

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF OKLAHOMA**

TERVES, LLC, a Nevada limited liability company,	)	
	)	
Plaintiffs,	)	Case No. CIV-23-133-JD
	)	
vs.	)	
	)	
MAGNESIUM MACHINE, LLC, an Oklahoma limited liability company,	)	
	)	
Defendants.	)	

**COMPLAINT**

For its complaint against defendant Magnesium Machine, LLC (“MMP”) plaintiff Terves LLC (“Terves”) states:

**Summary of Case**

1. Terves is a Euclid, Ohio-based company that has researched, developed, and patented unique and valuable magnesium-based, dissolvable materials for constructing drilling tools for the oil and gas industry. Making tools out of dissolvable materials allows drillers to leave their tools in underground wells to dissolve and avoids the substantial cost and time of having to retrieve the tools from miles below ground.

2. Terves owns multiple patents to its dissolvable cast magnesium inventions, including the three patents that it asserts here: U.S. Patent No. 10,329,653 (the “653 patent”), U.S. Patent No. 10,689,740 (the “740 patent”), and U.S. Patent No. 10,760,151 (the “151 patent”), collectively the “Terves Patents,” which are attached as Exhibits 1, 2, and 3 respectively.

3. MMP buys infringing dissolvable magnesium material (“Infringing Material”) as part of an exclusive arrangement with Ecometal, Inc. (“Ecometal”) and tools it into drilling tools for the oil and gas industry.

4. In April, 2022, Terves obtained a judgment of infringement against MMP’s exclusive supplier Ecometal and, its sole proprietor, Nick Yuan. That same judgment also confirmed the validity of the Terves Patents.

5. Following judgment, Terves moved for—and obtained—a permanent injunction against Ecometal and Yuan. That permanent injunction order also expressly recognizes the close relationship between Ecometal, Yuan, and MMP, naming MMP and preventing MMP from “purchasing any Infringing Materials, or any material covered by the Infringed Claims” from Ecometal or Yuan.

6. Prior to judgment and the permanent injunction, MMP acquired tons of infringing material to tool into drilling tools. Despite obtaining a judgment of infringement against MMP’s exclusive supplier of infringing material, MMP has not stopped selling Infringing Material.

7. MMP is able to grossly undercut Terves’ prices for dissolvable cast magnesium because its supplier, Ecometal: (a) reverse-engineered and copied Terves’ formulation, so they have no R&D costs to recoup; and (b) benefits from the low labor costs, low materials costs, and government subsidies in China.

8. By importing and then selling lower-price, foreign-made, copycat materials, MMP is severely damaging the Terves’ business by causing it to lose customers, sales, and market share and to suffer price erosion.

9. Because the cast magnesium materials as well as the drilling tools infringe the Terves Patents, MMP's sales of those tools constitutes patent infringement.

10. Terves sues to save its business, to stop MMP's infringement, and to obtain monetary relief.

### **The Parties**

11. Terves is a Nevada limited liability company with a principal place of business in Euclid, Ohio.

12. MMP is an Oklahoma limited liability company with a principal place of business in Duncan, Oklahoma.

### **Jurisdiction and Venue**

13. This Court has subject matter jurisdiction over Terves' claims under 28 U.S.C. §§ 1331 and 1338(a) because they arise under federal law and, more specifically, under the U.S. Patent Act, 35 U.S.C. § 1 *et seq.*

14. This Court has personal jurisdiction over MMP because it is an Oklahoma limited liability company, its principal place of business is in Oklahoma, and a substantial portion of the acts that constitute the infringement in this complaint took place in Oklahoma.

15. Venue is proper under 28 U.S.C. § 1400(b) because MMP resides in this district, has committed acts of infringement in the district, and has a regular place of business in the district.

### **Relevant Facts**

#### **I. Terves' Rights**

16. Terves is a technology leader in the development, engineering, manufacture, and sale of engineered products for the oil and gas industry.

17. At their research facility in Euclid, Ohio, Terves' metallurgists and material scientists have made breakthrough inventions in the oil and gas industry.

18. Most relevant here, Terves is the leader in developing dissolvable materials for making drilling tools, such as frac balls, frac plugs, and other components used in oil and gas well completion and production.

19. Some of Terves' most important inventions are new ways to melt, mix, and cast magnesium to construct dissolvable drilling tools that provide improved control over dissolution rates and increased strength and reliability.

20. Dissolvable drilling tools can be left miles below ground after drilling is done and then dissolved by, for example, injecting a potassium chloride solution into the well. This results in a large time and money savings because the driller need not run a retrieval line miles below the ground to fish out the drilling tools. Thus, there is high demand by the industry for effective dissolvable tooling.

