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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.,

Case IPR2020-01698

U.S. Patent No. 10,029,749

REMOTE DEPOSITION OF THOMAS S.

BREIDENBACH, called as a witness by and on behalf
of the Patent Owner, pursuant to the applicable
Rules of the United States Patent Office Trial and
Appeal Board, before P. Jodi Ohnemus (remotely),
RPR, RMR, CRR, CA-CSR #13192, NH-LSR #91, MA-CSR
#123193, and Notary Public, within and for the
Commonwealth of Massachusetts, at Maple Grove,
Minnesota, on Thursday, October 14, 2021,
commencing at 9:40 a.m. (CDT)

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I N D E X

TESTIMONY OF:

PAGE

THOMAS S. BREIDENBACH

(By Mr. High)

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1	E X H I B I T S		
2	EXHIBIT	DESCRIPTION	PAGE
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4	Exhibit A	Petitioner's Notice of	12
5		Cross-Examination of Thomas	
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7		2020-01698, paper 49	
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9		Cross-Examination of Thomas	
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19		2021-00234, paper 34	
20	Exhibit 2029	Declaration of Thomas S.	15
21		Breidenbach in Support of	
22		Patent Owner's Response, IPR	
23		2020-01698	
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1 THOMAS S. BREIDENBACH, having
2 first been duly sworn, was
3 examined and testified as
4 follows to interrogatories

5 BY MR. HIGH:

6 Q. Mr. Breidenbach, my name is Bob High. I'm
7 counsel for the petitioner in this case, GOMACO.

8 Could you please state your full name for
9 the record.

10 A. **Thomas Scott Breidenbach.**

11 Q. And what's your current address?

12 A. **10692 North Eagle Lake Boulevard, Maple**
13 **Grove, Minnesota 55369.**

14 Q. Are you located at that address today?

15 A. **I am at that address.**

16 Q. You understand you're under oath, meaning
17 you must testify truthfully today as if you were in
18 court --

19 A. **I do.**

20 Q. -- before the judge?

21 A. **Yes, I do. Yes, I do.**

22 Q. And just as an initial matter, make sure
23 that you wait before I -- I finish asking my
24 question today before you answer.

25 Is there any reason that would prevent you

1 from testifying truthfully today?

2 **A. No.**

3 Q. Have you been deposed before?

4 **A. No, I have not.**

5 Q. Your counsel may have given you some
6 general rules about depositions, but I'm just going
7 to go over a few of them for the record.

8 We have a court reporter who will be
9 recording your answers today as if you were giving
10 them before the judge. So I ask that you answer
11 the questions truthfully and to the best of your
12 knowledge.

13 Is that okay?

14 **A. Yes.**

15 Q. And when I ask you a question, please
16 respond in an audible answer, not a gesture or a
17 nod.

18 Do you understand?

19 **A. Yes.**

20 Q. And if you do not understand any of the
21 questions I ask today, please tell me. If you
22 answer a question, I will assume that you
23 understand my question.

24 Do you agree?

25 **A. Yes.**

1 Q. If you need a break, please let me know.
2 But if a question is pending, I'd just ask that you
3 please answer my question before we take a break;
4 okay?

5 A. Yes.

6 Q. Do you have a phone with you today?

7 A. **The one that I'm using right now, yes.**

8 Q. Okay. No other phones?

9 A. **I have a work phone. I can turn it off if**
10 **you like because I don't expect any phone calls**
11 **anyway.**

12 Q. Yeah. So I'd just ask that you turn it
13 off or silent or -- so we -- we don't get
14 interrupted.

15 A. **Sure. No. I'll just shut it off.**
16 **Actually, it's sort of low on charge anyway. So**
17 **let me just...**

18 **It's now turned off.**

19 Q. Okay. Are there any email or Instant
20 Messenger programs running on the computer that
21 you're using for today's deposition?

22 A. **I opened up my Yahoo email to receive**
23 **your -- your link to Zoom and also to have this**
24 **file sharing. I can turn that off if you like.**

25 Q. I'd just ask that you -- you close any

1 sort of email or -- or Instant Messaging
2 applications while we're in the deposition, if
3 that's okay?

4 A. Okay. I'll leave the -- I'll leave the
5 Henderson Legal Services, whatever tab that is,
6 I'll leave that open.

7 Q. Absolutely. That's fine.

8 A. I can close the login. I'll close the --
9 my Yahoo email. So now -- now all that I have
10 running on my computer is Zoom, and I actually
11 have -- I have a computer here, which is a Surface;
12 I'm running Zoom on that, and that's the only thing
13 that's running.

14 And on this computer, I'm running only the
15 share file system and the Windows Explorer, which
16 has an empty folder open so I can drag files into
17 it --

18 Q. Thank you.

19 A. -- as they become available.

20 Let me make sure there's nothing else
21 running on the Surface.

22 Put my email down here. Should I shut --
23 shut the Zoom Marquis down? Does that matter?
24 Should I close Zoom down or --

25 Q. I think it's fine to leave that open.

1 **A. Okay.**

2 Q. When were you retained by G&Z?

3 **A. I don't know the exact date off the top of**
4 **my head, but it was earlier this summer. I can --**
5 **I could give you an estimate.**

6 Q. Just an estimate is fine.

7 **A. Just from my memory, I would guess it was**
8 **sometime in maybe June or July, but I'm not exactly**
9 **positive.**

10 Q. What did you do to prepare for today's
11 deposition?

12 **A. I read through my declarations, and I also**
13 **read through the material that's listed in the**
14 **appendix; and we did have different consultations.**

15 Q. And when you say "consultation," you mean
16 a meeting with somebody?

17 **A. Sure, with my --**

18 MR. PRICE: I'll just -- yeah, I'll just
19 caution the witness not to reveal the subject of
20 any material that was discussed.

21 But otherwise, you can go ahead.

22 Q. Who did you meet with?

23 THE WITNESS: Yes.

24 **A. Jeff Price and Jenna.**

25 Q. And anybody else?

1 A. I -- I did meet the day before with James,
2 I believe.

3 Q. And do you remember James's last name?

4 A. I think I've seen it on the different
5 documents, and I think it's James Hannah, but I'm
6 not 100 percent positive that that is his last
7 name, but I assume that those -- that James matches
8 with the James that I met Tuesday.

9 Q. How many meetings did you have to prepare
10 for today's deposition?

11 A. Well, we had one on Tuesday, and then we
12 had one on Wednesday. I mean, there -- there were
13 different breaks and interruptions. I assume that
14 still counts as a single meeting.

15 Q. And about how much time did you spend
16 preparing for your deposition?

17 A. So exactly -- does that mean preparing the
18 declarations as well or only for the deposition?

19 Q. Right now I'm only talking about for the
20 deposition.

21 A. So in the last few days, which was -- the
22 primary work that I did on this was probably on the
23 order of eight to ten hours yesterday, and probably
24 on the order of one to two hours on Tuesday.

25 Q. About how much time did you spend putting

1 together your declaration?

2 A. I'd have to give you an estimate on that,
3 but perhaps -- I would say anywhere from 25 to 35
4 hours.

5 Q. Did you write your declaration?

6 A. The declaration is my opinions, and I -- I
7 reviewed them carefully; and I received material
8 from a variety of inputs, and I was involved with
9 the production of that declaration.

10 Q. Who wrote your declaration?

11 A. That -- the declaration expresses my
12 opinions, and I was the final author of that
13 declaration by virtue of my final editing.

