

## Intellectual Property Quality Enforcement Analysis Koch Industries

April 18, 2018

Since the commencement of China's accession process into the World Trade Organization in the late 1990s, several U.S. companies have encouraged the government of the United States to recite sweeping allegations of the "theft" of intellectual property by the Chinese. Having spent considerable time in China since 1999, we have personally witnessed several instances of misappropriated products on **copyrighted** and **trademarked** goods and services. And while there are well-documented instances in which Chinese individuals, firms, and agencies of government have accessed corporate secrets, the allegation of general IP theft and misappropriation is reckless.

Since the 1980s, many U.S. and European firms have sold intellectual property to the Chinese as part of commercial sales. While they failed to disclose these sales with any precision in shareholder filings, the allegation that IP was stolen, appropriated or transferred under duress is false. If a firm makes an economic decision in which it exchanges technology for revenue, that's its own decision. If China makes such sale conditions a requisite component of approved transactions, the foreign firm and its shareholders need to weigh the short-term economic value of the transaction against the long-term consequence of releasing certain rights.

Of greater concern is the wholly falsifiable "presumption of validity" which has shrouded gross abuses of the patent systems in the U.S., Europe and Japan. Upon review, most issued patents are held invalid in part or in whole whether that review happens within the Patent Trial Appeals Board (PTAB) or in the U.S. Court of Appeals for the Federal Circuit (CAFC). Consistent with M·CAM CEO Dr. David E. Martin's testimony to the United States House Judiciary Committee in 2001<sup>1</sup>, two thirds of patents' claims subjected to a second review are modified or rejected<sup>2</sup>. It is therefore wholly illogical to presume that China is "stealing" what in the majority of cases should never have been granted **by the United States' own rules.** 

In the interest of a more complete conversation about U.S. innovation, M·CAM has conducted a commercial fitness review of the patents held by Koch Industries and its subsidiaries. The information provided represents patents which were available for review at the time the patent rights were granted to Koch industries and its subsidiaries but, for a variety of reasons, were not explicitly included in the United States Patent and Trademark Office's review of patentability. As patentable distinction was not considered for each of the "precedent" innovations, China or any other competitor or country may elect to develop commercial products or services based on the information contained in these precedent disclosures.

<sup>&</sup>lt;sup>1</sup> http://commdocs.house.gov/committees/judiciary/hju72305.000/hju72305 0f.htm

<sup>&</sup>lt;sup>2</sup> https://www.morganlewis.com/~/media/files/publication/presentation/speech/smyth\_uspatentinvalidity\_sept12

## Analysis

The table below presents selected Koch Industries patents and commercial alternatives for each.

Patent Number	Patent Title
US7736559	Binding wood using a thermosetting adhesive composition comprising a protein-based component and a polymeric quaternary amine cure accelerant
US6291559	Soy protein thickener
US4689381	Modified protein adhesive binder and process for producing using cationic monomers
US7281937	Low profile latching connector
US6887091	Cable connector assembly having additional pull tab
US6702602	Electrical connector having improved latch mechanism
US6659790	Electrical connector having improved pull tab
US6648665	Electrical connector having an automatically recoverable pull tab and latches
US6592391	Electrical connector having a locker for enabling the connector to have a reliable connection with a mated connector
US6589066	Electrical connector having a latch mechanism
US6447170	Locking and unlocking mechanism of cable connector and method for locking and unlocking
US5199897	Electrical connectors
US20040023546	ELECTRICAL CONNECTOR HAVING ENGAGING DEVICE
US7005190	Heat treatable coated article with reduced color shift at high viewing angles
US6495263	Low-E matchable coated articles and methods of making same
US6495251	Silicon oxynitride protective coatings
US6475626	Low-E matchable coated articles and methods of making same
US6410173	Antireflection coatings and other multilayer optical coatings for heat-treatable inorganic substrates and methods for making same
US6340529	Glazing panel
US5837361	Substrates coated with a stack of thin layers having reflection properties in the infrared and/or with respect to solar radiation
US5709930	Coated substrate
US5705278	Heat processable metallic vacuum coatings
US5595825	Transparent substrate provided with a stack of thin films acting on solar and/or infrared radiation
033333023	
US5510173	Multiple layer thin films with improved corrosion resistance
	Multiple layer thin films with improved corrosion resistance  Barrier layers comprising Ni-inclusive ternary alloys, coated articles including barrier layers, and methods of making the same
US5510173	Barrier layers comprising Ni-inclusive ternary alloys, coated articles including barrier layers,
US5510173 US8709604	Barrier layers comprising Ni-inclusive ternary alloys, coated articles including barrier layers, and methods of making the same

