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19 Attorneys for Plaintiff  
20 CARBON AUTONOMOUS ROBOTIC SYSTEMS, INC.

21 **UNITED STATES DISTRICT COURT**  
22 **EASTERN DISTRICT OF CALIFORNIA**

23 CARBON AUTONOMOUS ROBOTIC  
24 SYSTEMS INC.,

25 Plaintiff,

26 v.

27 LAUDANDO & ASSOCIATES LLC,

28 Defendant.

Case No.

**COMPLAINT FOR PATENT  
INFRINGEMENT**

JURY TRIAL DEMANDED

**INTRODUCTION**

1  
2 1. Plaintiff Carbon Autonomous Robotic Systems Inc. (“Carbon”) brings this case to  
3 protect its revolutionary new products, which allow farmers around the world to eliminate weeds  
4 from their crops efficiently and completely without harmful chemicals—by shooting them with  
5 lasers—and thus provide clean, untainted, healthy food to humanity.

6 2. Carbon was founded in 2018 by Mr. Paul Mikesell. After having successfully  
7 launched and sold several high-tech companies in the distributed computing and data storage  
8 industry, Mr. Mikesell looked to apply his experience in robotics, AI/deep learning, computer  
9 vision, and optics to other industries. He quickly identified a critical gap in the rate at which  
10 technological innovations were reaching the agricultural sector, particularly those that could  
11 significantly improve productivity and reduce manual labor, while at the same time eliminating the  
12 need to treat crops with harmful chemicals or otherwise damage crops through the ancient process  
13 of pulling weeds manually. Mr. Mikesell also recognized that solving these problems would not  
14 only make the food we eat (and that is fed to the livestock we eat) healthier, but also make  
15 agricultural production more efficient, ensuring that humanity has enough to eat while the global  
16 population explodes. So, he set to work.

17 3. The result was Carbon’s commercial LaserWeeder product, which uses numerous  
18 pioneering techniques to identify, weed, and thin vegetable crops using lasers with millimeter  
19 accuracy. Carbon’s revolutionary LaserWeeder is the first commercially successful product to use  
20 AI-powered robotics—specifically the combination of computer vision, AI/deep learning, and  
21 robotics—to target and shoot weeds and other unwanted plants with lasers. As such, Carbon’s  
22 technology eliminates (1) the need to use herbicides and other dangerous chemicals in traditional  
23 farming, (2) unnecessary tilling for regenerative farming, and (3) the need for weeding crews, among  
24 other benefits.

25 4. The Carbon LaserWeeder technology uses sophisticated AI/deep learning—trained  
26 on over 8 million (and counting) labeled crop and weed image objects—that delineate between  
27 individual weeds and crops in order to eliminate only the weeds (or other unwanted plants, for  
28 purposes of thinning), all in real-time onboard a moving platform. Carbon’s initial LaserWeeder

1 product was launched in 2022—after several years of intensive research and development—and has  
2 been used by farmers throughout the United States, Europe, Canada, and Australia.

3 5. Carbon’s innovations are protected by a robust family of patents and patent  
4 applications, including the patents asserted in this case.

5 6. Defendant Laudando & Associates LLC (“L&A”) is a Carbon competitor based in  
6 Chico, California, which has been making, using, and offering to sell (and potentially selling) laser-  
7 weeding products that infringe Carbon’s patents. As such, Carbon brings this case to stop these  
8 infringing activities and to set the record straight about which company is responsible for the coming  
9 revolution in agricultural crop management and the associated efficient production of healthy, safe  
10 food for the entire world.

11 **NATURE OF THE ACTION**

12 7. This action is an action for patent infringement under 35 U.S.C. § 1 *et seq.* whereupon  
13 Carbon alleges that L&A infringes United States Patent Nos. 12,108,752 (“the ’752 Patent”) and  
14 12,127,547 (“the ’547 Patent”) (collectively, the “Patents-in-Suit”). True and correct copies of the  
15 of the Patents-in-Suit are attached as **Exhibits A and B**, respectively.

16 **THE PARTIES**

17 8. Carbon is a Delaware corporation with its principal place of business at 807 Aurora  
18 Ave N., Seattle WA 98109.

19 9. On information and belief, L&A is a California corporation with its principal place  
20 of business at 297 Convair Ave. Ste 4, Chico, CA 95973.

21 **JURISDICTION AND VENUE**

22 10. This action arises under the Patent Law of the United States, 35 U.S.C. § 1 *et seq.*,  
23 including §§ 271, 281, 283, 284, and 285.

24 11. This Court has subject matter jurisdiction over this action under 28 U.S.C. §§ 1331  
25 and 1338(a).

26 12. L&A is subject to this Court’s personal jurisdiction as it was established and exists  
27 as a California corporation under the laws of the State of California.

28

1 13. L&A makes, uses, offers to sell (and potentially sells) one or more products styled  
2 as its L&Aser weeder (“Accused Product”) in the State of California.

3 14. For example, a video posted by L&A on YouTube shows the Accused Product in  
4 operation in L&A’s “R&D plot in Chico, CA.” A true and correct copy of a screenshot of the  
5 YouTube video and its description (<https://www.youtube.com/watch?v=lhLTZzoQgJ0>) is attached  
6 as **Exhibit C**.

7 15. Venue is proper in this Court under 28 U.S.C. §§ 1391(b), (c), and (d), as well as 28  
8 U.S.C. § 1400(b), because, on information and belief, L&A has committed acts within this district  
9 giving rise to this action and does business in this district (including using, selling, offering for sale,  
10 and providing service and support for its customers) where it maintains a regular and established  
11 place of business.

