

UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF FLORIDA

CASE NO. \_\_\_\_\_

SURFACE PREPARATION  
TECHNOLOGIES, LLC,

Plaintiff,

**JURY TRIAL DEMANDED**

v.

WATERBLASTING, LLC D/B/A HOG  
TECHNOLOGIES,

Defendant.

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**COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiff Surface Preparation Technologies, LLC (“Plaintiff” or “Surface Prep”), through its undersigned attorneys, for its Complaint against Defendant Waterblasting, LLC d/b/a Hog Technologies (“Defendant” or “Hog”), alleges as follows:

**THE PARTIES**

1. Surface Preparation Technologies, LLC is a Pennsylvania corporation with its principal place of business at 44 East Main Street, New Kingstown, PA 17072.
2. On information and belief, Waterblasting, LLC d/b/a Hog Technologies is a Delaware limited liability company with its principal place of business at 3170 SE Slater St., Stuart, Florida, 34997.

**JURISDICTION**

3. This is an action for patent infringement under the Patent Act, 35 U.S.C., §§ 101 *et seq.*
4. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331, 1338(a), 1338(b), and 1400.

5. This Court has personal jurisdiction over Defendant Waterblasting, LLC d/b/a Hog Technologies under the Florida Long Arm Statute, Fla. Stat. § 48.193 (2021), and the Constitution of the United States because Defendant has its principal place of business located in Florida and transacts a substantial amount of business in Florida. In addition, Defendant's infringing acts have occurred, at least, in Florida.

6. Venue is proper in this District under 28 U.S.C. §1400(b) because Hog has committed acts of infringement in this District and has a regular and established place of business in this District.

### **BACKGROUND**

#### ***Plaintiff Surface Preparation Technologies, LLC***

7. Plaintiff Surface Prep is one of the nation's most experienced and reliable rumble strip, groove cutting, and line removal contractors. Surface Prep has developed computer controlled, high precision technology that allows it to deliver each of these services in a reliable and economical manner. These services provide safety benefits to drivers. Line removal grinding is performed to remove old paint and thermoplastic road markings from a road surface so that new, high visibility paint can be applied. Groove cutting allows for high performance paint or recessed markings to be applied below the surface of the road, thereby allowing these markings to better withstand wear and tear from automotive traffic and exposure to the outdoor elements. By both lowering the cost associated with replacing, and improving the longevity of road markings, Surface Prep helps to ensure that roadways are well marked, visible, and safe for drivers across the country.

8. Rumble strips are also important safety features on United States roads. As motor vehicles operators are distracted or fatigued, there is a possibility that the vehicle will drift off the road. Rumble strips are a series of depressions that are cut into the surface of the road along the centerline or road shoulder. As the vehicle is driven over the rumble strips, the rumble strips alert

the driver by creating a sound and causing vibration to their motor vehicles as the tires travel over the depressions. However, as with grooving and grinding, due to construction schedules, speed is often critical when cutting rumble strips. Delays in cutting rumble strips can further delay other operations in road construction projects, which can be extremely costly.

9. Developments invented by Surface Prep allow Surface Prep to cut rumble strips quickly and reliably—at approximately 360 cuts per minute. It has now cut over 150,000 miles of shoulder rumble strips and centerline rumble strips in every U.S. state, combating drift-off highway crashes.

10. One problem with traditional rumble strips is that the noise generated by tires travelling over the depressions can cause a significant disturbance to homes and businesses located near the roadway. One solution to reduce the noise levels significantly is to provide sinusoidal shaped strips along the traffic lines. The sinusoidal profile of these strips is designed to generate interior noise and vibration within the vehicle while generating substantially less external noise, as to lessen the disturbances to adjacent residents and property owners.

11. In addition to patenting processes and devices for creating traditional rumble strips, Surface Prep has developed technologies for forming sinusoidal rumble strips. Prior to these advances, the only known way of forming these strips was to adhere pre-formed sinusoidal rails to the surface of the road. Not only was this process difficult to perform, but the strips had the tendency to break or detach from the road when driven over by heavy machinery or snowplows. Surface Prep created a way to efficiently cut these strips into the road surface, thereby providing a more reliable and durable solution.

12. Surface Prep has been awarded patents for its novel inventions in rumble strip and groove cutting technology.

13. Surface Prep does not sell products embodying its patented technology, nor does it license its patents to others. Instead, Surface Prep uses its patented technology itself to compete in the road construction industry. Surface Prep's patented technology gives it an advantage over its competitors in securing bids for road construction projects

***Surface Prep's '310 Patent***

14. On February 21, 2017, United States Patent No. 9,574,310 ("the '310 Patent") titled "METHOD AND APPARATUS FOR CUTTING A SINUSOIDAL GROOVE IN A ROAD SURFACE" was duly and legally issued from United States Patent Application No. 14/489,737, filed on September 18, 2014, which claims priority to Provisional Application No. 61/880,385, filed on September 20, 2013. Attached hereto as Exhibit A is a true and correct copy of the '310 Patent. Surface Prep owns all right, title, and interest in and to the '310 Patent.

15. The '310 Patent relates to a system for controlling a cutting machine for cutting continuous sinusoidal strips in a road surface including a rotatable cutting head, a cylinder for driving the cutting head into and out of contact with the road surface, and a controller. (*See Exhibit A* at 1, Abstract.)

16. For example, independent claim 1 of the '310 Patent requires a rotatable cutting head, a cylinder connected to the rotatable cutting head for driving the cutting head into contact with the road surface, and a controller that controls the cylinder to adjust the cutting head in continuous engagement with the road surface and cut a subsurface sinusoidal strip. (*See Exhibit A* at 16, Claim 1.)

***Surface Prep's '063 Patent***

17. On September 2, 2014, United States Patent No. 8,821,063 ("the '063 Patent") titled "CONTROL SYSTEM AND METHOD FOR ROAD CUTTING MACHINE" was duly and

legally issued from United States Patent Application No. 13/308,633, filed on December 1, 2011. Attached hereto as Exhibit B is a true and correct copy of the '063 Patent. Surface Prep owns all right, title, and interest in and to the '063 Patent.

18. The '063 Patent relates to a system for controlling a cutting machine for cutting rumble strips in a road surface including a cylinder for driving the cutting head into and out of contact with the road surface and a controller. (See Exhibit B at 1, Abstract.)

19. For example, independent claim 1 of the '063 Patent requires a rotatable cutting head, a cylinder for driving the cutting head into contact with the road surface, and a controller configured to vary a proportional gain and error amplification signal to increase or decrease the speed of the cutting head proportionally with the speed of the cutting machine. (See Exhibit B at 12-13, Claim 1.)

#### ***Surface Prep's '148 Patent***

20. On February 21, 2017, United States Patent No. 9,121,148 (“the '148 Patent”) titled “METHOD AND APPARATUS FOR CUTTING GROOVES IN A ROAD SURFACE” was duly and legally issued from United States Patent Application No. 14/400,596, filed on November 12, 2014, which claims priority to PCT Application No. PCT/US13/042,648, filed on May 24, 2013, which claims priority to Provisional Application No. 61/651,787, filed on May 25, 2012. Attached hereto as Exhibit C is a true and correct copy of the '148 Patent. Surface Prep owns all right, title, and interest in and to the '148 Patent.

21. The '148 Patent relates generally to a system and apparatus for cutting grooves in a surface. The system includes sensors that sense the depth of the groove cut by a cutting head. (See Exhibit C at 1, Abstract.)

22. For example, independent claim 13 of the '148 Patent covers a method of controlling the depths of grooves in a roadway with a distance sensor by sensing the surface level of the roadway, adjusting a position of the cutting drum, comparing a front distance surface reading with a rear distance groove bottom reading, and adjusting the cutting head in response to the surface measurements. (See Exhibit C at 16, Claim 13.)

### ***Defendant Hog***

23. Defendant Hog is a manufacturer of rumble strip cutting machines, paint marking and removal machines, and surface cleaning machines.

24. Hog was founded in 1988. It originated as a pressure cleaning company that used high-pressure water to remove road markings from roads. After seeing the market for road cutting and processing equipment, upon information and belief, Hog sought to expand into these areas as well.

25. Hog now manufactures and sells equipment for road cutting and processing in Florida. Two of its products include the Grinder Hog and the Rumble Hog.

26. Hog's customers use the Grinder Hog and the Rumble Hog to complete road construction projects. Many of Hog's customers use the Grinder Hog and the Rumble Hog to compete with Surface Prep for these jobs. Upon information and belief, Hog also uses the Grinder Hog and the Rumble Hog to compete with Surface Prep for road construction jobs in Florida.

### ***Hog's Grinder Hog Product***

27. Hog manufactures and sells the Grinder Hog product, which is used to grind pavement markings, groove pavement for inlaid markings, and create rumble strips. The Grinder Hog includes grinder heads that are mounted on each side, pictured below:



(See <https://www.youtube.com/watch?v=3tnVYHULycY&t=43s> at 0:15 (uploaded Feb. 12, 2021, last accessed Apr. 7, 2022)).

28. The operation and technical details of the Grinder Hog are shown, for example, on Hog's website, in its product manuals, and upon information and belief, in Hog's patent applications.

29. Attached hereto as Exhibit D is a true and correct copy of Hog's Grinder Hog webpage: <https://thehog.com/equipment/grinding-grooving-and-rumbling/grinder-hog.html> (last accessed Apr. 7, 2022).

30. Attached hereto as Exhibit E is a true and correct copy of Hog's United States Patent Application No. 2021/114,122, which depicts and describes the Grinder Hog.

31. Attached hereto as Exhibit F is a true and correct copy of United States Patent Application Publication No. 2021/403,030, which depicts and describes the Grinder Hog.

32. Attached hereto as Exhibit G is a true and correct copy of excerpts from Hog's Grinder Hog product manual: GH8000 GRINDER HOG.

