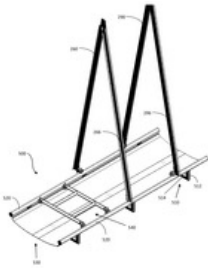
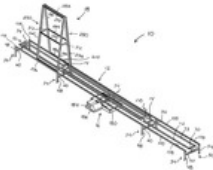
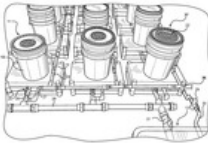
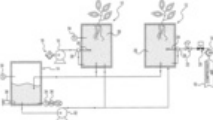
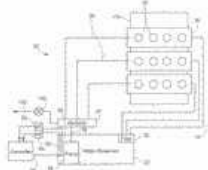
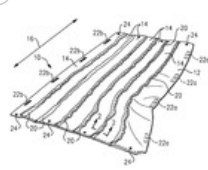
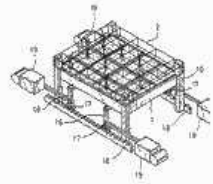
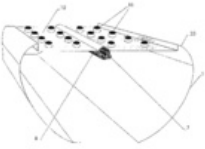
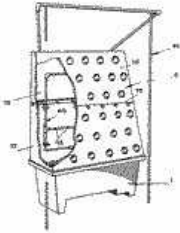
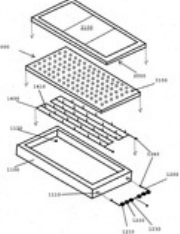
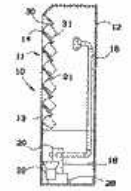
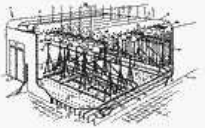
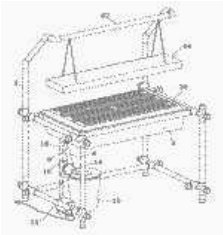
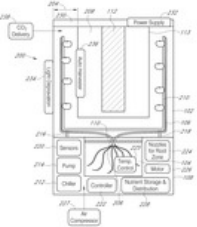
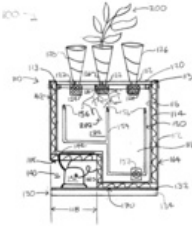
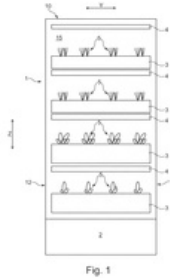
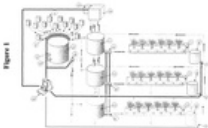
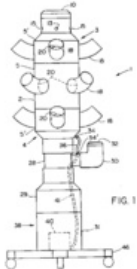
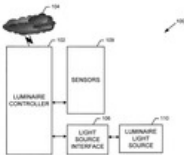
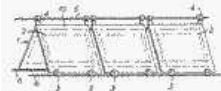
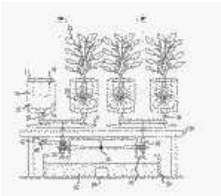
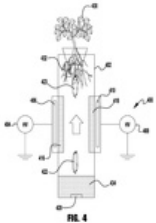
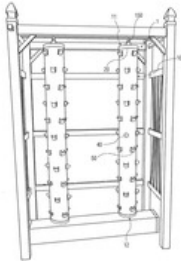
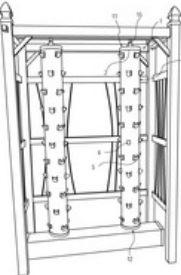


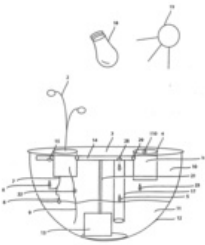
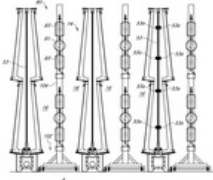
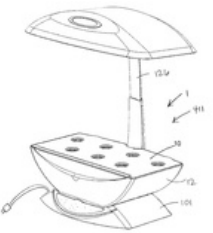
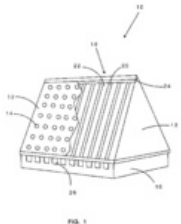
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#	 Title	Publication number	1st app. date	Applicant/Assignee	
1.	Controlled environment and method	CA2875693	2013-06-10	LIVING GREENS FARM* LIVING GREENS FARM LIVING GREENS FARM	100 %
An illustrative embodiment of an irrigation system may include a carriage that may move along a predetermined path in a reciprocal manner. The carriage may support one or more exit ports that may be fed nutrient supply by a pressurized delivery arrangement. One or more plant stands may be configured and arranged to straddle the carriage as it moves along the predetermined path. The one or more plant stands may form a chamber into which plant roots may extend, and into which the one or more exit ports may discharge their nutrient supply. The one or more plant stands may include side panels and a cap to reduce infiltration of light and contaminants and to enhance the plant root/nutrient supply interface and absorption rates. The carriage and/or the plant stand(s) may include friction reducing elements that facilitate transverse movement. The carriage and/or the plant stand(s) may be supported by framework.					
					
