What is claimed is:

1. A centrifuge bowl for separating whole blood into blood components comprising:

a rotatable body having a body portion and a neck portion, the body portion defining an interior for receiving whole blood, the body being rotatable to separate the whole blood into a plurality of blood components;

an inlet in fluid communication with the interior of the rotatable body, the inlet configured to introduce the whole blood into the rotatable body; and

a plurality of vibration reduction members spaced about the neck portion, the vibration reduction members configured to reduce vibration of the centrifuge bowl as the bowl is rotated.

2. A centrifuge bowl according to claim 1, wherein the plurality of vibration reduction members are radially spaced about the neck portion.

3. A centrifuge bowl according to claim 1, wherein the plurality of vibration reduction members are rib members.

4. A centrifuge bowl according to claim 3, wherein the rib members are curved.

5. A centrifuge bowl according to claim 3, wherein the rib members are straight.

6. A centrifuge bowl according to claim 1 further comprising an outlet, the outlet in fluid communication with the interior of the bowl and configured to remove one or more of the blood components from the centrifuge bowl.

7. A centrifuge bowl according to claim 1 further comprising a rotary seal attached to the rotatable body, the rotary seal fluidly coupling the inlet to the body portion.

8. A centrifuge bowl according to claim 1 further comprising a core, the core being coaxial with the interior and creating a whole blood separation region between an outer wall of the core and an inner wall of the rotatable body.

9. A centrifuge bowl according to claim 1 further comprising a shoulder portion extending between the neck portion and the body portion, the vibration reduction members extending from the neck portion to the shoulder portion.

10. A centrifuge bowl according to claim 1, wherein the rotatable body is frustoconical.

11. A blood processing system for separating whole blood into blood components comprising:

a venous access device for drawing whole blood from a subject;

a blood component separation device for separating whole blood into a plurality of components, the blood component separation device including a centrifuge bowl having a body portion and a neck portion, the body portion defining an interior for receiving the whole blood, the body being rotatable to separate the whole blood into the plurality of blood component, the neck portion having a plurality of vibration reduction members configured to reduce vibration of the centrifuge bowl as the bowl is rotated, the centrifuge bowl having an inlet in fluid communication with the interior;

means for extracting at least one blood component from the separation device;

at least one storage container for storing the at least one blood component extracted from the blood component separation device; and

means for returning remaining blood components to the subject.

12. A blood processing system according to claim 11, wherein the plurality of vibration reduction members are radially spaced about the neck portion.

13. A blood processing system according to claim 11, wherein the plurality of vibration reduction members are rib members.

14. A blood processing system according to claim 13, wherein the rib members are curved.

15. A blood processing system according to claim 13, wherein the rib members are straight.

16. A blood processing system according to claim 11, wherein the blood component separation device further includes an outlet, the outlet in fluid communication with the interior of the bowl and configured to remove one or more of the blood components from the centrifuge bowl.

17. A blood processing system according to claim 11 wherein the blood component separation device further includes a rotary seal attached to the rotatable body, the rotary seal fluidly coupling the inlet to the body portion.

18. A blood processing system according to claim 11 wherein the blood component separation device further includes a core, the core being coaxial with the interior and creating a whole blood separation region between an outer wall of the core and an inner wall of the rotatable body.

19. A blood processing system according to claim 11 further comprising a shoulder portion extending between the neck portion and the body portion the vibration reduction members extending from the neck portion to the shoulder portion.

20. A blood processing system according to claim 11, wherein the centrifuge bowl is frustoconical.

21. A centrifuge bowl for separating whole blood into blood components comprising:

a rotatable body having a body portion and a neck portion, the body portion defining an interior for receiving whole blood, the body being rotatable to separate the whole blood into a plurality of blood components, the body portion also having a shoulder portion extending between the body portion and the neck portion;

an inlet in fluid communication with the interior of the rotatable body, the inlet configured to introduce the whole blood into the rotatable body; and

at least one vibration reduction member located on the shoulder portion and configured to stiffen at least a portion of the rotatable body and reduce vibration of the centrifuge bowl as the bowl is rotated.

22. A centrifuge bowl according to claim 21 wherein the at least one vibration reduction member includes a plurality of rib members.

23. A centrifuge bowl according to claim 22, wherein the rib members are curved.

24. A centrifuge bowl according to claim 22, wherein the rib members are straight.

25. A centrifuge bowl according to claim 22, wherein the at least one vibration reduction member includes a thickened area located on the shoulder portion.

26. A centrifuge bowl according to claim 25, wherein the thickened area increases in thickness towards an axis of rotation of the bowl.

27. A centrifuge bowl according to claim 26, wherein the increase in thickness is stepped.

28. A centrifuge bowl according to claim 21, wherein the rotatable body is frustoconical.

Claims

1. A centrifuge bowl for separating whole blood into blood components comprising:

a rotatable body having a body portion and a neck portion, the body portion defining an interior for receiving whole blood, the body being rotatable to separate the whole blood into a plurality of blood components;

an inlet in fluid communication with the interior of the rotatable body, the inlet configured to introduce the whole blood into the rotatable body; and

a plurality of vibration reduction members spaced about the neck portion, the vibration reduction members configured to strengthen the rigidity of the neck portion and reduce vibration of the centrifuge bowl as the bowl is rotated.

