

After the industrial engine was invented in the 19th century, the world officially entered the Industrial Age. In order to reduce costs, having a factory was the best way to be competitive, as one could produce products in greater volume at cheaper price and faster speed. However, as everyone followed suit, finding other alternatives to compete became an inevitable choice. That is where the power of capital came into play. With capital, bigger factories can be built all for the purpose of cost reduction, more market share, and out-running rivals.

Patented Fasteners in Europe, USA, Japan, Taiwan

Compiled by Fastener World Inc.

Data source: Cooperative companies & patent offices

We all know what comes afterwards. Competent people increase, and the entry barrier for mass production becomes lower! "Patent" comes as the new bargaining chip in the current era. Patent protects products, manufacturing process, and competitiveness, as well as creates corporate values and investors' interest. It works like the moat of a castle. In this course of evolution it is clear that a company able to develop patented products is, to say the least, a sizable one with systematic structure, which guarantees clients' will to purchase.

However, the cruel reality is that patent does not directly affect sales. The most well known example is the competition between Apple and Samsung years ago. Who is the winner or loser is not the top concern of consumers. What matters right now is "brand, marketing, and distribution routes" - the three keys to good sales. This is the core idea of this feature, in which we offer a platform to expose companies with knowledge in brand, marketing, and distribution, and then display recently-disclosed fastener patents collected from patent offices in Europe, USA, Japan, and Taiwan.

New Patented Fasteners & Facilities

Chong Cheng Fastener Corp.

Contact: Kenny Hsu

Patent Title: Nut (Patent No. M443789)

Patented Range: New Model

Target Market: Europe, USA

Product Feature: A safe and anti-loosening nut. Common nuts do not have washers punched to the main body, and therefore, those nuts have limited anti-loosening performance. Our new product utilizes washers with stopper and packing to improve anti-loosening effect.

Patent Title: Nut (German Utility Model)

Patented Range: New Model (German Utility Model No. 20 2014 001 265.2)

Target Market: Europe, USA

Product Feature: A safe and anti-loosening nut. The main body comes with a cap and a washer, demonstrating dual anti-loosening effect. The cap positioned at the end of the screw or bolt can prevent collision and damage while possessing the function of beauty and safety.



Patent No. M443789



German Utility Model

Contact: Ben-Yuan Lin

Patent Title: Bolt Structure

Patented Range: Ti Alloy External 12 Tooth Bolts

Target Market: Global

Product Feature: Manufacturing bolts of this kind is easy in general materials but not in titanium alloy. To manufacture in titanium alloy, a certain level of technology is required for producing the part of 12 external teeth. GA-E is a specialized manufacturer of fastener molds and titanium alloy screws. With years of experience in manufacturing molds, it has successfully developed the new Ti Alloy External 12 Tooth Bolt, demonstrating technical upgrade of the company in manufacturing titanium alloy screws.



GA-E INDUSTRIAL PRECISION CO., LTD.

Fong Preat Industrial Co., Ltd.

Contact: Flora Lee

Patent Title: Arrowy

Patented Range: EP 2339189 Thread

Target Market: Japan, Europe, USA

Product Feature: Fong Preat's Arrowy has strong thread shape and a tip point that penetrates fast and stably. Its fast drilling speed does not negatively affect the bonding of the fastened material. Arrowy is particularly advantageous in the application to the bonding of plasterboards, steel plates, or plates of other materials. Arrowy can also be used with other series of collated screw guns. Arrowy is your best choice for improved efficiency and favorable price!



Arrowy Reamer

Patent Title: Reamer

Patented Range: EP 2395251 Thread

Target Market: Japan, Oceania, Europe, USA

Product Feature: Fong Preat's Reamer is an extraordinary stainless steel product that drills hard wood. It merges pre-drilling and wood chip removal into a single process. The magic spiral design removes wood chips, maintains the smoothness of the surface, and keeps the screw tightly attached to the wood surface. Reamer's thread design saves the need for pre-drilling and it does not cause wood rupture during drilling. Reamer is special in that it only requires less processes for users' operation. No more pre-drilling and countersinking before fastening.

Karat Industrial Corporation

Contact: Philey Ko

Patent Title: A Rivet Tool Capable of Measuring Sizes of Blind Rivets

Patented Range: All kinds of rivet tools, such as hand rivet tools, air rivet tools, battery operated rivet tools

Target Market: USA, Europe, Australia, Asia, South Africa, etc.

Product Feature: The design of the patented "rivet tool capable of measuring sizes of blind rivets" can avoid choosing blind rivets and nosepieces of wrong sizes and prevent spent mandrel from being stuck in the rivet tool after setting the blind rivet. For example, KARAT New AR-101 Air-Hydraulic Rivet Tool is equipped with design of the patented "rivet tool capable of measuring sizes of blind rivets" and many other features such as powerful traction force (8,336 N), long stroke (18 mm), shock reducer, noise silencer, twin air inlets, oil refill hole, spent mandrel container, etc. KARAT AR-101 is very ideal for industrial riveting applications for setting 4.8/5.0 mm stainless steel (Inox) blind rivets.



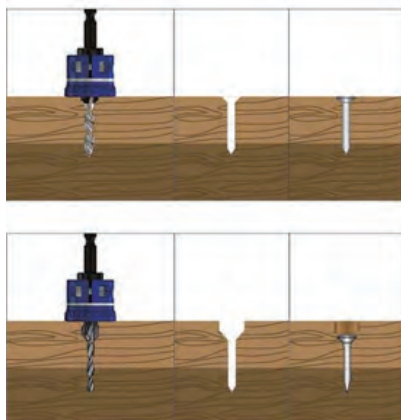
Contact: Su-Guay Bai

Patent Title: Restricting Sleeve Structure for Selectively Assembling Tool Parts

Patented Range: Restricting Sleeve Structure for Selectively Assembling Tool Parts



Target Market: Global

Product Feature: Pre-drill and countersink pilot holes for decking screws with fully adjustable countersink depth.



Loh Torng Hardware Machine Co., Ltd.

In the past, the only tools available to drill and countersink had fixed countersinking depth. There was no way you could adjust your countersinking depth to suit different timber and different screws. Well now you can! Our new pre-drill and countersink bit has a non marking collar. This collar acts as a depth stop and it stops rotating when it touches the timber boards even when your drill does not. Furthermore, the wide chip-exits in the collar prevent clogging of wood chips.

