

VT

PATENTES

IMPRESIÓN 3D

13



Vigilancia
Tecnológica
1º trimestre 2023

NIPO: 116-19-050-9

En este Boletín de Vigilancia Tecnológica se recogen, de manera trimestral, los avances acontecidos en el campo de la tecnología de Impresión 3D que se materializa en forma de solicitudes de patente en todo el mundo.

Aunque en los años 80 comenzaron a desarrollarse los primeros equipos y materiales sobre la tecnología de impresión 3D también denominada fabricación aditiva, no fue hasta 1986 cuando aparece en el mercado la primera impresora 3D comercial, patentada por Charles W. Hull, premiado por la Oficina Europea de Patentes

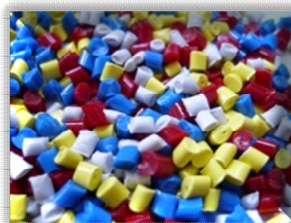
como inventor del año en 2014 en la categoría de inventores no europeos.

Cuando trataba de buscar un sistema para mejorar el proceso de realización de prototipos de pequeñas piezas de plástico que utilizaba para probar nuevos diseños de productos, desarrolló una máquina de impresión 3D que conseguía realizar en pocos minutos procesos que por aquel entonces llevaban semanas.

Contenido



PROCESOS



MATERIALES



DISPOSITIVOS



PRODUCTOS



PROCESAMIENTO
DE DATOS

Desde entonces, la tecnología no ha parado de evolucionar, especialmente en los últimos años, alcanzándose a partir de 2017 un verdadero auge, cuando se incorpora la automatización utilizando software de inteligencia artificial que permite industrializar la fabricación aditiva y multiplicar la capacidad de los sistemas.

En los últimos años de evolución de la impresión 3D hemos visto pasar del desarrollo conjunto de nuevas tecnologías y materiales innovadores aplicados principalmente a la creación de prototipos y diseños personalizados, a la consecución de productos casi impensables hace tan solo una década. Gracias a esta increíble tecnología hemos visto imprimir, órganos, coches e incluso edificios.

Desde la Oficina Española de Patentes y Marcas, y en cumplimiento de su doble objetivo de proteger y fomentar la innovación tecnológica en nuestro país, así como de divulgar la información técnica que contienen las patentes a través de sus servicios de Información Tecnológica, se realiza este nuevo Boletín de Vigilancia Tecnológica, que se suma a los dieciséis *Boletines VT* que venimos publicando desde el año 2000 con periodicidad

trimestral. Nuestro objetivo es dar a conocer las nuevas solicitudes de patentes que se publican a nivel mundial relacionadas con la tecnología de impresión 3D.

En este Boletín, se incluye una selección de las solicitudes de patentes publicadas a nivel mundial durante el primer trimestre de 2023, distribuidas en cinco apartados: procesos, materiales, dispositivos, productos y procesamiento de datos.

Para cada patente se incluye su número de publicación, con un enlace que permite la consulta del documento completo, el solicitante, el país de origen y su título.

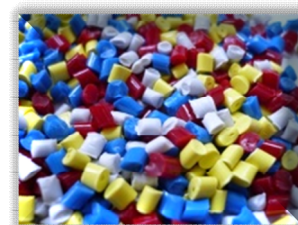
Esperamos que la información aportada en este Boletín de Vigilancia Tecnológica, sirva para identificar tendencias tecnológicas y sus actores, así como para contribuir a la utilización del conocimiento contenido en los documentos de patente como punto de partida para emprender nuevas actividades de investigación y desarrollo. Para suscribirse a este Boletín basta con cumplimentar este [formulario de suscripción](#).



Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
EP4147855	(STRA-N) STRATASYS POWDER PRODN LTD	Operating apparatus for layer-by-layer manufacture of three-dimensional object from particulate material, involves carrying out thermal calibration process, and measuring temperature of build bed surface using thermal sensor
EP4108417	(CNRS) CENT NAT RECH SCI (UYLY) UNIV LYON 1 BERNARD CLAUDE (SEGU-N) SEGULA ENG	Method for producing three-dimensional printed tissue substitute in three-dimensional printing device, involves removing solidified intermediate device from tank, and rinsing and drying intermediate device to obtain tissue substitute
WO2023028241	(UYCM) UNIV CARNEGIE MELLON	Method for forming three-dimensional structure using droplet-based freeform printing, involves depositing structural material through nozzles onto surface of substrate, and solidifying matrix material to form matrix
US2023062286	(EXOC-N) EXOCAD GMBH	Method for manufacturing dental prosthetic assembly E.G. crown mounted onto implant implanted into jaw bone of patient, involves compensating determined deviations of mechanical connection to satisfy violated fitting criteria
WO2023009107	(HEWP) HEWLETT-PACKARD DEV CO LP	Non-transitory computer-readable medium for determining density level at which agent is to be deposited as droplets onto portion of layer of build material particles, has set of instructions for forming porous article
WO2015200173	(CARB-N) CARBON INC (CARB-N) CARBON3D INC	Preparation of three-dimensional component E.G. lens, involves filling build region in optically transparent component with liquid comprising photopolymerizable component and solidifiable component, irradiating with light and curing
US2017216966	(USGO) LAWRENCE LIVERMORE NAT SECURITY LLC	Method for melting powdered material and bonding to layer used in additive manufacturing of producing product, involves heating powder particles to below or above melting point with low power flux portion of beam
EP4119329	(ESSI) ESSILOR INT	Method for additively manufacturing ophthalmic device, involves forming first portion layer with first image that provides contrast level, and forming second portion layer that is partially distinct from first portion

Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
CA3167807	(GOOR) GOODRICH CORP	Direct deposition of thixotropic alloy for aerospace application, involves placing probe in molten metal melt comprising thixotropic metal alloy, injecting gas composition into molten metal melt to form saturated slurry, and depositing melt through extruder of additive manufacturing system
NL2028266	(SPAC-N) SPACE-XYZ IP BV	Method for additive manufacturing object in apparatus, involves irradiating layer of powder material by energy beam in order to selectively melt or sinter portion of first powder material
US2020331209	(STTS) ORIGIN LAB INC (STTS) STRATASYS INC	Method for additive manufacturing, involves selectively photocuring first volume of resin reservoir to form first layer of build adhered to build platform and retracting build platform from build window
DE102021120904	(HERZ-I) HERZOG F C	Method for producing plastic component with defined geometric target external dimensions, involves using covering element, so that wall thickness of covering element undersized by base frame structure compensates with regard to defined geometric target dimensions of plastic component
US2020316856	(ALIG) ALIGN TECHNOLOGY INC	Method for manufacturing three-dimensional (3D) object, involves removing support structure from 3D object and support mark remaining on 3D printed object where support structure contacted 3D object
FR3126429	(CITR) PSA AUTOMOBILES SA	Method for treating metal components, involves depositing first material on first zone of first face, and depositing layer of second anti-corrosion material on first zone by second device following trajectory with chosen time lag
US2022411954	(RORO) ROLLS-ROYCE PLC	Electropolishing internal passageway for component, involves providing electrode assembly comprising flexible electrode, shuttle and guide cable extending between flexible electrode and shuttle, and inserting shuttle into inlet

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Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
KR20230025551	(KOCE) KOREA INST CERAMIC ENG & TECHNOLOGY	Manufacturing nanocomposite resin using rheological evaluation method comprises stirring secondly stirred photocurable resin composite solution to form nanocomposite resin and evaluating particle state and dispersion of conductive powder
WO2023023549	(JABI-N) JABIL INC	Powder useful in product or medical product, and as build material for producing medical implants, comprises polycaprolactone particles, ethyl lactate, and nucleator
WO2023023544	(JABI-N) JABIL INC	Powder used in additive manufacturing process comprises polycaprolactone particles, and the polycaprolactone particles comprises a solvent comprising at least one of biocompatible solvent or bioresorbable solvent
WO2023022725	(HEWP) HEWLETT-PACKARD DEV CO LP	Fusing agent useful in three-dimensional printing comprises water, aliphatic ester cosolvent, and solubilized avobenzene
WO2023003819	(QUAD-N) QUADRATIC 3D INC	Photocurable composition for printing article I.E. three-dimensional optical switch display device, comprises photocurable component, and photoswitchable photoinitiator which is activatable by exposure to lights having different wavelengths to induce crosslinking in photocurable component
JP2023018917	(RICO) RICOH KK (NAIT-I) NAITO H	Fabricating three-dimensional object involves discharging colored ink that is active energy ray curable by inkjet method to make droplet of colored ink land in first landing region, and irradiating colored ink with active energy rays
US2019126539	(JOHJ) DEPUY SYNTHES PROD INC	Polymeric article E.G. porous implantable medical article, comprises layers of asymmetric fibrous particles oriented in plane parallel to layers, and has preset stress-strain curve such that ultimate strength is reached at preset strain

Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
US2023009609	(USCU) UNIV SICHUAN	Fabricating three-dimensional printed portion with high through-plane thermal conductivity involves mixing pure polymer particles with carbon-based filler for heat conduction to obtain resulting mixture, milling resulting mixture in pan-type milling mechanochemical reactor, and collecting composite
US2021274926	(APMA) APPLIED MATERIALS INC	Brush used in structure embodied in machine readable medium used in design process, comprises body comprising polymer material comprising body holes, where body holes has body region and channel arranged in body, where channel is fluidly coupled to body holes
EP4108361	(EVON) EVONIK OPERATIONS GMBH	Powder composition used for three-dimensional printing for forming article, comprises two types of polymer particles comprising initiator, catalyst or accelerator and having preset glass transition temperature, as determined by differential scanning calorimetry
WO2023275877	(STTS) STRATASYS LTD	Support material formulation used in additive manufacturing of three-dimensional object, comprises hydrophilic curable mono-functional material, polyol and polyester material
FR3124420	(AQOR) ARKEMA FRANCE	Use of at least one multi-block copolymer as sacrificial material in 3D printing process for polymers including polyether ether ketone, polyetherketoneketone, polyetherketone, polyetherketonetherketoneketone and polysulfone
WO2022250003	(TORA) TORAY IND INC	Resin powder mixture used for automobiles, aerospace, industry and medicine, contains polyarylene sulfide resin powder and has specific gas generation amount, melt flow rate and average particle diameter
US2020001525	(INTR-N) INTREPID AUTOMATION	Method for performing closed loop print process adjustment in photo-reactive 3D printing system based on real-time feedback, involves updating print platform velocity and print platform acceleration in print recipe during printing run
WO2023007186	(CHES-N) CHESTNUT NATURAL CAPITAL LTD	Biodegradable plastic composition used in article such as seed guard, plant guard, tree guard, cable tie or weed mat, comprises poly(butylene succinate), poly(3-hydroxybutyrate-co-valerate), and biodegradation delay polymer and/or plasticizer

Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
WO2022271174	(HEWP) HEWLETT-PACKARD DEV CO LP	Fusing agent for three-dimensional printing, comprises triazine radiation absorber, organic co-solvent, surfactant comprising polyethylene sorbitol ester and/or polyoxyethylene lauryl ether and water
FR3124803	(MICL) CIE GEN ETAB MICHELIN & CIE	Metallic powder useful in manufacturing additive comprises austenitic stainless steel comprising carbon, chromium, nitrogen, manganese, nickel, other species and iron
WO2022258286	(ALTA-N) ALTANA NEW TECHNOLOGIES GMBH	Inkjet composition used to make three-dimensional object has E.G. photo polymerization reactive compound having acryloyl group, radical photoinitiator, isocyanate compound containing isocyanate groups, and hydroxy group containing compound
DE102021113777	(KULZ) KULZER & CO GMBH	Polymerizable composition useful in E.G. production of dental prosthetic for crowns, inlays, superstructure and artificial teeth, comprises inorganic filler component, urethane acrylate, multi-functional monomer, and initiator
WO2023004000	(HARN-N) HARNYSS IP LLC	Non-pyrophoric AB2-type Laves phase hydrogen storage alloy for hydrogen storage system, comprises titanium, zirconium, vanadium, chromium, and manganese
WO2023021200	(HEAD-N) HEADMADE MATERIALS GMBH	Binder component for particulate feedstock compound used in shaping and sintering process, comprises polyolefin, polyolefins wax or oxidized polyolefins wax, and non-polymeric polar wax or non-polymer polar wax-type substance
JP2023032514	(KAWJ) KAWASAKI HEAVY IND LTD (KAWJ) KAWASAKI JUKOGYO KK (NIMS) NAT INST MATERIALS SCI (OSAU) UNIV OSAKA	Nickel-based superalloy used for manufacturing molded article, comprises aluminum, titanium, chromium, cobalt, tantalum, tungsten, molybdenum, zirconium, carbon and nickel
FR3124803	(MICL) CIE GEN ETAB MICHELIN & CIE	Metallic powder useful in manufacturing additive comprises austenitic stainless steel comprising carbon, chromium, nitrogen, manganese, nickel, other species and iron
WO2022260044	(HITK) HITACHI METALS LTD	Alloy material used in alloy product in mechanical device, comprises cobalt, chromium and nickel, molybdenum, titanium, boron, tantalum and niobium, and other impurities

