the
Petitioner.

JEFFREY H. PRICE, of the firm of Kramer Levin
Nftails and Frankel, 1177 Avenue of the Americas,
New York, NY 10036, appeared on behalf of the
Respondent.

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1 PROCEEDINGS

2 (Gomaco Exhibit Numbers 1001, 1007-1011, and
3 1013 and Patent Owner, Guntert & Zimmerman
4 Exhibits 2005, 2015, and 2018 were marked for
5 identification.)

6 KENNETH BRYDEN, Ph.D.,
7 witness herein, called as a witness by the
8 Petitioner, after having been first duly sworn, was
9 examined and testified as follows:

10 EXAMINATION

11 BY MR. MROZ:

12 Q. Good morning, Dr. Bryden.

13 A. **Good morning.**

14 Q. Good to see you again. So just logistics first,
15 we're here today -- well, these next two days for
16 two patent office proceedings; correct?

17 A. **Correct.**

18 Q. One is called an IPR proceeding and that is on the
19 '318 patent.

20 A. **Okay.**

21 Q. Is that correct?

22 A. **It sounds correct. I'm not sure I know what the**
23 **initials IPR mean.**

24 Q. Okay, so if you -- Well, just look at your

1 declaration. There it says, Case IPR2024-00835.

2 **A. Right, I got that. We're here about that, but I**
3 **don't know what IPR means.**

4 Q. Yeah, it stands for inter partes review.

5 **A. Okay, great. I should have asked about it earlier,**
6 **but they're just initials, so --**

7 Q. Yeah, it's not important. And then the next
8 deposition tomorrow is on the PGR on the '723
9 patent; correct?

10 **A. Okay. Yes, uh-huh.**

11 Q. So we're going to focus on this declaration here
12 that I just gave you, which is Exhibit 2015 from the
13 IPR proceeding. That's IPR2024-00835.

14 **A. Okay.**

15 Q. And if you want your declaration from the other
16 proceeding at any point today, just let me know.

17 **A. Sure.**

18 Q. Okay, and just for the record my name is David Mroz.
19 I'm representing Petitioner in this matter, who is
20 Gomaco, and more officially the Godbersen-Smith
21 Construction Company.

22 Okay. Can you please turn in your declaration,
23 which is Exhibit 2015, to the person of ordinary
24 skill in the art definition and I can give you where

1 that is.

2 **A. I should be able to find it or you can give it to**
3 **me. There we go, yes. I'm there, uh-huh.**

4 **Q. What page are you on?**

5 **A. I'm on page 5.**

6 **Q. Perfect, okay. All right. Do you mind taking a**
7 **look at that section?**

8 **A. Sure.**

9 **Q. You can just read it to yourself.**

10 **A. Uh-huh. (Witness complied.) Okay.**

11 **Q. What is a person of ordinary skill in the art?**

12 **A. I understand that to be someone who has the**
13 **educational background, people who are working in**
14 **this field and being inventors. That would be**
15 **someone that has a four-year degree and two years of**
16 **experience or equivalent education or experience to**
17 **make up for that.**

18 **Q. Okay. Do you know why the term "person of ordinary**
19 **skill in the art" is used in patent law? I'm just**
20 **wondering.**

21 **A. Yes, 'cause we're looking at the level of**
22 **obviousness, and so would it be obvious to someone**
23 **who is sitting around working on it and say, "Oh, we**
24 **should go do that, too."**

1 Q. Do you apply the same level of skill in the art
2 definition for the IPR proceeding that we're going
3 over today and the PGR proceeding that we'll be
4 going over tomorrow?

5 A. Yes.

6 Q. Okay. Okay, so I'd like to direct you to
7 paragraph 14 of your declaration.

8 A. Okay.

9 Q. Where it says, I understand that G&Z applied
10 Petitioner's definition of a POSITA --

11 A. Uh-huh.

12 Q. -- which is, one who, quote, would have had a
13 four-year degree in mechanical engineering or a
14 closely related field and at least two years of
15 experience designing, developing, or operating heavy
16 machinery, including their components and control
17 systems.

18 Do you see that?

19 A. Yes.

20 Q. Okay.

21 A. Uh-huh.

22 Q. What is heavy machinery?

23 A. In my world, which may be different than others,
24 heavy machinery would include large-scale diesel

1 generators; large-scale power plant components;
2 heavy equipment, such as tractors for farming and
3 also, of course, street paving equipment, but, of
4 course, street paving equipment is a very narrow
5 piece of that large-scale mechanical equipment.

6 Q. Understood. Are cranes heavy machinery?

7 A. Yes, uh-huh, depending on the -- on the size, of
8 course, and you can imagine that there are small
9 cranes; I mean, there are other bits, things we put
10 on the back of pickups and things that are large
11 scale that you see lifting up buildings or -- I used
12 to operate a 110-ton crane.

13 Q. Oh, really?

14 A. Yes.

15 Q. Where was that?

16 A. That was in Idaho when I worked at Westinghouse.

17 Q. Oh, nice.

18 A. So it's a right-to-work state, and so to save money
19 on the back shift should the crane have to be moved
20 engineers were taught how to do that.

21 Q. That would be really fun.

22 A. It was. I learned all the hand signals, too, so I
23 could direct the crane operator or be the crane
24 operator. No, I don't think anybody would have

1 **trusted me to do a full-scale 100-ton lift, but I**
2 **did get to lift small things. I thought that was**
3 **cool.**

4 Q. Yeah, yeah.

5 A. **If you're 22 years old, it's a lot of fun.**

6 Q. Yeah. I was working at Allegheny Power when I was
7 22, and I did not get to do anything fun like that.

8 A. **Ah, well, that probably wasn't a right-to-work**
9 **state.**

10 Q. Yeah, yeah. Okay; so are, I'll say -- Where are we?
11 It sounds like farm equipment can be heavy
12 machinery?

13 A. **I would include it in that definition. Again, the**
14 **question is an issue of you're trying to create a**
15 **category which has the same level of complexity and**
16 **the same level of controls and one thing and**
17 **another.**

18 Q. Okay.

19 A. **So we're not talking about tables.**

20 Q. I see.

21 A. **Yeah.**

22 Q. So what about machinery used to build and fix
23 railroad tracks, for example, would that be --

24 A. **Sure, and we see the patent in here that talks about**

1 that. It, again, depends on the type of machinery,
2 but by and large, yes.

3 Q. Okay.

4 A. Uh-huh.

5 Q. Okay, so are we giving the person of ordinary skill
6 in the art knowledge of all of these types of heavy
7 machinery that we just talked about?

8 MR. PRICE: Objection to form.

9 BY MR. MROZ:

10 Q. You can answer.

11 THE WITNESS: I'm sorry. Say it again.

12 MR. PRICE: I just said objection, form. If I
13 object, you can continue answering. You can answer
14 unless I tell you not to answer.

15 THE WITNESS: Oh, okay. Got it. I didn't
16 understand the form.

17 MR. MROZ: No, that's fine. So I'll --

18 A. The question means what do you mean by knowledge,
19 and there is an issue of knowledge and there is an
20 issue of awareness. I mean, could they understand
21 those pieces of equipment? Certainly. I mean,
22 they're familiar with how heavy equipment is put
23 together and could go into that. On the other hand,
24 would they be aware or would they think to bring

11

1 that to the table? And you would say, well, gee, is
2 a crane a paver? The answer may be no, or is a
3 diesel generator a paver? No, but you may think of
4 instances where they have common ingredients that
5 you would go think about. So I would be careful in
6 saying somebody who knows about diesel generators
7 also knows extensively about something else. I
8 would say with consideration, yes, but they may
9 not -- they may not be -- they may not have as broad
10 of knowledge as the entire world.

11 Q. Understood.

12 A. **Does that make sense?**

13 Q. It does, it does. Thank you.

14 A. **Yeah.**

15 Q. So let's say we have -- This case involves swing
16 legs --

17 A. **Sure.**

18 Q. -- correct, on slipform pavers?

19 A. **Uh-huh.**

20 Q. Let's say there is a piece of farm equipment with a
21 swing leg.

22 A. **Uh-huh.**

23 Q. Would a person of ordinary skill in the art know
24 about that?

1 MR. PRICE: Objection.

2 A. They may or may not.

3 BY MR. MROZ:

4 Q. Okay.

5 A. I mean, again, it depends on the breadth of the
6 individual and the breadth of their -- I mean, I
7 think if you were to look at even engineers at the
8 level of professors, ones you have been talking
9 with, that you'll find ones whose specialties are
10 one space and ones whose specialties are in another.
11 My background tends to be very broad, so I like to
12 attribute a lot of things to that, but we're dealing
13 with a good deal of experience also.

14 Q. Okay.

15 A. So whether somebody at two years' experience would
16 be aware of a piece of farm equipment, they may or
17 may not be.

18 Q. Understood.

19 A. Yeah, the awareness issue becomes more important, I
20 think, than the "Could they have known that?"

21 Q. Gotcha.

22 A. I mean, you could understand it. You could have
23 knowledge of it provided you were aware of the
24 example.

1 Q. Understood. Okay, so what classes do you teach at
2 Iowa State?

3 A. I've taught a number of classes across the past
4 26 years. Those have included design; those have
5 included power plant engineering, sustainability.
6 I'm trying to think what else? I'm currently
7 teaching sustainability. I teach alternative
8 energy. I've taught classes on energy systems for
9 the poor and I've taught that in rural countries
10 also where there is very little available, so a lot
11 of hands on bits. I don't know. In my statement
12 here I think I say what I've taught. That may
13 remind me of something. Let's see here.

14 Q. Sure, feel free to look.

15 A. Let me go make sure that I'm not missing something
16 that's important. Oh, power plant management and
17 operations, design of energy systems. I'm talking
18 about engineering experiences. I've got to go find
19 the classes. Oh, come now. I may not have included
20 it in here. I thought I had.

21 Q. That's okay. That's why I'm asking.

22 A. Yeah. No, I was going to say I think -- At one
23 point I was teaching as many as four or five classes
24 because I thought they were important, and I'm

1 trying to remember them all. 25 years is a long
2 time.

3 Q. Understood, so --

4 A. So I would think that -- I've taught fluid
5 mechanics. I don't think I've taught heat transfer.
6 So I've taught energy system classes primarily; I
7 have taught design classes primarily.

8 Q. What -- Let's focus on the design classes first.

9 A. Sure.

10 Q. What types of projects -- Well, how do you -- Do the
11 students in those classes design things or --

12 A. Yes.

13 Q. -- do you just teach them about the design process?

14 A. Both.

15 Q. Okay, so let's start with the types of products,
16 whatever --

17 A. Uh-huh.

18 Q. -- your students are taught to design in this class.

19 A. So when I first came to Iowa State, there was no
20 software-level design course, and so I convinced
21 people to go teach that, to go start that course and
22 start a design series that was much more -- much
23 broader. When I came, for instance, a student would
24 reach their senior year and they would choose an

15

1 area in which to take a design class. So they might
2 take a design class in heating and ventilation or
3 they might take a design class in automotive
4 steering or they might take a design class in
5 energy, in power plants, or -- You know, you can
6 imagine that, depending on the interest of the
7 faculty, there would be three or four or five or six
8 of these classes available for a student to choose
9 from in their senior year, and I had proposed -- and
10 it was becoming obvious nationally. I came to
11 Iowa State not as a 26-year-old or 30-year-old
12 newbie. I had spent 14 years in the industry. So I
13 came with ideas and some energy to implement them
14 and convinced everybody that we needed to go off and
15 have a design sequence that took students there, and
16 so in that sequence then rather than design being a,
17 Gee, I think I can do some calculations and get
18 something done, we learned how the design process
19 actually works, and that is that we start out with
20 the conceptual design, we move on to embodiment
21 design, from there we go to -- from embodiment to
22 detail design, and from there to product
23 realization.

24 Q. Okay.

1 A. And so where the classes were starting before was
2 over here at detail design, and I mention that
3 because I think that's important in this discussion
4 of whether the patent was obvious or not. If you're
5 starting at detail design, it seems to me that you
6 already know the answer and you're just doing
7 calculations, and increasingly your computer can do
8 those calculations. So that was the process, and
9 then so I added in the class that was a
10 software-level design class, and in that class
11 students designed relatively simple things. I think
12 Dr. Singhose in his discussion described one of
13 those projects with a computer arm, with a -- with a
14 moving arm. In my case I would -- we had -- we
15 designed a washing machine I think for the poor. My
16 projects tended to focus on things that could be put
17 together for a place that had no electricity and no
18 running water, and those were primarily because
19 they're something that a student can get their hands
20 around fairly easily and can build a prototype in a
21 semester as opposed to doing a little piece of
22 something, yeah.

23 So it was more of a what can you put together?
24 So the things I was putting together would generally

1 have mechanical parts. You can imagine one of 'em
2 was a grain grinder. So you're taking -- You have a
3 handle and you've got to figure out how are you
4 going to get this thing to go around and how do you
5 get enough strength to grind the grain and how fast
6 can the grain be ground, and so you can imagine
7 students were not designing cars; I mean, they were
8 designing small projects. As you move forward, then
9 the projects that were involved depended, again, on
10 the design class, but generally I taught things that
11 involved the poor, and they would move up in scope
12 but still remain straightforward I would say.
13 Again, you're trying to get a project that a student
14 can complete in a semester, and in my case it was
15 complete in a semester and implemented on the ground
16 in Mali, in West Africa in a period of six to eight
17 weeks.

18 Q. Oh, wow.

19 A. So, I mean, it's a -- it's a run --

20 Q. Yeah.

21 A. -- it's a run for the student and -- but those kinds
22 of projects. So, again, they would have --
23 depending on the project they would have mechanical
24 elements, they may have energy. One of them was

1 **designing a box that prevented people from being**
2 **able to open it with a battery on the inside, a car**
3 **battery on the inside so that you could provide**
4 **lighting to houses, but people couldn't get into it**
5 **and endanger themselves, so a lot of mechanical**
6 **kinds of things but revolving around the theme of**
7 **energy systems.**

8 **Q. Okay; so for the sophomore class you mentioned a**
9 **washing machine, a grain grinder.**

10 **A. Right.**

11 **Q. Anything else?**

12 **A. That's all that comes to mind, but I'm sure -- I'm**
13 **sure over the years that I've taught this that there**
14 **were many projects, and some of them are still on**
15 **the walls in the building.**

16 **Q. As you move on to junior/senior year, do any other**
17 **types of products come to mind in the design**
18 **classes?**

19 **A. The same sorts of things. I was trying to think. I**
20 **think what we ended up with were products that were**
21 **I would say better engineered and better put**
22 **together, and more -- Students would work on a**
23 **project and then would pass off to the next group of**
24 **students --**

1 Q. Oh, I see.

2 A. -- so you could get more -- You can imagine that
3 you're trying -- It's a little bit like the process
4 of having a new car or something. You get something
5 built and then you make the next one better.

6 Q. Did any of the projects -- well, the design projects
7 that we're talking about involve control systems?

8 A. For undergraduates, no.

9 Q. Okay.

10 A. For my graduate students, yes.

11 Q. Okay. Let's talk about the graduate student
12 projects.

13 A. Okay, so with graduate students you have them for a
14 minimum of two years and often for five, and so you
15 can accomplish quite a bit, and so there we looked
16 at -- For instance, we worked on the design of the
17 new -- what was then the new Deere cotton picker,
18 and what it did is it changed how the cotton picker
19 operated. The mission we were given was to reduce
20 the energy consumption of the -- of the grain
21 handling system, cotton handling system, and cotton
22 transport system, CTS, and in that case we worked on
23 changing how the -- designing how the cotton
24 transport system worked and working with the control

1 systems on that.

2 We also worked on control systems for the
3 National Energy Technology Laboratory on a number of
4 projects focused primarily around the difficult
5 issue when you have two devices that have different
6 link scales in terms of time or link; so time scale,
7 let's say something going very, very fast and
8 something going very, very slow, and they are
9 tightly coupled together. That is many devices are
10 downstream coupled; so I do something here
11 (indicating), that changes something down here
12 (indicating), and something down here (indicating)
13 does not change the thing back here (indicating).
14 When they're tightly coupled together, you have the
15 opportunity to have unexpected events occur, and
16 they're hard to uncouple, and in this case we
17 worked -- The case that we have that we spent the
18 most time on and a number of graduate students was
19 the issue of how you link gas turbines and fuel
20 cells. Fuel cells are very slow and happy.

21 You put fuel and oxygen in them and they heat up
22 nicely and mind their own businesses, and gas
23 turbines run very, very fast, and if you -- and if
24 you -- There is a lot of benefit to coupling these

1 together. You can get to 80 percent efficiency from
2 a delivery standpoint, not from a theoretical
3 standpoint, but if you screw up the pressure flow or
4 the temperature flow, you end up destroying the gas
5 turbine, which destroys the fuel cell, and that's
6 all very expensive. A number of companies have
7 given up on that control problem in the years before
8 I got involved, and so it wasn't a commercially
9 viable idea. We came up with the control scheme
10 that allows you to control that today, so --

11 Q. That's interesting.

12 A. -- so those kinds of -- I mean, we worked on those
13 kinds of control problems. We probably worked on a
14 large number of other ones, too. We worked on
15 grain separation controls and how grain can be
16 separated. All the problems we worked on were in
17 real time and real problems. Often in designing the
18 problems they're toy problems; that is, how do you
19 put Lincoln Logs together or how do you -- I mean,
20 the problems at the graduate level are problems that
21 are industrial-level problems as opposed to
22 undergraduate problems, which are learning problems.
23 You learn best as a graduate student if you work on
24 a real problem, and washing machines for the poor is

1 a real problem, I mean, but it's a different scale.

2 Q. Yeah. Those all sound very interesting.

3 A. Being a professor is the best job in the world; it
4 is. You get paid for your hobby and you get to hang
5 out with young people, so you never get old.

6 Q. Yeah. When you are teaching your students in these
7 design classes, whether they be graduate students
8 or --

9 A. Uh-huh.

10 Q. -- other grad students, do you teach them to look
11 for design solutions in other fields that aren't
12 necessarily in the field they're working on for your
13 project?

14 A. I do, but let's talk about the look process. So we
15 start out with conceptual design, and in that the
16 first thing we try to do is to describe what the
17 functions are that we're going to need and then
18 having had those functions then we try to come up
19 with multiple ways to go solve that problem. There
20 is a tendency on the part of people to want to find
21 one problem and be happy, and many times the
22 question becomes are we doing creative design or are
23 we doing standard I want to improve my thing design?
24 And when you're doing that you're over here

1 (indicating) in the detail design business.

2 You already know the -- You know -- You know
3 what the functional requirements are, you know what
4 the -- I'm trying to think. You know the functional
5 requirements and you know the form of the device and
6 you know the arrangement of the components, and you
7 know all of that, and you put that all together and
8 then you can go do detail design, but if you're over
9 here (indicating) in the -- Many times you're over
10 here (indicating) in the detail design space, and
11 people generally don't look around for other
12 solutions. You already know the solution --

13 Q. Okay.

14 A. -- over here. So, yes, when you're teaching design
15 you're teaching this portfolio of skills that go
16 down from one to another. Pahl and Beitz have the
17 classic text that describe this, but nearly any
18 design text will describe some form of this process
19 and then you'll hear in industry that many people
20 don't really do that. I mean, we've got to get it
21 out tomorrow, and we're going to go do it, and we
22 know what it looks like.

23 Q. Okay.

24 A. The old -- When I first started working at cotton

1 pickers, I suggested changing the air system. They
2 really desperately wanted to save energy so they
3 could devote it to making it run faster, and a lot
4 of it was being spent managing the cotton, and I
5 made a couple suggestions, and somebody said, "You
6 don't understand, our cotton pickers have four
7 wheels, one duct, and leak oil," and -- Well, but
8 that's very true. For many designs -- You know, you
9 don't understand. Our design is, and you're allowed
10 to move the design a little bit right or left, but
11 you're not going to change it, and what I was
12 proposing was changing the number of ducts that
13 would move cotton and the number of -- and the
14 number of blowers, and that changed the space on the
15 cotton picker, and that was the end of the world
16 because our cotton pickers look like that. These
17 would start looking like our competitors'.

18 Q. Okay, so you had mentioned a detail design --

19 A. Yes.

20 Q. -- design process. What's the other process?

21 A. So we start with conceptual design, okay? And then
22 having -- having -- And in that what we're doing is
23 we're asking what is it -- what is it I'm trying to
24 do? What is it the customer wants to have done or

1 what is the thing that I'm doing? So I -- The goal
2 is to come up with a set of functional requirements,
3 then look at concepts that could meet those
4 functional requirements, and then filter the
5 concepts down. You'll see the funnel, and people
6 will talk about -- Like, there is various bits of
7 this funnel where you say are they conceptually
8 possible? I mean, are they physically possible? Do
9 they violate the laws of nature? Will it be too
10 expensive? Are we talking about making this out of
11 platinum, or, you know, those kinds of questions.
12 You filter this down to one, two, or three, and from
13 there you will then say, Okay, here is my conceptual
14 design. Your conceptual design hasn't yet arranged
15 things around, but then in the next bit of this -- I
16 just said the word, and I've forgotten it
17 momentarily.

