A fire retarding canister has a housing with aerosol exit ports. A cooling material is supported within the housing above the exit ports. A combustion chamber within the housing is above the cooling material. An aerosol forming composition is supported within the housing above the combustion chamber. An ignition mix extends into the aerosol forming composition for igniting the aerosol forming composition. A firing pin is disposed within the housing and is held in place by a temperature sensitive material. In one example, the temperature sensitive material releases the firing pin after a desired temperature is released.

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This application is a continuation of and claims priority to U.S. Serial No. 11/279,221, entitled IGNITION UNIT FOR AEROSOL FIRE-RETARDING DELIVERY DEVICE. Additionally, this application is a continuation of and claims priority to U.S. Serial No. 11/279,225, entitled AEROSOL FIRE-RETARDING DELIVERY DEVICE. Further, this application is a continuation of an claims priority to U.S. Serial No. 11/279,228, entitled AEROSOL FIRE-RETARDING DELIVERY DEVICE.

Background

[0001] Fire extinguishing aerosol devices generally have a housing with a discharge opening, a charge for producing a fire-extinguishing aerosol, and an ignition unit. When the ignition unit is operated, the pyrotechnic or solid-fuel charge is ignited, and the gaseous combustion products thereof form the fire extinguishing aerosol that passes through the discharge opening into the fire region and extinguishes the fire. In some prior devices, the ignition unit comprises an igniter positioned on or in the pyrotechnic that ignites when electrically activated or heated to a high temperature, such as that caused by a fire. One problem in causing ignition in this manner is that the igniter must be inside the housing, thus requiring that the container itself reach a high temperature prior to ignition.

[0002] Another shortcoming is the necessity to connect electrically operated units to suitable detection devices and releasing panels (cost, maintenance, reliability issues.) In some prior devices, a fuse, such as one composed of cordite extends outside of the container. Such fuses, while igniting in response to a desired temperature, are prone to damage and potential malfunction (fuse is limited to one, high activation temperature - significant damage occurs prior to activation). It is also dangerous to ship fire extinguishing devices which can be undesirably activated during shipment.
[0003] In one existing device, a bulb is used to hold a spring loaded pin in place. At a prespecified temperature, the bulb breaks, releasing the pin which ignites the pyrotechnic.

Summary

[0004] A fire retarding canister has a housing with aerosol exit ports. A cooling material is supported within the housing above the exit ports. A combustion chamber within the housing is above the cooling material. An aerosol forming composition is supported within the housing above the combustion chamber. An ignition mix extends into the aerosol forming composition for igniting the aerosol forming composition.

[0005] In one embodiment, a fire extinguishing assembly includes a thermal ignition unit and an aerosol generating unit. The ignition unit in one embodiment comprises a spring loaded piston that is held under spring tension by a formed eutectic, which deforms at a predetermined temperature. When such temperature is reached, the piston is released, and strikes a primer to ignite a desired pyrotechnic in the aerosol generating unit. In another embodiment, the eutectic is held in place by a restraining clip, which when removed, also releases the spring loaded piston to ignite the pyrotechnic. In one embodiment, the piston strikes a primer, which ignites an ignition mix, which further ignites the pyrotechnic. The ignition mix may be formed of the same material as the pyrotechnic. The primer may be a simple pistol primer in one embodiment, or other means of igniting the ignition mix.

[0006] The ignition unit may be releasably engaged with a canister that contains the pyrotechnic. In one embodiment, it is formed with threads for mating with threads on the canister. The ignition unit and canister may ship in an unassembled state, and then be easily assembled at a desired location of use to form the fire extinguishing assembly. Many different size canisters may use the same ignition unit. The inclusion of a restraining clip allows actuation of the extinguishing assembly either mechanically, or in direct response to heat.

[0007] In one embodiment, the aerosol generating unit comprises a canister having a housing with aerosol exit ports. A cooling material is supported within the housing above the exit ports. A combustion chamber is
provided within the housing above the cooling material. The aerosol forming composition is supported within the housing above the combustion chamber. An ignition mix extends into the aerosol forming composition for igniting the aerosol forming composition.

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**Brief Description of the Drawings**

[0008] FIG. 1 is a cross section of an ignition unit mounted on an aerosol delivery canister according to an example embodiment.

[0009] FIG. 2 is a top view of a firing pin for use in the ignition unit of FIG. 1 according to an example embodiment.