US20070081228 Hybrid corrosion-resistant nickel alloys  US20070081228 Multiple cavity low-emissivity coatings  Multi-ply paper towel with creped plies  US6752907 Wet crepe throughdry process for making absorbent sheet and novel fibrous product	
US8409404 Multi-ply paper towel with creped plies	
US8409404	
US6752907 Wet crepe throughdry process for making absorbent sheet and novel fibrous product	
US6701637 Systems for tissue dried with metal bands	
US6610173 Three-dimensional tissue and methods for making the same	
US6607638 Process for increasing the softness of base webs and products made therefrom	
US6585855 Paper product having improved fuzz-on-edge property	
US6579418 Leakage control system for treatment of moving webs	
US6547924 Paper machine for and method of manufacturing textured soft paper	
US6497789 Method for making tissue sheets on a modified conventional wet-pressed machine	
US6478927 Method of forming a tissue with surfaces having elevated regions	
US6464829 Tissue with surfaces having elevated regions	
Heat treatable coated article with high ratio of transmission over sheet resistance US7771830	
US5837361 Substrates coated with a stack of thin layers having reflection properties in the infrared and/or with respect to solar radiation	
US5763064 Laminate	
US5532062 Low emissivity film	
US5514476 Low-E glass coating system and insulating glass units made therefrom	
US5306547 Low transmission heat-reflective glazing materials	
US5061568 Solar screening assembly	
EP0722913A1 Dual silver layer low-e glass coating system and insulating glass units made therefrom	
Heat treatable low-E coated articles and methods of making same by sputtering Ag in ox	ygen
inclusive atmosphere US7771571	
US7771571	
US7771571  US5837361 Substrates coated with a stack of thin layers having reflection properties in the infrared and/or with respect to solar radiation	
US7771571  US5837361  Substrates coated with a stack of thin layers having reflection properties in the infrared and/or with respect to solar radiation  US5763064  Laminate	
US7771571  US5837361  Substrates coated with a stack of thin layers having reflection properties in the infrared and/or with respect to solar radiation  US5763064  Laminate  US5532062  Low emissivity film	

EP0722913A1	Dual silver layer low-e glass coating system and insulating glass units made therefrom
US7722400	Differential pair electrical connector having crosstalk shield tabs
US6652318	Cross-talk canceling technique for high speed electrical connectors
US6471549	Shielded plug-in connector
US7704349	Fabric crepe process for making absorbent sheet
US7229528	Processes for foreshortening fibrous structures
US6969443	Method of making absorbent sheet from recycle furnish
US6752907	Wet crepe throughdry process for making absorbent sheet and novel fibrous product
US6610173	Three-dimensional tissue and methods for making the same
US6582560	Method for using water insoluble chemical additives with pulp and products made by said method
US6558511	Soft bulky multi-ply product and method of making the same
US6461476	Uncreped tissue sheets having a high wet:dry tensile strength ratio
US6432267	Wet crepe, impingement-air dry process for making absorbent sheet
US6379496	Wet creping process
US6344109	Softened comminution pulp
US7700870	Solar cell using low iron high transmission glass with antimony and corresponding method
US6844280	Flat glass having high transmittance
US6548434	Palely colored glass having high transmittance and method for producing the same
US6461736	Light-colored glass of high transmittance and method for production thereof, glass plate with electrically conductive film and method for production thereof, and glass article
US5030594	Highly transparent, edge colored glass
US5030593	
	Lightly tinted glass compatible with wood tones
US20040180775	Lightly tinted glass compatible with wood tones  Clear glass composition
US20040180775 US20030199384	
	Clear glass composition
US20030199384	Clear glass composition  Clear glass composition with high visible transmittance
US20030199384 EP1281687A1	Clear glass composition  Clear glass composition with high visible transmittance  FLAT GLASS HAVING HIGH TRANSMITTANCE
US20030199384  EP1281687A1  EP1281687	Clear glass composition  Clear glass composition with high visible transmittance  FLAT GLASS HAVING HIGH TRANSMITTANCE  FLAT GLASS HAVING HIGH TRANSMITTANCE
US20030199384  EP1281687A1  EP1281687  US7659422	Clear glass composition  Clear glass composition with high visible transmittance  FLAT GLASS HAVING HIGH TRANSMITTANCE  FLAT GLASS HAVING HIGH TRANSMITTANCE  Hydrocyanation process with reduced yield losses
US20030199384  EP1281687A1  EP1281687  US7659422  US6171997	Clear glass composition  Clear glass composition with high visible transmittance  FLAT GLASS HAVING HIGH TRANSMITTANCE  FLAT GLASS HAVING HIGH TRANSMITTANCE  Hydrocyanation process with reduced yield losses  Hydrocyanation of diolefins and isomerization of nonconjugated 2-aklyl-3-monoalkenenitriles
US20030199384  EP1281687A1  EP1281687  US7659422  US6171997  US6069267	Clear glass composition  Clear glass composition with high visible transmittance  FLAT GLASS HAVING HIGH TRANSMITTANCE  FLAT GLASS HAVING HIGH TRANSMITTANCE  Hydrocyanation process with reduced yield losses  Hydrocyanation of diolefins and isomerization of nonconjugated 2-aklyl-3-monoalkenenitriles  Selective synthesis of organodiphosphite compounds
US20030199384  EP1281687A1  EP1281687  US7659422  US6171997  US6069267  US5847191	Clear glass composition  Clear glass composition with high visible transmittance  FLAT GLASS HAVING HIGH TRANSMITTANCE  FLAT GLASS HAVING HIGH TRANSMITTANCE  Hydrocyanation process with reduced yield losses  Hydrocyanation of diolefins and isomerization of nonconjugated 2-aklyl-3-monoalkenenitriles  Selective synthesis of organodiphosphite compounds  Process for the hydrocyanation of monoolefins using bidentate phosphite ligands and zero-valent nickel