33. Hog also maintains an active YouTube channel, to which it uploads videos depicting the features and operation of its products including the Grinder Hog. The following are examples of videos depicting the Grinder Hog:

a. On Feb. 12, 2021, Hog uploaded the video found at:

<https://www.youtube.com/watch?v=3tnVYHULycY> (last accessed Apr. 7, 2022) which depicts and describes the Grinder Hog.

b. On July 20, 2020, Hog uploaded the video found at:

<https://www.youtube.com/watch?v=cf3tOdZDTo&t=7s> (last accessed Apr. 7, 2022) which depicts and describes the Grinder Hog.

c. On May 29, 2020, Hog uploaded the video found at:

<https://www.youtube.com/watch?v=pAwLvIRr4DY&t=103s> (last accessed Apr. 7, 2022) which depicts and describes the Grinder Hog.

#### ***Hog's Rumble Hog Product***

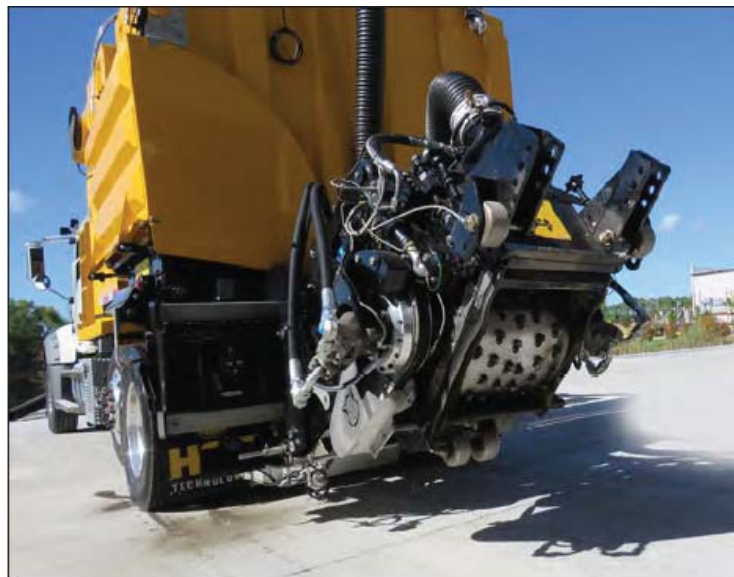
34. In addition to the Grinder Hog, Hog also manufactures and sells the Rumble Hog product, which is also used to grind pavement markings, groove pavement for inlaid markings, and create rumble strips. The Rumble Hog is described in Hog's Rumble Hog product manual: RUMBLE HOG RH7500 OPERATIONS MANUAL, of which excerpts are attached hereto as Exhibit H. The Rumble Hog is pictured below:





(Exhibit H at 1.)

35. In contrast to the Grinder Hog's side-mounted cutting heads, the Rumble Hog includes a rear mounted cutting head as pictured below:



(Exhibit H at 36.)

36. The operation and technical details of the Rumble Hog are shown, for example, on Hog's website, in its product manuals, and upon information and belief, in Hog's patent applications.

37. Exhibit I is a true and correct copy of Hog's Rumble Hog webpage: <https://thehog.com/equipment/grinding-grooving-and-rumbling/rumble-hog.html> (last accessed Apr. 7, 2022).

38. Exhibit J is a true and correct copy of Hog's Rumble Hog sinusoidal attachment webpage: <https://thehog.com/equipment/grinding-grooving-and-rumbling/applications/sinusoidal.html> (last accessed, Apr. 11, 2022).

39. Exhibit K is a true and correct copy of Hog's Rumble Hog rumble strip webpage: <https://thehog.com/equipment/grinding-grooving-and-rumbling/applications/rumbling.html> (last accessed, Apr. 11, 2022).

40. Exhibit L is a true and correct copy of Hog's United States Patent No. 10,352,006, which depicts and describes the Rumble Hog.

41. Exhibit F is a true and correct copy of United States Patent Application Publication No. 2021/403,030, which depicts and describes the Rumble Hog.

42. As with the Grinder Hog, Hog also uploads videos depicting the features and operation of the Rumble Hog on its active YouTube channel. The following are examples of YouTube videos depicting the Rumble Hog:

a. On July 11, 2019, Hog uploaded the video found at:

<https://www.youtube.com/watch?v=IGt2OsLPUVE> (last accessed Apr. 7, 2022) which depicts and describes the Rumble Hog.

b. On February 8, 2019, Hog uploaded the video found at:

<https://www.youtube.com/watch?v=d5TL0eKHGcY> (last accessed Apr. 7, 2022) which depicts and describes the Rumble Hog.

c. On February 8, 2019, Hog uploaded the video found at:

<https://www.youtube.com/watch?v=dWg1Mh1OuJk> (last accessed Apr. 7, 2022) which depicts and describes the Rumble Hog.

d. On Apr. 10, 2018, Hog uploaded the video found at:

<https://www.youtube.com/watch?v=IXAfTekMz80> (last accessed Apr. 7, 2022) which depicts and describes the Rumble Hog.

e. On Mar. 22, 2018, Hog uploaded the video found at:

<https://www.youtube.com/watch?v=GB88sUIgDF8> (last accessed Apr. 7, 2022) which depicts and describes the Rumble Hog.

### **COUNT I**

#### **DIRECT INFRINGEMENT OF UNITED STATES PATENT NO. 9,574,310**

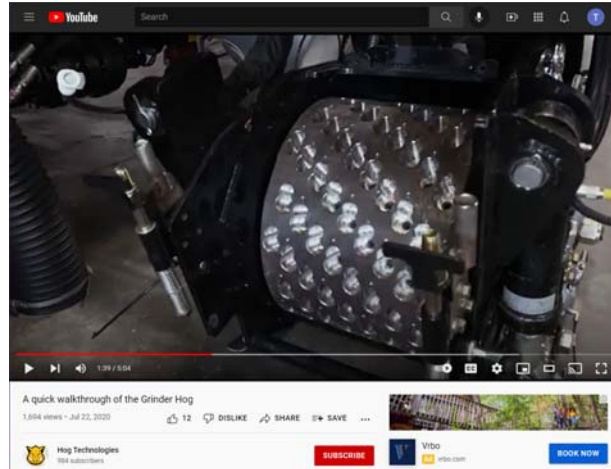
43. Surface Prep repeats and realleges the allegations in each of the foregoing paragraphs as if fully set forth herein.

#### ***The Grinder Hog Infringes the '310 Patent***

44. Hog has directly infringed, and continues to directly infringe, literally and/or under the doctrine of equivalents, one or more claims of the '310 Patent by making, using, testing, selling, offering for sale, and/or importing the Grinder Hog into the United States. (See, e.g., Exhibit D – Hog Grinder Hog Web Advertisement from <https://thehog.com/equipment/grinding-grooving-and-rumbling/grinder-hog.html> (last accessed Apr. 7, 2022).)

45. The Grinder Hog meets every limitation of at least independent claim 1 of the '310 Patent, as shown below and in the attached Exhibit M:

a. The Grinder Hog includes a rotatable cutting head:



**Aligning the Cutting Head**

1. Make sure the monitors and all guidance systems are activated.
2. Align the forward camera and/or laser guidance indicators on the reference line, pavement seam or edge of the pavement.
3. Use the cutter cameras to make final head offset adjustments. Then align the camera guidance indicators on a reference line, seam or the edge of the pavement.

Standard Wireless Remote Control & Skip Cylinder Buttons

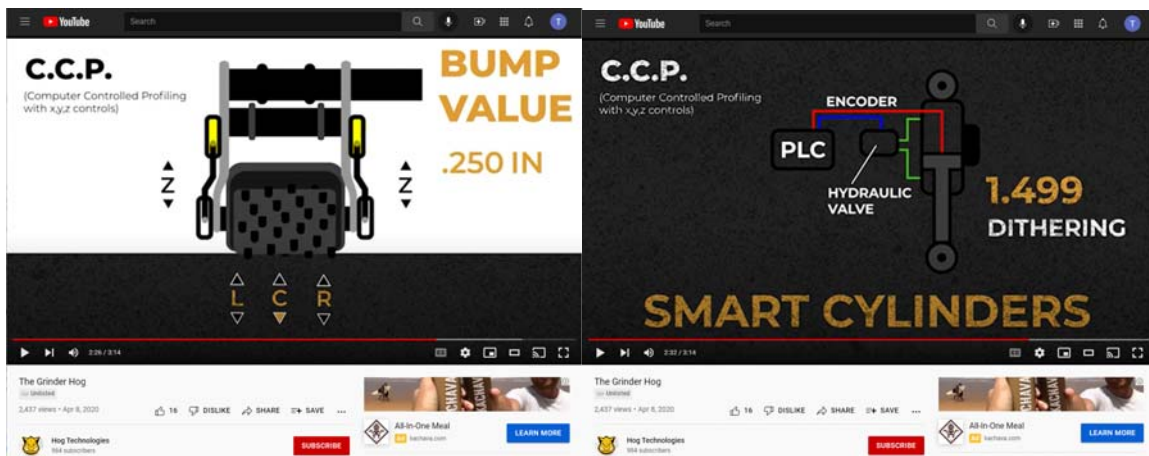


86



(Exhibit G at 86.)

b. The Grinder Hog includes cylinders connected to the rotatable cutting head for driving the cutting head into contact with the road surface:



**Section 2 - Grinder Hog Systems**

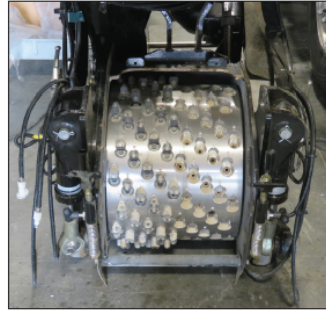


**2.9 Cutter Overview**

Cut alignment is controlled manually by controls in the cab or automatically by the Master/Follower option in the PLC. Special teeth mounted on a hydraulically powered rotating drum do the cutting. Hydraulic Smart cylinders raise or lower the cutter to skip cuts or to temporarily suspend cutting. A variety of cuts and patterns can be programmed into the digital controller by the operator.

**Drum and Teeth**

The cutter drums are powered by hydrostatic motors. Hydrostatic motors are powered by dedicated hydraulic pumps driven by the OMSI PTO. The cutter teeth are bolted in staggered sockets on the circumference of the drum. The teeth, bolts and wedges should be monitored closely for wear and proper torque.