12 **FACTS**

13 16. The ’752 patent, titled “Autonomous Laser Weed Eradication,” was duly and legally  
14 issued by the United States Patent and Trademark Office on October 8, 2024. Each and every claim  
15 of the ’752 Patent is valid and enforceable. A true and correct copy of the ’752 Patent is attached  
16 as **Exhibit A**.

17 17. Carbon is the assignee and owner of all right, title, and interest in and to the ’752  
18 Patent and possesses the exclusive right of recovery for past, present, and future infringement.

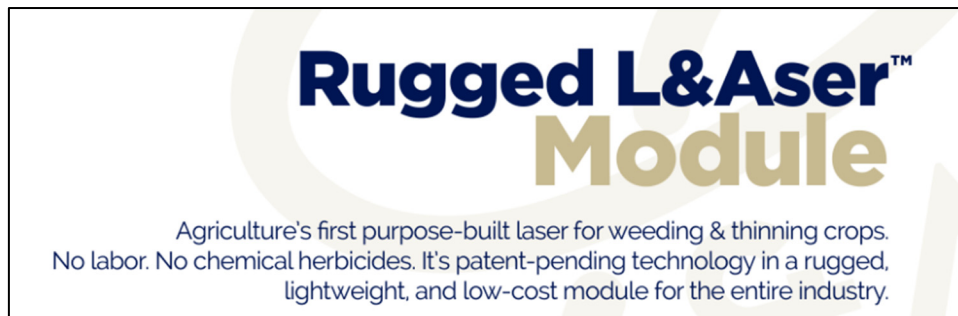
19 18. The ’547 patent, titled “Autonomous Laser Weed Eradication,” was duly and legally  
20 issued by the United States Patent and Trademark Office on October 29, 2024. Each and every  
21 claim of the ’547 Patent is valid and enforceable. A true and correct copy of the ’547 Patent is  
22 attached as **Exhibit B**.

23 19. Carbon is the assignee and owner of all right, title, and interest in and to the ’547  
24 Patent and possesses the exclusive right of recovery for past, present, and future infringement.

25 20. On information and belief, L&A is a Californian agriculture technology development  
26 firm. *See Exhibits D and E*. One of L&A’s products is the L&Aser weeder (*see Exhibits F and*  
27 **G**), which is the Accused Product in this case. In a recent interview on October 22, 2024, L&A’s  
28 founder, Christopher Laudando, discussed L&A’s strategic plans, emphasizing the Accused Product

1 as their first product set for market release. See [https://podcasts.apple.com/us/podcast/374-contrarian-thinking-in-agtech-robotics-with-chris/id1344108573?i=1000673\\_997343](https://podcasts.apple.com/us/podcast/374-contrarian-thinking-in-agtech-robotics-with-chris/id1344108573?i=1000673_997343) at 13:24-13:55.

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4 21. L&A first announced the Accused Product at the FIRA Robotics & Autonomous  
5 Farming Solutions Conference in Salinas, California on September 19, 2023. See **Exhibit H; I; J;**  
6 *see, also, Exhibit K.* The Accused Product is described in an L&A marketing flyer as the “first  
7 purpose-built laser for weeding & thinning crops”:



13 See **Exhibit G.** But the Accused Product is not the first such product. Carbon’s LaserWeeder is.

14 22. On information and belief, the Accused Product is an embodiment of L&A’s U.S.  
15 Patent Application No. 18/457,151 (“the ’151 application”), which published as U.S. Publication  
16 No. 2023/0397597 (“the ’597 publication”). A true and correct copy of the ’597 publication is  
17 attached as **Exhibit L.** That document describes L&A’s “methods and apparatuses for targeting  
18 and damaging plants.” **Exhibit L** at [0002].

19 23. The ’151 application was filed *after* the effective filing date of the Patents-in-Suit,  
20 making clear that Carbon’s innovative technology came first.

21 24. L&A knew about Carbon’s innovative technology and patents, and continues to have  
22 knowledge of Carbon’s improvements to the same. For example, Christopher Laudando, L&A’s  
23 founder and President, has repeatedly mentioned Carbon’s technology and patents on his LinkedIn  
24 page:

1 **Christopher Laudando** • 2nd  
Advancing Agriculture Automation  
1mo •

2 I wonder who would pay DLA Piper for a third-party submission to **Laudando & Associates LLC's** laser weeding patent? Who on earth would want to try to prevent or delay us from obtaining patent protection on account of the fact it could harm their own market position and upset **NVIDIA**?

3

4 Whoever paid for this is scared of my tiny unfunded company. So much so that their fancy lawyers needed to combine 6 separate publications together in the most dubious fashion in an attempt to turn the patent examiner against us. I'm flattered.

5

6 PS - Does anyone know who this Mikesell character is?

7 **#agtech #laserweeder #laserweeding #patentpending #artofwar**

Application No.: 18/457,151	Examiner: DOCKET CENTRAL
Filed: August 28, 2023	Art Unit: OPAP
For: CULTIVATING METHODS AND APPARATUSES	CONCISE DESCRIPTION OF RELEVANCE AS PART OF A THIRD-PARTY SUBMISSION UNDER 37 C.F.R. 1.290 AND 35 U.S.C. 1.22(E)
Customer No. 26530	

8

9 Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

10 Commissioner:

11 In accordance with 37 C.F.R. 1.290, a third party submits the following factual description of the relevance of the following references to claims 1-20 of the present application (U.S. Patent Application No. 18/457,151 with an earliest possible priority date of February 26, 2021):

12

13 **The following prior art is referenced herein:**

14 1. U.S. Application No. 17/022,483 (Publication No. US 2021/0076662 A1), hereinafter "Mikesell '483," having an effective filing date of September 17, 2019, before the effective date of the subject application, U.S. Application No. 18/457,151.