14 Q. Who was the one that drafted the
15 declaration?

16 A. Well, I guess I can't even be sure of
17 that, but there were many different parts that came
18 together in that declaration.

19 Q. Did you write any sections of the
20 declaration?

21 A. I -- I did actually add my own material to
22 the declaration. So I guess that would count.

23 Q. And moving into share file, paper No. 49
24 from IPR2020-01698, and I'll mark that as Exhibit

25 A.

1 A. It says my folder is empty, but I'm -- I'm
2 just refreshing to maybe see if there's a folder in
3 there now -- or a file. Oh, yes. I do see it.

4 (Exhibit A, Petitioner's Notice of
5 Cross-Examination of Thomas S.

6 Breidenbach, IPR 2020-01698, paper 49.)

7 Q. Do you have it open?

8 A. I am dragging it into my open empty folder
9 and moving it in and -- yes, I have it open.

10 Q. Have you seen this document?

11 A. Let me scroll through it.

12 Only three pages long, the version that I
13 have.

14 Q. That's correct.

15 A. I don't recall seeing this document.

16 Q. Do you see that the title of it is
17 "Petitioner's Notice of Cross-Examination of Thomas
18 S. Breidenbach"?

19 A. That's right. And I don't recall seeing
20 this before. So I don't think I have.

21 Q. Do you understand that -- that this
22 deposition is intended to cover the contents of the
23 declaration you submitted for IPR2020-01698?

24 A. I am reading this now; and, yes, I -- I do
25 understand that I will be deposed on IPR2020-1698

1 **concerning patent No. 10,029,749.**

2 Q. Moving into the Share File --

3 A. **Okay. I'll close this document down**
4 **unless I need it still.**

5 Q. Okay. I'm moving into the -- the Share
6 File paper No. 49 from IPR2021-00050.

7 A. **I still just see the one document so far,**
8 **but I'll just refresh here.**

9 **Okay. I see the other one. Okay. Yes.**
10 **So there's a second one. I got it. Okay. So this**
11 **is the 5-0. I'll download that too.**

12 **Yeah. So I have open a very similar**
13 **document to case IPR2021-00050 concerning patent**
14 **No. 9,708,020.**

15 Q. You understand that this is petitioner's
16 notice that this deposition will cover the contents
17 of your declaration submitted for IPR2021-00050?

18 A. **That's right. And this one -- maybe the**
19 **other one also included some other IPRs too. Were**
20 **they supposed to be individual, or are they grouped**
21 **together? I guess they all are. So both of these**
22 **documents so far mention four IPRs.**

23 Q. That's right.

24 A. **Okay. All right. Yeah, I acknowledge**
25 **that --**

1 Q. I just moved --

2 A. -- that I'm being deposed on this.

3 Q. I just moved into the share folder paper
4 No. 36 from IPR2021-00136.

5 MR. HIGH: I don't think I said on the
6 record, but I'll mark paper No. 49 from
7 IPR2021-00050 as Exhibit B; and I'll mark paper No.
8 36 from IPR2021-00136 as Exhibit C.

9 (Exhibit B, Petitioner's Notice of
10 Cross-Examination of Thomas S.
11 Breidenbach, IPR 2021-00050, paper 49.)

12 (Exhibit C, Petitioner's Notice of
13 Cross-Examination of Thomas S.
14 Breidenbach, IPR 2021-00136, paper 36.)

15 A. Okay. I'm now opening No. 36, and this is
16 a similar -- similar document, case IPR2021-00136
17 concerning patent 9,908,571.

18 Q. Do you understand that this is
19 petitioner's notice that this deposition today will
20 cover the contents of your declaration submitted
21 for IPR2021-00136?

22 A. Yeah, I understand that I'm being deposed
23 on that.

24 MR. HIGH: Moved into the folder paper No.
25 34 from IPR2021-00234. I'll mark that as Exhibit

1 D.

2 (Exhibit D, Petitioner's Notice of
3 Cross-Examination of Thomas S.
4 Breidenbach, IPR 2021-00234, paper 34.)

5 **A. Okay. Paper No. 34 I'm opening. And it**
6 **is to IPR2021-00234 concerning Patent 10,196,101;**
7 **and I understand that I am being deposed on this.**

8 MR. HIGH: I just moved into the share
9 folder Exhibit 2029 of IPR2020-01698.

10 **A. Yes.**

11 Q. And that document, for the record, is
12 titled "Declaration of Thomas S. Breidenbach in
13 Support of Patent Owner's Response."

14 (Exhibit 2029, Declaration of Thomas
15 S. Breidenbach in Support of Patent
16 Owner's Response, IPR 2020-01698.)
17 (Court Reporter comment.)

18 MR. HIGH: I think just for simplicity
19 we'll use the exhibit designation from the IPR.

20 Q. Mr. Breidenbach, do you have a copy of
21 this declaration?

22 **A. I do have a copy of my declaration. I**
23 **just downloaded it. 46 pages.**

24 Q. And I should have asked, but do you have
25 any paper copies before you today?

1 **A. No, I don't. I don't have anything that's**
2 **open on the computer other than what we've**
3 **discussed earlier, and I don't have any other**
4 **materials.**

5 Q. And just for the sake of simplicity, when
6 we're discussing your declarations today, I'm going
7 to use the declaration that you submitted for
8 IPR2020-01698. I believe your other declarations
9 are -- are substantively similar, if not identical
10 in -- in most respects, but if -- if there's a
11 distinction between the IPRs and the questions that
12 I ask you today, I ask that you let me know.

13 **A. I'll be -- I'll have difficulty letting**
14 **you know, but I will certainly keep my answers to**
15 **this specific document unless that you say it's to**
16 **another one of the four.**

17 Q. Thanks.

18 Mr. Breidenbach, you worked at Caterpillar
19 Paving Products from 1995 to 2000; is that correct?

20 **A. That's right. It's -- this is listed, I**
21 **believe, towards the bottom of this document, and I**
22 **did check those dates, and I do agree that they're**
23 **correct.**

24 Q. What did you do --

25 **A. Yeah, as it says on, I guess, PDF page 37,**

1 I was working at Caterpillar Paving Products,
2 Brooklyn Park, Minnesota, from March 1995 to
3 November 2000.

4 I worked on the mainframe, the --
5 mainframe design, analysis, prototype build, and
6 testing on the PM465 road milling machine and also
7 the AP655C paving machine.

8 Would you like me to read the rest of them
9 as well?

10 Q. That's fine. We'll -- we'll walk through
11 it.

12 A. Okay.

13 Q. So you talked about the PM465 road milling
14 machine.

15 What is a road milling machine?

16 A. Road milling machine in this case is a
17 four-legged machine with vertical struts and four
18 tracks and also a very big counter-rotating
19 grinding drum that will grind down cement and
20 asphalt roads. In some cases they're even used to,
21 like, mine salt and other minerals because of their
22 grinding and conveying capabilities.

23 Q. And when you say a vertical strut, what do
24 you mean by that?

25 A. It has -- it has the -- the need to -- the

1 cutter system, the cutting drum is fixed to the
2 mainframe of this machine, and you need to control
3 the elevation and attitude of this cutting drum
4 with respect to whatever you're cutting, whether
5 it's a road or whether it's a salt mine or
6 whatever.

7 To do that, the entire machine gets lifted
8 up and down by four vertical columns independently
9 attached to each of the four tracks. The tracks
10 also provide propulsion from the machine and
11 strength from the machine.

