Summary

According to an aspect of the present invention, there is provided a deflector for a fire suppression sprinkler, said deflector comprising:

a circular plate having a periphery surrounding a center;

first and second slots in said plate extending from diametrically opposed points on said periphery along a common diameter toward said center and having respective ends at a first distance from said center;

a first plurality of slots positioned around said plate between said first and second slots, each of said slots of said first plurality extending from said periphery along a respective non-diametral chord of said circular plate, wherein a first half of said first plurality of slots have respective ends at a second distance from said center and a second half of said first plurality of slots have respective ends at a third distance from said center; and

a second plurality of slots positioned around said plate, each slot of said second plurality of slots being positioned between said first and second slots and extending from said periphery along a respective radius of said circular plate toward said center and having respective ends at a fourth distance from said center; wherein

said first distance is less than said second distance, said second distance is less than said third distance, and said third distance is less than said fourth distance.

There is disclosed a fire suppression sprinkler. In an example embodiment the sprinkler comprises a body surrounding a bore. The bore defines a flow axis arranged coaxially with the bore. First and second arms are mounted on opposite sides of the body and extend therefrom in a direction along the flow axis. A nose is mounted on an end of the arms. The nose is positioned coaxially with the flow axis. A deflector is mounted on the nose. IN an example embodiment, he deflector comprises a plate oriented transversely to the flow axis. The plate comprises a plurality of slots defining a plurality of tines. A first and a second of the slots are radially oriented with respect to the flow axis and respectively aligned with the first and second arms. The first and second slots extend from a periphery of the plate to respective points underlying the nose. A remainder of the slots extends from the periphery to respective points in spaced relation from the nose.

In an example embodiment, the tines are positioned on opposite sides of the first and second slots and have ends at a first distance from the flow axis. The tines positioned on opposite sides of the remainder of the slots have ends at a second distance greater than the first distance.

By way of example, the first and second slots define respective first and second areas. The first and the second areas each are greater than any area defined by any slot of the remainder of the slots. Also by way of example, the remainder of the slots further comprises a first pair of slots flanking the first slot and a second pair of slots flanking the second slot.

In an example embodiment, the slots comprising the first and second pairs extend along respective lines which do not intersect the flow axis.

Further by way of example, each of the slots comprising the first and second pairs are asymmetrical with respect to the respective lines. In an example embodiment, the remainder of the slots further comprises a third pair of slots flanking the first slot and a fourth pair of slots flanking the second slot. The first pair of slots is between the first slot and the third pair of slots, the second pair of slots is between the second slot and the fourth pair of slots.

By way of example, each of the slots comprising the first, second, third and fourth pairs extends along respective lines which do not intersect the flow axis. In another example, each of the slots comprising the first, second, third and fourth pairs is asymmetrical with respect to the respective lines.

What is claimed is:

1. A deflector for a fire suppression sprinkler, said deflector comprising:

a circular plate having a periphery surrounding a center;

first and second slots in said plate extending from diametrically opposed points on said periphery along a common diameter toward said center and having respective ends at a first distance from said center;

a first plurality of slots positioned around said plate between said first and second slots, each of said slots of said first plurality extending from said periphery along a respective non-diametral chord of said circular plate, wherein a first half of said first plurality of slots have respective ends at a second distance from said center and a second half of said first plurality of slots have respective ends at a third distance from said center; and

a second plurality of slots positioned around said plate, each slot of said second plurality of slots being positioned between said first and second slots and extending from said periphery along a respective radius of said circular plate toward said center and having respective ends at a fourth distance from said center; wherein

said first distance is less than said second distance, said second distance is less than said third distance, and said third distance is less than said fourth distance.

2. The deflector according to claim 1, wherein said first and second slots define respective first and second areas, said first and said second areas each being greater than any area defined by any slot of said first and second plurality of slots.

3. The deflector according to claim 1, wherein first and second regions of said periphery respectively flanking said first and second slots each has a radius less than a radius of a remainder of said periphery.

4. The deflector according to claim 1, wherein each one of said slots of said first plurality of slots is asymmetrical with respect to said respective non-diametral chord of said circular plate along which each one of said slots of said first plurality extends.

5. The deflector according to claim 1, wherein said each one of said slots of said second plurality of slots is symmetrical with respect to said respective radius of said circular plate along which each one of said slots of said second plurality extends.

6. The deflector according to claim 1, wherein each one of said first and second slots has a first width over a first region proximate to said periphery and a second width over a second region positioned between said first region and said center, said first width being less than said second width.

7. The deflector according to claim 3, wherein each one of said slots of said first plurality of slots is asymmetrical with respect to said respective non-diametral chord of said circular plate along which each one of said slots of said first plurality extends.