1 **Christopher Laudando** • 2nd  
Advancing Agriculture Automation  
2d •

2 This is all that matters.


3 Genetic modification lowers yield & nutrient content. Herbicide shocks the plant and lowers yield. Disrupting feeder roots shocks the plant and lowers yield. If we treated our children like we treat our young crops, it would be tantamount to child abuse.

4 I'm not interested in debating the disingenuous "cHeMiStRy is gOoD!" crowd. I'm not interested in arguing whether or not crony bureaucrats at the EPA are right or wrong. I'm interested in helping farmers grow healthy food for humanity, **profitably**. And there is very obviously more profit for farmers that achieve top & bottom-line improvement abandoning the "old way" and adopting a "new way". That new way is lasers.

5 But incumbent agriculture would rather we continue the old way. So instead of doing right by farmers, they slander those that would dare question their precious recurring revenue scheme, labeling guys like me as "anti-farmer". And they have the audacity to do this while holding farmers and humanity hostage to a system that very obviously isn't the best we can do. I want to help farmers take billions back from incumbent agriculture. And a consequence of this will be healthier food for humanity.

6 Good job, **Paul Mikesell**. We may not agree on wavelength, but we're on the same team.

7 **#agtech #laserweeding #laserweeder #herbicide #foodmedicine**

8 

16 See Exhibits M at 1; N.

17 25. In fact, Mr. Laudando knew that "Carbon was the first to slap commercially  
18 available lasers onto a massive toolbar to weed crops and achieve some scale":

19

20 **David Haynes** • 3rd+  
Inventor of the FarmHand tractor  
1mo \*\*\*  
Did you guys review carbon robotics patents before applying for yours?

21 Like | Reply · 3 Replies

22 **Christopher Laudando** **Author**  
Advancing Agriculture Automation  
1mo \*\*\*  
No, I can't afford prior art studies. Plus there is nothing novel and nonobvious about their integration. Frankly, was surprised to learn that they had a patent.

23 Like | Reply

24 **David Haynes** • 3rd+  
Inventor of the FarmHand tractor  
1mo \*\*\*  
**Christopher Laudando** You can view patents pending in approved online. The best place is to Google patents. You can download a pdf and then have ChatGPT review it.

25 Like | Reply

26 **Claude Mathieu** • 3rd+  
battle-proven entrepreneur | corporate maverick | R&D guru | GTM'er | en...  
1mo (edited) \*\*\*  
Carbon Robotics

27 **Christopher Laudando** **Author**  
Advancing Agriculture Automation  
1mo \*\*\*  
Third-party submissions are anonymous so we'll never know. Carbon was the first to slap commercially available lasers onto a massive toolbar to weed crops and achieve some scale. I'm mostly impressed with their infamous onion slide and certain passionate members of their team, acknowledging that there are many, especially on the technical side.

28 L&A was the first to invent a laser for weeding ALL crops: you need a very specific architecture to achieve ubiquity.

The two companies have totally different goals. One is focused on raising hundreds of millions of dollars so they can figure out how to deploy their data collector outside of high-density specialty organic crops. The other is focused on agriculture's biggest problem and scaling their invention into broad acre crops to solve the glyphosate-resistance problem.

Like · 1 | Reply

28 See Exhibit M at 2-4.

**COUNT I - INFRINGEMENT OF THE '752 PATENT**

1  
2 26. Carbon incorporates herein by reference the allegations found in paragraphs 1-25  
3 above.

4 27. L&A has been and is now directly infringing the '752 Patent in violation of 35 U.S.C.  
5 § 271(a) at least by making, using, selling, offering or sale, and/or importing into the United States,  
6 the Accused Product, which practices one or more claims of the '752 Patent, including at least claim  
7 1.

8 28. Claim 1 of the '752 Patent recites (brackets added):

- 9 [1.pre] A targeting system for autonomous weed eradication comprising:  
10 [1.a] a first camera configured to image a surface;  
11 [1.b] an emitter configured to emit a beam toward the surface; and  
12 [1.c] a computing system in communication with the first camera and the  
13 emitter, the computing system capable of performing operations  
14 comprising:  
15 [1.d] receiving, from the first camera, an image of the surface, the image  
16 comprising a weed on the surface,  
17 [1.e] identifying a region in the image that includes the weed,  
18 [1.f] determining a target location of the weed based on the identified region  
19 in the image,  
20 [1.g] aligning an optical path of the beam based on the target location of the  
21 weed, and causing the emitter to emit the beam toward the weed when at  
22 least part of the optical path is aligned with the target location of the weed,  
23 [1.h] wherein emitting the beam towards the weed kills or damages the  
24 weed.

25 29. L&A has committed infringing acts without authorization, consent, permission, or a  
26 license from Carbon.

27 30. On information and belief, L&A has been and is now indirectly infringing the '752  
28 Patent in violation of 35 U.S.C. § 271(b) at least by inducing its customers to purchase the Accused

1 Product and/or by instructing, encouraging, implementing, and/or directing others how to use the  
2 Accused Product in ways that directly infringe the '752 Patent, including claim 1, through its  
3 educational and promotional materials, support activities, as well as its service and consulting  
4 activities.

5 31. L&A's infringement is either literal or under the doctrine of equivalents.

6 32. L&A will continue to infringe the '752 Patent, causing irreparable harm to Carbon  
7 for which there is no adequate remedy at law unless enjoined by this Court. L&A's infringement  
8 has caused and continues to cause irreparable harm to Carbon in the form of loss of business  
9 opportunities, lost sales, loss of market share, loss of goodwill, and the loss of Carbon's exclusive  
10 right to practice its inventions.