18 MR. PRICE: Take your time.

19 THE WITNESS: What did you say?

20 MR. PRICE: Take your time.

21 THE WITNESS: I'm trying to take my time. It
22 will come to me in a moment.

23 A. I'm trying to say ideation, but it's not ideation,
24 but this step in between where we -- We then go off

1 and what we do as we -- is that we get all of the
2 sorts of bits sorted out, like how are they going to
3 be arranged, and I kind of get a sense of what the
4 cost is going to be, and the goal is to emerge from
5 that side of the thing with something that looks
6 like the components you're going to have, but you
7 haven't done the stress analysis yet, for instance.
8 You don't know how thick does the steel have to be
9 or am I going to choose steel or bronze or -- unless
10 that was a part of the "Oh, I don't want it to
11 strike a flame, so, therefore, I'm going to use
12 bronze, of course, not steel, or -- but unless it
13 was -- you know, unless there was some reason that
14 you had to go choose a material back further in the
15 process, you emerge from that, and you get to
16 detailed design.

17 BY MR. MROZ:

18 Q. Okay.

19 A. So a detailed design then it is I'm going to go pick
20 this device from this company, I'm going to have
21 this stress, because at that point you now have a
22 complete set of specifications, which are different
23 than the functional requirements.

24 Q. Uh-huh.

1 **A.** **So once you have the set of specifications and the**
2 **assembly for what it looks like for whatever the**
3 **device is, then things become in many ways very**
4 **simple. They reach the point where Dr. Singhose**
5 **talks about. I mean, the analysis is always the**
6 **same and the -- I mean, it's always stress analysis,**
7 **and you do -- That's true over here, and engineers**
8 **would be expected to be able to do that, but the**
9 **best part of engineering is back here (indicating)**
10 **where you don't know what you're doing.**

11 **Q.** **Okay, so let's say we're focusing on the first part**
12 **of the process --**

13 **A.** **Right.**

14 **Q.** **-- before --**

15 **A.** **Yes.**

16 **Q.** **-- the detailed -- before the detailed --**

17 **A.** **Right.**

18 **Q.** **What's it called?**

19 **A.** **The detailed design.**

20 **Q.** **Before the --**

21 **A.** **We're talking about the conceptual design at the**
22 **beginning.**

23 **THE REPORTER: I can only take one person at a**
24 **time.**

1 THE WITNESS: Oh, I'm sorry.

2 Q. So let's focus on that conceptual design part of the
3 process.

4 A. Certainly.

5 Q. Say your students were there --

6 A. Uh-huh.

7 Q. -- at that phase. Would you encourage them to look
8 at other fields that aren't necessarily the same
9 field as the product that they're developing?

10 A. Hmm, it would depend. I mean, it's popular in
11 design today to go off and look at examples from
12 nature, it's -- You go look and see how other people
13 solve the same problem. On the other hand, you have
14 limited time. So the answer is "Yes, but"; I mean,
15 it's not a clean -- You can go look at everything.
16 You're not going to go look at, Gee, how are chairs
17 manufactured? On the other hand, I mean, I've sat
18 in a number of Saturday morning breakfast meetings
19 where people brought crazy things to the table and
20 they emerged to be something interesting, but
21 usually I'm not -- That's not how designers
22 generally work. I mean, if the question is would
23 somebody working on farm equipment go off and look
24 at cranes? I've never seen that happen, and I've

1 **sat in a lot of design meetings --**

2 Q. Okay.

3 A. -- yeah. Whether it should happen or not is another
4 question, but whether it happened, I haven't seen it
5 happen.

6 Q. So what if you had a swing leg assembly for a
7 slipform paver, like we have here --

8 A. Uh-huh.

9 Q. -- would you encourage a student to go look at swing
10 leg designs on farm equipment?

11 A. Of course. I mean, if you have that nice
12 correlation, then that works well.

13 Q. Okay. What about if you had a swing leg on a
14 slipform paver and it was a part of the conceptual
15 design process for your class, would you encourage
16 students to go look at swing legs on cranes?

17 A. Of course. Though I think when you say a swing leg
18 assembly in the conceptual phase, you need to be
19 careful in that you've already described what the --
20 what the solution is, and you don't want to do that
21 in the conceptual phase. I mean, you can say I've
22 got a swing leg piece and it looks like something
23 like that in this middle phase or when you're in the
24 detailed design phase, but in the conceptual phase

1 you don't want to specify the nature of the -- of
2 the design other than we know that it needs to be
3 able to move the paver and we need -- we know
4 what -- we know what the functions it has to create
5 are; so we start by what are the functions, not what
6 is the thing.

7 Q. I see, okay.

8 A. Yeah.

9 Q. So assume we've reached the phase where we've
10 decided we want to have a swing leg assembly for --

11 A. Okay.

12 Q. -- a paver?

13 A. Uh-huh.

14 Q. At that point would it be worth -- would you
15 consider advising your students to go look at swing
16 leg assemblies on other machines?

17 A. Certainly. You would be interested in how other
18 people have solved similar problems. So what you
19 would be doing is looking back at your functional
20 requirements and the challenges that you have with
21 them. There is always compromises in design, and in
22 that then you would say, well, go look at other
23 examples that solve that particular problem.

24 Q. Okay, and would those examples include farm

1 equipment swing legs?

2 **A. Certainly.**

3 **Q. Crane swing legs?**

4 **A. Yeah. I mean, I think swing legs and swing legs are**
5 **good. Whether they would find them or not is**
6 **another choice, but, I mean --**

7 **Q. Okay; so do you encourage students to go look at**
8 **swing legs on any type of heavy machinery, for**
9 **example?**

10 **A. I encourage them to go look at swing legs on chairs.**
11 **I mean, I think that -- I think that many of those**
12 **characteristics are similar, though you're looking**
13 **at the functional requirements that you need to**
14 **fulfill and whether they meet -- and what's**
15 **happening here.**

16 **Q. Okay. Was your -- Well, do your undergraduate**
17 **students -- Well, I shouldn't say that.**

18 Whether you teach it or not is it common for
19 undergraduate students in engineering programs in
20 United States universities to take control classes?

21 **A. Yes. They're all required, uh-huh.**

22 **Q. Do undergraduate students in your experience know**
23 **how to program feedback loops?**

24 **A. Yes. That would be expected, and it would be an**

1 outcome from that class.

2 Q. What's a feedback loop?

3 A. So a feedback loop is where you take a signal -- you
4 do something, you take the signal, and then you
5 feedback the result and then you make changes based
6 on that.

7 Q. Okay, so you can use feedback loops to keep a
8 machine component in a desired position?

9 A. Yes. Though we have to be careful with that. We
10 have to recognize that there is a lot of other bits
11 and pieces moving, so --

12 Q. Okay.

13 A. -- I mean, I think in the past you can use a
14 feedback loop, and you can correct that. You would
15 have a lot of more pieces on a real one today.

16 Q. Graduate students -- Would your graduate students
17 understand how to program a feedback loop?

18 A. Yeah, and they've done that. I mean, we've run
19 large-scale power plants with feedback loops but
20 more sophisticated than what you're talking about --

21 Q. Okay.

22 A. -- much more sophisticated.

23 Q. For the level of skill in the art definition that we
24 talked about --

1 **A. Sure.**

2 Q. -- in paragraph 14 of your declaration as
3 Exhibit 2015 --

4 **A. Uh-huh.**

5 Q. -- would undergraduate students qualify as persons
6 of ordinary skill in the art?

7 **A. Before or after they have their degree?**

8 Q. Correct, before.

9 **A. Before? No.**

10 Q. After?

11 **A. With two years' experience.**

12 Q. Okay. Do your graduate students qualify as a
13 person -- persons of ordinary skill in the art?

14 **A. Depending on their level of experience. Remember,**
15 **they come out from their undergraduate degree and**
16 **most of them go directly into their graduate**
17 **degrees, and it takes them a while to learn how to**
18 **actually do something.**

19 Q. Okay, so would a graduate student who was a graduate
20 student for two years be a person of ordinary skill
21 in the art?

22 **A. Provided they worked in this space.**

23 Q. Okay.

24 **A. Yeah, provided that they understand controls and**

1 **that they -- Yeah, but we would expect that they**
2 **would be, uh-huh.**

3 Q. Would a person of ordinary skill in the art under
4 your definition know how to program a feedback loop?

5 A. **Yes, uh-huh, but when you say, "program a feed-" --**
6 **Well, whatever. That -- That -- That simplifies the**
7 **process a lot. So, yeah, there is a lot hidden in**
8 **those words.**

9 Q. Okay. I'm going to give you Exhibit 1011, which is
10 the Whitaker prior art reference that we've relied
11 on.

12 A. **Okay, sure.**

13 Q. Let's do it more politely than zooming it down the
14 table.

15 A. **Either way.**

16 Q. One is for you and one is for Mr. Price.

17 A. **Sure, uh-huh. So this is the railcar. Yeah,**
18 **uh-huh.**

19 Q. I think I said this exhibit is Exhibit 1011, and
20 it's the Whitaker reference.

21 A. **Yeah, uh-huh.**

22 Q. Did you analyze this reference as part of your
23 analysis, Dr. Bryden?

24 A. **When you say, "analyze," be careful with that word**

1 **also. I've read it and I understand it --**

2 **Q. Okay.**

3 **A. -- but I have not done the -- I have not worked out**
4 **the equations nor have I formed a reasonable belief**
5 **as to whether it works or not.**

6 **Q. I see, I see.**

7 **A. Yeah.**

8 **Q. That would take a lot of time?**

9 **A. Well, yeah, right. Analysis is something different,**
10 **and I'm picky on the word "analysis" and on the word**
11 **"model."**

12 **Q. Okay. I think you said this, but I wanted to make**
13 **sure it's in response to a question I ask.**

14 **A. Sure, uh-huh.**

15 **Q. What type of machine is described in Whitaker?**

16 **A. This is a rail machine, and I believe it's picking**
17 **up track and putting track down.**

18 **Q. Okay.**

19 **A. And then it has -- It talks about a car following**
20 **behind it and taking the track. I think the**
21 **innovation was that you didn't have to pack -- You**
22 **could move this around and you didn't have to pile**
23 **up all the track on the machine. It had a way of**
24 **getting it off.**

1 Q. Can you please turn to column 2?

2 A. **Column 2, okay. (Witness complied.)**

3 Q. And read -- Well, we're going to spend a little bit
4 time with this, so feel free to page through as much
5 as you want --

6 A. **Okay.**

7 Q. -- but I'm going to direct you --

8 A. **Okay, sure.**

9 Q. -- to certain places that might help speed the
10 conversation up, but --

11 A. **Okay.**

12 Q. -- feel free to look wherever you need. I'm not
13 trying to force you to only look at certain parts --

14 A. **Okay.**

15 Q. -- but, yeah, my questions will relate to most
16 likely the parts that I point out, if that makes
17 sense. So we're going to start --

18 THE WITNESS: I'll get a pen or something so I
19 can mark this --

20 MR. MROZ: Sure.

21 THE WITNESS: -- and keep track of where we're
22 at.

23 MR. PRICE: Here (indicating) you go.

24 THE WITNESS: It will be hard for me to use your

37

1 pen. I told you I'm quirky. Okay. Go ahead,
2 please.

3 BY MR. MROZ:

4 Q. So the first two -- Since if you have a pen there it
5 might be easier. The first two parts I'd like you
6 to look at or review, column 2, lines 37 through
7 49 --

8 A. Okay.

9 Q. -- and then column 3, lines 56 through column 4,
10 line 16.

11 A. 16, okay. I think I have it.

12 Q. And feel free to, as you look at that --

13 A. Uh-huh.

14 Q. -- go look at Figures 1 and 3 as well. I just want
15 to go over the subject matter, but it helps to kind
16 of look at this both in tandem --

17 A. Uh-huh.

18 Q. -- before we start talking about it.

19 A. Sure.

20 Q. I actually have an extra copy if you want --

21 A. No, that's fine.

22 Q. Okay.

23 A. I was the student who always took the exams apart,
24 too, and drove the instructor crazy.

1 **Okay, so you're saying Figures 1 and 3?**

2 Q. Yeah, I think it would be helpful to read Figures 1
3 and 3 as you read those two clauses or paragraphs I
4 pointed out.

5 A. **Okay. There we go. Let's see here.**

6 Q. Are you trying to find where that is in your
7 declaration?

8 A. **Yeah, if you know the page number, that would be**
9 **great, or if I could do the search in my computer,**
10 **it would be faster also.**

11 Q. I can do it for you.

12 A. **Perfect. You can search for it.**

13 Q. Yes.

14 A. **Yeah. I was just going to remember what my -- I**
15 **think I know what I said, but I want to make sure**
16 **that I'm consistent.**

17 Q. I have Whitaker, an analysis by you at paragraph 59.

18 A. **Paragraph -- Yep, I found it at the same time.**
19 **We're -- You're good. You're faster than I was, but**
20 **I was almost there. Okay, sure.**

21 Q. Okay, so the passages that I focused you on explain
22 that the Whitaker machine has a machine frame with
23 four pivotal --

24 A. **Uh-huh.**

1 Q. -- swing legs; correct?

2 A. Yeah.

3 Q. Actually pivotable swing legs.

4 A. Yeah.

5 MR. PRICE: Objection.

6 MR. MROZ: So I'm going to ask that again.

7 Q. So the passages I focused you on explain that the
8 Whitaker machine has a machine frame with four
9 pivotable swing legs; correct?

10 A. I don't recall seeing the word "four," but I may
11 have missed it in the discussion.

12 Q. Okay.

13 A. I would agree from the pictures that that's
14 reasonable --

15 Q. Okay.

16 A. -- yeah.

17 Q. So then the pictures when viewed in context with the
18 passages I directed you to --

19 A. Yeah. I think they refer to "A plurality of," so
20 they don't specify the number of --

21 Q. Okay.

22 A. -- swing legs.

23 Q. Okay; so I guess maybe I can ask it this way, just
24 being precise --

1 **A. Sure, and I'm not being picky, but --**

2 Q. No.

3 **A. -- I don't -- I don't think it says, "four." It may**
4 **not be an important point.**

5 Q. No, that's fine. I want to make sure we're
6 accurate, so --

7 **A. Yeah.**

8 Q. -- as long as you let me be picky on my end.

9 **A. Sure. I'm hoping you are.**

10 Q. So --

11 **A. That way I can learn something.**

12 Q. -- the passages I showed you -- or directed you to
13 in Whitaker, when viewed in context with the
14 figures, show that the Whitaker machine has a
15 machine frame with a plurality of pivotable swing
16 legs; correct?

17 **A. Sure.**

18 Q. And that is shown with number 23 in Figures 1 and 3?
19 The pivot point?

20 **A. Uh-huh.**

21 THE REPORTER: Your answer?

22 **A. Yes.**

23 Q. Do you know how each swing leg is mechanically --
24 Well, do you know how -- Strike that.

1 Do you know how each swing leg is pivoted? And
2 I'll direct you to number 45 in figures -- sorry,
3 number 25 in Figures 1 and 3.

4 THE WITNESS: I'm not sure I understand your
5 question.

6 MR. MROZ: Sorry.

7 Q. I think looking at Figure 1 and the passages that
8 you just read --

9 A. **Sure.**

10 Q. -- is it clear from Whitaker that the hydraulic
11 actuator is being used to pivot the swing legs? And
12 feel free to --

13 THE WITNESS: I'm not --

14 MR. MROZ: Sorry.

15 THE WITNESS: -- seeing the reference in the bit
16 that you pulled up, but --

17 Q. Well, feel free to review --

18 A. **Oh, there we go. I found it.**

19 Q. Sorry. Go ahead. What did you find?

20 A. **So, yes, that's a hydraulically-operated arm, where**
21 **here it says, a fluid-operated piston and rod**
22 **assembly --**

23 Q. Okay, so it's a --

24 A. **-- is how it describes it.**

1 Q. -- hydraulic actuator?

2 A. Yes.

3 THE REPORTER: What was your question?

4 MR. MROZ: Okay, so it's a hydraulic actuator.

5 I believe he said, "Yes."

6 THE WITNESS: And I didn't say, "actuator" --

7 MR. MROZ: Oh, okay.

8 THE WITNESS: -- and I didn't say, "Yes."

9 MR. MROZ: Okay.

10 THE WITNESS: Let's read the word again and make
11 sure that we're both in the same place.

12 MR. MROZ: Sure.

13 A. It says it has a fluid-operated piston and rod
14 assembly. So that's not telling -- It's telling us
15 that we're indeed using it as a -- as a fluid and
16 piston, but when we say "actuator," we generally
17 mean that it's being actuated by something else than
18 a human.

19 Q. I see.

20 A. We don't know that in this case, but -- We could
21 perhaps assume that, but I'm not sure when I read
22 the controls, I don't recall that the control told
23 me that the controls were -- so I'm not sure I know
24 that this is being set automatically or not --

1 Q. Okay.

2 A. -- but we can read through it more carefully and
3 make sure that we've got that --

4 Q. Okay.

5 A. -- but that was not the point that I was reading
6 this for, so --

7 Q. Makes sense. Would a person of skill in the art
8 reading the passages and figures you just looked at
9 know that you could actuate that hydraulic cylinder?

10 A. Yes.

11 Q. Would that be an obvious way to use --

12 A. Uh-huh.

13 Q. -- the cylinder?

14 MR. PRICE: Objection, calls for a legal
15 conclusion.

16 THE REPORTER: Your answer? I can't take
17 "Uh-huh."

18 MR. MROZ: Oh, yeah, you can't say, "Uh-huh."
19 You have to say yes or no in this situation.

20 THE WITNESS: I'll pass on the answer.

21 MR. MROZ: Well, you have to answer.

22 MR. PRICE: Yeah, you have to answer.

23 THE WITNESS: Oh, okay. I just heard,
24 "Objection." I don't know. Tell me the rules here.

1 MR. MROZ: Let me ask you the question again.

2 THE WITNESS: I'm trying to figure out how to
3 keep him happy and keep --

4 MR. MROZ: Sure.

5 MR. PRICE: And we're just saying this off the
6 record.

7 (An off-the-record discussion was held.)

8 MR. MROZ: So back on the record now.

9 Q. Would it be obvious to a person of skill in the art
10 to use the hydraulic component 25 in Whitaker as an
11 actuator?

12 A. Yes.

13 MR. PRICE: Object- -- Sorry. Objection, calls
14 for a legal conclusion.

15 BY MR. MROZ:

16 Q. And what do you mean -- Well, what does that word
17 "actuator" mean to you again?

18 A. Again, we have a system where we're sensing things,
19 and those sensors send their signals up to a
20 controller and the controller then tells actuators
21 what to go do.

22 Q. I see. So you're viewing "actuator" as some kind of
23 computer control?

24 A. Well, it may be mechanically controlled or it may be

1 computer controlled, but something that is
2 controlled by something; it actuates, it opens or
3 closes a valve, it moves a leg; it does, you know --

4 Q. Okay.

5 A. -- various things so that we talk about actuators as
6 being the thing -- the -- the mode of force.

7 Q. Would all of these actuator concepts you just
8 described be obvious for a person of skill in the
9 art to use?

10 MR. PRICE: Objection.

11 A. Depending on where you're using them. In this case,
12 I mean, it's not clear that you'd use an actuator
13 for a valve, of course, but you're going to use a
14 hydraulic system to move this forward --

15 BY MR. MROZ:

16 Q. Okay.

17 A. -- so, yeah.

18 Q. All right, so now let's move on to what I will call
19 the jacking column. You can call it whatever you
20 want, but what does the swing leg connect to at the
21 opposite end?

22 A. I'm presuming we're talking about the jacking
23 column.

24 Q. Yeah.

1 **A. Okay. Right, because they're connected to the**
2 **frame --**

3 Q. Okay.

4 **A. -- and to the jacking column.**

5 Q. On the other side?

6 **A. Right.**

7 Q. Okay, and what's the bottom of the jacking column?

8 **A. That's the crawler track.**

9 Q. Okay. It helps to just get the --

10 **A. Sure.**

11 Q. -- mechanics down --

12 **A. Yeah.**

13 Q. -- so we can talk about 'em.

14 **A. Yeah, uh-huh.**

15 Q. Okay, so now let's look at Component 31 in Whitaker
16 in Figure 3.

17 **A. Okay.**

18 Q. I'm trying -- Do you see it?

19 **A. Yeah, uh-huh.**

20 Q. And feel free to look at the text of Whitaker, but
21 what is Component 31?

22 **A. So this is a gear being driven by a smaller gear**
23 **that changes the position of the track, and they go**
24 **by a number of names, so --**

1 Q. Okay. What are those names?

2 A. I'm not going to remember those very well.

3 Q. Okay. Well, do you --

4 A. If you give me five minutes, I'll probably get them,
5 but --

6 Q. I mean, feel free to take some time to come up with
7 it if it's important.

8 A. I don't think that it's critical to this. What we
9 have is a gear being driven by another gear. Let's
10 look and see what they've called them here. So
11 what are they identifying this as?

