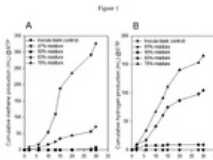
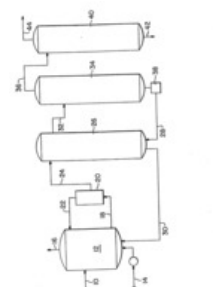
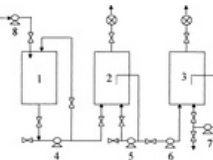
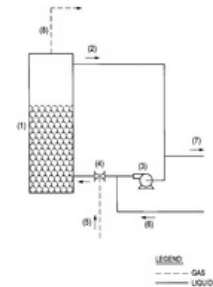
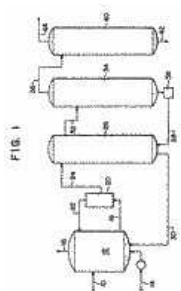
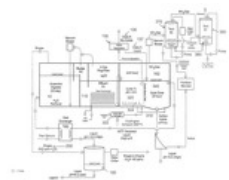
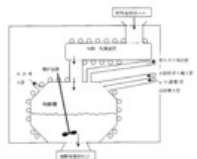
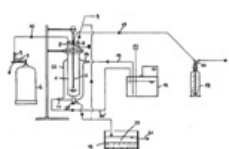
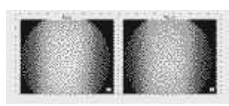
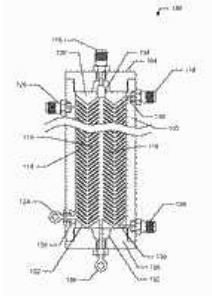
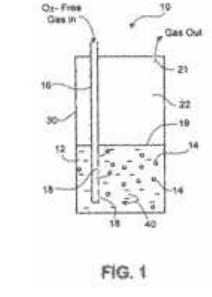
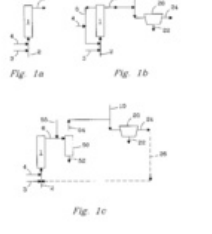


29 results for ((hydrogen or biohydrogen)/TI/AB/IW AND (lime)/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX AND (temperature)/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX AND (agitat+ or stir+)/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX AND (anaerobic)/TI/AB/IW/CLMS/DESC/ODES/OBJ/ADB/ICLM/KEYW/TX) AND (C12P-003/00)/IPC - Collection: FAMPAT

#	Title	Publication number	Publ. date	Applicant/Assignee		
1.	Methods for selectively producing hydrogen and methane from biomass feedstocks using an anaerobic biological system	WO2011071292	2011-02-10	GEOSYNFUELS*		
The present invention provides a method for selective production of hydrogen and methane from a biomass feedstock in a reactor vessel maintained under anaerobic conditions by controlling moisture concentration in the reactor vessel. The method comprises the steps of introducing a biomass feedstock into the reactor vessel maintained under anaerobic conditions; introducing a bacterial inoculum into the reactor vessel to facilitate digestion of the biomass feedstock; setting a moisture concentration of the contents of the reactor vessel at a first moisture level; and collecting hydrogen gas from the reactor vessel. The method may further comprise maintaining the moisture concentration at a first moisture level or within a first moisture range. The method may additionally comprise increasing the moisture concentration of the contents of the reactor vessel to a second moisture concentration; and collecting methane gas from the reactor vessel. Switching between hydrogen and methane production is controlled by adjusting the moisture concentration of the contents of the reactor vessel.						
						
2.	Low temperature pretreatment for lignocellulose biomass and method for preparing hydrogen from lignocellulose biomass	CN107988269	2018-05-04	HARBIN INSTITUTE OF TECHNOLOGY*		
The invention relates to low temperature pretreatment for lignocellulose biomass and a method for preparing hydrogen from the lignocellulose biomass and belongs to the field of efficient recycling of organic solid wastes. The invention solves the problems that an existing straw fermentation hydrogen production process is not ideal in the aspects of pretreatment effect, cost, operability, universality and large-scale application, especially the problem of application in winter in a cold region. The pretreatment method comprises the following steps: precooling hydroxide of alkali metal/urea aqueous solution to the temperature ranging from -20 DEG C to -8 DEG C; then adding dried and smashed lignocellulose biomass, carrying out rapid stirring treatment for 3 minutes at room temperature, carrying out suction filtration, then washing to be neutral, and drying for later use. The lignocellulose biomass treated by the low temperature pretreatment method is taken as a substrate, a liquid culture medium is added, then hydrogen-producing microorganisms are inoculated, anaerobic fermentation reaction is carried out, and produced gas is collected.						
3.	Anaerobic fermentation of carbon monoxide	JP2005328849	2005-12-02	BIOENGINEERING RESOURCES UNITED STATES ARKANSAS 7 2 7 0 1 HAYETVILLE EMOSURODO 1 6 5 0*		
PROBLEM TO BE SOLVED: To provide a method for producing a useful product by effective fermentation of waste gas containing carbon monoxide. SOLUTION: A method for producing hydrogen comprises fermenting carbon monoxide through a bioreactor including anaerobic Bacillus smithlii and a nutrient medium. COPYRIGHT: (C)2006,JPO&NCIPI						
						
