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(12) **United States Patent**
Dolecek et al.

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(54) **CENTRIFUGE SYSTEM UTILIZING DISPOSABLE COMPONENTS AND AUTOMATED PROCESSING OF BLOOD TO COLLECT PLATELET RICH PLASMA**

(58) **Field of Classification Search** 210/85, 210/91, 96.1, 141, 143, 145, 360.1, 512.1; 494/1, 10, 11, 43; 604/4.01, 5.01, 65, 67
See application file for complete search history.

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Primary Examiner—Joseph Drodge

(74) *Attorney, Agent, or Firm*—Mike Jaro; Jeffrey J. Hohenshell

(57) **ABSTRACT**

A centrifugal method, and corresponding system, for processing blood to collect platelet rich plasma. A separation chamber is filled with blood from a fill syringe by rotating the separation chamber at a fill rotation rate and pumping the blood from the fill syringe. A soft spin is used to initially separate red blood cells from platelets by spinning the separation chamber at a soft spin rate. A percentage of the blood is drawn from the separation chamber back into the fill syringe to remove separated red blood cells. A second portion of the separated blood is drawn from the separation chamber until a red blood cell/platelet interface is detected. A hard spin is performed by spinning the separation chamber at a higher rate and connecting tubing is cleared of red blood cells by drawing a predetermined clearing volume. The platelet rich plasma is then collected in the collection syringe.

15 Claims, 16 Drawing Sheets

(75) Inventors: **Victor D. Dolecek**, Englewood, CO (US); **Gary L. Berg**, Edina, MN (US); **Kenneth E. Merte**, Maple Grove, MN (US); **David Malcolm**, Parker, CO (US); **Kevin D. McIntosh**, Brooklyn Park, MN (US); **Vitaly G. Sitko**, Medina, MN (US)

(73) Assignee: **Medtronic, Inc.**, Minneapolis, MN (US)

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Related U.S. Application Data

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(51) **Int. Cl.**
C02F 1/38 (2006.01)

(52) **U.S. Cl.** **210/96.1; 210/512.1; 494/1; 494/10; 494/11; 494/43**

