UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

MEDTRONIC, INC., AND MEDTRONIC VASCULAR, INC.,

Petitioners,

vs.

TELEFLEX INNOVATIONS S.A.R.L.,

Patent Owner.

IPR2020-00126 (Patent 8,048,032 B2)
IPR2020-00127 (Patent 8,048,032 B2)
IPR2020-00128 (Patent RE45,380 E)
IPR2020-00129 (Patent RE45,380 E)
IPR2020-00130 (Patent RE45,380 E)
IPR2020-00132 (Patent RE45,760 E)
IPR2020-00134 (Patent RE45,760 E)
IPR2020-00135 (Patent RE45,776 E)
IPR2020-00136 (Patent RE45,776 E)
IPR2020-00137 (Patent RE47,379 E)
IPR2020-00138 (Patent RE47,379 E)

VIDEOTAPED DEPOSITION OF PETER KEITH

DATE: November 24, 2020

TIME: 9:00 a.m. (Central Standard Time)

PLACE: Veritext Virtual Videoconference

REPORTED BY: PAULA K. RICHTER, RMR, CRR, CRC

APPEARANCES

(All parties appeared via videoconference)

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Craig Jones - Videographer
Grant Franks - Veritext Concierge
Greg Smock - Teleflex

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P R O C E E D I N G S

THE VIDEOGRAPHER: Good morning. We are going on the record at 9:00 a.m. CST, on Tuesday, November 24th, 2020. Audio and video recording will continue to take place unless all parties agree to go off the record.

This is Media Unit 1 of the video-recorded deposition of Peter Keith, in the matter of Medtronic versus Teleflex Innovations, filed in the Patent Trial and Appeals Board, case number IPR2020-00127.

The deposition is being held via video conference. My name is Craig Jones, from the firm Veritext Midwest, and I'm the videographer. The court reporter is Paula Richter, from the firm Veritext Midwest.

I am not related to any party in this action, nor am I financially interested in the outcome.

Counsel and all present in the room and everyone attending remotely will now state their appearance and affiliations for the record. If there are any objections to proceeding, please state them at the time of your appearance, beginning with the noticing attorney.

MR. MORTON: Good morning. This is Cyrus Morton from the law firm of Robins Kaplan, on behalf of Petitioner Medtronic. With me also is Christopher Pinahs.

MR. WINKELS: On behalf of patent owner, Joe Winkels with the Carlson Caspers firm. With me from Carlson Caspers is Derek Vandenburgh. Also on the line is Ken Levitt, from The Dorsey Firm, and Greg Smock from Teleflex.

THE VIDEOGRAPHER: Will the court reporter please swear in the witness.

PETER KEITH,

duly sworn, was examined and testified as follows:

EXAMINATION

BY MR. MORTON:

Q. All right. Good morning, Mr. Keith. I know you were deposed yesterday and a lot of your background was covered, so I'll try not to be too repetitive on that. But I do want to walk through some things that are in your declaration, specifically your declaration for the '032 patent in IPR2020-00127.

Do you have that available?

A. I do.

Q. Okay. And we'll be walking through that and

through some of the other exhibits and prior art as we go through the day.

So looking at that declaration, you note in paragraph 18 that you have inspected the GuideLiner devices, Boston Scientific Guidezilla, QXM Boosting Catheter, and the Medtronic Telescope guide extension catheter.

Do you see that?

A. Yes.

Q. And in addition to inspecting, you said you performed testing?

A. Correct.

Q. Okay. So first, is it true you haven't actually used any of those devices to perform a procedure on a patient, correct?

A. That's correct.

Q. Have you witnessed any procedures using those devices?

A. I have not witnessed any in person. I -- you know, over the course of the years, I may have seen some video snippets or certainly, you know, read some references related to the use of these devices, but I have not seen a device used in person.

Q. Okay. So for this case, when you say you

inspected the devices, does that mean basically you had a version of them and looked at it, checked it over outside of kind of the operating context?