12 THE WITNESS: You're sounding bored already.

13 A. Oh, come on. You've got to be here somewhere.
14 They're just calling it a ring gear.

15 Q. Okay.

16 A. I thought -- Yeah, so I think that's a generic
17 class. So that's -- yeah.

18 Q. Okay. Is a slew drive a type of ring gear?

19 MR. PRICE: Objection.

20 A. I wouldn't use that vocabulary to describe it. I
21 mean, the slew gear is a very different device --

22 BY MR. MROZ:

23 Q. Okay.

24 A. -- so --

1 Q. How so?

2 A. Well, you have a screw driving another -- driving
3 the gear, and they're inner meshed often at an
4 angle, and so they're intended for holding much
5 stronger loads, much larger loads.

6 Q. Okay; so here we have no screw, but we have a ring?

7 A. Yeah, we have the ring and we have the smaller gear,
8 and we have these gear (indicating) -- the teeth of
9 the gears intermeshed, and so we don't have very
10 much contact point, whereas with a -- with a slew
11 gear, if you look at the diagrams, you're going to
12 see that there is a lot more contact and so a lot
13 more opportunity to drive something that's much
14 more -- requires more strength.

15 Q. Okay.

16 A. You're trying to avoid damaging the gears.

17 Q. So if you took out that number 35 component --

18 A. Uh-huh.

19 Q. -- and replaced it with a ring -- or, sorry, a worm,
20 would that be a slew drive at that point?

21 A. Well, if you took out the ring gear and the small
22 components and you designed a slew gear, a slew
23 drive, yes, but in and of themselves, no, you can't
24 just throw a worm gear there and say, "Oh, now we've

1 got that" -- I mean, these gears have to be designed
2 and manufactured to fit together, and particularly
3 when you're using a slew -- slew drive, you're
4 looking for that ability both for precision but also
5 for that -- all that contact area you get. You will
6 see that these are curved a bit and one thing or
7 another.

8 Q. Gotcha. How -- Well, would it be obvious for a
9 person of skill in the art to use a slew drive here
10 instead of this ring gear design?

11 MR. PRICE: Objection.

12 A. It's not clear to me that you would go do that in
13 this case.

14 BY MR. MROZ:

15 Q. Okay.

16 A. Partly this machine looks to be much lighter, and
17 so, I mean, it's not clear that you would go to the
18 expense and difficulty of a slew gear. Also, it
19 doesn't really fit into this space the way you'd
20 like it to. I mean, this -- this doesn't seem like
21 a natural slew gear place. I'm sure there was a
22 reason they chose this, and that was because they
23 had tested it and it worked, and it was the
24 cheapest, simplest solution.

1 Q. Okay. Do you know that for sure or are you just
2 assuming?

3 A. No, I'm just -- I mean, I know as much as you do.

4 Q. Yeah.

5 A. I've read the patent --

6 Q. Okay.

7 A. -- and I'm speculating on the -- on the patent -- on
8 the patentholder's -- on the people who wrote this
9 on their thing, and this is quite a number of years
10 ago also, as I recall, 1990, so --

11 Q. Okay.

12 A. -- 35 years ago. I mean, I'm suspecting that, yeah,
13 this was -- this was the correct solution at the
14 time.

15 Q. Okay.

16 A. And it worked for them. Like I said, this -- this
17 is not nearly as heavy as the paving machine we're
18 looking at.

19 Q. Gotcha.

20 A. It's long -- It's long and spread out. You know,
21 it's interesting that we see all of these wheels on
22 it, so -- yeah. Sort of like Figure 2 is Figure 4
23 incarnation and -- yeah --

24 Q. Gotcha.

1 **A. -- or instantiation, so, yeah.**

2 Q. So how does this ring gear work in Whitaker?

3 **A. I'm not sure what you mean by "work."**

4 Q. How does it operate in Whitaker, the ring gear?

5 **A. So you -- you move the small gear and it moves the**
6 **big gear. The reason to move the small gear, of**
7 **course, is that that allows you to do it more**
8 **slowly. You know, it's easier to go move.**

9 Q. When the big gear moves in Whitaker, does that
10 rotate the crawler track?

11 **A. Yes.**

12 Q. Now, do you see number 28 at the bottom of the
13 jacking column?

14 **A. Uh-huh.**

15 THE REPORTER: Your answer, sir?

16 **A. Yes.**

17 THE WITNESS: Thank you.

18 Q. I'd like you to go look at a certain part of the
19 specification and specifically column 4, lines 10
20 through 16.

21 Do you see there where it says, The pivoting
22 means includes a ring gear 31 affixed to the track
23 conveyor 29 and rotatively mounted to the lower end
24 of the telescopic shaft and the steering motor 32

1 mounted to the lower end 28 of the shaft 26 and
2 operatively connected to the ring gear 31 by means
3 of a pinion gear 35 to selectively rotate the ring
4 gear 31 about a vertical axis.

5 **A. Yes.**

6 Q. Okay, so the part I want to focus on that segment or
7 passage is the part that says -- the first part of
8 the sentence that says, The pivoting means includes
9 a ring gear 31 affixed to the tracked conveyor 29
10 and rotatively mounted to the lower end 28 of the
11 telescopic shaft.

12 So do you see that part?

13 **A. Give me a moment here just to make sure that I'm --**
14 **"lower end 28." Okay, got it.**

15 Q. So does component 28 rotate when the ring gear 31
16 rotates?

17 **A. Yes.**

18 Q. Even though it says -- the patent passage we just
19 described says that it's rotatively connected?

20 **A. Yes.**

21 Q. Wouldn't that language that I just described mean
22 that the ring gear 31 rotates relative to
23 component 28?

24 **A. Hmm, how would you think it would work then? I**

1 **mean, that seems like an incredible assertion.**

2 Q. Well, there is a bearing it looks like on the inside
3 of the ring gear.

4 Do you see that --

5 **A. Uh-huh.**

6 Q. -- in Figure 3 --

7 **A. So --**

8 Q. -- of Whitaker?

9 **A. -- your proposal would be that this thing sits there**
10 **and that the column is in it and it's not attached**
11 **by any means (indicating)?**

12 Q. It's attached below. It's just not rotating with
13 the ring gear.

14 MR. PRICE: Objection. Is that a question?

15 **A. Hmm, 29, okay. With each shaft (mumbling). Ah,**
16 **there we go, 26. I'm going to argue that your**
17 **interpretation of that sentence is wrong --**

18 Q. Okay.

19 **A. -- okay?**

20 Q. Why is that?

21 **A. Well, I don't see a bottom connection here mentioned**
22 **anywhere nor do I see it in any drawing. That also**
23 **seems like a very difficult design to implement in**
24 **heavy equipment. I mean, if I were going to**

1 implement it with my pencil and a children's toy,
2 that would work, but here we have a heavy piece of
3 equipment, and we have this ring gear, and it's
4 clear -- seems clear to me that when they say it
5 rotationally moves relative, it's not talking
6 relative to 28 but, rather, that 28 is rotationally
7 moving, and I have to go look at that vocabulary,
8 but that would appear that that's the embodiment
9 that they have created absent seeing the machine,
10 and if you can imagine trying to put something that
11 was going to last a long time on the back -- on the
12 underside of this -- 'cause what you then need is
13 you need the shaft to be able -- You need this thing
14 to be connected, and you don't see anything that
15 secures this from above and you don't see anything
16 that secures it from below. We could argue that the
17 picture doesn't show us the below, but the above
18 shows no clamping mechanism or other thing used. If
19 you were saying what you're saying, then you would
20 expect to see something in between with bearings and
21 then this shaft being turned (indicating). What we
22 actually see is this shaft being turned, and I have
23 a feeling that that is the embodiment of the design.

24 Q. Okay.

1 **A.** **Yeah, I may not -- I want to read this sentence one**
2 **more time to make sure I'm not missing something and**
3 **misleading either you or I, but -- rotatively**
4 **mounted, to each shaft 26 for movement around a**
5 **vertical axis. Yeah, I don't think that's saying**
6 **what you want it to say or were suggesting that it**
7 **says, I mean, and the drawing does not support that**
8 **at all. There is no mechanism by which you could**
9 **have this shaft be free floating there.**

10 **Q.** **What's the bracket that goes onto the crawler track?**
11 **Can we call that a yoke?**

12 **A.** **Where are you looking?**

13 **Q.** **There is no number on it. In Figure 3 -- I'm sorry.**
14 **In Figure 3 there is a bracket that goes down to the**
15 **middle of the crawler track. Do you see where 31 is**
16 **inside of a box?**

17 **A.** **Yep.**

18 **Q.** **What's that bracket called?**

19 **A.** **The bracket?**

20 **Q.** **It doesn't have a number. We can call it whatever**
21 **you want. I'm just trying to --**

22 **A.** **Can you point that out for me?**

23 **Q.** **Sure.**

24 **A.** **'Cause I'm not sure I know what -- Everything looks**

1 **like it has a number, so I'm not sure --**

2 Q. This whole thing right here (indicating). It
3 doesn't have a number.

4 **A. Oh, this thing?**

5 Q. Yeah.

6 **A. Okay.**

7 Q. And just for the record to be clear, so we're -- I
8 don't see a lead line with a number to this
9 component, but there is a -- number 31 is inside of
10 a box or a square and --

11 **A. Yeah, and it's referring to the gear, I believe,**
12 **but --**

13 Q. 31 is referring to the gear --

14 **A. Yeah.**

15 Q. -- but what is that component that 31 is inside the
16 box of that doesn't have a number?

17 **A. Uh-huh.**

18 Q. What do we call that?

19 **A. I'm trying to see if they use vocabulary to describe**
20 **that, but I'm not sure that they do.**

21 Q. I couldn't find one, but it doesn't mean there
22 isn't.

23 **A. We're just going to call that a coupling mount.**

24 Q. A coupling mount?

1 **A.** **Yeah, just to be -- I mean, we could imagine other**
2 **names for it, but that's an easy one, or a yoke. I**
3 **think you would see that called a yoke in many**
4 **applications.**

5 **Q.** **A yoke and a coupling mount?**

6 **A.** **Yeah -- "or." You know, you have a yoke there that**
7 **is coupling this thing together (indicating), so,**
8 **yeah.**

9 **Q.** **Okay; so this coupling mount we just talked about,**
10 **couldn't -- Well, could you circle the coupling**
11 **mount on your figure just so we have it for the**
12 **record so we're talking about the same thing? Or**
13 **color it in and shade it.**

14 **A.** **I'll color it in a little bit. How is that?**

15 **Q.** **Perfect.**

16 **A.** **It's hard to circle, but --**

17 **Q.** **Perfect.**

18 **A.** **(Witness complied.) Yeah, so the yoke I think is**
19 **probably a better word, but whatever.**

20 **Q.** **Okay, that's fine. We'll call it a yoke.**

21 **A.** **Yeah.**

22 **Q.** **Could the component 28 be attached to the yoke?**

23 **A.** **I'm sure that it is.**

24 **Q.** **Okay.**

1 **A. Yeah, I'm sure that the ring gear is also attached**
2 **to it.**

3 Q. Okay, so then wouldn't it be one option disclosed by
4 Whitaker to have 28 affixed rotationally as the ring
5 gear 31 rotates around it?

6 **A. No.**

7 Q. Even though -- Why can't -- Well, let's put it this
8 way: So if I was a person of skill in the art and I
9 read that sentence we talked about earlier in
10 column 4 on lines 17 through 21 --

11 **A. Uh-huh.**

12 Q. -- and it says -- Sorry, that's the wrong -- that's
13 the wrong --

14 **A. I think you're looking up --**

15 Q. Up above it, yeah. Sorry. There it is. So I'm
16 looking at 4 -- column 4, lines 10 through 12, and
17 it says, The pivoting means includes a ring gear 31
18 affixed to the tracked conveyor 29 and rotatively
19 mounted to the lower end 28.

20 All right, so could it be that there are two
21 ways to look at this --

22 **A. Not that I see.**

23 Q. -- for a person of ordinary skill in the art? Okay.

24 **A. I mean, I think, again, if the inventor here**

1 intended that, there would be shown some mechanism
2 by which this was held in place --

3 Q. Okay.

4 A. -- and we can argue that there is something on the
5 underneath side of this perhaps that's holding it
6 together. That seems like you're putting a lot of
7 stress on that. I mean, I think rotatively here
8 "coupled" means that it's -- it allows this to turn
9 with it inside the swing leg.

10 Q. So you mean the jacking column?

11 A. Excuse me, the jacking column. Thank you.

12 Q. No problem. I'm just trying to be precise.

13 A. Yeah. No; no, I appreciate that.

14 Q. How -- Under your interpretation how would component
15 28 connect to the crawler track or yoke?

16 A. I'm presuming that at some place this is welded or
17 otherwise connected by traditional means.

18 Q. Okay.

19 A. This is not a press fit, believe me.

20 Q. So if it's welded, where would it be welded?

21 A. Likely to the box and to the ring. The ring is
22 likely put on the -- put on the box -- or the yoke
23 and to the shaft, and there could be another
24 mechanism we could imagine that there are bolts or

1 there are -- I mean, there are many ways to fasten
2 things together, but this whole assembly is fastened
3 together. This would not be the first time that we
4 fastened a ring gear to the end of a shaft.

5 Q. Okay. All right.

6 A. Yeah.

7 Q. All right, so --

8 A. I mean, but, again, I think that if there was a --
9 if we had a different arrangement, they would have
10 described it differently and would have shown us the
11 mechanism by which this -- these two things were
12 attached, that there would be some -- some form of
13 bearings and attachment that would allow it to
14 rotate relative to it and would keep the crawler
15 track. Again, otherwise it -- it doesn't seem like
16 it makes sense.

17 Q. Okay.

18 A. Yeah. Again, remembering that crawler tracks have
19 enormous forces associated with them as they try to
20 turn. Yeah, this is not your bicycle tire.

21 Q. And these crawler tracks would have enormous forces
22 associated with them in this, in Whitaker?

23 A. Yes --

24 Q. Okay.

1 **A.** -- I mean, and the forces, of course, then depend on
2 the -- the weight which they're trying to bear and
3 on the surface on which they're at. These have the
4 advantage that you're on a railroad track, and you
5 could imagine that that surface is prepared; I mean,
6 you've got the gravel bed around it. When you're
7 paving, that surface may or may not be prepared to
8 draw an analogy, but the analogy is close enough --

9 **Q.** Okay.

10 **A.** -- yeah.

11 **Q.** How would this jacking column work in Whitaker?

12 MR. PRICE: Objection.

13 **A.** What's the question exactly?

14 BY MR. MROZ:

15 **Q.** So -- So --

16 **A.** I mean --

17 **Q.** Well, I guess would this operate -- would the
18 jacking column in Whitaker operate like a standard
19 jacking column --

20 MR. PRICE: Objection.

21 BY MR. MROZ:

22 **Q.** -- that extends and retracts?

23 **A.** Yes. In fact, it tells you that it has a hydraulic
24 cylinder --

1 Q. That's where I was going.

2 A. -- to do that.

3 Q. That's where I was going.

4 A. **Yeah, there's a hydraulic cylinder on the top of**
5 **this.**

6 Q. So when we talk about jacking columns today just to
7 short-circuit this, unless you don't want to do
8 this, jacking columns have hydraulics inside that
9 allow it to extend and retract?

10 A. **That makes sense.**

11 Q. And that's the kind of jacking column we have in
12 Whitaker here?

13 A. **Right.**

14 Q. All right.

15 A. **If we encounter a case where it doesn't, I'll tell**
16 **ya or you can tell me.**

17 Q. Perfect.

18 A. **Yeah.**

19 Q. That will save us a lot of unnecessary talking about
20 jacking columns.

21 A. **Okay.**

22 Q. Yeah.

23 A. **Does this one go up and down? Now, why do they call**
24 **it a jacking column?**

1 Q. Okay, so let's go to --

2 MR. MROZ: I'm almost finished with Whitaker --

3 THE WITNESS: Sure.

4 MR. MROZ: -- and we can take a break after that
5 if you want.

6 THE WITNESS: Okay.

7 Q. So the next paragraph after the one we just looked
8 at --

9 A. Okay.

10 Q. -- starts at column 4, line 17.

11 A. Okay.

12 Q. Read that paragraph to yourself -- it goes down to
13 line 24 -- please.

14 A. (Witness complied.) Okay.

15 Q. Okay, so do you see the first part of that paragraph
16 where it says -- this is column 4, line 17 -- As
17 shown in Figures 1, 2, and 4, an operator's booth 33
18 is mounted to one of the box frames 12 proximate to
19 clevis 13 from which an operator can remotely
20 control the aforementioned functions of the present
21 embodiment of my invention.

22 A. Yes.

23 Q. Okay, so would that suggest to a person of skill in
24 the art that I can pivot my swing leg with a remote

1 control --

2 **A. Yes.**

3 **Q. -- in Whitaker?**

4 **A. I'm not sure that it specifically says that, but --**

5 **Q. But a person of ordinary skill would know that in**
6 **these disclosures?**

7 **MR. PRICE: Objection.**

8 **A. Let me see what the claims said here.**

9 **BY MR. MROZ:**

10 **Q. Well, I'm not talking about the claims -- Well, you**
11 **can read --**

12 **A. I understand, but I'm trying to understand the**
13 **intent of the --**

14 **Q. Perfect. That's fine.**

15 **A. -- of what they're saying.**

16 **Q. Gotcha.**

17 **A. I believe what you're saying is true, but I want to**
18 **make sure that -- I want to be the careful**
19 **engineer --**

20 **Q. Of course.**

21 **A. -- not the let's get out of here engineer. I**
22 **believe that's true, and I think the claims also**
23 **support that intent.**

24 **Q. That you can remotely control --**

1 **A. That you --**

2 Q. That you can remotely control --

3 **A. The swing arms --**

4 Q. Okay.

5 **A. -- and you can remotely control the crawler track.**

6 Q. Okay. That was going to be my next question.

7 **A. I thought it might be.**

8 Q. Can you remotely raise the jacking column up and
9 down as well?

10 **A. Yes, it would appear so.**

11 Q. Okay, and then in Whitaker can I remotely move the
12 swing leg while the crawler track is on the ground?

13 **A. Let me review that here just to make sure I've got
14 it remembered.**

15 Q. To be clear I'm talking about what a person of
16 ordinary skill in the art would read --

17 **A. No, I understand.**

18 Q. -- and understand from Whitaker.

19 **A. Yeah. I believe so, yes.**

20 Q. Okay; so just to be clear for the record, so you
21 believe that a person of ordinary skill in the art
22 reading Whitaker would know that they can remotely
23 move the swing leg while the crawler track is on the
24 ground?

1 **A. Uh-huh.**

2 THE REPORTER: Your answer?

3 MR. PRICE: Objection.

4 **A. Yes.**

5 MR. MROZ: Okay. I'm almost finished. Just one
6 more short bit.

7 THE WITNESS: Uh-huh.

8 **Q.** While they do that would a person of ordinary skill
9 in the art know reading Whitaker that they can pivot
10 the swing leg with a remote control while using
11 their remote control to also turn their crawler
12 track?

13 MR. PRICE: Objection.

14 THE WITNESS: Say that again.

15 BY MR. MROZ:

16 **Q.** So the operator in Whitaker --

17 **A. Uh-huh.**

18 **Q.** -- can I use remote control to both pivot the swing
19 leg and rotate the crawler track at the same time?

20 MR. PRICE: Objection.

21 **A. Let me read this carefully.**

22 BY MR. MROZ:

23 **Q.** Okay.

24 **A. I don't believe that Whitaker tells you that.**

1 Q. Yeah. Again, I'm just asking what a person of
2 ordinary skill there would know reading Whitaker.

3 A. They would know what he said. I don't want to do
4 supposition and think what --

5 Q. Sure.

6 A. -- and looking back do I believe that we would have
7 known that. I believe that was his intent.

8 Q. To what?

9 A. To be able to drive and turn this at the same time.

10 Q. Okay. While the crawler track is on the ground?

11 A. While the crawler track is on the ground, so --

12 Q. Okay. When you say, "turn this," what do you mean
13 "turn this"?

14 A. I mean turn the -- turn -- turn the mechanism
15 (indicating) as you -- the crawler track as you're
16 on the ground.

17 Q. As the swing leg is pivoting?

18 A. I believe that the swing leg is set in place. He
19 doesn't give us very much detail here. He's really
20 focused on the can I mess with railroad track
21 question in this, but we don't see the swing -- we
22 don't see a discussion of swing leg and track moving
23 at the same time.