[0010] FIG. 3 is a top and side view of a retaining clip for retaining a formed eutectic according to an example embodiment.

[0011] FIG. 4 is a side view of the firing pin of FIG. 2, and including the retaining clip of FIG. 3 for retaining a formed eutectic according to an example embodiment.

[0012] FIGs. 5A and 5B illustrate a eutectic pellet in raw form and after it has been formed for use in the firing pin of FIG. 2 according to an example embodiment.

**Detailed Description**

[0013] In the following description, reference is made to the accompanying drawings that form a part hereof, and in which is shown by way of illustration specific embodiments which may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that other embodiments may be utilized and that structural, logical and electrical changes may be made without departing from the scope of the present invention. The following description is, therefore, not to be taken in a limited sense, and the scope of the present invention is defined by the appended claims.

[0014] FIG. 1 shows a cross section of a fire extinguishing assembly indicated generally at 100. The fire extinguishing assembly comprises a canister 110 for coupling with an ignition unit 115. The canister 110 includes a container 120 that may be lined with a desired material 122, such as ceramic paper, or
insulative material such as cardboard. Ceramic paper may produce fewer toxic gases such as CO and unwanted odors as compared to other materials. Container 120 contains a bottom piece 125 with exit ports 127. A sealant 128, such as a poly sealant, may be used over the bottom piece 125 to provide an almost hermetic seal for contents inside container 120. A cross member spacer 130 formed of mild steel in one embodiment is positioned within the container 120 between the bottom piece 125. A first screen 133 is positioned adjacent the cross member spacer 130, and supports a cooling material 135, such as pieces of activated alumina, zeolite, marble chips, lava rock etc. In one embodiment, the pieces are approximately 1/16th inch to 1/4 inch. Many other sizes and types of cooling material may also be used.

A second screen 137 is positioned on top of the cooling material 135, such that the first and second screens hold the cooling material 135 in position. The screens may be formed of stainless steel or other material compatible with the temperatures and other materials used in the canister. Spacer ring 140 formed of mild steel in one embodiment, is positioned on top of the second screen 137, and provides a combustion chamber 142. The spacer ring may be formed of other materials in further embodiments.

The spacer ring 140 also supports a pellet 143 comprising a pressed aerosol forming composition when ignited. The pellet 143 is formed with a hole or opening 145 that contains an ignition mix 147 that is supported within a bushing 150 fastened at a top end of the canister 120. In one embodiment, the cap is sealed with the canister by means of an annular sealant or sealing ring 152. An ignition primer cap 155 is supported by the bushing 150 above the ignition mix 147 for igniting the ignition mix when struck. In a further embodiment, the pellet 143 may be formed without the ignition mix, and directly ignited by the primer cap.

The bushing 150 has an ignition unit receiving portion 160 that extends from the cap and contains a threaded inner portion for receiving a threaded mating outer portion 161 of the ignition unit 115. The receiving portion 160 and mating portion 161 may couple to each other in other ways, such as friction or snap fit. Such coupling may be permanent or releasable in various embodiments.
The ignition unit 115, which in one embodiment is generally cylindrical in shape, has a firing pin 165 slideably mounted within it. The firing pin is coupled to a spring 167 that is compressed against a ledge 170 within the ignition assembly. The firing pin is formed with a detent, groove or annular depression 172 for receiving a restraining device, such as a ball bearing 175 held within a portion 176 of the ignition unit extending generally transverse to the firing pin. Detent 172 may be annular in one embodiment to allow ease of manufacture, removing the need to properly align the pin 165 prior to insertion of the ball bearing 175. In further embodiments, only a portion of the pin has the detent.

The groove 172 may have angled edges, allowing the ball bearing 175 or other stiff structure to move transversely away from the firing pin when no longer held against it. A restraining clip 177 fastened in the transverse extending portion of the ignition unit holds a formed eutectic 180, against the restraining device 175. The eutectic 180 is selected to deform at a desired temperature, releasing the restraining device 175, allowing the spring 167 to drive the firing pin into the ignition primer cap 155. The primer cap 155 will then fire, igniting the ignition mix 147 and in turn the pellet 143. Aerosol from the pellet 143 passes through the screens and cooling material 135, and cross member spacer 130, breaks open the sealant 128 and exits via exit ports 127. In one embodiment, the ignition temperature of the pellet is approximately 270 to 300 °C, or other desired temperature which is a function of the chemical composition and method of preparation of the pellet.