2. A centrifuge bowl according to claim 1, wherein the plurality of vibration reduction members are radially spaced about the neck portion.

3. A centrifuge bowl according to claim 1, wherein the plurality of vibration reduction members are rib members.

4. A centrifuge bowl according to claim 3, wherein the rib members are curved.

5. A centrifuge bowl according to claim 3, wherein the rib members are straight.

6. A centrifuge bowl according to claim 1 further comprising an outlet, the outlet in fluid communication with the interior of the bowl and configured to remove one or more of the blood components from the centrifuge bowl.

7. A centrifuge bowl according to claim 1 further comprising a rotary seal attached to the rotatable body, the rotary seal fluidly coupling the inlet to the body portion.

8. A centrifuge bowl according to claim 1 further comprising a core, the core being coaxial with the interior and creating a whole blood separation region between an outer wall of the core and an inner wall of the rotatable body.

9. A centrifuge bowl according to claim 1 further comprising a shoulder portion extending between the neck portion and the body portion, the vibration reduction members extending from the neck portion to the shoulder portion.

10. A centrifuge bowl according to claim 1, wherein the rotatable body is frustoconical.

11. A blood processing system for separating whole blood into blood components comprising:

a venous access device for drawing whole blood from a subject;

a blood component separation device for separating whole blood into a plurality of components, the blood component separation device including a centrifuge bowl having a body portion and a neck portion, the body portion defining an interior for receiving the whole blood, the body being rotatable to separate the whole blood into the plurality of blood components, the neck portion having a plurality of vibration reduction members configured to strengthen the rigidity of the neck portion and reduce vibration of the centrifuge bowl as the bowl is rotated, the centrifuge bowl having an inlet in fluid communication with the interior;

means for extracting at least one blood component from the separation device;

at least one storage container for storing the at least one blood component extracted from the blood component separation device; and

means for returning remaining blood components to the subject.

12. A blood processing system according to claim 11, wherein the plurality of vibration reduction members are radially spaced about the neck portion.

13. A blood processing system according to claim 11, wherein the plurality of vibration reduction members are rib members.

14. A blood processing system according to claim 13, wherein the rib members are curved.

15. A blood processing system according to claim 13, wherein the rib members are straight.

16. A blood processing system according to claim 11, wherein the blood component separation device further includes an outlet, the outlet in fluid communication with the interior of the bowl and configured to remove one or more of the blood components from the centrifuge bowl.

17. A blood processing system according to claim 11 wherein the blood component separation device further includes a rotary seal attached to the rotatable body, the rotary seal fluidly coupling the inlet to the body portion.

18. A blood processing system according to claim 11 wherein the blood component separation device further includes a core, the core being coaxial with the interior and creating a whole blood separation region between an outer wall of the core and an inner wall of the rotatable body.

19. A blood processing system according to claim 11 further comprising a shoulder portion extending between the neck portion and the body portion the vibration reduction members extending from the neck portion to the shoulder portion.

20. A blood processing system according to claim 11, wherein the centrifuge bowl is frustoconical.

21. A centrifuge bowl for separating whole blood into blood components comprising:

a rotatable body having a body portion and a neck portion, the body portion defining an interior for receiving whole blood, the body being rotatable to separate the whole blood into a plurality of blood components, the body portion also having a shoulder portion extending between the body portion and the neck portion;

an inlet in fluid communication with the interior of the rotatable body, the inlet configured to introduce the whole blood into the rotatable body; and

at least one vibration reduction member located on the shoulder portion and configured to stiffen at least a portion of the rotatable body and reduce vibration of the centrifuge bowl as the bowl is rotated.

22. A centrifuge bowl according to claim 21 wherein the at least one vibration reduction member includes a plurality of rib members.

23. A centrifuge bowl according to claim 22, wherein the rib members are curved.

24. A centrifuge bowl according to claim 22, wherein the rib members are straight.

25. A centrifuge bowl according to claim 22, wherein the at least one vibration reduction member includes a thickened area located on the shoulder portion.

26. A centrifuge bowl according to claim 25, wherein the thickened area increases in thickness towards an axis of rotation of the bowl.

27. A centrifuge bowl according to claim 26, wherein the increase in thickness is stepped.

28. A centrifuge bowl according to claim 21, wherein the rotatable body is frustoconical.

29. A centrifuge bowl according to claim 21, wherein the at least one vibration reduction member increases the natural vibration frequency of the rotatable body, thereby reducing vibration of the centrifuge bowl as the bowl is rotated.

30. A centrifuge bowl according to claim 1, wherein the plurality of vibration reduction members increase the natural vibration frequency of the neck portion, thereby reducing vibration of the centrifuge bowl as the bowl is rotated.

31. A centrifuge bowl according to claim 11, wherein the plurality of vibration reduction members increase the natural vibration frequency of the neck portion, thereby reducing vibration of the centrifuge bowl as the bowl is rotated.