

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW JERSEY**

NANO FIRE LLC,

Plaintiff,

v.

HALMA PLC, HALMA HOLDINGS INC.,
FIREPRO SYSTEMS LTD. and HOCHIKI
AMERICA CORPORATION,

Defendants.

Case No.: _____

JURY TRIAL DEMANDED

COMPLAINT

Plaintiff Nano Fire LLC (“Nano Fire” or “Plaintiff”) brings this action for patent infringement against Defendants Halma plc (“Halma”) and Halma Holdings Inc. (“Halma Holdings”, collectively with Halma, referred to as the “Halma Defendants”), FirePro Systems Ltd. (“FirePro”), and Hochiki America Corporation (“Hochiki”) (collectively, referred to as “Defendants”) and alleges as follows:

NATURE OF THE ACTION

1. Nano Fire’s fire suppression technology is a patented chemical compound, owned by Plaintiff Nano Fire. It was invented as a solution to the widespread shortcomings of common fire extinguishers. Nano Fire’s patented technology interrupts the chemical reaction that sustains fire, resulting in the successful production of revolutionary fire extinguishing products. NanoFire® is classified as a clean agent and is one of the safest fire-extinguishing methods available and its specific chemical composition is non-toxic to humans. Nano Fire’s patented technology also has an Ozone

Depletion Potential of 0 as well as a Global Warming Potential of 0. Nano Fire's patented fire suppression technology can also be integrated into countless numbers of consumer and industrial fire safety products. Nano Fire's solution can revolutionize how lithium battery fires are addressed, saving lives and protecting property. Nano Fire's patented fire suppression technology has even been found to be effective at extinguishing lithium battery fires in electric vehicles.

2. This action arises under the Patent Laws of the United States, 35 U.S.C. § 1, *et seq.*, resulting from Defendants' unauthorized manufacture of, import, offers to sell and sale of aerosol fire extinguishers, including at least the FirePro and FirePro ATEX fire extinguishing condensed aerosol generators for fixed installations (the "Accused Products"), in the United States, which infringe at least claims 1, 2, 3, 4, 10, 11, 12, 13 and 14 of U.S. Patent No. 8,865,014 (the "014 Patent") and claims 1, 2, 3, 8, 9, 11, 12, 13 and 14 of U.S. Patent No. 9,199,108 (the "108 Patent"). These patents are owned by Nano Fire.

THE PARTIES

3. Plaintiff Nano Fire is a corporation organized under the laws of the State of New York and has a primary place of business at 30 Skyline Drive, Plainview, NY 11803.

4. On information and belief, Defendant Halma is a corporation organized under the laws of the United Kingdom and has a primary place of business in the United States at 535 Springfield Avenue, Ste. 110, Summit, New Jersey 0790.

5. On information and belief, Defendant Halma is in the business of manufacturing, offering for sale, selling, importing, and distributing fire extinguishers as well as other products for fire suppression use, through its wholly owned subsidiaries FirePro and FireTrace, including the Accused Products.

6. On information and belief, Defendant Halma's products are sold to its consumers

through distributors and sales representatives located throughout the United States and online.

7. On information and belief, Defendant Halma Holdings is a corporation organized under the laws of the United Kingdom and has a primary place of business in the United States at 535 Springfield Avenue, Ste. 110, Summit, New Jersey 0790.

8. On information and belief, Defendant Halma Holdings is in the business of manufacturing, offering for sale, selling, importing, and distributing fire extinguishers as well as other products for fire suppression use, including FirePro's Accused Products.

9. On information and belief, Defendant Halma Holdings' products are sold to its consumers through distributors and sales representatives located throughout the United States and online.

10. On information and belief, Defendant FirePro is a corporation organized under the laws of Cyprus and has a primary place of business at 8 Faieas Street, Agios Athanasios Industrial Area, CY-4101, Limassol, Cyprus- EU.