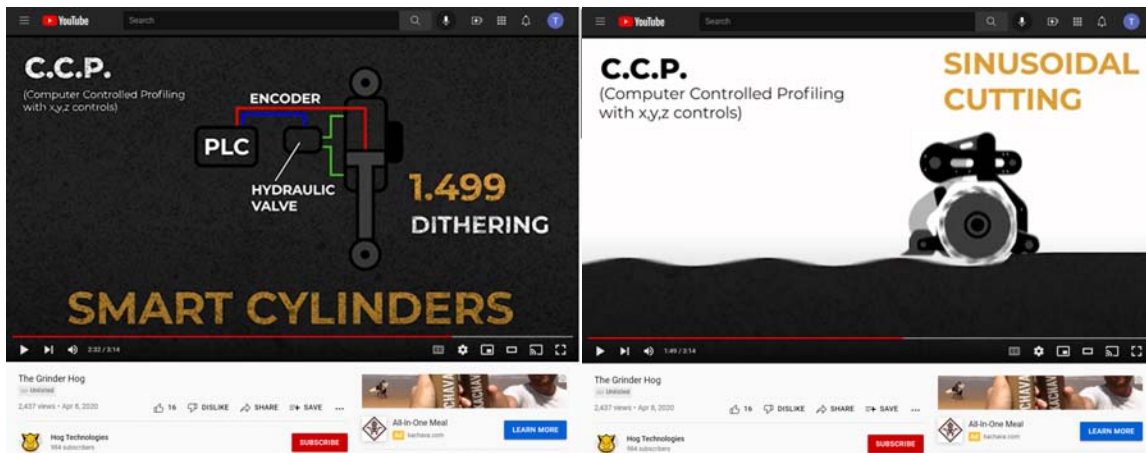


Cutting Teeth & Drum

Cutting width can be changed by removing or adding teeth. Flat teeth are used for a smooth finish.

(Exhibit G at 36.)

- c. The Grinder Hog includes a controller that controls the cylinder to adjust the cutting head in continuous engagement with the road surface and cut a subsurface sinusoidal strip:





11. Sinusoidal Cut

Section 2 - Grinder Hog Systems

2.9 Cutter Overview

Cut alignment is controlled manually by controls in the cab or automatically by the Master/Follower option in the PLC. Special teeth mounted on a hydraulically powered rotating drum do the cutting. Hydraulic Smart cylinders raise or lower the cutter to skip cuts or to temporarily suspend cutting. A variety of cuts and patterns can be programmed into the digital controller by the operator.

Drum and Teeth

The cutter drums are powered by hydrostatic motors. Hydrostatic motors are powered by dedicated hydraulic pumps driven by the OMSI PTO. The cutter teeth are bolted in staggered sockets on the circumference of the drum. The teeth, bolts and wedges should be monitored closely for wear and proper torque.



Cutting Teeth & Drum



(Exhibit G at 36, 165.)

*The Rumble Hog Infringes the '310 Patent*

46. Hog has directly infringed, and continues to directly infringe, literally and/or under the doctrine of equivalents, one or more claims of the '310 Patent by making, using, testing, selling, offering for sale, and/or importing the Rumble Hog into the United States. (See, e.g., Exhibit I – Hog Rumble Hog Web Advertisement from <https://thehog.com/equipment/grinding-grooving-and-rumbling/rumble-hog.html> (last accessed Apr. 7, 2022).)

47. The Rumble Hog meets every limitation of at least independent claim 1 of the '310 Patent, as shown below and in the attached Exhibit N:

- a. The Rumble Hog includes a rotatable cutting head:

Section 3 - Operation

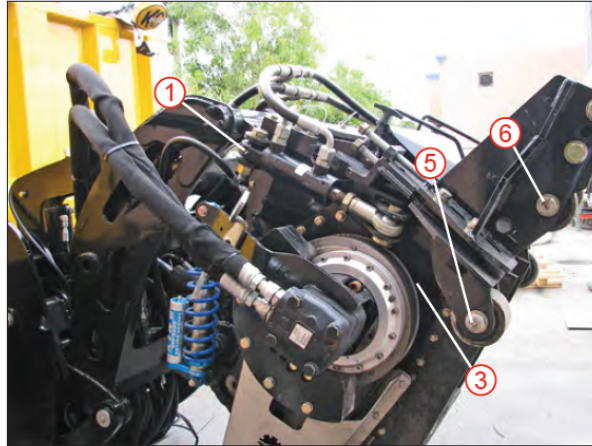
Aligning the Cutting Head

1. Make sure the monitors and all guidance systems are activated.
1. Align the forward video and/or laser guidance indicators on the reference line, pavement seam or edge of the pavement.
2. Make sure the locking arm is released, then use the joystick to move the cutter to the desired offset position.
3. Use the rear video cameras to make final cutter offset adjustments. Then align the rear video guidance indicator on a reference line, seam or the edge of the pavement.



(Exhibit H at 88.)

b. The Rumble Hog includes cylinders connected to the rotatable cutting head for driving the cutting head into contact with the road surface (item #1 below):



**Rumble Hog Lubrication Chart 1**

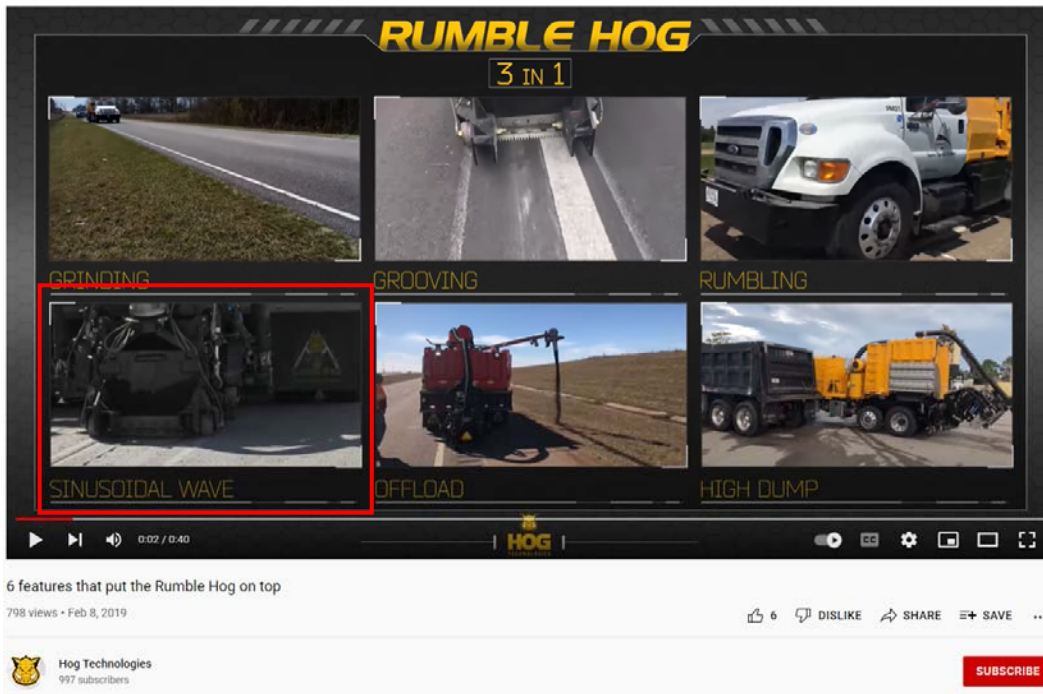
ITEM#	COMPONENT DESCRIPTION
1.	Skip Cylinders
2.	Main Bearing
3.	Motor Mount Bearing
4.	9" Bearing

(Exhibit H at 111.)

c. The Rumble Hog includes a controller that controls the cylinder to adjust the cutting head in continuous engagement with the road surface and cut a subsurface sinusoidal strip:

Hydraulic skip cylinders raise or lower the cutter to skip cuts in rumble strip mode or to temporarily suspend planing. A variety of cut widths and patterns can be programmed into the digital controller by the operator.

(Exhibit I.)



48. Surface Prep has complied with any required notice provisions of the patent statutes.

49. Hog has had actual knowledge of its infringement of the '310 Patent since at least March 15, 2022, when Surface Prep sent Hog a cease and desist letter, along with a copy of the '310 Patent, requesting that Hog cease its infringement of the '310 Patent. (See Exhibit O.) On information and belief, Hog has known of the existence of the '310 Patent prior to March 15, 2022. For example, on June 8, 2018, Hog cited the '310 Patent in an Information Disclosure Statement while prosecuting its patent application for United States Patent No. 10,352,006. (See Exhibit P at 2.)

50. Hog has committed acts of infringement of the '310 Patent, despite knowledge that these actions constituted infringement of a valid patent. Its infringement of the '310 Patent has been and continues to be willful and deliberate.

51. Surface Prep has been damaged by Hog's infringement of the '310 Patent and will continue to be damaged in the future unless Hog is permanently enjoined from infringing the '310



Patent and from selling infringing machines to its customers, who compete directly with Surface Prep.

## COUNT II

### **INDIRECT INFRINGEMENT OF UNITED STATES PATENT NO. 9,574,310**

52. Surface Prep repeats and realleges the allegations in paragraphs 1-42 above as if fully set forth herein.

53. Hog has contributed to and induced its customers' infringement of the '310 Patent by using the infringing Grinder Hog and Rumble Hog products, which practice every limitation of at least independent claim 1 of the '310 Patent.

54. Hog induces infringement of at least independent claim 1 of the '310 Patent through its marketing, advertising, instructions, customer assistance, and selling activities, which encourage, instruct, assist, and/or promote Hog's customers to use the Grinder Hog and Rumble Hog in an infringing manner.

55. Hog contributes to the infringement of at least independent claim 1 of the '310 Patent at least by offering to sell and selling the Grinder Hog and Rumble Hog and through its related marketing, advertising, instructions, customer assistance, and selling activities which encourage, instruct, assist, and/or promote Hog's customers to use the Grinder Hog and Rumble Hog in an infringing manner.

56. Hog intends for and instructs users on how to use the Grinder Hog and the Rumble Hog in a manner that infringes at least independent claim 1 of the '310 patent.