21. Recognizing Terves' unique and useful inventions, the United States Patent and Trademark Office has issued numerous patents to Terves, including the Terves Patents.

22. The '653 patent issued on June 25, 2019, is owned exclusively by Terves, and is directed to dissolvable magnesium composites.

23. The '740 patent issued on June 23, 2020, is owned exclusively by Terves, and is directed to dissolvable magnesium composites.

24. The '151 patent issued on September 1, 2020, is owned exclusively by Terves, and is directed to downhole well components at least partially formed of dissolvable magnesium cast material.

25. Terves' patented magnesium materials are a breakthrough in the drilling industry. Terves' cast materials achieve better strength and ductility qualities than powder-based dissolvable

materials. They offer better control over dissolution rates that allow for quicker dissolution to bring the well to a production state more quickly.

26. Terves makes and sells materials that are covered by the '653, '740, and '151 patents.

## **II. MMP's Wrongful Acts**

### **A. MMP's Conspiracy to Infringe**

27. MMP imports, makes, sells, uses, and/or offers to sell in the U.S. dissolvable cast magnesium materials that have compositions covered by one or more claims of the '653 and '740 patents and are tooled into the downhole well components covered by one or more claims of the '151 patent. Collectively, these dissolvable cast magnesium materials imported, sold, offered for sale, made, or used by MMP are the "Infringing Materials."

28. The goal of the MMP is simple: make money by infringing and copying Terves' materials, sell them at lower prices, and take business from Terves and others in the market.

29. MMP has an exclusive relationship with Ecometal on the infringing products. MMP is Ecometal's sole customer for the sale of the Infringing Materials and Ecometal is MMP's sole source for dissolvable cast magnesium.

30. Based on their exclusive relationship on the infringing products, MMP paid 50% of Ecometal's litigation fees and costs in the Ohio litigation.

31. Further, MMP and Ecometal share each of the same lawyers and law firms (past and present) identified as Ecometal's counsel throughout the Ohio litigation.

32. Based on their close relationship, MMP exclusively buys cast magnesium billets from Ecometal in China. Once in the U.S., MMP machines the Infringing Materials into drilling

tools, such as frac plugs and frac balls, and sold through chains of distribution to companies that use the Infringing Materials to drill oil and gas wells.

33. In July, 2019, Terves filed suit against MMP's supplier, Ecometal, and its sole proprietor, Nick Yuan, asserting infringement of Terves' '653 and '740 patents in the Northern District of Ohio. That action was captioned *Terves, Inc. v. Yueyang Aerospace New Materials Co. Ltd. et al.*, Case No. 1:19-cv-1611-DCN (N.D. Ohio) (the "Ecometal Case").

34. Before filing the Ecometal Case, Terves reviewed import records to identify the source of the Infringing Materials. To do so, Terves reviewed import bills of lading to determine the source of Infringing Materials.

35. One bill of lading identified "MMP Ecometal" as the Consignee and provides an address in Chickasha, Oklahoma. This document further shows that Ecometal and MMP worked together to import Infringing Material into the U.S.

36. Further demonstrating MMP's intent to infringe, in 2015, MMP was attempting to reverse engineer Terves' dissolvable cast magnesium material that was displacing MMP's carbon fiber composite frac balls.

**B. MMP's bad faith interference in the Ecometal Case.**

37. During the court of the Ecometal Case, MMP several times intervened to multiply proceedings and act as a roadblock to a finding of infringement against its sole exclusive supplier, Ecometal.

**i. The Ohio court dismissed MMP's retaliatory, baseless trade secret lawsuit against Terves and ordered MMP to pay attorneys' fees and costs.**

38. First, in response to a lawfully issued subpoena Terves counsel served on a third party, MMP sued Terves for "trade secret misappropriation." The basis for this claim was that the third party's production of a settlement agreement in response to that subpoena constituted trade

secret misappropriation. Specifically, MMP alleged that the settlement agreement contained “highly confidential” trade secrets. Based on those blatant misrepresentations, the district court ordered *ex parte* seizure of Terves president Andy Sherman’s cell phone and computer.

39. At a hearing the next day, testimony revealed that the basis for the “highly sensitive” trade secrets in the suit were three words in the agreement, where the third word was “patent.” Following the hearing, the district court quickly dismissed the suit and awarded Terves attorney’s fees of over \$200,000 based on the blatantly abusive litigation tactics employed by MMP and its lawyers.

