

UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD
AMERICAN NATIONAL MANUFACTURING INC.,

Petitioner,

vs.

SLEEP NUMBER CORPORATION, f/k/a
SELECT COMFORT CORPORATION,

Patent Owner.

CASE IPR2019-00514(Patent 5,904,172)

DEPOSITION OF ROBERT GIACHETTI, PhD, PE

October 7, 2019

Chicago, Illinois

Reported by:

Karen P. Burns, C.S.R.

Job no.: 26063

TransPerfect Legal Solutions

1 The deposition of ROBERT GIACHETTI, PhD, PE,
 2 taken pursuant to Notice, held at 321 North Clark
 3 Street, Suite 1600, Chicago, Illinois, on the
 4 7th day of October, 2019, at 9:02 a.m.,
 5 before Karen P. Burns, a Certified Shorthand
 6 Reporter and Notary Public within and for the
 7 County of DuPage and State of Illinois.

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18
19
20
21
22
23
24
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1 INDEX
 2 WITNESS EXAMINATION
 3 ROBERT GIACHETTI
 4 Cross-examination by Ms. Nath 5
 5
 6 EXHIBITS
 7 EXHIBIT NAME DESCRIPTION PAGE
 8 Giachetti Exhibit
 9 Exhibit 1 Exhibit 1005 6
 10 Exhibit 2 Exhibit 1006 7
 11 Exhibit 3 Document Bates numbered 29
 WA 11287419.5
 12
 13 Exhibit 4 Exhibit 1001 74
 14
 15 Exhibit 5 Exhibit 1004 75
 16
 17 Exhibit 6 Exhibit 1007 147
 18
 19 Exhibit 7 Exhibit 1011 194
 20
 21 Exhibit 8 Exhibit 1014 214
 22
 23 Exhibit 9 Exhibit 1008 224
 24
 25 Exhibit 10 Exhibit 1012 255
 Exhibit 11 Exhibit 1009 269
 Exhibit 12 Exhibit 1010 277
 Exhibit 13 Majority Opinion, Chapco, Inc. 281
 vs. Woodway USA, Inc.
 Exhibit 14 Williams v. Tristar Products, 281
 Inc., Slip Copy (2019)

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24
25

1 (Witness duly sworn.)
 2 ROBERT GIACHETTI,
 3 having been first duly sworn, was examined and
 4 testified as follows:
 5 CROSS-EXAMINATION
 6 BY MS. NATH:
 7 Q. Good morning, Mr. Giachetti. My name
 8 is Archana Nath. We met before off the record.
 9 You've been retained as an expert in these
 10 proceedings, is that correct?
 11 A. That's correct.
 12 Q. Have you been deposed before?
 13 A. I have.
 14 Q. So you know all the rules?
 15 A. Yes. Most of the rules, I should say.
 16 Q. And you'll remember that the court
 17 reporter is writing everything down, so I think
 18 the biggest thing is let's try to not talk over
 19 each other, okay?
 20 A. Okay.
 21 MS. NATH: I'm going to mark a document
 22 as Exhibit 1. This is Exhibit 1005 in the
 23 proceedings.
 24
 25

(Whereupon, Giachetti Deposition Exhibit No. 1 was marked for identification.)

BY MS. NATH:

Q. I just handed you a copy of your expert report in this case, is that right?

A. Without going through it, it looks like it.

Q. Okay. And this report includes all of your opinions relating to this matter to date?

A. Regarding the patents, yes.

Q. The patents. And what patents are you talking about?

A. The '172 patent in particular and all the things that went into this report.

Q. Okay. And when you say the '172 patent, are you talking about patent number 5,904,172?

A. That's right. By Giffit.

Q. So if we say '172 or Giffit, you'll know that we are talking about the patent at issue in this proceeding?

A. Yes.

Q. And you agree with everything that you've set forth in your declaration -- or in

your report, excuse me?

A. Yes. It's mine.

Q. And actually, you signed it here on --

A. Should be the 29th of December.

Q. You signed it here on page 187?

A. Yes.

Q. And you have a conclusion here in paragraph 356 and you have an opinion that the '172 patent is invalid, is that correct?

A. That's correct.

MS. NATH: I would like to hand you what we are going to mark as Exhibit 2, which is 1006 in the proceeding.

(Whereupon, Giachetti Deposition Exhibit No. 2 was marked for identification.)

BY MS. NATH:

Q. Is Exhibit 2 the CV that you attached to your report?

A. This looks like it.

Q. So let's talk a little bit about your background, then. You are a licensed professional engineer?

A. That's correct.

Q. Do you have any experience with

adjustable air mattresses?

