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(54) Title: SHELTERED OUTDOOR FARMING SYSTEM FOR FOOD CROPS

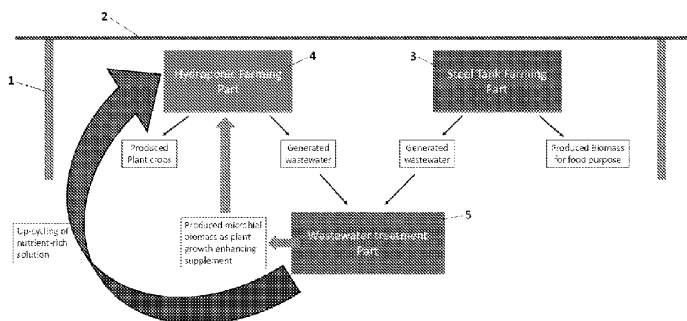


Fig 1

(57) Abstract: A solution for a versatile, water-efficient, high-productivity and sustainable farming system is described. The farming system consists of (i) steel tank farming component, (ii) hydroponic farming component and (iii) wastewater treatment component. The steel tank farming component (i) comprises the different sizes of steel tanks, heater, cooler, air compressor, liquid pumps, cleaning in place, sterilization, stirring engine and harvesting units. The hydroponic component (ii) comprises growing plant carrying system (e.g. growing racks), liquid pumps, LED lightings, water reservoir units and water chillers. The wastewater treatment component (iii) comprises of microorganism cultivation in a photo-bioreactor, liquid clarification, disinfection and filtration process. The mentioned farming system is sheltered and powered up by arranged solar panels forming a ceiling which protects growing crops against certain environmental factors. Wastewater from both farming components, (i) and (ii), is used for up-cycling to the hydroponic farming component after treatment to replace natural water-loss forming a circular economy.

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