US5523453	Process for hydrocyanation
US5512695	Bidentate phosphite and nickel catalyst compositions for hydrocyanation of monoolefins
US5449807	Catalyzed vapor phase hydrocyanation of diolefinic compounds
US4539302	Recovery of zerovalent nickel complexes
1157500454	Fabric-crepe process with prolonged production cycle and improved drying
US7608164	Apparatus for maximizing water removal in a processing
US6669821	Apparatus for maximizing water removal in a press nip
US6610173	Three-dimensional tissue and methods for making the same
US6607638	Process for increasing the softness of base webs and products made therefrom
US6579418	Leakage control system for treatment of moving webs
US6547924	Paper machine for and method of manufacturing textured soft paper
US6464829	Tissue with surfaces having elevated regions
US6461474	Process for producing high-bulk tissue webs using nonwoven substrates
US6447641	Transfer system and process for making a stretchable fibrous web and article produced thereof
US6447640	Impingement air dry process for making absorbent sheet
US7585396	Coated article with ion treated overcoat layer and corresponding method
US6368664	Method of ion beam milling substrate prior to depositing diamond like carbon layer thereon
US6740211	Method of manufacturing windshield using ion beam milling of glass substrate(s)
US6610360	Buffing diamond-like carbon (DLC) to improve scratch resistance
US6558800	Low-E matchable coated articles and methods of making same
US6524714	Heat treatable coated articles with metal nitride layer and methods of making same
US6514620	Matchable low-E I G units and laminates and methods of making same
US6495263	Low-E matchable coated articles and methods of making same
US6475626	Low-E matchable coated articles and methods of making same
US6475573	Method of depositing DLC inclusive coating on substrate
US6445503	High durable, low-E, heat treatable layer coating system
US7551094	Rain sensor with fractal capacitor(s)
US6320176	Vehicle rain sensor using imaging sensor
US5659294	Rain sensor
US5402075	Capacitive moisture sensor
US6476766	Fractal antenna ground counterpoise, ground planes, and loading elements and microstrip patch antennas with fractal structure
US6422062	Integrated glass fog sensor unit

US6329923	Process and device for operating a rain sensor
US6300914	Fractal loop antenna
US7507442	Heat treatable coated article with diamond-like carbon (DLC) and/or zirconium in coating
US6793979	Hydrophilic DLC on substrate with UV exposure
US6783253	First surface mirror with DLC coating
US6777030	Method of ion beam milling a glass substrate prior to depositing a coating system thereon, and corresponding system for carrying out the same
US6764579	Solar management coating system including protective DLC
US6740211	Method of manufacturing windshield using ion beam milling of glass substrate(s)
US6663753	Method of making coated article including DLC inclusive layer over low-E coating
US6592993	Coated article with DLC inclusive layer(s) having increased hydrogen content at surface area
US6592992	Hydrophilic coating including DLC
US6576349	Heat treatable low-E coated articles and methods of making same
US6368664	Method of ion beam milling substrate prior to depositing diamond like carbon layer thereon
US7442278	Fabric crepe and in fabric drying process for producing absorbent sheet
US6808599	Wide wale tissue sheets and method of making same
US6780282	Machine and process for producing a fibrous material web
US6749723	Measuring arrangements in a shortened dry end of a tissue machine
US6698681	Apparatus and method for winding paper
US6673202	Wide wale tissue sheets and method of making same
US6432267	Wet crepe, impingement-air dry process for making absorbent sheet
US6344111	Paper tissue having enhanced softness
US6207011	Crosslinkable creping adhesive formulations
US6133405	Polyalkanolamide tackifying resins for creping adhesives
US6033523	Method of making soft bulky single ply tissue
US7387274	Static build-up control in dispensing system
US5375785	Automatic web transfer mechanism for flexible sheet dispenser
US5078033	Flexible sheet material dispenser
US4944466	Flexible sheet material dispenser with automatic roll transferring mechanism
US3737087	DISPENSING APPARATUS FOR ROLLED MATERIALS
US7351105	Board mounted shielded electrical connector

US6220895	Shielded electrical connector
US6113427	Electrical connector having improved shielding structure
US6083046	Receptacle connector
US6007382	Electrical connector
US5755595	Shielded electrical connector
US5685739	Shielded electrical connector
US7322856	High-density, robust connector
US6981883	Impedance control in electrical connectors
US6979202	High-speed electrical connector
US6872085	High speed, high density electrical connector assembly
US6869292	Modular mezzanine connector
US6851974	Shroud retention wafer
US6824391	Electrical connector having customizable circuit board wafers
US6790088	Electric connector provided with a shield plate equipped with thrust shoulders
US6776649	Contact assembly for a plug connector, in particular for a PCB plug connector
US6769935	Matrix connector
US6652318	Cross-talk canceling technique for high speed electrical connectors
US7270292	Web transfer mechanism for flexible sheet dispenser
US6145779	Dual roll transfer dispenser
US6079305	Rolled web dispenser and cutting apparatus
US5979822	Apparatus for dispensing sheet material from a roll of sheet material
US5441189	Method and apparatus for dispensing flexible sheet material
US5048386	Feed mechanism for flexible sheet material dispensers
US7229533	Method of making coated article having low-E coating with ion beam treated and/or formed IR reflecting layer
US6723211	Method of making coated articles with contact layer that is more oxidized further from IR reflecting layer
US6713178	Highly tetrahedral amorphous carbon coating on glass
US6667121	Heat treatable coated article with anti-migration barrier between dielectric and solar control layer portion, and methods of making same
US6663753	Method of making coated article including DLC inclusive layer over low-E coating
US6576349	Heat treatable low-E coated articles and methods of making same
US6475573	Method of depositing DLC inclusive coating on substrate
US6445503	High durable, low-E, heat treatable layer coating system
US5776603	Glazing pane equipped with at least one thin film and method of manufacturing the same
US5776603	Glazing pane equipped with at least one thin film and method of manufacturing the same