24 Q. Okay.

1 **A.** **I believe that he sets the -- I believe the intent**
2 **was that he set the swing leg in place and then**
3 **could drive the track -- could drive the crawler**
4 **track around. You can imagine the railroad tracks**
5 **don't make immediate 90-degree turns (indicating),**
6 **so this is moving slowly, and he can slowly move the**
7 **crawlers --**

8 **Q.** **But the railroad --**

9 **A.** **-- especially --**

10 **Q.** **Oh, I'm sorry.**

11 **A.** **Go ahead. I'm sorry.**

12 **Q.** **But the railroad track might turn at some point;**
13 **right?**

14 **A.** **Yeah, it does, and so that's what I mean, the track**
15 **has to turn. It just doesn't turn dramatically**
16 **tightly, so I think he's saying, yes, you --**

17 **Q.** **Okay. What if there is a situation where the track**
18 **needs to come in closer to the machine in Whitaker,**
19 **could you pivot the swing leg at that point**
20 **remotely?**

21 **A.** **He doesn't address that question.**

22 **Q.** **Would a person of ordinary skill in the art know**
23 **that he could do that?**

24 **MR. PRICE: Objection.**

1 **A.** **I'm not sure that would be an obvious conclusion.**

2 BY MR. MROZ:

3 **Q.** **Okay.**

4 **A.** **I mean, if you think of a railroad track, you think**
5 **of it as being pretty much as it is, and he doesn't**
6 **discuss moving -- He basically is talking about**
7 **moving the swing arms so that he can have it packed**
8 **for transport, but --**

9 **Q.** **Gotcha.**

10 **A.** **-- he wants to load this on a railcar, take it to**
11 **the place it needs to be, unload it, and then spread**
12 **it out (indicating).**

13 **Q.** **Got it, okay.**

14 **A.** **So I think that's the bit -- I would note in comment**
15 **to your other question here, it says -- You know, I**
16 **was reading in the claims, and it says, A ring gear**
17 **affixed to each track conveyor rotatively mounted to**
18 **said lower end of telescopic shaft. So I think**
19 **the -- being connected directly to the circular**
20 **bit -- I think that's 28 -- is consistent with that**
21 **description --**

22 **Q.** **Okay.**

23 **A.** **-- because that's a part of the telescoping shaft,**
24 **and it rotates within the shaft itself. I think it**

1 would be a much more difficult implementation to try
2 to get that to rotate independently of the circular
3 shaft, and you wouldn't bother to show it that way
4 then. Why would it be circular?

5 Q. Okay. All right. Let's go to the Background of the
6 Invention section in Whitaker.

7 A. Sure. Uh-huh.

8 Q. And specifically the first sentence where it says,
9 The primary purpose of railroad repair machinery is
10 to reduce the man-hours typically required to
11 assemble and repair railroad track.

12 A. Uh-huh.

13 Q. Isn't reducing man-hours also a primary purpose of
14 road construction machinery?

15 A. Certainly.

16 Q. And the last part of this section, the very last
17 paragraph do you see how it talks about a Gomaco
18 road paver?

19 THE WITNESS: I'm sorry. Say it again. Where
20 are we?

21 MR. MROZ: Sorry.

22 THE WITNESS: Where are you at?

23 Q. The last paragraph of the Background of the
24 Invention section in Whitaker.

1 **A. Oh, here we go, okay. I see that.**

2 Q. Do you see where it talks about the Gomaco road
3 paver?

4 **A. Yes, uh-huh.**

5 Q. Why do you think this was included in the Background
6 of the Invention section?

7 **A. The sentence seems a little obscure, but what we're**
8 **reading is that Gomaco has something -- it says it**
9 **can do -- pivot 15 degrees. It says the pivotal**
10 **motion is only contemplated for minute adjustments**
11 **in forward directions; hence, the railroad track**
12 **(indicating) doesn't change much. You could make**
13 **small adjustments.**

14 Q. Okay.

15 **A. And then it tells us it can be adjusted upward no**
16 **more than one foot and such adjustment is not**
17 **contemplated for the lifting of objects suspended**
18 **thereunder. So, again, this is lifting an object**
19 **and suspending it. It appears that it's contrasting**
20 **it and saying this is a new invention, and it's not**
21 **the same thing.**

22 Q. Okay, but why would the inventor put in a disclosure
23 about a road paver when his invention is about a
24 train track repair machine?

1 **A.** **That's hard to speculate on what the intent is here.**
2 **Again, I think he's trying to say that this is**
3 **not -- this is a new invention.**

4 **Q.** **Okay.**

5 **A.** **You know, we have been -- It says it does -- It has**
6 **track conveyors, its pivotal was only contemplated**
7 **for -- for minute adjustments in forward direction.**
8 **It says the legs can be adjusted upward to no more**
9 **than one foot and such adjustment is not**
10 **contemplated to facilitate the lifting of objects.**
11 **So it appears to me that they're arguing that this**
12 **is a unique patent --**

13 **Q.** **Uh-huh.**

14 **A.** **-- separate from that, but it's hard to know what**
15 **their intent was.**

16 **Q.** **Uh-huh, but we know for sure -- correct me if I'm**
17 **wrong -- that this inventor at least felt the Gomaco**
18 **road paver was close enough to what he was doing**
19 **that he felt the need to distinguish it in his**
20 **patent application?**

21 **A.** **Apparently, yeah. Again, we're left wondering why**
22 **he would make a sentence like that, yeah.**

23 **MR. MROZ: All right. I'm good for a break**
24 **if --**

1 THE WITNESS: Sure.

2 MR. MROZ: -- you want to take a break.

3 MR. PRICE: Sure.

4 (A recess was taken.)

5 MR. MROZ: Okay. Welcome back.

6 Q. I've given Dr. Bryden the Littman reference, which
7 is Exhibit 1001.

8 A. Uh-huh.

9 MR. PRICE: Ah, I just want to --

10 THE WITNESS: 1007.

11 MR. MROZ: Sorry. Let's start over. I've given
12 Dr. Bryden the Littman reference, which is Gomaco
13 Exhibit 1007 for the record and then not 1001.

14 THE WITNESS: Uh-huh.

15 BY MR. MROZ:

16 Q. Are you familiar with the Littman reference,
17 Dr. Bryden?

18 A. I am. I got quite interested in it --

19 Q. Okay.

20 A. -- yeah.

21 Q. What type of machine does Littman disclose?

22 A. Littman is trying to create an early form of a robot
23 that can be -- that can do interesting things
24 basically. It's not clear that this was ever

1 realized as a product and that the company that
2 picked it up actually never -- actually went out of
3 business, so --

4 Q. Okay.

5 A. Yeah, but it's interesting. I mean, it's a -- I
6 think this was an '85 or '86 -- '83, yeah; so this
7 is an early form of robot from that period of time,
8 and he envisions it being able to have this -- have
9 this cab or cage that people can work from where you
10 can put materials in or one thing or another, yeah.

11 Q. Can the machine that is disclosed in the Littman
12 reference be used as a forklift? I'll direct you to
13 paragraph -- or column 3, line 29.

14 A. Column 3, line 29. I would note that he says it can
15 be used as a forklift. I don't actually believe it
16 can be used to meet the needs of a forklift, but
17 perhaps --

18 Q. Okay.

19 A. -- with significant modification than what he's
20 showing. I think he's trying to imagine a universal
21 robot that can do many things.

22 Q. Okay.

23 A. So, I mean, the example of a winch and load line for
24 hoisting material, sure, I mean, once you've got a

1 basket up in the air you can do that, but you have
2 this basket, and if you look at his diagrams and
3 read through his bit, that you would be able to get
4 the basket to be low enough to the ground and be
5 able to get under a load and pick it up and maintain
6 the balance of the robot.

7 Q. Uh-huh.

8 A. Maybe.

9 Q. Is the Littman machine heavy machinery?

10 MR. PRICE: Objection.

11 A. It has many of the characteristics of heavy
12 machinery, but, on the other hand, I think it was
13 intended as a -- something you could put on the back
14 of a pickup truck or something. It's relatively
15 small.

16 BY MR. MROZ:

17 Q. Okay.

18 A. This is not -- This is not a huge device, as I
19 recall.

20 Q. Was that your test for whether something is heavy
21 machinery, you can put it on the back of a pickup
22 truck?

23 A. No, but I don't think he intended it as heavy
24 machinery; I mean, I think he intended it as a

1 **robot.**

2 Q. Is a forklift heavy machinery?

3 A. I would put that on the edge of being heavy
4 **machinery, sure.**

5 Q. Okay.

6 A. Yeah, so, I mean, if the question it's critical
7 that -- is it heavy machinery, we could call it
8 heavy machinery for the sake of argument and move
9 forward, but I don't think that he intended it in
10 that sort of use, so --

11 Q. Okay.

12 A. Yeah. In fact, he talks about this as capable of
13 universal application, so --

14 Q. Some of which would be heavy machinery application?

15 A. Hmm, if a forklift is heavy machinery and if you
16 believe he could use it as a forklift. This looks
17 like a lift basket and -- Yeah, sure.

18 Q. Does a lift basket --

19 A. I think -- I mean, I think, again, we can define
20 many things as heavy machinery, so, sure.

21 Q. Would a lift basket design be heavy machinery, too?

22 A. Depending on the lift basket again, but, sure, yes,
23 uh-huh. As we extend that definition out, we, of
24 course, can then include cars and from there we'll

1 **go to skateboards, but --**

2 Q. Well, let's look at the picture in Figure 1.

3 **A. Okay.**

4 Q. Does that look like a piece of heavy machinery to
5 you?

6 MR. PRICE: Objection.

7 **A. It looks like a piece of complex machinery. I'm not**
8 **sure that it's heavy machinery. Again, scale is of**
9 **issue here; so if we look at the size of the box and**
10 **we look at the size of the machine, we can see that**
11 **this is relatively small, but we can call it heavy**
12 **machinery.**

13 BY MR. MROZ:

14 Q. Okay. All right. Let's look at Figure 2 of Littman
15 now.

16 **A. Uh-huh.**

17 Q. And I'm going to give you another section to read of
18 Littman. So let's look at column 3 --

19 **A. Uh-huh.**

20 Q. -- lines 31 to 45. Do you need your pen?

21 **A. Yeah. I don't know why I put it back in here. I**
22 **cleaned up after myself.**

23 **Go ahead. Where did you say?**

24 Q. Sure.

1 **A. Column --**

2 **Q. So, yes, yes, column 3, lines 31 through 45, and I'd**
3 **like you to read that with Figure 2 in mind.**

4 **A. (Witness complied.) Uh-huh, okay.**

5 **Q. Does Littman have a pivoting swing leg?**

6 **A. No.**

7 **Q. Does the Littman leg pivot at 47 in Figure 2 and --**
8 **well, where it's shown in 40 -- I'm sorry. Strike**
9 **that.**

10 What are the components shown by numbers 47 and
11 48 in Littman?

12 **A. 47. So 47 shows us that this is pinned and that it**
13 **can move around the -- It can move relative to the**
14 **pin, and we see the hydraulic cylinder 60 that**
15 **allows that to move and it is controlled by the**
16 **mechanisms that he discusses, uh-huh.**

17 **Q. Okay; so when I asked you if -- if Littman discloses**
18 **a swing leg, I think you said no?**

19 **A. No.**

20 **Q. What do you call this?**

21 **A. I call this a robot arm.**

22 **Q. Okay, so --**

23 **A. Yeah; I mean, it's very clear that this is intended**
24 **to be an arm, and he refers to it in that**

1 **vocabulary.**

2 Q. Okay.

3 A. He doesn't use swing leg vocabulary, and so he's
4 trying to create a universal thing, and with the
5 mechanisms that are here he wouldn't be able to
6 perform the functions of a swing leg --

7 Q. Okay.

8 A. -- as we have defined a swing leg.

9 Q. Sure.

10 A. Yeah, we could -- we could call it a swing leg, but
11 then we'd have to have two categories for something.

12 Q. Okay. I can call it -- I can call it an arm, that's
13 fine.

14 A. Right, okay.

15 Q. Does the arm in Littman pivot?

16 A. Yes, uh-huh.

17 Q. How?

18 A. From 40- -- What is it? No, 95c appears to be the
19 pin, though it's hard to tell from the diagram.
20 Maybe it's 50 -- It looks like there is a pin
21 bracketing pin.

22 Q. Okay. Let me --

23 A. The leg means -- is comprised of plurality which are
24 pivoted one to another, yeah. So we see that they

1 pivot (indicating) relative to each other in this
2 way (indicating) and also relative to the body.

3 Actuating means its boom -- having a boom
4 (mumbling) -- Go ahead.

5 Q. Okay, so does the -- You said the word "actuating"
6 means.

7 What were you referring to when you said that?

8 A. Oh, I was reading his words.

9 Q. Oh, okay. Were you referring to 60?

10 A. The part I was -- Actuating means to extend the
11 cylinder by 32, 33, and 34. He doesn't mention 60
12 in that --

13 Q. Okay.

14 A. -- bit. What he's talking about there is when the
15 arm gets extended, but I'm looking for -- I'm not
16 seeing 32 either, so --

17 Q. Okay.

18 A. -- right off the top of this.

19 Q. So let's -- let's see -- let's figure out what
20 number 60 does.

21 A. Okay.

22 Q. So can you please look at column 3, line 40?

23 A. Line 40, uh-huh.

24 Q. Just read that paragraph.

1 **A. Right, sure. Okay.**

2 Q. So does Littman disclose an arm that uses a
3 hydraulic actuator to pivot?

4 **A. Yes. He calls it -- he, in fact, calls it a leg,**
5 **though, in this case, yeah.**

6 Q. And just to clarify one more thing about 95b, can
7 you please look at column 4, line 33, that
8 paragraph?

9 **A. Uh-huh.**

10 Q. That might help clarify that issue.

11 **A. Sure, uh-huh. And it talks about it as being a**
12 **synchro mechanism, okay.**

13 Q. Okay, so in Littman -- correct me if I'm wrong -- we
14 have a pivoting arm that pivots around the 47 and
15 46 -- or, sorry, 48 joint --

16 **A. Uh-huh.**

17 Q. -- and we have a hydraulic actuator --

18 **A. Uh-huh.**

19 Q. -- that is doing the pivoting --

20 **A. Uh-huh.**

21 Q. -- and we have a synchro device that can measure how
22 much the arm is pivoting.

23 **A. Yes, uh-huh.**

24 Q. Okay. Sorry. I just want to make sure -- You said,

1 "Uh-huh." I just want to make sure --

2 **A. Yes. I'm sorry.**

3 Q. So the answer was yes --

4 **A. Yes.**

5 Q. -- you --

6 **A. Yes.**

7 Q. I just want to make sure we get this. Sorry.

8 It's yes to a pivoting arm that pivots around
9 the 47 and 48 joints?

10 **A. Yes, uh-huh.**

11 Q. And yes to a hydraulic actuator that is causing the
12 arm to pivot?

13 **A. Uh-huh, yes.**

14 Q. And then a yes to the synchro mechanism that
15 measures the pivoting of the arm?

16 **A. Yes.**

17 Q. Okay. Thank you. Sorry, just for the record we
18 have to make sure --

19 **A. No.**

20 Q. Okay.

21 **A. That's good.**

22 Q. Okay; so can you please read column 4, lines 13 to
23 24 to yourself? Just that paragraph.

24 **A. (Witness complied.) Okay.**

1 Q. So throughout the drawings of Littman -- or the
2 Figures, I should say, it shows wheels?

3 A. Yes, uh-huh.

4 Q. But Littman is clear that those wheels could also be
5 crawler tracks instead.

6 A. Yes.

7 Q. Okay, and that was the passage you just read?

8 A. Uh-huh.

9 THE REPORTER: Your answer?

10 A. Yes.

11 Q. Okay. Now let's look at Figures 5 and 6 of Littman,
12 and while you, well, keep those in mind I'd like you
13 to read another passage, and that's column 5, lines
14 15 -- sorry, column 5, lines 14 to 42, and let me
15 know when you're finished reading that, please.

16 A. (Witness complied.) Okay, yes.

17 Q. So that passage I just described describes a rotary
18 actuator 122?

19 A. Yes.

20 Q. How does that operate?

21 A. So within the leg itself we have a rotary actuator
22 that's allowed to turn (indicating) that then turns
23 the wheels on the crawler tracks, and it says it can
24 be hydraulically operated or it can be electrically

1 **driven also, and I believe it says preferably**
2 **electrically.**

3 Q. Okay; and then we also have component 130, which is
4 a synchro mechanism?

5 A. **Yes.**

6 Q. What does that do?

7 A. **That's measuring, and I think it believes -- it says**
8 **it's measuring the number of revolutions that it**
9 **takes.**

10 Q. For the wheel or crawler track?

11 A. **For the wheel or crawler track, uh-huh.**

12 Q. So the Littman --

13 A. **I mean, by revolutions it means rotating it this**
14 **(indicating) way versus this (indicating) way.**

15 Q. Okay, so when you were -- I want to describe your
16 signaling to the --

17 A. **Yeah, I'm trying to figure out how to say this. I**
18 **mean, I want to make sure -- It's not the rotations**
19 **the wheel is taking; it's the revolutions that**
20 **the -- when you're turning the wheel.**

21 Q. The shaft?

22 A. **The shaft is turning, there we go.**

23 Q. That's going into the --

24 A. **Yes.**

1 Q. -- wheel?

2 A. Right.

3 Q. Not the rotations that the wheel is taking as it's
4 driving forward?

5 A. Right; yes, uh-huh.

6 Q. Okay; so just to clarify all that, so we have a
7 rotary actuator 122 in Littman that is used to
8 rotate the wheel --

9 A. Uh-huh.

10 Q. -- and a sensor or synchro mechanism is used to
11 measure that rotation?

12 A. Yes.

13 Q. Okay. Okay; and we -- also, as I mentioned, we
14 have -- as we discussed, have a swing leg pivoted by
15 a hydraulic actuator?

16 A. Uh-huh --

17 Q. Okay.

18 A. -- or yes.

19 Q. It's good to get that groundwork. Now let's talk
20 about some of the functionalities of -- of Littman.

21 So can you please read column 9, lines 42
22 through 60?

23 A. (Witness complied.) Okay.

24 Q. Okay, so can you describe the functionality in

1 Littman that is occurring in the passage I just
2 described? Sorry. Can you -- Well, let's go
3 through it step by step. Strike that last question.

4 Do you see how the paragraph I've just asked you
5 to read describes a parallel position, quote,
6 unquote?

7 **A. Yes, uh-huh.**

8 Q. What does that mean?

9 **A. It appears that the vocabulary he's using, which**
10 **isn't clear that that's standard vocabulary, though,**
11 **what he's trying to say is that you can extend the**
12 **leg with the -- with the wheel on the ground.**

13 Q. Okay, but you want to put the wheel or track
14 parallel to the leg when you do that?

15 **A. Yes --**

16 Q. Why is that?

17 **A. -- which makes -- I mean, that makes sense; right?**
18 **You can't skid a leg sideways. You can't skid it**
19 **sideways (indicating).**

20 Q. Okay.

21 **A. I believe what he's trying to say is that you have**
22 **the leg and you put the wheels so it's lined up with**
23 **it and then you can roll it out (indicating).**

24 Q. As you extend the leg?

1 **A.** **As you extend the leg, yeah.**

2 **Q.** **All right.**

3 **A.** **And he's -- And he's arguing that he has the**
4 **controls that will allow him to keep it on the**
5 **ground. You can imagine that you're trying to**
6 **manipulate this leg, which has several pieces, and**
7 **now you've got to get all of those pieces**
8 **coordinated to stay on the ground and roll this**
9 **forward.**

10 **Q.** **And he -- And he was just looking -- Well, was he**
11 **looking -- Would his control system allow him to**
12 **keep the crawler track parallel to the leg as it**
13 **rolls out away from the machine?**

14 **A.** **Yes.**

15 **Q.** **And how would that happen? How would you keep the**
16 **track parallel as it rolls away from the machine,**
17 **with a rotary track?**

18 **A.** **Well, he has this drive inside that we just talked**
19 **about, and so when you say, "rotary drive," that's**
20 **not a slew drive. He has a different device in**
21 **there, but nonetheless, he has a drive, and you tell**
22 **it to stay where you want it to be --**

23 **Q.** **Okay.**

24 **A.** **-- I mean, as you would tell anything else in this**

1 **device.**

2 Q. And you would use the sensor to -- --

3 A. **Of course.**

4 Q. -- achieve that?

5 A. **Of course. I mean, I think that you wouldn't have**
6 **to do all the thinking. Your machine would do all**
7 **that thinking. You would say go from here to there.**

8 Q. Got it.

9 A. **Yes.**

10 Q. And let's read the next paragraph where it talks
11 about the second mode. It starts at
12 column 9, lines 61 and lines on column 10 --

13 A. **Uh-huh.**

14 Q. -- line 8.

15 A. **(Witness complied.) Uh-huh, okay.**

16 Q. Okay, so the last example we talked about was a
17 parallel position --

18 A. **Uh-huh.**

19 Q. -- design. This is called a perpendicular
20 position --

21 A. **Uh-huh.**

22 Q. -- design --

23 A. **Right.**

24 Q. -- I guess. Can you describe what that means?

1 **A.** **So this case he's moved it perpendicular to the arm,**
2 **and he's allowing the arm to move (indicating) in a**
3 **quasi circular mode. He's got it out as far as he**
4 **wants it and then you turn it and locate it as you**
5 **would like while maintaining it on the ground.**

6 **Q.** **Okay, so it's pivoting the arm?**

7 **A.** **Uh-huh.**

8 THE REPORTER: Your answer?

9 THE WITNESS: I'm sorry. I didn't --

10 **Q.** **Yes or no? Sorry.**

11 **A.** **Yes.**

12 **Q.** **So he's pivoting the arm?**

13 **A.** **Uh-huh, yes.**

14 **Q.** **As the crawler track is on the ground?**

15 **A.** **Yes.**

16 **Q.** **Positioned perpendicular to the end of the arm?**

17 **A.** **Yes.**

18 **Q.** **Okay.**

19 **A.** **Though I think you're trying to get to the point**
20 **where you're saying, Well, it's being supported, the**
21 **weight while it's doing that, and I would point out**
22 **that he does this arm by arm and that the other**
23 **three legs are supporting the weight while this is**
24 **happening.**

1 Q. Okay.

2 A. So this is -- it's not off the ground, but on the
3 other hand, it's not bearing the full weight of the
4 machine at the time.

