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Paper 18
Date: August 24, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NANOCELLECT BIOMEDICAL, INC.,
Petitioner,

v.

CYTONOME/ST, LLC,
Patent Owner.

IPR2020-00549
Patent 10,029,263 B2

Before LYNNE H. BROWNE, JO-ANNE M. KOKOSKI, and JAMES A. WORTH, *Administrative Patent Judges.*

BROWNE, *Administrative Patent Judge*.

DECISION
Denying Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4

I. INTRODUCTION

A. Background and Summary

On February 11, 2020, Nanocellect Biomedical, Inc. ("Petitioner") filed a Petition requesting *inter partes* review of claims 1, 5–6, 8, and 15–16 of U.S. Patent No. 10,029,263 B2 (Ex. 1001, "the '263 patent"). Paper 2 ("Pet."). On June 1, 2020, Cytonome/ST, LLC ("Patent Owner") filed a

Preliminary Response. Paper 8 ("Prelim. Resp."). With authorization, on June 19, 2020, Petitioner filed a Preliminary Reply (Paper 9, "Prelim. Reply") and on June 26, 2020, Patent Owner filed a Preliminary Sur-Reply (Paper 10, "Prelim. Sur-Reply"). Also with authorization, on July 17, 2020, Petitioner filed Preliminary Supplemental Briefing (Paper 14, "Prelim. Supp. Br.") and on July 22, 2202, Patent Owner to filed a Response to Petitioner's Preliminary Supplemental Briefing (Paper 14, "Prelim. Supp. Resp.").

Having considered the arguments and evidence of record, for the reasons explained below, we deny institution of *inter partes* review.

B. Real Parties in Interest

Petitioner indicates that it is the real-party-in-interest. Pet. 2. Patent Owner indicates that it and Inguran, LLC are the real-parties-in-interest. Paper. 4, 2.

C. Related Matters

The parties identify the following matters related to the '263 patent:

Cytonome/ST, LLC v. NanoCellect Biomedical, Inc., No. 1:19-cv-00301-UNA (D. Del.) (the "parallel proceeding);

Inter partes review of US 6,877,528 B2 (IPR2020-00545);

Inter partes review of US 8,623,295 B2 (IPR2020-00548);

Inter partes review of US 9,011,797 B2 (IPR2020-00550);

Inter partes review of US 9,339,850 B2 (IPR2020-00546);

Inter partes review of US 10,029,283 B2 (IPR2020-00547); and

Inter partes review of US 10,065,188 B2 (IPR2020-00551).

Pet. 3; Paper 4, 1–2.

D. The '263 Patent

The '263 patent relates to "a method and apparatus for the sorting of particles in a suspension, where the input flow path of a sorting module can

be split into several output channels." Ex. 1001, 1:26–29. Figure 1, reproduced below, shows the sorting apparatus.