A. Yes. In more of a -- like an R&D lab-type setting.

Q. And you note that you've performed testing on the GuideLiner, QXM, and Medtronic guide extension catheters.

Do you see that?

A. Yes.

Q. What testing did you do on GuideLiner?

A. On GuideLiner, I -- in addition to my visual inspections, I did some flexibility characterizations, some bending, stiffness characterizations on different portions of the device.

Q. Any other testing besides bending and stiffness testing?

A. I don't recall any others sitting here right now.

Q. Okay. And then how about same question for the QXM Boosting Catheter; what testing did you do on that?

A. I did similar types of testing on that

device, and I think I also did some dimensional measurements. I think I -- yeah, that's -- sitting here right now, those are the types of tests that I recall doing on that device.

Q. All right. And finally, for the Medtronic Telescope guide extension catheters, what testing did you perform?

A. Again, similar types of flexibility testing that I did on the other devices.

Q. All right. Do you have, in your history or experience, any experience as a librarian?

A. No.

Q. Have you ever worked as an editor of an engineering journal?

A. No.

Q. All right. Let's jump ahead.

You get into your declaration in, say, paragraph 38. You're going through a lot of background and teaching, and here you're teaching about the use of balloons and stents.

Do you see that?

A. Yes.

Q. And can you tell me -- and take yourself back into the 1990s -- how does a stent operate? What is its function? How does it work?

A. I think I outlined it pretty well in my report. I'm not sure -- you want me to add more to that or -- I guess I'm not quite sure what you're asking. I mean, at a high level, they're devices that are implanted into blood vessels to dilate and maintain a dilation of a blockage.
Q. Okay. So does the stent dilate the vessel?
A. Typically the stents are mounted on a balloon catheter, and it's the combination of the stent on the balloon that's inflated to dilate the lesion.
Q. I think you said the stent is there to maintain that dilation; is that correct?
A. Yeah. The stent is something that's left behind as an implant in the patient.
Q. And does it have to then basically press out against the artery that it's in, or how much force does it have to apply to maintain that dilation?
A. It's really a function of what -- how much resistance the dilated lesion is presenting back onto the stent, so it could be different depending on the patient's anatomy.
Q. All right. So -- but the stent is designed to withstand whatever it needs to in order to maintain that dilation, right?
A. I would say for the most part, yes.

Q. If you want to follow along in your declaration, you get to paragraph 57 and you're now talking about -- you say, "Numerous variables can impact how easy or difficult it is to treat a particular patient lesion."
Do you see that?
A. Yes.
Q. Okay. Can you list all the variables you can think of, please?
A. I -- again, at a high level, I think the variables that can impact that are the nature of the lesion itself, the tightness of the lesion. Is it heavily calcified? Where is it located? Is it in tortuous anatomy? Is there tortuous anatomy leading up to it? Is it, you know, in a vein graft versus in a native coronary artery?
Those are some of the variables that I can think of sitting here right now.
Q. All right. Let's go down on one of them. Let's go with a tighter lesion. And I know you talk about that here, and you say, "tighter lesion will require a higher advancement force."
Do you see that about halfway down that paragraph?
A. Yes.

Q. So what is a normal advancement for?
A. I'm not sure I understand the question. What I said here is that -- I think I'm describing sort of a relative comparison. If it's a tighter lesion versus one that's not as tight; you may have to push harder to get across that lesion.
Q. Right. But from an engineering standpoint, is that something that can be measured, that you can talk about whether a normal advancement force versus a higher advancement force?
A. I think it can be measured. I don't have those numbers in my head right now.
Q. So when you say "higher," do you have any way to quantify this or give me any idea of what you're talking about in terms of a higher advancement force?
A. Sitting here right now, I can't really quantify that, but I think it's -- I think one could measure that in different types of lesions.
Q. How would you measure it?
A. Again, I mean, I haven't thought about it. I don't know exactly how you'd measure it. But, you know, I think it would be possible to measure -- with a force gauge measure, you know, an advancement force on the proximal end of the