57. The Grinder Hog and the Rumble Hog both include a rotatable cutting head, a cylinder connected to the rotating cutting head, and a controller, as called for by independent claim 1.

**Section 2 - Grinder Hog Systems**



**2.9 Cutter**

**Overview**

Cut alignment is controlled manually by controls in the cab or automatically by the Master/Follower option in the PLC. Special teeth mounted on a hydraulically powered rotating drum do the cutting. Hydraulic Smart cylinders raise or lower the cutter to skip cuts or to temporarily suspend cutting. A variety of cuts and patterns can be programmed into the digital controller by the operator.

**Drum and Teeth**

The cutter drums are powered by hydrostatic motors. Hydrostatic motors are powered by dedicated hydraulic pumps driven by the OMSI PTO. The cutter teeth are bolted in staggered sockets on the circumference of the drum. The teeth, bolts and wedges should be monitored closely for wear and proper torque.



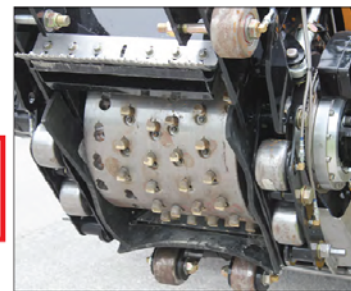
*Cutting Teeth & Drum*

(Exhibit G at 36.)

hydraulic motors that drive the cutting drum absorb the spike in torque each time the cutting teeth contact the pavement during operation. The operator can lockout the eccentric to prevent the drum from plunging for planing operations. Adjustable gauge wheels on the chassis control cutting depth.

Hydraulic skip cylinders raise or lower the cutter to skip cuts in rumble strip mode or to temporarily suspend planing. A variety of cut widths and patterns can be programmed into the digital controller by the operator.

The RPM of the eccentric is synchronized with the hydrostatic truck drive system. This maintains the cut width and pattern when truck speed is increased or decreased during operation.



*Cutting Teeth & Drum*

(Exhibit H at 36.)

58. Hog intends for and instructs users to operate the controller and control the cylinder to adjust the cutting head in continuous engagement with the road surface, as called for by independent claim 1.

**Section 2 - Grinder Hog Systems**



**2.9 Cutter**

**Overview**

Cut alignment is controlled manually by controls in the cab or automatically by the Master/Follower option in the PLC. Special teeth mounted on a hydraulically powered rotating drum do the cutting. Hydraulic Smart cylinders raise or lower the cutter to skip cuts or to temporarily suspend cutting. A variety of cuts and patterns can be programmed into the digital controller by the operator.

**Drum and Teeth**

The cutter drums are powered by hydrostatic motors. Hydrostatic motors are powered by dedicated hydraulic pumps driven by the OMSI PTO. The cutter teeth are bolted in staggered sockets on the circumference of the drum. The teeth, bolts and wedges should be monitored closely for wear and proper torque.



*Cutting Teeth & Drum*

(Exhibit G at 36.)



11. Sinusoidal Cut



**1. Sinusoidal Enable On Off Switch**

Press this button to select sinusoidal rumble cuts on this head. It will turn green displaying "ON" and button number two will appear.

**2. Sinusoidal Set Up Button**

Pressing this turns it green and pops up sinusoidal settings block 3. Press once more to close this block.

**3. Grinder Sinusoidal Settings Block**

This is where you custom design the sinusoidal rumble cut pattern for this head or any other head. These values are automatically and instantly saved. The values will not change unless you come back and change them.

**4. Sinusoidal Rumble Cut Illustration**

This is a graphic illustration of the cut you are designing.

The C dimensions are for depth and the L dimension is for length.

The C1 and C2 dimensions are from the top of the road surface to the top of the sinusoidal profile, so it is important that you set your zero point prior to configuring this cut.

The L dimension is from the center of a high point to the center of the next high point.

**5. C Dimension Value Displays & Up/Down Arrows**

Use these up down arrows to adjust C1 and C2 dimensions.

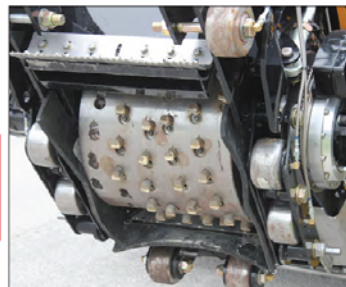


(Exhibit G at 165.)

hydraulic motors that drive the cutting drum absorb the spike in torque each time the cutting teeth contact the pavement during operation. The operator can lockout the eccentric to prevent the drum from plunging for planing operations. Adjustable gauge wheels on the chassis control cutting depth.

Hydraulic skip cylinders raise or lower the cutter to skip cuts in rumble strip mode or to temporarily suspend planing. A variety of cut widths and patterns can be programmed into the digital controller by the operator.

The RPM of the eccentric is synchronized with the hydrostatic truck drive system. This maintains the cut width and pattern when truck speed is increased or decreased during operation.



Cutting Teeth & Drum

(Exhibit H at 36.)

59. Hog intends for and instructs users to use the Grinder Hog and the Rumble Hog to cut a subsurface sinusoidal strip, as called for by independent claim 1.

Hog Technologies manufactures multi-purpose machines that can grind pavement markings, cut grooves for in-laid pavement markings and cut rumble strips, plunge cuts, banana cuts and sinusoidal cuts. Sinusoidal cuts are a type of rumble strip that reduces the amount of noise pollution generated by passing traffic. These are highly preferred in residential areas or areas that can negatively impact wildlife. They give you the same feel as if you were driving over a typical rumble strip, thus alerting you when your car drifts off of the road, while reducing the amount of noise caused by vibration. Sinusoidal cuts are available as a package upgrade to any of our Rumble Hog machines.

(Exhibit J.)



Appendix 1 - User Guide

11. Sinusoidal Cut



- 1. Sinusoidal Enable On Off Switch**  
Press this button to select sinusoidal rumble cuts on this head. It will turn green displaying "ON" and button number two will appear.
- 2. Sinusoidal Set Up Button**  
Pressing this turns it green and pops up sinusoidal settings block 3. Press once more to close this block.
- 3. Grinder Sinusoidal Settings Block**  
This is where are you custom design the sinusoidal rumble cut pattern for this head or any other head. These values are automatically and instantly saved. The values will not change unless you come back and change them.

- 4. Sinusoidal Rumble Cut Illustration**  
This is a graphic illustration of the cut you are designing.  
The C dimensions are for depth and the L dimension is for length.  
The C1 and C2 dimensions are from the top of the road surface to the top of the sinusoidal profile, so it is important that you set your zero point prior to configuring this cut.  
The L dimension is from the center of a high point to the center of the next high point.
- 5. C Dimension Value Displays & Up/Down Arrows**  
Use these up down arrows to adjust C1 and C2 dimensions.



(Exhibit G at 165.)

60. Hog has had actual knowledge of its infringement of the '310 Patent since at least March 15, 2022, when Surface Prep sent Hog a cease and desist letter, along with a copy of the '310 Patent, requesting that Hog cease its infringement of the '310 Patent. (*See Exhibit O.*) On information and belief, Hog has known of the existence of the '310 Patent prior to March 15, 2022. For example, on June 8, 2018, Hog cited the '310 Patent in an Information Disclosure Statement while prosecuting its patent application for United States Patent No. 10,352,006. (*See Exhibit P at 2.*)

61. The infringing Grinder Hog and Rumble Hog both embody material parts of the invention of the '310 Patent as they operate to raise and lower the cutting head in a manner capable of cutting a sinusoidal rumble strip, which is one of the main objectives of the invention of the '310 Patent.

62. On information and belief, Hog's customers will directly infringe, or have directly infringed, the '310 Patent by using the Grinder Hog and Rumble Hog, which embodies the invention(s) of the '310 Patent. Hog knows and intends that its customers use (and, indeed, Hog instructs customers to use) the Grinder Hog and Rumble Hog in a manner that infringes the '310 Patent.

63. Moreover, the Grinder Hog and the Rumble Hog are not staple articles of commerce and have no substantial non-infringing uses. Hog's marketing materials indicate that the Grinder Hog and the Rumble Hog are intended to be used in a manner that infringes the '310 Patent. Its marketing materials do not advertise or otherwise suggest that the Grinder Hog or the Rumble Hog are staple articles of commerce. In fact, when used as shown in Hog's marketing materials, the Grinder Hog and the Rumble Hog directly infringe at least independent claim 1 of the '310 Patent.

64. On information and belief, Hog knows, and has known, that its sale of the Grinder Hog and Rumble Hog and instructions for use of the same will contribute to and induce customers' direct infringement of the '310 Patent. Hog's marketing materials and instructions for use of the Grinder Hog and the Rumble Hog in a manner claimed by the '310 Patent demonstrate Hog intends to contribute to and induce customers' infringement of the '310 Patent.

65. Hog has committed acts of indirect infringement of the '310 Patent, despite knowledge that these actions constituted infringement of a valid patent. Its indirect infringement of the '310 Patent has been and continues to be willful and deliberate.

66. Surface Prep has been damaged by Hog's indirect infringement of the '310 Patent and will continue to be damaged in the future unless Hog is permanently enjoined from infringing the '310 Patent and from selling infringing machines to its customers, who compete directly with Surface Prep.