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Dispositivos



Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
EP4151391	(SINT-N) SINTERIT SP ZOO	Powder bed fusion (PBF) printer E.G. selective laser sintering (SLS) printer for printing three-dimensional objects, has mechanical powder circulation system that is arranged with screw conveyor mechanism for transferring unused powder from printing chamber to printing bed
WO2023049016	3D SYSTEMS INC [US]	Stereolithography system for accurately establishing build plane
DE102021123264	(UYHA) UNIV HANNOVER LEIBNIZ GOTTFRIED WILHELM (LASE-N) LASER CENT HANNOVER EV	Additive manufacturing method for producing workpiece, involves curing liquid or granular printing starting material in layers by three-dimensional printer, and building up enveloping structure in layers, which surrounds workpiece
US2023028236	(STTS) STRATASYS INC	Three-dimensional printer for building three-dimensional object, has nozzle of engaged print head that extends through slot of thermal insulator tray into build chamber, when print head is in build position
EP4119331	(DENX) DENTSPLY SIRONA INC (SIRO) SIRONA DENTAL SYSTEMS GMBH	Three-dimensional printer, has spring-loaded locking pin connected to coupling element and inserted into bayonet opening of component carrier, where inserted locking pin moves through horizontal translatory axis into locking position
EP4119332	(DENX) DENTSPLY SIRONA INC (SIRO) SIRONA DENTAL SYSTEMS GMBH	Three-dimensional printer, has receiving apparatus including pivoting device for pivotably holding construction platform, where underside of platform is set up parallel to transparent base of tub when platform is lowered by transport apparatus
FR3125242	(BETA-N) BE TA & BIEN ETRE & TECHNOLOGIES AVANCEE (MOIG-I) MOIGNE P	Hybrid manufacturing machine for combining three-dimensional printing and machining of part, has support head intended to bear against part of part and articulated arm, where arm comprises end secured to support head and another end
US2022410478	(THDE) 3D SYSTEMS INC	Three-dimensional printing system for manufacturing three-dimensional article, has controller for operating agitation movement mechanism to oscillate grating along lateral Y-axis to remix filler particulates within photocurable resin
KR20230043682	(KSCT) KIST EURO FORSCHUNGSGES MBH	Monodisperse micro droplet producing device for biological assay and chemical particle production applications, has continuous and discontinuous phase channels whose splitting sections are different from each other on z-axis

Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
ES2933103	(COCU-N) COCUUS SYSTEM IBERICA SL	Food extruder device for extruding food E.G. meat in food industry, has extrusion module configured to extrude food substance from each stuffer through respective outputs of extrusion module and whose are multiple nozzles of exit
DE102021115994	(BIOP-N) INST BIOPROZESS & ANALYSENMESSTECHNIK EV	Device for mixing liquids or pastes in three-dimensional printing processes, has mixing plate whose first and second sides are provided with first and second outlets, and first and second outlets that run partially through first and second hollow cylinders
WO2022263006	(KUEP-N) KUEPPERS SOLUTIONS GMBH (SCHU-N) SCHUNK INGENIEURKERAMIK GMBH	Recuperator burner has recuperator that accommodates combustion air to be preheated and exhaust gas from burner
WO2023043865	(ADSO-N) ADVANCED SOLUTIONS LIFE SCI LLC	Modular platform for bioassembly system, has unique identification chip that is communicatively coupled to insert electrical connections and configured to store information associated with removable stage insert
WO2023037541	(NIKR) NIKON CORP	Processing system for machining object, has second light receiving device with second light receiving portion that is capable of receiving first energy beam and second energy beam
DE102021133535	(BION-N) BIONIC PRODN GMBH	System for mobile additive manufacturing, has communication channel existing between central control unit and first device, first housing completely enclosing first device and second housing completely enclosing central control unit
WO2023025698	(SGNF) SIGNIFY HOLDING BV	Three-dimensional printer extruder unit for 3D printer, comprises E.G. printing nozzle configured and depositing the printing material, first and second temperature sensor arranged at or near the printing nozzle and configured
FR3126333	(COMP) SAINT GOBAIN WEBER FRANCE	Additive manufacturing device for modifying output flow of nozzle, has application head mounted movable along three axes, where application head comprises nozzle through which material is extruded onto work surface
US2023045800	(BMFN-N) BMF NANO MATERIAL TECHNOLOGY CO LTD	3-D printing system comprises micro display chip coupled to light source and adapted to display digital image received from computer, printing heads, each disposed below the sample, and gas-permeable window circumscribed by ejection nozzle fluidically coupled to respective collection vat
US2020031051	(INTR-N) INTREPID AUTOMATION	Additive manufacturing system E.G. photo reactive three-dimensional (3D) printing system (PRPS), has stack of filters that comprises warp correction filter that provides geometric correction and edge blending bar at sub-image edges
FR3125979	(COGI-N) COGIT COMPOSITES	Installation for additive manufacturing by deposition of molten yarn comprises extrusion nozzle for depositing filament of material on receiving surface supported by movable plate relative to nozzle as well as thermographic device

Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
WO2023007801	(SONY) SONY GROUP CORP	Optical shaping apparatus for forming three-dimensional shaped article, has second spatial light modulation unit that modulates light from branching and multiplexing unit to light of second pattern near first pattern to emit light to branching and multiplexing unit to be multiplexed
NL2028860	(ULTI-N) ULTIMAKER BV	Device for cleaning extruder of fused filament fabrication system, has controller for controlling inspection unit to perform visual inspection of tip portion of filament after retraction of filament from extruder
EP4112274	(UYBE) UNIV BERLIN TECH	Print head for additive manufacturing of fiber composite materials, has nozzle attached to heating block or integrated as opening in heating block, and cutting unit integrated within heating block and cutting and shearing filament within block
EP4108419	(GENE) GENERAL ELECTRIC CO	Reclamation system for additive manufacturing apparatus, has containment vessel that retains resin removed from foil, and drain that directs resin from containment vessel to reservoir
WO2022248069	(THRE-N) 3D NEW TECHNOLOGIES SRL	Heat transfer device used for additive manufacturing, comprises set of independent UV laser sources capable of generating heat and designed to convey electromagnetic radiation beams in predetermined area of plate of work surface
WO2022260512	(INNO-N) INNOTECH EURO BV	Extruder system I.E. granulate extruder system, for use in additive manufacturing printer, has plunger for selectively releasing part of overpressure and controlling flow of extrudable material out of nozzle to reduce oozing of material
BE1029565	(AERO-N) AEROSINT SA (AERO-N) AEROSINT	System for transferring granular material from larger tank to smaller tank, has cover that abuts against upper tank during first relative movement, so that upper tank pushes cover so that passes from first position to second position
DE102021115821	(GROB-N) GROB WERKE GMBH & CO KG	Starting up nozzle channel of print head to process liquid metal melt, comprises preparing print head, melting metal into molten metal in crucible, inserting plunger tip into nozzle chamber, and generating overpressure inside crucible
WO2023039374	(DOND) DONALDSON CO INC	Fume extractor system for use with three-dimensional printer, has conduit conveying gas from chamber holding printer to filter compartment, where another conduit conveys gas into chamber that holds printer