11. On information and belief, Defendant FirePro is a wholly owned subsidiary of Defendant Halma.

12. On information and belief, Defendant FirePro owns and operates the website at www.firepro.com.

13. On information and belief, Defendant FirePro is in the business of manufacturing, offering for sale, selling, importing, and distributing fire extinguishers as well as other products for fire suppression use, including the Accused Products.

14. On information and belief, Defendant FirePro's products are sold to its consumers through distributors and sales representatives located throughout the United States and online.

15. On information and belief, Defendant Hochiki is the exclusive distributor of Halma's

FirePro and FirePro ATEX fire extinguishing condensed aerosol generators in the United States and has a primary place of business at 7051 Village Drive, Buena Park, CA 90621.

16. On information and belief, Defendant Hochiki is in the business of distributing fire extinguishers as well as other products for fire suppression use, including the Accused Products.

JURISDICTION AND VENUE

17. This is an action arising under the Patent Laws of the United States, 35 U.S.C. § 1 *et seq.* Accordingly, this Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

18. This Court may properly exercise personal jurisdiction over Defendants because, on information and belief, the Halma Defendants' U.S. headquarters, including sales and operations, is located in Summit, New Jersey. On information and belief, Defendant FirePro, a wholly owned subsidiary of Halma, manufactures the Accused Products that have been and are offered for sale, sold, imported and used by consumers in New Jersey. On information and belief, Defendant Hochiki is the exclusive distributor of the Accused Products in the U.S., including to consumers in New Jersey.

19. Under 28 U.S.C. §§ 1391 and 1400, venue is proper in this judicial district at least because Halma, FirePro's parent corporation, and Halma Holdings, have a principal place of business in this district, and, therefore, "resides" in this district, and FirePro manufactures the Accused Products that have been offered for sale, sold, imported, distributed by FirePro's exclusive distributor, and used by consumers in New Jersey.

THE PATENTS-IN-SUIT

20. U.S. Patent No. 8,865,014, entitled "Fire Extinguishing Composition Generating Fire Extinguishing Substance By High Temperature Sublimation," was duly and legally issued by the

United States Patent and Trademark Office (USPTO) on October 21, 2014. A copy of U.S. Patent No. 8,865,014 is attached as **Exhibit 1**.

21. U.S. Patent No. 9,199,108, entitled “Fire Extinguishing Composition Generating Fire Extinguishing Substance Through High-Temperature Decomposition,” was duly and legally issued by the USPTO on December 1, 2015. A copy of U.S. Patent No. 9,199,108 is attached as **Exhibit 2**.

22. Nano Fire is the lawful owner by assignee of all right, title, and interest in and to U.S. Patent Nos. 8,865,014 and 9,199,108.

23. When Nano Fire contacted FirePro in May 2023 regarding infringement of Nano Fire’s patents by Accused Products, FirePro admitted knowledge of the 014 and 108 patents when they were owned by Xi'an Westpace Fire Technology Co Ltd, the assignor of the patents to Nano Fire. Accordingly, Defendants are willful infringers of the 014 and 108 Patents.

COUNT I- INFRINGEMENT OF U.S. PATENT NO. 8,865,014

24. The preceding paragraphs are incorporated by reference as if fully restated herein.

25. Defendants manufacture, offer to sell, sell, import and distribute aerosol fire extinguishers with fire extinguishing composition generating a fire extinguishing substance through high temperature decomposition, including at least the Accused Products through distributors and sales representatives located throughout the United States and online.

26. Attached hereto as **Exhibit 3** is a true and correct screenshot of a portion of FirePro’s website which allows customers to find its distributor in North America, Hochiki, and a true and correct screenshot of a portion of Hochiki’s website that lists sales representatives based on the customers location.

27. Attached hereto as **Exhibit 4** are true and correct images of the Accused Products.

28. By manufacturing, offering to sell, selling and importing the Accused Products,

Defendants have infringed and are continuing to infringe at least claim 1 of the 014 Patent.