### **COUNT III**

#### **DIRECT INFRINGEMENT OF UNITED STATES PATENT NO. 8,821,063**

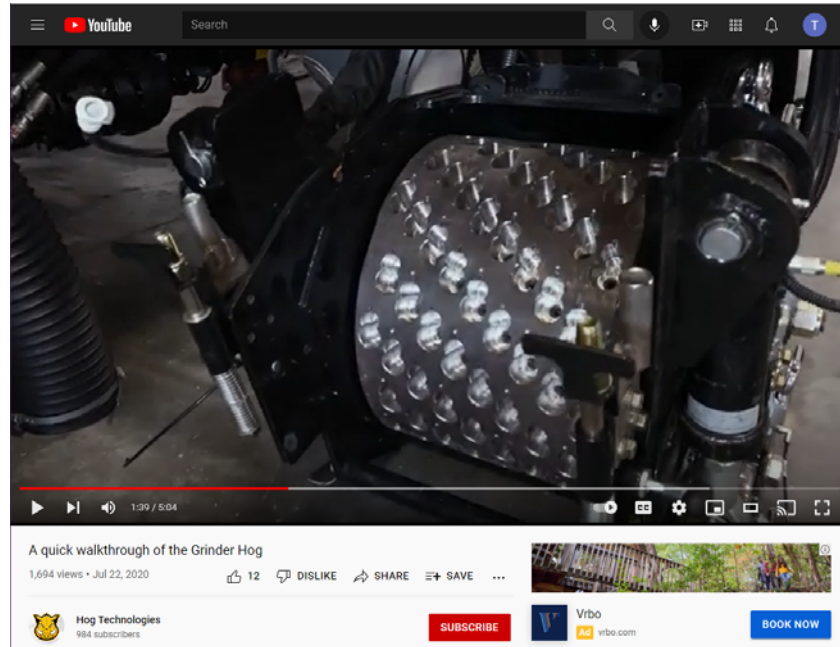
67. Surface Prep repeats and realleges the allegations in each of the foregoing paragraphs 1-42 above as if fully set forth herein.

#### ***The Grinder Hog Infringes the '063 Patent***

68. Hog has directly infringed, and continues to directly infringe, literally and/or under the doctrine of equivalents, one or more claims of the '063 Patent by making, using, testing, selling, offering for sale, and/or importing the Grinder Hog into the United States. (*See, e.g., Exhibit D – Hog Grinder Hog Web Advertisement from <https://thehog.com/equipment/grinding-grooving-and-rumbling/grinder-hog.html> (last accessed Apr. 4, 2022).*)

69. The Grinder Hog meets every limitation of at least independent claim 1 of the '063 Patent, as shown below and in the attached Exhibit Q:

a. The Grinder Hog includes a rotatable cutting head.



#### Aligning the Cutting Head

1. Make sure the monitors and all guidance systems are activated.
1. Align the forward camera and/or laser guidance indicators on the reference line, pavement seam or edge of the pavement.
2. Make sure the safety pins are removed, then use the joystick or remote control to move the cutters to the desired offset position.
3. Use the cutter cameras to make final head offset adjustments. Then align the camera guidance indicators on a reference line, seam or the edge of the pavement.

*Standard Wireless Remote Control & Skip Cylinder Buttons*



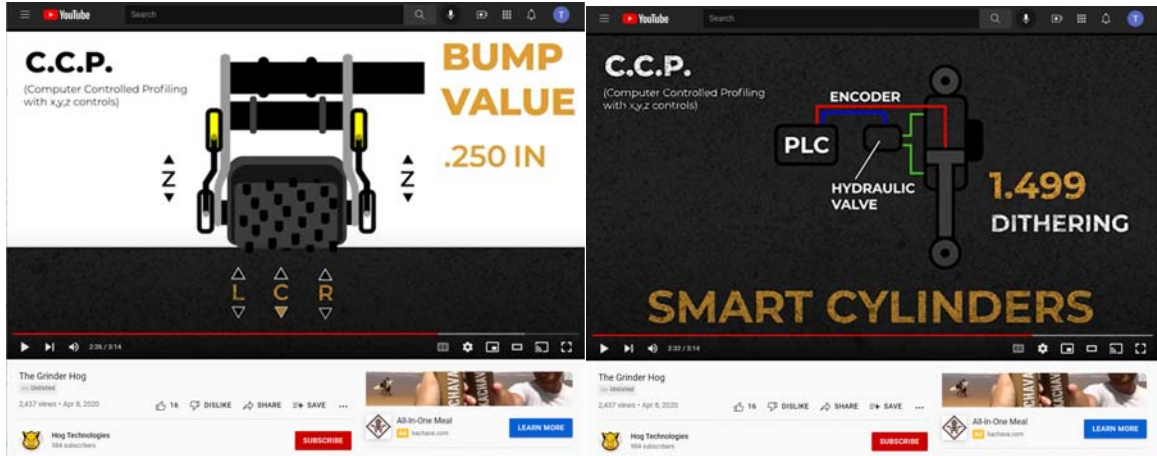
*Component LED Indicator Lights*

86



(Exhibit G at 86.)

b. The Grinder Hog includes cylinders connected to the rotatable cutting head for driving the cutting head into contact with the road surface:



**Section 2 - Grinder Hog Systems**

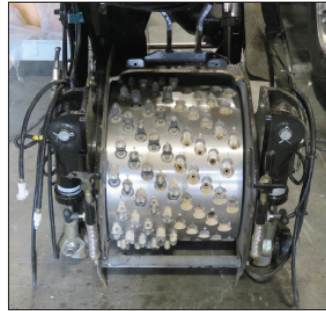
**2.9 Cutter Overview**

Cut alignment is controlled manually by controls in the cab or automatically by the Master/Follower option in the PLC. Special teeth mounted on a hydraulically powered rotating drum do the cutting. Hydraulic Smart cylinders raise or lower the cutter to skip cuts or to temporarily suspend cutting. A variety of cuts and patterns can be programmed into the digital controller by the operator.

**Drum and Teeth**

The cutter drums are powered by hydrostatic motors. Hydrostatic motors are powered by dedicated hydraulic pumps driven by the OMSI PTO. The cutter teeth are bolted in staggered sockets on the circumference of the drum. The teeth, bolts and wedges should be monitored closely for wear and proper torque.

Cutting width can be changed by removing or adding teeth. Flat teeth are used for a smooth finish.

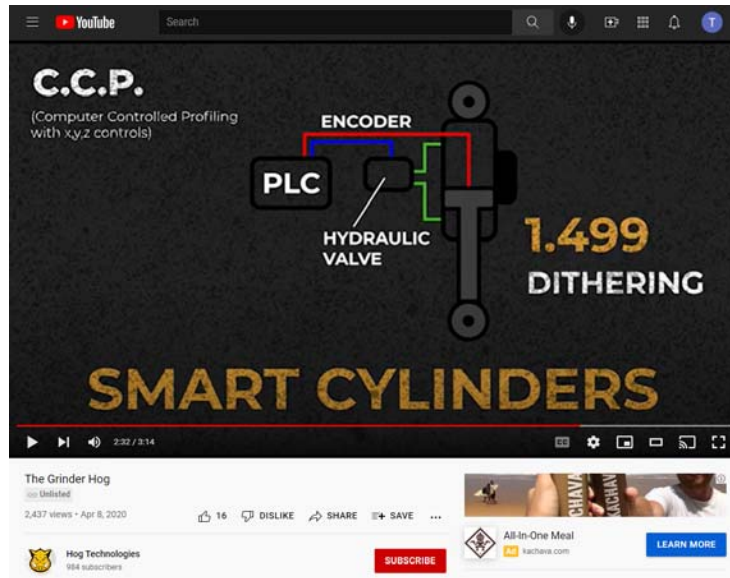


Cutting Teeth & Drum

(Exhibit G at 36.)

- c. The Grinder Hog includes a controller configured to vary a proportional gain and error amplification signal to increase or decrease the speed of the cutting head proportionally with the speed of the cutting machine:





The Grinder Hog uses Computer-Controlled Profiling (CCP) for grinding, grooving, sinusoidal rumble strips, banana cuts, and plunge cuts.

(Exhibit D.)

Appendix 1 - User Guide



9. Profile Setup



12. Profile Speed Control

Use the arrows to adjust your speed up or down through the profile cut only. It is always a percentage of your forward speed which fluctuates based on the position of the truck speed control.

You should always start around 10 to 15% and then make adjustments so that you are not going through your cut too fast when you have increased the truck speed. This is how you manage your speed through the cut so that you do not out run your smart cylinders.

The computer will control the speed based on the set percentage through the cut, then increase speed for the space between the cut, slow back down again for the next cut.

(Exhibit G at 162, 163.)

***The Rumble Hog Infringes the '063 Patent***

70. Hog has directly infringed, and continues to directly infringe, literally and/or under the doctrine of equivalents, one or more claims of the '063 Patent by making, using, testing, selling, offering for sale, and/or importing the Rumble Hog into the United States. (See, e.g., Exhibit D –

Hog Rumble Hog Web Advertisement from <https://thehog.com/equipment/grinding-grooving-and-rumbling/rumble-hog.html> (last accessed Apr. 7, 2022).)

71. The Rumble Hog meets every limitation of at least independent claim 1 of the '063 Patent, as shown below and in the attached Exhibit R:

a. The Rumble Hog includes a rotatable cutting head:

### **Section 3 - Operation**



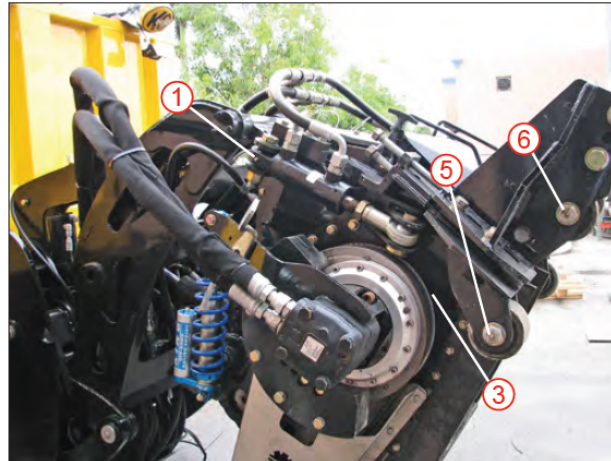
#### **Aligning the Cutting Head**

1. Make sure the monitors and all guidance systems are activated.
1. Align the forward video and/or laser guidance indicators on the reference line, pavement seam or edge of the pavement.
2. Make sure the locking arm is released, then use the joystick to move the cutter to the desired offset position.
3. Use the rear video cameras to make final cutter offset adjustments. Then align the rear video guidance indicator on a reference line, seam or the edge of the pavement.



