

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Dental Recycling North America, Inc.,

Petitioner,

v.

Solmetex, LLC,

Patent Owner.

Case No. _____

U.S. Patent 11,660,175

**DECLARATION OF DARWIN MOREIRA,
IN SUPPORT OF THE PETITION FOR POST GRANT REVIEW
OF U.S. PATENT NO. 11,660,175**

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I, Darwin Moreira, declare as follows:¹

I. INTRODUCTION

1. I make this declaration at the request of my employer, Dental Recycling North America, Inc. (“DRNA” or “Petitioner”), in support of its Petition for Post Grant Review (“PGR”) of U.S. Patent No. 11,660,175 (“the ’175 patent”) (Ex. 1001).

2. I have personal knowledge of the subject matter contained in this declaration. I understand that I am making this declaration under penalty of perjury under the laws of the United States. To the best of my knowledge, everything in here is true and correct.

3. If called to testify, I would and could testify about the subject matter below.

II. EDUCATIONAL AND PROFESSIONAL BACKGROUND

4. I currently work at DRNA as the Vice President of Operations. I have been at DRNA for over 18 years. I have held various positions while at DRNA, but I have always been involved in its business strategy, product design, marketing, and sales. I therefore have personal knowledge about DRNA’s products and when they were first offered for sale and sold.

5. Prior to joining DRNA, I graduated from New York University’s Stern School of Business in 2003 with a B.S. in Finance and Information

¹ Unless otherwise noted, all emphases herein have been added.

Systems.

III. BACKGROUND OF DRNA

6. DRNA was founded in 1998 by Marc Sussman, who is still the President and CEO. DRNA aims to be the leading direct-to-dentist and dental facility provider of amalgam and other wastes recycling resulting from dental practices. By providing directly to dental professionals, DRNA established itself as the disrupter in this niche market.

7. Amalgam separation devices are installed in dentists' offices to filter out and separate amalgam from patients' fillings. These fillings could be made from heavy metals, such as mercury, that would be undesirable in local water processing plants and reservoirs. The EPA therefore requires dental offices to install amalgam separators to remove amalgam before the wastewater enters the sewers.

8. Although there are multiple amalgam separation devices available to dentists, Solmetex has the largest market share. I have been familiar with Solmetex since I first joined DRNA. Solmetex released its first amalgam separation system in 1999, called the Solmetex Hg5 Amalgam Separator ("Solmetex Legacy System"). (<https://solmetex.com/history/>.) As part of that system, Solmetex required a detachable collection container that collected the amalgam. This container could be detached when filled and a new one would be attached. Solmetex included a collection container ("Legacy Container") with purchase of the Solmetex Legacy System. Solmetex also sold replacement Legacy

Containers to replace containers that filled up. Customers would then send the filled containers back to Solmetex for disposal.

9. I was at DRNA in 2016 when we released our first cartridge (“DRNA Cartridge 1”), which was compatible with the Solmetex Legacy System. Our first sale of the Cartridge 1 was on December 19, 2016 to a customer in the United States.

10. In June 2017, Solmetex released a new amalgam separation system, called the Solmetex NXT Separation System (“Solmetex NXT System”). (<https://solmetex.com/faqs-nxt/>.) The Solmetex NXT System also utilized a collection container (“NXT Container”). The Solmetex NXT System came with an NXT Container, but Solmetex also sells the NXT Container separately to replace spent containers.

11. At DRNA, we redesigned our Cartridge 1 to be compatible with the Solmetex NXT system. We called our new cartridge the “Cartridge 2.” The Cartridge 2 was designed to be compatible with the Solmetex NXT System. The first sale of the Cartridge 2 was on May 18, 2020 to a customer within the United States.

IV. CARTRIDGE 2

12. I have been involved with the design of Cartridge 2 since the beginning. Cartridge 2 is designed to be used with the Solmetex NXT System. We provide instructions to our customers on how to affix Cartridge 2 to their

Solmetex NXT Systems. For example, EX1006 is a true and correct copy of the installation instructions we send with Cartridge 2. These instructions teach our customers how to properly attach Cartridge 2 to their Solmetex NXT System. We also provide videos that show customers how to properly attach Cartridge 2 to their Solmetex NXT System. (<https://drna.com/products/Generic-Amalgam-Separator-Cartridges-c130499018>.) I took a picture of a Cartridge 2 connected to an NXT System, which is shown below.



13. DRNA also provides a toll-free phone number, fax number, and email

address that our customers can use to contact us with any questions on how to properly attach Cartridge 2 to their Solmetex NXT System. Our contact information is included in our Installation Instructions (EX1006) and also on our website (<https://drna.com/products/Generic-Amalgam-Separator-Cartridges-c130499018>).