4.	High-efficiency method for producing hydrogen gas and methyl hydride with mix fermentation of sewage sludge and garbage	CN101492696	2009-07-29	NIE YANQIU		
The invention relates to a method for effectively manufacturing hydrogen and methane by means of mixed fermentation of municipal sludge and trash. The method is characterized in that activated sludge for anaerobic digestion in sewage plants and heated and labilized anaerobic activated sludge are respectively used as methane-producing seed sludge and hydrogen-producing seed sludge; the municipal sludge and trash are mixed based on a certain proportion, then lime is added, the municipal sludge, the trash and the lime are placed in an alkaline hydrolysis reactor for carrying out alkaline hydrolysis; the mixture and the hydrogen-producing seed sludge after the alkaline hydrolysis are pumped into a hydrogen-producing reactor for carrying out hydrogen-producing reaction; generated biogas containing hydrogen is collected; the left mixture after hydrogen production and the methane-producing seed sludge are pumped into a methane-producing reactor for producing methane by means of hybrid reaction, so that clean energy such as hydrogen and methane featuring high heating value can be obtained and waste can be turned into resources, moreover, the problem of pollution of the municipal sludge and trash to the environment is solved, in addition, the reactors of the invention can either be operated in a sequencing batch way or in a continuous way, the needed equipment is simple, the operation is convenient and the cost is low.						
						
5.	Process for preparing hydrogen gas using microorganism	EP0484240	1992-05-06	KAJIMA*		
The present invention provides a process for preparing hydrogen gas in an industrial scale, using microorganism capable of producing hydrogen gas, using glucose or polysaccharides containing glucose as a constituent.						
6.	Method for producing hydrogen	WO2017212403	2017-12-14	UNIVERSITY NACIONAL DE COLOMBIA*		
The invention relates to a method for producing hydrogen by fermenting a substrate obtained from organic waste, performed in a closed environment, without the supply of oxygen and in the absence of light. The method comprises: preparation of the complex substrate; an acidification step under anaerobic conditions and at ambient temperature; and, subsequently, the gradual increase of the pH of the system so as to obtain hydrogen.						
7.	Sulfide generation via biological reduction of divalent, tetravalent or pentavalent sulfur containing combustion flue gas or liquor	CA2840551	2013-01-03	KEMETCO RESEARCH*		
The present invention relates to the biologically catalyzed, anaerobic generation of sulfide species as sulphide, hydrosulfide or hydrogen sulfide in anaerobic bioreactors from the reduction of tetravalent sulfur derived from one or more sources including sulfur dioxide containing combustion flue gas, or the reduction of divalent or pentavalent sulfur containing liquors such as thiosulfate or dithionate containing liquors. Flue gas sources of sulfur dioxide also contain one or more bio-nutrients or energy sources. The generated sulfide is useful for numerous applications including waste treatment and metals recovery as sulfides.						
						