2.	Irrigation system	WO2013184224	2013-03-15	LIVING GREENS FARM*	100 %
An irrigation system that includes a carriage may move along a predetermined path in a reciprocal manner. The carriage supports one or more exit ports that are fed plant growth material by a pressurized delivery arrangement. One or more plant stands are configured and arranged to straddle the carriage as it moves along the predetermined path. The one or more plant stands form a chamber into which plant roots may extend, and into which the one or more exit ports are able to discharge their plant growth material. The one or more plant stands may include side panels and a cap to reduce infiltration of light and contaminants, and to enhance the plant root - plant growth material interface and absorption rates. The carriage and/or the plant stand(s) may include friction reducing elements that facilitate transverse movement. The carriage and/or the plant stand(s) may be supported by a modular framework.					
					
3.	Aeroponic system and sprayer device for improved plant growth and aeration	US20120005957	2011-06-27	DOWNS SR THOMAS J	99 %
An aeroponic growing system, double T-shaped sprayer design and method for cultivating larger plant crops and increasing harvest frequency. The system comprises a series of aeroponic growing units, each of which supports a plant's roots within an enclosure. The enclosure houses a sprayer, an interior volume of plant nutrient solution and a plumbing system for accepting and distributing the aqueous water-nutrient solution. The internal sprayer is a double T-shaped mister that sprays an atomized mist directed from a first set of nozzles onto the plant roots, along with a second set of nozzles directed toward the base of the enclosure to aerate the interior volume of plant nutrient solution. The T-shaped mister provides circumferential coverage of the plant roots, while the aeration of the plant nutrient solution provides an aerated solution that accelerates plant growth through a hybrid process of Nutrient Film Technique (NFT) called a Hyperactive Aeroponic Shallow Water Culture (HAS Culture). Several interconnected aeroponic growing units may be stationed in a parallel grid to provide ample space for rapid growth of crops, while supplying the water and nutrient solution through a network of pipes and tubes between units.					
					
4.	Aeroponic growing apparatus and method	US20110023359	2010-07-12	RARING DAVID	99 %
Apparatus and method for improving aeroponic horticulture growing efficiency by delivering air and atomized liquid nutrient to plant roots in a manner that preserves and encourages root hair growth. The disclosed aeroponic system includes a nozzle for varying the particle size distribution and flow rate of an atomized liquid nutrient. In one embodiment, a significant portion of the atomized liquid droplets are less than 30 microns in size.					
					
5.	Aeroponic plant growing system	US20100218423	2009-02-27	WALHOVD ZACK ALLEN	99 %
An aeroponic plant growing system includes a water reservoir and growing chambers for growing plants in an aeroponic environment. A pump, a water distribution manifold, and water lines are used to provide water and nutrients from the water reservoir to sprayers in the growing chambers where the water and nutrients are sprayed on the roots of plants growing therein. The water distribution manifold and water lines preferably are provided as closed loop systems, such that water is provided to all sprayers despite a blockage in the manifold or a water line. Non-absorbed water and nutrients are returned to the water reservoir from the growing chambers on water return lines via a filter that includes multiple types of filter media, including filter media that support the colonization of organisms that support plant growth.					
					