US7189008	Indexed optical fiber connector
US6206581	Optical connector having a one-piece housing
US5638474	Anti-snag latch assembly for a connector
US5101463	Push-pull optical fiber connector
US7182288	Waste minimizing carousel-style dispenser
US6112631	Mechanism for paper dispenser
US6079305	Rolled web dispenser and cutting apparatus
US5441189	Method and apparatus for dispensing flexible sheet material
US5375785	Automatic web transfer mechanism for flexible sheet dispenser
US5078033	Flexible sheet material dispenser
US4944466	Flexible sheet material dispenser with automatic roll transferring mechanism
US4573750	Dispensing apparatus
US4270818	Power winding paper towel dispenser
US4067509	Paper towel dispenser and transfer mechanism
US3949918	Machine for dispensing uniform lengths of thick plastic film
US7114677	Apparatus and methods usable in connection with dispensing flexible sheet material from a roll
US6198271	Electronic wall-stud sensor display
US6112631	Mechanism for paper dispenser
US6092451	Automatic or semi-automatic dispensing machine for wipe material with selector device
US6079305	Rolled web dispenser and cutting apparatus
US5979284	Automatic dispensing apparatus for paper towels and toilet paper
US5937718	Folded/unfolded paper towel dispensing apparatus
US5924617	Multiple roll towel dispenser
US5833104	Ticket dispensing device
US5781942	Wash stations and method of operation
US7048565	Card Edge Connector
US6276951	Latching device for a card edge connector (2)
US6796825	Electrical connector for attaching a circuit board
US6540550	Stacked card edge connector
US6464514	Card edge connector with grounding pad
US6164998	Electrical connector having a latching device
US7030390	Ion source with electrode kept at potential(s) other than ground by zener diode(s), thyristor(s) and/or the like

US6740211	Method of manufacturing windshield using ion beam milling of glass substrate(s)
US6610360	Buffing diamond-like carbon (DLC) to improve scratch resistance
US6602371	Method of making a curved vehicle windshield
US6359388	Cold cathode ion beam deposition apparatus with segregated gas flow
US6335086	Hydrophobic coating including DLC on substrate
US6303225	Hydrophilic coating including DLC on substrate
US6284377	Hydrophobic coating including DLC on substrate
US6280834	Hydrophobic coating including DLC and/or FAS on substrate
US6261424	Method of forming diamond-like carbon coating in vacuum
US7001189	Board mounted power connector
US6394818	Power connector
US6190215	Stamped power contact
US6041498	Method of making a contact assembly
US5667392	Electrical connector with stabilized contact
US5630720	Self polarizing electrical contact
US5618187	Board mount bus bar contact
US6969268	Impedance-tuned terminal contact arrangement and connectors incorporating same
US6575789	Impedance-tuned termination assembly and connectors incorporating same
WO200106602A1	IMPEDANCE-TUNED CONNECTOR
US6808420	High speed electrical connector
US6808399	Electrical connector with wafers having split ground planes
US6641411	Low cost high speed connector
US6607402	Printed circuit board for differential signal electrical connectors
US6589061	Drive de describe and for standillo assessed a standard and a standard for a standard for a standard and a stan
	Printed circuit board for straddle mount electrical connector and method for pasting the same
US6942923	Low-e coating with high visible transmission
<b>US6942923</b> US6475626	
	Low-e coating with high visible transmission
US6475626	Low-e coating with high visible transmission  Low-E matchable coated articles and methods of making same
US6475626 US6355334	Low-e coating with high visible transmission  Low-E matchable coated articles and methods of making same  Transparent substrate provided with a thin-film stack
US6475626 US6355334 US6322881	Low-e coating with high visible transmission  Low-E matchable coated articles and methods of making same  Transparent substrate provided with a thin-film stack  Glazing assembly comprising a substrate provided with a stack of thin layers for solar protection and/or thermal insulation
US6475626 US6355334 US6322881 US6316111	Low-e coating with high visible transmission  Low-E matchable coated articles and methods of making same  Transparent substrate provided with a thin-film stack  Glazing assembly comprising a substrate provided with a stack of thin layers for solar protection and/or thermal insulation  Heat-emperable coated glass article
US6475626 US6355334 US6322881 US6316111 US6261693	Low-e coating with high visible transmission  Low-E matchable coated articles and methods of making same  Transparent substrate provided with a thin-film stack  Glazing assembly comprising a substrate provided with a stack of thin layers for solar protection and/or thermal insulation  Heat-emperable coated glass article  Highly tetrahedral amorphous carbon coating on glass
US6475626 US6355334 US6322881 US6316111 US6261693 US6159607	Low-e coating with high visible transmission  Low-E matchable coated articles and methods of making same  Transparent substrate provided with a thin-film stack  Glazing assembly comprising a substrate provided with a stack of thin layers for solar protection and/or thermal insulation  Heat-emperable coated glass article  Highly tetrahedral amorphous carbon coating on glass  Heat treatable, durable, ir-reflecting sputter-coated glasses and method of making same
US6475626 US6355334 US6322881 US6316111 US6261693 US6159607 US6090481	Low-e coating with high visible transmission  Low-E matchable coated articles and methods of making same  Transparent substrate provided with a thin-film stack  Glazing assembly comprising a substrate provided with a stack of thin layers for solar protection and/or thermal insulation  Heat-emperable coated glass article  Highly tetrahedral amorphous carbon coating on glass  Heat treatable, durable, ir-reflecting sputter-coated glasses and method of making same  Coated substrate for transparent assembly with high selectivity