A. I have experience personally with inflatable air mattresses. I do work in an area that is analogous to that.

Q. Okay. So what's your experience personally with an adjustable air mattress?

A. Well, I have them. I own one, I've used one.

Q. Which one do you have?

A. I don't remember actually.

Q. You don't know the brand?

A. I don't.

Q. And then you said you work in an analogous area. So what is that area?

A. So I do some work in fluids and fluid power, so as part of that work I've had a number of cases where I've built equipment or investigated equipment that involves pumps, computer control and filling bladders.

Q. What types of bladders or for what application?

A. Well, I've worked on -- I've done hydraulics and pneumatics so I've done cylinders, I've done -- let's see. I've done water balloons, I've done expandable -- well,

this project is ongoing so I can't really discuss it, but it's basically an expandable innertube that is filled cyclically and I built a test apparatus using both pneumatics and hydraulics to fill it to a set pressure and then that pressure is relieved and the cycle continues, and it uses manifolds and pressure sensors.

Q. What area is that in? So it's not air adjustable mattresses, right?

A. The product itself is not an air mattress, but it uses all of the same technology that is in an air mattress.

Q. Can you tell me what the product is or at least the area?

A. It's a consumer product for household use.

Q. Does it have anything to do with sleep?

A. No.

Q. When did the project start?

A. That one started in about 2011.

Q. You said it related to an expandable innertube?

A. That's right.

Q. How is that the same or different than

1 a bladder?
 2 A. So sometimes bladders have a little
 3 flexibility to them, sometimes they don't. This
 4 particular product has two layers. You could
 5 consider one a jacket, which is more rigid in
 6 comparison to the innertube inside, which would
 7 be considered the bladder. So it's a closed
 8 system and when you fill it, the innertube
 9 expands until it hits the jacket and then it
 10 becomes more rigid as a whole.
 11 Q. Once you expand it to where you want it
 12 to be, do you maintain, then, that level?
 13 A. Yes.
 14 Q. Any other analogous work?
 15 A. I've done some work that involves pilot
 16 valves. In particular it's the gas line going
 17 into residences. So I gained familiarity with
 18 some pilot valves, pneumatic pilot valves that
 19 way. I've worked on -- are you familiar with
 20 SodaStream?
 21 Q. Sounds familiar.
 22 A. So I didn't work on SodaStream, but a
 23 similar product where there is a nozzle that
 24 clicks in and it fills with gas to carbonate
 25 liquid.

1 Then I also worked on a valve case,
 2 which is a quick connect poppet valve for a
 3 fracking tanker that's pressurized. With that
 4 one there was a poppet in there. In the end,
 5 the valve was taken apart and our analysis
 6 showed that it was not the appropriate poppet
 7 inside.
 8 Q. Did that involve a valve enclosure
 9 assembly at all?
 10 MR. HARE: Objection, form.
 11 THE WITNESS: That particular valve was
 12 a quick connect valve.
 13 BY MS. NATH:
 14 Q. So it wasn't enclosed in anything?
 15 A. No. It was itself.
 16 Q. What about the pneumatic pilot valves,
 17 did they relate to valves that were enclosed in
 18 anything?
 19 A. No. Those valves are on outsides of
 20 houses.
 21 Q. Are there valves in relation to this
 22 expandable innertube?
 23 A. Yes.
 24 Q. Are those enclosed in anything?
 25 A. That system -- so the product itself

1 does not have computer controlled valves in it,
 2 but the setup that I constructed and designed
 3 uses solenoid valves and manifolds and pressure
 4 transducers.
 5 Q. So the actual product doesn't use them
 6 but the test apparatus that you used does use
 7 them?
 8 A. That's right. I was retained to test
 9 these products.
 10 Q. When did your work on the pneumatic
 11 pilot valves take place?
 12 A. That was probably in 2010.
 13 Q. And how about the SodaStream type
 14 product?
 15 A. Probably 2013 or 2014.
 16 Q. And then the quick connect valve case
 17 with the fracking?
 18 A. That was more recent. Maybe 2016 or
 19 2017.
 20 Q. So you have an understanding that the
 21 patent -- excuse me. Luke likes to tell me what
 22 to say.
 23 Is there any other analogous work that
 24 we haven't talked about?
 25 A. I know that I've worked in some other