ITEM NO.	TOOL SIZE	DRILL SIZE		
LB-00707 P/C	#7(4.2mm)	3.0(7/64")	1	/
LB-00708 P/C	#8(4.5mm)	3.2(1/8")	1	/
LB-00710 P/C	#10(5.0mm)	3.6(9/64")	1	/
LB-00712 P/C	#12(5.5mm)	4.0(5/32")	1	/
LB-00714 P/C	#14(6.2mm)	5.25(13/64")	1	/

Hung-Yin Enterprise

Contact: Wu-Zhang Zhang

Patent Title: Straightening Machine

Patented Range: The All-New Straightening Machine (Solving Bending Problems of Long Screws)

Target Market: Global

Product Feature: Suitable for all kinds of bars in steel, copper, aluminum, stainless steel, etc., and available for length between 80-450mm according to customers' requirements for specified length and diameter. Any screws, vehicle parts, tools, when finished, can be straightened by this machine, improving precision and quality. Having a straightening machine can help lower the cost of screw making (as using a continuous furnace in heat treatment can reduce costs and significantly save expenses year over year).



Length range	Diameter range	Speed (per minute)
80mm-450mm	§ 3-8.5	30-60 screws

Minsun Technology Co., Ltd.

Contact: Chi-Chan Lu

Patent Title: Dip-spin Painting Device (Patent No. M463614)

Patented Range: A dip-spin painting device utilizes a positioning clutch part to connect the 2nd motor and the 2nd transmission shaft, enabling the transmission shaft to get away from the 2nd motor while the planetary gear is spinning at high speed, which avoids jamming of the transmission shaft and can adjust the dip-spin basket to the right feeding place by utilizing the 2nd motor and the positioning clutch part to slightly adjust the angle of the braking & positioning gear, when the basket is not in the right place.

Target Market: Taiwan, China, Southeast Asia, India

Product Feature: This dip-spin painting device utilizes the braking system and the 1st clutch part to achieve a quick stop of the 2nd supporting plate in spinning. The spinning force is enhanced and the quick stop provides acceleration. Through generating more quick stops, objects in the basket can change their places at all times, making any single object spin off paint in any angle to avoid blind holes, ensure even thicknesses of patented objects, and increase yield rate of products.



Patent Title: Automatic Barrel Clamping and Spin-washing Device (Taiwanese Patent No. M469299)


Patented Part: The device consists of an overhead crane frame, multiple spin-wash sinks, multiple motors, multiple transmissions, and an overhead barrel-clamping crane.

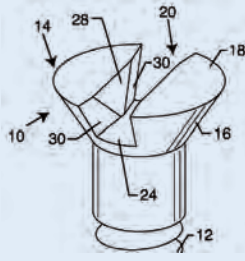
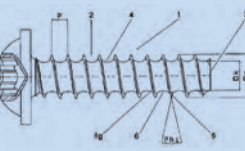
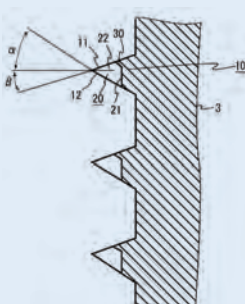
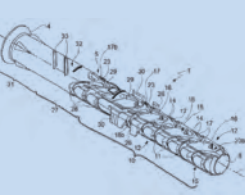
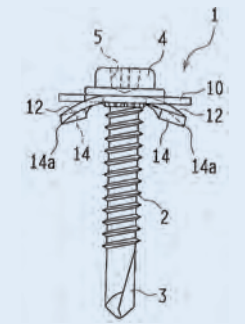
Target Market: Taiwan, China, Southeast Asia, India

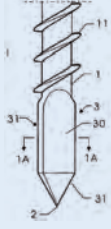
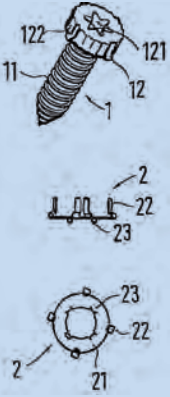
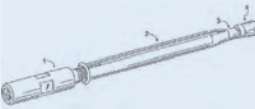
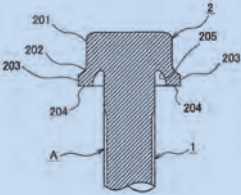
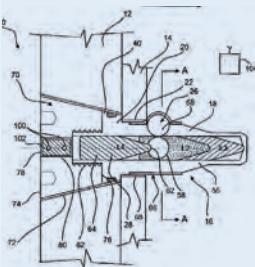
Product Feature: The device can tilt the rotatable barrels, making them spin to broaden the spin-washing angles of work pieces. The overhead crane can move and be exchanged in sync with the needs of different barrels, significantly reducing equipment costs.

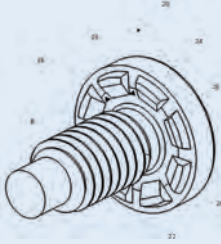
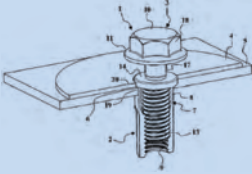
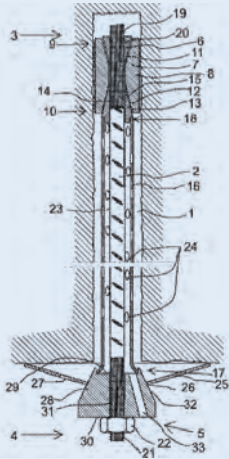
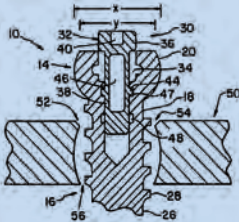
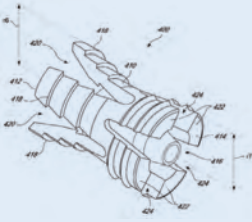


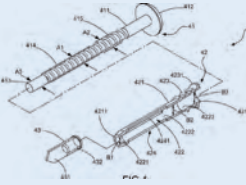
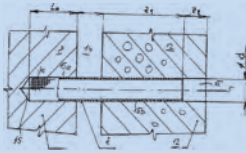
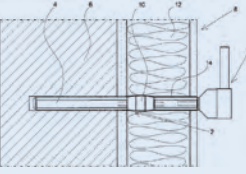
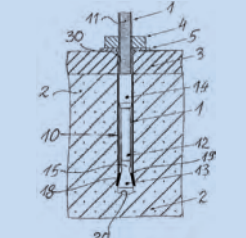
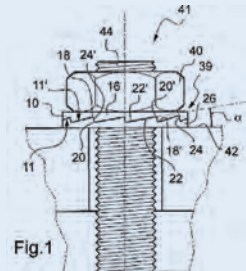
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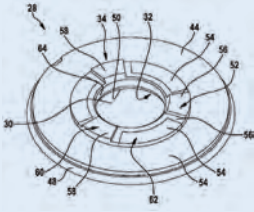
Applicant	Publication Number	Title	Inventor	Abstract
SPINOLOGICS INC	EP2726002	BONE SCREW, AND BONE FIXATION SYSTEM AND METHOD	DRISCOLL MARK; LABELLE HUBERT; MAC-THIONG JEAN-MARC; PARENT STEFAN	 <p>A bone screw for pelvic bone fixation, the bone screw comprising an elongate body having a first end which is threaded for engaging at least one bone in the pelvic region, a second end comprising a screw head, and at least one opening across the length of the elongate body for adjustably receiving a fastening means to limit movement of the bone screw away from the engaged bone in use, wherein at least one opening is shaped such that the position of the fastening means relative to the elongate body of the bone screw can be adjusted. A system for bone fixation in the pelvic region includes the bone screw and the fastening means.</p>