US5718980	Glass substrates covered with a stack of thin coatings, application to glazings having properties of reflecting in the infrared and/or properties in the field of solar radiation
US6923661	Power connector for mounting on a circuit board
US6299492	Electrical connectors
US5676571	Socket contact with integrally formed hood and arc-arresting portion
US4824380	Quick disconnect connector and system with integral conductor
US6916209	Electrical signal transmission system
US5779503	High frequency connector with noise cancelling characteristics
US5547405	Crosstalk suppressing connector
US6641443	Electrical connector jack
US6638121	Stacked connector with LEDs and method of producing the same
US6547604	Communication jack connector construction for avoiding damage to contact wires
US6533618	Bi-directional balance low noise communication interface
US6530810	High performance communication connector construction
US6893295	Connector with integrated strain relief
US4690647	Electrical contact for receiving two conductors
US6428344	Cable structure with improved termination connector
US6394839	Cable structure with improved grounding termination in the connector
US6217372	Cable structure with improved grounding termination in the connector
US5632634	High frequency cable connector
US5328386	Wire organizer for ballast connector
US5281762	Multi-conductor cable grounding connection and method therefor
US4875877	Discrete cable assembly
US4737117	Double-row electrical connector and method of making same
US4655515	Double row electrical connector
US4615578	Mass termination device and connection assembly
US6871815	Static build up control in electronic dispensing systems
US6198271	Electronic wall-stud sensor display
US6112631	Mechanism for paper dispenser
US6027002	Paper towelling dispenser with spare roll loading device
US5836862	Folded and unfolded paper towel dispensing apparatus
US5781942	Wash stations and method of operation
	Thermal management of power delivery systems for integrated circuits

US6853559	
US6452804	Method and apparatus for thermal and mechanical management of a power regulator module and microprocessor in contact with a thermally conducting plate
US6452113	Apparatus for providing power to a microprocessor with integrated thermal and EMI management
US6407924	Enhanced thermal path mechanical tolerance system
US6359783	Integrated circuit socket having a built-in voltage regulator
US6356448	Inter-circuit encapsulated packaging for power delivery
US6342724	Thin film capacitor coupons for memory modules and multi-chip modules
US6846945	Phosphonite ligands and their use in hydrocyanation
US5821378	Hydrocyanation of diolefins and isomerization of nonconjugated 2-alkyl-3-monoalkenenitriles
US5523453	Process for hydrocyanation
US5512695	Bidentate phosphite and nickel catalyst compositions for hydrocyanation of monoolefins
US5484902	Organophosphorus saccharide nickel catalyst
US6840810	Grouped element transmission channel link termination assemblies
US5235132	Externally and internally shielded double-layered flat cable assembly
US5938455	Three-dimensional molded circuit board having interlocking connections
US5727956	Connector assembly including metal strips as contact members
US5088009	Surface-mounting connector
US5082457	Filter electrical connector
US6826985	Method of dispensing sheet material
US5558302	Flexible sheet material dispenser with automatic roll transferring mechanism
US5288032	Dispenser for flexible sheet material
US5271574	Dispenser for flexible sheet material
US5061232	Rolled paper embossing dispenser
US4960248	Apparatus and method for dispensing toweling
US4307639	Multiple wound roll dispenser for flexible sheet material
US4307638	Method of dispersing flexible sheet material
US4137805	Dispenser for flexible sheet material
US6793506	Board-to-board electrical connector assembly
US5498167	Board to board electrical connectors
US5277597	Thin, applied-to-surface type of electric connector
US6533614	High density connector for balanced transmission lines
US6439928	High density connector for balanced transmission lines
	Methods of making coated articles by sputtering silver in oxygen inclusive atmosphere

US6787005	
US6340529	Glazing panel
US6316111	Heat-emperable coated glass article
US6159607	Heat treatable, durable, ir-reflecting sputter-coated glasses and method of making same
US6142642	Bendable mirrors and method of manufacture
US6132881	High light transmission, low-E sputter coated layer systems and insulated glass units made therefrom
US6086210	Bendable mirrors and method of manufacture
US6060178	Heat temperable transparent glass article
US6764579	Solar management coating system including protective DLC
US5466431	Diamond-like metallic nanocomposites
US5082359	Diamond films and method of growing diamond films on nondiamond substrates
US6447891	Low-E coating system including protective DLC
US6416820	Method for forming carbonaceous hard film
US6416816	Method of deposition DLC inclusive layer(s) using hydrocarbon and/or siloxane gas(es)
US6395333	Method of making hydrophobic coated article
US6743516	Highly durable hydrophobic coatings and methods
US5800918	Multilayered hydrophobic window glass
US5240774	Fluorocarbon-based coating film and method of manufacturing the same
US6261693	Highly tetrahedral amorphous carbon coating on glass
US5902636	Method for chemical surface modification of fumed silica particles
US5736245	Chemical treatment for silica-containing glass surfaces
US5585186	Coating composition having anti-reflective, and anti-fogging properties
US5580819	Coating composition, process for producing antireflective coatings, and coated articles
US6723211	Method of making coated articles with contact layer that is more oxidized further from IR reflecting layer
US6475626	Low-E matchable coated articles and methods of making same
US5935702	Glass substrates coated with a stack of thin layers having reflective properties in the infra-red and/or solar ranges
US5718980	Glass substrates covered with a stack of thin coatings, application to glazings having properties of reflecting in the infrared and/or properties in the field of solar radiation
US5709930	Coated substrate
US5376455	Heat-treatment convertible coated glass and method of converting same
US5344718	High performance, durable, low-E glass
US5302449	High transmittance, low emissivity coatings for substrates