12 Q. Is the -- a vertical strut --

13 A. And I should --

14 Q. All right. Go ahead.

15 A. Yeah. So the steering of course is -- is
16 provided by not only the tracks but by the
17 actuation of the tracks by the -- by the strut, the
18 vertical strut.

19 Q. Is a vertical strut another name for a
20 jacking column?

21 A. Yeah. I think they're very much the same.

22 Q. Is the -- the track, is that a crawler
23 track?

24 A. Yeah, and they're very much the same also
25 with respect to the concrete pavers and slipform

1 **pavers.**

2 **(Court Reporter comment.)**

3 **A. They're -- a slipform paver is a type of**
4 **concrete paver.**

5 **Q. And what kind of paving machine is the**
6 **AP655C?**

7 **A. It's a track paving machine with two**
8 **tracks, and it's just for asphalt.**

9 **Q. Does the AP655C have jacking columns as**
10 **well?**

11 **A. No. It has a screed that is vertically**
12 **adjustable and laterally extendable. So it does**
13 **not need to have the tracks or the rest of the**
14 **frame move to change the position of the screed.**
15 **Screed is adjustable on its own.**

16 **Q. What is a screed?**

17 **A. A screed is something that takes the**
18 **paving material such as cement or such as asphalt**
19 **that comes in by a conveyer into the hopper or**
20 **dumped on -- in front of it, and it takes and**
21 **vibrates it. It levels it, compacts it, and**
22 **essentially spreads it into the nice smooth surface**
23 **that is the end product of the paving machine.**

24 **Q. Did the PM465 milling machine have a swing**
25 **leg?**

1 **A. No.**

2 **Q. Did the AP655C have a swing leg?**

3 **A. No.**

4 **Q. What aspects of the PM465C did you work**
5 **on? I'm sorry.**

6 **A. PM465 as I --**

7 **Q. PM465.**

8 **A. Yes, as I mentioned earlier, the mainframe**
9 **design, analysis, prototype build, and testing of**
10 **that machine. I also led the component development**
11 **of the track system and the cutting chamber on that**
12 **machine and the operating station on that machine.**

13 **Q. And when you say "mainframe design" --**

14 **A. And.**

15 **Q. -- you're referring to the middle portion**
16 **that supports the -- the drum?**

17 **A. Yeah, the mainframe is essentially the**
18 **piece of the machine that connects the entire**
19 **machine together. So the -- the mainframe goes**
20 **many different places, but it would support the --**
21 **these jacking columns that we're talking about. It**
22 **would support the operating station. It would**
23 **support the cutting chamber, and it would support**
24 **whatever attachments there are. That's generally**
25 **considered to be the mainframe.**

1 Q. Did you work on the jacking columns of the
2 PM460- --

3 A. Sure. Yeah, I had to interface with
4 another engineer, and we were intimately familiar
5 with the -- the jacking columns and the tracks had
6 to work together. So I was intimately involved. I
7 was not the lead engineer on the jacking columns,
8 but everything that happened on the jacking columns
9 I knew about and -- and also everything that
10 happened on the tracks, the -- the jacking column,
11 lead engineer would know about. We worked together
12 hand in hand.

13 We had the same designers, the same
14 drafters working for both of us. So it was a
15 close-knit team that -- I wasn't the final
16 responsible person on the jacking columns, but I
17 was intimately familiar, and I had a lot of
18 influence on that, just as other people had
19 influence on the track systems that I was working
20 on.

21 Q. What aspects of the AP655C did you work
22 on?

23 A. Yeah, as it says, I -- on the AP655, the
24 paving machine, I worked on the screed system.
25 Maybe a little bit on the operator station, the

1 mainframe, and various other aspects. When we --
2 we probably all worked on just about every aspect
3 of all of these machines, but there was a
4 responsible person, and I would have been
5 responsible for those.

6 Q. Did the same engineering team at
7 Caterpillar that worked on road milling machines
8 also work on paving machines?

9 A. We were assigned from project to project.
10 So there would be some overlap. And then there's
11 also turnover. So, you know, you can't say that
12 one team moved around as a unit from project to
13 project. We were simply assigned and deployed as
14 the manpower requirements were needed.

15 Q. Were you specifically assigned to road
16 milling machines or -- or were you assigned to --
17 it's a bad question. Let me withdraw that.

18 How did they decide which projects to
19 assign you to?

20 A. I think about -- well, number one, your
21 expertise. So I had some experience that would
22 lend themselves to analysis quite well, finite
23 element analysis; then also, of course, if you were
24 wrapping up a project and you needed work, you
25 became the most logical candidate for that reason

1 to go work on whatever holes there were in other
2 projects.

3 Q. Was it common for engineers to transition
4 from working on a milling machine to working on a
5 paving machine?

6 A. Well, not every month. I think once you
7 were in a project, you probably stayed there for
8 several months, if not even a year or more, but the
9 same engineers could definitely be reused across
10 the different Caterpillar Paving Products, you
11 know --

12 Q. Did you work --

13 A. -- development teams.

14 Q. Did you work with the engineering teams
15 that were working on --

16 A. I was --

17 Q. -- other machines?

18 A. Yeah, I -- I worked on also rubber road
19 reclaimers and various other positions at
20 Caterpillar Paving Products. So I -- I guess --
21 the question seems vague, but I was in the
22 engineering group, if that helps. And the
23 engineering groups were assigned to do development
24 engineering. And there might have been other
25 engineering groups like sustaining engineering

1 groups. I might have had brief encounters with
2 them when there was problems in the field on
3 particular products.

4 But, generally, I was in the development
5 engineering team for the vast majority of my work
6 at Caterpillar Paving.

7 Q. And what other engineering teams were at
8 Caterpillar besides development?

9 A. Well, generally, there was a compaction
10 group, there was a paving group, and there was
11 milling and road reclaiming group.

12 So those three groups.

13 Then, there were also military groups.
14 There were engine groups that might be more located
15 in Peoria, but we interfaced with them.

16 There were certainly component groups. So
17 we got our components, for instance, from the --
18 the same groups that developed it for the
19 track-type tractors. We would not invent our own
20 grousers, we would look at the Caterpillar library
21 of available standard parts.

22 So, yes, on occasion I would go to other
23 facilities and those people were specialists at the
24 component level. We worked with suppliers as well.

25 So it's -- those questions are hard to

1 answer specifically; but, in general, we had a very
2 collaborative group that worked with central
3 functions with -- like with drive-train resonance
4 specialists if that was the matter at hand, you
5 know, other people -- I didn't work too much with
6 the engine installations but people would have to
7 worry about engine cooling, engine services, the
8 hydraulic systems.

9 So between people that were assigned to
10 the project and people that were designed --
11 assigned to the components, we worked together to
12 develop these products.

13 Q. Did you ever -- sorry. Back up.

14 You mentioned you worked on a -- I think
15 it was a rubber road reclaimer also?

16 A. That's right. Rubber tired road
17 reclaimer. Very briefly. And that was part of the
18 -- well, maybe not even very briefly. I probably
19 -- just from my memory -- and I can't be exact --
20 but I might have spent up to six months to even a
21 year working on rubber tired road reclaimers.