Applicant	Publication Number	Title	Inventor		Abstract
JENKINS ROBERT	EP2788632	HIGH SPEED, HIGH TORQUE SCREW FASTENERS AND DRIVE SYSTEMS	JENKINS ROBERT		A fastener system including a threaded fastener having a slot formed in the fastener head. Facets are formed in the slot walls, each facet having an angle of less than ninety degrees with respect to the base of the slot such that the slot has a variable width and at least a portion of the width of the base is greater than the width of the opening of the slot. A driver bit includes a blade configured to be inserted into the slot of the fastener. At least a portion of the free end of the blade has an increased width such that the blade is locked within the slot of the fastener when torque is applied to the driver bit.
BAIER & MICHAEL GMBH & CO KG	EP2785479	CORROSION-RESISTANT SCREW, USE OF A SCREW OF THIS TYPE IN A CORROSIVE ENVIRONMENT, AND METHOD FOR PRODUCING A SCREW OF THIS TYPE	AMBROS OLAF		The invention relates to a screw, having a shank which is provided with a thread, produced from a material which is suitable for a strength-increasing thermal treatment and is resistant to corrosion, and to the use of a screw of this type in a corrosive environment in conjunction with a corrosion-resistant component to be screwed, and, furthermore, to a method for producing a screw of this type. Screws of this type are used, in particular, for direct screwing.
NITTO SEIKO KK	EP2700829	TAPPING SCREW	HAMANO SINNICHI; KOWADA KINYA; NISHIMURA NAOKI; UEBA KAZUHIRO		Disclosed herein is a tapping screw (1) exerting an excellent anti-loosening effect with regard to a workpiece made of a soft material such as resin and an aluminum alloy. The tapping screw (1) includes a shaft part (3), and a normal thread (10) which is formed on the outer circumferential surface of the shaft part. A clearance groove (20) is formed by cutting out a portion of a ridge of the normal thread, and an engaging protrusion (30) is provided on a bottom of the clearance groove along a portion or an entirety of an edge of the bottom that continuously extends from a flank surface of the normal thread. The tapping screw (1) exerts an excellent anti-loosening effect even when a workpiece expands, contracts or oscillates because the engaging protrusions (30) are embedded into portions of the workpiece which have been embedded into the clearance grooves (20).
ILLINOIS TOOL WORKS	EP2780604	CONTROLLED EXPANSION ANCHOR, SCREW AND ANCHORING DEVICE MADE THEREFROM	LUCON MICHELE; VEDOVATO DIEGO		An expansion anchor comprising a head and a deformable tubular body within which a through longitudinal seat is delimited, open at least towards the head, adapted to accommodate a tightening screw therein, wherein at least one longitudinal portion, distal from the body head, consists of a plurality of modules longitudinally crossed by the screw seat and adapted to be deformed in use, each one locally and in a sequential and substantially even manner with respect to one other, arranged in a sequence along a symmetry axis of the body and obtained integrally with one another and with the head. The screw has a head and a shank having, starting from a free end thereof opposite to the screw head, threaded stretches axially arranged in sequence having core diameters increasing towards the head, equal pitch and different threading profile.
PIAS SALES CO LTD	EP2685025	Screw for fixing a roof member or exterior wall member both having three-layer structure	SHINJO KIMIO		A screw (1) includes a screw shaft (2) that has a pointed boring portion (3) on a front end thereof and has, on a rear end thereof, a head (4) with a torque transmitting hole (5). A large-diameter washer (10) is assembled, in a detent manner, to a base of the screw shaft (2) just below the head (4). The large-diameter washer (10) is provided with a pair of cutting blades (14) at respective positions that are opposite each other in a diameter direction of the large-diameter washer (10) and that are symmetrical to each other with respect to the screw shaft (2). At an initial stage of screw fastening, respective outer end edges of the pair of cutting blades (14) act as cutting blade edges (14a) to cut into a rubber sheet (23) that forms a surface layer, and then the pair of cutting blades (14) cuts through the rubber sheet (23) and enters under the rubber sheet (23). Thus, the screw shaft (2) goes straight ahead without inclination and reaches a thin steel plate (21) that forms a lower layer of a roof member (20) or an exterior wall member both having a three-layer structure such that the thin steel plate (21) is fixed to a support member (27).