5 Q. Because of the other three legs?

6 A. Right, and that's what he tells us. He says, Oh,
7 when you get done, you switch it back over to the
8 other three legs or copying it.

9 Q. So you're --

10 A. You've got a leg.

11 THE REPORTER: Whoa, whoa.

12 MR. MROZ: Sorry.

13 A. You've got a leg.

14 Q. One leg?

15 A. One leg, and you say, Well, if I'm going to move it
16 around, I don't want this thing to fall over.

17 Q. Uh-huh.

18 A. So I have three legs that are doing the business --
19 they're a tripod basically -- sitting there,
20 maintaining everything and then I move my leg out
21 and then I position it as I choose. I turn my
22 switch back to the steer direction and then I can do
23 other operations either with other legs or what else
24 I'm up to, but the idea -- but this is -- but in the

1 midst of this operation he's not supporting the
2 weight of the machine with this leg.

3 Q. Okay.

4 A. He's simply just -- He's probably supporting the
5 leg -- the weight of the leg as you were. You've
6 got this long thing out there, and it's got a roller
7 on it, and --

8 Q. Okay.

9 A. -- it's copying.

10 Q. So he's supporting some weight --

11 A. Yeah --

12 Q. -- with the leg?

13 A. -- some weight.

14 Q. So the crawler track is on the ground?

15 A. Uh-huh.

16 Q. And it's experiencing some load?

17 A. Some load.

18 Q. Okay.

19 A. Basically its own load plus the load of its leg.

20 Q. Okay, and it's positioned perpendicular to the leg?

21 A. In the second example, yes.

22 Q. "the second example" being --

23 A. Like we just discussed.

24 Q. -- the perpendicular example?

1 **A. Right, uh-huh.**

2 **Q. And as the swing leg pivots, the crawler track**
3 **remains perpendicular --**

4 **A. Yes.**

5 **Q. -- throughout the pivoting process?**

6 **A. Right. You're out here (indicating) and it's moving**
7 **(indicating).**

8 **Q. How does the system keep, if it does, the crawler**
9 **track perpendicular while the swing leg's pivoting?**

10 **A. I think you're looking for the rotary device again.**
11 **The gearbox maintains that position.**

12 **Q. With use of the sensor?**

13 **A. With the use of a sensor.**

14 **Q. Okay.**

15 **A. Now, if we have a crawler, one of the questions that**
16 **arises becomes -- The crawler can't turn itself; I**
17 **mean, it's a big, flat --**

18 **Q. Uh-huh.**

19 **A. -- platform, and so it needs to slide as it moves,**
20 **and so that creates -- that has some amount of --**
21 **what do you want to say -- force associated with**
22 **that, but in this case the crawler's doing all the**
23 **work, and the leg is sort of sitting there minding**
24 **its own business following along.**

1 Q. Okay.

2 A. So we can imagine the crawler is driving the track
3 either out or across (indicating).

4 Q. Got it.

5 A. Yeah.

6 Q. And once it -- once the leg reaches its
7 destination --

8 A. Uh-huh.

9 Q. -- under this second example we have been talking
10 about --

11 A. Uh-huh --

12 Q. -- with the perpendicular example --

13 A. Yes.

14 Q. -- the crawler track then turns back to meet the
15 steering positions of the other three legs?

16 A. Hmm, let's go back and read this section to see what
17 he says specifically. Yes, so it says it returns to
18 a position synchronized with the other three.

19 Q. It's still on the ground when this happens --

20 A. Yes.

21 Q. -- the crawler track is?

22 A. Yes, uh-huh.

23 Q. And how does the crawler track return to its steered
24 position?

1 **A. It rotates to get to wherever it's going.**

2 Q. How does it know where to go?

3 **A. It has a computer that tells us what it needs to be**
4 **doing.**

5 Q. Okay.

6 **A. Now, we're not sitting here in 1983 and we're**
7 **wondering what kind of computer, but --**

8 Q. It's still automated?

9 **A. -- we'll leave that up -- we'll leave that open.**

10 Q. Okay. It's automated?

11 **A. Uh-huh --**

12 Q. Not --

13 **A. -- to some degree.**

14 Q. Not manual?

15 **A. Yeah.**

16 Q. Okay; so I think I know the answer to this, but why
17 would Littman want to position his wheels
18 perpendicular to the end of the leg for the second
19 example when the swing (indicating) arm is pivoting?

20 MR. PRICE: Objection.

21 **A. So in this case you want to reduce the stress -- I**
22 **mean, you want to put the crawler track in the**
23 **direction you want it to go.**

24

1 BY MR. MROZ:

2 Q. Okay.

3 A. I mean, it's -- Yeah, the crawler track is what's
4 driving where we're going here.

5 Q. Got it.

6 A. The leg is providing a constraint; so the leg's on
7 this circle, so it's like having it on the end of a
8 string and it can (indicating) -- yeah.

9 Q. Okay, so let's go to another exhibit.

10 A. Before we leave this one let me say that POSITA
11 would not find this example at all nor regard it.

12 Q. Okay.

13 A. This is a robot, not a -- or universal machine.

14 Q. Okay.

15 A. So if you're looking for that, I mean, you just
16 would -- The diagram wouldn't get you there and the
17 discussion wouldn't get you there.

18 Q. Okay.

19 A. Yeah.

20 MR. MROZ: So the next exhibit is going to be
21 the Johns reference, which is Gomaco Exhibit 1009.
22 There is two there again.

23 THE WITNESS: Okay. Oh, yeah.

24 Q. Do you recognize Exhibit 1009?

1 **A. I do.**

2 **Q. What is it?**

3 **A. So this is a lift platform I would call it; a mobile**
4 **work platform it calls itself.**

5 **Q. Is this a machine used in construction and**
6 **demolition activities?**

7 **A. Likely, yes. You could imagine other activities it**
8 **could be used for, too.**

9 **Q. Such as what?**

10 **A. You could imagine that you could use it for things**
11 **like window washing, although it's pretty big for**
12 **that, but, I mean, it seems like anything that**
13 **involves you being in the air and doing work this**
14 **machine could be used for, uh-huh.**

15 **Q. Okay. Let's get into the physical structure of this**
16 **machine. Can you please read paragraph 20? And**
17 **feel free to look at Figure 2 as you do that.**

18 THE WITNESS: You have to love these where they
19 took pictures of something and turned them into
20 black and white and then they've got the --

21 MR. MROZ: It's hard to see, isn't it?

22 THE WITNESS: Right, and then some of the things
23 are hand sketched. It's even better.

24 MR. MROZ: It wouldn't make sense for the patent

1 office to use color pictures, though; correct?

2 THE WITNESS: Well, at that time. I got it; no,
3 I got it. It just seems like by 2003 we might have
4 been able to do color, but --

5 MR. PRICE: Or you have paper drawings.

6 THE WITNESS: But whatever. Like I say, when
7 you go to Figure 2, you go like there is a lot of
8 black, but it seems like --

9 **A. Let me see what I can pull off of this. So we're in**
10 **paragraph 20?**

11 BY MR. MROZ:

12 Q. Yes, paragraph 20.

13 **A. Okay. (Witness complied.) Okay.**

14 Q. Okay. Thank you. So Johns, does this disclose a
15 chassis supported by four wheels?

16 **A. Yes.**

17 Q. Is each wheel independently steerable?

18 **A. Yes.**

19 Q. Does -- Well, how does each wheel steer?

20 **A. Each wheel uses a slew drive.**

21 Q. Is that slew drive 42 in paragraph 20?

22 **A. Let me find this; yes.**

23 Q. Is it also shown in Figure 2, the slew drive, 42?

24 **A. 42. I am not seeing -- Maybe I'm not looking at**

1 **Figure 2. Figure 4; let me find Figure 2 here,**
2 **Figure 5, Figure 3. Figure 2, okay. Yes, uh-huh.**

3 Q. Do you see a slew drive --

4 A. **Yes, yes.**

5 Q. -- with 42?

6 A. **Uh-huh.**

7 Q. Okay. These slew drives are bearing the weight of
8 the machine on the wheels?

9 A. **Yes.**

10 Q. In paragraph 21 does it explain that Johns has an
11 electronic system for steering the wheels by using
12 the slew drive?

13 A. **Yes, uh-huh.**

14 Q. Okay; so taking a step back to summarize Johns,
15 Johns discloses a construction machine with slew
16 drives located just above each wheel and the
17 electronic control system that uses those slew
18 drives to steer each wheel?

19 A. **Yes.**

20 Q. Okay. Do you know how much Johns can steer each
21 wheel rotationally?

22 A. **I believe -- and I'm going from my memory here --**
23 **that they can be controlled -- it has substantial**
24 **rotational capability because you're trying to place**

1 this lift truck in locations very precisely. I
2 think that's part of the -- part of the patent, is
3 that this is -- makes this possible.

4 Q. Okay.

5 A. Now, I do note that the extension to paving machines
6 is dubious in this case.

7 Q. Okay. That's fine. For the rotation part I think I
8 saw 180 degrees?

9 A. That sounds right, yeah.

10 Q. I'm just trying --

11 A. If you can find a place for it. I don't have it in
12 my deposition (sic), but I remember that it was
13 supposed to be very maneuverable. I think if we
14 even look at the first -- yeah, his comment in the
15 first -- the Background at the end of that paragraph
16 3, Existing controllable platforms are limited and
17 used like a tether, and he goes on to say that they
18 can't go various distances and then he goes on, they
19 lack maneuverability in Chapter -- in Section 4.

20 Q. Okay.

21 A. And so the ability for the wheels to rotate
22 (indicating) and move in various patterns is
23 critical to his patent.

24 Q. Okay. I think I found the part I was trying to

1 point you to. It's at paragraph 20, the last
2 sentence. It says, The slew drive 42 allows the
3 wheel bracket 36 to be rotated about a vertical axis
4 through 180 degrees of motion.

5 **A. Yes, there we go.**

6 Q. Yeah, perfect.

7 **A. Excellent, uh-huh.**

8 Q. Okay, so the slew drives in Johns can rotate the
9 wheels --

10 **A. Yes.**

11 Q. -- 180 degrees?

12 **A. Yes.**

13 Q. And this 180-degree steering can occur while the
14 slew drive and wheel are both under a load because
15 the wheels are on the ground?

16 **A. Yes.**

17 Q. All right. The last question about Johns -- or last
18 topic, I should say, about Johns, can you go to the
19 last sentence of paragraph 20 again?

20 **A. Uh-huh, yes. (Witness complied.)**

21 Q. It talks about a slew drive model S7-73-2-R
22 manufactured by Kinematics.

23 **A. Okay.**

24 Q. Do you know who Kinematics is?

1 **A. I do.**

2 **Q. Who is that?**

3 **A. They're a gear manu- -- gearbox manufacturer.**

4 **Q. Okay, and does Johns show it was known to buy slew**
5 **drives from Kinematics in 2003?**

6 **A. Yes.**

7 **Q. Do you know --**

8 **A. Well, this would be standard engineering practice,**
9 **that you would call various companies and ask them**
10 **what they had available and work with them;**
11 **Kinematics being one with a good reputation.**

12 **Q. Do you think, did Kinematics have slew drives of**
13 **different sizes back in 2003?**

14 **A. Likely, uh-huh. It is interesting how much**
15 **specificity they put into their -- a tire of**
16 **18-1/2 inches and a -- and a pressure load of**
17 **10,000 pounds and -- yes.**

18 **Q. Is that what that means?**

19 **A. I believe so, yeah, at least a 10,000- -- a**
20 **10,000-pound rating and -- yeah.**

21 **Q. Where are you getting that from?**

22 **A. That's the middle of patent -- of -- of 20.**

23 **Q. Oh, I see. Okay.**

24 **A. Yeah, so just -- It seems unusual in the patent to**

1 see that level of -- and this device from
2 Kinematics; so very -- They provide a lot of
3 detailed information.

4 Q. So if I call Kinematics and say, I have a
5 10,000-pound machine --

6 A. I don't think -- I think that's applying to the
7 wheel there.

8 Q. What is?

9 A. The 10,000 pounds. The -- The machine is not
10 10,000 pounds. It says you're -- you're inflating
11 it to 10,000, I believe.

12 Q. Okay, then what does --

13 A. Let me read this momentarily. The wheel may be of
14 any type, but it's preferably a polyurethane tire
15 pressed on the wheel rim, each wheel having a
16 diameter approximately 18 inches and at least a
17 10,000-pound rating. So -- Yeah, so I think there
18 is -- I think the 10 pounds -- 10,000-pound rating
19 is referring to the ability of the wheel to
20 withstand it --

21 Q. I see.

22 A. -- I -- I believe, but its -- its specificity is
23 very interesting, yeah --

24 Q. So that would be --

1 **A.** -- because you wouldn't normally do that. They give
2 you a preferred torque hub of a name; they're
3 manufactured by Fairfield and this and that, yeah.

4 **Q.** So if the wheel would have to withstand a
5 10,000-pound load, is that what you mean by
6 "rating"?

7 **A.** I believe so, but I'm not certain what they -- It's
8 not clear what the -- what the writer means in this.
9 To extend out I think is the question you're trying
10 to ask. No, it does not mean this machine weighs
11 40,000 pounds.

12 **Q.** No, that's not what I'm getting at. I'm saying --

13 **A.** Yeah, I was going to say, 'cause I think that there
14 is a lot of things associated with how you would
15 choose a rating --

16 **Q.** Uh-huh.

17 **A.** -- so --

18 **Q.** If the wheel had to withstand a 10,000-pound load,
19 does that mean the slew drive would also have to
20 withstand a 10,000-pound load?

21 **A.** No.

22 **Q.** Why not?

23 **A.** Well, I -- I'm not sure I know what they mean by a
24 10,000-pound load, let's start there, and I have a

1 feeling that this was a -- They're being so specific
2 that they probably looked in the catalog and said,
3 Oh, here's an 18-1/2-inch wheel. Look, it will
4 withstand this load. I mean, I think it's a wheel
5 of convenience, not a wheel of necessity.

6 Does that make sense to you?

7 Q. Yes, yeah. It sounds like a Disney ride.

8 A. Yeah, right. Well, you know, when you're -- when
9 you're designing things like this -- I saw a comment
10 in Dr. Singhose's thing that said, well, they made
11 it out of components and they didn't have to design
12 any of 'em, and therefore it's unsophisticated. I
13 thought we make everything out of components. I
14 mean, nobody sits down and says, Oh, I'm going to
15 smelt my own metal and I'm going to do -- I mean, we
16 go find out if somebody has a -- You know, if you're
17 making shirts, you go say, I'm going to buy some
18 cloth. I'm going to buy some buttons; and so when
19 you're an engineering designer, you say, Oh, I need
20 one of these and then you go find a vendor you
21 believe in and you look in their catalog and you
22 pick that, and often it doesn't exactly meet your
23 need. Like I said, it's the tire of convenience --

24 Q. So --

1 **A.** -- or necessity, as it were, like, Oh, this one's
2 here. You know, I don't want to pay them to go make
3 a special one. I just thought it was odd in this --
4 in this calling out that they called out a very
5 specific combination.

6 **Q.** So a person with ordinary skill in the art would
7 know that you're going to have to acquire things --

8 **A.** **Yes.**

9 **Q.** -- from other companies in building your --

10 **A.** **Yeah.**

11 **Q.** -- invention?

12 **A.** **You're -- You're going to acquire -- Even without**
13 **this they would have known that.**

14 **Q.** Okay.

15 **A.** **I mean, that's standard design practice.**

16 **Q.** Like rotary drives?

17 **A.** **Yes.**

18 **Q.** Sensors?

19 **A.** **Yes.**

20 **Q.** What else?

21 **A.** **Yeah, whatever else you need, arms, legs, I-beams.**

22 **Q.** Uh-huh. Okay. Let's give you another reference.

23 This is going to be Miller's, and this is going to
24 be Exhibit 1008.

1 Do you recognize Exhibit 1008?

2 **A. Yes, uh-huh.**

3 **Q. What is it?**

4 **A. This is cited as a construction machine -- or a**
5 **universal convertible construction machine.**

6 **Q. Would this be heavy machinery?**

7 **A. Yes.**

8 **Q. I forgot if I asked you. The last reference, Johns,**
9 **would that be heavy machinery, too?**

10 **A. Yes.**

11 **Q. Okay.**

12 **A. Yeah. Though we're defining heavy machinery across**
13 **a pretty broad thing, but, yes; I mean, that's a --**
14 **I mean, it's a platform, it's heavy, it's designed**
15 **for construction work, so, yeah.**

16 **Q. Okay.**

17 **A. Industrial work perhaps is the -- would be where**
18 **we'd say this, industrial perhaps. It's heavy**
19 **machinery.**

20 **Q. Does Miller disclose a slipform paver? It might**
21 **help to look at column 8, lines 48 through column 9,**
22 **line 18.**

23 **A. That would be great. Thank you. I'm just trying to**
24 **make sure I'm not confusing it with another one.**

1 Q. Sure.

2 A. Yeah. We have a paving machine running loose in
3 here, too, so, yeah.

4 Q. Uh-huh.

5 A. 49.

6 Q. Column --

7 A. Column 8?

8 Q. Column 8, line 48 through 9, line 18.

9 A. I'm not apparently connected with where you're at.
10 You said column 8. Give me the rest of it.

11 Q. Column 8, line 49 is where it starts.

12 A. Okay. Yeah, I was looking elsewhere. Uh-huh,
13 uh-huh.

14 Q. And I'm pointing it out just because it mentions the
15 word "slipform" a few times.

16 A. Okay, sure. Ah, yes, and it also talks about
17 "extruded concrete curbs." Yeah, there we go,
18 "slipform." So this is -- yes, this is a slipform
19 paving machine.

20 Q. Okay, so this is the Miller referenced?

21 A. Yes, uh-huh.

22 Q. Okay. Does this machine have crawler tracks?

23 A. Yes.

24 Q. Does it have jacking columns?

1 **A. Yes, uh-huh.**

2 **Q. And these jacking columns extend and retract, as**
3 **we've discussed --**

4 **A. Yes.**

5 **Q. -- earlier today? Okay. Let's go to Figure 20,**
6 **label 122.**

7 **A. (Witness complied.) Okay.**

8 **Q. Do you see the two components in Figure 20 labeled**
9 **122?**

10 **A. Yes.**

11 **Q. Okay. What are those? If it helps, look at**
12 **column 5, lines 21 through 36.**

13 **A. Okay. Oh, I think we're confusing -- Oh, let me get**
14 **this out of here; otherwise, we'll look at the wrong**
15 **column 5. There we go, okay.**

16 **Column 5 and then what lines?**

17 **Q. Lines 21 through 36, and we're trying to figure out**
18 **what number 122 is in Figure 20.**

19 **A. Ah, so we want to know what 122 is?**

20 **Q. Yes.**

21 **A. Okay. Let me see what they -- So they say that**
22 **that's the steering axis.**

23 **Q. Is it also called a steering housing?**

24 **A. Steering -- Let me look here. I would agree we**

1 **could call it that. I don't know that they use that**
2 **vocabulary, but they probably -- Oh, excuse me,**
3 **"steering housing." My eyes skipped --**

4 Q. That's fine.

5 A. -- **line by line, yes.**

6 Q. I think they do call it different things.

7 A. **Yep, yep.**

8 Q. So do you just want to call it the steering housing
9 for purposes --

10 A. **Steering housing is great --**

11 Q. Okay.

12 A. -- **yeah. Seeing their vocabulary I think it's -- is**
13 **easier.**

14 Q. Does Figure 20 show the steering housing being
15 positioned between the jacking column and crawler
16 track of the slipform paving machine?

