locations for each penetration are equidistant from the center of the septum which seals the vials. The instrument is provided with five sets of serially numbered needle sets. Each set locates the two needles at an angle of 36 degrees from their location in the previous set. The daily replacement of needle sets uses the set bearing the next higher number, up to set number 5, after which the sequence is repeated.

If, in this example, the centers of nominal needle locations form a circle of radius R, the distance between adjacent nominal locations is

$$d=2R \sin 18°$$

If the two needles are located 0.260 inch apart, R is equal to 0.130 inch. In this case, d equals 0.080 inch. This is sufficient separation between adjacent punctures to avoid septum damage.

What is claimed is:

1. A system for locating a vial comprising
   a. a vial carrier comprising a well,
   b. a vial having a cross sectional shape which permits insertion in said vial carrier, said vial having a body portion, a finish, an opening in said finish and a penetrable septum disposed in said opening,
   c. said septum being penetrated by at least one needle at periodic intervals, and
   d. locating means within said vial carrier for establishing a predetermined location for said vial in relation to said needle, said locating means fixing the location of the vial within the well while placed therein, said locating means including a plurality of contact points and urging means for establishing contact between said contact points and a locating surface, said urging means pressing substantially on one side of said vial, which side is substantially opposite said locating means.

2. A system in accordance with claim 1 wherein said septum is penetrated by a plurality of needles at periodic intervals.

3. A system in accordance with claim 1 wherein said vial carrier is provided by a rotating turntable having a plurality of wells.

4. A system in accordance with claim 1 wherein said body portion of said vial has circular cross sectional shape.

5. A system in accordance with claim 4 wherein said contact points are part of an attachment affixed to said circular body portion of said vial.

6. A system in accordance with claim 4 wherein said contact points are located on a non-circular sleeve.

7. A system in accordance with claim 6 wherein said sleeve is attached to said vial.

8. A system in accordance with claim 6 wherein said sleeve is friction fit to said vial.

9. A system in accordance with claim 1 wherein said body portion of said vial has non-circular cross sectional shape.

10. A system in accordance with claim 9 wherein said non-circular shape is substantially that of a polygon.

11. A system in accordance with claim 10 wherein said polygon is a triangle.

12. A system in accordance with claim 11 wherein said triangle is equilateral.

13. A system in accordance with claim 11 wherein said triangle is isosceles.

14. A system in accordance with claim 10 wherein said polygon is a quadrilateral.

15. A system in accordance with claim 14 wherein said quadrilateral is an isosceles trapezoid.

16. A system in accordance with claim 1 wherein said finish is circular.

17. A system in accordance with claim 1 wherein said finish is made non-circular.

18. A system in accordance with claim 17 wherein said locating surface is positioned on said non-circular vial finish.

19. A system in accordance with claim 17 wherein said septum is restrained in said opening with a screw cap having a non-circular exterior.

20. A system in accordance with claim 17 wherein said septum is restrained by friction-fitting a non-circular object over said non-circular vial finish.

21. A system in accordance with claim 1 wherein said body portion of said vial and said finish of said vial have different cross sectional shapes.

22. A system in accordance with claim 1 wherein said locating surface is a wall of said well of said vial carrier.

23. A system in accordance with claim 1 wherein said locating surface is a wall of said body portion of said vial.

24. A system in accordance with claim 23 wherein said contact points are attached to said wall.

25. A system in accordance with claim 1 wherein said contact points are a plurality of bosses.

26. A system in accordance with claim 1 wherein said urging means is affixed to said vial carrier.

27. A system in accordance with claim 26 wherein said urging means is a spring.

28. A system in accordance with claim 26 wherein said urging means is elastomeric.

29. A system in accordance with claim 1 wherein said septum is restrained in said opening with a crimped metal seal.

30. A system in accordance with claim 1 wherein said needle is positioned with needle guides.

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