29. Claim 1 of the 014 Patent recites:

What is claimed is:

1. A fire extinguishing composition which generates fire extinguishing substance by high temperature sublimation,

wherein the fire extinguishing composition comprises:

a fire extinguishing material which can release a fire extinguishing substance with fire extinguishing properties by sublimation in a heating process, the content of the fire extinguishing material being at least 80 wt %; and

a pyrotechnic agent,

wherein the pyrotechnic agent of the fire extinguishing composition is adopted as a heat source and a power source in a process of fire extinguishing, and

wherein fire extinguishing is achieved by

igniting the pyrotechnic agent,

generating a large quantity of fire extinguishing substance from the fire extinguishing composition in the use of high temperature produced by burning pyrotechnic agent, and the fire extinguishing substance spraying out together with the pyrotechnic agent.

30. The Accused Products embody every element of claim 1 of the 014 Patent, literally or under the doctrine of equivalents.

31. The Accused Products contain a fire extinguishing composition which generates a fire extinguishing substance by high temperature sublimation.

32. The Accused Products' fire extinguishing composition has a fire extinguishing material which can release a fire extinguishing substance with fire extinguishing properties by sublimation in a heating process.

33. The content of the fire extinguishing material in the Accused Products' fire extinguishing composition has a weight percentage of at least 80.

34. The Accused Products' fire extinguishing composition has a pyrotechnic agent.

35. The pyrotechnic agent of the Accused Products' fire extinguishing composition is adopted as a heat source and a power source in a process of fire extinguishing.

36. The Accused Products achieve fire extinguishing by igniting the pyrotechnic agent,

generating a large quantity of fire extinguishing substance from the fire extinguishing composition in the use of high temperature produced by burning the pyrotechnic agent, and the fire extinguishing substance spraying out together with the pyrotechnic agent.

37. Claim 2 of the 014 Patent recites:

2. The fire extinguishing composition according to claim **1**, wherein the fire extinguishing material is a composition which has a melting point of more than 100 C, and can generate the firing extinguishing substances by sublimation.

38. The Accused Products embody every element of claim 2 of the 014 Patent, literally or under the doctrine of equivalents.

39. The fire extinguishing material of the Accused Products is a composition that has a melting point of more than 100 C, and generates fire extinguishing substances by sublimation.

40. Claim 3 of the 014 Patent recites:

3. The fire extinguishing composition according to claim **1**, wherein the pyrotechnic agent is a pyrotechnic aerosol fire extinguishing agent.

41. The Accused Products embody every element of claim 3 of the 014 Patent, literally or under the doctrine of equivalents.

42. The pyrotechnic agent of the Accused Products' fire extinguishing composition is a pyrotechnic aerosol fire extinguishing agent.

43. Claim 4 of the 014 Patent recites:

4. The fire extinguishing composition according to claim **1**, wherein the fire extinguishing material is a bromine-based fire extinguishing material, a chlorine-based fire extinguishing material, a nitrogen-based and phosphorus-nitrogen based fire extinguishing material or an inorganic fire extinguishing material.

44. The Accused Products embody every element of claim 4 of the 014 Patent, literally or under the Doctrine of Equivalents.

45. The fire extinguishing material of the Accused Products' fire extinguishing

composition is a nitrogen-based fire extinguishing material.

46. Claim 10 of the 014 Patent recites:

10. The fire extinguishing composition according to claim 1, wherein the fire extinguishing composition also includes an additive, of which the content is less than or equal to about 20 wt %.

47. The Accused Products embody every element of claim 10 of the 014 Patent, literally or under the doctrine of equivalents.

48. The fire extinguishing composition of the Accused Products also includes an additive, of which the content is less than or equal to about 20 wt %.

49. Claim 11 of the 014 Patent recites:

11. The fire extinguishing composition according to claim 4, wherein the fire extinguishing composition also includes an additive, of which the content is less than or equal to about 20 wt %.