6.	Method and apparatus for aeroponic farming	CA2518789	2005-09-12	GREAT VEGGIES JUST GREENS*	99 %
A system and method of aeroponic farming includes depositing seeds in a flat containing micro-fleece cloth and placing the flat within a growth chamber. The upper side of the flat is subjected to light of the proper frequencies to promote growth in plants. A nutrient solution is sprayed onto the micro-fleece cloth and the developing root mass of the plants, while controlling temperature, humidity, and carbon dioxide within the growth chamber. The plants are harvested resulting from the seeds at a desired stage of growth. The growth chambers can be stacked on each other and/or located side by side to save space within a facility, and to permit sharing the subsystems which control the nutrient solution, temperature, humidity, and carbon dioxide for the growth chambers.					
					
7.	Aeroponic apparatus	US4813176	1988-01-25	TAKAYASU MASAKATSU	99 %
An aeroponic apparatus in which holding frames which directly hold the plants without flowerpots are mounted on a cultivation tank containing water or culture liquid and the plants are easily moved in the air, water or culture liquid by controlling the amount of water or culture liquid in the cultivation tank or the space between holding frames and the cultivation tank by moving either the frames or the tank.					
					

8.	Low pressure aeroponic growing apparatus	US20040055213	2002-09-24	AERO GROW INTERNATIONAL AEROGROW INTERNATIONAL AGRIHOUSE*	99 %	
An aeroponic growing apparatus (1) is provided which comprises a novel low pressure liquid nutrient delivery system utilizing a rotating cylinder device (7). The rotating cylinder device (7) distributes liquid nutrient solution (3) to the roots of plants by use of centrifugal forces, thereby eliminating the need for a high pressure pump and nozzles.						
9.	Aeroponic apparatus	GB8628078	1986-11-24	AQUARESEARCH CANADA AQUARECHERCHE CANADA* EHRlich K F	99 %	
A self-contained aeroponic apparatus comprising a reservoir for containing a nutrient solution and a right-angular plant support standing over the upper edge of the reservoir and defining with it a closed chamber. The panels that form the plant support are releasably secured, along edges thereof that adjoin one another, in essentially watertight and light-tight conditions. Likewise, the lower edges of the support panels are releasably secured to the upper edge of the reservoir in watertight and light-tight conditions. Cups for holding plant structures are formed integrally with the inclined hypotenuse wall of the right-angular support. They are open-ended tapered tubes each of a size to snugly hold a plant structure. A nutrient solution spraying system within the chamber serves to supply the solution to the plant structures in the cups. It comprises spraying heads distributed at different levels along the backwall of the plant support; a pump in the reservoir and piping operatively joining the spraying heads and the pump to allow feeding nutrient solution to the spraying heads.						
10.	Aeroponic growth unit for growing plants, system, greenhouse and methods thereof	EP2888933	2013-12-27	OLASCULUM A· PROPRIETARY A· OLIUS PELUM PT DELTA MR DOUGLAS OSBORNE STEWART OLUSCULUM PTE*	99 %	
Aeroponic growth unit for growing plants comprising a element made of perforated material, a system for growing plants aeroponically comprising said unit, a greenhouse comprising said system, and methods for growing plants aeroponically are provided. The invention allows improving the plant growth rates.						
11.	Modular aeroponic system and related methods	US20140338261	2014-05-14	SYKES CHAD COLIN	99 %	
Disclosed is a modular aeroponic system that accommodates different support-mediums and misting or spray configurations. In one embodiment, the disclosed system comprises: a root chamber with plumbing that is coupled to a nutrient distribution system; a first interchangeable-lid for the root chamber that functions as a first type of support medium; a second interchangeable-lid defined a surface by a plurality of net pot receptacles for retaining a plurality of net pot support mediums; a first spray-nozzle manifold that may be removably coupled to the plumbing of the root chamber and featuring spray nozzles in a first configuration; a second spray-nozzle manifold that may be removably coupled to plumbing of the root chamber and featuring spray nozzles in a second configuration; wherein the first and second lid may be interchangeably applied to the root chamber; and wherein the first and second manifold may be interchangeably coupled to the root chamber's plumbing.						
12.	Vertical aeroponic plant growing system	US20120297678	2011-05-25	HENSLEY SARAH;LUEBBERS TERRY	99 %	
An aeroponic plant growing system with vertically aligned planting sites. The system includes a plurality of plant-holding containers, a walled enclosure, and a fluid dispenser housed therein. One of the enclosure's walls defines a plant-supporting frame on which are formed horizontally extending, outwardly-facing grooves and their respective inwardly-projecting ridges. Tapered between its distal ends, each container can be individually received within one of a plurality of spaced apart orifices defined by each groove. So received, the container extends into the enclosure and a substantial portion of the container's transverse cross-section most distal from its wider end is cantilevered over each horizontally extending ridge situated downwardly of that particular container's interface with the frame, thus positioning, in use, the taproots of large numbers of plants within a barrier-free, vertical corridor of extremely narrow footprint down which their roots can grow both aeroponically and gravitropically.						
13.	Apparatus for promoting the growing of plants in a controlled environment agriculture facility	US4163342	1978-03-24	BT* CONTROL DATA CORPORATION GENERAL ELECTRIC ST CLAIR INTELLECTUAL PROPERTY CONSULTANTS*	99 %	
Apparatus for promoting the growing of plants in a controlled environment agriculture facility, comprises a plurality of plant grow support racks (37, 39) which are arranged in an array complementary to an array of lamps (29) which supply illumination to the racks. The arrangement provides two positions for the array of racks (37, 39). In each of the two positions one group of alternate racks is fully illuminated and the other group is not. The lamps (29) then may be operated continuously, and each of the two rack-groups may be reciprocated between these two positions. In this manner there are provided alternating periods of full illumination and relative darkness for the plants grown on each rack.						

