CLAIMS:

1. A device for detecting presence of ice in an airstream, the device comprising:

- a housing defining a first chamber and a second chamber, and a partition wall separating the first chamber and the second chamber;
- the first chamber having at least one inlet opening on a front housing wall facing the airstream, and at least one outlet opening, smaller than the at least one inlet opening;
- the second chamber configured for being operatively coupled to at least one electromagnetic (EM) system that is configured for transmitting EM energy to said first chamber at least via said partition wall, said partition wall being at least one of transparent and translucent with respect to said EM energy, said EM energy being configured for melting ice that can accrete with respect to the at least one inlet opening;
- the device being configured for being operatively coupled to at least one air pressure sensor in fluid communication with said first chamber for detecting at least pressure changes in said first chamber responsive to ice accretion on said at least one inlet opening.

2. The device according to claim 1, wherein said at least one air pressure sensor is coupled to said first chamber via a conduit between said first chamber and said at least air one pressure sensor.

3. The device according to claim 1, further comprising at least one opening between said first chamber and said second chamber providing free fluid communication therebetween, and wherein said at least air one pressure sensor is coupled to said second chamber via a conduit between said second chamber and said at least air one pressure sensor.

4. The device according to claim 1 , wherein said at least one air pressure sensor is a pressure transducer.

5. The device according to claim 1, wherein the device is made from non-metallic materials.

6. The device according to claim 1, wherein said at least one inlet opening is in the form of at least one slit.

7. The device according to claim 6 and including at least one of the following:

- wherein the slit is in the form of a rectangular slit having a length dimension and a width dimension, the length dimension being greater than the width dimension;

- wherein the slit is in the form of a rectangular slit having a length dimension and a width dimension, the length dimension being greater than the width dimension, and, wherein the length dimension is at least partially vertical with respect to facing airstream;

- wherein the slit is in the form of a rectangular slit having a length dimension and a width dimension, the length dimension being greater than the width dimension, and, wherein the length dimension is vertical with respect to facing airstream;

- wherein the slit is in the form of a rectangular slit having a length dimension and a width dimension, the length dimension being greater than the width dimension, and, wherein said length dimension is between 5mm and 15mm;

- wherein the slit is in the form of a rectangular slit having a length dimension and a width dimension, the length dimension being greater than the width dimension, and, wherein said length dimension is about 10mm;

- wherein the slit is in the form of a rectangular slit having a length dimension and a width dimension, the length dimension being greater than the width dimension, and, wherein said width dimension is between 0.15mm and 0.65mm;

- wherein the slit is in the form of a rectangular slit having a length dimension and a width dimension, the length dimension being greater

than the width dimension, and, wherein said width dimension is about 0.6mm;

- wherein the slit is in the form of a rectangular slit having a length dimension and a width dimension, the length dimension being greater than the width dimension, and, wherein a ratio of said length dimension to said width dimension is between 7.7 and 100;

- wherein the slit is in the form of a rectangular slit having a length dimension and a width dimension, the length dimension being greater than the width dimension, and, wherein a ratio of said length dimension to said width dimension is about 16.67;

- wherein said at least one slit has longitudinal edges that diverge in an aft direction through a thickness of said front housing wall;

- wherein said at least one slit has longitudinal edges that are parallel to one another through a thickness of said front housing wall; or

- wherein said at least one slit has longitudinal edges that are parallel to one another through a thickness of said front housing wall, and, wherein said longitudinal edges are angled with respect to a front face of said front housing wall;

- comprising two said slits transversely spaced from one another.

8. . The device according to claim 1, including at least one of the following:

- wherein said EM system is configured for providing laser energy of wavelength of about 1470nm or about 1550nm;

- wherein said EM system is configured for providing laser energy of intensity between 0.01 W/mm2 and 0.1 W/mm2;

- wherein said EM system is configured for providing laser energy of intensity 0.03 W/mm2;

- wherein said EM system is further configured for directing said laser energy toward said front housing wall;

- wherein said EM system is configured for directing said laser energy toward said at least one outlet opening; or

- wherein said EM system comprises at least one optical fiber accommodated in said second chamber for transmitting EM energy along a respective optical axis.