22 Q. Are there any other machines that you
23 worked on?

24 A. Well, there -- there were a lot of
25 machines at Caterpillar, and I had my hands

1 involved with many things and different committees
2 at Caterpillar. So I'm sure I might have touched a
3 number of these different areas, but my main jobs
4 were with the -- with the -- with the -- the main
5 team that would develop the PM465, which would be
6 the milling machine subgroup of the group that
7 handled both the rubber tired reclaimers and the --
8 and the -- and the back-type road milling machines.

9 I was also then moved to the paving group
10 when the need came to develop the AP655C. Those
11 groups overlapped, but generally when you're
12 assigned to one, you were there for quite a long
13 time -- like a matter of probably more than a year,
14 maybe even up to two years for some of these
15 things.

16 You know, all of these I can roughly put
17 together, but these are all general statements and
18 so -- this is also back -- yeah, 1995 to 2000. So
19 it's -- it's been a while. I've gotten some
20 patents on those that also show my involvement with
21 Caterpillar design work.

22 Q. How heavy was the PM465 road milling
23 machine?

24 A. I didn't hear the whole thing. Sorry.

25 Q. How heavy was the PM465 road milling

1 machine?

2 A. The PM465 road milling machine was on the
3 order of, say, 50 to 60,000 pounds. And I also did
4 work on the PM565 for a brief amount of time. And
5 that was a heavier version of the -- of what -- it
6 was a bigger version of what the PM465 was. So it
7 was more like a 70 to 80,000 pound machine.

8 Q. About how heavy was the AP655C?

9 A. That one probably was more on the order of
10 10 to 20,000 pounds. I'm not exactly sure on any
11 of these weights without looking them up; and of
12 course it would determine a lot of the options that
13 were available, whether it was -- there was liquid
14 tanks that would also hold a vast amount of water
15 or -- I mean, it would depend if they were empty or
16 full.

17 (Court Reporter comment.)

18 A. Whether the liquid tank -- go ahead --
19 whether the liquid tanks were full of liquid or not
20 would change the weight significantly, what -- what
21 options they had.

22 So...

23 Q. Did you ever work on a slipform paver at
24 Caterpillar?

25 A. Well, I do consider the AP655C a slipform

1 paver for asphalt. So I would say 'cause of that,
2 yes.

3 Q. Did you ever work on a concrete slipform
4 paver?

5 A. No, the -- the pavers that -- the pavers
6 at Caterpillar were dedicated for asphalt paving.

7 Q. So Caterpillar didn't make any concrete
8 slipform pavers?

9 A. I do not believe that they did, not that
10 I -- not that I was aware of.

11 Q. Have you ever worked on a concrete
12 slipform paver?

13 A. Not as an engineer, and certainly not as
14 an engineer with any responsibility for signing
15 drawings or anything like that.

16 Have you ever operated a concrete slipform
17 paver?

18 A. No.

19 Q. When you say -- when you said that you
20 haven't worked on a concrete slipform paver as an
21 engineer, have you worked on a concrete slipform
22 paver in any other capacity?

23 A. Well, since I -- I had developed, like,
24 different components. I don't know whether those
25 ever were used on a -- in a concrete paver or not.

1 I don't know what happens if you develop a certain
2 component and it gets used out in the field
3 somewhere. So...

4 I certainly did not work on the overall
5 concrete -- I did not work on an overall design
6 effort to develop a concrete slipform paver.

7 Q. Then what makes you qualified to testify
8 in this case?

9 A. Well, if you take a look at the problems
10 involved with developing a track and a vertical
11 strut and steering mechanism for a PM465 road
12 milling machine or the like and the kinds of
13 struts, track systems and steering systems for a
14 slipform paver, they have very many similarities
15 and few differences.

16 Q. And you also stated in your declaration
17 that you worked as a mechanic on heavy equipment at
18 your father's repair shop and farm; is that
19 correct?

20 A. That's right.

21 Q. What type of equipment did you work on?

22 A. Yeah, there would be tractors, sometimes
23 semi-trucks, sometimes cars. We lived in a small
24 town of 350 people or so called Reynolds, North
25 Dakota, and so not only -- he had -- he had a farm

1 during part of that time; and my uncle also was
2 partners with him, and they had different farming
3 operations.

4 We also had a dedicated repair shop that
5 we would sometimes fix the equipment for our farm,
6 but it was -- most of the work that was done at
7 that shop was done for farmers, done for people
8 with cars that needed work; and also sometimes for
9 custom machinery and -- and things like that.

10 Q. When did you work as a mechanic?

11 A. Well, I started -- I started working at my
12 dad's shop and at -- certain portions of that he
13 had a gas station as well. And when I was, I
14 think, in the fourth or fifth grade I -- I started
15 working at the gas station. So, yeah, I was quite
16 young, and I continued to work at my dad's shop and
17 on their farm up until maybe 11th grade, and --
18 it's actually listed here, I think.

19 I had three brothers as well, and I
20 ultimately ended up then working at Firestone store
21 and a Schmuck or Goodyear store as -- as a light
22 mechanic and as, you know, a tire repairman, things
23 like that.

24 I do have things like a Chilton
25 certificate that you would take tests and become

1 **certified. So I have several of those. It's been**
2 **quite a long time since I've looked at them, but I**
3 **do have various certificates as a mechanic I got**
4 **when I was in high school.**

5 Q. Would you say that you gained experience
6 working with heavy equipment as a mechanic?

7 A. **Sure.**

8 Q. What did you learn as a mechanic?

9 A. **Well, you learn how -- the mechanics had**
10 **to diagnose what was wrong with the machine, and**
11 **they had to figure out maybe which component to**
12 **replace or fix, take it off and install it and**
13 **maybe tune it; and things like that.**

14 Q. Did you learn how the machinery worked?

15 A. **Sure. Yeah. No, I drove tractor and, you**
16 **know, I wasn't -- there -- I was mostly at the**
17 **repair shop. One of my brothers did more of his**
18 **work during certain times as -- on the farm,**
19 **driving the tractors and operating the equipment.**
20 **But certainly we both did both.**

21 Q. And what did you learn about how the
22 machinery worked?

23 A. **Well, yeah. Well, when it was working**
24 **correctly, you learned how to operate the controls**
25 **to make the equipment do what you wanted it to do.**

1 A lot of that was steering to make it go in the
2 direction that you wanted to steer.

3 When something broke, then, yeah,
4 sometimes it was simple. It was very obvious what
5 had broken. Sometimes there it was a little more
6 nuanced and you'd have to do troubleshooting. So I
7 guess that's about the best I can answer a general
8 question like that.

9 Q. Did you learn about the design of the
10 machine?

11 A. I think as a mechanic you learn a lot
12 about what you don't like about the designs and --
13 and how the engineers could have done a better job
14 maybe designing something, and sometimes, you know,
15 we attempted to redesign or reinforce the design
16 that might have broken.

17 But, no, you get the -- the end user's
18 perspective, I think, when you're trying to fix
19 something that's not working, and I think I -- I
20 have had quite a bit of that experience.

21 Q. So as a -- as a mechanic you -- you did
22 gain an understanding of the design of the machine?

23 A. I -- I think the background as a mechanic
24 is very valuable for a mechanical engineer, yes.

25 Q. All right. So just to make sure I'm

1 clear, so are you saying that you did gain an
2 understanding of -- of the design of the machine as
3 a mechanic?

4 A. Sure. Yeah. And let me even break it
5 down a little better: We -- we did actually build
6 our own equipment too. My dad built several
7 tractors from the ground up. I built a Go-Kart
8 when I was, like, 15, 16, that had a 125, five
9 speed motorcycle engine transmission. It had a
10 differential rear end. It had a steering sector
11 that was not a simple steering sector like most
12 Go-Karts had. It had toed on turns. It had
13 caster. It had camber.