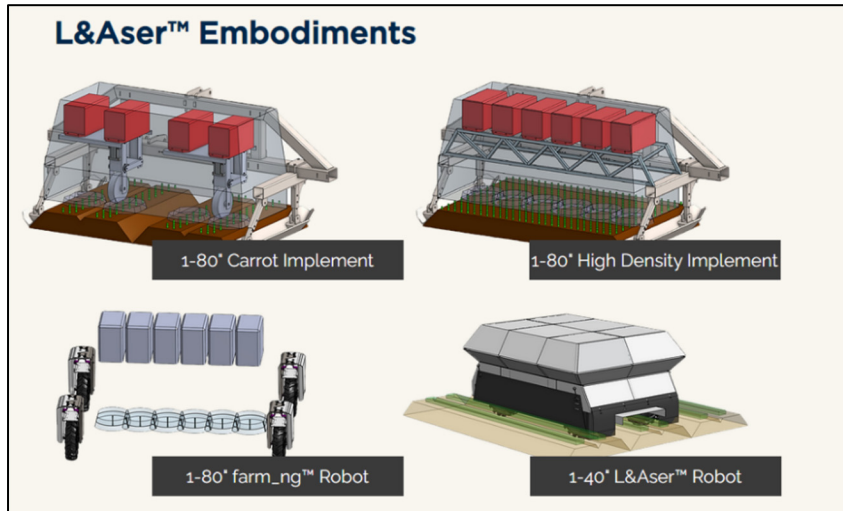
11 33. As a result of L&A's infringement of the '752 Patent, Carbon has suffered and is  
12 owed no less than a reasonable royalty under 35 U.S.C. § 284 as a remedy.

13 34. The Accused Product provides a targeting system for autonomous weed eradication,  
14 in a manner that satisfies element [1.pre] of the '752 Patent. For example, L&A describes its  
15 L&Aser Module as a "purpose-built laser for weeding & thinning crops." **Exhibit F**. By way of  
16 further example, L&A's website shows photographs of L&A's targeting system for autonomous  
17 weed eradication:



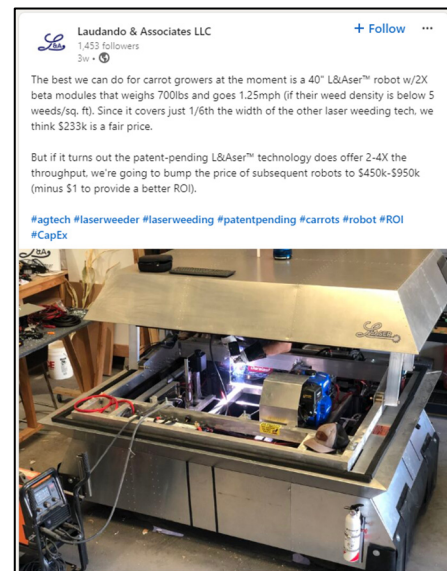
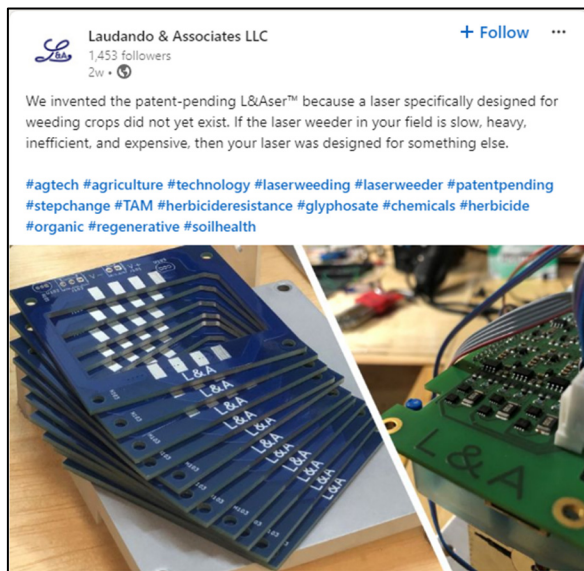
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23 See **Exhibit F**. The L&A website also includes the following depictions of L&Aser embodiments:  
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**Exhibit F.**

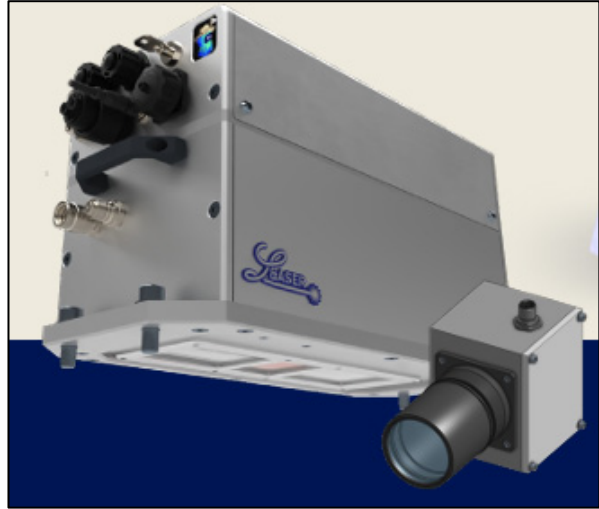
35. By way of further example, L&A’s LinkedIn page explains that it has built “a laser specifically designed for weeding crops” and can cover “1/6<sup>th</sup> the width of other laser weeding tech”:



**Exhibits O and P.**

36. The Accused Product provides a first camera configured to image a surface, in a manner that satisfies element [1.a] of the '752 Patent. For example, L&A’s L&Aser Module marketing flyer shows a first camera configured to image a surface:

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See Exhibit G.