50. The Accused Products embody every element of claim 11 of the 014 Patent, literally or under the doctrine of equivalents.

51. The fire extinguishing composition of the Accused Products wherein the fire extinguishing material is a nitrogen-based fire extinguishing material and the fire extinguishing composition also includes an additive, of which the content is less than or equal to about 20 wt %.

52. Claim 12 of the 014 Patent recites:

12. The fire extinguishing composition according to claim 10, wherein the additive is stearate, graphite, a combination solution of water soluble polymer or the mixture thereof.

53. The Accused Products embody every element of claim 12 of the 014 Patent, literally or under the Doctrine of Equivalents.

54. The fire extinguishing composition in Accused Products uses an additive, which is referenced in the claim.

55. Claim 13 of the 014 Patent recites:

13. The fire extinguishing composition according to claim **11**, wherein ingredients of the fire extinguishing composition and the content thereof are:
the fire extinguishing material: 80 wt % to 90 wt %,
the additive: 10 wt % to 20 wt %.

56. The Accused Products embody every element of claim 13 of the 014 Patent, literally or under the doctrine of equivalents.

57. The ingredients of the fire extinguishing composition of the Accused Products are the fire extinguishing material and the additive, the content of which is within the claimed wt % ranges.

58. Claim 14 of the 014 Patent recites:

14. The fire extinguishing composition according to claim **1**, wherein the fire extinguishing composition is implemented with the surface coating treatment.

59. The Accused Products embody every element of claim 14 of the 014 Patent, literally or under the doctrine of equivalents.

60. The fire extinguishing composition of the Accused Products is implemented with the surface coating treatment.

61. At minimum, the Accused Products infringe at least claims 1, 2, 3, 4, 10, 11, 12, 13 and 14 of the 014 Patent either literally or under the doctrine of equivalents.

COUNT II – INFRINGEMENT OF U.S. PATENT NO. 9,199,108

62. The preceding paragraphs are incorporated by reference as if fully restated herein.

63. By manufacturing, offering to sell, selling, importing and distributing the Accused Products, Defendants have infringed and are continuing to infringe at least claim 1 of the 108 Patent.

64. Claim 1 of the 108 Patent recites:

The Invention claimed is:

1. A fire extinguishing device wherein the fire extinguishing device comprising:
a nozzle; and

a composition comprising a pyrotechnic agent and a fire extinguishing composition placed within the fire extinguishing device;

the fire extinguishing composition is arranged above the pyrotechnic agent within the fire extinguishing device closer to the nozzle of the fire extinguishing device,

the fire extinguishing composition generates fire extinguishing substance by high-temperature decomposition, wherein the fire extinguishing composition comprises: a fire extinguishing material which can be decomposed to release a fire extinguishing substance with fire extinguishing properties during a heating process, the content of the fire extinguishing material being at least 80 wt %;

wherein the pyrotechnic agent is adopted as a heat source and a power source in a process of fire extinguishing, the pyrotechnic agent is a pyrotechnic aerosol fire extinguishing agent, and

wherein fire extinguishing is achieved by:

igniting the pyrotechnic agent,

generating a large quantity of fire extinguishing substance from the fire extinguishing composition in the use of high temperature produced by burning pyrotechnic agent, and

the fire extinguishing substance spraying out together with the pyrotechnic agent.

65. The Accused Products embody every element of claim 1 of the 108 Patent, literally or under the doctrine of equivalents.

66. The Accused Products are fire extinguishing devices.

67. The Accused Products have a nozzle.

68. Within the Accused Products are a pyrotechnic agent and a fire extinguishing composition.

69. The fire extinguishing composition of the Accused Products is arranged above the pyrotechnic agent within the fire extinguishing device closer to the nozzle.

70. The fire extinguishing composition of the Accused Products generates a fire extinguishing substance by high-temperature decomposition.

71. The fire extinguishing composition of the Accused Products comprises a fire extinguishing material which can be decomposed to release a fire extinguishing substance with fire extinguishing properties during a heating process.