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Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
WO2023041883	(COMS) COMMISSARIAT ENERGIE ATOMIQUE	Preparation of composite material for eliminating hydrogen gas or its isotopic forms, involves preparing geopolymer mixture comprising metal oxide which is silver-catalyzed manganese oxide, subjecting geopolymer mixture to three-dimensional printing, and hardening geopolymeric mixture
WO2023027974	(DARC) DARTMOUTH COLLEGE	Device used in in electrochemical energy storage, comprises polymer structure has complex device in three dimensions, seed layer on polymer structure, and thin film disposed on seed layer, where seed layer is oxide, nitride, or oxynitride
JP2023040768	(KOBM) KOBE SEIKO SHO KK (KOBM) KOBE STEEL LTD	Molded article has blade portions that are provided in blade portion and extending in parallel with blade portion and connection flow passage extending in direction crossing with blade portion at end portion of blade portion
US2021085466	(JOHJ) DEPUY IRELAND LTD (JOHJ) DEPUY IRELAND (JOHJ) DEPUY SYNTHES PROD INC	Implantable apparatus E.G. orthopaedic prosthetic component implanted in body of patient, has porous three-dimensional structure with organic unit cells having outer and internal struts defining outer nodes and internal nodes, respectively
DE102021122864	(LIXI) LIXIL CORP	Manufacturing tap housing for sanitary tap, involves three-dimensional printing functional unit having fastening element for attaching functional unit to support, and partial encasing functional unit with outer housing
WO2023017515	(LIME-N) LIMEATLESS FOOD LTD	Artificial meat product used for making vegan meat which mimics animal muscle meat, comprises matrix comprising muscle-like component, support protein, and binder for binding muscle like texture component and support protein
WO2023020833	(SGNF) SIGNIFY HOLDING BV	Lighting device for use in downlight luminaire, has optical component for beam shaping part of light source light, and light source arranged closer to end face compared to another end face, where device light has spatial light distribution
US11498282	(HONE) NAT TECHNOLOGY & ENG SOLUTIONS SANDIA (AQUI-I) AQUINO W	Fabricating acoustic metamaterial involves determining at least one tuned physical property for each of multiple micro-resonators with specific desired acoustic property of acoustic metamaterial comprising iteratively tuning at least one tuned physical property for each of multiple micro-resonators

Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
KR20230025067	(YUNB-I) YUN B G	Method for manufacturing gas turbine blade by using 3D printing for wax RP involves manufacturing ceramic core having same shape as cooling passage formed in blade for gas turbine, and manufacturing blade for gas turbine
WO2023008942	(ANYM-N) ANYMEDI INC	Pin guide for shoulder joint surgery, has guide protrusion extending from one side of contact surface of guide body and spanning front part of scapula located in front of glenoid, and pin hole has diameter corresponding to reference pin
DE102021003866	(DAIM) MERCEDES-BENZ GROUP AG	Method for producing light guide, involves producing blank of light guide by additive manufacturing, reworking blank with cutting tool, and carrying out blank post-processing exclusively in area which is not intended as light extraction point
NL2028801	(BLOK-N) BLOK ADDITIVE MFG BV (HETN-N) STICHTING HET NEDERLANDS KANKER INST	Personalized implant for bone replacement, has implant body comprising closed cavity and solid impervious layer of material defining outside surface of implant body exposed to exterior of implant
EP4115877	(ROQF) ROQUETTE FRERES SA	Use for hot melt extrusion-based three dimensional printing, of printable material in pharmaceutical, veterinary, nutraceutical, food, cosmetic, or agrochemical interest, comprises pregelatinized crosslinked starch and hydroxypropyl methyl cellulose
WO2022269315	(ALSE-N) ALSEC ALIMENTOS SECOS SAS	Powdered food composition useful for obtaining food product, comprises fruit, vegetable, fat, oil, dairy product, starch, vitamin, mineral and natural flavoring being nano- and microencapsulated in encapsulant together with emulsifier
JP2023008868	(CANO) CANON KK	Producing article containing silicon carbide as main component by laying raw material powder, and irradiating raw material powder with laser beam, where raw material powder comprise silicon carbide
WO2023275302	(RWTH) RHEINISCH WESTFAELISCHE TECH HOCHSCHULE	Additive manufacturing of porous, gas-permeable molded bodies via selective laser sintering of a polymer powder, comprises heating the bulk polymer powder and spatially resolved melting of a bulk powder layer by introducing laser energy
US2022409390	(SPIN-N) SPINE WAVE INC	Bellows shaped spinal implant I.E. anterior lumbar interbody fusion device, has bellows shaped shell for extending between and joining upper plate and lower plate, and bellows shaped shell is formed of titanium or alloy that comprises titanium
WO2022271173	(HEWP) HEWLETT-PACKARD DEV CO LP	Three-dimensional printing kit comprises build material including polymeric particles and fusing agent including benzotriazole radiation absorber solubilized in liquid vehicle

Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
WO2022265705	(DIME-N) DIMENSION INX CORP	Three-dimensional printed structure comprises self-gelling components, and dry gelling powder embedded within porous polymer matrix structure configured to form gel when contacted with aqueous solution causing it to gel
GB2608193	(QDOT-N) QDOT TECHNOLOGY LTD	Making thin walled, sintered component involves creating set of sub-components using binder jetting additive manufacturing, heating set of sub-components in first heating step to at least partially sinter sub-components, assembling sub-components to form assembly of sub-components
US2022404212	(FREE-N) FREE FORM FIBERS LLC	Producing fiber structure with embedded sensor used for producing composite structure, involves obtaining scaffold fiber, forming by printing using laser induced chemical vapor deposition, circuitry on scaffold fiber to provide fiber structure with embedded sensor, printing solid state oscillator
JP2022188817	(HITA) HITACHI LTD	Producing laminate-molded article by forming layer, which is metal layer, by irradiating powder bed of metal material with light beam, determining surface temperature of intermediate product, judging whether or not object intermediate is in overheated state and forming powder bed on layer

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Procesamiento de Datos



Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
US2020078180	(CARL-N) CARLSMED INC	Computer-based method for manufacturing orthopedic implant in spine surgery using surgical assistance system, involves mapping negative space between anatomic elements, and filling portion of negative space with virtual implant
US2023066191	(DIGI-N) DIGITAL DENTAL TECHNOLOGIES LLC	System for securing artificial teeth to dental prosthetic base with gradient polymer, has three-dimensional printing device to print polymeric dental prosthesis based on print file, where polymeric dental prosthesis includes materials and gradient transition zone
DE102021208698	(BOSC) BOSCH GMBH ROBERT	Method for producing three-dimensional object, involves evaluating quality of object on basis of results of monitoring, and taking measure to steer temperature in desired direction
KR20230014604	(MEDI-N) MEDIT CORP	Method for processing three-dimensional oral cavity model involves acquiring scan data obtained by scanning object, generating edge of base based on scan data, obtaining gingival region from scan data, and generating and connecting mesh between rim of bas
WO2022256015	(HEWP) HEWLETT-PACKARD DEV CO LP	Three-dimensional printing comprises iteratively applying polymer build material as individual layers to a powder bed, and selectively applying coalescing agent onto individual layers of the build material based on a three-dimensional object model
EP4147853	(STRA-N) STRATASYS POWDER PRODN LTD	Determining set point for primary thermal sensor in apparatus for layer-by-layer manufacture of three-dimensional object from particulate material, involves applying determined set point to subsequent measurements of sensor
WO2023046739	IBM [US]; IBM UK [GB]	Three-dimensional part smoothing in reduced gravity
GB2610627	(STRA-N) STRATASYS POWDER PRODN LTD	Method for operating apparatus for manufacturing three-dimensional objects from particulate material, involves heating build bed surface with stationary heat source to target layer temperature between solidification and melting temperatures
KR20230034531	(META-N) METAMORP LTD	Device for designating position of three-dimensional (3D) printing support, has support location designation unit configured for designating support location at point while maintaining minimum distance between support on inside of plane

Nº PUBLICACIÓN	SOLICITANTE Y PAIS DE ORIGEN	CONTENIDO TÉCNICO
WO2023028450	(BAKO) BAKER HUGHES OILFIELD OPERATIONS INC	Method for designing piezoelectric ceramic crystal integrating impedance matching region and backing region, involves identifying material, gradient of material, structure, and gradient of structure that exhibits predicted performance
KR102378894	(ROKI-N) ROKIT HEALTHCARE INC	Method for automatically recognizing boundary of affected area, involves forming closed curve by connecting start points adjacent to each other within preset reference distance
WO2023277863	(HEWP) HEWLETT-PACKARD DEV CO LP	Additive manufacturing method for generating three-dimensional object, involves generating set of calibration objects using additive manufacturing in set of layers in which other objects are generated
WO2022270251	(KOBM) KOBE SEIKO SHO KK (KOBM) KOBE STEEL LTD	Laminate manufacturing support device for supports determination of bead formation trajectory, has modeling condition acquisition unit that acquires information, stress analysis unit that obtains maximum principal stress direction, and trajectory determination unit
US2019375159	(KERA-N) KERACEL INC (SAKU-N) SAKUU CORP	Multi-material three-dimensional printing apparatus, has computing and controlling device controlling operations of print stations, assembly apparatus and transfer devices, where transfer devices communicate with assembly apparatus



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