40. MMP never paid a cent of those fees. The Sixth Circuit affirmed that decision, calling MMP’s allegations “baseless” and with “improper motive.” For MMP’s lawyers, Dunlop Coddling, the Sixth Circuit found that they “never had a good-faith belief in the merits of its claims when the claim was objectively specious and brought in an intentionally misleading way.” The Sixth Circuit’s opinion is attached to this Complaint as Exhibit 4.

**ii. MMP’s failed attempt at *Inter Partes* Review**

41. On September 11, 2020, one year and three months after Terves sued Ecometal, MMP’s exclusive supplier petitioned for *Inter Partes* Review (“IPR”) of the ’653 patent.

42. In its petition, Ecometal identified MMP as a “real party in interest.”

43. Responding to the petition required Terves to expend a considerable amount of time and further interfered with its ability to prove infringement in the Ecometal Case. Despite the time and effort required to respond, the petition was facially flawed because it was filed after the one-year statutory deadline to petition.

44. The USPTO denied Ecometal and MMP’s petition on that basis.

**iii. MMP's failed attempt to obtain *Ex Parte* Reexamination.**

45. On July 6, 2021, Ecometal again sought USPTO review of the '653 patent. The firm and lawyers responsible for the reexamination were MMP lawyers Dunlop Codding, PC. Dunlop Codding were MMP's lawyers charged in the "baseless" trade secret misappropriation lawsuit MMP brought against Terves.

46. In the Ecometal Case, Ecometal twice used the reexamination as an attempt to stay the case, first on July 6, 2021, the date that the reexamination was filed, and then again on February 8, 2022, two months before trial.

47. The Court denied both motions.

48. On March 28, 2022, the USPTO issued a notice of reexamination confirming the validity of the '653 patent.

**C. Terves proves infringement**

49. In the Ecometal Case, Terves obtained samples of the Infringing Material from MMP. Terves tested the infringing material and confirmed that it infringes one or more claims of the '653 and '740 patent.

50. Ecometal did not dispute this fact. In fact, Ecometal's own expert admitted that he stopped testing the product because he obtained the same results as Terves' expert.

51. The Infringing Material itself is not available for purchase in the U.S. to the public. Rather, Ecometal distributed and sold the Infringing Material in the U.S. only through specific channels of distribution that are selected and controlled by Ecometal and its exclusive partner, MMP.

52. The specifications, instructions, or formulations used by Ecometal and its suppliers to manufacture the Infringing Material are not publicly available and are kept secret by Ecometal.



53. Following expert discovery in the Ecometal Case, Terves moved for summary judgment on infringement and invalidity based on the fact that Ecometal failed to even mount a challenge to those claims. On April 12, 2022, the court in the Ecometal case granted summary judgment to Terves, finding that Ecometal products infringe Terves' patents and that the Terves patents are valid and enforceable. A copy of that ruling is attached as Exhibit 5. On April 28, 2022, the jury in the Ecometal Case found that Terves was entitled to lost profits of \$707,209. A copy of the judgment is attached as Exhibit 6.

54. The court in the Ecometal Case further granted a permanent injunction against Ecometal on the basis of the continuing harm that Ecometal's products pose to Terves. Noting the close relationship between the two parties, the court also included MMP in the order, stating that because MMP: (1) agreed to pay half of Ecometal's defense fees; (2) shares the same attorneys with Ecometal; and (3) was identified as a "real party in interest" in the IPR proceedings, MMP "may be enjoined from participating or acting in concert with Ecometal to purchase or sell infringing product." That opinion and order is attached as Exhibit 7.

55. Despite those findings, Terves' market intelligence reports that Ecometal has shipped additional tons of dissolvable magnesium by ship into the U.S. as recently as late-2021 to March 2022. Upon information and belief, MMP continues to tool those Infringing Materials into dissolvable fracking tools and sell them to customers.

56. Moreover, to date, Ecometal has not yet paid judgment, so MMP's downstream sales remain unlicensed infringing sales.

57. MMP's willful infringement of the Terves' Patents has caused Terves irreparable harm, which will continue unless an injunction issues.

**Count One**

*Infringement of the '653 patent*

58. Terves incorporates by reference all preceding allegations in this complaint as if fully rewritten herein.

59. The Infringing Materials are covered by one or more claims of the '653 patent. For example, as to claim 2 of the '653 patent, the magnesium materials that MMP is importing, selling, offering to sell, and using: (a) contain magnesium or a magnesium alloy, (b) have copper, nickel, cobalt, or iron as an additive (that constitutes about .05 wt % to 45 wt % of the mixture), (c) the additive forms a precipitant in the composite, (d) the magnesium composite has a dissolution rate of at least 5 mg/cm<sup>2</sup>/hr. in 3 wt % KCl water mixture at 90° C; and (e) said magnesium alloy includes over 50 wt. % magnesium and one or more metals selected from a group consisting of aluminum, boron, bismuth, zinc, zirconium, and manganese.