9. The device according to claim 1, wherein the at least one outlet aperture includes a surface tension breaker.

10. The device according to claim 9, wherein said surface tension breaker includes a mechanical stop located just aft of the outlet opening.

11. The device according to claim 10, including at least one of the following:

- wherein said mechanical stop is located just aft of the outlet opening;

- wherein said mechanical stop projects generally towards and into said outlet opening, and further projects outwards in a general direction away from said outlet opening; or

- wherein said mechanical stop comprises a continuous surface between an inside of the outlet opening and an outside of the device.

12. A device for detecting presence of ice in an airstream, the device comprising:

- a housing defining a first chamber;

- the first chamber having at least one inlet opening on a front housing wall facing the airstream, and at least one outlet opening, smaller than the at least one inlet opening;

- the device configured for being operatively coupled to at least one electromagnetic (EM) laser system that is configured for transmitting EM laser energy to said first chamber, said EM laser energy being configured

for melting ice that may accrete on said front wall, especially the at least one inlet opening;

- the device being configured for being operatively coupled to at least one air pressure sensor in fluid communication with said first chamber for detecting at least pressure changes in said first chamber responsive to ice accretion on said at least one inlet opening.

13. A device for detecting presence of ice in an airstream, the device comprising:

a housing defining a first chamber having at least one inlet opening on a front housing wall facing the airstream, and at least one outlet opening, smaller than the at least one inlet opening;

said first chamber being configured for coupling to at least one air pressure sensor to provide fluid communication with said first chamber for detecting at least pressure changes in said first chamber responsive to ice accretion on said at least one inlet opening;

the at least one inlet opening being in the form of at least two slits, the at least two slits being at least partially vertical with respect to facing airstream;

wherein each of the two slits is in the form of a rectangular slit having a length dimension and a width dimension, the length dimension being greater than the width dimension; and

wherein the at least two slits are transversely spaced from one another.

14. The device according to claim 13, including at least one of the following:

- wherein the length dimension is at least partially vertical with respect to facing airstream;
- wherein the length dimension is vertical with respect to facing airstream;
- wherein said length dimension is between 5mm and 15mm;
- wherein said length dimension is about 10mm;

- wherein said width dimension is between 0.15mm and 0.65mm;
- wherein said width dimension is about 0.6mm;
- wherein a ratio of said length dimension to said width dimension is between 7.7 and 100;
- wherein said at least one slit has longitudinal edges that diverge in an aft direction through a thickness of said front housing wall; or
- wherein said at least one slit has longitudinal edges that are parallel to one another through a thickness of said front housing wall, and wherein optionally said longitudinal edges are angled with respect to a front face of said front housing wall.

15. A device for detecting presence of ice in an airstream, the device comprising:

- a housing defining a first chamber having at least one inlet opening on a front housing wall facing the airstream, and at least one outlet opening, smaller than the at least one inlet opening;
- said first chamber being configured for coupling to at least one air pressure sensor to provide fluid communication with said first chamber, for detecting at least pressure changes in said first chamber responsive to ice accretion on said at least one inlet opening;
- wherein the at least one outlet aperture includes a surface tension breaker in the form of a mechanical stop;
- the at least one aperture comprising an outlet edge, and wherein said mechanical stop projects aft of the outlet edge.

16. The device according to claim 15, including at least one of the following:

- wherein said mechanical stop has a generally cylindrical or spherical shape;
- wherein said mechanical stop projects generally towards and into said outlet opening; or

- wherein said mechanical stop comprises a continuous surface between an inside of the outlet opening and an outside of the device.

17. The device according to claim 15, the device being further configured for coupling to at least one electromagnetic (EM) system that is configured for transmitting EM energy to said first chamber, said EM energy being configured for melting ice that can accrete with respect to the at least one inlet opening.