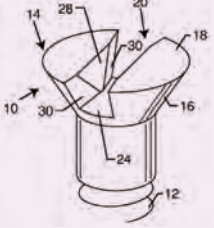
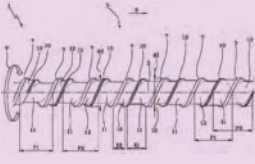
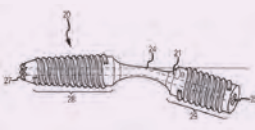
Applicant	Publication Number	Title	Inventor		Abstract
HUANG SHU-CHIN	EP2752588	Flat drill end of a screw	HUANG SHU-CHIN		<p>A flat drill end of a screw mainly includes a cylinder with a drill end having a thread wrapped around the cylinder, and a flat drill portion formed to the cylinder along to the drill end of the cylinder with a predetermined length. The thickness of the flat drill portion is less than a half of the width of the flat drill portion for receiving more debris and ejecting the debris during the drilling so as to form a drill screw capable of drilling fast and preventing split on to the working piece.</p>
HUGO BENZING GMBH & CO KG	EP2689151	SCREW WITH ANTI-LOOSENING MEANS	BENZING CHRISTIAN		<p>The invention relates to a screw with anti-loosening means, which comprises a securing element (2) which is provided with a ring portion (21) and with this is or can be inserted about a shaft (11) of the screw (1) under a head (12) thereof and, with the screw (1) in a state in which it is screwed on a base, prevents said screw from being turned back counter to a screwing-in direction, wherein the securing element (2) is provided on the ring portion (21), on the side of the latter facing the surface of the base, with at least one projection which can be pressed into the surface when screwing in the screw (1). Advantages in structure and in function are achieved in that the securing element (2) is provided, in the outer circumferential region of the ring portion (21), with finger-like extensions (22) which, with the securing element (2) in the inserted state, extend along the circumference of the head (12) and, under spring-elastic forces of the securing element (2), come into contact with a surface structure of the body (12) that has an inhibiting action counter to the screwing-in direction, and in that the extensions (22) have inwardly bent-off end portions which engage over the head (12), or a circumferential portion thereof protruding radially thereon, on the upper side thereof facing away from the shaft (11).</p>
FCI HOLDINGS DELAWARE INC	EP2748432	SELF-DRILLING FRICTION BOLT	HIDALGO SALGADO MAURICIO ANTONIO		<p>A reinforcement system includes an adapter, a friction bolt, a drilling rod coupled to the adapter, and a drill bit configured to drill an opening optimally sized for receiving the friction bolt. The drilling rod has a diameter that allows for introduction of the drilling rod into the friction bolt.</p>
YAMAZAKI ACTIVE KK	EP2733369	LOCKING BOLT AND METHOD FOR MANUFACTURING SAME	YAMAZAKI KAZUKI; YAMAZAKI TADAYOSHI		<p>It is an object to provide a locking bolt, which is capable of tightly fixing a member or the like at an extremely high degree of firmness without being loosened even when vibrations are repeatedly applied thereto, and is manufactured in an extremely facilitated manner. The locking bolt includes: a shank section (1) threaded on an outer circumference thereof; and a head section (2) provided at one end of the shank section (1). The head section (2) includes: a main body portion (201) having a hexagonal cross-sectional shape; and a cylindrical skirt portion (202) provided continuously with the main body portion (201) and formed so as to be spaced radially outward from the main body portion (201) in an expanding manner along a concave surface using a catenary curve surface. The locking bolt has a structure in which: a lower edge surface (203) of an outer surface of the cylindrical skirt portion (202) is parallel to an axis [X-X] of the main body portion (201); and an inner surface of the cylindrical skirt portion (202) is hollowed into an inverted catenary curve surface-like shape with a flat portion left on a bottom rim (204).</p>
BRIAN INVESTMENTS PTY LTD	EP2699809	NUTLESS BOLT	DAVIES BRIAN T		<p>A nutless bolt comprises a body having a shaft and a stop coupled to the shaft. Shaft is dimensioned to allow it to pass through a hole formed in a structure into which the bolt is inserted. The stop prevents body from falling into or through the hole. An axial bore is formed in body and houses a locking mechanism which is operable to extend radially from shaft to lock body and nutless bolt in the hole. An actuating mechanism in the form of pin is disposed in bore. Pin is movable along the bore in a generally down hole direction through various positions including is a pre-application position; the position L2 is a locking position; and position L3 is a release position. The pin is movable in the down hole direction from the locking position L2 where the pin causes the locking mechanism to extend radially from shaft to lock the body in the hole, to the release position L3 where the pin is retained in the body and displaced relative to the locking mechanism.</p>

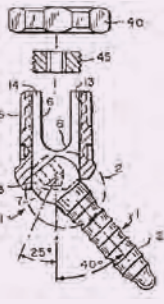
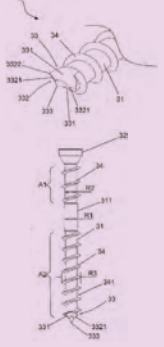
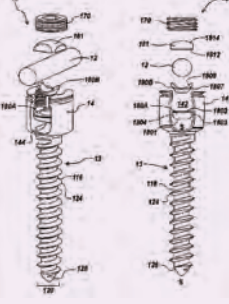
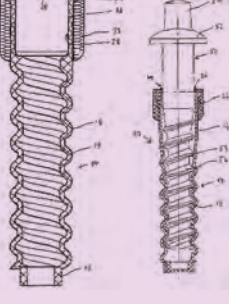
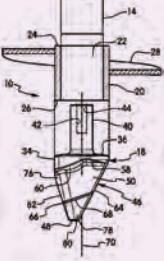
Applicant	Publication Number	Title	Inventor		Abstract
EJOT TEZMAK BAGLANTI ELEMENLARI TEKNOLOJILERI SAN VE TIC A S	EP2762734	Press-in bolt	GÜNGÖR HÜSEVİN; HOMRIGHAUSEN GEORG		The injection anchor has a head unit and a shank unit, where the head unit has a ring surface facing the sheet metal unit. An injecting structure is at a distance from the shank unit and from a radially outer edge of the ring surface. The injecting structure has a contour line, which increases with a first slope.
FORCE G	EP2702280	BLIND RIVET BOLT	GROJEAN ALEX; GROJEAN MAXIME; MASSEBEUF ERIC		The invention relates to a bolt, including a screw and an insert which can be inserted in the opening of a wall, said insert comprising an insert head, and a shaft including a recess, said insert head and said recess being configured such as to, after deforming the recess, crimp said insert on said wall. Said screw comprises a break ring, designed for engaging with said insert head, directly or indirectly, with a view to deforming the recess by rotating the screw and thus to obtain said crimping, and designed such that, once crimping is complete, said ring breaks and releases the screw from said insert head, thus making it possible to clamp an accessory to the wall. The invention also relates to an assembly method using a bolt according to the invention.
SUOMEN METALLITYOE OY	EP2678528	ROCK BOLT	AHOLA TOMI		The invention relates to a rock bolt to be installed into a bore-hole (1) drilled in a rock, wherein an expansion member (9) of the rock bolt includes an internal second cone abutment surface (12) in the interior of the expansion member in the vicinity of a second end (10) thereof. A second cone member (13) is at least partially fitted in the interior of the second end (10) of the expansion member (8). The second cone member includes a hole (14), through which a drawbar (2) is adapted to extend with a clearance, and a second cone surface (15) tapering inward relative to the expansion member and abutting against the second cone abutment surface (12) of the expansion member. A first end (17) of an elongated pushing member (16) bears on tightening members (5) and a second end (18) bears against the second cone member (13) on the opposite side relative to the expansion member (8) so that, as the drawbar (2) is tightened by the tightening members (5), the pushing member simultaneously pushes the second cone member (13) to the interior of the expansion member (8) for expanding the expansion member and engaging the expansion member to the wall of the borehole.
GLOBUS MEDICAL INC	EP2765937	ORTHOPEDIC ANCHOR ASSEMBLY	ANGELUCCI CHRISTOPHER; BLACK MICHAEL; HANSELL MATTHEW; SUH JON		An orthopedic assembly is described that comprises an orthopedic device, an anchor, and a locking mechanism. The orthopedic device can be a plate member having an aperture that is configured to receive the anchor. The anchor can include a head, neck and shank portion. The head portion can include a plurality of arms separated by grooves that are capable of splaying. The assembly is configured such that when the locking mechanism is inserted into the head portion, this causes expansion of the arms of the head. This expansion locks and secures the anchor to the orthopedic device. Various instruments are provided that can deliver the locking mechanism to the anchor, and can provide impact to lock functionality.
KFX MEDICAL CORP	EP2763598	DUAL EXPANSION ANCHOR	GREELIS JOHN P; HEAVEN MALCOLM		A dual expansion anchor configured for use in anchoring an implanting portion to an anchor point. A dual expansion anchor can be of particular use in anchoring soft tissue to a bone. A dual expansion anchor can have an expander and an anchor body. The expander can be sized and shaped so that it causes radial expansion of a first end and a second end of the anchor body when the expander is moved to a deployment or expansion position within the anchor body. The anchor body can include features to positively retain the position of the expander when the anchor body is deployed.