17 A. **Let me see what 60 is here.**

18 Q. Sure, I can help you with that, too. I think if you
19 look at column 5, lines 21 through --

20 A. **Yep --**

21 Q. -- 62.

22 A. -- **I've got it there. Yes, I see have it.**

23 THE REPORTER: What was the --

24 MR. MROZ: Sure; Column 5, lines 21 through 62

1 for the court reporter. Thank you.

2 THE REPORTER: Thank you.

3 THE WITNESS: Okay, and remind me what the
4 question was.

5 MR. MROZ: Sure.

6 Q. Does Figure 20 show the steering housing 122 being
7 positioned between the jacking column and crawler
8 track?

9 A. Yes.

10 Q. Okay. Let's look at what's inside the steering
11 housing. So now we're going to go to Figure 7 of
12 Miller --

13 A. Let me be -- Yeah, let me be clear on that, in that
14 I believe, as I look at this diagram --

15 Q. Which diagram are you looking at?

16 A. I'm looking at 20.

17 Q. Okay.

18 A. -- that we see this is actually -- this is actually
19 attached to the walking beam of the machine's
20 frame --

21 Q. Okay.

22 A. -- and not to -- So the in between is I believe that
23 the -- the walking frame is in there, and that's
24 actually what it's attached to, then the -- which

1 means that we're not picking up individual legs or
2 something.

3 Q. Okay, but --

4 A. Yeah.

5 Q. -- we still have the jacking column above the
6 steering housing 122?

7 A. Yes, right. They're not connected.

8 Q. And then we have the crawler track below the
9 steering housing 122?

10 A. Yes.

11 Q. Okay.

12 A. Yeah.

13 Q. So now let's talk about what's inside that steering
14 housing.

15 A. Okay.

16 Q. This is where we'll go to Figure 7, and if you want
17 to read column 7 --

18 A. 6, 9 --

19 Q. So it's on the same page with 6 -- 5, 6, and 8.
20 They're all kind of, like, smashed --

21 A. Oh, 7 is off to the side.

22 Q. Yeah, it's hard to see.

23 A. That's okay. I liked the one where you had one --
24 had, like, 3 and 5 and then 4 was on the back.

1 **That's even trickier.**

2 Q. Yeah. So for Figure 7 --

3 A. **Uh-huh.**

4 Q. -- looking at the description about that, at least
5 one of the passages is at column 7, lines 35 to 60.

6 A. **Okay.**

7 Q. So please read that. Let me know when you're
8 finished.

9 A. **(Witness complied.) Okay. What's the question?**

10 Q. The first question is do you see the lead line going
11 to number 122 in Figure 7?

12 A. **I -- Oh, there we go. Got it, yes.**

13 Q. I'm just trying to make sure we have our bearing.

14 A. **Yeah. No, I've got it.**

15 Q. So is that the steering housing, 122?

16 A. **It appears to be.**

17 Q. Okay; so now we're in context, we're zeroing in on
18 one particular part of the --

19 A. **Uh-huh.**

20 Q. -- the slipform paver leg.

21 A. **Uh-huh.**

22 Q. Okay. Can you explain how the components in
23 Figure 7 are operating?

24 A. **So we have here -- as in the example we saw earlier**

1 with the ring gear, we have a pinion gear 238
2 driving the ring gear that then turns the -- the
3 inner bit of this, which I'm looking for the number
4 on, but I'm -- It might be 154. It's hard to know
5 where it's pointing at, yeah, and the base provides
6 a -- Yeah, which then drives 156 and 124.

7 Q. And so this is a rotary drive mechanism that's used
8 to rotate the crawler track?

9 A. Yes.

10 Q. Those components -- Well, some of the components you
11 just described, 154, 156, I believe, and also added
12 to that 230, are those inside the steering housing?

13 A. 154 appears to be inside and a bit outside the
14 steering housing --

15 Q. Okay.

16 A. -- yeah, but a part of the steering mechanism. 158
17 appears to be as well, although I haven't found a
18 description.

19 What was the other component you asked about?

20 Q. 156.

21 A. 156 appears to be the -- the top bit of the yoke or
22 the -- if you want to call it the --

23 Q. Okay.

24 A. -- steering yoke.

1 Q. So a large portion of this rotary drive is inside
2 the steering housing?

3 A. Hmm, I'm looking at the 240 and trying to see what
4 that encompasses here, what that's being called. I
5 can see it's inside the case, but I'm not sure that
6 it's inside the steering housing.

7 Q. Okay. I'm not saying all of it. I'm just saying --

8 A. Some portion of it. When you say a great deal of
9 it, I'm not sure I --

10 Q. I see.

11 A. Yeah, I'm skipping over that because it seems like
12 the important bits are outside the housing --

13 Q. Okay.

14 A. -- like the ring gear and the pinion gear --

15 Q. Uh-huh.

16 A. -- and then all of the stuff that's transmitting the
17 stress and keeping in the bearings and things are,
18 of course, inside the housing --

19 Q. Okay.

20 A. -- as we discussed in the other case where the
21 bear- -- The bearings have to have somewhere to
22 live.

23 Q. Uh-huh.

24 A. And we said, Well, but couldn't the bearings be --

1 **and I said, Well, there is no place for them to**
2 **live. They can't be there.**

3 Q. Yeah. Okay, so in Miller's design when the rotary
4 drive mechanism rotates the crawler track, does
5 anything in the jacking column rotate?

6 A. **No.**

7 Q. How far can the rotary drive mechanism in Miller
8 rotate the crawler track?

9 A. **I don't see that immediately.**

10 Q. So I'll refer you to column 7, lines 56 through 40.

11 A. **56 --**

12 Q. No, that can't be right; 54 through 60. Sorry.

13 A. **There we go. Ah, yes, I remember reading this and**
14 **thinking about it before. It says you can turn the**
15 **tractor more than 180 degrees, although then it**
16 **tells you you have to remove the electrical and**
17 **hydraulic connections, one thing and another and**
18 **reposition it.**

19 Q. Okay.

20 A. **Yeah, so it's possible, but you've got a lot of**
21 **mechanical stuff in the way.**

22 Q. Okay. Let's please read -- Can you read column 12,
23 lines 23 through 46 of Miller? This is in
24 Exhibit 1008.

1 **A. And in column 12? Give me the lines.**

2 Q. Sorry. What was that?

3 **A. Tell me which lines.**

4 Q. Sure, 23 through 46.

5 **A. Okay. (Witness complied.) Okay.**

6 Q. Does Miller disclose a system for sensing how much
7 the rotary drive shown in Figure 7 is rotating the
8 crawler track?

9 **A. Yes.**

10 Q. How does that system work?

11 **A. It senses the amount and sends that back to some**
12 **form of computer logic using a feed-forward driving**
13 **system -- I think it says feed-forward control**
14 **system. Maybe I'm reading that into it. Anyway,**
15 **using a control system and then from there**
16 **positioning the -- positioning the crawler tracks as**
17 **needed.**

18 Q. So I think you -- I think you're right. I mean, it
19 does mention the word "feed back unit" --

20 **A. Okay.**

21 Q. -- in line 24, column 12.

22 **A. Okay, line 24 -- Yeah, I was -- for some reason I**
23 **was thinking they were using a feed-forward system,**
24 **but they're not. I think my mind was just slipping**

1 **momentarily.**

2 Q. So we have a sensor system for detecting how much
3 the crawler tracks can rotate.

4 A. **Right.**

5 Q. And we're sending the position --

6 A. **Uh-huh.**

7 Q. -- of the crawler track to a computer --

8 A. **Uh-huh.**

9 Q. -- which employs a feedback system to make --

10 A. **Of some form, yeah.**

11 Q. -- sure --

12 A. **A control system of some form.**

13 Q. -- to make sure it's at the right -- the --

14 A. **Yeah, uh-huh.**

15 Q. -- crawler track is in the right rotation position?

16 A. **Yes.**

17 Q. Okay. Is this a feedback loop?

18 A. **Yes.**

19 Q. Would you call this a complex feedback loop?

20 A. **No.**

21 Q. One that maybe your undergrads even could do?

22 MR. PRICE: Objection.

23 A. **Hmm, I wouldn't trust them to do it. I mean, "can**
24 **do" and "would do" are very different things. I**

1 mean, this is a -- this is a relatively simple
2 device. That is, it says go there and it goes there
3 and it reports back what's happening. There are
4 probably sensors and things that we're not seeing
5 because there are other forces involved, you know,
6 yeah. So, yes, I mean, I'm sure that a sophomore
7 mechanical engineering student would think they
8 could do it, particularly after they took Controls,
9 which is generally a junior-level class. I'm sure
10 that if I were an experienced engineer, I might have
11 them do the first cut, but I would check it pretty
12 closely.

13 BY MR. MROZ:

14 Q. But a person with skill in the art would know how to
15 do this?

16 A. Yes, a person with skill in the art could do this.

17 Q. We can agree to that?

18 A. Yes; I mean, I think a person of skill in the art
19 precludes sophomore mechanical engineering students.

20 Q. Fair enough. Okay, so let's summarize what Miller
21 discloses. We have a slipform paver with jacking
22 columns and crawler tracks?

23 A. Uh-huh.

24 Q. Yes?

1 **A. Yes.**

2 Q. This Figure 20 shows we have a housing between the
3 jacking columns and crawler tracks with the rotary
4 drive componentry inside --

5 MR. PRICE: Objection.

6 BY MR. MROZ:

7 Q. -- that was used to rotate the crawler track more
8 than 180 degrees?

9 MR. PRICE: Objection.

10 **A. Yes, though I do -- I do note here that the steering**
11 **spindle is -- is attached to the walking beam and**
12 **not related to the columns.**

13 BY MR. MROZ:

14 Q. Okay.

15 **A. So I think that's in agreement with what you said --**

16 Q. Uh-huh.

17 **A. -- but it's a clarification of it.**

18 Q. Okay; and the last point, nothing in the jacking
19 column rotates while the rotary drive is rotating
20 the crawler track?

21 **A. That's correct, because it's not attached to the**
22 **system.**

23 MR. MROZ: Okay. I have no idea how long we
24 have been going. Do you want to take a break or

1 keep going?

2 THE REPORTER: I would like a small break,
3 please.

4 (A recess was taken.)

5 MR. MROZ: All right. Welcome back, Dr. Bryden.

6 Q. I've given you now Exhibit -- Gomaco Exhibit 1010.

7 A. Okay.

8 Q. Do you recognize this document?

9 A. I do.

10 Q. What is it?

11 A. So this is a slipform paver/trimmer, so it's a small
12 machine, as we see in the picture even, and its
13 intention is to be able to do curbs and things, I
14 believe, uh-huh. It's kind of a cute machine.
15 Yeah, I'm not sure I addressed this in my deposition
16 (sic), but I may have. Remind me.

17 Q. I can point you to that.

18 A. That would be great. Thank you.

19 Q. Can you go to paragraph 66 on page 35, please?

20 A. Okay, great. Perfect. Thank you. 65?

21 Q. Page 35, paragraph 66.

22 A. 66. Okay, thank you. I was looking at 65 and
23 saying it's not there. Ah, yes, and you have it
24 highlighted.

1 Q. That -- That means it's confidential.

2 A. Ah.

3 Q. Yeah, but we're not going to talk about that part of
4 it today, so -- Well, unless you want to.

5 A. **No, that's fine, yeah; no.**

6 Q. That's how -- The rules require the parties to
7 designate confidential information that way, so
8 everyone knows what's confidential.

9 A. **We can't talk about it afterwards.**

10 Q. Yeah. What's funny about these depositions is like
11 most of them are public for IPR. Like, someone can
12 walk in off the street and listen.

13 A. **That's interesting. I didn't know that.**

14 Q. Yeah. All right, so I've given you Exhibit 1010.

15 A. **Uh-huh.**

16 Q. And can you please turn to page 3? And I'm
17 referring to the exhibit numbers on the bottom in
18 bold.

19 A. **Yeah, I see 3. Okay. It says 3 of 8.**

20 Q. Perfect.

21 A. **Uh-huh.**

22 Q. Does this 3200 machine have a front leg? And feel
23 free to look at other pictures as well.

24 A. **I'm trying to figure out what we would mean by front**

1 and which -- and what the paving direction is.

2 Q. Yeah, and feel free to reference the entire manual.

3 A. Yeah, I was going to say I think -- I think if we
4 look at the front picture, we can see the leg -- the
5 front page we can see the leg much more clearer and
6 see that it is a leg, if I've got it, and that it's
7 on the front, the front being in the paving
8 direction.

9 Q. Okay, perfect.

10 A. Yeah, I think that's what you mean.

11 Q. It is.

12 A. Okay, good.

13 Q. And the front leg, does it have a jacking column?

14 A. Yes; that we can see up in the far corner
15 (indicating).

16 Q. You're on page 3?

17 A. I'm on page -- I'm back on page 3. I was just
18 trying to get set. It's not clear from, like, for
19 instance, the picture in the upper right corner that
20 that's the front of the machine.

21 Q. Uh-huh.

22 A. Yeah, so I'm not sure we're concerned about the
23 position on the machine but, rather, that it's a
24 jacking column and -- yeah, and swing arm. It

1 **appears to be a swing arm. I'm trying -- I don't**
2 **know. Okay. Go ahead.**

3 Q. So if we look at, just to get our bearings --

4 A. **Uh-huh.**

5 Q. -- that front leg --

6 A. **Okay.**

7 Q. -- that you talk about and on the back are there two
8 crawler tracks?

9 A. **Hmm, huh. You can clearly see one crawler track.**
10 **There is probably another one hidden in here.**

11 Q. Feel free to look at the other pictures.

12 A. **Let me look at the other pictures --**

13 Q. Yeah.

14 A. **-- yeah. It would make -- I mean, you're not going**
15 **to put this thing up on two tracks; right? I mean,**
16 **it would make sense that there is another track back**
17 **there. Okay. Yeah, you can see it on page 7. This**
18 **is very clear. Yeah, so on page 7 you see the front**
19 **leg and then the two back crawler tracks in the**
20 **bottom left corner.**

21 Q. Uh-huh.

22 A. **Does that make sense to you?**

23 Q. Yes. I think you can see them in other pictures as
24 well, like in the top -- on page 3 the top right,

1 you can kind of see that crawler track --

2 **A. Ah, yeah.**

3 **Q. -- underneath.**

4 **A. There we go. Yeah, underneath, underneath.**

5 **Q. So we have a tripod-type design?**

6 **A. Yes.**

7 **Q. And I think -- I'm not trying to put words in your**
8 mouth, but to me it appears that the front leg --
9 the -- well, the part of the machine with one leg is
10 always the front.

11 **A. It appears to be.**

12 **Q. Okay.**

13 **A. I mean, it looks like that's the driving**
14 **direction --**

15 **Q. Uh-huh.**

16 **A. -- and I don't think you drive these in a backward**
17 **direction because you have the stuff that gets the**
18 **pavement flat.**

19 **Q. Exactly.**

20 **A. Yeah.**

21 **Q. And if you look at page 2, the bottom right-hand**
22 picture, can you see the two crawler tracks?

23 **A. Yes.**

24 **Q. And --**

1 **A. That's another place you can see 'em very clearly.**

2 Q. -- the cement coming from behind. So does that
3 confirm that the two crawler tracks are on the rear
4 side of the machine?

5 **A. Yes, uh-huh. Although when you say the cement's**
6 **coming from the rear, what you really mean is the**
7 **pavement has been set. We're throwing the cement**
8 **into the front --**

9 Q. Correct.

10 **A. -- and then it's being turned into a paved surface.**

11 Q. The finished cement --

12 **A. Yeah, there we go.**

13 Q. -- in this picture suggests that the two crawler
14 tracks are in the rear of the machine?

15 **A. Yes.**

16 Q. Okay, so what I'd like you to do now is look at --
17 this is a short document; it only has eight pages --
18 look at every instance of the front leg --

19 **A. Okay.**

20 Q. -- and see how the jacking column is oriented
21 relative to the machine.

22 **A. (Witness complied.) So tell me what you mean by**
23 **"the jacking column is oriented relative to the**
24 **machine."**

1 Q. Sure. So --

2 A. You mean how the track is oriented or how the beam
3 and column itself is actually oriented?

4 Q. The jacking column portion. So --

5 A. Okay.

6 Q. -- we have a yellow boxlike structure.

7 A. Uh-huh, yes.

8 Q. That's the upper part.

9 A. Uh-huh.

10 Q. Do you see that?

11 A. Yes.

12 Q. And then do you see there is a black boxlike
13 structure that comes out the bottom of the yellow
14 boxlike structure?

15 A. Yes.

16 Q. Is that the jacking column?

17 A. The two pieces together?

18 Q. Yeah.

19 A. Yes.

20 Q. Okay, perfect.

21 A. Yeah.

22 Q. So I want you to go through and look at how those
23 two -- those two components are oriented relative to
24 the rest of the machine, and specifically that box

1 that says, GT 3200 --

2 **A. I'm not sure where you're looking. I'm sorry.**

3 Q. Sure. Okay. Let's take a step back. Let's look at
4 the first page.

5 **A. Okay, the front page.**

6 Q. Yeah, the front page. Do you see how it says
7 GT 3200 on that box next to the operator?

8 **A. Yes.**

9 Q. Do you know what that is?

10 **A. It would appear to be the engine, probably some**
11 **controls are thrown in there --**

12 Q. Okay.

13 **A. -- one thing or another.**

14 Q. Okay, so what I'd like you to do is go through this
15 document and -- and look at how the jacking column
16 components are positioned relative to that box.

17 **A. Okay. (Witness complied.) Okay. It looks like**
18 **we're always in the forward direction. It doesn't**
19 **look like a swing. It looks like it sits there.**

20 Q. Okay, so do these pictures that you just looked at
21 always show the front and back faces of the front
22 leg as being parallel to the front and back faces of
23 that engine box with the GT 3200 on it?

24 MR. PRICE: Objection.

1 **A. Yes.**

2 BY MR. MROZ:

3 **Q.** Okay, and do these pictures always show the left and
4 right faces of that front leg as being parallel to
5 the left and right faces of that engine box?

6 **A. Yes.**

7 **Q.** Now I'd like to compare the rotational positions of
8 the crawler track on the front leg relative to that
9 jacking column componentry we just talked about.

10 So can you please look through all the pictures
11 again and look at the rotational position of the --
12 of the crawler track relative to the jacking column
13 components above it?

14 **A. Okay. (Witness complied.) Okay.**

15 **Q.** So are you good?

16 **A. We're good, yep.**

17 **Q.** All right, so in some pictures do you agree that the
18 crawler track is facing the straight-ahead
19 direction?

20 **A. Yes.**

21 **Q.** And in other pictures the crawler track is
22 rotationally turned relative to the jacking column?

23 **A. Yes.**

24 **Q.** Okay. Now, go to paragraph 3 -- I'm sorry, page 3,

1 please.

2 **A. Okay.**

3 **Q. And do you see where it says, Maneuverability?**

4 **A. Yes.**

5 **Q. It says, The front track features a unique rotary**
6 actuator system that allows the track to turn up to
7 90 degrees either side of the straight-ahead line
8 and does not operate on hydraulic cylinders. This
9 feature provides excellent maneuverability and tight
10 radius capability.

11 **A. Yes.**

12 **Q. Okay, so is the rotary actuator described in this**
13 passage what rotates the crawler track on the front
14 leg?

15 THE WITNESS: Say that again. I'm sorry.

16 MR. MROZ: Sure.

17 **Q. Is the rotary actuator that we just described in**
18 this passage -- or this passage just described what
19 rotates the front crawler track?

20 **A. Yes.**

21 **Q. Okay, and it rotates the front crawler track**
22 relative to the jacking column components above it?

23 **A. Yes.**

24 **Q. And then the next part of this clause -- or this**

1 passage says, The rotary actuator can turn the
2 crawler track 90 degrees in each direction.

3 Do you see that?

4 **A. Yes.**

5 Q. So that means it can turn -- the rotary drive can
6 turn the crawler track 180 degrees total?

7 **A. Sure. Although when you say, "180 degrees," I mean,**
8 **it tempts you to want to think it can look**
9 **backwards, and, no, it can't. It's turning**
10 **90 degrees to each side.**

11 Q. Which totals the 180 degrees?

12 **A. Yeah. I don't like the vocabulary. So I like the**
13 **specificity of 90 degrees each side --**

14 Q. Okay.

15 **A. -- but whatever you would like. I mean, we can say**
16 **180 degrees because it can go from here (indicating)**
17 **to there (indicating), which is a 180-degree sweep,**
18 **so --**

19 Q. It can go halfway around a circle?

20 **A. It can go halfway around a circle.**

21 Q. Okay, perfect.

22 **A. Yeah.**

23 Q. So this exhibit shows a slipform paving machine --

24 **A. Now, I would note that they also say the same thing**

1 **as I did, 90 degrees each direction. So I -- I**
2 **think that may be more engineering-esk than --**

3 Q. Okay, that's fair. So this is a slipform paver;
4 right?

5 A. **Uh-huh.**

6 THE REPORTER: Your answer?

7 A. **Yes.**

8 Q. So we have this exhibit showing us a slipform paver
9 with a rotary actuator at the bottom of the front
10 jacking column where that rotary actuator rotates
11 the crawler track up to 180 degrees relative to the
12 jacking column?

