WHAT IS CLAIMED IS:

1. A pressure differential flow meter comprising:
a constriction device,
(A) wherein the constriction device is capable of creating at least a first area of constriction and a second area of constriction;
(i) wherein the first area of constriction has a cross-sectional area that is less than the cross-sectional area of the second area of constriction;
(ii) wherein the pressure differential is within a range when the fluid velocity flowing through the first area of constriction is within a first fluid velocity range; and
(iii) wherein as the fluid velocity through the first area of constriction increases to about the maximum velocity of the first fluid velocity range, the constriction device creates the second area of constriction.

2. The flow meter according to Claim 1, wherein the flow meter further comprises a throat.

3. The flow meter according to Claim 2, wherein the throat is located inside a tubular.

4. The flow meter according to Claim 3, wherein the cross-sectional area of the throat is less than the cross-sectional area of the tubular.

5. The flow meter according to Claim 4, wherein the first and second areas of constriction are created by the constriction device moving axially within the tubular.

6. The flow meter according to Claim 5, wherein the constriction device moves axially closer to the throat to create the first area of constriction.

7. The flow meter according to Claim 5, wherein the constriction device moves axially farther away from the throat to create the second area of constriction.

8. The flow meter according to Claim 1, wherein the constriction device comprise a conical- or pyramidal-shaped section.

9. The flow meter according to Claim 8, wherein the perimeter of the base of the constriction device is capable of increasing and decreasing.

10. The flow meter according to Claim 9, wherein the perimeter of the base of the constriction device increases to create the first area of constriction.

11. The flow meter according to Claim 9, wherein the perimeter of the base of the constriction device decreases to create the second area of constriction.

12. The flow meter according to Claim 1, further comprising a first pressure sensor, wherein the first pressure sensor is positioned upstream of the constriction device.

13. The flow meter according to Claim 1, further comprising a second pressure sensor, wherein the second pressure sensor is positioned adjacent to the area of constriction.

14. The flow meter according to Claim 1, wherein the constriction device is capable of creating three or more areas of constriction.

15. The flow meter according to Claim 14, wherein the constriction device is capable of creating a third area of constriction, and wherein the cross-sectional area of the second area of constriction is less than the cross-sectional area of the third area of constriction.

16. The flow meter according to Claim 15, wherein the constriction device is capable of creating a fourth area of constriction, and wherein the cross-sectional area of the third area of constriction is less than the cross-sectional area of the fourth area of constriction.

17. The flow meter according to Claim 1, further comprising a flow rate computing device.

18. The flow meter according to Claim 17, wherein the flow rate computing device is capable of reporting at least one flow rate of the fluid flowing through the flow meter.

19. The flow meter according to Claim 18, wherein the at least one flow rate of the fluid is the volumetric flow rate or the mass flow rate of the fluid.

20. A pressure differential flow meter comprising:

a constriction device,

(A) wherein the constriction device is capable of creating at least a first area of constriction and a second area of constriction;

(i) wherein the first area of constriction has a cross-sectional area that is less than the cross-sectional area of the second area of constriction;

(ii) wherein the pressure differential is within a range when the fluid velocity flowing through the second area of constriction is within a second fluid velocity range; and

(iii) wherein as the fluid velocity through the second area of constriction decreases to about the minimum velocity of the second fluid velocity range, the constriction device creates the first area of constriction.

21. A method of determining the flow rate of a fluid using pressure differential flow meter comprising:
flowing the fluid through the flow meter, wherein the flow meter comprises:
(A) a constriction device,
(i) wherein the constriction device is capable of creating at least a first area of constriction and a second area of constriction;
(a) wherein the first area of constriction has a cross-sectional area that is less than the cross-sectional area of the second area of constriction;
(b) wherein the pressure differential is within a range when the fluid velocity flowing through the first area of constriction is within a first fluid velocity range and when the fluid velocity flowing through the second area of constriction is within a second fluid velocity range; and
(c) wherein as the fluid velocity through the first area of constriction increases to about the maximum velocity of the first fluid velocity range, the constriction device creates the second area of constriction; and
(d) wherein as the fluid velocity through the second area of constriction decreases to about the minimum velocity of the second fluid velocity range, the

constriction device creates the first area of constriction; and

(B) a flow rate computing device.