14 So it -- it had a braking system, and that
15 Go-Kart -- other than the engine and the tires and
16 the different bearings and such, I designed every
17 part of that Go-Kart.

18 So when you're in a -- sort of a do-it-all
19 shop and there might be something that needs to be
20 modified or -- it's not quite the same as an
21 industrial design capacity that you might have at a
22 place like Caterpillar, but you certainly are
23 involved with design problems, and sometimes people
24 use this equipment in unintended ways. So it has
25 to be modified. We would do things like that.

1 And so, yes, I do think it's maybe not the
2 same as a degreed mechanical engineer would be
3 doing, but I do think people like my dad, who were
4 able to build tractors, who -- and he actually did
5 build his own wrecker. He started -- he built a
6 flatbed truck that actually had a tilt bed that was
7 a pretty unique product. So my dad wasn't a
8 degreed engineer, but he certainly did plenty of
9 designing. And I also was in that capacity until I
10 got my engineering degree.

11 Q. Do you recall Caterpillar having people
12 that serviced its heavy machinery while you were
13 there?

14 A. Of course. Yeah. We -- we had -- I
15 primarily -- primarily worked with some of their
16 top mechanics in the research and development
17 shops, but there would be occasions where I would
18 go to the field and I would meet the mechanics. I
19 would -- and they were, I believe, our Brooklyn
20 Park -- don't quote me on this, but from what I
21 remember there being at Boeing, which was a very
22 heavily unionized organization, and -- I think
23 Caterpillar had unions too, but I believe our
24 Brooklyn Park group was nonunionized for the most
25 part or at least they were very comfortable having

1 engineers work side by side with mechanics.

2 It was a much freer environment in that
3 regard than it was at a more regimented place like
4 Boeing.

5 So I was very happy, once something was
6 completed, to get out in the field and test it
7 and -- and so on.

8 So I was very happy to -- to put it to
9 work and so on. So I don't know if that answers
10 your question. Then I guess I really don't know
11 how much this has to do with the declaration, but
12 if you're trying to lay my background, that's the
13 kind of environment that I was growing up in.

14 Q. Would you say that -- would you say that
15 the people servicing the machines at Caterpillar
16 had a -- an understanding of the design of the
17 machines that they were servicing?

18 A. Depends on who it is. If you have someone
19 that's changing the oil, they probably had very
20 little knowledge. If you had somebody that was
21 replacing an engine, certainly we got a lot of
22 input from the -- the shop people in the prototype
23 development shop, and if they had a certain problem
24 where our design was hard to service, we would hear
25 about that. We would make the improvements to make

1 it more serviceable.

2 So, yeah, I think the best -- I think
3 Caterpillar did a very good job of integrating the
4 different disciplines that it would take to field
5 the machine to make it a serviceable, practical,
6 user friendly machine and also service friendly
7 machine. So if that answers your question, I think
8 we did get a broad cross-section of experience; and
9 we -- when our particular design was being -- you
10 know, we had to develop weld fixtures. So we
11 might -- we might meet with the weld fixture
12 tooling supplier. We had manufacturing groups.

13 Yeah, Caterpillar Paving was a very
14 integrated place. You definitely had your core
15 function, but you were able to work with all of the
16 different disciplines that would take the field and
17 support one of these machines at Caterpillar. I
18 think they were very nice to work with in that
19 regard.

20 Q. Have you ever personally reconfigured the
21 positions of a swing leg on a slipform paver?

22 A. No, I have never operated a slipform
23 paver. I might have stood on top of one at
24 CONEXPO, but it was a static display.

25 Q. Have you ever observed a slipform paver

1 with a swing leg?

2 A. Yes.

3 Q. What kind of slipform paver?

4 A. Well, and I'll qualify that too.

5 I have -- certainly in my preparation for
6 this -- become more familiar with swing legs. As
7 you know, when I was working at Caterpillar, swing
8 legs with the Accu-Steer-type technology did not
9 exist. I think it would have been a great addition
10 to some of these machines but -- can you ask your
11 question once more so I try to stay focused on it.

12 Q. Have you ever observed a slipform paver
13 with a swing leg?

14 A. Right.

15 So I definitely have spent some time
16 closely watching, like, YouTube videos. I have
17 visited job sites where machines with Accu-Steer
18 were present and so on. So I have not operated a
19 concrete paver at all. I have got up very close to
20 them and touched them. I have looked at their
21 operation recently through the YouTube videos.

22 So I do think that I am generally familiar
23 with the problems of the steering and moving around
24 obstacles that a slipform paver would have because
25 we had very similar problems with the road milling

1 machines.

2 Our configuration of the tracks was a
3 major -- a major problem for our end users. If we
4 had -- in fact, the PM465 is out of production
5 today possibly because their track configuration
6 wasn't friendly enough to many job sites and it
7 limited the use of that machine because it was of
8 limited configurability with its fixed post design.

9 Q. Have you ever observed somebody
10 reconfigure the positions of swing legs on a
11 slipform paver?

12 A. Yes, through YouTube I have seen this
13 happen.

14 Q. Have you ever observed somebody
15 reconfigure the positions of swing leg in person?

16 A. No, I have not.

17 Q. When you were talking earlier, I think you
18 mentioned something called Accu-Steer. What did
19 you mean by that?

20 A. Yeah, to me the utility of Accu-Steer is
21 having an actuator that's next to the yolk of the
22 track system that's able to essentially steer it
23 with -- it would -- it could steer it, say, in 360
24 degrees if the hoses and other electrical wiring
25 and such weren't -- weren't the problem.

1 Q. Are you --

2 A. So I can explain what I think Accu-Steer
3 is more generally if you want me to.

4 Q. Have you ever observed somebody
5 reconfigure the positions of swing legs on a
6 slipform paver without Accu-Steer?

7 A. Okay. So have I seen a slipform paver
8 being reconfigured without Accu-Steer?

9 So are you talking about the turnbuckle
10 designs and so on?

11 Q. Any other design for a slipform paver that
12 has swing legs but not Accu-Steer.

13 A. Yeah, I think -- I think you could say
14 that I have watched pavers being steered but not
15 necessarily reconfigured that did not have the
16 Accu-Steer technology.

17 Now have I spent four hours watching
18 people replace the configuration and using cranes
19 and all of that? No, I've never been on a job site
20 where I've watched them reconfigure the machine,
21 but the swing leg and Accu-Steer technology makes
22 it possible very quickly. I have never watched
23 that being done in the more manual sense on an
24 older slipform paving machine.

25 Q. You talk in your declaration about what

1 you refer to as a conventional slipform paver;
2 right?

3 A. Sure.

4 Q. What is the first step to reconfigure a
5 swing leg on what you refer to as a conventional
6 slipform paver?

7 A. Well, I'm not sure that a conventional
8 slipform paver has a swing leg. I -- we have to be
9 more precise with our definitions if you -- if
10 you -- my understanding of what would be the more
11 common definition is the swing leg and the
12 Accu-Steer are the novel and nonobvious
13 improvements that were made by G&Z.

14 So a conventional machine, I think,
15 describes what -- we're using the word
16 conventional -- would be those that predate that
17 that did not have those very useful technologies.