In one embodiment, the bushing 150 is part of the ignition unit, and couples to the canister. The bushing 150 includes the primer and ignition mix, and may be shipped separately from the canister, and assembled when ready to use.

In one embodiment, the pellet 143 is formed of a composition comprising potassium nitrate (67-72), dicyandiamide (9-16), phenol formaldehyde resin (8-12), and potassium benzoate, bicarbonate or hexacyanoferrate (4-12) in various percentages by mass as indicated in parentheses. Various other compositions may be used, some of which are described in US Patent No.s 6,042,664 and 6,264,772.
The size of the canister may be varied significantly to provide different amounts of aerosol producing material. In one embodiment, the mating threaded portions where the canister and ignition unit attach are the same size for the various sizes of canisters. Thus, a canister designed for inside a cabinet may be fairly small, such as smaller than a can of soda. Canisters designed for larger applications, such as retarding fires in a room, may be very large. All the canisters may use the same size ignition unit provided they are designed to attach to each other through the use of mating threaded portions, or other physical coupling mechanisms.

A top view of the ignition unit 115 is shown in FIG. 2 at 200. Several grooves may be cut into the top portion of the ignition unit as indicated at 205 to reduce the amount of material in the ignition unit 115, and thereby increase the responsiveness of the ignition unit to temperature changes. FIG. 2 also better illustrates a slot 210 for retaining clip 177.

The slot is positioned to hold the retaining clip, shown in detail in FIG. 3 with side and top views, in a desired position as illustrated in a side view of the ignition unit with clip 177 installed in FIG. 4. FIG. 3 shows the retaining clip formed with a middle flat portion having a hole 310 formed therein. As seen in FIG. 4, hold 310 lines up with the formed eutectic 180, and provides a passage for the eutectic to flow through when heated, without allowing it to flow through when below the deformation temperature. Further holes may be formed in portions of the clip as desired to allow attachment of cords or string for manual pulling of the pin.

FIGs. 5A and 5B illustrate the eutectic prior to installation at 510 and shaped for installation at 515 respectively. Shaping of the eutectic may be done with a ball bearing under pressure. In one embodiment, suitable eutectic pellets 510 may be obtained from Cerro Metal Products Co., Bellefonte Works, P.O. Box 388, Bellefonte, PA 16823, or from other sources as desired. Available example melting temperatures include but are not limited to 158, 174, 198 and 203 °F. In further embodiment, the eutectic deform at temperatures in the range of approximately 70 °C or lower, or much higher, such as 270 to 300 °C, and just about anywhere between.
With the eutectic 180 formed or shaped as shown in FIG. 1, and a ball bearing 175 of substantially the same shape and diameter as the opening, the eutectic is prevented from further deforming at temperatures lower than its melting point, as there is no route available to it to deform into. The hole 310 in the clip is small enough to prevent significant flow, thus securing the pin in place until the eutectic 180 reaches a melting temperature. At that time, the eutectic flows through the hold in the clip, allowing the ball bearing to move away from the detent in the firing pin, and releasing the firing pin to ignite the pellet 143.

The Abstract is provided to comply with 37 C.F.R. §1.72(b) to allow the reader to quickly ascertain the nature and gist of the technical disclosure. The Abstract is submitted with the understanding that it will not be used to interpret or limit the scope or meaning of the claims.
CLAIMS

1. A fire retarding device comprising:
   an aerosol housing having aerosol exit ports;
   an aerosol forming composition supported within the aerosol housing;
   an ignition mix extending into the aerosol forming composition for
   igniting the aerosol forming composition;
   an ignition unit housing adapted to connect to the aerosol housing;
   a firing pin disposed within the housing;
   a temperature sensitive material holding the firing pin in place up to a
desired temperature, whereupon the firing pin is released above the desired
 temperature to ignite the ignition mix.

2. The fire retarding device of claim 1 and further comprising:
   a spring coupled to the firing pin;
   a restraining device holding the pin in place in the ignition unit housing.

3. The fire retarding device of claim 2, wherein the temperature sensitive
material comprises a formed eutectic.

4. The fire retarding device of claim 3 and further comprising a restraining
clip positioned to hold the eutectic in place.

5. The fire retarding device of claim 4 wherein the restraining clip is
manually removable.

6. The fire retarding device of any one of claims 4 and 5, wherein the
restraining clip includes at least one orifice aligned with at least a portion of the
formed eutectic, the orifice sized and shaped to pass the formed eutectic after
deformation of the eutectic.