37. By way of further example, the same flyer shows that the Accused Product includes a “2.35 MP RGB 8mm @ 126 FPS” imaging component that corresponds to the first camera configured to image a surface.

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Specifications	
Compute	NVIDIA Jetson Orin AGX 32Gb
Module Status Display	240 x 280 Full-Color
USB	1x USB 3.0
Networking/Multi-Module Link	2x Gigabit Ethernet (10/100/1000)
Wireless Connectivity	2.4GHz Wifi, Bluetooth 5.0
Local Storage	1x NVMe M.2 Key M Slots
M12 Multi-Use Port	1'CAN,1'RS232, 1'RS485, 2'I2C, 2'UART, 2'GPIO, 2'SPI
Input Power	48VDC @ 19A
Operating Temperature	-25°C to 65°C
Toolbar/Robot Mounting	Flange Mount w/4X M10 pin holes
IP Rating	IP65
Weight	55lbs
3D Depth Mapping	160 x 60 ToF @ 50FPS
Imaging	2.35MP RGB 8mm @ 126FPS
Lighting	External Lighting Trigger via M12
Laser Working Area	14' x 15.5'
Laser Power Output	235W
Integrated Safety	Key Switch Disconnect, Optical Shutter Failsafe, Dedicated Safety Circuit & Controller
Cooling	500W/Module Required (External). Integrated liquid Cooling Loop w/10mm (3/8") 1X Female/1X Male Quick Disconnects

See id.

38. By way of further example, the '597 publication explains that the Accused Product includes “a target sensor 262 (one example of a detector 120, which may be a camera, such as a RGB camera).” Exhibit L at [0099] (emphasis added). That document states that the “target sensor . . . includes object/target detection and tracking, gathers information (for example, image

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1 *information*) from its field of view.” *Id.* (emphasis added). It further explains that the “[t]ypical  
 2 target sensors 262 *are cameras* that output image information in frames, typically at a frame rate  
 3 that is from 15 to 30 frames per second (fps).” **Exhibit L** at [0100] (emphasis added).

4 39. The Accused Product includes an emitter configured to emit a beam toward the  
 5 surface, in a manner that satisfies element [1.b] of the ’752 Patent. For example, L&A’s L&Aser  
 6 Module marketing flyer describes a laser source, driver, and scanner that correspond to the emitter  
 7 that is configured to emit a beam toward the surface.

Proprietary Hardware	
Laser Source	Proprietary L&Aser™ Cube w/Integrated Optics (Diode Type, 4XXnm Blue)
Laser Driver	Proprietary L&Aser™ Pulsed Current Controlled, High Voltage (100V) Laser Driver
Laser Scanner	Proprietary L&Aser™ High Moments of Inertia Scanning Galvanometer
Scanner Driver	Proprietary L&Aser™ High Frequency Closed-Loop Controller (1kHz Command, >50kHz PID, <35ms Settling Time)

**Patent Pending**

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 12 See **Exhibit G**.

13 40. By way of further example, L&A’s YouTube page videos show examples of its  
 14 emitter configured to emit a beam towards the surface:

- 15 • <https://www.youtube.com/watch?v=FZD0-sKT-1o;>
- 16 • <https://www.youtube.com/watch?v=6FQ1w0dsFQY>
- 17 • <https://www.youtube.com/watch?v=2DzehwoQk-A> (showing the L&Aser  
 18 module emitting a beam towards a surface).

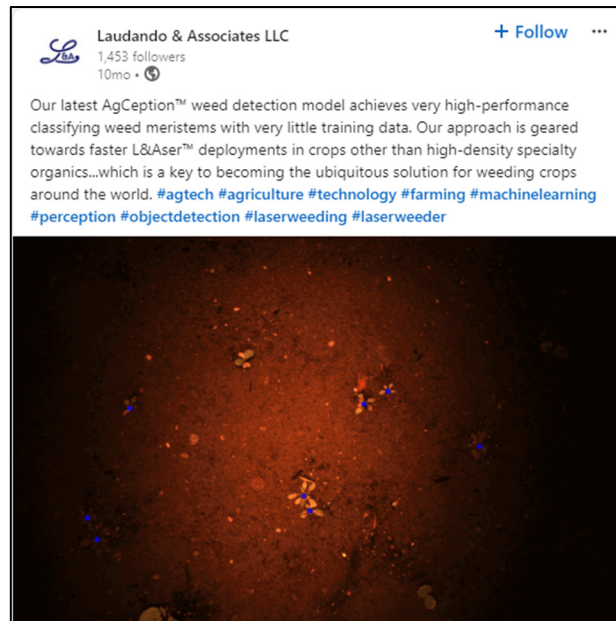
19 41. By way of further example, the ’597 publication explains that “one or more”  
 20 “stressors may be produced by one or more *energy emitters*.” **Exhibit L** at [0008] (emphasis added).  
 21 The “one or more energy emitters” include “high intensity light, high brightness light, laser light,  
 22 laser radiation, energy beams that may include high and low intensity regions, heat.” *Id.* at [0009].  
 23 The one or more “energy emitters,” include “for example, a laser 130C.” *Id.* at [0058].

24 42. The Accused Product provides a computing system in communication with the first  
 25 camera and the emitter, in a manner that satisfies element [1.c] of the ’752 Patent. For example,  
 26 L&A’s L&Aser Module marketing flyer shows that it uses a NVIDIA Jetson Orin AGX 32Gb for a  
 27 computer. **Exhibit G**.