WHAT IS CLAIMED IS:

1. A pressure differential flow meter comprising:

a constriction device,

(A) wherein the constriction device is capable of creating at least a first area of constriction and a second area of constriction;

(i) wherein the first area of constriction has a cross-sectional area that is less than the cross-sectional area of the second area of constriction;

(ii) wherein the pressure differential is within a range when the fluid velocity flowing through the first area of constriction is within a first fluid velocity range; and

(iii) wherein as the fluid velocity through the first area of constriction increases to about the maximum velocity of the first fluid velocity range, the constriction device creates the second area of constriction; and

(B) wherein:

the constriction device moves axially closer to the throat to create the first area of constriction or axially farther away from the throat to create the second area of constriction;

the constriction device comprises a conical- or pyramidal-shaped section;

the perimeter of the base of the constriction device is capable of increasing and decreasing; and

the perimeter of the base of the constriction device increases to create the first area of constriction or decreases to create the second area of constriction.

2. The flow meter according to Claim 1, wherein the flow meter further comprises a throat.

3. The flow meter according to Claim 2, wherein the throat is located inside a tubular.

4. The flow meter according to Claim 3, wherein the cross-sectional area of the throat is less than the cross-sectional area of the tubular.

5. The flow meter according to Claim 4, wherein the first and second areas of constriction are created by the constriction device moving axially within the tubular.

6. The flow meter according to Claim 1, further comprising a first pressure sensor, wherein the first pressure sensor is positioned upstream of the constriction device.

7. The flow meter according to Claim 1, further comprising a second pressure sensor, wherein the second pressure sensor is positioned adjacent to the area of constriction.

8. The flow meter according to Claim 1, wherein the constriction device is capable of creating three or more areas of constriction.

9. The flow meter according to Claim 8, wherein the constriction device is capable of creating a third area of

constriction, and wherein the cross-sectional area of the second area of constriction is less than the cross-sectional area of the third area of constriction.

10. The flow meter according to Claim 9, wherein the constriction device is capable of creating a fourth area of constriction, and wherein the cross-sectional area of the third area of constriction is less than the cross-sectional area of the fourth area of constriction.

11. The flow meter according to Claim 1, further comprising a flow rate computing device.

12. The flow meter according to Claim 11, wherein the flow rate computing device is capable of reporting at least one flow rate of the fluid flowing through the flow meter.

13. The flow meter according to Claim 12, wherein the at least one flow rate of the fluid is the volumetric flow rate or the mass flow rate of the fluid.

14. A pressure differential flow meter comprising:

a constriction device,

(A) wherein the constriction device is capable of creating at least a first area of constriction and a second area of constriction;

(i) wherein the first area of constriction has a cross-sectional area that is less than the cross-sectional area of the second area of constriction;

(ii) wherein the pressure differential is within a range when the fluid velocity flowing through the second area of

constriction is within a second fluid velocity range; and

(iii) wherein as the fluid velocity through the second area of constriction decreases to about the minimum velocity of the second fluid velocity range, the constriction device creates the first area of constriction; and

(B) wherein:

the constriction device moves axially closer to the throat to create the first area of constriction or axially farther away from the throat to create the second area of constriction;

the constriction device comprises a conical- or pyramidal-shaped section;

the perimeter of the base of the constriction device is capable of increasing and decreasing; and

the perimeter of the base of the constriction device increases to create the first area of constriction or decreases to create the second area of constriction.

15. A method of determining the flow rate of a fluid using pressure differential flow meter comprising:

flowing the fluid through the flow meter, wherein the flow meter comprises:

(A) a constriction device,

(i) wherein the constriction device is capable of creating at least a first area of constriction and a second area of constriction;

(a) wherein the first area of constriction has a cross-sectional area that is less than the cross-sectional area of the second area of constriction;

(b) wherein the pressure differential is within a range when the fluid velocity flowing through the first area of constriction is within a first fluid velocity range and when the fluid velocity flowing through the second area of constriction is within a second fluid velocity range; and

(c) wherein as the fluid velocity through the first area of constriction increases to about the maximum velocity of the first fluid velocity range, the constriction device creates the second area of constriction; and

(d) wherein as the fluid velocity through the second area of constriction decreases to about the minimum velocity of the second fluid velocity range, the constriction device creates the first area of constriction;

(B) wherein:

the constriction device moves axially closer to the throat to create the first area of constriction or axially farther away from

the throat to create the second area of constriction;

the constriction device comprises a conical- or pyramidal-shaped section;

the perimeter of the base of the constriction device is capable of increasing and decreasing; and

the perimeter of the base of the constriction device increases to create the first area of constriction or decreases to create the second area of constriction; and

(C) a flow rate computing device.