

WHAT IS CLAIMED IS:

- 1 A removable spindle assembly for a blender comprising:
a quick release coupler;
a container cover;
a spring; and,
a tube affixed to a cogged coupler at its upper end and a blending tool at its lower end;
wherein said quick release coupler, spring and container cover are held concentrically around said tube and between said cogged coupler and said blending tool.
2. The removable spindle assembly of claim 1 wherein said blending tool includes rotating cutting blades.
3. The removable spindle assembly of claim 1 wherein said blending tool includes rotating cutting blades with one or more radially extendable cutting blades.
4. The removable spindle assembly of claim 1 further comprising a cup cover support at the lower end of said tube.
5. The removable spindle assembly of claim 1 wherein said spring is interposed between and presses against both said quick release coupler and said container cover.
6. The removable spindle assembly of claim 1 wherein said spindle assembly can be disconnected from a blender by manually turning said quick release coupler and pulling it away.
7. A blending assembly comprising:
a spindle motor;
an inner spindle drive shaft permanently coupled to said spindle motor;
a spindle support to secure said spindle motor and inner spindle drive shaft in a blender; and,
a spindle assembly removably attached to said spindle support comprising a quick release coupler, a container cover, a spring and a tube affixed to a cogged coupler at its upper end and a blending tool at its lower end, wherein said quick release coupler, spring and container

cover are held concentrically around said tube and between said cogged coupler and said blending tool.

8. The blending assembly of claim 7 wherein said inner spindle drive shaft is concentrically inserted into said tube when said spindle assembly is attached to said spindle support.

9. The blending assembly of claim 7 further comprising a cogged coupler affixed to said inner spindle drive shaft which connects to the cogged coupler affixed to said tube to cause said tube to turn in unison with said inner spindle drive shaft.

10. The blending assembly of claim 9 wherein said cogged couplers have teeth which mesh together when said cogged couplers are connected.

11. The blending assembly of claim 7 wherein said blending tool includes rotating cutting blades with radially extendable cutters.

12. The blending assembly of claim 7 wherein said spindle assembly can be disconnected from said spindle support by manually turning said quick release coupler and pulling it away.

13. The blending assembly of claim 7 wherein said spring is interposed between and presses against said quick release coupler and said container cover.

14. A blender for blending food or beverage in a cup comprising:
a spindle motor connected to a removable spindle assembly;
an elevator motor connected to a cupholder holding a cup with food or beverage;
and,
a fluid reservoir;
wherein said food or beverage within said cup can be blended when said elevator motor lifts said cupholder to the point where said food or beverage comes into contact with a blending tool on said spindle assembly and the spindle motor turns said blending tool while fluid is added to the cup from said reservoir.

15. The blender of claim 14 wherein said removable spindle assembly comprises a quick release coupler, a container cover, a spring and a tube affixed to a cogged

coupler at its upper end and a blending tool at its lower end, wherein said quick release coupler, spring and container cover are held concentrically around said tube and between said cogged coupler and said blending tool.

16. The blender of claim 14 wherein said spindle motor, elevator motor and fluid reservoir are contained in a blender housing.

17. The blender of claim 16 further comprising a pivotable cover attached to said blender housing to prevent operator contact with the spindle assembly when the spindle motor is operating and allow operator contact with the spindle assembly when the spindle motor is not operating.

18. The blender of claim 17 wherein said pivotable cover pivots to a downward position when the spindle motor is operating and pivots to an upward position when the spindle motor is not operating.

19. The blender of claim 14 further comprising a microprocessor.

20. The blender of claim 19 further comprising a control panel in operative engagement with said microprocessor.

21. The blender of claim 14 further comprising a level sensor in said reservoir to determine when the reservoir needs to be replenished with fluid.

22. The blender of claim 21 wherein said level sensor is a float sensor.

23. The blender of claim 21 wherein a visual or audible alert is made when the level sensor detects that the level of fluid in the reservoir is too low.

24. The blender of claim 14 further comprising an inner spindle drive shaft permanently coupled to said spindle motor and tube in said removable spindle assembly which are operatively coupled together through cogged couplers.

25. A method for blending food or beverage in a cup comprising the steps of:
selecting a blender with a spindle motor connected to a removable spindle assembly having a blending tool, an elevator motor connected to a cupholder and a fluid reservoir;

placing a cup with food or beverage into said cupholder;
activating said elevator motor to lift said cupholder until the food or beverage in said cup comes into contact with said spindle assembly blending tool;
activating said spindle motor to turn said spindle assembly blending tool while adding fluid from said reservoir until the food or beverage in said cup are blended.

26. The method of claim 25 further comprising the step of detaching the removable spindle assembly from the blender for cleaning after the food or beverage have been blended.

27. The method of claim 25 wherein the elevator motor and spindle motor of said blender can be activated by the user pressing a start button on a control panel.

28. The method of claim 27 wherein pressing said start button will not activate the elevator motor or spindle motor until a microprocessor has determined that the blender can be safely operated.

29. The blender of claim 14 further comprising a pump connected to said fluid reservoir to move fluid between said reservoir and said cup.

30. The blender of claim 14 wherein said food or beverage is a frozen food or beverage.

31. The blender of claim 14 wherein said cup and cupholder have connecting anti-rotational mechanisms to prevent them from rotating with respect to one another during the blending process.

32. The blending assembly of claim 7 further comprising a socket fitting within said tube having a flexible socket connecting to said inner spindle drive shaft.

33. The blender of claim 14 wherein said liquid reservoir is removable from said blender.

34. The blender of claim 33 wherein said removable liquid reservoir is connected to a water coupler with check valve when it is attached to said blender.

35. The blender of claim 33 wherein water from a municipal water supply through a permanently plumbed water line automatically fills said reservoir.

36. The blender of claim 35 further comprising a float valve in said removable reservoir to shut off the flow of water from said municipal water supply when the liquid in said reservoir has reached a pre-determined height.