US5296302	Abrasion-resistant overcoat for coated substrates
US5229881	Low transmission low emissivity glass window and method of manufacture
US5112693	Low reflectance, highly saturated colored coating for monolithic glazing
US6701749	Vacuum IG window unit with edge seal at least partially diffused at temper and completed via microwave curing, and corresponding method of making the same
US5902652	Methods of construction of evacuated glazing
US5643644	Insulating glazing
US5107649	Compact vacuum insulation embodiments
US5009218	Heat-insulating building and/or light element
US5005557	Heat-insulating building and/or light element
US4831799	Multiple layer insulated glazing units
US4798695	Process for the production of laminated glass plates
US4468423	Insulating cell element and structures composed thereof
US4444821	Vacuum thermal insulation panel
US6642299	Urea-formaldehyde resin binders containing styrene acrylates and acrylic copolymers
US6084021	Modified urea-formaldehyde binder for making fiber mats
US5445878	High tear strength glass mat urea-formalehyde resins for hydroxyethyl cellulose white water
US5389716	Fire resistant cured binder for fibrous mats
US6632491	IG window unit and method of making the same
US5948538	Glazing assembly comprising a substrate provided with a stack of thin layers for solar protection and/or thermal insulation
US5688585	Matchable, heat treatable, durable, IR-reflecting sputter-coated glasses and method of making same
US5584902	Method of converting coated glass
US5377045	Durable low-emissivity solar control thin film coating
US5376455	Heat-treatment convertible coated glass and method of converting same
US5302449	High transmittance, low emissivity coatings for substrates
US5242560	Heat treatable sputter-coated glass
US5229881	Low transmission low emissivity glass window and method of manufacture
US5071206	Color-corrected heat-reflecting composite films and glazing products containing the same
US4799745	Heat reflecting composite films and glazing products containing the same
US6596399	UV absorbing/reflecting silver oxide layer, and method of making same

US5584902	Method of converting coated glass
US5563734	Durable low-emissivity solar control thin film coating
US5377045	Durable low-emissivity solar control thin film coating
US5376455	Heat-treatment convertible coated glass and method of converting same
US4790922	Temperable low emissivity and reflective windows
US6579338	Controlled release urea-formaldehyde liquid fertilizer resins with high nitrogen levels
US5266097	Aminoureaformaldehyde fertilizer method and composition
US4298512	Urea formaldehyde dispersions modified with higher aldehydes
US4089899	Fertilizer compound of the ureaform type and a method for the production thereof
US6567143	NW twisted nematic LCD with negative and tilted retarders on each side of liquid crystal cell to improve vertical contrast ratios
US5375006	Twisted nematic liquid crystal display devices with optical axis of birefringent layer inclined with respect to birefringent layer normal
US5638200	Liquid crystal display with tilted retardation film
US5311340	Liquid crystal display device having compensator and thin film with maximum refractive index parallel and perpendicular to compensator, respectively
US5249071	Liquid crystal display having positive and negative uniaxially oriented polymer films
033249071	ciquid crystal display having positive and negative dinaxially oriented polynier hims
US6541083	Vacuum IG unit with alkali silicate edge seal and/or spacers
US6541083	Vacuum IG unit with alkali silicate edge seal and/or spacers
US6541083 US5270084	Vacuum IG unit with alkali silicate edge seal and/or spacers  Insulating glass unit
US6541083 US5270084 US5107649	Vacuum IG unit with alkali silicate edge seal and/or spacers  Insulating glass unit  Compact vacuum insulation embodiments
US6541083 US5270084 US5107649 US5009218	Vacuum IG unit with alkali silicate edge seal and/or spacers  Insulating glass unit  Compact vacuum insulation embodiments  Heat-insulating building and/or light element
US6541083  US5270084  US5107649  US5009218  US4831799	Vacuum IG unit with alkali silicate edge seal and/or spacers  Insulating glass unit  Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Multiple layer insulated glazing units
US6541083  US5270084  US5107649  US5009218  US4831799  US4468423	Vacuum IG unit with alkali silicate edge seal and/or spacers  Insulating glass unit  Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Multiple layer insulated glazing units  Insulating cell element and structures composed thereof
US6541083  US5270084  US5107649  US5009218  US4831799  US4468423  US4444821	Vacuum IG unit with alkali silicate edge seal and/or spacers  Insulating glass unit  Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Multiple layer insulated glazing units  Insulating cell element and structures composed thereof  Vacuum thermal insulation panel
US6541083  US5270084  US5107649  US5009218  US4831799  US4468423  US4444821  US4204015	Vacuum IG unit with alkali silicate edge seal and/or spacers  Insulating glass unit  Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Multiple layer insulated glazing units  Insulating cell element and structures composed thereof  Vacuum thermal insulation panel  Insulating window structure and method of forming the same
US6541083  US5270084  US5107649  US5009218  US4831799  US4468423  US4444821  US4204015  US4047351	Vacuum IG unit with alkali silicate edge seal and/or spacers  Insulating glass unit  Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Multiple layer insulated glazing units  Insulating cell element and structures composed thereof  Vacuum thermal insulation panel  Insulating window structure and method of forming the same  Light transmitting panel
US6541083  US5270084  US5107649  US5009218  US4831799  US4468423  US4444821  US4204015  US4047351  US3947260	Vacuum IG unit with alkali silicate edge seal and/or spacers  Insulating glass unit  Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Multiple layer insulated glazing units  Insulating cell element and structures composed thereof  Vacuum thermal insulation panel  Insulating window structure and method of forming the same  Light transmitting panel  Method of sealing and spacing glass substrates of gaseous discharge display panels used at high altitudes
US6541083  US5270084  US5107649  US5009218  US4831799  US4468423  US4444821  US4204015  US4047351  US3947260  EP0421239	Vacuum IG unit with alkali silicate edge seal and/or spacers  Insulating glass unit  Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Multiple layer insulated glazing units  Insulating cell element and structures composed thereof  Vacuum thermal insulation panel  Insulating window structure and method of forming the same  Light transmitting panel  Method of sealing and spacing glass substrates of gaseous discharge display panels used at high altitudes  Vacuum IG window unit with edge seal formed via microwave curing, and corresponding
US6541083  US5270084  US5107649  US5009218  US4831799  US4468423  US4444821  US4204015  US4047351  US3947260  EP0421239  US6478911	Vacuum IG unit with alkali silicate edge seal and/or spacers  Insulating glass unit  Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Multiple layer insulated glazing units  Insulating cell element and structures composed thereof  Vacuum thermal insulation panel  Insulating window structure and method of forming the same  Light transmitting panel  Method of sealing and spacing glass substrates of gaseous discharge display panels used at high altitudes  Vacuum insulation unit  Vacuum IG window unit with edge seal formed via microwave curing, and corresponding method of making the same