14.	Expandible aeroponic grow system	US20120085026	2010-10-12	MORRIS DAVID W	99 %
An expandible aeroponic grow system capable of adding additional stay systems horizontally or vertically to the support structure of the base grow system so as to utilize a common pump, valves, filter, drain, supply tank and nutrient supply media. It utilizes a root spray that has an adjustable pattern to accommodate different placements of plants in the enclosed spray tray. It also uses a spray pattern designed to maximize the water and nutrient delivery to the plant's entire root as well as increasing the oxygen content of the nutrient media.					
					
15.	Systems, methods, and devices for aeroponic plant growth	US20180007845	2017-07-27	GROWX*	99 %
An aeroponic system for supporting efficient low-resource-usage plant growth comprises a housing comprising one or more openings and one or more root chambers; one or more sealing members configured to substantially conform to a stalk of a plant and to substantially isolate a canopy of the plant from the one or more root chambers; one or more root chamber sensors; one or more nutrient storage reservoirs for storage of plant nutrients; one or more air-assisted nozzles configured to introduce atomized nutrient solution into the one or more root chambers; a temperature control system configured to control a temperature of the one or more root chambers; and a control system configured to control the temperature control apparatus and the one or more air-assisted nozzles to maintain environmental parameters associated with the one or more root chambers within desired parameter ranges.					
					
16.	Aeroponic system and method for plant propagation	US20070113472	2006-11-02	PLOWMAN MICHAEL	99 %
An aeroponic system for propagating plants and/or seeds includes a chamber, a cooling system and a liquid delivery system. The cooling system is coupled to the chamber which includes a top portion for supporting plants and/or seeds. The top portion may include orifices to which holders may be connected. The holders can be configured to support a plant so that the roots of the plant are located within the chamber and the remainder of the plant is located outside the chamber. In addition, the chamber contains a liquid, which may include a nutrient solution. The liquid is delivered to the plants and/or seeds by the liquid delivery system and maintained within a liquid temperature range by the cooling system. The system may be adapted to propagate different types of seeds and plants.					
					
17.	Aeroponics system for cultivating plants	DE102017104525	2017-03-03	NEOFARMS*	99 %
The present invention relates to an aeroponics system (1, 3, 4) for cultivating plants (5), having at least one aeroponics compartment (3), which is designed to accommodate at least one plant (5) such that the roots (50) of the plant (5) can be reached by a stream (A) of an aeroponics aerosol, and having an aeroponics apparatus (1) with a holder (14), preferably with an interior space (14), the holder being designed to accommodate at least the aeroponics compartment (3). The aeroponics system (1, 3, 4) is characterized in that the holder (14) of the aeroponics apparatus (1) and the aeroponics compartment (3) are designed such that the aeroponics compartment (3) can be accommodated in a removable manner.					
					