18 Q. In your declaration when you use the term
19 "conventional slipform paver," are you saying that
20 you're referring to slipform pavers that didn't
21 have a swing leg?

22 A. Well, since we're getting specific, I'm
23 going to do a word search on "conventional."

24 Is that okay? Because I think some of
25 these -- it all depends on the definition, and I

1 don't know that these definitions are well laid
2 out. So if I do a word search on "conventional,"
3 it appears, I think, 12 times in my declaration of
4 the 2020-1698 IPR.

5 Should we take a look at the different
6 uses of the word conventional?

7 Q. I'm looking at the -- the section that
8 begins in paragraph 22 --

9 A. Yup.

10 Q. -- where you refer to --

11 A. My first use of the word that my search
12 found.

13 Q. Right. And you refer to a conventional
14 slipform paver?

15 A. That's right.

16 Q. So when I was asking --

17 A. That's right.

18 Q. -- about a conventional slipform paver, I
19 was asking about as you were using that term in
20 your declaration.

21 A. Yup. And if I -- I could have the
22 reporter read it back; would that be possible?

23 But I think, from my memory, what I told
24 you orally just a few minutes ago matches this
25 sentence that says "My experience and time in the

1 industry informs my opinion that a conventional
2 slipform paver at the time of the invention did not
3 include a slew drive with a swing leg and an
4 [verbatim] upright jacking column."

5 And I think the use of that is with the
6 system. Some of them certainly had upright -- if
7 not all of them had upright jacking columns in
8 isolation, but they did not have that put together.

9 And I think, from my memory, that's
10 consistent with what I earlier had spoken without
11 looking at any of these words on the paper.

12 So should we take the time and make sure
13 that that was consistent? Or does that
14 generally re- -- match your memory of what I said a
15 few minutes ago?

16 Q. I'm just -- okay. If you scroll down to
17 paragraph 26 now.

18 A. Okay.

19 Q. You -- you say that "...reconfiguring a
20 slipform paver was a time-consuming process."

21 A. Right.

22 Q. What -- what are you referring to there?

23 A. Well, I'm referring to different
24 declarations that I've read through and different
25 images and photographs that I've seen where they

1 have -- because of the huge loads going through
2 these systems and the need to reconfigure, they
3 would use devices like turnbuckles and different
4 bolting flanges. They would unbolt large sections
5 of the machine, move them, rebolt them together,
6 catch turnbuckles, tighten them up to remove any
7 play and slop.

8 I fully appreciate the need for these
9 machines, whether they're a -- a road grinding
10 machine or a slipform paver -- paver -- to be
11 configurable to the job that they're doing.

12 And without some of these advanced
13 techniques, like Accu-Steer and the swing leg, that
14 this was a very tedious and difficult process.

15 Q. If you wanted to reconfigure a swing leg
16 on these machines that you're discussing in
17 paragraph 26, what is the first step?

18 A. Okay. So let me turn to paragraph 26.
19 Oh, I'm at paragraph 29 already. So I don't think
20 26 even uses the word "conventional." So I'll
21 just -- I was on the search still. So shall I read
22 paragraph 26 very quickly?

23 "My opinion" -- reconfiguring slipform
24 paver" --

25 (Court Reporter comment.)

1 A. Maybe -- I'm just trying to save time
2 here. Shall I read it silently and just --

3 Q. You can read it to yourself.

4 A. (Witness reviews document.) Yeah. So 26,
5 I think, describes nicely what would be -- what we
6 had been talking about, a conventional slipform
7 paver, even though the word conventional is not
8 used in 26.

9 And -- so what was your specific question
10 as to paragraph 26?

11 Q. If you wanted to reconfigure a swing leg
12 on the machines that you're referring to in
13 paragraph 26, what would be the first step?

14 A. Well, the problem is, the conventional
15 machines did not have swing legs. If they did, you
16 would use the swing leg and Accu-Steer technology
17 and you wouldn't have to go through this. That's
18 the whole point.

19 The swing leg and Accu-Steer technology
20 avoid this time-consuming process of manually
21 manipulating the paver between the paver and
22 transport modes, for one, and also making
23 adjustments on the fly to go around obstacles, and
24 so on.

25 So the -- the problem with the question

1 that you're asking is there is no swing leg on a
2 conventional slipform paver as -- as used in this
3 context.

4 MR. HIGH: Let's take a break.

5 (Recess was taken.)

6 A. So can I ask that we summarize what we
7 mean by conventional slipform pavers, just a very
8 quick summary of what we've arrived at as a
9 definition of that?

10 Q. Sure.

11 A. Okay. So I mentioned earlier from my
12 memory that I believe a conventional slipform paver
13 does not include a system that has a swing leg and
14 Accu-Steer -- sometimes also known as SmartLeg and
15 Accu-Steer -- technology. And I think, for the
16 purposes of this deposition, that that seems to be
17 a good distinction between the -- the new
18 technology that G&Z has introduced into the
19 marketplace and that that existed before which did
20 not have swing legs or SmartLegs plus Accu-Steer.

21 So is that -- can we go forward with that
22 definition or would you like to amend that?

23 Q. I think earlier you said that for a
24 conventional slipform paver you wouldn't
25 reconfigure the swing legs because they didn't have

1 swing legs.

2 Is that still your opinion?

3 A. Well, that's why I wanted to make sure
4 that the swing leg and the Accu-Steer were
5 considered together as a system, and you asked
6 specifically about swing legs. I don't know if
7 your questions had Accu-Steer in them, but I think
8 the swing leg plus the Accu-Steer is what G&Z has
9 brought to the marketplace; and that fundamental
10 combination allows them to go around obstacles. It
11 allows them to do 90 degree steering to load on
12 trailers; and it also has other functions that we
13 can get into if you ask me certain questions.

14 So -- so that's why I'm trying to clarify
15 this right now so that we have a -- a uniform
16 definition of what conventional versus the -- the
17 new slipform pavers that G&Z has introduced.

18 Q. So earlier I asked if you wanted to
19 reconfigure a swing leg on the machines that you're
20 referring to in paragraph 26, what would be the
21 first step? And you said "The problem is the
22 conventional machines did not have swing legs."

23 A. Right.

24 Q. Are you changing --

25 A. Because you asked -- well, no. You asked

1 me about swing legs. So I answered with respect to
2 swing legs. But a more correct and complete answer
3 would have been swing legs and Accu-Steer. You did
4 not ask swing legs and Accu-Steer. So I -- I
5 truncated my response to just swing legs.

6 So, yes, I would like to understand that
7 G&Z has brought not only the swing leg but the
8 Accu-Steer and together they allow a slipform paver
9 to maneuver its track -- tracks around obstacles
10 and to configure themselves to be loaded onto
11 trailers and other transport equipment using the 90
12 degree steering.

13 So I'm just trying to be complete, and I
14 don't -- I'm not sure if the other answers were
15 complete partly because you were specific to swing
16 legs, and I'm -- I'm trying to clarify that it's
17 the swing legs plus the Accu-Steer that gives them
18 this functionality that was new to the marketplace.

19 Q. Going back to our earlier line of
20 questions, had you ever observed a slipform paver
21 without Accu-Steer reconfigure its swing legs?

