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(54) Title: OPTIMIZED INDUSTRIAL BIOREACTOR AND METHOD THEREOF, WITH MUTUALLY DEPENDENT, COU-
PLED PROCESS CONTROL LOOPS

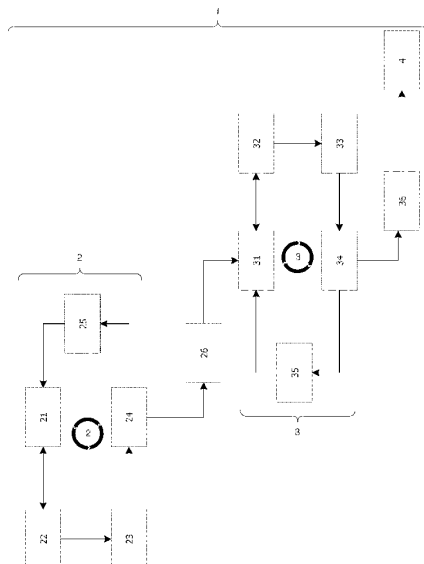


Fig. 7

(57) Abstract: The invention relates to an industrial bioreactor (1) with a dual cycle-controlled optimization process providing an optimized cultivation process (21) for cell cultures (5/51), cell components (5/512) or metabolic products (5/52) of the cells in a nutrient medium (11). The bioreactor comprises a reactor vessel (12) providing controlled bioreactor conditions for the cultivation process (21), a control unit (13) connected to sensory devices (14) measuring sensory parameter (141) values comprising at least measures related to the composition (1411) of the nutrient medium (11) and/or concentration (1412) of the nutrient medium (11) and/or oxygen (1413) and/or temperature (1414) and/or pH-value (1415) and/or sterility (1416), and transmitting them to the control unit (13). The control unit (13) controls and automatically optimizes the operational parameter of the cultivation process (21) and operational parameters of a treatment process (31) applied to the cells during the cultivation process (21) by adjusting operational parameters of the bioreactor (1) affecting the measured sensory parameter (141) values.

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