US5175975	Compact vacuum insulation
US5157893	Compact vacuum insulation
US5124185	Vacuum insulating unit
US5107649	Compact vacuum insulation embodiments
US6454605	Impedance-tuned termination assembly and connectors incorporating same
US5632635	Electric connector array
US5588851	Connector for a cable for high frequency signals
US5429521	Connector assembly for printed circuit boards
US5429520	Connector assembly
US5046960	High density connector system
US4846727	Reference conductor for improving signal integrity in electrical connectors
US4686607	Daughter board/backplane assembly
	Wet crepe, impingement-air dry process for making absorbent sheet
US6432267	Wet crepe, impingement an ary process for making absorbent sheet
US5772845	Soft tissue
US5746887	Method of making soft tissue products
US5695607	Soft-single ply tissue having very low sidedness
US5667636	Method for making smooth uncreped throughdried sheets
US5656132	Soft tissue
US5609725	Multi-region paper structures having a transition region interconnecting relatively thinner regions disposed at different elevations, and apparatus and process for making the same
US5501768	Method of treating papermaking fibers for making tissue
US5492598	Method for increasing the internal bulk of throughdried tissue
US5348620	Method of treating papermaking fibers for making tissue
US6406192	Connector assembly floating mount
US4812133	Floating mounting means for electrical connector assembly
US5975933	Connector attachment structure
US5930426	Optical fiber connector
US5915058	Fiber optic connector assembly
US5622511	Floating connector housing
US5134679	Connector for coupling an optical fiber on a backplane to a component on a circuit board
US5017151	Floating panel mount for electrical connectors
US4909748	Movable connector
US4842543	Contact protection system for electrical connectors

US4761144	Mounting means for rack and panel connector
US3951500	Circular rack and panel connector
US6359388	Cold cathode ion beam deposition apparatus with segregated gas flow
US5399252	Apparatus for coating a substrate by magnetron sputtering
US6077569	Highly durable and abrasion-resistant dielectric coatings for lenses
US6046758	Highly wear-resistant thermal print heads with silicon-doped diamond-like carbon protective coatings
US5969470	Charged particle source
US5879775	Protective inorganic and DLC coatings for plastic media such as plastic cards
US6336984	Vacuum IG window unit with peripheral seal at least partially diffused at temper
US5107649	Compact vacuum insulation embodiments
US4850175	Spacer assembly for multiple glazed unit
US4831799	Multiple layer insulated glazing units
US4791762	Noise and burglar preventive door and window apparatus
US3947260	Method of sealing and spacing glass substrates of gaseous discharge display panels used at high altitudes
EP0421239	Vacuum insulation unit
US6300846	Flat flexible cable with ground conductors
US5646368	Printed circuit board with an integrated twisted pair conductor
US5618185	Crosstalk noise reduction connector for telecommunication system
US5430247	Twisted-pair planar conductor line off-set structure
US6291036	Vacuum IG window unit with spacers in seal
US5270084	Insulating glass unit
US5270084 US5107649	Insulating glass unit  Compact vacuum insulation embodiments
US5107649	Compact vacuum insulation embodiments
US5107649 US5009218	Compact vacuum insulation embodiments  Heat-insulating building and/or light element
US5107649 US5009218 US4468423	Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Insulating cell element and structures composed thereof
US5107649 US5009218 US4468423 US4444821	Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Insulating cell element and structures composed thereof  Vacuum thermal insulation panel
US5107649 US5009218 US4468423 US4444821 US4204015	Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Insulating cell element and structures composed thereof  Vacuum thermal insulation panel  Insulating window structure and method of forming the same
US5107649 US5009218 US4468423 US4444821 US4204015 US4047351	Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Insulating cell element and structures composed thereof  Vacuum thermal insulation panel  Insulating window structure and method of forming the same  Light transmitting panel
US5107649 US5009218 US4468423 US4444821 US4204015 US4047351 EP0421239	Compact vacuum insulation embodiments  Heat-insulating building and/or light element  Insulating cell element and structures composed thereof  Vacuum thermal insulation panel  Insulating window structure and method of forming the same  Light transmitting panel  Vacuum insulation unit