7. The fire retarding device of any one of claims 3-6 wherein the firing pin
comprises a groove and the restraining devices comprises a ball bearing held in
the groove by the formed eutectic.
8. The fire retarding device of claim 7 wherein the ball bearing and formed eutectic are positioned in a passage of the ignition unit transverse to the firing pin.

9. The fire retarding device of any one of claims 7 and 8 wherein the groove is angled to leverage the ball bearing outward from the transverse passage.

10. The fire retarding device of any one of claims 7 and 8 wherein the groove is sized and shaped to move the ball bearing away from the firing pin upon deformation of the formed eutectic.

11. The fire retarding device of claim 3 wherein the formed eutectic deforms at temperatures in the range of approximately 70 to 300 °C.

12. The fire retarding device of any one of claims 1-11 wherein the ignition unit housing includes at least one ignition unit groove sized and shaped to position the temperature sensitive material adjacent to an exterior of the ignition unit housing.

13. The fire retarding device of any one of claims 1-12 and further comprising:
    a cooling material supported within the aerosol housing above the exit ports; and
    a combustion chamber within the aerosol housing above the cooling material.

14. The fire retarding device of any one of claims 1-13 and further comprising a breakable sealer positioned over the aerosol exit ports.

15. The fire retarding device of any one of claims 1-14 wherein the aerosol forming composition is formed in the shape of a pellet having a hole through the proximate middle of the pellet.

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16. The fire retarding device of claim 15 wherein the ignition mix is located within the hole in the pellet.

17. The fire retarding canister of any one of claims 1-16 wherein the ignition mix includes a primer cap which ignites the ignition mix in response to being struck by the firing pin.

18. A method of providing a fire retarding aerosol, the method comprising:
   holding a firing pin under a biasing force in an ignition unit housing with a formed eutectic, such that when the formed eutectic reaches a desired temperature, it deforms, releasing the firing pin such that the firing pin contacts a primer cap, which ignites an ignition mix;
   igniting the aerosol producing material via the ignition mix to produce the aerosol;
   cooling the aerosol by moving it through a cooling material opposite the combustion chamber; and
   exhausting the cooled aerosol through exit ports in the canister.

19. The method of claim 18 wherein igniting the aerosol producing material includes generating the aerosol within a combustion chamber.

20. The method of any one of claims 18 and 19 wherein holding the firing pin under the biasing force includes the formed eutectic holding a restraining device against the firing pin and allowing the restraining device to move away from the firing pin when the eutectic deforms.

21. The method of claim 20 wherein holding the restraining device against the firing pin includes holding a ball bearing against a detent in the firing pin and the eutectic allowing the ball bearing to move out of the detent when the eutectic deforms.
22. The method of any one of claims 18-21 further comprising moving the firing pin with a biasing device.

23. The method of any one of claims 18-22 further comprising manually moving a restraining clip engaged against the formed eutectic, the formed eutectic moving to release the firing pin.

24. The method of any one of claims 18-23 wherein holding the firing pin includes passing the deformed eutectic through at least one orifice in a restraining clip aligned with at least a portion of the eutectic.

25. The method of any one of claims 18-24 wherein holding the firing pin includes the formed eutectic deforming at temperatures in the range of approximately 70 °C to approximately 300 °C.

26. The method of any one of claims 18-25 wherein exhausting the cooled aerosol through exit ports includes breaking a sealer positioned over the exit ports.

27. A method of forming a fire retarding device comprising:
   holding a firing pin in place in an ignition housing, the firing pin under a biasing force;
   positioning a restraining device against the firing pin;
   holding the restraining device in place with a formed eutectic such that a desired temperature causes the formed eutectic to deform, and the firing pin to be moved by the biasing force;
   coupling the ignition unit with an aerosol housing having an aerosol forming composition, the aerosol housing having aerosol exit ports, the firing pin adapted to ignite the aerosol forming composition.

28. The method of claim 27 wherein holding the restraining device in place includes holding the restraining device in place with a formed eutectic that
deforms at temperatures in the range of approximately 70 °C to approximately 300 °C.

29. The method of any one of claims 27 and 28 wherein positioning the restraining device includes positioning a ball bearing within a groove of the firing pin.

30. The method of any one of claims 27-29 wherein holding the restraining device in place includes positioning a restraining clip over the formed eutectic, the restraining clip holding the formed eutectic and the restraining device in place.