13 A. **Okay.**

14 Q. Is that correct?

15 A. **Yes.**

16 Q. Would it make sense that this kind of rotary
17 actuator under this design is a slew drive?

18 A. **Hmm, it could be, but it's hard to tell from the**
19 **diagram, and I think if it was a slew drive they**
20 **would have said that.**

21 Q. Okay.

22 A. **I think a slew drive would have implied a much**
23 **tougher sort of drive. Again, I think this is a**
24 **small machine, and so it's using a rotary drive.**

1 Q. Okay.

2 A. Yeah. When I look at the pictures, it doesn't look
3 like a slew drive, but these are small pictures. I
4 remember looking at this online and blowing it up
5 and trying to ponder it, so -- You get the picture
6 and you make it bigger and bigger, and it gets
7 fuzzier and fuzzier, and you go, like, Okay, it's
8 beyond the point of being able to figure it out.

9 Q. Understood.

10 A. But I think we could reasonably say that they
11 haven't said that, so, therefore, they're using some
12 other sort of rotary actuator.

13 Q. But they could be using a slew drive?

14 A. Could be.

15 Q. Okay.

16 A. It just doesn't look like it quite right --

17 Q. Okay.

18 A. -- yeah. It's not even clear to me that the -- that
19 it's not the column that's moving, though, but it's
20 hard to tell --

21 Q. Okay.

22 A. -- from this document, yeah. I mean, a rotary
23 actuator could be turning the inner column, as in
24 some of the other designs.

133

1 Q. Okay, but wouldn't that mean that the lower black --

2 A. Yeah, but --

3 THE REPORTER: Whoa.

4 Q. -- (inaudible) would turn to?

5 A. Yes.

6 THE REPORTER: Just a minute.

7 MR. MROZ: Sorry.

8 THE WITNESS: "that the lower black" what?

9 Q. Jacking column component we just talked about would
10 be turning into.

11 A. Yes.

12 Q. And we didn't see it turning in that document, did
13 we?

14 A. It's hard to tell from these pictures.

15 Q. Well, it's always facing the same direction;
16 correct?

17 A. I'm trying to figure out if it's square. Let's
18 start there.

19 Q. It is. Well, sorry, you can tell me. You can look
20 at it.

21 MR. PRICE: Objection to the attorney
22 testifying.

23 A. Yeah. Okay, so I can see -- In this picture it
24 becomes clear that it's square.

1 BY MR. MROZ:

2 Q. And I only brought that up because you talked about
3 the faces being --

4 A. Yeah, no.

5 Q. -- parallel.

6 A. I got that. I just was thinking outside the box,
7 and when I look at the bottom in the photographs,
8 it's difficult to tell, but on page 6, this diagram
9 in the upper left-hand corner does make it very
10 clear that that's a square, but --

11 Q. Okay, so we're not seeing that square bit --

12 A. That square bit is --

13 THE REPORTER: Whoa, whoa.

14 MR. MROZ: Sorry. So let me say that again.

15 THE REPORTER: I didn't get the question.

16 MR. MROZ: I'll repeat the question.

17 Q. All right, so the bottom square bit -- the bottom
18 portion of the jacking column, I should say, is not
19 moving at all rotationally?

20 A. Right.

21 Q. Okay. In this 3200 machine?

22 A. Yes.

23 Q. Okay, but the crawler track is?

24 A. Yes.

1 Q. So the crawler track is rotating in response to the
2 rotary drive?

3 A. **Uh-huh, yes.**

4 Q. And nothing above the rotary drive is rotating?

5 A. **Right.**

6 Q. Okay. Thank you.

7 A. **Yeah.**

8 Q. All right. I'm going to give you --

9 A. **Which is consistent with what I said here also, I**
10 **see. Good. It's always good to be consistent.**

11 Q. It is. This is Exhibit 1013. Do you recognize this
12 document?

13 A. **I do.**

14 Q. Okay. What is it?

15 A. **Let me try to remember. This is a steering unit,**
16 **and I believe it's not attached to anything in**
17 **particular --**

18 Q. Okay.

19 A. **-- right. As I recall, it says here's how you could**
20 **do steering, and it has, as we see, a slew gear-like**
21 **bit, yes. Okay.**

22 Q. Can you please look at Figures 14 and 15 --

23 A. **Sure.**

24 Q. -- of Swasey and paragraph 41?

1 **A. So do I address Swasey in my declaration?**

2 Q. I don't think it's in your declaration, but it is in
3 Mr. -- or Dr. Singhose's declaration. So if you
4 don't want to talk about it, that's fine. I was
5 going to give you a chance to talk about it.

6 **A. I'll pass on that opportunity.**

7 Q. Okay.

8 **A. I want to be the considerate and careful engineer --**

9 Q. Sure. Well --

10 **A. -- as opposed to the spontaneous, "Hey, it looks**
11 **like" -- yeah.**

12 Q. Sorry. I thought you had said you had considered
13 it, so that's why I --

14 **A. I did. No, I -- I have read this, but I would**
15 **prefer -- but I haven't read it in the sense that**
16 **I've taken a position on it. I think I had**
17 **dismissed it in the sense that it doesn't discuss a**
18 **complete unit. It's just this bearing operation.**

19 Q. Okay.

20 **A. Yeah.**

21 Q. So you're going to offer -- Well, just correct me.
22 I just want to make sure we know what the bounds of
23 your testimony are.

24 **A. Sure.**

1 Q. So you are not going to offer any opinion on what
2 the Swasey reference discloses?

3 A. No.

4 Q. Okay. In this proceeding, in the IPR proceeding,
5 and in the one we're going to talk about tomorrow?

6 A. Right, and unless I've addressed it in that, and I'd
7 have to go back and look.

8 MR. MROZ: Okay, but definitely not today?
9 Well --

10 MR. PRICE: Listen, he can ask you questions and
11 you can answer them.

12 THE WITNESS: Sure. Okay. Ask questions, and
13 when we get into spaces that I am not comfortable,
14 then we can --

15 MR. MROZ: Okay.

16 THE WITNESS: Okay, yeah. I'm leery of
17 taking -- of being led into corners that I haven't
18 explored.

19 MR. MROZ: Sure. Well, I don't want to make you
20 uncomfortable, so I --

21 THE WITNESS: Go ahead.

22 MR. MROZ: Just let me know.

23 THE WITNESS: No, but go ahead.

24 MR. MROZ: Okay.

1 Q. Take a look at paragraph 41 and Figures 14 and 15.

2 A. Okay. (Witness complied.)

3 MR. MROZ: And this is Swasey Exhibit 1013 for
4 the record.

5 A. Yes, and so paragraph 41 -- Wow, there are a lot of
6 pictures. Okay. I'm on 41, and what figure are we
7 looking at?

8 Q. Figures 15 -- sorry, 14 and 15.

9 A. 14 and 15. Okay, I am there.

10 Q. Okay. What do Figures 14 and 15 show?

11 A. It shows a -- a worm drive.

12 Q. A slew drive?

13 A. Likely it would be the vocabulary you would use,
14 uh-huh. I note here the vocabulary they use is a
15 worm shaft or worm drive --

16 Q. Okay.

17 A. -- but slew drive.

18 Q. Okay. Is it -- Are those synonyms in the industry?

19 A. Yes and no.

20 Q. Can you elaborate?

21 A. I'm reluctant to. When you have a slew drive, you
22 often see -- These are often, it's not always, and
23 -- but you often see the drive I want to say curved
24 a little bit. You see that the -- to get more

1 contact surface with the ring gear as it were,
2 whereas here this looks like this is a straight-up
3 worm gear-driven device, like Arcamedies would
4 devise.

5 Q. Okay.

6 A. I mean, and I think the -- I think the vocabulary is
7 consistent either way, but I'm sort of respecting
8 the patent writer here.

9 Q. Okay.

10 A. That it's a relatively recent patent, 15 years ago,
11 and they have chosen to say, "worm gear," so --

12 Q. Okay.

13 A. -- I'm not sure that -- I'm not sure that's because
14 they didn't want to exclude other things or -- but I
15 think if you use the two -- I think if you would say
16 slew gear, people would say they were a part of the
17 worm gear family. I'm not sure worm gears would
18 think they were a part of the slew gear family.

19 Q. I see. Okay, so --

20 A. And I'm not an expert on vocabulary --

21 Q. Oh, that's fine.

22 A. -- and haven't explored this. That was more of my
23 experience than any, you know --

24 Q. So under your experience the definition of slew

1 drive would require the worm to be curved?

2 **A. Well, it would require that it be intended for heavy**
3 **operation but wouldn't exclude this (indicating)**
4 **design.**

5 Q. Okay, so this could be a slew drive?

6 **A. It could be, yeah.**

7 Q. Is it a slew drive?

8 **A. Sure.**

9 Q. Okay.

10 **A. Yes; I mean --**

11 Q. Okay.

12 **A. -- like I said, the author doesn't tell us that,**
13 **but --**

14 Q. But in your expert opinion this is a type of slew
15 drive?

16 **A. This is a type of slew drive --**

17 Q. Okay.

18 **A. -- yeah.**

19 Q. All right. Paragraph 44, please, can you read that?
20 And, again, we're in Swasey.

21 **A. (Witness complied.) Okay.**

22 Q. Do you see where it says at the very last sentence
23 in paragraph 44, In addition, the omnidirectional
24 drive and steering gear units -- Sorry. Strike

1 that.

2 In addition, the unit is preferably designed to
3 be very robust and to perform all of these
4 operations while bearing a very large load and
5 providing a significant amount of torque relative to
6 the overall size of the unit.

7 **A. Yes.**

8 **Q.** So Swasey discloses a, quote, very robust slew drive
9 that's designed to bear a, quote, very large load.

10 **A.** Yes, but I think he -- he reveals more than just the
11 slew drive itself, so I think the slew drive is a
12 part of that --

13 **Q.** Okay.

14 **A.** -- but let me go back and look at the front of this.
15 Oh, I have flipped over pages. Let me go back.
16 Here we go. He's described the slew gear, but he's
17 put this together in terms of a -- I've lost the
18 word momentarily -- a driving unit or gear unit. So
19 he's put -- he's put a whole bunch of things
20 together that you would need to put together in
21 order to load something on this. So I think the
22 answer to your question is yes, but it's not just a
23 slew drive. It is all the pieces that would go with
24 it to make it work.

1 Q. What are those pieces?

2 A. So we're seeing the bearing rings and the coupling
3 mounts and the whole --

4 Q. Where is the bearing rings?

5 A. So I'm looking at on the diagram on page 1.

6 Q. Okay.

7 A. I'm not sure it has a -- but -- so --

8 Q. On the face of the patent you mean?

9 A. Yeah, right here (indicating).

10 Q. Okay, all right.

11 A. So we're seeing the -- and I'm guessing that this
12 (indicating) is a bearing ring. I mean, you've got
13 this thing sitting, and it's got to turn, so it's
14 got to have some form of --

15 Q. Okay.

16 A. -- bearing with it, and we're seeing a spindle here
17 (indicating) that's driving. So what he has is a
18 complete -- and often when you buy these units,
19 you're buying a complete drive unit.

20 Q. I see. That includes a slew drive --

21 A. Yeah, right.

22 Q. -- in it?

23 A. All the pieces. You wouldn't -- Again, you don't
24 want to get the slew drive and then have to pack --

143

1 find the right bearing and find the right -- It's
2 like getting the bearings for your car. You get the
3 whole unit --

4 Q. Okay.

5 A. -- put together.

6 Q. So you're bearing the slew drive device where you
7 can just put it underneath something and on top of
8 something --

9 A. Right.

10 Q. -- and you're good to go?

11 A. Yeah, right. That's the -- That's the intention of
12 this design.

13 Q. Okay, so then it's just a matter of figuring out how
14 big the slew drive is you need for what you need it
15 for?

16 A. Yeah, or how big this device has to be.

17 Q. Yeah. If you --

18 A. I don't think that -- I don't recall that this
19 patent gives us that kind of -- It's not like the
20 one we read that has the size and this and that.
21 This says I've got this device, and I'm presuming
22 that's extensible to whatever size you happen to
23 need it.

24 Q. Uh-huh. So a company like that, Kinematics Company

1 we talked about earlier, do they provide slew drives
2 like this?

3 **A. Likely; though I'm not certain.**

4 Q. Okay. At least based on this Swasey reference alone
5 a person with skill in the art would know that if
6 they get a slew drive, it's kind of like built to be
7 plugged in --

8 **A. Yep.**

9 Q. -- to your --

10 **A. Yes.**

11 Q. -- to like a plug-and-play-type design?

12 **A. Yeah, you would expect that, though you would have**
13 **the question of whether the company would warranty**
14 **it for your application.**

15 Q. Sure.

16 **A. Yeah; I mean, that would be the -- the question, and**
17 **these guys have warranted it for some heavy use, but**
18 **they don't tell us what the limits are.**

19 Q. Okay. Do companies that sell these types of slew
20 drive mechanisms -- ready-to-go slew-drive
21 mechanisms test them?

22 **A. Of course.**

23 Q. So they likely know what types of loads these things
24 can handle?

1 **A.** Or if you called them with a -- with something that
2 they haven't considered, they would probably do the
3 testing for you --

4 **Q.** Okay.

5 **A.** -- or you would want them to do that; I mean, you
6 want to buy this as a warranty unit.

7 **Q.** I mean, they're trying to sell a product, so they're
8 going to do whatever it takes to --

9 **A.** Well, within reason.

10 **Q.** Yeah.

11 **A.** I mean, it depends how many you're going to buy and
12 how much it costs --

13 **Q.** Yeah.

14 **A.** -- like anything else, I mean, but they should have
15 a good idea of what the capabilities of their
16 products are.

17 **Q.** Okay.

18 **A.** That doesn't necessarily mean that that would
19 preclude you from having to do testing of the unit
20 on your unit. I mean, it's hard for them to -- I
21 mean, imagine again that you have the unit we just
22 looked at, and you have -- You say, I'm going to put
23 this unit here instead of the drive unit that they
24 had, you would want to try it out and make sure that

1 it can be coordinated with the back wheels, which
2 are fixed in that unit (indicating) and one thing or
3 another. So there might be -- you may not know the
4 specifications for your device as well as you would
5 like in these situations where you have dynamic
6 loading. You have all kinds of simulation and
7 modeling that you can do, but in the end you need
8 to -- you're going to tell them it needs to be this
9 or that and then you're going to go test it; so
10 there would be testing on both sides --

11 Q. Yeah, makes sense.

12 A. -- to make sure that it's -- yeah.

13 Q. When was this filed?

14 A. **2009, I believe. 2010? Let me look. Filed 2010,**
15 **January 15th.**

16 Q. Okay, so at least as of then it was known that you
17 could buy these ready-to-go slew drive --

18 A. **Uh-huh.**

19 Q. -- mechanisms?

20 A. **Right, or at least that somebody had proposed that**
21 **you'd be able to buy them.**

22 Q. Uh-huh.

23 A. **Filing a patent and having one may be two different**
24 **events.**

1 Q. Makes sense.

2 A. **Right.** I mean, often we file patents for things
3 that we don't have yet but would like to have --

4 MR. MROZ: Yeah.

5 A. -- yeah.

6 MR. MROZ: Okay. I think I'm ready for lunch,
7 if you --

8 THE WITNESS: Okay. Sure, that would be great.

9 (A recess was taken.)

10 Q. I'm going to give you now, Dr. Bryden, the --
11 Exhibit 1001, which is the '318 patent.

12 A. **Okay.**

13 Q. And that's the patent at issue in this proceeding;
14 correct?

15 A. **Uh-huh.**

16 THE REPORTER: Your answer?

17 A. **Yes.**

18 Q. Okay, so I just want to ask you about Claim 4
19 specifically.

20 A. **Okay; okay.**

21 Q. Do you see where it says, The swing leg assembly of
22 Claim 2 wherein the hydraulic actuator's configured
23 to be disengaged from at least one of the hinge
24 brackets and the swing leg when the swing leg is

1 positioned in a transport orientation?

2 **A. Yes, uh-huh.**

3 **Q. Okay. What is the transport orientation?**

4 **A. The transport orientation is perpendicular to the**
5 **normal direction -- paving direction. So if you're**
6 **paving forward, the problem is the device is too**
7 **wide to fit on a flatbed truck. It would make**
8 **transport difficult, and so the goal is to get it to**
9 **be narrow, and so you take the arms and you move**
10 **them perpendicular to the -- what you might think of**
11 **as the paving direction, and of course they move and**
12 **the thing turns (indicating), but --**

13 **Q. Okay.**

14 **A. -- yeah, they're perpendicular to the -- the normal**
15 **frame, and they allow you to draw it forward, and it**
16 **fits on a flatbed truck.**

17 **Q. Okay, so whenever the machine is in the transport**
18 **position it is not driving the paving direction;**
19 **correct?**

20 **A. Right.**

21 **Q. Okay. Understood. Now let's talk about disengaging**
22 **the hydraulic actuator --**

23 **A. Uh-huh.**

24 **Q. -- from at least one of the hinge brackets --**

1 **A.** **Uh-huh.**

2 **Q.** **-- in the swing leg.**

3 Can you describe that feature?

4 **A.** **Sure. It's easier to look at the picture. We may**
5 **not have a picture here, but you have the device,**
6 **and so when you're driving it and you're -- you**
7 **have -- the swing leg is allowed to move this way**
8 **(indicating) and that (indicating), and that's being**
9 **driven by a hydraulic actuator. When you go to take**
10 **it to the driving position, the swing leg, as you --**
11 **you -- and the directions, sorry, that you push**
12 **these over until you get to you're just about closed**
13 **but not quite -- or just about 90 degrees, but you**
14 **can't quite get there because the hydraulic actuator**
15 **gets in the way of the frame. So you unpin that and**
16 **then you can walk the device in the rest of the way**
17 **with the track, 'cause you can control the track**
18 **independently (indicating), of course.**

19 **Q.** **Okay. Is the machine driving in the paving**
20 **direction whenever someone is disengaging the**
21 **hydraulic --**

22 **A.** **No.**

23 **Q.** **-- actuator?**

24 **A.** **This is a separate operation. You can think of you**

1 have paving and then you have preparing for
2 transport.

3 Q. Okay. When you're preparing for transport, the
4 machine is stopped?

5 MR. PRICE: Objection.

6 A. Well, when we say, "stopped," it's not paving, but
7 the legs are moving. So you have your legs and you
8 can move those in with your hydraulic actuators.
9 The first thing is you move -- The first thing you
10 do is you move the sensors out of the way and you
11 can see there are sensors, and you center those so
12 they don't get whacked by the paving legs -- or by
13 the hinge legs and then you use the hydraulics to
14 move the legs in (indicating) as far as they can go
15 and then you unpin the device and then you rotate it
16 in the rest of the way. Of course, this requires
17 that the -- the tracks be moving. You can't drag
18 them with a hydraulic arm.

19 Q. Uh-huh.

20 A. I mean, you have a hydraulic -- you have an arm;
21 it's moving, and the tracks have to move in concert
22 with it, and so in that sense everything is still
23 functioning as you might think, and -- and your --
24 your hinge leg -- I've lost the word here. Let me

1 turn it back. As everything would normally work,
2 it's simply that you're mov- -- you have -- you're
3 coordinating the movement of the track crawler and
4 the hydraulic post and the hinge.

5 Q. Okay. You talk about unpinning something.

6 A. Right.

7 Q. Were you talking about the hydraulic actuator?

8 A. Yes.

9 Q. Okay.

10 A. It's pinned to -- It's pinned to the frame and to
11 the -- and to the arm.

12 Q. Okay; and it says, "disengage." What does disengage
13 mean in -- Claim 4?

14 A. As far as I know, it just means unpinned.

15 Q. Okay.

16 A. It's taken off, so it's not -- it's no longer
17 controlling the leg.

18 Q. I see, okay. And --

19 A. I believe that this is done largely because you want
20 to use it as much as you can in order to simplify
21 the operation and minimize people having to mess
22 with it and then you -- you unpin it -- At the
23 last -- When you get down to the last bit, that you
24 can't -- where the -- where the actuator's in the

1 way, you need to unpin it so you can get it out of
2 the way and then you use the crawler track to
3 crawl -- move the device the rest of the bit.