60. The court in the Ecometal Case already determined that the Ecometal product that MMP buys infringes this claim. *See* Exhibit 5.

61. MMP has directly infringed the '653 patent under 35 U.S.C. § 271(a) at least by importing, selling, offering to sell, and/or using the Infringing Materials in the U.S.

62. MMP has induced infringement of the '653 patent under 35 U.S.C. § 271(b) at least because, with knowledge of the '653 patent, it has sold and imported the Infringing Material in the U.S. for others to use the Infringing Material, which are acts of direct infringement, with specific intent that they do so.

63. Terves has been and will continue to be damaged by MMP's infringement in an amount to be determined at trial.

64. Terves has been suffering irreparable harm due to MMP's infringement and will continue to suffer irreparable harm unless and until MMP is enjoined by this Court.

**Count Two**

*Infringement of the '740 patent*

65. Terves incorporates by reference all preceding allegations in this complaint as if fully rewritten herein.

66. The Infringing Materials are covered by one or more claims of the '740 patent. For example, as to claim 20 of the '740 patent, the magnesium materials that MMP is importing, selling, offering to sell, and using: (a) are magnesium cast composites, (b) contain magnesium or a magnesium alloy, (c) have nickel as an additive material that constitutes at least .01 wt. % of the composite, (d) have in site precipitate that includes the nickel, (e) a plurality of particles of in situ precipitate have a size of no more than 50  $\mu\text{m}$ , (e) the magnesium composite has a dissolution rate of at least 5  $\text{mg}/\text{cm}^2/\text{hr}$ . in 3 wt % KCl water mixture at 90° C, and (f) the magnesium composite includes at least 86 wt. % magnesium.

67. The court in the Ecometal Case already determined that the Ecometal product that MMP buys infringes this claim. *See* Exhibit 5.

68. MMP has directly infringed the '740 patent under 35 U.S.C. § 271(a) at least by importing, selling, offering to sell, and/or using the Infringing Materials in the U.S.

69. MMP has induced infringement of the '740 patent under 35 U.S.C. § 271(b) at least because, with knowledge of the '740 patent, it has sold and imported the Infringing Material in the U.S. for others to use the Infringing Material, which are acts of direct infringement, with specific intent that they do so.

70. Furthermore, MMP has induced infringement of the '740 patent under 35 U.S.C. § 271(b) and contributed to infringement of the '740 patent under 35 U.S.C. § 271(c) by selling and offering to sell the Infringing Material to downstream customers that use the Infringing Material in, or as part of, a ball, a frac ball, a tube, a plug or other tool component to be used in well drilling

or completion operations, with specific intent that they do so, where the Infringing Material is a material part of the invention, MMP knows the Infringing Material is especially made to be used in such applications, and the Infringing Material is not a staple article or commodity of commerce suitable for substantial non-infringing use.

71. Terves has been and will continue to be damaged by MMP's infringement in an amount to be determined at trial.

72. Terves has been suffering irreparable harm due to MMP's infringement and will continue to suffer irreparable harm unless and until MMP is enjoined by this Court.

**Count Three**  
*Infringement of the '151 patent*

73. Terves incorporates by reference all preceding allegations in this complaint as if fully rewritten herein.

74. The Infringing Materials are covered by one or more claims of the '151 patent. For example, as to claim 1, MMP tools the infringing materials into a downhole well component at least partially formed of a dissolvable magnesium cast material comprising a mixture of magnesium alloy and additive material, with the additive material, nickel, constituting .1-24.5 wt. % of the dissolvable magnesium cast material. The dissolvable magnesium cast material also includes galvanically-active in situ precipitate, the galvanically-active in situ precipitate includes the additive material (nickel), and has a dissolution rate of at least 40 mg/cm<sup>2</sup>/hr. in 3 wt.% KCl water mixture at 90°C, and MMP tools this dissolvable magnesium cast material into one or more components selected from the group consisting of a sleeve, a ball, a frac ball, a hydraulic actuating tooling, a tube, a valve, a valve component, and a plug.