1 projects that involved pneumatics. Oh, I did
 2 assist a client with a tire inflater.
 3 Q. A tire inflater like something that I
 4 could have in my house, like the one you can own
 5 yourself to inflate a car tire?
 6 A. Yeah. It was basically like the size
 7 of like a power drill and you could plug it into
 8 your cigarette lighter and pull the trigger, and
 9 the display shows the pressure that you're
 10 trying to reach and it automatically shuts off
 11 when you're finished.
 12 Q. Are there valves in that product?
 13 A. There is a stem check valve in the
 14 chuck.
 15 Q. Does the check valve relate at all to
 16 whether air is flowing into the tire or not?
 17 A. Yeah. So the chuck has the stem in it,
 18 and that stem has to push on the stem of your
 19 tire to open it.
 20 Q. Anything else that's analogous?
 21 A. Yes. I also did a case examining the
 22 failures of collets. A collet is basically --
 23 if you're familiar with a finger trap that the
 24 kids play with. So imagine instead of fingers
 25 getting caught together, it's a quick way of

1 connecting pipes and things.

2 So suppose you want to put a hot water
3 thing in line for like a coffee maker or
4 something but you don't want to braze it
5 together or whatever. You just take this thing
6 and you shove one pipe in this side and one pipe
7 in that side and it's got little fingers in it
8 that keep everything together.

9 Q. So how is that analogous to adjustable
10 air mattresses?

11 A. Well, the system that I developed to
12 test that involved computer control of solenoid
13 valves and pressurizing one part instead of the
14 other and taking a pressurized source using a
15 pump and filling it. It didn't have a bladder,
16 but it goes to my experience with pneumatics and
17 hydraulics.

18 Q. Did it involve measuring the pressure?

19 A. Yes. Yes, I had a pressure measurement
20 on that.

21 Q. Your test did?

22 A. Yes.

23 Q. Why were you measuring pressure for
24 this finger-like trap object?

25 MR. HARE: Objection, form.

1 the tube?

2 A. That's right.

3 Q. And then it hits an end of the tube and
4 then does what?

5 A. And then it begins pressurizing. So
6 it's not an open channel all the way through and
7 it doesn't continue on going somewhere else.

8 Q. So the pressurized fluid remains in the
9 innertube?

10 A. That's right.

11 Q. For what purpose?

12 A. To pressurize it.

13 Q. Is there something that's done with the
14 pressurized fluid once it's pressurized?

15 A. Yes. It's held there for a time and
16 then after that time is up, then it's drained.

17 Q. Do you have an understanding that the
18 '172 patent was filed in July of 1997?

19 A. That sounds right, to my recollection.

20 Q. You can look on page 6 of your report
21 if you want to confirm.

22 A. Yes, that's what it says on page 6.

23 Q. So at the time that this patent was
24 filed, you had just graduated from Marquette,
25 correct?

1 THE WITNESS: So I was measuring
2 pressure in the system. This wasn't
3 particularly to measure the exact pressure in
4 each of these collets, but as part of the
5 project in terms of where they were situated in
6 the field when they failed, I needed to have an
7 idea of what we were pressurizing them to.

8 BY MS. NATH:

9 Q. Anything else that you believe is
10 analogous to adjustable air mattresses?

11 A. Well, I'm just giving you my
12 experiences in pneumatics and things like that.
13 I've worked on a number of other product cases
14 where I used air power and pressure and valves
15 to do it. There is just a smattering of things
16 all over the place.

17 Q. When we were talking about the
18 innertube project, what did you mean when you
19 said closed systems?

20 A. So the innertube and the jacket, it was
21 like -- if you want to think of it as a
22 cul-de-sac. The fluid comes in from one side
23 and hits a dead end and then the whole thing
24 starts to fill.

25 Q. So the fluid comes in from one end of

1 A. Yes, that's right.

2 Q. You would have graduated in May
3 of 1997, approximately?

4 A. Yeah, approximately.

5 Q. And you had a Bachelor of Science in
6 mechanical engineering?

7 A. That's right.

8 Q. Did you have any experience at the
9 time?

10 A. I did, actually.

11 MR. HARE: Objection to form.

12 BY MS. NATH:

13 Q. And what was the experience at the
14 time?

15 A. So I had a year-long design project
16 with a team of people and we built a computer
17 controlled vacuum cleaner that ran on a 286
18 motherboard and had sensors that would control
19 the vacuum cleaner.

20 Q. It's something that you worked on while
21 you were in school, is that right?

22 A. That's right. And while we worked on
23 it, we reached out to a number of vacuum cleaner
24 companies and we ended up making a contact with
25 Hoover, who gave us a number of -- they gave us

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