31. The method of claim 30 further comprising forming an orifice in the restraining clip aligned with at least a portion of the formed eutectic, the orifice sized and shaped to pass the formed eutectic after deformation of the eutectic.

32. The method of any one of claims 30 and 31 further comprising coupling a pull cord to the restraining clip.

33. The method of any one of claims 27-32 further comprising forming at least one ignition housing groove in the ignition housing, the at least one groove sized and shaped to position the formed eutectic adjacent to an exterior of the ignition housing.

34. The method of any one of claims 27-33 further comprising coupling a cooling material with the aerosol housing between the aerosol forming composition and the aerosol exit ports.

35. The method of claim 34 further comprising forming a combustion chamber between cooling material and the aerosol forming composition.

36. The method of any one of claims 27-35 further comprising positioning a breakable sealer over the exit ports.
37. A fire retarding device comprising:
   an aerosol housing having aerosol exit ports;
   an aerosol forming composition supported within the aerosol housing;
   means for igniting the aerosol forming composition;
   an ignition unit housing adapted to releasably connect to the aerosol housing;
   a biased firing pin disposed within the housing;
   means for holding the firing pin in place up to a desired temperature.

38. The fire retarding device of claim 37 wherein the means for igniting the aerosol forming composition comprises a primer cap positioned proximate the aerosol forming compound for being struck by the firing pin.

39. The fire retarding device of claim 38 wherein the means for igniting the aerosol forming composition further comprises an ignition mix disposed within the aerosol forming composition proximate the primer cap for being ignited by the primer cap and for further igniting the aerosol forming composition.

40. The fire retarding device of any one of claims 37-39 wherein the means for holding the firing pin in place up to a desired temperature comprises a formed eutectic.

41. The fire retarding device of claim 40 wherein the means for holding the firing pin in place up to a desired temperature further comprises a stiff member held against a detent in the firing pin by the formed eutectic.

42. The fire retarding device of any one of claims 40 and 41 wherein the means for holding the firing pin in place up to a desired temperature further comprises a removable pin positioned adjacent the formed eutectic for holding the eutectic in place.
43. The fire retarding device of any one of claims 40-42 wherein the formed eutectic deforms at temperatures in the range of approximately 270 to 300 °C.

44. A fire retarding device comprising:
   a housing having aerosol exit ports;
   a cooling material supported within the housing above the exit ports;
   a combustion chamber within the housing above the cooling material;
   an aerosol forming composition supported within the housing above the combustion chamber;
   an ignition mix extending into the aerosol forming composition for igniting the aerosol forming composition;
   an ignition unit housing;
   a firing pin disposed within the housing;
   a spring coupled to the firing pin;
   a restraining device holding the pin in place in the housing; and
   a formed eutectic holding the restraining device in place such that when the eutectic deforms, the firing pin is released and moved by the spring to ignite the ignition mix.

45. The fire retarding device of claim 44 wherein the restraining device includes a ball bearing held within a firing pin detent.

46. A fire retarding device comprising:
   an aerosol housing having aerosol exit ports;
   an aerosol forming composition supported within the aerosol housing;
   an ignition unit housing adapted to connect to the aerosol housing;
   a firing pin disposed within the housing;
   a temperature sensitive material holding the firing pin in place up to a desired temperature, whereupon the firing pin is released above the desired temperature to ignite the aerosol forming composition.

47. The fire retarding device of claim 46 wherein the temperature sensitive material includes a formed eutectic.
48. The fire retarding device of any one of claims 46 and 47 further comprising a cooling material coupled with the aerosol housing between the aerosol exit ports and the aerosol housing.

49. An ignition unit for a fire extinguishing assembly, the ignition unit comprising:
   - an ignition unit housing;
   - a firing pin disposed within the housing;
   - a biasing device coupled with the firing pin;
   - a restraining device holding the pin in place in the housing; and
   - a formed eutectic holding the restraining device in place such that when the formed eutectic deforms, the firing pin is released and moved by the biasing device in a desired direction.

50. The ignition unit of claim 49 and further comprising a first end that attaches to a fire extinguishing assembly canister such that the firing pin moves toward the canister.

51. The ignition unit of any one of claims 49 and 50 and further comprising a restraining clip positioned to hold the eutectic in place.

52. The ignition unit of claim 51 wherein the restraining clip is removable, causing the formed eutectic to move and the firing pin to move.