16.	Biological production of acetic acid from waste gases	WO9800558	1998-01-08	BIOENGINEERING RESOURCES BIOENGINEERING RESOURCES EACH TIME LETHE EMMAUS FOUNDATION* WITCO	
A method and apparatus for converting waste gases from industrial processes such as oil refining, carbon black, coke, ammonia, and methanol production, into useful products is disclosed. The method includes introducing the waste gases into a bioreactor where they are fermented to various products, such as organic acids, alcohols H2, SCP, and salts of organic acids by anaerobic bacteria within the bioreactor. These valuable end products are then recovered, separated and purified.					
17.	Methods and apparatuses for removal of hydrogen sulfide and carbon dioxide from biogas	WO2011156767	2011-12-15	ANDGAR DVO* DVO INK WASHINGTON STATE UNIVERSITY	
Methods, systems and apparatuses herein provide a unique and novel process to remove H2S from biogas. Methods, systems and apparatuses herein provide a unique and novel process to remove H2S from biogas with ease of operation and reduced operating and capital costs. Methods, systems and apparatuses herein provide a unique and novel process to remove H2S over CO2 from biogas.					
18.	Production of sulphur from calcium and/or sodium sulphate	IL31014	1969-01-29	COGHILL D*	
1,245,759. Sulphur; hydrogen disulphide. D. COGHILL. 4 Nov., 1968 [8 Nov., 1967]. No. 52183/68.. Heading CIA. In a process for producing sulphur indirectly from calcium and/or sodium sulphates, the sulphates are reduced to hydrogen sulphide by bacteria growing under anaerobic conditions in a liquid culture medium containing sulphates and sodium chloride. The hydrogen sulphide is removed (e.g. by degassing under reduced pressure) from a solution withdrawn from the culture medium, and sulphur is obtained therefrom by conventional means, e.g. by burning in air. After removal of hydrogen sulphide, which may be freed from carbon dioxide by scrubbing with calcium hydroxide solution, the residual liquid may be recycled to the culture medium. Specified starting materials are gypsum, sodium sulphate and sulphate-containing organic wastes. In addition to sulphatereducing bacteria, such as desulphovibrio desulfuricans var. aestuarii, the culture medium may contain clostridium species, such as clostridium pasteurianum. The culture medium, which may be at ambient temperature , may also contain a nitrogen- and phosphorus-bearing fertilizer, limestone (as a source of CO 2 and as a pH buffer), sea-water and comminuted organic-matter, e.g. seaweed. In large-scale production (a proposed plant is described), process tanks containing gypsum and nutrient medium may be inoculated by opening into them sacks containing a mixture of the bacterial culture and plaster of Paris. The action of oxidizing bacteria which consume hydrogen sulphide is suppressed by using "matured" sea-water as a liquid medium, and maintaining the culture in deep tanks.					
19.	Method for the biological reduction of sulfur oxides and the oxidation of organic materials	GB8415444	1984-07-25	DUNCAN LAGNESE & ASS*	
Sulphur oxide-containing material and organic material are fed into an anaerobic expanded bed or fixed film reactor that has been inoculated with a mixed culture of microorganisms. Hydrogen sulphide is removed from the fermented mixture by gas stripping inside and/or outside the reactor, and preferably partly within and partly outside the reactor. The hydrogen sulphide can be processed further to elemental sulphur, sulphuric acid or sulphide salts. The sulphur oxides reduction process may also generate soluble or insoluble carbonates which may be used as the microorganism growth medium or which can be recovered for use in industrial processes. (From GB2143810 A)					
20.	Fermentation apparatus for hydrogen production and method for producing hydrogen	JP2005270046	2005-10-06	MITSUI TEA ELO*	
PROBLEM TO BE SOLVED: To provide a fermentation apparatus for hydrogen production, which enables practical production of hydrogen in high efficiency at a low cost by using a bacterial strain of the genus Clostridium as a hydrogen -producing fermentation bacteria. SOLUTION: An apparatus controls the physical/chemical states of a substrate containing a plurality of microbial species such as heating, drying, moisture control, oxygen concentration and pH and a method for producing hydrogen . Concretely, fermentation reaction is carried out by using the apparatus to cause the selection of the microbial strains by the microbial flora exchanging reaction treatment to remarkably decrease the cell number of unnecessary species which is in an active state at the initial stage and activate a certain kind of hydrogen -producing bacteria of the genus Clostridium necessary for the production of hydrogen . COPYRIGHT: (C)2006,JPO&NCIPI					
21.	Process for the degradation of waste gypsum and apparatus for carrying out the process	DE3621333	1988-01-07	ED ZUBLIN*	
In a process for the degradation of waste gypsum, with simultaneous production of calcium hydroxide, the gypsum is made up to give a suspension for the biological degradation, the suspension is furnished with substrate and inoculated with sulphate-degrading bacteria. The hydrogen sulphide contained is expelled. To carry out this process, an apparatus is provided which has a reactor to which is connected at least one hydrogen reservoir and at least one settling tank. The sulphate contained in the waste gypsum can be reduced by this process and apparatus in a simple energy-saving manner and expelled in the form of hydrogen sulphide.					
22.	Thermophilic thermoanaerobacter italicus subsp. marato having high alcohol productivity	WO2011076797	2011-06-30	BIOGASOL IPR*	
Strict anaerobic thermophilic bacterium belonging to the group of Thermoanaerobacter italicus subsp. marato subsp. nov. and mutants and derivatives thereof. The bacterium is particularly suitable for the production of fermentation products such as ethanol, lactic acid, acetic acid and hydrogen from lignocellulosic biomass.					