72. The content of the fire extinguishing material in the Accused Products has a weight percentage of at least 80.

73. The pyrotechnic agent in the Accused Products is adopted as a heat source and a power source in a process of fire extinguishing.

74. The pyrotechnic agent in the Accused Products is a pyrotechnic aerosol fire extinguishing agent.

75. The Accused Products achieve fire extinguishing by igniting the pyrotechnic agent, generating a large quantity of fire extinguishing substance from the fire extinguishing composition in the use of high temperature produced by burning the pyrotechnic agent, and the fire extinguishing substance spraying out together with the pyrotechnic agent.

76. Claim 2 of the 108 Patent recites:

2. The fire extinguishing device according to claim 1, wherein the fire extinguishing material is a composition that has a melting point of more than 100 degrees centigrade, and can be decomposed into fire extinguishing substance.

77. The Accused Products embody every element of claim 2 of the 108 Patent, literally or under the doctrine of equivalents.

78. The fire extinguishing material of the Accused Products is a composition that has a melting point of more than 100 degrees centigrade, and can be decomposed into a fire extinguishing substance.

79. The fire extinguishing composition of the Accused Products contains Potassium Nitrate, listed in claim 10 of the 108 Patent, and also contains magnesium, which have a melting point of more than 100 degrees centigrade, and can be decomposed into a fire extinguishing substance.

80. Claim 3 of the 108 Patent recites:

3. The fire extinguishing device according to claim 1, wherein the composition comprises a

bromine-based fire extinguishing material, a chlorine-based fire extinguishing material, an organophosphorus-based fire extinguishing material, a phosphorus-halogen based fire extinguishing material, a nitrogen-based and phosphorus-nitrogen based fire extinguishing material or an inorganic fire extinguishing material.

81. The Accused Products embody every element of claim 3 of the 108 Patent, literally or under the doctrine of equivalents.

82. The Accused Products are fire extinguishing devices which embody every element of claim 1 of the 108 Patent, literally or under the doctrine of equivalents, wherein the fire extinguishing composition comprises an inorganic fire extinguishing material, a mixture of potassium nitrate, potassium carbonate and magnesium.

83. Claim 11 of the 108 Patent recites:

11. The fire extinguishing device according to claim **3**, wherein the fire extinguishing composition also includes an additive, of which the content is less than or equal to 20 wt %.

84. The Accused Products embody every element of claim 11 of the 108 Patent, literally or under the doctrine of equivalents.

85. The Accused Products are fire extinguishing devices which embody every element of claim 3 of the 108 Patent, literally or under the doctrine of equivalents, wherein the fire extinguishing composition comprises an inorganic fire extinguishing material, and also includes an additive, epoxy resin, of which the content is less than or equal to 20 wt %.

86. Claim 12 of the 108 Patent recites:

12. The fire extinguishing device according to claim **11**, wherein the additive is stearate, graphite, combination solution of water soluble polymer or the mixture thereof.

87. The Accused Products embody every element of claim 12 of the 108 Patent, literally or under the doctrine of equivalents.

88. The Accused Products includes an additive referred to in claim 12.

89. Claim 13 of the 108 Patent recites:

13. The fire extinguishing device according to claim **11**, wherein: each component of the fire extinguishing composition and the content thereof are:
the fire extinguishing material: 80 wt % to 90 wt %,
the additive: 10 wt % to 20 wt %.

90. The Accused Products embody every element of claim 13 of the 108 Patent, literally or under the doctrine of equivalents.

91. The Accused Products are fire extinguishing devices which embody every element of claim 11 of the 108 Patent, literally or under the doctrine of equivalents, wherein the fire extinguishing composition comprises a fire extinguishing material, also includes an additive, and the content of the fire extinguishing material and additive have weight percentages within the claimed ranges.

