CLAIMS

We claim:

1. A concealable sprinkler head comprising:

a sprinkler frame comprising:

a body mountable to a fire suppression liquid source, the body defining a proximal inlet, a distal outlet and an internal fire suppression liquid passageway extending therethrough;

a pair of frame arms extending away from the body; and

a pair of corresponding drop pins each being slidably engaged with a respective frame arm;

a sealing plug positioned in a sealing position to seal the internal fire suppression liquid passageway, maintaining the sprinkler head in a non-spraying state;

a thermal trigger supported within the sprinkler frame and operatively engaged with the sealing plug and configured to release the sealing plug from the sealing position upon activation of the thermal trigger,

a ~~directional~~ fluid deflector secured to the pair of drop pins;

a concealing cup having an upper wall attached to, and laterally outwardly projecting from, the body of the sprinkler frame, a skirting side wall extending away from the upper wall, and an open base end~~, the pair of frame arms being at least partially positioned within the concealing cup~~; and

a cover plate attached to the concealing cup~~, covering at least a portion of the open distal end of the concealing cup and~~ maintaining the pair of drop pins and the fluid deflector in a compressed, non-activated position, wherein, in the compressed, non-activated position, the fluid deflector includes ~~an at least partially~~a generally planar surface having a periphery, the pair of drop pins extending from the ~~at least partially~~generally planar surface and defining an axis extending through the pair of drop pins, and an inclined surface extending angularly upwardly toward the sprinkler frame from a portion of the periphery of the ~~at least partially~~generally planar surface located along one side of the axis defined by the pair of drop pins, the inclined surface being configured to direct fire suppression liquid forward to an opposing side of the axis defined by the pair of drop pins;

the cover plate being removable from the concealing cup at a predetermined temperature, permitting the pair of drop pins and the fluid deflector to drop down relative to the compressed, non-activated position into an extended operational position.

2. The concealable sprinkler head of claim 1, wherein the cover plate is substantially flat.

3. The concealable sprinkler head of claim 1, wherein the ~~at least partially~~generally planar surface of the fluid deflector defines a circular segment in shape.

4. The concealable sprinkler head of claim 1, wherein the concealing cup further comprises a laterally outwardly extending flange proximate the open ~~distal~~base end thereof, and wherein the cover plate is welded to the flange with a welding material, the welding material having a predetermined melting point such that when the cover plate is heated to or above the melting point, the cover plate separates from the concealing cup.

5. The concealable sprinkler head of claim 1, wherein the ~~at least partially~~generally planar surface comprises a central horizontal portion bookended by two opposing side portions each directly connected to the central horizontal portion, wherein each of the side portions is angled relative to the central horizontal portion in a direction away from the pair of frame arms.

6. The concealable sprinkler head of claim 5, wherein the inclined surface comprises a central segment and two opposing side ears each laterally spaced from the central segment.

7. The concealable sprinkler head of claim 6, wherein the central segment is wider than each of the two opposing side ears and the central segment is retracted further backward from each of the two opposing side ears in a direction away from the pair of corresponding drop pins.

8. The concealable sprinkler head of claim 6, wherein at least a portion of each of the side ears is angled inwardly toward the pair of drop pins relative to a plane of the central segment of the inclined surface.

9. The concealable sprinkler head of claim 1, wherein the ~~at least partially~~generally planar surface of the directional fluid deflector includes a raised projection overlying the axis extending through the pair of drop pins, the raised projection extending toward the distal outlet.

10. The concealable sprinkler head of claim 1, wherein the ~~at least partially~~generally planar surface of the fluid deflector and the inclined surface of the fluid deflector define an obtuse included angle therebetween.

~~11. The concealable sprinkler head of claim 1, wherein the inclined surface of the fluid deflector is angled toward the body by up to approximately 90°.~~

~~12~~11. The concealable sprinkler head of claim 1, wherein the ~~at least partially~~generally planar surface defines a front surface contour in the form of an apex with linear slanted surfaces.

~~13~~12. The concealable sprinkler head of claim ~~12~~11, wherein the ~~at least partially~~generally planar surface defines a front surface contour in the form of an arcuate apex with linear slanted surfaces.

~~14. The concealable sprinkler head of claim 1, wherein the frame arms extend beyond the open base end of the concealing cup.~~

~~15~~13. A space comprising:

a ceiling;

a glass containing partition wall or window within the space and oriented substantially perpendicularly to the ceiling; and

a concealable sprinkler head mounted in the ceiling ~~and positioned between approximately four inches and approximately twelve inches away from the glass containing partition wall or window~~, the concealable sprinkler head comprising:

a sprinkler frame comprising:

a body mountable to a fire suppression liquid source, the body defining a proximal inlet, a distal outlet and an internal fire suppression liquid passageway extending therethrough;

a pair of frame arms extending away from the body; and

a pair of corresponding drop pins each being slidably engaged with a respective frame arm;

a sealing plug positioned in a sealing position to seal the internal fire suppression liquid passageway, maintaining the sprinkler head in a non-spraying state;

a thermal trigger supported within the sprinkler frame and operatively engaged with the sealing plug and configured to release the sealing plug from the sealing position upon activation of the thermal trigger,

a ~~directional~~ fluid deflector secured to the pair of drop pins;

a concealing cup having an upper wall attached to, and laterally outwardly projecting from, the body of the sprinkler frame, a skirting side wall extending away from the upper wall, and an open base end~~, the pair of frame arms being at least partially positioned within the concealing cup~~; and

a cover plate attached to the concealing cup,~~ covering at least a portion of the open distal end of the concealing cup and~~ maintaining the pair of drop pins and the fluid deflector in a compressed, non-activated position, wherein, in the compressed, non-activated position, the fluid deflector includes ~~an at least partially~~a generally planar surface having a periphery, the pair of drop pins extending from the ~~at least partially~~generally planar surface and defining an axis extending through the pair of drop pins, and an inclined surface extending angularly upwardly toward the sprinkler frame from a portion of the periphery of the ~~at least partially~~generally planar surface located along one side of the axis defined by the pair of drop pins, the inclined surface being configured to direct fire suppression liquid forward to an opposing side of the axis defined by the pair of drop pins;

the cover plate being removable from the concealing cup at a predetermined temperature, permitting the pair of drop pins and the fluid deflector to drop down relative to the compressed, non-activated position into an extended operational position,

wherein the sprinkler head is mounted such that a plane extending between the pair of frame arms is parallel to the glass containing partition wall or window and the inclined surface of the directional fluid deflector is further away from the glass containing partition wall or window than the generally horizontal surface, such that fire suppression liquid is deflectable onto the glass containing partition wall or window.

~~16. The space of claim 15, wherein the sprinkler head is positioned between approximately six feet and approximately twelve feet apart from a neighboring sprinkler head.~~