75. The Court in the Ecometal Case found that MMP's product infringes Claim 15 of the '653 patent. Claim 15 of the '653 patent recites a dissolvable magnesium composite with an

nickel as an additive material, and the nickel consists of 0.05-35 wt. % of said magnesium composite. The nickel forms galvanically active in situ precipitate in said magnesium composite. Further, Claim 15 depends on Claim 14, 13, and 12. Claim 12 teaches that the magnesium composite has a dissolution rate of at least 5 mg/cm<sup>2</sup>/hr. in 3 wt. % KCl water mixture at 90°C.

76. Claim 15 of the '653 patent's requirement that the magnesium composite contain nickel in an amount between 0.05-35 wt. % of said magnesium composite is within the range of .1-24.5 wt. % disclosed by the '151 patent. Claim 12 of the '653 patent's requirement that the dissolution rate be "at least 5 mg/cm<sup>2</sup>/hr. in 3 wt. % KCl water mixture at 90°C" is met by the '151 patent's requirement the rate be "at least 40 mg/cm<sup>2</sup>/hr. in 3 wt. % KCl water mixture at 90°C.

77. MMP's Infringing Materials meet the requirements of both patents and therefore infringe the '151 patent.

78. MMP has directly infringed, and is directly infringing, the '151 patent under 35 U.S.C. § 271(a) at least by making, selling, offering to sell, and/or using the Infringing Materials in the U.S.

79. Furthermore, MMP has induced infringement of the '151 patent under 35 U.S.C. § 271(b) and contributed to infringement of the '151 patent under 35 U.S.C. § 271(c) by selling and offering to sell the Infringing Material to downstream customers that use the Infringing Material in, or as part of, a ball, a frac ball, a tube, a plug or other tool component to be used in well drilling or completion operations, with specific intent that they do so, where the Infringing Material is a material part of the invention, MMP knows the Infringing Material is especially made to be used in such applications, and the Infringing Material is not a staple article or commodity of commerce suitable for substantial non-infringing use.

80. MMP has knowledge of the '151 patent, know that the Infringing Products were manufactured by the processes recited in one or more claims of the '151 patent, and thus their infringement is and continues to be willful and deliberate.

81. Terves has been and will continue to be damaged by MMP's infringement in an amount to be determined at trial.

82. Terves has been suffering irreparable harm due to MMP's infringement and will continue to suffer irreparable harm unless and until MMP is enjoined by this Court.

**Prayer for Relief**

WHEREFORE, Terves prays for judgment against MMP as follows:

(A) A finding that MMP has directly infringement one or more claims of the '653 patent, '740 patent, and '151 patent under 35 U.S.C. § 271(a).

(B) A finding that MMP has induced infringement of one or more claims of the '653 patent, '740 patent, and '151 patent under 35 U.S.C. § 271(b).

(C) A finding that MMP has contributed to infringement of one or more claims of the '653 patent, '740 patent, and '151 patent under 35 U.S.C. § 271(c).

(D) Preliminary and permanent injunctive relief enjoining MMP and their officers, directors, managers, employees, affiliates, agents, representatives, parents, subsidiaries, successors, assigns, those in privity with them, and all others aiding, abetting, or acting in concert or active participation therewith, from making, using, selling, offering to sell, or importing in the U.S. any cast magnesium material covered by any of the claims of the '653 patent, '740 patent, or '151 patent or otherwise directly or indirectly infringing the Terves Patents.

(E) Compensatory damages under 35 U.S.C. § 284.

(F) Treble damages under 35 U.S.C. § 284.

(G) An order that MMP account to Terves for all sales, revenues, and profits derived from their infringing activities and that three times those profits be disgorged and paid to Terves under 35 U.S.C. § 284.

(H) A finding that MMP's infringement was willful and exceptional and an award of attorneys' fees and litigation-related expenses under 35 U.S.C. § 285 and the Court's inherent authority.

(I) Pre-judgment and post-judgment interest.

(J) Costs of the action.

(K) Such other and further relief as allowed at law or in equity that the Court deems to be appropriate.

Respectfully submitted,

Dated: February 9, 2023

/s/ Christopher M. Scaperlanda  
Michael D. McClintock, OBA #18105  
Christopher M. Scaperlanda, OBA # 31703  
McAfee & Taft A Professional Corporation  
211 North Robinson  
8<sup>th</sup> Floor, Two Leadership Square  
Oklahoma City, OK 73102  
Telephone: (405) 235-9621  
Facsimile: (405) 235-0439  
[michael.mcclintock@mcafeetaft.com](mailto:michael.mcclintock@mcafeetaft.com)  
[christopher.scaperlanda@mcafeetaft.com](mailto:christopher.scaperlanda@mcafeetaft.com)

*Counsel for Terves LLC*