US5594231	Scanner window
US5584902	Method of converting coated glass
US5563734	Durable low-emissivity solar control thin film coating
US5403458	Sputter-coating target and method of use
US4961958	Process for making diamond, and doped diamond films at low temperature
US4569738	Method of producing amorphous carbon coatings on substrates by plasma deposition
US4504519	Diamond-like film and process for producing same
WO9513189	ABRASION WEAR RESISTANT COATED SUBSTRATE PRODUCT
US6206723	Electrical connector for a flat circuit
US5639260	Electrical connector for use with flexible printed circuit
US5458506	Flexible board electrical connector
US5240430	Electrical connector for cable to circuit board application
US5106311	Connector
US4944690	Electrical connector for flat electrical cables
US6158652	Container with wall locking feature
US4911355	Foldable carton
US4244507	Corrugated container having superior stacking strength
US3410475	Container
US6086412	Electrical connector for flat flexible circuitry
US5040997	Flex circuit connector assembly and method for manufacturing the same
US4784615	Direct contact flexible circuit interconnect system and method
US5133667	Flexible circuit connector
US4815979	Right angle electrical connector with or without wiping action
US4798541	Right angle electrical connector
US4111510	Flexible circuit/flat cable to circuit board edge connector for electronic wrist watches, calculators and the like

For a more detailed examination of the patents mentioned in this report, please contact us at: patentlyobvious@m-cam.com.

## M·CAM's Patent Glossary

Aligned Sector: The business sector in which the product(s) resulting from the patent(s) is currently or intended to be sold.

Applicant: The person or corporation that applies for a patent with the intent to use, manufacture or license the technology

of the invention; under U.S. law, except in special situations, the applicant(s) must be the inventor(s).

Application: Complete papers submitted to the U. S. Patent and Trademark Office seeking a patent including oath,

specification, claims, and drawings. This usually does not signify a Provisional Patent Application, but only a

regular patent application.

Art: The established practice and public knowledge within a given field of technology. This also identifies a process or

method used to produce a useful result. A term used in consideration of the problem of patentable novelty encompassing all that is known prior to the filing date of the application in the particular field of the invention.

Assignee: The person(s) or corporate body to whom the law grants or vests a patent right. This refers to the person or

corporate entity that is identified as the receiver of an assignment.

**Business Method** 

Patent: A patent that controls the way a business process is undertaken. The issuance of these patents by the United

States Patent and Trademark Office (USPTO) is new and controversial, since many allege that it is unfair to allow

a patent on a way of doing business.

<u>Citation</u>: This may include patents or journal articles that the applicant or examiner deems relevant to a current

application. A reference to legal authorities or a prior art documentation are examples of a citation.

<u>Claim</u>: The language in a patent application that defines the legal scope of the patent. Most patents have numerous

claims. This is typically the single most important section in the application.

Concurrent Art: Concurrent art occurs when related patent applications are being examined by the USPTO at the same time. It is

difficult for any company or inventor to know, at the time they file for a patent, whether a "related" patent

application exists.

Filing Date: The date when a properly prepared application reaches the patent office in complete form.

<u>Innovation Cycle</u>: A description of the commercialization timeframe for the intellectual property.

Innovation Space: M·CAM's representation of the innovation(s) that occur before, during, and after the pending period of the

subject patent. The innovation space is the first place to look for patents that are closely related to the subject patent and that may impact the defensibility of the subject patent or create opportunities for patent licensing.

Issue Date: Not to be confused with the filing date, which is the date the patent application was physically received by the

U.S. Patent and Trademark Office. This is the date on which the patent actually issues.

Non-Aligned

<u>Sector</u>: Any sector in which the patent can be used or sold, other than the sector for which the patent or resultant

product was invented or intended.

Pod: A group of patents owned by a company that should be treated as a single unit of innovation (e.g., a certain

group of patents that comprise a single product or multiple related products).

<u>Prior Art</u>: Any relevant patent that was issued before the patent being analyzed. If this previous patent was specifically

mentioned in the new patent's application, the previous patent is referred to as "cited prior art". If it was NOT

mentioned, then that previous patent is referred to as "uncited prior art".

<u>Subsequent Art</u>: Any patent that has a filing date with the USPTO that is after the issuance date of the subject patent. This

subsequent art patent may or may not have cited (see "Citation" above) the subject patent. As subsequent art represents more recent innovation than the subject patent, it has great potential to shrink the market

opportunity for the subject patent.

## A Brief Primer on the Patent System

In recent years, the importance of patents and intellectual property rights as an important variable in the marketplace has come to the forefront of the public consciousness as world leaders declare their country's lead in the innovation race. Damaging intellectual property litigation is becoming increasingly common across all industries. This is exacerbated when patent rights are granted for non-novel ideas. A vast amount of precedent innovation is unconsidered by patent-granting authorities in the creation of new IP rights. Patent granting authorities including the United States Patent and Trademark Office (USPTO), European Patent Office (EPO), Japanese Patent Office (JPO), Chinese State Intellectual Property Office (SIPO), Korean Intellectual Property Office (KIPO) and many others are constrained by the use of patent classification systems which are routinely circumvented by patent applicants.

There is a two-way social contract underlying the patent system. In the United States, patent terms are generally limited to 20 years from the date of application. By statutory intention, once a patent has expired, the patent holder loses the right to exclude others from fully utilizing any innovation described in the patent. A large number of patents enter the public domain when they are "abandoned" – when owners discontinue paying patent maintenance fees. Patents also only provide an exclusionary right in the country for which the patent is filed. As demonstrated by the Global Innovation Commons<sup>3</sup> (G.I.C.), using intellectual property available in the public domain eliminates the need to pay licensing fees on those innovations in countries where the patent was never registered, or worldwide, if abandoned.

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<sup>&</sup>lt;sup>3</sup> http://www.globalinnovationcommons.org/