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1           43. As another example, the '597 publication explains that the “[t]arget tracking system  
2 260 includes a target sensor 262 (one example of a detector 120, which may be a camera, such as a  
3 RGB camera) and a processor 264, which may be physically and/or wirelessly connected to one  
4 another.” **Exhibit L** at [0099]. The “processor 264” (computing system) is in communication with  
5 the “target sensor 262” and the “light directing system 230.” *Id.* It “outputs information (via wired  
6 and/or wireless pathways) related to the location of targets to the light directing system 230, which  
7 in turn directs the light toward desired targets.” *Id.*

8           44. The Accused Product is capable of performing the operation of receiving, from the  
9 first camera, an image of the surface, the image comprising a weed on the surface, in a manner that  
10 satisfies element [1.d] of the '752 Patent. For example, L&A’s LinkedIn page post shows the  
11 Accused Product receiving images of the surface, where the image is comprised of a weed on the  
12 surface.



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23 *See Exhibit Q.*

24           45. By way of further example, the '597 publication explains that the “target sensor 262,  
25 which typically includes object/target detection and tracking, gathers information (for example,  
26 image information) from its field of view, which may be larger than the target field 290, and outputs  
27 information to the processor 264.” **Exhibit L** at [0099]. The “target tracking system” is “configured  
28 to identify and track the target biological material.” *Id.* at [0200].

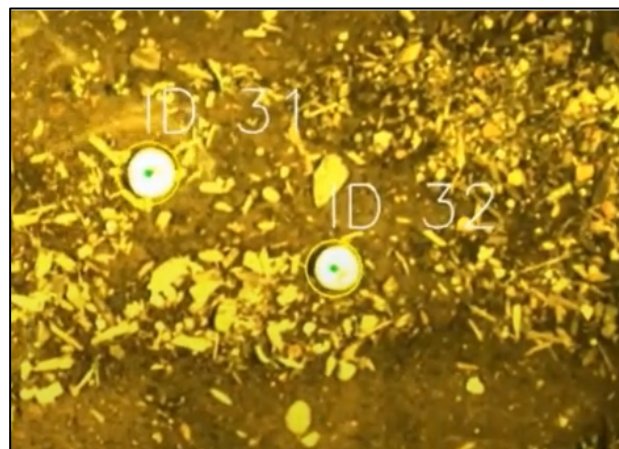
1           46.     The Accused Product is capable of performing the operation of identifying a region  
2 in the image that includes the weed, in a manner that satisfies element [1.e] of the '752 Patent. For  
3 example, L&A's YouTube page's video demonstrates the Accused Product identifying a region of  
4 the image that includes the weed.



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12 See <https://www.youtube.com/watch?v=fDNzB2ZNIVY> at 00:53.

13           47.     By way of further example, the '597 publication explains that the “target tracking  
14 system configured to identify and track the target biological material.” **Exhibit L** at [0200]. It  
15 further explains that the identified region may be “an area (or zone)” or “a point.” *Id.* at [0105].

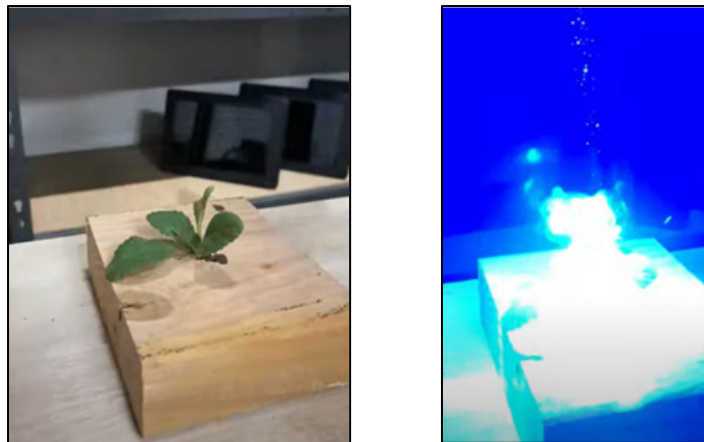
16           48.     The Accused Product is capable of performing the operation of determining a target  
17 location of the weed based on the identified region in the image, in a manner that and satisfies  
18 element [1.f] of the '752 Patent. For example, L&A's YouTube page's video demonstrates  
19 determining a target location of the weed based on the identified region in the image:



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27 See <https://www.youtube.com/watch?v=fDNzB2ZNIVY> at 00:53.  
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1           49. By way of further example, the '597 publication explains that a “target sensor 262,  
2 which typically includes object/target detection and tracking, gathers information (for example,  
3 image information) from its field of view.” **Exhibit L** at [0099]. The “location of a target plant 293  
4 may be determined by a target plant detector” as “an area (or zone)” or “the stem as viewed from  
5 the cultivator 200 or a point.” *Id.* at [0105].