device. You could measure a force being applied to a lesion if you were doing more of a bench-type test. I think there are ways that it could be done, but, again, I haven't given that a whole lot of thought.
Q. Have you ever done that in your long history of working on catheters and catheter design?
A. I may have. I don't recall specifically.
Q. And you talk about here the reactive force for the end, right, and it could cause a guide catheter to back out.
Do you see that?
A. Yes.
Q. So for that reactive force, again, is there any way to quantify that for me or tell me how much force will be required to make the guide catheter back out?
A. Again, I mean, I think it would depend on different factors, but for a given situation, I think that is something that could possibly be measured. I wouldn't know exactly how to do that just off the top of my head.
Q. Okay. And so is there sort of a range of forces that might cause it to back out?
A. There probably is, but I don't know exactly

what those would be.
Q. You don't know what the minimum force would be required to cause it to back out, right?
A. Well, again, it would depend on other factors too. It could depend on the guide catheter itself, the anatomy. But for a given scenario, I think that's something that could be measured.
Q. Okay. And how could it depend on the guide catheter?
A. Shape, size, construction. Those things can influence how much -- how easily a guide catheter could back up -- back out. Sorry.
Q. Okay. And how about the anatomy you said? How could that impact how much a reactive force is required to have it back out?
A. Some things I think would be the size of the aorta, how the guide catheter is positioned within the aorta relative to the -- to the coronary artery. Those are a couple examples.
Q. Okay. And are there any other factors besides the structure or whatever of the guide catheter and the patient anatomy that can affect the amount of reactive force required for the guide catheter to back out?
A. There may be. I can't think of any right

now.
Q. Okay. And, again, this reactive force, this is something that you could measure, but you haven't done that for this case; is that right?
A. Not specifically. Correct.
Q. Let's talk about some of the other things that were done to address this backout problem.
How well does deep-seating work in terms of preventing backout?
A. I believe that it works to some extent. It's just a very risky thing to consider, so it's -- it's -- I think it tends to be rarely employed because of the concerns that can come about by deep seating a conventional guide catheter into a patient.
Q. Sure. And I'm aware of the concerns to the anatomy. I want to focus just on how much additional backup support, if you will, can be offered by deep-seating.
Do you know that in any kind of qualitative or quantitative sense, how much extra force can be applied to crossing a lesion if the guide catheter is deep-seated?
A. I don't. Again, I think that also would depend on some different variables, like, you

know, the guide catheter itself, the construction details, how far it's being deep-seated.
Those are some of the variables that could affect that if you were to deep seat a guide catheter.
Q. All right. And how about another thing that you discuss in here, the mother and child arrangement for addressing backup support like the Shockey patent you discuss. In the mother and child context, do you have any idea how much extra force can be applied?
A. I don't have a specific number for that. And, again, I think it would depend on some variables of what that mother and child arrangement is.
Q. Again, in the mother and child context, you could measure how much extra backup support that's giving, but that's not something you've done for this case, right?
A. I think it is something that could be measured. I have not specifically done that.
Q. Okay. Paragraph 61, your -- again, here you're talking about teaching mother and child was known prior to May 2006 to provide backup support; is that right?

A. Correct.
Q. And, in fact, mother and child was known to provide increased backup support for, like, a decade or more prior to May 2006, right?
A. I don't know how long it was known.
Q. You don't know when the earliest mother and child catheters were?
A. Sitting here right now, I don't recall that.
Q. In paragraph 62 of your declaration, you say, "The Shockey patent was 1991."
Does that refresh your recollection that it's been more than a decade of mother and child known to provide backup support prior to 2005, 2006 time frame?
A. Yes. So that particular reference is from 1991.
Q. Let's go back to your example in paragraph 61 that you give.
You say the child catheter is more flexible than the larger diameter guide catheter, right?
A. I believe so.
Q. Well, what materials is the child catheter typically made of?
A. It would depend on what child catheter you're

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