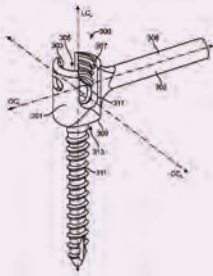
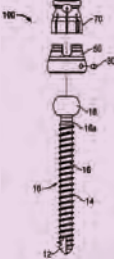
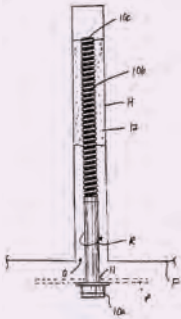
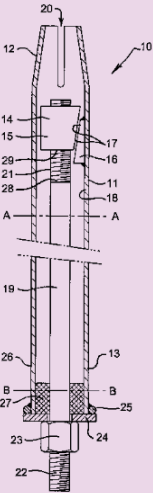
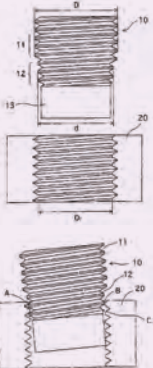
Applicant	Publication Number	Title	Inventor		Abstract
YL TECHNOLOGY CO LTD	EP2685112	A self-drilling wall anchor device	CHENG MING-CHIA		<p>A self-drilling wall anchor device comprises a threaded member having a first threaded section and a second threaded section with different diameters (A1,A2) and an outer sleeve having a through hole defining a connective first area, a second area, and a third area. A second area diameter (B2) of the second area is larger than a first diameter (A1) of the first threaded section but smaller than a second diameter (A2) of the second threaded section. A third area diameter (B3) of the third area is larger than the second diameter (A2) of the second threaded section. When two threaded sections cooperate with the outer sleeve for drilling, the second threaded section blocks between the second area and the third area. An arm section of the outer sleeve deforms and twists out of a gypsum object without being pulled into the gypsum object, which increases a gripping effect and an anti-retracting performance.</p>
ECORAW CZ S RO	EP2699812	THE ANCHOR FOR THERMALLY INSULATING BUILDING SYSTEMS AND THE WAY OF ITS ANCHORING IN THERMALLY INSULATING BUILDING SYSTEMS	MÍČEK IVAN		<p>The spiral and the filling mass penetrating outside and inside the said spiral, between its coils and through its eyes, holes or perforations of the material creates the anchor as a self-supporting structural element for anchoring holes in thermally insulating building systems without other inserted compact reinforcement items. The beginning and the end of the coil of the spatially coiled spiral is without any part or surface, which would be deflected in any other direction from the continuous lead of the spiral .</p>
HERMES MICHAEL	EP2708760	Insulating element of a wall anchor assembly	HERMES MICHAEL		<p>The insulating element has threaded portions that are made of plastic, and separated using separator section. A plastic spray element is molded into the separator section. The first threaded portion is screwed into anchor element provided in supporting portion of building wall. Second threaded portion is provided for screw connection of fastening element into supporting portion inserted into building wall. An independent claim is included for a wall anchor assembly.</p>
KARLSRUHER INST TECHNOLOGIE	EP2683953	ANCHOR FASTENING ELEMENT	MAISCH MARCO; STEMPNIOWSKI LOTHAR		<p>Anchor fastening element for fastening an object to a wall (2) having a drilled hole (20), which comprises a threaded bolt (1) having a threaded portion (11) at one end and an anchor portion (13) at the other end and also having a shank portion (12) in between. The threaded portion (11) and the anchor portion (13) have a low ductility and the shank portion (12) has a higher ductility.</p>
NORD LOCK INTERNAT AB	EP2756200	LOCK WASHER WITH TWO RINGS OF TEETH	DELCHER CHRISTOPHE	 <p>Fig.1</p>	<p>The invention relates to a lock washer (39) 41 comprising two rings of teeth (10, 26) each having a bearing face (11, 11'), said bearing face having a plurality of asymmetric radial teeth (16, 16'), each of said asymmetric teeth having, on the one hand, a crest (20, 20') and a root (18, 18') 40 spaced angularly away from said crest, and secondly an inclined slippage flank (22, 22') extending angularly between said crest (20, 20') and said root (18, 18'), the bearing faces (11, 11') of said rings of teeth being able to press against one another, whereas said slippage flanks (22, 22') come respectively into contact with one another along a contact surface. Said bearing face (11') of at least one of said rings of teeth (26) has an indentation (28) to reduce the area of said contact surface of said slippage flanks (22, 22').</p>

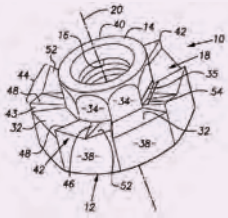
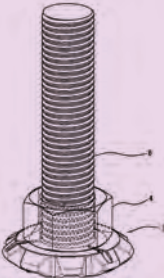
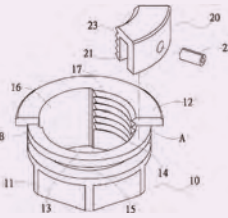
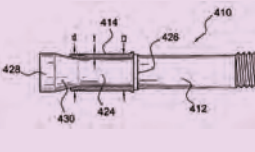
Applicant	Publication Number	Title	Inventor		Abstract
BOSCH GMBH ROBERT	EP2710712	THRUST WASHER FOR AN ELECTRIC MACHINE	BEHELFER LENA; KUENZEL GERALD; SCHULER DIETER; WINKLER WOLFGANG		The invention relates to a thrust washer (28) for an electric machine (10, 12) intended to be arranged on a shaft (16) between a bearing (18) and a rotor (14), preferably a rotating electrical contact element (24) impacted by brushes (38), and/or a disk pack (36) of the rotor (14). The thrust washer (28) is provided with an area for sealing having two end faces (32, 34). On each end face (32, 34), at least one radial abutment section (50, 52) for the bearing (18), or the rotor (14), is provided. The thrust washer (28) according to the invention is characterized in that it is made of at least one hard component (54) and one soft component (56), wherein the part of the radial abutment section (50, 52) abutting the rotor (14) and/or the bearing (18) is formed by the soft component (56).