53. The ignition unit of any one of claims 51 and 52 wherein the restraining clip is manually removable.

54. The ignition unit of any one of claims 51-53 wherein the restraining clip includes at least one orifice aligned with at least a portion of the formed eutectic, the orifice sized and shaped to pass the formed eutectic after deformation of the eutectic.
55. The ignition unit of any one of claims 49-54 wherein the firing pin comprises a groove, and the restraining device comprises a ball bearing held in the groove by the formed eutectic.

56. The ignition unit of claim 55 wherein the ball bearing and formed eutectic are positioned in a passage of the ignition unit transverse to the firing pin.

57. The ignition unit of claim 56 wherein the groove is angled to leverage the ball bearing outward from the transverse passage.

58. The ignition unit of claim 55 wherein the groove is sized and shaped to move the ball bearing away from the firing pin upon deformation of the formed eutectic.

59. The ignition unit of any one of claims 49-58 wherein the biasing device is in compression against a flange of the inside of the housing while the firing pin is being held in place.

60. The ignition unit of any one of claims 49-59 wherein one end of the firing pin is shaped to set off a primer cap when the firing pin is released and moved by the biasing device.

61. The ignition unit of any one of claims 49-60 wherein the ignition unit includes at least one ignition unit groove sized and shaped to position the formed eutectic adjacent to an exterior of the ignition unit.

62. A method of actuating a firing pin to ignite an aerosol based fire extinguisher, the method comprising:

holding a firing pin in place against a biasing force in an ignition unit housing with a formed eutectic, such that when the formed eutectic reaches a desired temperature, it deforms, releasing the firing pin such that the firing pin contacts a primer cap, which ignites an ignition mix.
63. The method of claim 62 wherein deforming the formed eutectic includes deforming the formed eutectic at temperatures in the range of approximately 70 °C to approximately 300 °C.

64. The method of any one of claims 62 and 63 wherein holding the firing pin in place includes the formed eutectic holding a ball bearing against a detent in the firing pin and allowing the ball bearing to move out of the detent when the eutectic deforms.

65. The method of any one of claims 62-64 and further comprising moving the firing pin with a biasing device.

66. The method of any one of claims 62-65 and further comprising manually moving a restraining clip engaged against the formed eutectic, the formed eutectic moving to release the firing pin.

67. A method of forming an ignition unit for an aerosol based fire extinguisher, the method comprising:
   - placing a firing pin having a detent under a biasing force;
   - positioning a restraining device against the detent;
   - holding the restraining device in place with a formed eutectic such that a desired temperature causes the formed eutectic to deform, and the firing pin to be acted upon by the biasing force.

68. The method of claim 67 wherein holding the restraining device in place includes holding the restraining device in place with a formed eutectic that deforms at temperatures in the range of approximately 70 °C to approximately 300 °C.

69. The method of any one of claims 67 and 68 wherein positioning the restraining device includes positioning a ball bearing within a groove of the firing pin.
70. The method of any one of claims 67-69 wherein holding the restraining device in place includes positioning a restraining clip over the formed eutectic, the restraining clip holding the formed eutectic and the restraining device in place.

71. The method of claim 70 further comprising forming an orifice in the restraining clip aligned with at least a portion of the formed eutectic, the orifice sized and shaped to pass the formed eutectic after deformation of the eutectic.

72. The method of any one of claims 70 and 71 further comprising coupling a pull cord to the restraining clip.

73. The method of any one of claims 67-72 wherein holding the restraining device in place with the formed eutectic includes coupling the formed eutectic with an ignition unit housing.

74. The method of any one of claims 67-73 further comprising forming at least one ignition unit groove in the ignition unit housing, the at least one groove sized and shaped to position the formed eutectic adjacent to an exterior of the ignition unit housing.

75. An ignition unit for a fire extinguishing assembly, the ignition unit comprising:
   an ignition unit housing;
   a firing pin disposed within the housing;
   means for moving the firing pin;
   means for preventing movement of the firing pin; and
   means for releasing the firing pin at a predetermined temperature to allow it to be moved by the means for moving the firing pin.

76. The ignition unit of claim 75 wherein the means for releasing the firing pin comprises a formed eutectic.
77. The ignition unit of claim 75 wherein the formed eutectic deforms at temperatures in the range of approximately 70 °C to approximately 300 °C.

78. The ignition unit of any one of claims 75-77 wherein the means for preventing movement of the firing pin comprises a ball bearing and a releasable clip.