18.	Automated aeroponic plant growing system	GR1008102	2012-12-28	SALACHAS GEORGIOS;SALAHAS GEORGIOS	99 %
A fully automated aeroponic plant growing system, is monitored and controlled by only a central digital automatic operation unit for all the individual parts and on line monitoring capability. It has the ability to simultaneously support multiple aeroponic crops or growing treatments with different nutritional requirements, or only one aeroponic crop. Simultaneously prepares, sterilizes and controls all individual and different nutrient solutions needed to feed plants, which are sprayed onto the roots throw the recirculation support system. It has the ability to control and adjust at any given value the root zone atmosphere temperature into growing chambers or vessels, by monitoring and controlling the temperature of nutrient solution sprayed to the roots, offering ideal root growth conditions to grow plants. This is made entirely of suitable insulating material, Capable to support parallel or not, all known hydroponic and Aeroponic cultivation systems and suitable for any open or closed environment.					
					
19.	Aeroponic plant growth apparatus and method	US5724768	1996-04-29	AMMANN, JR.; PAUL R.	99 %
A method for aeroponically growing plants which involves an elongate vertically oriented plant chamber having a plurality of plant receiving apertures through its side wall. Plants are stationed in the apertures with their roots extending into the bore of the plant chamber and nutrient solution is sprayed downwardly into the chamber to wet the plant roots. During the spraying of the plant roots atmospheric air is inducted into and stale air exhausted from the chamber. In preferred alternatives of the method the motive energy for the air induction is provided by the spraying step, the nutrient solution is sprayed as a mist and the spraying is undertaken cyclically.					
					

20.	System, method, and apparatus for optimizing efficient use of resources in a controlled farming environment	CA2859165	2012-03-29	POD PONICS A· LIABILITY PODPONICS*	99 %	
A system, method, and apparatus for optimizing efficient use of resources in a controlled farming environment is disclosed. Various inputs to a controlled farming environment, wherein the controlled farming environment includes a plurality of plants, are controlled based on the nutrition information for the plurality of the plants. Third party information, such as electrical rate information from a power company, can be accessed by the system and may also be utilized to control the inputs to the farming environment. For example, if a power company offers incentives or reduced rates to not utilize power during certain time periods, the system of the present invention will send a signal to the electrical interface to only power the light source to the controlled environment at times other than the certain time period so as to take advantage of the reduced rates or incentives.						
21.	Hydroponic culture system	JPS61124330	1984-11-21	HITACHI KEWPIE*	99 %	
A hydroponic culture system comprising an angle panel having a plurality of holes for supporting plants with roots projecting through the holes, and a hydroponic solution feeding means comprising a hydroponic solution spraying means for supplying a hydroponic solution onto the roots of the plants and a hydroponic solution pumping means for supplying the hydroponic solution to the hydroponic solution spraying means, in which the hydroponic solution spraying mechanism is movable along the longitudinal direction of the angle panel, or the angle panel is disposed in a plant cultivation structure which is supplied with carbon dioxide through a duct for controlling the environment within the structure, or a plurality of angle panels are disposed in a plurality of rows and top edges of the adjacent angle panel rows are connected with canopies to form substantially triangular-sectioned spaces between the adjacent angle panel rows for enhanced lighting efficiency, thereby cultivating the plants systematically and almost uniformly with improved cultivation efficiency and economy.						
22.	Aeroponic plant growing system	US20120090236	2011-10-17	ORR GREGORY S	99 %	
An aeroponic plant growing system is provided that enhances plant growth by spraying plant roots with a recaptured, ultra-violet purified, and replenishable nutrient solution while simultaneously illuminating plant leaves with power-saving and heat reducing, LED lamps. A rotating platform is also provided that rotates plant holding pods to stimulate the plants and also provide a constant controllable application of water, light, and nutrients.						
23.	Plasma activated water for an enhanced soil-free horticulture	WO2017049263	2016-09-19	EP TECHNOLOGY*	99 %	
The nutrient rich water which is sprayed onto the roots of a plant being grown aeroponics or hydroponics is plasma-activated water generated by a non-thermal plasma.						
24.	Modular aeroponic growing column and system	US20150334930	2015-05-22	AERO DEVELOPMENT*	99 %	
A modular aeroponic growing column has an elongated first body, a fluid receiving cap, a fluid draining base cap, and a plurality of growing receptacles. The elongated first body includes a fluid receiving end, an opposite fluid draining end, an interior receiving space extending between the fluid receiving end and the fluid draining end, and a plurality of growing receptacle receiving openings positioned on the first body. The plurality of growing receptacles is positioned in the growing receptacle receiving openings.						
25.	Aeroponic growing column and system	US20160120141	2015-10-28	AERO DEVELOPMENT*	99 %	
An aeroponic growing column system comprises a plurality of vertical growth columns, a plurality of growing receptacles, and a reservoir base having a first plurality of column receiving holes. The vertical growth columns have an elongated body with a fluid receiving end at a top end, an opposite fluid draining end at a base end, an interior receiving space extending between the fluid receiving end and the fluid draining end, and a plurality of growing receptacle receiving openings positioned on the body. The growing receptacles are positioned in the growing receptacle receiving openings. The fluid draining end of each vertical growth column is removably positioned in a different one of the first plurality of column receiving holes and supported by the reservoir base.						