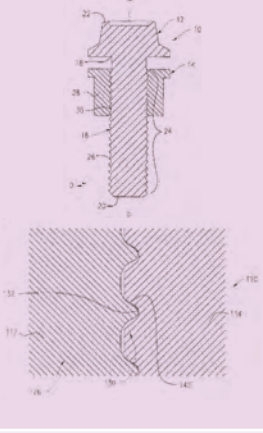
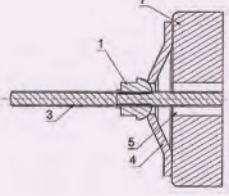
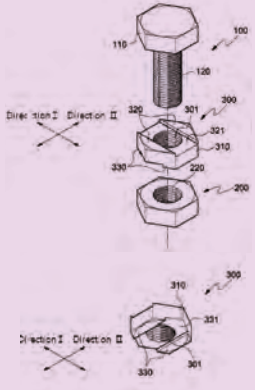
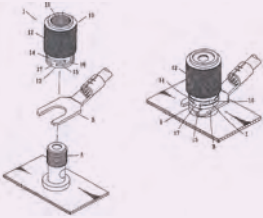
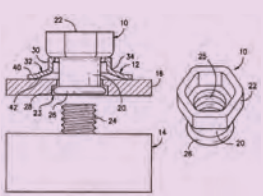
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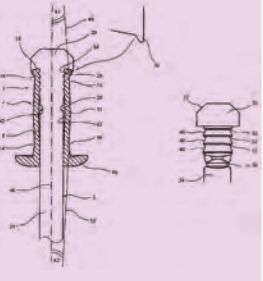
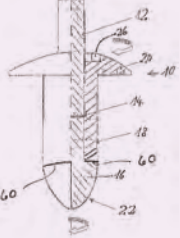
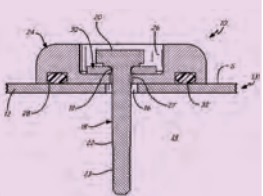
Applicant	Assignee	Patent Number	Title	Inventor		Abstract
Jenkins Robert		US 8,881,625	High speed, high torque screw fasteners and drive systems	Robert Jenkins		A fastener system including a threaded fastener having a slot formed in the fastener head. Facets are formed in the slot walls, each facet having an angle of less than ninety degrees with respect to the base of the slot such that the slot has a variable width and at least a portion of the width of the base is greater than the width of the opening of the slot. A driver bit includes a blade configured to be inserted into the slot of the fastener. At least a portion of the free end of the blade has an increased width such that the blade is locked within the slot of the fastener when torque is applied to the driver bit.
Sant'Elia Francesco	M.R.S. Italia S.R.L.	US 8,870,442	Plasticating screw	Francesco Sant'Elia		A plastication screw comprises a shank extending along a rectilinear axis, a feeding region to supply a product to be plasticated, a plastication region placed immediately downstream of the feeding region, relative to a main feeding direction of the product along the axis of the shank, at least one primary thread extending in a helical development around the shank at least in the plastication region, following a predetermined winding direction, and at least one secondary thread extending in a helical development around the shank in the same way as said predetermined winding direction, in at least part of the plastication region. The primary thread and the secondary thread each have a varying pitch. The pitch variation of the secondary thread is greater than the pitch variation of the primary thread.
Lloyd P. Champagne; Jozef Zoldos		8,864,804	Bent dip fusion screw	Lloyd P. Champagne; Jozef Zoldos		Devices and methods are disclosed for the fusion of joints (particularly finger joints or toe joints) in a bent (or angled) position. In certain embodiments, the device is pre-bent and inserted into the joint in its pre-bent configuration. Alternatively, the device may be configured to have a first position wherein it is bent and a second position wherein it is straight. In that case, the device is preferably straightened by inserting a K-wire through a cannula in the device, and the device can be inserted into the joint in its straight position. Once inserted, the device is permitted to move to its bent position, which moves the joint to a bent position. In one embodiment the device moves to its bent position when the K-wire is removed.

Applicant	Assignee	Patent Number	Title	Inventor		Abstract
Biedermann Lutz; Harms Jurgen	Biedermann Technologies GmbH & Co. KG	US 8,864,803	Bone screw	Biedermann Lutz; Harms Jurgen		A bone screw having a screw member possessing a threaded section and a head and a receiving part at the head end for receiving a rod to be connected to the bone screw is provided. The receiving part has an open first bore and a substantially U-shaped cross-section having two free legs provided with a thread. Furthermore, the receiving part has a second bore on the end opposite to the first bore whose diameter is greater than that of the threaded section and smaller than that of the head. On the bottom of the first bore a seat for the head is provided. In order that the screw member can be pivoted to at least one side by an enlarged angle, the edge bounding the free end of the second bore viewed relative to the axis of the first bore is of asymmetric construction.
Su Kou-Tsair; Su; Yu-Jung	Taiwan Shan Yin International Co., Ltd.	US 8,864,431	Screw capable of rapid drilling and cutting	Su Kou-Tsair; Su; Yu-Jung		A screw capable of drilling and cutting includes two inclined cutting planes with a cutting edge formed on a convergence of the cutting planes. A tapered positioning member extends from the convergence of the cutting planes, where the cutting edge is divided into dual sub cutting edges by means of the positioning member. Each sub cutting edge has an inclined angle. An included angle included by the sub cutting edges is smaller than 180 degrees. Threads spiral on a shank and extend to the sub cutting edges. Setting the positioning member against an object permits a steady performance during the first stage of screwing. Subsequently, the sub cutting edges provides a scraping effect on the object during drilling. Torque is reduced and drilling speed is promoted.
DePuy Synthes Products, LLC.	DePuy Synthes Products, LLC.	US 8,845,700	Adjustable bone screw assembly	Kwak Seungkyu Daniel; Chao Nam T.; Burke Andrea		A bone screw assembly includes a screw body, including anchor portion and rod-receiving portion, and a rod seat movably mounted in the screw body to allow for controlled angulation between a spinal connection element disposed in the rod seat and the screw body. The rod seat is pivotable in one or more selected directions about one or more axes relative to the screw body. The rod seat may include a first lower rod seat element disposed in a recess of the screw body having a cylindrical bottom surface to facilitate pivoting in a first direction. A second lower rod seat element is stacked on the first lower rod seat element and has a conical bottom surface abutting a top surface of the first lower rod seat element to facilitate pivoting in a second direction.
Bosterling Winfried; Vorderbruck Dirk	Vossloh Werke GmbH	US 8,840,036	Screw anchor for rail attachments	Bosterling Winfried; Vorderbruck Dirk		A screw anchor for concrete attachment in a railway sleeper and to a force-fit connection using a rail screw containing a threaded section with external threads disposed on an exterior of the screw anchor and internal threads disposed in the screw anchor; and an upper partial section without external threads which is disposed in a mounted state close to an anchor opening. The screw anchor utilizes material with high elasticity arranged in the upper partial section, wherein this material, when in a mounted state, forms an elevation which extends in an upward direction over an upper side of an end surface of the upper partial section and reduces a free opening section of the inner chamber of the upper partial section.
Hubbell Incorporated	Hubbell Incorporated	US 8,839,571	Break-away screw ground anchor	Atchley Jacob C.; Hamilton Daniel V.; Hawkins Kelly S.		A ground anchor is provided for driving into the ground for anchoring or supporting a structure. The ground anchor includes a hub with a helical load bearing screw and a pointed ground engaging end. The ground engaging end has a blade extending axially from the hub with first and second opposing major faces and first and second transverse faces that converge at the axial end to a flat axial face. The blade has one or more diagonal frangible portions to define a diagonal break line. The breakable portion of the ground anchor penetrates the ground and breaks away from the blade when a predetermined torque or stress is applied to the blade. The breakable portion breaks away to form a ground engaging end having a dimension and surface area that is larger than the original ground engaging end.