4 Q. Okay.

5 A. And I think the words they use are "to walk it in."

6 Q. Now when this happens --

7 A. Uh-huh.

8 Q. -- and we walk in the crawler track and swing leg
9 for the last little bit --

10 A. Right, uh-huh.

11 Q. -- is the chassis of the machine moving --

12 MR. PRICE: Objection.

13 THE WITNESS: Hmm.

14 BY MR. MROZ:

15 Q. -- or is that stopped?

16 A. I'm not sure there is a requirement that the chassis
17 be moving or not moving. I mean, I -- I've seen the
18 operation, and I don't recall -- It wasn't an
19 important part of the operation.

20 Q. Okay.

21 A. I mean, so the chassis might be moving slightly, but
22 the intent really is to get the legs lined up in
23 this 90 degrees narrow bit.

24 Q. Okay.

1 **A. So if the chassis moves, I mean, it's moving ever so**
2 **slightly.**

3 **Q. Okay, so if I'm trying to figure out what the scope**
4 **of this claim is, Claim 4, it can cover situations**
5 **where the chassis is stopped while the legs are**
6 **walked in; is that correct?**

7 **A. Let me look here. Yes, 'cause it's preparing it for**
8 **transport operations; so the intent of being**
9 **prepared for transport operation is to move the**
10 **legs, not to move the chassis per se.**

11 **Q. And by "chassis" I just mean that everything --**

12 **A. Sure; right, the -- the paving frame.**

13 **Q. "the paving frame," that's a better term.**

14 So -- So whenever I'm walking these legs in,
15 like Claim 4 requires, and unpinning the --

16 **A. Uh-huh.**

17 **Q. -- hydraulic actuator --**

18 **A. Right.**

19 **Q. -- the paving frame could be stopped?**

20 **A. Uh-huh.**

21 THE REPORTER: Your answer?

22 **Q. Is that a yes?**

23 **A. Yes, and I think once you stop the -- once you pull**
24 **the pin you probably don't want to be driving it**

1 anyway in the sense that you -- I mean, this pin is
2 like the size of your wrist or bigger that you're
3 driving in.

4 Q. Okay.

5 A. This is not a cotter pin. This is (indicating) a
6 pin; this is a heavy piece of, you know, machinery,
7 and so I think that that -- the intent is that, like
8 I said, you drive it in the last little bit to get
9 everything lined up nicely and then load it up.

10 Q. And your preference is to have the machine stopped
11 while you do that?

12 A. It would seem like it.

13 MR. PRICE: Objection, form.

14 BY MR. MROZ:

15 Q. Because it would be dangerous if you didn't?

16 A. I'm not sure that it would be dangerous if you
17 didn't; I mean, there is nobody standing on the
18 ground there, but on the other hand, there is no
19 intent to move the machine at least until everything
20 is lined up and then you have to get it up on the
21 transport -- transport trailer, and the machine
22 drives itself up there.

23 Q. So at that point you move the machine again?

24 A. Yeah, move the machine again --

1 Q. Okay.

2 A. -- because you have everything lined up. So if you
3 were to think about it, you're paving. You get done
4 paving. You hose off all your stuff so you get your
5 cement off of it. You then move your swing legs in.

6 Q. While it's still stopped?

7 A. While it's still stopped, and if there is movement
8 there, it's very slight; it's not intentional
9 movement, and so you -- you know, then you get
10 everything lined up and then you can -- then you're
11 ready for transport.

12 Q. And then you start to move it again --

13 A. Yes.

14 Q. -- and drive it onto the truck?

15 A. You can imagine circumstances where you drive it
16 around for some reason, but it's not precluded from
17 being -- I mean, you could be halfway into this
18 thing and say, Oh, I've got to go do -- I've got to
19 move it around a little bit to get around this thing
20 or that thing.

21 Q. That's what I'm trying to get at. The claim is not
22 specific as to whether the -- Claim 4 whether the
23 machine has to be moving or stopped --

24 A. Yeah.

1 Q. -- in this scenario where you're unpinning the --

2 A. Right.

3 Q. -- hydraulic actuator?

4 A. When you're actually unpinning it, you, of course,
5 have to be stopped because you don't want to stress
6 on that arm at that moment. You can't pull that pin
7 with stress on it, but up -- up to that point and
8 after that point it's not clear that the chassis has
9 to be stopped.

10 Q. Okay.

11 A. I mean, you could move it around till your heart's
12 content.

13 Q. Okay.

14 A. There would be no reason to -- once you get it lined
15 up, to do anything other than drive it in the
16 transport direction.

17 Q. Makes sense.

18 A. Yeah.

19 Q. Which, again, is not the paving direction?

20 A. Not the paving direction. It's 90 degrees to what
21 we might think of as the paving direction.

22 Q. Okay. Let's look at Figure -- Figures 8A through 8E
23 in that patent, which is the '318 patent --

24 A. Okay.

1 Q. -- Exhibit 1001.

2 A. Okay, sure. I am there.

3 Q. Okay. Thank you. Do you see column 6, lines -- Can
4 you please read column 6, lines 47 through 65?

5 A. Column 6, okay.

6 Q. Actually 45. Sorry, 45.

7 A. Yeah, it looks like it starts at 45; yep.

8 Q. Yeah.

9 A. (Witness complied.) Sure, okay.

10 Q. This is -- This is what we were talking about about
11 walking the track through?

12 A. No. This is talking about when you're pouring
13 concrete, right -- not when you're pouring cement
14 but when you're putting cement down.

15 Q. Okay.

16 A. So I mean, in a sense -- and it tells you that up
17 above. It talks about -- I mean, the context tells
18 you that -- about the leg swing to be held in a
19 fixed position related -- relative to the edge of
20 the concrete --

21 Q. Okay.

22 A. -- and one thing and another, and so it's saying
23 that as you move forward, the swing leg may --
24 because there is lots of force here, may want to

1 move out, but they have a mechanism for keeping the
2 swing leg where you want to be from your control
3 system.

4 Q. And how does that work?

5 A. You have a sensor and you have a desired place it's
6 supposed to be. So as the force tends to want to
7 shift it, it just gets shifted back. The tricky
8 part here and the interesting part is that you then
9 have your crawler track, which needs to be adjusted
10 to go with that, and in contrast to Dr. Singhose's
11 thing where he said this is -- this is a relatively
12 unsophisticated or it's not a sophisticated system,
13 and he describes a single swing leg and says, Well,
14 it's got four parts or five parts and one thing and
15 another. That's true if you -- and he says and a
16 sophomore could do this. That's true if you lift it
17 up off the ground and your only job is to put it
18 back wherever you want it to be. So the -- So,
19 yeah, so you have -- I mean, you have a -- if you
20 lift it up off the ground, then it's relatively
21 trivial to get it to the angle you want it to be and
22 then you put it back down on the ground, and you pin
23 it. Here this is very different in that you're --
24 and it's more complicated because you've got the

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1 stress of the -- the forces on the ground are trying
2 to make this move around and you're trying to
3 coordinate it with three other legs. So you've got
4 these four legs working together, and that's a more
5 complex situation, and that's a situation I would be
6 doubtful of saying that a sophomore would understand
7 the -- That -- That becomes a complex system in that
8 there is feedback from one leg to the other, and if
9 you shift this one, what happens with that one and
10 vice versa, and so that's a more -- that's a more
11 complicated bit, and that's what's being addressed
12 here, is that this machine can -- if you go one way,
13 right, you can make the necessary adjustments to get
14 everybody to behave.

15 Q. Okay, so let's go to column 13 --

16 A. Okay.

17 Q. -- lines 22 through 47.

18 A. Okay.

19 Q. Can you read that, please?

20 A. Sure.

21 Q. You can also refer to Figures 8A through 8E while
22 you do that.

23 A. Sure, I'm looking at column 13. Give me the line
24 numbers again. I'm sorry.

1 Q. Yep, line -- lines 30 -- no, lines 22 through 47.

2 A. **(Witness complied.) Okay.**

3 Q. Okay, so Figures 8A and 8E are referenced in this
4 passage; correct?

5 A. **Yes, and 8C, for that matter.**

6 Q. Yeah. I was saying 8A through 8E.

7 A. **Oh, okay. Or 8B or 8E. I guess I misunderstood**
8 **you. I'm sorry.**

9 Q. Yeah. So in this paragraph it mentions 8- -- I see
10 8B, as in --

11 A. **Yeah.**

12 Q. -- berry --

13 A. **Yeah.**

14 Q. -- Bryden; 8C; 8D, as in David --

15 A. **Yeah.**

16 Q. -- and 8E?

17 A. **Yeah.**

18 Q. Okay.

19 A. **And C. Okay, got it.**

20 Q. Do you see where it says, quote, The ends of the
21 hydraulic actuators 38 are then disconnected from
22 the associated swing legs 20 --

23 A. **Uh-huh.**

24 Q. -- by removing a pin, then with the crawler track on

1 the ground walking in an arc around the pivot shaft
2 of the swing leg as shown in Figure 8C?

3 **A. Yes.**

4 Q. Okay. Is that the walk-in process --

5 **A. Yes.**

6 Q. -- you were talking about earlier?

7 **A. Yes.**

8 Q. That's what I was getting at earlier when I asked
9 that question.

10 **A. Okay.**

11 Q. I pointed you to the wrong text. So now these
12 Figures 8A through E, are they showing this walk-in
13 process?

14 **A. Yes.**

15 Q. Where the machine is stopped -- the machine frame, I
16 should say, is stopped?

17 **A. The machine is no longer paving.**

18 Q. Okay.

19 **A. When we say, "stopped," I mean, the engine is**
20 **running; things are being driven --**

21 Q. Its motion is stopped?

22 **A. -- but its motion -- the paving frame is not moving.**

23 Q. Okay. Perfect.

24 **A. Yeah.**

1 Q. Okay, so let's go back -- One second. Sorry.

2 A. Sure.

3 Q. All right. Let's go back to that section I pointed
4 out earlier, which was column 6 --

5 A. Yes.

6 Q. -- lines, I think, 36 through 65 I asked you to
7 read.

8 A. Uh-huh.

9 Q. And specifically I want -- I want to go over the
10 last portion of that with you where it says, The
11 crawler tracks can also be relocated when the
12 machine is stationary by supporting the weight of
13 the machine off the ground --

14 A. Uh-huh.

15 Q. -- comma, then hydraulically lifting each crawler
16 track (one at a time) off the ground, and thereafter
17 using the swing leg hydraulic cylinder and position
18 transducer working in conjunction with the power
19 drive or steering cylinder between the jacking
20 column and the crawler track for moving the crawler
21 track to another position.

22 A. Okay.

23 Q. Okay; so when you're moving the crawler tracks in
24 this example, it says the tracks can also be

1 relocated when the machine is stationary by
2 supporting the weight of the machine off the
3 ground --

4 **A. Uh-huh.**

5 **Q. -- correct?**

6 **A. Yes.**

7 **Q. How does that happen?**

8 **A. So we use the jacking column and pull up the leg.**

9 **Q. And you leave the other three on the ground?**

10 **A. Yes.**

11 **Q. You don't need any other weight support?**

12 **A. It doesn't indicate that, so I'm not -- I'm not**
13 **aware of the weight that would be required.**

14 **Q. Or support, I should say.**

15 **A. Support. I know what you mean.**

16 **Q. Okay.**

17 **A. I mean, I think that says --**

18 **Q. So if I wanted to move --**

19 **A. Yeah.**

20 **Q. Oh, I'm sorry.**

21 **A. I'm just reading this to make sure that I'm not -- I**
22 **haven't missed something in my --**

23 **Q. Okay. Let me know when you're through.**

24 **A. -- in my thinking, and I'm not certain on if you**

1 **need to support that leg or not.**

2 Q. Okay.

3 A. **I've read this in the past as if you did not --**

4 Q. Okay.

5 A. **-- so --**

6 Q. If you were --

7 A. **-- you're getting sort of a tripod action, but you**
8 **could imagine that, yeah. So it's hard to answer**
9 **that question from this description.**

10 Q. Okay; so if you were -- You wanted to move all four
11 legs under this example --

12 A. **Uh-huh.**

13 Q. -- you could just raise each leg --

14 A. **Yes.**

15 Q. -- one at a time, move it, and put it back down
16 again?

17 A. **Yes, that's what -- that's -- that's what this is**
18 **telling you.**

19 Q. Okay, so you're -- by "move the leg" I mean you
20 would pivot the swing leg; correct?

21 A. **Hmm. Is it telling us to -- I think you can do**
22 **either. It says, you know, off the ground, thereby**
23 **using the swing leg and position transducer working**
24 **in conjunction with the power driver or steering**

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1 cylinder to -- between the -- the crawler to get it
2 to where you want it. So you could imagine that you
3 want to reposition the -- you're going to reposition
4 the --

5 Q. Okay.

6 A. -- the crawler track.

7 Q. So --

8 A. So those would work together.

9 Q. So say I'm sitting in the machine, one of the
10 machines described in the '318 --

11 A. Right.

12 Q. -- patent, and I want to move all four legs because
13 they're too narrow.

14 A. Uh-huh.

15 Q. I can just lift one, pivot the swing leg, put it
16 down --

17 A. Right.

18 Q. -- lift another, pivot the swing leg, put it down,
19 and then do that two more times for a total of four?

20 A. Yes. That's what this would indicate, though I have
21 not seen that in practice --

22 Q. Okay.

23 A. -- so --

24 Q. How long do you think that would take?

1 MR. PRICE: Objection.

2 A. I have no idea. I don't have any basis for choosing
3 how long that would take, I mean.

4 BY MR. MROZ:

5 Q. You've seen these operate; correct?

6 A. Not in that mode.

7 Q. Okay. Have you seen the hydraulic cylinder machines
8 go up and down?

9 A. Not at all, no.

10 Q. Okay.

11 A. I've only watched them along the road --

12 Q. Oh.

13 A. -- paving --

14 Q. I see.

15 A. -- and then I watched the online videos that are
16 available, but I have not found anything that shows
17 the -- I've never seen anything that would indicate
18 that you pick up a leg and you go forward.

19 Q. Okay.

20 A. This would indicate that's possible, and you could
21 imagine that it's possible, but it doesn't seem to
22 be a primary feature of the device --

23 Q. Okay.

24 A. -- I mean, at least it's not a heavily advertised

1 **feature.**

2 Q. Sure. Using your expert opinion, if you did this
3 four times with each leg, how long would it take?

4 MR. PRICE: Objection.

5 A. **I don't believe I have any -- I don't think I have a**
6 **good basis for that.**

7 BY MR. MROZ:

8 Q. More than an hour?

9 A. **I have -- I mean, you're going to pull the pin. I**
10 **would have no idea. I mean, I really don't know**
11 **the -- the scope of this. I've read other people's**
12 **opinions, but I -- Absent having seen it, the trick**
13 **with these things is that you can vastly**
14 **overestimate or underestimate because you don't know**
15 **one of the features.**

16 Q. Okay.

17 A. **They're subject to the X factor; that is, anything**
18 **you think you have to do takes three times as long**
19 **as you think it will --**

20 Q. Gotcha.

21 A. **-- but you can be tricked by that, too, because you**
22 **could discover, like, oh, there is a feature that**
23 **makes this easy. So I would be -- I -- I couldn't**
24 **give -- I could not give an informed engineering**

1 **opinion on that.**

2 Q. Okay.

3 A. **I could give speculation, but I would hate to do**
4 **that.**

5 Q. I don't want you to do that, yeah. The system we're
6 talking about --

7 A. **Yeah.**

8 Q. -- it's automated; right?

9 A. **Yes. That's what's tricking me here. It's not like**
10 **you're doing this manually and having to move**
11 **things, so it's very -- it would be difficult to**
12 **determine absent watching it or doing it.**

13 Q. Okay, and there are rules for expert testimony and
14 things like that. I just want to make sure.

15 You're not going to provide an opinion on how
16 long it would take --

17 A. **Right, no.**

18 Q. -- to move these legs each one one at a time?

19 A. **Right. No, I have no -- I have -- I have no basis**
20 **for an expert opinion in that case --**

21 Q. Okay.

22 A. **-- yeah.**

23 Q. Thank you.

24 A. **And I don't think I offered that in my testimony**

1 **here.**

2 Q. Okay. Yeah, sometimes it gets a little squishy, you
3 might imagine, on what an expert says and what the
4 attorneys think he says and --

5 A. **Yeah. If I -- If I did say something, I would have**
6 **been citing, you know, Dr. Singhose or somebody's**
7 **document --**

8 Q. Got it.

9 A. -- so I'm not sure that anybody has -- I mean, I've
10 seen the -- the discussion of the Gomaco product,
11 but I'm not sure I've seen any discussion related to
12 this product and lifting a leg and moving it that
13 way.

14 Q. Gotcha.

15 A. **I'm not aware of any written document or any video**
16 **or -- Like I said, I have watched them along the**
17 **highway at one point, but they were paving.**

18 Q. Yeah.

19 A. **Yeah.**

20 Q. Okay.

21 A. **It's amazing what you can get away with as a**
22 **professor. You show up, "I'm a professor. I'm**
23 **really interested," and people will be nice to you.**
24 **I've done that at a mine in Peru.**

1 Q. Oh, awesome.

2 A. They were anxious to meet a professor, and, yeah, it
3 was good.

4 Q. I'm going to give you another exhibit. This is
5 Exhibit 2018.

6 A. Okay.

7 Q. This is an exhibit that you cited --

8 A. Oh, yeah.

9 Q. -- in your declaration.

10 A. Yes.

11 Q. I just have one quick question about this. Is
12 Cater- -- or is Petitioner Gomaco in this case, my
13 side, relying on this Caterpillar machine as prior
14 art in our case?

15 A. Let me -- Let me go see -- remember what I said
16 about it.

17 Q. Sure.

18 A. I remember it, but I don't remember the specifics
19 that you're asking.

20 Q. You talk about this around paragraph 32, I
21 believe --

22 A. 32.

23 Q. -- and 33 --

24 A. Good. Thank you.

1 Q. -- and 34 as well.

2 A. Okay. Oh, here we go. I found it. Reading it is
3 still slow. Oh, okay. Yes, uh-huh. Yes, this is
4 the asphalt -- black stuff, asphalt. Yeah, I had
5 not thought of this as a Cat product. I just
6 thought of this as Rio and an asphalt device.

7 Q. That's what I'm asking. So do you know if Gomaco,
8 the Petitioner in this proceeding, relied on that
9 product or that document at all in its case?

10 A. I believe that they have put that together with the
11 C3 to argue that the two of them together could be
12 combined to reach this patent.

13 Q. Okay. Didn't --

14 A. Though I am not party to those things, and so I'm
15 reading documents after the fact and attempting to
16 remember the -- the details, so --

17 Q. Okay, so it's your position that Caterpillar's
18 relying on that document as one of its prior art
19 documents in this case?

20 MR. PRICE: Objection.

21 A. Say that again. So you said -- But Caterpillar
22 isn't in this case.

23 BY MR. MROZ:

24 Q. Sorry, Gomaco.

1 **A. Okay.**

2 Q. Is it your position that Gomaco is relying on that
3 Caterpillar document as one of the prior art
4 documents in this case?

5 **A. Give me a moment. My understanding is that they**
6 **are --**

7 Q. They are.

8 **A. -- yes.**

9 Q. What's your basis for that understanding?

10 **A. I can't recall the basis.**

11 Q. Okay. This isn't a document that was introduced
12 into the case the first time through your
13 declaration?

14 **A. No.**

15 Q. Okay.

16 **A. It seems to me that when I read the '749 review,**
17 **that this (indicating) was discussed then, though**
18 **I'm struggling to remember the specific reference --**

19 Q. Okay.

20 **A. -- yeah.**

21 Q. So in your prior art analysis in this case are you
22 considering this (indicating) document as prior art?

23 MR. PRICE: Objection.

24 **A. Yes.**

1 MR. MROZ: Okay. No further questions today on
2 the -- in this proceeding.

3 MR. PRICE: Okay. Can we take ten minutes --

4 MR. MROZ: Okay.

5 MR. PRICE: -- and come back?

6 (A recess was taken.)

7 MR. PRICE: I don't have any questions.

8 (Deposition concluded at 2:16 p.m.)

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1 C E R T I F I C A T E

2 I, the undersigned, a Certified Shorthand
3 Reporter of the State of Iowa, do hereby certify
4 that there came before me at the time, date, and
5 place hereinbefore indicated, the witness named on
6 the caption sheet hereof, who was by me duly sworn
7 to testify to the truth of said witness's knowledge
8 touching and concerning the matters in controversy
9 in this cause; that the witness was thereupon
10 examined under oath, the examination taken down by
11 me in shorthand, and later reduced to Computer-Aided
12 Transcription under my supervision and direction,
13 and that the deposition is a true record of the
14 testimony given and of all objections interposed to
15 the best of my ability.

16 I further certify that I am neither attorney or
17 counsel for, nor related to or employed by any of
18 the parties to the action in which this deposition
19 is taken, and further, that I am not a relative or
20 employee of any attorney or counsel employed by the
21 parties hereto or financially interested in the
22 action.

23 Dated at Clarence, Iowa, this 8th day of May,
24 2025.

25 Michele L. Proesch
26 CERTIFIED SHORTHAND REPORTER

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