26.	Devices and methods for growing plants	WO2005055700	2004-09-15	AEROGROW INTERNATIONAL OMS INVESTMENTS*	99 %
This invention provides methods, devices, and kits for growing a plant (2) or germinating a (110) seed into a plant (2); methods and devices for delivering oxygen (10) to a plant (2) or a seed (110) which will germinate into a plant (2); methods and devices for delivering liquid (11) to a plant (2); methods and devices for increasing the dissolved oxygen concentration in a liquid to be delivered to a plant (2); methods and devices for increasing the dissolved oxygen concentration in a liquid within a hydroponics device (1); terraced oxygenators (47); aspirators, downdraft venturis (130), net baskets (160); germination caps, sets of germination caps (150); methods for increasing the likelihood of germination of a seed (110); seed-bearing support media (16); methods for germinating a seed (110); and smart garden devices (140) for hydroponics growing systems.					
					
27.	Commercial aeroponics system	US20150068122	2013-09-09	HARVEST URBAN FARMS*	99 %
An aeroponic chamber incorporating a molded tub incorporates an integral angled interface having ports to receive misting nozzles, a drain sump including an outlet, and support brackets incorporating saddles adapted to be received on support rails with integral conduits. The conduits are connected to the misting nozzles. At least one support tray with an arcuate surface is supported on the molded tub and has a plurality of apertures to receive mesh seed pouches.					
					
28.	Growing system	CA2956952	2015-07-31	LIVING GREENS FARM*	99 %
A growing system and/or plant support structure may include one or more feet supporting at least one or more uprights, on which a plurality of plants and/or grow boards for growing plants may be positioned. A nutrient delivery system may be positioned between opposing uprights to provide nutrient supply to a root zone of plants, which nutrient delivery system may be positioned adjacent each opposing upright in an interior chamber of the plant support structure. A light system may be positioned between two adjacent plant support structures such that it simultaneously provides light to the exterior surface of the two plant support structures.					
					
29.	Systems and methods for controlling liquid delivery and distribution to plants	US20060272210	2006-06-19	AEROGROW INTERNATIONAL OMS INVESTMENTS*	99 %
This invention provides a system and methods for providing liquid to a plant or a seed that can germinate into a plant. The system includes: a liquid delivery device; an actuator; a vessel; and a vessel support; wherein the actuator is operable to cause the liquid delivery device to deliver the liquid to the plant or seed only when the vessel is brought into proximity with the vessel support.					
					
30.	Hydroponic growing station with intermittent nutrient supply	US6000173	1998-08-05	SCHOW; MATTHEW ALAN;WYNN; JASON LYNDEY	99 %
A hydroponic plant growth station having a growing board with a plurality of holes arranged in at least one vertical column of holes, a nutrient delivery channel disposed beneath the column of holes, and a supply of nutrient to the delivery channel.					
					
31.	Modular structure for aeroponic cultivations	IT0970512	1997-06-11	CONSULAGRI*	99 %
A modular structure for aeroponic cultivations comprising a plurality of prefabricated side panels (15) which are meant to receive plants being cultivated and a plurality of prefabricated flat bases (16) to which the side panels are joined by means of respective interlock couplings (162) in order to form a structure which is substantially shaped like an inverted V and in which the side panels (15) are mutually connected along an upper ridge line by respective ridgecaps (17); a pumping unit and a spraying apparatus are also provided in order to feed an atomized nutrient solution inside the structure (12).					