6           50. The Accused Product is capable of performing the operation of aligning an optical  
7 path of the beam based on the target location of the weed, and causing the emitter to emit the beam  
8 toward the weed when at least part of the optical path is aligned with the target location of the weed,  
9 in a manner that satisfies element [1.g] of the '752 Patent. For example, L&A's YouTube page's  
10 video demonstrates causing the emitter to emit the beam toward the weed when at least part of the  
11 optical path is aligned with the target location of the weed:



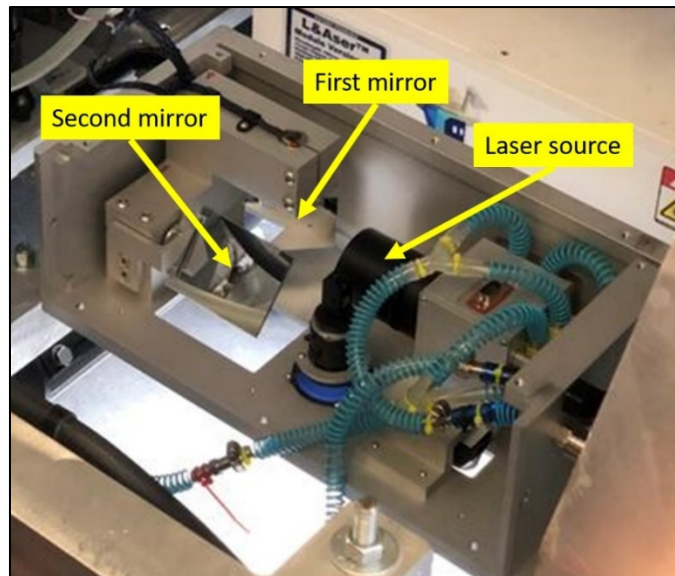
19 See <https://www.youtube.com/watch?v=FZD0-sKT-1o> at 00:13-1:28.



27 See <https://www.youtube.com/watch?v=zYuRb0wHkoI>.

28

1           51. As another example, L&A's LinkedIn page provides an image of the L&Aser module  
2 where two galvo mirrors are shown that direct the optical path of the laser to the weed.



12 **Exhibit R (annotations added).**

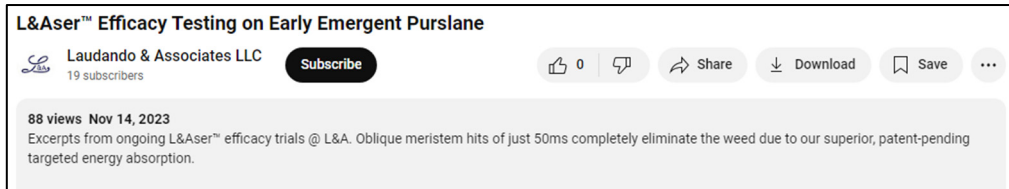
13           52. By way of further example, the '597 publication explains that the system includes  
14 "one or more radiation source energy emitters that emit radiation (for example, light and/or heat)  
15 toward the plant, and an aiming device (such as an electromechanical aiming device, a sight or a  
16 scope) to direct the stressor (for example, radiation) toward the plant." **Exhibit L** at [0008].

17           53. The Accused Product is capable of performing the operation of emitting the beam  
18 towards the weed, which kills or damages the weed, in a manner that satisfies element [1h] of the  
19 '752 Patent. For example, L&A's YouTube page's video demonstrates emitting a beam towards a  
20 weed, killing or damaging the weed.

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10 <https://www.youtube.com/watch?v=2DzehwoQk-A> at 00:05-00:12. In addition, the same YouTube  
11 video description explains that the system “completely eliminates the weed” by targeting the beam  
12 at the meristem.



13  
14  
15  
16 *Id.*

17 54. By way of further example, the '597 publication explains that the “aiming device  
18 aims the energy emanating from the energy generator 130 at a leaf of an undesirable plant and in  
19 some embodiments the aiming device aims the energy emanating from the energy generator 130 at  
20 the stem (and/or the terminal bud) of an undesirable plant.” **Exhibit L** at [0053]. The “one or more  
21 light sources (laser diodes 212) generate wavelengths in ranges intended to damage biological  
22 material (for example, plants) as described above.” *Id.* at [0071].

23 55. Accordingly, the Accused Product infringes at least claim 1 of the '752 Patent.

24 56. Additionally, on information and belief L&A has been aware of the '752 Patent since  
25 it issued and continues to infringe, making L&A’s infringement willful.

26 **COUNT II - INFRINGEMENT OF THE '547 PATENT**

27 57. Carbon incorporates herein by reference the allegations found in paragraphs 1–56  
28 above.



1           58.     On information and belief, L&A has been and is now directly infringing the '547  
2 Patent in violation of 35 U.S.C. § 271(a) at least by making, using, selling, offering or sale, and/or  
3 importing into the United States, the Accused Product, which practices one or more claims of the  
4 '547 Patent, including at least claim 1.

5           59.     Claim 1 of the '547 Patent recites (brackets added):

6                     [1.pre] A targeting system for autonomous weed eradication comprising:

7                     [1.a] a first camera configured to image a surface;

8                     [1.b] an emitter configured to emit a beam toward the surface; and

9                     [1.c] a computing system in communication with the first camera and the

10                    emitter, the computing system configured to perform operations

11                    comprising:

12                    [1.d] receiving, from the first camera, a first image of the surface, the first  
13                    image comprising a weed on the surface,

14                    [1.e] identifying a region in the first image that includes the weed,

15                    [1.f] projecting a target location of the weed on the surface based on the  
16                    identified region in the first image,

17                    [1.g] aligning an optical path of the emitter with the projected target  
18                    location of the weed,

19                    [1.h] correcting the target location based on a motion of the first camera  
20                    relative to the surface, and

21                    [1.i] causing the emitter to emit the beam toward the weed when the optical  
22                    path is aligned with the weed.

23           60.     L&A has committed infringing acts without authorization, consent, permission or a  
24 license from Carbon.

25           61.     On information and belief, L&A has been and is now indirectly infringing the '547  
26 Patent in violation of 35 U.S.C. § 271(b) at least by inducing its customers to purchase the Accused  
27 Product and/or by instructing, encouraging, implementing, and/or directing others how to use the  
28 Accused Product in ways that directly infringe the '547 Patent, including claim 1, through its

1 educational and promotional materials, support activities, as well as its service and consulting  
2 activities.