(Exhibit H at 88.)

b. The Rumble Hog includes cylinders connected to the rotatable cutting head for driving the cutting head into contact with the road surface (item #1 below):



**Rumble Hog Lubrication Chart 1**

ITEM#	COMPONENT DESCRIPTION
1.	Skip Cylinders
2.	Main Bearing
3.	Motor Mount Bearing
4.	9" Bearing

(Exhibit H at 111.)

c. The Rumble Hog includes a controller configured to vary a proportional gain and error amplification signal to increase or decrease the speed of the cutting head proportionally with the speed of the cutting machine:

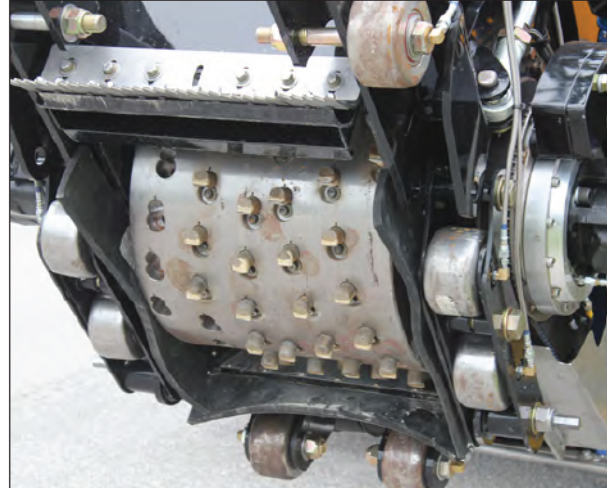
Hydraulic skip cylinders raise or lower the cutter to skip cuts in rumble strip mode or to temporarily suspend planing. A variety of cut widths and patterns can be programmed into the digital controller by the operator.

(Exhibit I.)

hydraulic motors that drive the cutting drum absorb the spike in torque each time the cutting teeth contact the pavement during operation. The operator can lockout the eccentric to prevent the drum from plunging for planing operations. Adjustable gauge wheels on the chassis control cutting depth.

Hydraulic skip cylinders raise or lower the cutter to skip cuts in rumble strip mode or to temporarily suspend planing. A variety of cut widths and patterns can be programmed into the digital controller by the operator.

The RPM of the eccentric is synchronized with the hydrostatic truck drive system. This maintains the cut width and pattern when truck speed is increased or decreased during operation.



*Cutting Teeth & Drum*

(Exhibit H at 36.)

72. Surface Prep has complied with any required notice provisions of the patent statutes.

73. Hog has had actual knowledge of its infringement of the '063 Patent since at least December 15, 2017, when Surface Prep sent Hog a cease and desist letter, along with a copy of the '063 Patent, requesting that Hog cease its infringement of the '063 Patent. Hog was again put on notice of its infringement of the '063 Patent on March 15, 2022, when Surface Prep sent Hog another cease and desist letter, along with a copy of the '063 Patent, requesting that Hog cease its infringement of the '063 Patent. (*See Exhibit O.*) On information and belief, Hog has known of the existence of the '063 Patent prior to March 15, 2022. For example, on June 8, 2018, Hog cited the '063 Patent in an Information Disclosure Statement while prosecuting its patent application for United States Patent No. 10,352,006. (*See Exhibit P* at 2.)

74. Hog has committed acts of infringement of the '063 Patent, despite knowledge that these actions constituted infringement of a valid patent. Its infringement of the '063 Patent has been and continues to be willful and deliberate.

75. Surface Prep has been damaged by Hog's infringement of the '063 Patent and will continue to be damaged in the future unless Hog is permanently enjoined from infringing the '063 Patent and from selling infringing machines to its customers, who compete directly with Surface Prep.

#### **COUNT IV**

#### **INDIRECT INFRINGEMENT OF UNITED STATES PATENT NO. 8,821,063**

76. Surface Prep repeats and realleges the allegations in paragraphs 1-42 as if fully set forth herein.

77. Hog has contributed to and induced its customers' infringement of the '063 Patent by using the infringing Grinder Hog and Rumble Hog products, which practice every limitation of at least independent claim 1 of the '063 Patent.

78. Hog induces infringement of at least independent claim 1 of the '063 Patent through its marketing, advertising, instructions, customer assistance, and selling activities, which encourage, instruct, assist, and/or promote Hog's customers to use the Grinder Hog and Rumble Hog in an infringing manner.

79. Hog contributes to the infringement of at least independent claim 1 of the '063 Patent at least by offering to sell and selling the Grinder Hog and Rumble Hog and through its related marketing, advertising, instructions, customer assistance, and selling activities which encourage, instruct, assist, and/or promote Hog's customers to use the Grinder Hog and Rumble Hog in an infringing manner.

80. Hog intends for and instructs users on how to use the Grinder Hog and the Rumble Hog in a manner that infringes at least independent claim 1 of the '063 patent.

81. Both the Grinder Hog and the Rumble Hog include a rotatable cutting head, a cylinder connected to the rotating cutting head, and a controller, as called for by independent claim 1.

## Section 2 - Grinder Hog Systems



### 2.9 Cutter Overview

Cut alignment is controlled manually by controls in the cab or automatically by the Master/Follower option in the PLC. Special teeth mounted on a hydraulically powered rotating drum do the cutting. Hydraulic Smart cylinders raise or lower the cutter to skip cuts or to temporarily suspend cutting. A variety of cuts and patterns can be programmed into the digital controller by the operator.

### Drum and Teeth

The cutter drums are powered by hydrostatic motors. Hydrostatic motors are powered by dedicated hydraulic pumps driven by the OMSI PTO. The cutter teeth are bolted in staggered sockets on the circumference of the drum. The teeth, bolts and wedges should be monitored closely for wear and proper torque.



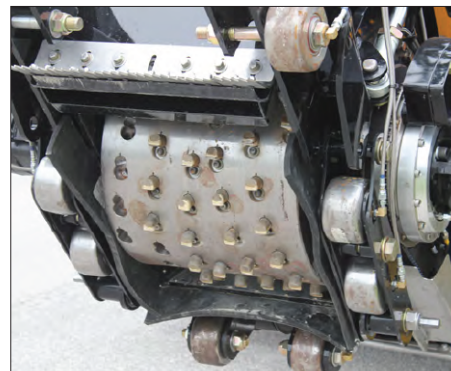
Cutting Teeth & Drum

(Exhibit G at 36.)

hydraulic motors that drive the cutting drum absorb the spike in torque each time the cutting teeth contact the pavement during operation. The operator can lockout the eccentric to prevent the drum from plunging for planing operations. Adjustable gauge wheels on the chassis control cutting depth.

Hydraulic skip cylinders raise or lower the cutter to skip cuts in rumble strip mode or to temporarily suspend planing. A variety of cut widths and patterns can be programmed into the digital controller by the operator.

The RPM of the eccentric is synchronized with the hydrostatic truck drive system. This maintains the cut width and pattern when truck speed is increased or decreased during operation.



Cutting Teeth & Drum

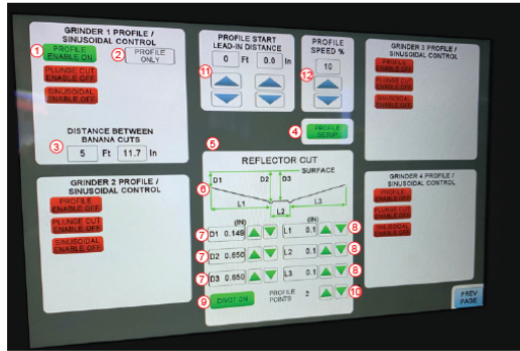
(Exhibit H at 36.)

82. Hog intends for and instructs users to operate the Grinder Hog and the Rumble Hog, both of which utilize a controller to vary a proportional gain and error amplification signal that varies the speed of the cutting head proportionally with the forward speed of the cutting machine.

Appendix 1 - User Guide



9. Profile Setup



12. Profile Speed Control

Use the arrows to adjust your speed up or down through the profile cut only. It is always a percentage of your forward speed which fluctuates based on the position of the truck speed control.

You should always start around 10 to 15% and then make adjustments so that you are not going through your cut too fast when you have increased the truck speed. This is how you manage your speed through the cut so that you do not out run your smart cylinders.

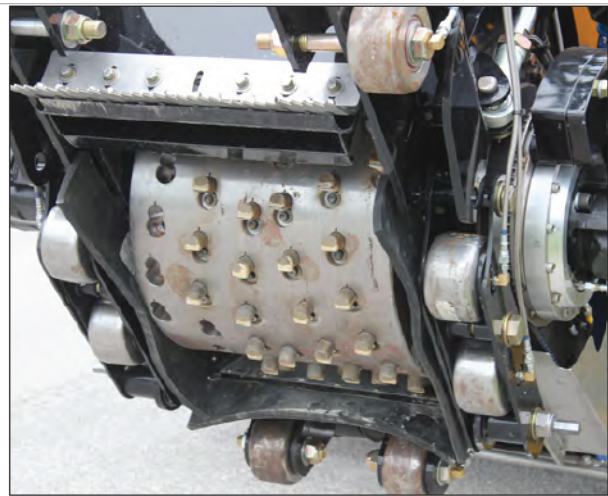
The computer will control the speed based on the set percentage through the cut, then increase speed for the space between the cut, slow back down again for the next cut.

(Exhibit G at 162, 163.)

hydraulic motors that drive the cutting drum absorb the spike in torque each time the cutting teeth contact the pavement during operation. The operator can lockout the eccentric to prevent the drum from plunging for planing operations. Adjustable gauge wheels on the chassis control cutting depth.

Hydraulic skip cylinders raise or lower the cutter to skip cuts in rumble strip mode or to temporarily suspend planing. A variety of cut widths and patterns can be programmed into the digital controller by the operator.

The RPM of the eccentric is synchronized with the hydrostatic truck drive system. This maintains the cut width and pattern when truck speed is increased or decreased during operation.



Cutting Teeth & Drum

(Exhibit H at 36.)

83. Hog has had actual knowledge of its infringement of the '063 Patent since at least December 15, 2017, when Surface Prep sent Hog a cease and desist letter, along with a copy of the '063 Patent, requesting that Hog cease its infringement of the '063 Patent. Hog was again put on notice of its infringement of the '063 Patent on March 15, 2022, when Surface Prep sent Hog another cease and desist letter, along with a copy of the '063 Patent, requesting that Hog cease its infringement of the '063 Patent. (See Exhibit O.) On information and belief, Hog has known of the existence of the '063 Patent prior to March 15, 2022. For example, on June 8, 2018, Hog cited

the '063 Patent in an Information Disclosure Statement while prosecuting its patent application for United States Patent No. 10,352,006. (*See Exhibit P* at 2.)