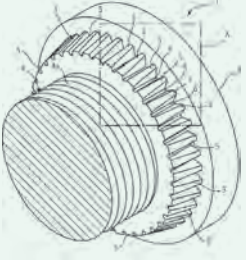
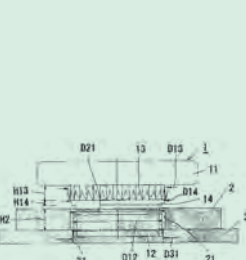
Applicant	Assignee	Patent Number	Title	Inventor		Abstract
Alphatec Spine, Inc.	Purcell Thomas; Reimers Darre	US 8,834,540	Polyaxial bone screw with lateral connector	Purcell Thomas; Reimers Darre		A polyaxial screw body includes a side wall defining a lumen having a first end and a second end. An opening disposed at the first end of the lumen, includes an interior surface disposed in the side wall thereabout. The interior surface is adapted to accommodate a head portion of a pedicle screw. A transverse channel extends from a first aperture through the side wall to a second aperture and is adapted to accommodate a portion of a fixation rod therebetween. A lateral connector extending integrally from the side wall.
Barrus Michael; Moore Jennifer	K2M, Inc.	US 8,814,919	Posterior pedicle screw having a taper lock	Barrus Michael; Moore Jennifer		A pedicle screw construct includes a pedicle screw, a coupling, and a collet. The pedicle screw includes a shank having a helical thread formed thereon and a head at one end. The collet is positioned atop the head of the pedicle screw. The collet and pedicle screw are inserted into the coupling. The pedicle screw is rotatable and pivotable relative to the collet and coupling assembly. The collet and the coupling each have a saddle that is adapted and configured for receiving a rod member.
Fox William G.	Rhino Technologies LLC	US 8,807,877	Tensionable spiral bolt with resin nut and related methods	Fox William G.		In one aspect of the invention, an apparatus and related methods for installation in a borehole formed in a face of a mine passage comprises an elongated bolt including a spiral portion coated with a lubricity agent for positioning in the borehole; preferably, a fixing agent as well; and most preferably, a colored fixing agent. A hardened, stationary resin nut formed in only part of the borehole, preferably spaced from the distal end thereof, may receive the spiral portion of the bolt. Consequently, rotation of the spiral portion within the hardened resin nut serves to move the bolt within the borehole, such as for purposes of tensioning.
Rataj Mieczyslaw	Sandvik Intellectual Property AB	US 8,714,883	Friction bolt	Rataj Mieczyslaw		A friction bolt, for frictionally engaging the internal surface of a bore drilled into a rock face. The friction bolt comprises an elongate, generally circular tube which is expandable radially. The tube has a leading end and a trailing end. An expander mechanism is disposed within the tube for applying a load tending to expand at least a section of the tube radially. An elongate tendon is disposed longitudinally within the tube and in connection at or towards one end of the tendon with the expander mechanism and in connection at or towards an opposite end of the tendon with an anchor arrangement. The tendon is actuatable to expand the expander mechanism and to remain connected between the expander mechanism and the anchor arrangement while the expander mechanism is expanded. The expander mechanism comprises a pair of expander elements, a first of which is secured relative to the tube and a second of which is secured to the elongate tendon, actuation of the tendon being operable to cause relative movement between the first and second expander elements to cause the expander mechanism to expand.
Konagaya Satoshi; Hasegawa Sadayoshi	Aoyama Seisakusho Co., Ltd.	US 8,632,288	Anti cross-thread bolt	Konagaya Satoshi; Hasegawa Sadayoshi		An anti cross-thread bolt which prevents the bolt from being cross-threaded without the need for correcting its posture by a pilot portion. The bolt is screwed into a female screw having a nominal diameter D and an inner diameter D.sub.1. At the tip of a regular thread part formed on the bolt shank, a small-diameter thread part is formed by one pitch or more, the small-diameter thread part having an outer diameter d which is larger than an inner diameter D of the female screw and smaller than (D+D.sub.1)/2. When the bolt is obliquely screwed into the female screw, the small-diameter thread part is brought into contact with the female screw at one point, but the bolt is allowed to rotate around the point. Thus, the occurrence of cross-threading is prevented.