3 62. L&A's infringement is either literal or under the doctrine of equivalents.

4 63. L&A will continue to infringe the '547 Patent, causing irreparable harm to Carbon  
5 for which there is no adequate remedy at law unless enjoined by this Court. L&A's infringement  
6 has caused and continues to cause irreparable harm to Carbon in the form of loss of business  
7 opportunities, lost sales, loss of market share, loss of goodwill and the loss of Carbon's exclusive  
8 right to practice its inventions.

9 64. As a result of L&A's infringement of the '547 Patent, Carbon has suffered and is  
10 owed no less than a reasonable royalty under 35 U.S.C. § 284 as a remedy.

11 65. On information and belief, the Accused Product provides a targeting system for  
12 autonomous weed eradication, in a manner that satisfies element [1.pre] of the '547 Patent. For  
13 example, L&A describes its L&Aser Module as a "first purpose-built laser for weeding & thinning  
14 crops." **Exhibit F.** Further evidence concerning this element can be seen in Paragraphs 34–35  
15 above.

16 66. The Accused Product provides a first camera configured to image a surface, in a  
17 manner that satisfies element [1.a] of the '547 Patent. Further evidence concerning this element can  
18 be seen in Paragraphs 36–38 above.

19 67. The Accused Product provides an emitter configured to emit a beam toward the  
20 surface, in a manner that satisfies element [1.b] of the '547 Patent. Further evidence concerning this  
21 element can be seen in Paragraphs 39–41 above.

22 68. The Accused Product provides a computing system in communication with the first  
23 camera and the emitter, the computing system, in a manner that satisfies element [1.c] of the '547  
24 Patent. Further evidence concerning this element can be seen in Paragraphs 42–43 above.

25 69. The Accused Product is configured to perform the operation of receiving, from the  
26 first camera, a first image of the surface, the first image comprising a weed on the surface, in a  
27 manner that satisfies element [1.d] of the '547 Patent. Further evidence concerning this element can  
28 be seen in Paragraphs 44–45 above.

1           70.     The Accused Product is configured to perform the operation of identifying a region  
2 in the first image that includes the weed, in a manner that satisfies element [1.e] of the '547 Patent.  
3 Further evidence concerning this element can be seen in Paragraphs 46–47 above.

4           71.     The Accused Product is configured to perform the operation of projecting a target  
5 location of the weed on the surface based on the identified region in the first image, in a manner that  
6 satisfies element [1.f] of the '547 Patent. Further evidence concerning this element can be seen in  
7 Paragraphs 48–49 above.

8           72.     The Accused Product is configured to perform the operation of aligning an optical  
9 path of the emitter with the projected target location of the weed, in a manner that satisfies element  
10 [1.g] of the '547 Patent. Further evidence concerning this element can be seen in Paragraphs 50–52  
11 above.

12           73.     The Accused Product is configured to perform the operation of correcting the target  
13 location based on a motion of the first camera relative to the surface, in a manner that satisfies  
14 element [1.h] of the '547 Patent. For example, the '597 publication explains that L&A's system  
15 may “*predict where a target will be* between frames when there is no target location information  
16 being supplied, which allows for use of target sensors with slower frame rates. **Exhibit L** at [0100]  
17 (*italic emphasis added*). “To predict where the target will be in between frames of the target sensor  
18 262, embodiments utilize target velocity sensors to track the speed of the targets and/or the speed of  
19 the ground as the cultivator 200 moves.” *Id.* The document further describes the use of optical  
20 “tracking systems (similar to how an optical mouse for a computer tracks motion) to determine  
21 ground speed, while further embodiments utilize a wheel placed on the ground, while still further  
22 embodiments utilize navigational aids such as the Global Positioning System (GPS).” *Id.*

23           74.     The Accused Product is configured to perform the operation of causing the emitter  
24 to emit the beam toward the weed when the optical path is aligned with the weed, in a manner that  
25 satisfies element [1.i] of the '547 Patent. Further evidence concerning this element can be seen in  
26 Paragraphs 53–54 above.

27           75.     Accordingly, the Accused Product infringes at least claim 1 of the '547 Patent.  
28

**PRAYER FOR RELIEF**

WHEREFORE, Carbon respectfully requests that this Court enter judgment in its favor and grant the following relief:

- a) a judgment that L&A has directly and/or indirectly infringed one or more claims of the Patents-in-Suit;
- b) a permanent injunction against L&A and its respective officers, directors, agents, branches, subsidiaries, parents, partners, and any others active in concert with L&A from further infringement of the Patents-in-Suit;
- c) a judgment and order requiring L&A to pay Carbon damages for past infringement under 35 U.S.C. § 284, including any damages arising from any continuing post-verdict infringement between the time of the trial and entry of the final judgment with an accounting, as needed;
- d) a judgment and order requiring L&A to pay Carbon pre-judgment and post-judgment interest on any damages award;
- e) a judgment and order that L&A’s infringement of the Patents-in-Suit be found willful and that the Court award treble damages pursuant to 35 U.S.C. § 284;
- f) a judgment that this case is exceptional under 35 U.S.C. § 285 and an order the L&A pay Carbon its attorneys’ fees incurred in prosecuting this action;
- g) a judgment and order requiring L&A to pay Carbons’ costs and expenses incurred in this action; and
- h) any further relief, including equitable relief, as the Court may deem just and proper.

**DEMAND FOR JURY TRIAL**

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, Plaintiff hereby respectfully requests a trial by jury of any issues so triable by right.

1 Dated: October 31, 2024

Respectfully Submitted,

2 /s/ Juanita R. Brooks

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