84. The infringing Grinder Hog and Rumble Hog both embody material parts of the invention of the '063 Patent as they each include a controller configured to vary a proportional gain and error amplification signal to increase or decrease the speed of the cutting head proportionally with the speed of the cutting machine, which is one of the main objectives of the invention of the '063 Patent.

85. On information and belief, Hog's customers will directly infringe, and have directly infringed, the '063 Patent by using the Grinder Hog and Rumble Hog, which embodies the invention(s) of the '063 Patent. Hog knows and intends that its customers use (and, indeed, Hog instructs customers to use) the Grinder Hog and Rumble Hog in a manner that infringes the '063 Patent.

86. Moreover, the Grinder Hog and the Rumble Hog are not staple articles of commerce and have no substantial non-infringing uses. Hog's marketing materials indicate that the Grinder Hog and the Rumble Hog are intended to be used in a manner that infringes the '063 Patent. Its marketing materials do not advertise or otherwise suggest that the Grinder Hog or the Rumble Hog are staple articles of commerce. In fact, when used as shown in Hog's marketing materials, the Grinder Hog and the Rumble Hog directly infringe at least independent claim 1 of the '063 Patent.

87. On information and belief, Hog knows, and has known, that its sale of the Grinder Hog and Rumble Hog and instructions for use of the same will contribute to and induce customers' direct infringement of the '063 Patent. Hog's marketing materials and instructions for use of the Grinder Hog and the Rumble Hog in a manner claimed by the '063 Patent demonstrate Hog intends to contribute to and induce customers' infringement of the '063 Patent.



88. Hog has committed acts of indirect infringement of the '063 Patent, despite knowledge that these actions constituted infringement of a valid patent. Its indirect infringement of the '063 Patent has been and continues to be willful and deliberate.

89. Surface Prep has been damaged by Hog's indirect infringement of the '063 Patent and will continue to be damaged in the future unless Hog is permanently enjoined from infringing the '063 Patent and from selling infringing machines to its customers, who compete directly with Surface Prep.

### **COUNT V**

#### **DIRECT INFRINGEMENT OF UNITED STATES PATENT NO. 9,121,148**

90. Surface Prep repeats and realleges the allegations in paragraphs 1-42 as if fully set forth herein.

#### ***The Grinder Hog Infringes the '148 Patent***

91. Hog has directly infringed, and continues to directly infringe, literally and/or under the doctrine of equivalents, one or more claims of the '148 Patent by making, using, selling, and offering for sale in the United States its Grinder Hog. (*See, e.g., Exhibit D* – Hog Grinder Hog Web Advertisement from <https://thehog.com/equipment/grinding-grooving-and-rumbling/grinder-hog.html> (last accessed Apr. 7, 2022).)

92. The Grinder Hog meets every limitation of at least independent claim 13 of the '148 Patent, as shown below and in the attached Exhibit S:

a. The Grinder Hog includes a distance sensor for sensing the surface of a roadway:

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The Grinder Hog uses smart cylinders which allow for computer-controlled precision **depth** control.

---

(Exhibit D.)

- b. The Grinder Hog adjusts the position of the cutting drum:



- c. The Grinder Hog compares a front distance surface reading with a rear distance groove bottom reading:

---

The Grinder Hog uses smart cylinders which allow for computer-controlled precision **depth** control.

---

(Exhibit D.)

### **7. Depth Dimension Display And Controls**

D1 is the depth at the beginning of your profile and can be adjusted with the up down arrows.

D2 is the depth of the plunge cut in the profile cut and it is adjusted by the up/down arrows. When button 9 is pressed and divot is turned off, this dimension will be greyed out and not used.

D3 is the final depth of the initial decent and of a flat section that you may have in the center of your profile cut. It is adjusted by the up/down arrows.

(Exhibit G at 163.)

d. The Grinder Hog adjusts the cutting head in response to the surface measurements:

---

The Grinder Hog uses smart cylinders which allow for computer-controlled precision **depth** control.

---

(Exhibit D.)

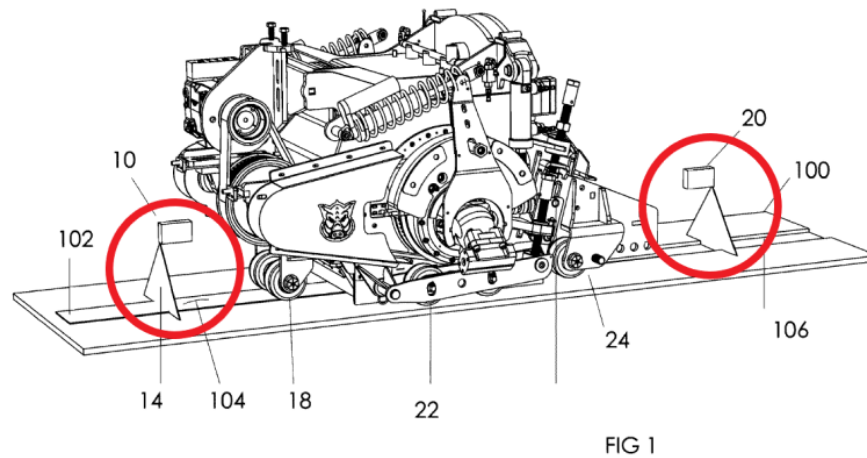
### ***The Rumble Hog Infringes the '148 Patent***

93. Hog has directly infringed, and continues to directly infringe, literally and/or under the doctrine of equivalents, one or more claims of the '148 Patent by making, using, testing, selling, offering for sale, and/or importing the Rumble Hog into the United States. (*See, e.g.,* Exhibit I – Hog Rumble Hog Web Advertisement from <https://thehog.com/equipment/grinding-grooving-and-rumbling/rumble-hog.html> (last accessed Apr. 7, 2022).)

94. Hog filed United States Patent Application No. 2021/0403030, attached hereto as Exhibit F, which depicts and describes the Rumble Hog.

95. Upon information and belief, the Rumble Hog meets every limitation of at least independent claim 13 of the '148 Patent, as shown below and in the attached Exhibit T:

a. The Rumble Hog includes a distance sensor for sensing the surface of a roadway:



(Exhibit F at 2.)

b. The Rumble Hog adjusts the position of the cutting drum:

[0027] The grinder head 52 is illustrated by a frame 60 having a smart cylinder 62 that comprises a linear position sensor and actuators 64 which are mechanically linked. When a cylinder piston 66 is moved the sensor measures the location of the piston 66 to provide precise control of a control arm 68 having a front section with wheels 70 for making precise positioning over the roadway possible. Incorporating a smart cylinder 62 into the grinding head makes the precise positioning possible. The use of a screw actuator 72 can provide a precise ending point by continually verifying at 48 hertz to determine rotation, in this example the X rotation. For example, a screw actuator, even in that particular servo will know it is turning in the X rotation but a screw actuator will stop movement. By dithering back and forth at 499 to 501 thousandths, at 48 times a second, the screw actuator can be positioned at 500 thousandths.

(Exhibit F at 11.)

c. The Rumble Hog compares a front distance surface reading with a rear distance groove bottom reading:

[0023] While the present invention is susceptible of embodiment in various forms, there is shown in the drawings and will hereinafter be described a presently preferred and alternative embodiments with the understanding that the present disclosure is to be considered an exemplification of the invention and is not intended to limit the invention to the specific embodiments illustrated. It is noted that the laser based computer controlled topographic profiler of the instant invention can be used grinders, water blasting heads and vehicles that apply stripping by providing precise measurements of road profile, before and after cutting or before and after the application of stripping. For ease of illustration, the following illustrations depict the placement of the laser on various grinder heads, but the invention is not limited to use only with grinder heads.

(Exhibit F at 11.)

d. The Rumble Hog adjusts the cutting head in response to the surface measurements:

[0027] The grinder head 52 is illustrated by a frame 60 having a smart cylinder 62 that comprises a linear position sensor and actuators 64 which are mechanically linked. When a cylinder piston 66 is moved the sensor measures the location of the piston 66 to provide precise control of a control arm 68 having a front section with wheels 70 for making precise positioning over the roadway possible. Incorporating a smart cylinder 62 into the grinding head makes the precise positioning possible. The use of a screw actuator 72 can provide a precise ending point by continually verifying at 48 hertz to determine rotation, in this example the X rotation. For example, a screw actuator, even in that particular servo will know it is turning in the X rotation but a screw actuator will stop movement. By dithering back and forth at 499 to 501 thousandths, at 48 times a second, the screw actuator can be positioned at 500 thousandths.

(Exhibit F at 11.)

96. Surface Prep has complied with any required notice provisions of the patent statutes.

97. Hog has had actual knowledge of its infringement of the '148 Patent since at least March 15, 2022, when Surface Prep sent Hog a cease and desist letter, along with a copy of the '148 Patent, requesting that Hog cease its infringement of the '148 Patent. (*See Exhibit O.*) On information and belief, Hog has known of the existence of the '148 Patent prior to March 15, 2022.

98. Hog has committed acts of infringement of the '148 Patent, despite knowledge that these actions constituted infringement of a valid patent. Its infringement of the '148 Patent has been and continues to be willful and deliberate.

99. Surface Prep has been damaged by Hog's infringement of the '148 Patent and will continue to be damaged in the future unless Hog is permanently enjoined from infringing the '148 Patent and from selling infringing machines to its customers, who compete directly with Surface Prep.

### COUNT VI

#### **INDIRECT INFRINGEMENT OF UNITED STATES PATENT NO. 9,121,148**

100. Surface Prep repeats and realleges the allegations in paragraphs 1-42 as if fully set forth herein.

101. Hog has contributed to and induced its customers' infringement of the '148 Patent by using the infringing Grinder Hog and Rumble Hog products, which practice every limitation of at least independent claim 13 of the '148 Patent.

102. Hog induces infringement of at least independent claim 13 of the '148 Patent through its marketing, advertising, instructions, customer assistance, and selling activities, which encourage, instruct, assist, and/or promote Hog's customers to use the Grinder Hog and Rumble Hog in an infringing manner.