23.	Internally reinforced structural composites and associated methods of manufacturing	WO2010096505	2010-08-26	ADVANCED GREEN INNOVATIONS* MAKEHLISTEHR TEKNOLODZHIZ EHLEHLSI MCALISTER ROY MCALISTER ROY E MCALISTER TECHNOLOGIES*	Internally reinforced structural composites, suitable uses for such composites, and associated methods of manufacturing are disclosed herein. In one embodiment, a method of making a reinforced structural component includes forming a precursor having a crystal structure with a plurality of lattice layers and exfoliating the precursor. As a result, a distance between adjacent pairs of the plurality of lattice layers is expanded. The method also includes wrapping the exfoliated precursor with a surface support material around at least a portion of a circumference of the individual lattice layers in the exfoliated precursor.	
24.	Microbial conversion of gypsum to sulfur	IT8322474	1983-08-08	WR GRACE*	Sulphate is converted to elemental sulfur in two successive fermentation steps. In the first step an acetate-utilizing microorganism (e.g., Desulfobacter postgateii) converts sulfate to hydrogen sulfide. The second step utilizes an acetate producing microorganism (e.g. Chlorobium thiosulfatophilum) to convert hydrogen sulfide to elemental sulfur. Acetate produced by the Chlorobium stage can be recycled to provide energy for the sulfate reduction reaction. (From GB2125389 A)	
25.	Systems and methods for producing biofuels and related materials	US20070178569	2007-08-02	QTEROS* UNIVERSITY OF MASSACHUSETTS*	Clostridium	
26.	Methods for producing hydrogen (bi) sulfide and/or removing metals	US6387669	2002-05-14	BATTELLE MEMORIAL INSTITUTE*	The present invention is a process wherein sulfide production by bacteria is efficiently turned on and off, using pH adjustment. The adjustment of pH impacts sulfide production by bacteria by altering the relative amounts of H2S and HS- in solution and thereby control the inhibition of the bacterial metabolism that produces sulfide. This process can be used to make a bioreactor produce sulfide "on-demand" so that the production of sulfide can be matched to its use as a metal precipitation reagent. The present invention is of significance because it enables the use of a biological reactor, a cost effective sulfide production system, by making the biological reactor produce hydrogen sulfide "on demand", and therefore responsive to production schedules, waste stream generation rate, and health and safety requirements/goals.	
27.	Strain and to their use batavia aericus	CN108795808	2018-11-13	HUNAN PROVINCE MICROBIOLOGY INSTITUTE*	The present invention discloses a strain and its use batavia aericus. The selection of a new Bacillus strains batavia HJ-1 is an extensive and powerful strain of the strain function. It relies on the cell wall of hydroxyl, carbonyl, an amide group, a phosphoric acid group or groups are surface-fixed heavy genus cadmium, lead and arsenic. It can use the production of hydrogen sulfide sulfur, sulfur ions and/or lead and cadmium free/bound or arsenic, cadmium sulfide and lead sulfide and/or generate a poorly soluble/or arsenic, thereby effectively reducing the effective soil cadmium, lead and arsenic. Thus, the strain may be used to prepare the soil is reduced effective cadmium, lead, arsenic formulations. It may also be used as the electron-donating organic compound, the oxidation of organic matter at the same time, in order to Fe (III) as the sole electron acceptor, so that Fe (III) reduced to Fe (II), and the metabolic energy obtained during the growth support, and the strain on various heavy metals exhibit a degree of resistance. Thus, the strain of the present invention has a wide application perspective.	
28.	Process for treating solutions containing sulfate and metal ions	CA2147554	1996-10-22	PIROSHCO BEVERLY M ROWLEY MICHAEL V WARKENTIN DOUGLAS D	In accordance with the process of the invention, bacteria are used to provide hydrogen sulfide and carbonate compounds for treating solutions containing metal ions. To produce the hydrogen sulfide, the bacteria utilize sulfate ions present in the solution. Hydrogen sulfide produced by the bacteria is used to remove metals from the solution as insoluble metal sulfides. The process of the invention thereby removes sulfate and metal ions from the treated solution. The bacteria used are mixed populations, including strains of naturally-occurring sulfate reducing bacteria, which have been serially adapted and selected to be highly active with the particular solutions to be treated and with the carbon and hydrogen sources being utilized. The bacteria may be fed gaseous hydrogen and carbon nutrients produced by a partial oxidation burner. Carbonate compounds produced by the bacteria may be used to raise the solution pH for treatment and discharge. By controlling the addition of hydrogen sulfide and carbonate compounds to the solution, the preferential isolation of particular metal sulfide concentrates may be accomplished in separate precipitation steps, each with a specific pH and sulfide dosage.	