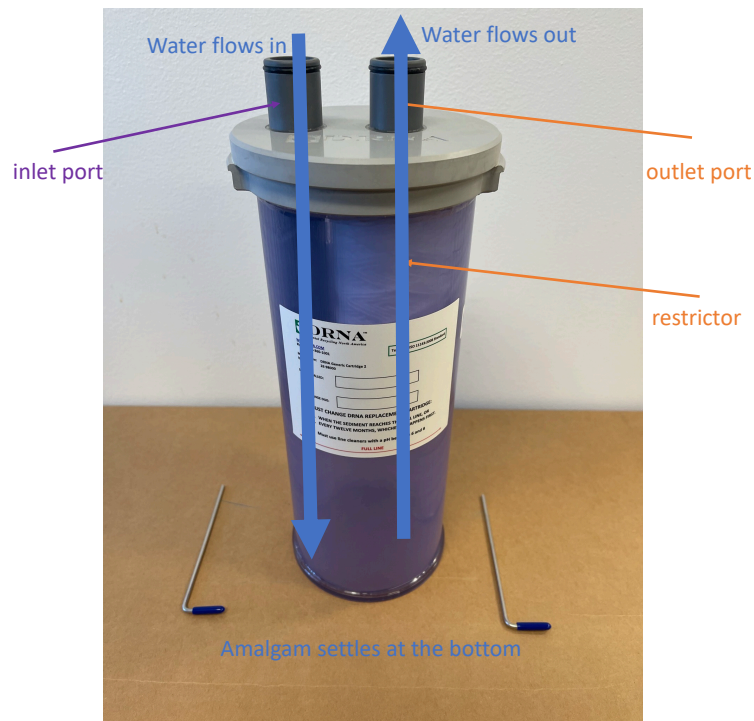
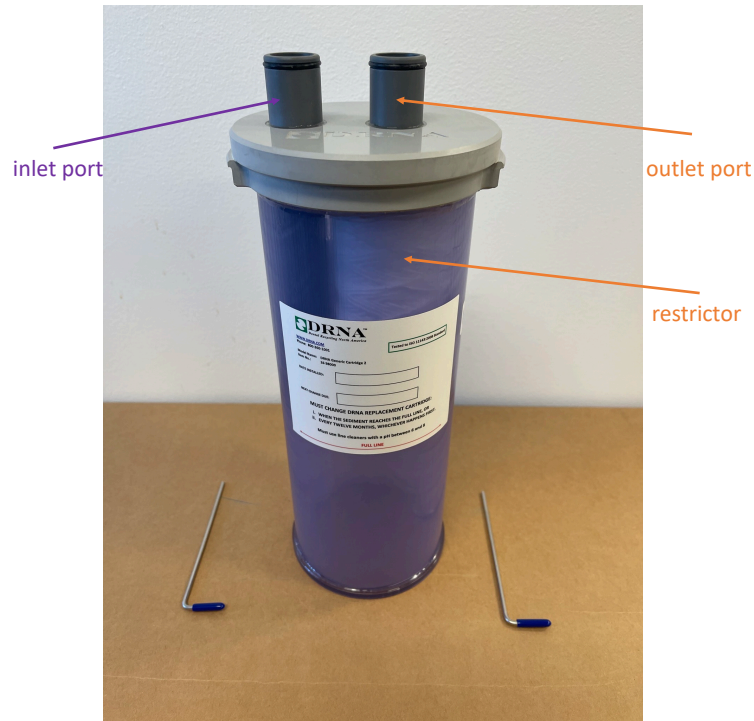
14. I know that our Cartridge 2 products are actually being used by customers because we have fielded calls to help customers attach Cartridge 2 to their Solmetex NXT System. We have also received used Cartridge 2 containers shipped to us for recycling, meaning our customers actually use Cartridge 2 with their Solmetex NXT System.

15. Below are pictures of the Cartridge 2 that I took and had annotated to explain the different ports and how wastewater and amalgam move through Cartridge 2.

16. There are two ports coming out of the top of the Cartridge 2. The one that is closer to the edge of the top can be called the “inlet port” (labeled in purple) because wastewater flows into that port when the Cartridge 2 is affixed to Solmetex NXT System. The water flows into this inlet port and continues through a pipe or conduit that extends into the main body, or interior volume labeled in blue, of the Cartridge 2.



17. The wastewater in the interior volume will then be suctioned up when a vacuum is applied to the outlet port (labeled in orange), which is the other port on the top of the Cartridge 2. We call this the outlet port because wastewater flows out of that port. This is the port that is closer to the center of the top of the Cartridge 2. Attached to the outlet port is a filter, which we sometimes call a “restrictor” (also labeled orange), that filters/restricts metals from being pulled out the outlet port with the wastewater.



18. To install Cartridge 2 to the Solmetex NXT System, the customer lines up the inlet port and outlet port on the Cartridge 2 with the corresponding ports in the Solmetex NXT System. There is only one way to make these ports line up based upon the positions on the top of the Cartridge 2. When matched up,

the two parts of the top portion that flare out beyond the rest of the rim line up with holes in the Solmetex NXT System such that retaining pins can be inserted through the holes and under those flares on the Cartridge 2. Cartridge 2 does not come with the pins. The pins are part of the Solmetex NXT System and help hold the Cartridge 2 in place. This is shown in the pictures I took below.





19. Once the Cartridge 2 is full, the customer removes the pins and then pulls the Cartridge 2 out. The Cartridge 2 comes with plugs that the customer inserts into the inlet and outlet ports, which prevents amalgam from spilling out when the used cartridge is shipped to us at DRNA for recycling and proper disposal. The plugs stay in the ports when firmly pressed down. We do not provide a separate cap to hold the plugs in place. We included instructions on how

to do this in our installation instructions, which I previously referred to as EX1006.

20. This is the same general design of the Cartridge 2 sold to customers since September 29, 2020.

V. CONCLUSION

21. For all of the reasons provided above, I offer the opinions reflected in this Declaration.

Date: 9/25/23

Darwin Moreira
By: Darwin Moreira