22 A. I -- well, so have I ever seen a slipform
23 paver without Accu-Steer reconfigure its swing
24 legs? So, no, I don't think I have. And I -- I
25 don't know -- was that consistent with my earlier

1 **answers? Please remind me.**

2 **Q. Are you familiar with the -- the process**
3 **to reconfigure a swing leg without Accu-Steer?**

4 **A. Well, we need to define what swing leg is**
5 **without Accu-Steer because I think it's quite a bit**
6 **different than swing leg with Accu-Steer. So if we**
7 **can arrive at a definition for that, maybe I can**
8 **answer more precisely.**

9 **Q. I'm just using the term swing leg, not**
10 **referring to Accu-Steer.**

11 **A. Yeah. Yeah. So -- so you're talking**
12 **about some sort of slipform paver that has swing**
13 **leg but does not have Accu-Steer? So it has**
14 **conventional steering with a hydraulic cylinder?**

15 **Q. I -- I haven't mentioned the hydraulic**
16 **cylinder. I'm just referring to swing leg.**

17 **A. Yeah. The problem is, I don't really know**
18 **what a swing leg is unless it's combined with the**
19 **Accu-Steer. If you defined what that swing leg**
20 **might be, maybe I could answer it. But as I**
21 **mentioned as we came back from break, when I**
22 **generally am talking about swing leg, unless it's**
23 **noted differently, I'm talking about the swing leg**
24 **as used in conjunction with Accu-Steer, also known**
25 **as SmartLeg and Accu-Steer.**

1 So I think we -- we have a mismatch here.
2 You're talking about some sort of conventional
3 paver with swing leg but without Accu-Steer, and I
4 just don't know what that looks like.

5 So if you can enlighten me, maybe I can
6 give you a better response.

7 Q. I'm going to move on.

8 A. And I did not hear your first syllable
9 there. I just heard a very brief blip.

10 Q. I just said we can move on.

11 A. Okay.

12 Q. Before you were retained by G&Z, had you
13 heard of GOMACO before?

14 A. Of course.

15 Q. At a high level, what did you know about
16 GOMACO at that time?

17 A. Well, yeah -- no, I very clearly have
18 driven around and been at CONEXPO and knew GOMACO
19 was a major manufacturer of concrete paving
20 equipment.

21 So, yes, I've known of that for many
22 years, and I've been at CONEXPO at behalf -- on
23 behalf of Caterpillar Paving Products; and -- so,
24 yeah, I knew -- I knew a lot about GOMACO before I
25 was retained.

1 Q. Did you look into any GOMACO products for
2 this IPR?

3 A. Of course. We have -- as you can see, if
4 you want me to go to my appendix page, there's a
5 number of references to all sorts of GOMACO
6 products.

7 Shall we look at them?

8 Q. My next question was going to be which
9 GOMACO products are you aware of. So if you need
10 to consult your appendix page, that's fine.

11 A. Yeah. So what I'm doing right now is the
12 same IPR2020-1698. I'm turning, you know, to the
13 appendix. I'm actually going to do just a word
14 search on GOMACO. And the IPR has 59 references of
15 the word GOMACO. Just because we're at the
16 appendix level, I'm going to start at the very
17 bottom of this list and work my way up.

18 So Exhibit 2055 has a GOMACO document.
19 And if you'd like to review that, I'm happy to.

20 Also, 2054, 2041, 2040, 2039, 2025, 2021,
21 2013, 2012, 2011, 2008, 2007, 2006, 2005, 2004,
22 2003, 2002, 2001 all reference in the description
23 of -- the word GOMACO. And -- yes, so there's been
24 very many -- there's been much review on GOMACO
25 literature and things to do with GOMACO as part of

1 **this IPR.**

2 Q. Do you recall any specific GOMACO products
3 that you looked into for this IPR?

4 A. Sure. Like the GP4. I mean, whatever's
5 listed -- you want me to go list the products that
6 show up in this list? I can.

7 Q. I -- when you say "this list," are you
8 referring to the list of "Materials Considered"?

9 A. I'm list -- I'm referring to exhibit
10 number, description, and those tabulated items
11 underneath have many GOMACO brochures. They have
12 many GOMACO machines that are listed, such as the
13 GP4 Intelligent Slipform Paver. [REDACTED]

14 [REDACTED]
15 [REDACTED] [REDACTED]
16 [REDACTED] [REDACTED]
17 [REDACTED]

18 I can continue to try to give you a list
19 of the machines that we specifically looked at in
20 these -- the Commander III Trimmer/Slipform Paver.

21 Q. And if I could just pause you for one
22 moment. I think if we could --

23 MR. HIGH: We might be getting into some
24 confidential information. So if we could go back
25 and -- and mark the transcript as confidential

1 right before Mr. Breidenbach's previous answer.

2 Q. Continue.

3 A. Yeah. No, I agree. I'll keep going down
4 the list until you tell me no. Three-Track
5 Commander III. Commander III Trimmer/Slipform
6 Paver. There is a general GOMACO web page, first
7 50 years and beyond. And this is the URL.
8 GP Slipform Paver from 2020.

9 Q. I -- I don't necessarily need you to read
10 everything out, but I didn't know if there was any
11 sort of products in particular that you focused on
12 in your review for this IPR?

13 A. Well, right --

14 MR. PRICE: Objection. Asked and
15 answered.

16 You can continue.

17 A. Well, I'll try to answer, but obviously
18 the ones that show up in -- in the pictures.

19 Shall we look at the pictures where they
20 show a side-by-side copying of GOMACO -- where
21 GOMACO copies G&Z? 'Cause that would be certainly
22 one that we took a look at in detail.

23 So if you turn to page -- PDF page 30,
24 which is marked as page 39 [verbatim], there is a
25 picture of a G&Z S400 side by side with the GOMACO

1 **GP-2400; and it shows -- it shows very -- I think**
2 **it shows copying of the G&Z product by GOMACO. So,**
3 **yes, we took a very close look at that.**

4 Q. Did you annotate this picture yourself?

5 A. **No, I certainly took a look at it, and I**
6 **adopted it into my declaration, and I think you'll**
7 **also find this in various other sources of material**
8 **that are listed in the list of appendix. So if we**
9 **want to go and try to discover where this image**
10 **came from, I think we probably could.**

11 Q. You talk in your declaration about 90
12 degree steering; right?

13 A. **Yeah.**

14 Q. Just to make sure that I'm on the same
15 page, when you say 90 degree steering, are you
16 referring to being able to rotate a crawler track
17 such that it goes from facing forward to facing
18 sideways?

19 A. **Yeah. And generally -- the word 90 degree**
20 **steering is probably a little bit looser and it**
21 **might refer to general things that are not quite**
22 **pinned down, but 90 degree steering certainly**
23 **includes being able to take a very wide machine**
24 **such as a slipform paver, turning the tracks 90**
25 **degrees so that becomes -- instead of a very wide**

1 but not very long machine, it becomes a very long
2 but not very wide machine. So it's configurable
3 for transport.

4 And 90 degree steering certainly gives you
5 that capability. Now, if you're steering the
6 machine, yes, it might not be exactly 90 degrees,
7 but the term 90 degree steering generally means a
8 steering system that can have that capability
9 where, if you look at a strictly conventional
10 hydraulically actuated steering system such was --
11 we used on the PM465, they were not able to achieve
12 90 degrees.

13 Other advantages are: With a linkage
14 system you have certain mechanical advantages that
15 are raising and lowering as you're going through
16 the range of motion; a 90 degree steering such as
17 the Accu-Steer system provides, probably has a very
18 -- very consistent torque capability regardless of
19 the actual position of the track.