79. The ignition unit of any one of claims 75-78 and further comprising means for releasably attaching the ignition unit to an aerosol delivery canister.

80. A fire retarding canister comprising:
   a housing having aerosol exit ports;
   a cooling material supported within the housing above the exit ports;
   a combustion chamber within the housing above the cooling material;
   an aerosol forming composition supported within the housing above the combustion chamber; and
   an ignition mix extending into the aerosol forming composition for igniting the aerosol forming composition.

81. The fire retarding canister of claim 80 and further comprising a breakable sealer positioned over the exit ports.

82. The fire retarding canister of any one of claims 80 and 81 wherein the aerosol forming composition is formed in the shape of a pellet having a hole through the proximate middle of the pellet.

83. The fire retarding canister of claim 82 wherein the ignition mix is located within the hole in the pellet.

84. The fire retarding canister of any one of claims 80-83 wherein the ignition mix includes a primer cap which ignites the ignition mix in response to being struck by a firing pin.
85. The fire retarding canister of any one of claims 80-84 and further comprising a connector for connecting to an ignition unit comprising a temperature responsive firing pin.

86. The fire retarding canister of claim 85 further comprising a restraining device engaged against the temperature responsive firing pin, the restraining device coupled with a formed eutectic.

87. The fire retarding canister of any one of claims 85 and 86 wherein the connector comprises a threaded tube.

88. The fire retarding canister of any one of claims 80-87 and further comprising an insulator disposed on an inside of the housing.

89. The fire retarding canister of any one of claims 80-88 and further comprising a spacer ring disposed on an inside of the housing and separating the pellet from the cooling material.

90. The fire retarding canister of any one of claims 80-89 and further comprising a pair of screens on either side of the cooling material for holding the cooling material in place within the housing.

91. The fire retarding canister of claim 90 and further comprising a cross member spacer disposed in the housing between the cooling material and the exit ports.

92. The fire retarding canister of any one of claims 80-91 wherein the cooling material comprises 1/8 to 1/4 inch pieces of material selected from the group consisting of activated alumina, zeolite, marble chips and lava rock.

93. A fire retarding canister comprising:
   a housing having aerosol exit ports;
a cooling material supported by opposed screens within the housing above the exit ports;

a spacer providing a combustion chamber within the housing above the cooling material;
a pellet shaped aerosol forming composition supported within the housing by the spacer above the combustion chamber; and
an ignition mix extending into a hole through the aerosol forming composition for igniting the aerosol forming composition.

94. The fire retarding canister of claim 93 and further comprising a breakable sealer positioned over the exit ports.

95. The fire retarding canister of any one of claims 93 and 94 wherein the ignition mix includes a primer cap which ignites the ignition mix in response to being struck by a firing pin.

96. The fire retarding canister of any one of claims 93-95 and further comprising a connector for connecting to an ignition unit comprising a temperature responsive firing pin.

97. The fire retarding canister of claim 96 further comprising a restraining device engaged against the temperature responsive firing pin, the restraining device coupled with a formed eutectic.

98. The fire retarding canister of any one of claims 96 and 97 wherein the connector comprises a threaded tube.

99. The fire retarding canister of any one of claims 93-98 and further comprising an insulator disposed on an inside of the housing.

100. The fire retarding canister of any one of claims 93-99 and further comprising a cross member spacer disposed in the housing between the cooling material and the exit ports.
101. The fire retarding canister of any one of claims 93-100 wherein the cooling material comprises 1/8 inch to 3/4 inch pieces of material selected from the group consisting of activated alumina, zeolite, marble chips and lava rock or other materials with similar properties.

102. A method of creating a fire retarding aerosol in a canister, the method comprising:

   striking a primer cap with a temperature responsive firing pin;
   igniting an ignition mix disposed within an aerosol producing material to ignite the aerosol producing material to produce the aerosol;
   providing a combustion chamber for the aerosol producing material;
   cooling the aerosol by moving it through a cooling material opposite the combustion chamber; and
   exhausting the cooled aerosol through exit ports in the canister.

103. The method of claim 102 further comprising bursting a sealer coupled over the exit ports with cooled aerosol.

104. The method of any one of claims 102 and 103 wherein striking the primer cap with the temperature responsive firing pin includes deforming a eutectic, the deformed eutectic allowing a restraining device to move out of engagement with the temperature responsive firing pin.