

THE CLAIMS DEFINING THE INVENTION:

1. A fluid injection device comprising:
 - a. a plurality of needles; and
 - b. a hub having a first end portion, a second end portion, a plurality of needle bases at the second end portion, and a directing cone extending from the second end portion with the plurality of needle bases at least partially surrounding the directing cone, the directing cone tapering in a direction away from the first end portion for diverting flow toward the plurality of needle bases, each of said plurality of needles being in fluid communication with a respective one of the plurality of needle bases and projecting from said first end portion of the hub.
2. The device of claim 1, wherein said plurality of needles consists of two needles.
3. The device of claim 1, wherein said plurality of needles consists of three needles.
4. The device of claim 1, wherein said plurality of needles consists of four needles.
5. The device of claim 1, wherein said plurality of needles consists of five needles.
6. The device of claim 1, wherein said plurality of needles consists of six needles.
7. The device of claim 1, wherein said needles consist of hypodermic needles.
8. The device of claim 1, wherein said needles are conical.
9. The device of claim 1, further comprising a base member coupled to the second end portion, wherein the base member is configured to be coupled to tubing having a terminal portion having a female luer lock base.
10. The device of claim 1, wherein said hub includes handles for enabling easier insertion of the needles into an injection port.
11. The device of claim 1, wherein said hub has graded walls surrounding the base of said needles to increase laminar flow.

12. The device of claim 1, wherein said needles are ultra-thin wall needles, wherein the ultra-thin wall needles maintain the same external diameter as standard needles of the same size, but have a larger internal diameter than standard needles of the same size.

13. The device of claim 1, wherein said needles are configured to simultaneously enter an injection port of a tissue expander.

14. A fluid injection device comprising a hub having a first end portion, a second end portion, and a plurality of needle bases formed along said second end portion, said first end portion is configured to receive a plurality of needles to permit the plurality of needles to project from said first end portion of the hub, each of the plurality of needles being in fluid communication with a respective needle base, the hub further comprising a directing surface being angled toward the needle bases, the needle bases being arranged around the directing surface to promote laminar flow of a fluid along the directing surface toward the needle bases.

15. The device of claim 14, wherein the directing surface comprises a directing cone.

16. The device of claim 14, wherein the directing surface comprises a directing wall.

17. The device of claim 14, wherein the plurality of needles are hypodermic needles.

18. The device of claim 1, wherein the plurality of needles are spaced no more than about 5 millimeters apart.

19. The device of claim 1, wherein the hub has a diameter in the range of 0.25 cm to 3 cm in diameter.

20. A multiple injector apparatus comprising a hub, a plurality of needle bases in the hub, a plurality of needles coupled to the hub and in fluid communication with the plurality of needle bases, and a solid-core directing cone extending from the hub and tapering in direction away from the plurality of needle bases for diverting flow toward the plurality of needle bases.

21. The device of Claim 1, the directing cone tapering to a non-frustoconical tip in a direction away from the first end portion for diverting flow toward the plurality of needle bases.

22. The device of Claim 21, further comprising a base component, separate from and couplable to the second end portion of the hub, the base component comprising an inlet configured to receive tubing therein for connecting the device to a fluid source.

23. The device of Claim 22, the non-frustoconical tip extending into a cavity of the base component, upstream of the plurality of needle bases.

24. The device of Claim 22, wherein the non-frustoconical tip is rounded.

25. The device of Claim 14, directing surface having a tapered shape.

26. The device of Claim 15, the directing cone tapering to a non-frustoconical tip in a direction away from the first end portion for diverting flow toward the plurality of needle bases.

27. The device of Claim 26, further comprising a base component, separate from and couplable to the second end portion of the hub, the base component comprising an inlet configured to receive tubing therein for connecting the device to a fluid source.

28. The device of Claim 27, the non-frustoconical tip extending into a cavity of the base component, upstream of the plurality of needle bases.

29. The device of Claim 26, wherein the non-frustoconical tip is rounded.

30. The apparatus of Claim 20, the directing cone tapering to a non-frustoconical tip in a direction away from the plurality of needle bases for diverting flow toward the plurality of needle bases.

31. The apparatus of Claim 30, further comprising a base component, separate from and couplable to a second end portion of the hub, the base component comprising an inlet configured to receive tubing therein for connecting the apparatus to a fluid source.

32. The apparatus of Claim 31, the non-frustoconical tip extending into a cavity of the base component, upstream of the plurality of needle bases.

33. The apparatus of Claim 31, wherein the non-frustoconical tip is rounded.