20 Q. So wouldn't it be possible, though, for
21 you to design a hydraulic steering cylinder that
22 can rotate the crawler tracks 90 degrees?

23 MR. PRICE: Objection. Incomplete
24 hypothetical.

25 A. And you've frozen now. Can you still hear

1 **me, Bob?**

2 Q. I can still hear you. Can you hear me?

3 A. **Yeah.**

4 THE WITNESS: So shall I continue to
5 answer even though you have objected?

6 MR. PRICE: You can answer.

7 THE WITNESS: Okay.

8 A. **All right. So I believe that there -- are**
9 **you -- can you qualify this as something that would**
10 **need to be pinned and repinned so that you'd**
11 **actually change the configuration of the steering**
12 **linkage?**

13 Q. Without -- without having to repin a
14 steering cylinder, couldn't you design it so that
15 it rotates a crawler track 90 degrees?

16 A. **I am not aware of anything -- and even**
17 **when it comes to my experience at the Boeing**
18 **airplane company's landing gear group, which I was**
19 **in for six months, they had nose gears on airplanes**
20 **that had to steer fairly sharply, but for those**
21 **conventional steering cylinder actuated airplanes,**
22 **they could not steer a full 90 degrees that I am**
23 **aware of.**

24 Also, if someone could design something
25 like that, you would have severe mechanical

1 **advantage lost as you approach the -- the different**
2 **angles in such a -- an arrangement.**

3 **So I -- I don't know of this capability**
4 **that you have 90 degree steering -- 90 degree**
5 **steering -- at least that is practical for use in a**
6 **slipform paver -- done by conventional hydraulic**
7 **cylinders.**

8 Q. If you could turn to page 8 of your
9 declaration. I think it's PDF page 9.

10 A. **Okay.**

11 Q. You see the diagram beneath paragraph 23?

12 A. **Yes, I do.**

13 Q. If I were to just extend the length of the
14 stroke of that steering cylinder, couldn't I make
15 it so that the crawler track has at least 90
16 degrees of -- of rotation?

17 A. **I -- I don't -- I don't believe that's**
18 **geometrically possible; and even if it were, you'd**
19 **lose so much mechanical advantages during certain**
20 **parts of the stroke that it would not be useful.**
21 **So I do not think that's a viable design to use a**
22 **single hydraulic cylinder like that to actuate a**
23 **jacking column to steer a track 90 degrees.**

24 Q. At least some slipform pavers before the
25 priority date of these patents included a rotary

1 actuator to rotate the crawler tracks, didn't they?

2 **A. Yeah, I think there might have been; and**
3 **if you want to be specific, I'd be happy to address**
4 **any specific examples that you have.**

5 Q. I'm asking you: Are -- are you aware of
6 any?

7 MR. PRICE: Objection. Calls for
8 speculation.

9 **A. Okay. Yeah, that's why -- if you could be**
10 **specific with what you're talking about. I mean...**

11 Q. Are you familiar with any slipform pavers
12 before the priority dates of these patents that
13 included a rotary actuator to rotate the crawler
14 tracks?

15 **A. You said slipform paver. So I don't -- I**
16 **don't really -- I -- I cannot recall -- and I'm --**
17 **I'm really trying to think through what we've gone**
18 **through here -- so ask your question one -- I've**
19 **been thinking. Ask your question one more time so**
20 **I can make sure it's clear.**

21 Q. Are you familiar with any slipform pavers
22 before the priority dates of the patents that
23 included a rotary actuator to rotate the crawler
24 tracks?

25 MR. PRICE: I'm also going to object to

1 scope.

2 A. And I could start looking through our
3 exhibits if you want me to be more positive about
4 this, but I don't think that any come to mind with
5 the rotary actuator.

6 Q. Are you --

7 A. If you want me to take the time to go
8 through the exhibits, I can.

9 Q. It's okay.

10 Are you familiar with any milling machines
11 before the priority dates of the patents that
12 included a rotary actuator to rotate the crawler
13 tracks?

14 A. Well, in that case, you might be referring
15 to Fred Rio's milling machine of some type, and --
16 and I think it would be useful to bring that patent
17 application up if you want to.

18 Q. I'm not asking you to go into any details.
19 I'm just asking if you're familiar with any milling
20 machines with that design.

21 MR. PRICE: Objection. Scope.

22 A. Yes, I'd have to answer there is a design
23 by Fred Rio in particular that I've worked with at
24 Caterpillar, and I believe that's a milling
25 machine, and I believe it has a rotary actuator.

1 Q. If a slipform paver with a rotary
2 actuator -- sorry. Let me withdraw that.

3 If a slipform paver with a rotary
4 actuate -- sorry. Let me start again.

5 If a slipform paver had a rotary actuator
6 to rotate the crawler tracks, would it be capable
7 of 90 degree steering?

8 MR. PRICE: Objection. Calls for
9 speculation. Objection. Scope.

10 A. Yeah. So I agree with the speculation. I
11 can try to give you a general answer. And my -- my
12 answer would be the actuators that were present
13 were not sufficient to -- to do what you've asked
14 it for on the slipform paver.

15 So the answer is no.

16 In fact, even on the milling machine
17 itself, I believe if you read the Rio patent, he's
18 very clear that you can't steer on the fly. He has
19 to literally rest the machine on its cutter box and
20 pick the machine up -- or pick the legs up off the
21 ground and then his rotary actuator can actually
22 reconfigure the steering such that he can -- but he
23 cannot -- he cannot do that as -- as a useful
24 slipform paver would need to have done.

25 He -- that -- Fred Rio's machine is a

1 lightweight road milling machine compared to even
2 the 465. And in his application, he discusses that
3 his rotary actuator is not suitable to steer on the
4 fly -- in so many words. But by putting that down,
5 even in a heavier paving machine, it would not
6 function. It would not be useful as a rotary
7 actuator to do steering on the fly.

8 MR. HIGH: All right. Let's take a quick
9 break. I need to take a look at my notes, and we
10 can come back in, say, like, three minutes? Is
11 that okay?

12 MR. PRICE: Can we -- can we take more
13 like ten?

14 MR. HIGH: Ten's fine.

15 MR. PRICE: Okay.

16 (Recess was taken.)

17 MR. HIGH: So at this point I have no
18 further questions. This is a quick housekeeping
19 matter: I think the only portion of the transcript
20 that I believe discussed confidential information
21 was that one answer that Mr. Breidenbach gave where
22 I said to mark it as confidential. I think other
23 than that, I don't think it needs to be
24 confidential.

25 And at this point I can pass the witness.

1 MR. PRICE: I have no redirect.

2 COURT REPORTER: Does anyone want to give
3 me a transcript order?

4 I know what yours is, Bob.

5 Do you have anything different, Jeff? Do
6 you want a rough?

7 MR. PRICE: Yeah, we'll take a rough. And
8 we don't need anything speedy.

9 COURT REPORTER: Regular turnaround?

10 MR. PRICE: Regular turnaround.

11 (Whereupon the deposition ended at
12 11:31 a.m. (CDT).)

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1 CERTIFICATE OF REPORTER

2 I Patricia Jodi Ohnemus, Licensed
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11 commencing at 9:40 a.m. (CDT) and ending at 11:31
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13 I further certify that present on behalf
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15 Jeffrey Rice of Kramer Levin, and on behalf of
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17 Robert High and Jason Stach of Finnegan Henderson
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19 I further certify that I am not related
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1 ACKNOWLEDGMENT OF DEPONENT

2

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