92. The Accused Products are fire extinguishing devices wherein a component of the fire extinguishing composition is the fire extinguishing material, Potassium Nitrate, Potassium Carbonate and Magnesium, with a weight percentage of 80 to 90.

93. The Accused Products are fire extinguishing devices wherein a component of the fire extinguishing composition is an additive, Epoxy Resin, with a weight percentage of 10 to 20.

94. Claim 14 of the 108 Patent recites:

14. The fire extinguishing device according to claim **1**, wherein: the fire extinguishing composition is implemented with a surface coating treatment.

95. The Accused Products embody every element of claim 14 of the 108 Patent, literally or under the doctrine of equivalents.

96. The fire extinguishing composition of the Accused Products is implemented with a surface coating treatment.

97. At minimum, the Accused Products infringe claims 1, 2, 3, 11, 12, 13 and 14 of the 108 Patent either literally or under the doctrine of equivalents.

98. With knowledge of the 014 and 108 Patents and their own infringing conduct, Defendants willfully continue to infringe the 014 and 108 Patents.

99. Nano Fire has been and continues to be irreparably harmed by Defendants' infringement of its valuable patent rights.

100. Nano Fire is without adequate remedy at law.

101. Nano Fire is entitled to recover damages adequate to compensate for the infringement of the 014 and 108 Patents, as well as additional damages for willful infringement, including increased damages under 35 U.S.C. §284, and attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. §285.

COUNT III- WILLFUL INFRINGEMENT OF THE ASSERTED PATENTS

102. The preceding paragraphs are incorporated by reference as if fully restated herein.

103. In May 2023, Nano Fire contacted FirePro regarding infringement of Nano Fire's patents by the Accused Products.

104. FirePro admitted knowledge of the 014 and 108 patents when they were owned by Xi'an Westpace Fire Technology Co Ltd, the assignor of the patents to Nano Fire.

105. Despite knowledge of the Asserted Patents, Defendants manufactured, offered for sale, sold, imported and distributed the Accused Products. Accordingly, Defendants are willful infringers of the 014 and 108 Patents.

PRAYER FOR RELIEF

WHEREFORE, Nano Fire prays for judgment against Defendants granting Nano Fire relief as follows:

A. That this Court adjudge and decree that Defendants have infringed and continue to

infringe the 014 Patent;

B. That this Court adjudge and decree that Defendants have infringed and continues to infringe the 108 Patent;

C. That this Court grant injunctive relief enjoining the aforesaid acts of infringement by Defendants, Defendants' officers, agents, servants, employees, subsidiaries, and attorneys, and those acting in concert with Defendants, including related individuals and entities, customers, representatives, original equipment manufacturers, dealers, and distributors;

D. That this Court enter an award to Nano Fire of such damages as it shall prove at trial against Defendants that are adequate to compensate Nano Fire for said infringement, said damages to be no less than a reasonable royalty together with prejudgment interest and costs;

E. That this Court order an award to Nano Fire of up to three times the amount of compensatory damages because of Defendants' willful infringement, and any other enhanced damages provided by 35 U.S.C. §284;

F. That this Court render a finding that this case is "exceptional" and award to Nano Fire its costs and reasonable attorneys' fees, as provided by 35 U.S.C. §285;

G. That this Court award Nano Fire prejudgment interest against Defendants on all sums allowed by law; and

H. That this Court grant Nano Fire such other, further, and different relief as may be just and proper.

DEMAND FOR JURY TRIAL

Nano Fire demands a trial by jury of all matters to which it is entitled to trial by jury pursuant to Fed. R. Civ. P. 38.

Dated: June 30, 2023

Respectfully submitted,

By: /s/David L. Hecht

David L. Hecht
Delphine Knight Brown (*pro hac vice to be
filed*)

HECHT PARTNERS LLP

125 Park Avenue
New York, NY 10017
(212) 851-6821

Dhecht@hechtpartners.com
dkbrown@hechtpartners.com

Attorneys for Plaintiff Nano Fire LLC