103. Hog contributes to the infringement of at least independent claim 13 of the '148 Patent at least by offering to sell and selling the Grinder Hog and Rumble Hog and through its related marketing, advertising, instructions, customer assistance, and selling activities which encourage, instruct, assist, and/or promote Hog's customers to use the Grinder Hog and Rumble Hog in an infringing manner.

104. Hog intends for and instructs users on how to use the Grinder Hog and the Rumble Hog in a manner that infringes at least independent claim 13 of the '148 patent.

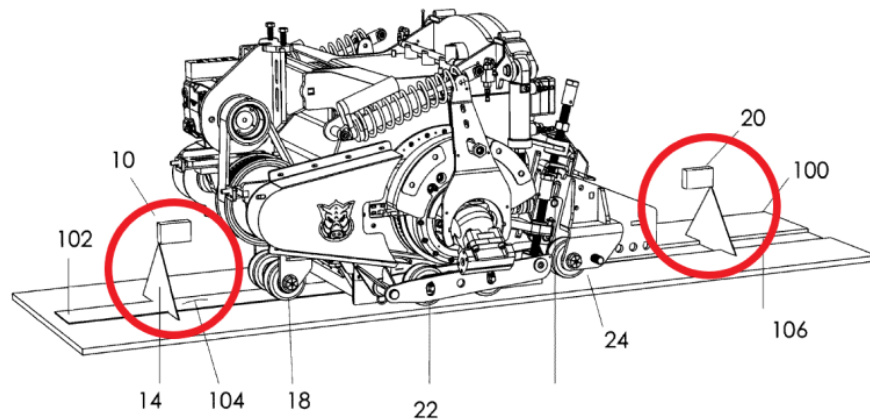
105. Both the Grinder Hog and the Rumble Hog include at least one distance sensor, as called for by independent claim 13.

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The Grinder Hog uses smart cylinders which allow for computer-controlled precision **depth** control.

---

(Exhibit D.)



(Exhibit F at 2.)

106. Hog intends for and instructs users on how to use the Grinder Hog and the Rumble Hog to adjust the position of the rotary cutting drum in response to a signal, as called for by independent claim 13.



[0027] The grinder head 52 is illustrated by a frame 60 having a smart cylinder 62 that comprises a linear position sensor and actuators 64 which are mechanically linked. When a cylinder piston 66 is moved the sensor measures the location of the piston 66 to provide precise control of a control arm 68 having a front section with wheels 70 for making precise positioning over the roadway possible. Incorporating a smart cylinder 62 into the grinding head makes the precise positioning possible. The use of a screw actuator 72 can provide a precise ending point by continually verifying at 48 hertz to determine rotation, in this example the X rotation. For example, a screw actuator, even in that particular servo will know it is turning in the X rotation but a screw actuator will stop movement. By dithering back and forth at 499 to 501 thousandths, at 48 times a second, the screw actuator can be positioned at 500 thousandths.

(Exhibit F at 11.)

107. Hog intends for and instructs users on how to use the Grinder Hog and the Rumble Hog to compare a front distance surface reading with a rear distance groove bottom reading:



## 7. Depth Dimension Display And Controls

D1 is the depth at the beginning of your profile and can be adjusted with the up down arrows.

D2 is the depth of the plunge cut in the profile cut and it is adjusted by the up/down arrows. When button 9 is pressed and divot is turned off, this dimension will be greyed out and not used.

D3 is the final depth of the initial decent and of a flat section that you may have in the center of your profile cut. It is adjusted by the up/down arrows.

(Exhibit G at 163.)

[0023] While the present invention is susceptible of embodiment in various forms, there is shown in the drawings and will hereinafter be described a presently preferred and alternative embodiments with the understanding that the present disclosure is to be considered an exemplification of the invention and is not intended to limit the invention to the specific embodiments illustrated. It is noted that the laser based computer controlled topographic profiler of the instant invention can be used grinders, water blasting heads and vehicles that apply stripping by providing precise measurements of road profile, before and after cutting or before and after the application of stripping. For ease of illustration, the following illustrations depict the placement of the laser on various grinder heads, but the invention is not limited to use only with grinder heads.

(Exhibit F at 11.)

108. Hog intends for and instructs users on how to use the Grinder Hog and the Rumble

Hog to adjust the cutting head in response to the surface measurements:

[0027] The grinder head 52 is illustrated by a frame 60 having a smart cylinder 62 that comprises a linear position sensor and actuators 64 which are mechanically linked. When a cylinder piston 66 is moved the sensor measures the location of the piston 66 to provide precise control of a control arm 68 having a front section with wheels 70 for making precise positioning over the roadway possible. Incorporating a smart cylinder 62 into the grinding head makes the precise positioning possible. The use of a screw actuator 72 can provide a precise ending point by continually verifying at 48 hertz to determine rotation, in this example the X rotation. For example, a screw actuator, even in that particular servo will know it is turning in the X rotation but a screw actuator will stop movement. By dithering back and forth at 499 to 501 thousandths, at 48 times a second, the screw actuator can be positioned at 500 thousandths.

(Exhibit F at 11.)

---

The Grinder Hog uses smart cylinders which allow for computer-controlled precision **depth** control.

---

(Exhibit D.)

109. Hog has had actual knowledge of its infringement of the '148 Patent since at least March 15, 2022, when Surface Prep sent Hog a cease and desist letter, along with a copy of the '148 Patent, requesting that Hog cease its infringement of the '148 Patent. (*See* Exhibit O.) On information and belief, Hog has known of the existence of the '148 Patent prior to March 15, 2022.

110. The infringing Grinder Hog and Rumble Hog both embody material parts of the invention of the '148 Patent as they operate to cut a groove and sense the depth of the groove with a sensor, take front and rear surface measurements, and adjust a position of a rotary cutting drum, which is one of the main objectives of the invention of the '148 Patent.

111. On information and belief, Hog's customers will directly infringe, and have directly infringed, the '148 Patent by using the Grinder Hog and Rumble Hog, which embodies the invention(s) of the '148 Patent. Hog knows and intends that its customers use (and, indeed, Hog instructs customers to use) the Grinder Hog and Rumble Hog in a manner that infringes the '148 Patent.

112. Moreover, the Grinder Hog and the Rumble Hog are not staple articles of commerce and have no substantial non-infringing uses. Hog's marketing materials indicate that the Grinder Hog and the Rumble Hog are intended to be used in a manner that infringes the '148 Patent. Its marketing materials do not advertise or otherwise suggest that the Grinder Hog or the Rumble Hog are staple articles of commerce. In fact, when used as shown in Hog's marketing materials, the Grinder Hog and the Rumble Hog directly infringe at least independent claim 13 of the '148 Patent.

113. On information and belief, Hog knows, and has known, that its sale of the Grinder Hog and Rumble Hog and instructions for use of the same will contribute to and induce customers' direct infringement of the '148 Patent. Hog's marketing materials and instructions for use of the Grinder Hog and the Rumble Hog in a manner claimed by the '148 Patent demonstrate Hog intends to contribute to and induce its customers' infringement of the '148 Patent.

114. Hog has committed acts of indirect infringement of the '148 Patent, despite knowledge that these actions constituted infringement of a valid patent. Its indirect infringement of the '148 Patent has been and continues to be willful and deliberate.

115. Surface Prep has been damaged by Hog's indirect infringement of the '148 Patent and will continue to be damaged in the future unless Hog is permanently enjoined from infringing the '148 Patent and from selling infringing machines to its customers, who compete directly with Surface Prep.

#### **PRAYER FOR RELIEF**

WHEREFORE, Plaintiff prays for the following relief:

- a. A judgment that Defendant has directly infringed United States Patent Nos. 9,574,310; 8,821,063; and 9,121,148;
- b. A judgment that Defendant has indirectly infringed United States Patent Nos. 9,574,310; 8,821,063; and 9,121,148;
- c. An injunction enjoining and restraining Defendant, its officers, directors, agents, servants, employees, attorneys, and all others acting under or through them, directly or indirectly, from making, using, importing, selling, and/or offering for sale any product that infringes, directly or indirectly, United States Patent Nos. 9,574,310; 8,821,063; and 9,121,148;

c. A judgment and order requiring Defendant to pay damages to Plaintiff under 35 U.S.C. § 284, including treble damages for willful infringement as provided by 35 U.S.C. § 284, with interest;

d. A finding that this case is exceptional under 35 U.S.C. § 285 and a judgment and order directing Defendant to pay the costs of this action (including all disbursements) and attorney fees as provided by 35 U.S.C. § 285, with interest; and

e. Such other and further relief as this Court may deem just and equitable.

**DEMAND FOR JURY TRIAL**

Plaintiff hereby demands a jury trial on all issues so triable.

Date: May 16, 2022

Respectfully submitted,

**LOTT & FISCHER, PL**

**/s/ Ury Fischer**

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Ury Fischer

Florida Bar No. 048534

E-mail: [ufischer@lottfischer.com](mailto:ufischer@lottfischer.com)

Giulia C. Farrior

Florida Bar No. 1011300

E-mail: [gfarrior@lottfischer.com](mailto:gfarrior@lottfischer.com)

Dylan H. Smith

Florida Bar No. 113122

E-mail: [dsmith@lottfischer.com](mailto:dsmith@lottfischer.com)

255 Aragon Avenue, Third Floor

Coral Gables, FL 33134

Telephone: (305) 448-7089

Facsimile: (305) 446-6191

And

**MERCHANT GOULD P.C.**

Thomas J. Leach\*

E-mail: [tleach@merchantgould.com](mailto:tlead@merchantgould.com)

Michael A. Erbele\*

E-mail: [merbele@merchantgould.com](mailto:merbele@merchantgould.com)

Taylor R. Stemler\*

E-mail: [tstemler@merchantgould.com](mailto:tstemler@merchantgould.com)

150 South Fifth Street, Suite 2200

Minneapolis, MN 55402

Telephone: (612) 332-5300

***Attorneys for Plaintiff Surface Preparation  
Technologies, LLC***

*\* To be admitted pro hac vice*