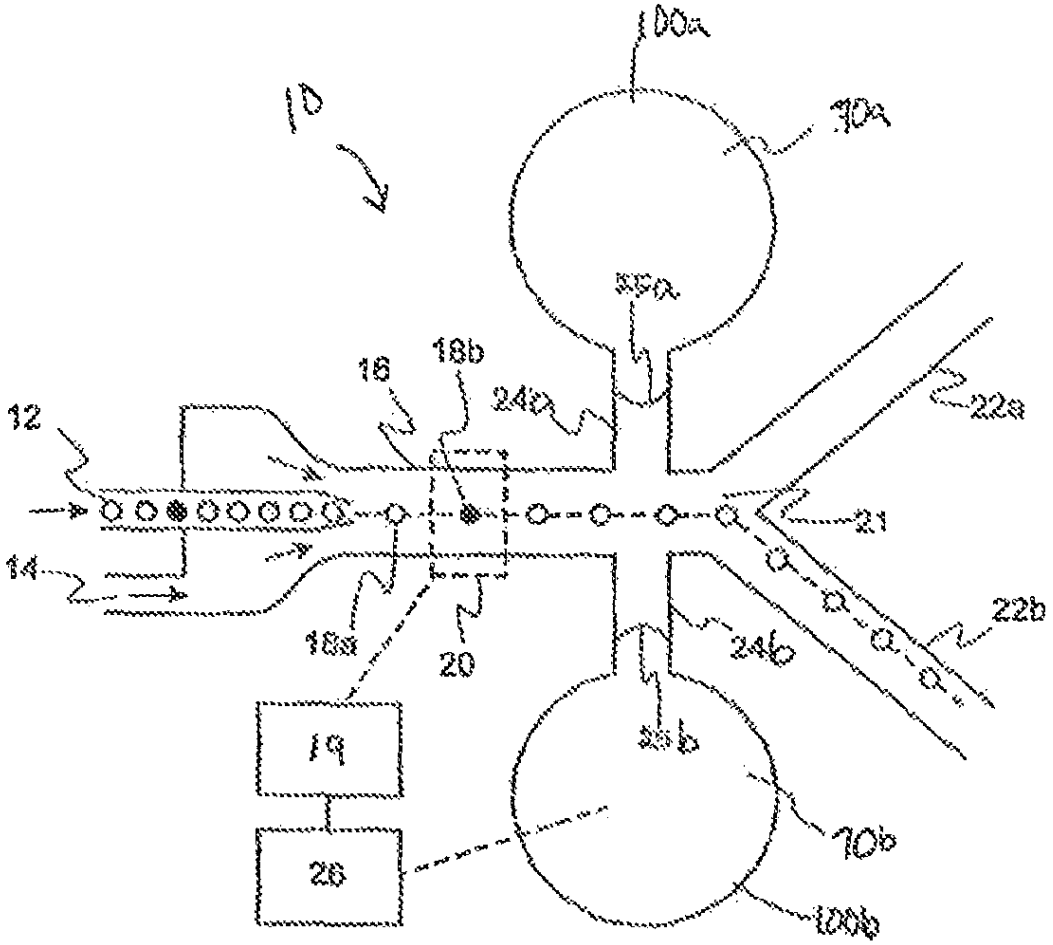

FIG. 1

Figure 1 is "a schematic view of a particle sorting system [10] according to an illustrative embodiment of the invention." *Id.* at 7:20–21. As shown in Figure 1, "particle sorting system 10 comprises a closed channel system of capillary size for sorting particles" including first supply duct 12 for introducing stream of particles 18 and second supply duct 14 for supplying carrier liquid. *Id.* at 7:59–63. First supply duct 12 forms nozzle 12a and along with second supply duct 14 is in fluid communication with

measurement duct 16. *Id.* at 7:64–66. Measurement duct 16 branches into first branch channel 22a and second branch channel 22b at branch point 21. *Id.* at 7:67–8:3. Measurement duct 16 includes measurement region 20 that is associated with detector 19. *Id.* at 8:3–6. System 10 also includes two opposed bubble valves 100a and 100b positioned relative to measurement duct 16 in fluid communication therewith via opposed side passages 24a and 24b. *Id.* at 8:6–11. Each bubble valve has a reservoir. *Id.* at 8:14. Actuator 26 actuates either bubble valve to cause flow disturbance in measurement duct 16 to deflect flow therein. *Id.* at 8:15–20. Side passage 24b is hydraulically connected to compression chamber 70b in bubble valve 100b, and side passage 24a is hydraulically connected to buffer chamber 70a in bubble valve 100a. *Id.* at 8:21–22, 26–28. System 10 also includes switch 40 (not shown in Figure 1). *Id.* at 10:18–19.

In operation, side passage 24b cooperates with side passage 24a to direct flow disturbance caused by pressurization of compression chamber 70b such that flow displacement has a component perpendicular to normal flow of stream of particles 18 through measurement duct 16. Ex. 1001, 8:29–34. Resiliency of side passage 24a results upon pressurized discharge, in a transient flow of liquid in measurement duct 16 into side passage 24a. *Id.* at 8:37–39. Cooperation of side passages 24a and 24b and the fluidic structures they interconnect causes flow through measurement duct 16 to be transiently moved sideways back and forth upon pressurizing and depressurizing compression chamber 70b induced by actuator 26 in response to a signal raised by detector 19. *Id.* at 8:40–45.

E. Illustrative Claim

Petitioner challenges claims 1, 5–6, 8, and 15–16 of the '263 patent. Pet. 1. Claims 1 and 15 are independent. Claim 1, reproduced below, is illustrative of the claimed subject matter.

> *1.* A microfluidic system for sorting particles, the microfluidic system comprising:
>
> a first microfluidic flow channel formed in a particle processing component substrate having an upstream inlet configured to introduce a fluidic stream having a plurality of particles into the first microfluidic flow channel and downstream outlets configured to output portions of the fluidic stream of particles;
>
> a detection region located downstream of the inlet, the detection region configured to allow a particle having a predetermined characteristic to be sensed, the sensed particle being one of the plurality of particles in the fluidic stream; and
>
> a switching device located downstream of the detection region, the switching device operatively coupled to the first microfluidic flow channel to deliver a transient pressure pulse in a direction substantially perpendicular to a flow direction of the fluidic stream of particles,
>
> wherein the transient pressure pulse displaces and separates a selected single sensed particle from the fluidic stream of particles,
>
> wherein the selected particle is displaced and separated from the fluidic stream of particles in a switching region,
>
> wherein the fluidic stream of unselected particles flows into a first downstream outlet configured to output a first portion of the fluidic stream of particles,
>
> wherein the transient pressure pulse is not generated downstream of the switching region,
>
> wherein the switching device, when activated, does not block or partially block flow of the fluidic stream of particles, and

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