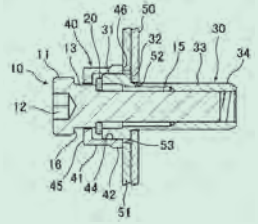
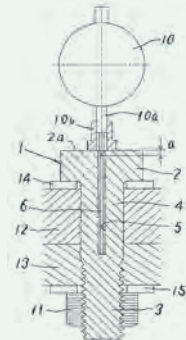
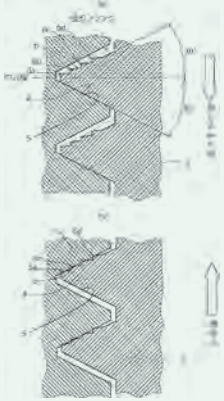
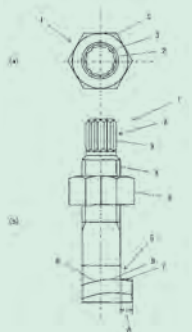
Applicant	Assignee	Patent Number	Title	Inventor		Abstract
Pamer W. Richard; Dennis Douglas P.	JPMorgan Chase Bank, N.A.	US 8,888,429	Nut with lug flare	Pamer W. Richard; Dennis Douglas P.		<p>A clinch nut for attachment to a plastically deformable metal substrate is provided. The clinch nut comprises a body portion with a central axis and a punch portion extending from the body portion and coaxial with the central axis. The body portion includes an annular-shaped surface encircling the central punch portion. The annular-shaped surface includes a plurality of spaced apart lugs encircling the central punch portion. The plurality of lugs each includes a contact surface with a recessed portion where the contact surface engages the metal substrate. A first portion of the contact surface is biased outwards from the central axis upon insertion in the metal substrate to form at least one lug flare during attachment of the nut to the metal substrate. A portion of the metal substrate is entrapped between the at least one lug flare and the body portion.</p>
Espinosa Thomas M.		US 8,806,835	Checker nut for locking a threaded body to a threaded rod and concrete reinforcement assembly	Espinosa Thomas M.		<p>A checker nut for locking a threaded body to a threaded rod, comprises a main body portion having a top bearing surface for engaging a threaded body. The main body portion includes a central opening with an inside surface. A female thread is disposed on the inside surface and extends therefrom, the female thread for cooperating with threads on a threaded rod; and the female thread is disposed on the inside surface a distance from the top bearing surface equal to at least one thread required to be passed by a threaded body on a threaded rod.</p>
Chen I-Fu; Chen Chi-Chuan		US 8,801,350	Locking and unlocking nut structure	Chen I-Fu; Chen Chi-Chuan		<p>A locking and unlocking nut structure contains a body including a through hole, a diameter of the through hole being larger than that of a screw rod (tube), the body also including a semi-circular recess with a starting segment and a stopping segment, the body further including a slot and an diameter-decreased screw section; a slidable block retained in the semi-circular recess and moving between the starting segment and the stopping segment, the slidable block including first threads, while the slidable block is fixed on the starting segment, a distance from the first threads of the slidable block to an inner wall of the through hole is larger than an outer diameter of the screw rod (tube); while the slidable block is fixed on the stopping segment, a distance from the first threads to the diameter-decreased screw section is equal to the outer diameter of the screw rod (tube).</p>
Kobetsky Robert G.; Starozhitsky Michael Reiter; Matthew J.; Broomfield Donald	Illinois Tool Works Inc.	US 8,491,244	Anchor bolt and annularly grooved expansion sleeve assembly exhibiting high pull-out resistance, particularly under cracked concrete test conditions	Kobetsky Robert G.; Starozhitsky Michael Reiter; Matthew J.; Broomfield Donald		<p>A wedge-type anchor assembly, capable of meeting cracked concrete testing standards, comprises an anchor bolt component and a substantially C-shaped expansion sleeve component annularly disposed about the anchor bolt component. A plurality of annular grooves, threads, or teeth are disposed only about the forward end portion of the expansion sleeve component, as opposed to throughout the entire axial length thereof, so that when the anchor bolt component is moved axially through the expansion sleeve component, the maximum interference area (M.I.A.) and maximum interference volume (M.I.V.) can be generated between the anchor bolt component and the expansion sleeve component in a controlled and predictable manner, as well as between the expansion sleeve component and the internal peripheral side wall portions of a concrete substrate or substructure so as to enhance pull-out resistance and reliability of the anchor assembly within the concrete substructure or substrate. The expansion sleeve component may be plated with a tin-zinc (Sn--Zn) composition, and the rear end portion of the expansion sleeve component may have a larger diametrical extent than the forward end portion of the expansion sleeve component so as to enhance pull-out resistance.</p>

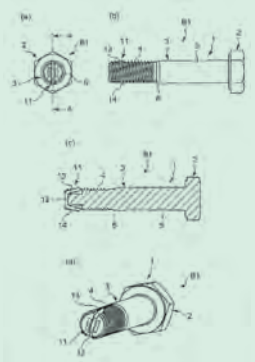
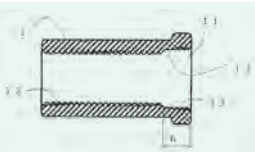
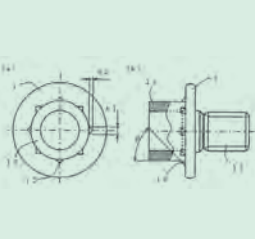
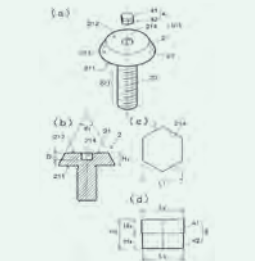
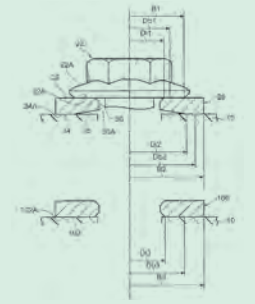
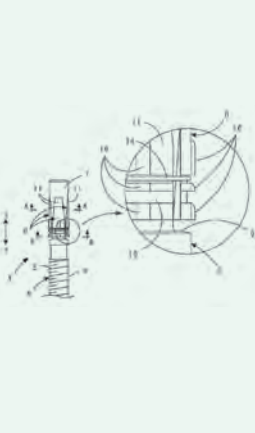
Applicant	Assignee	Patent Number	Title	Inventor		Abstract
Corbett Robert J.; Wollard, Jr. James L.	Alcoa Inc.	US 8,465,240	Advanced nut and bolt	Corbett Robert J.; Wollard, Jr. James L.		A vibration resistant fastening system including a high fatigue strength bolt made from a first material and a nut made from a second material that is softer than the first material of the bolt. The bolt includes bolt threads and the nut includes pre-tapped nut threads that match with the bolt threads. The fastening system utilizes a combination of unique geometry of the nut and bolt threads and a hardness differential between the nut and bolt to provide vibration resistance. When tightened, crests of the bolt threads embed into the soft bearing flanks of the nut threads. Simultaneously with the bolt crest embedment, the softer nut thread crests flow radially inward into the root radius of the bolt threads. This complete contact between the nut and the bolt restricts the nut from moving in a transverse direction relative to a longitudinal axis of the bolt.
Meidl Michael	Atlas Copco MAI GmbH	US 8,740,502	Anchor and anchor nut thereof	Meidl Michael		An anchor includes a rotatable anchor rod, an anchor plate, and an anchor nut. The screw thread in the anchor nut matches the screw thread of the anchor rod only over part of the screw thread hole. Thus the anchor nut can only be screwed some way further onto the anchor rod, and up to a predetermined torque can be used for rotating the anchor rod during placement of the anchor. As soon as the anchor rod is firmly seated in the drill hole, as a result of the action of adhesive, mortar or expansion or spreading, the anchor rod forms a through-thread in the screw thread hole when the anchor nut is rotated relative to the anchor rod, and consequently the anchor nut can finally be screwed onto the anchor rod until it affixes the anchor plate in its final position to the ground.
Lee Yong Gook; Kim Jin Koh		US 8,702,363	Lock nut and a fastening unit comprising the same	Lee Yong Gook; Kim Jin Koh		The present invention relates to a lock nut which is fastened between a bolt and a nut and prevents the bolt and nut from loosening, comprising: a nut body having a fastening hole for fastening onto the bolt; a pair of first projecting parts which are formed projecting from one of the surfaces of the nut body and form a first slot having a first orientation such that the nut body can deform resiliently when the bolt and the nut are fastened; and a pair of second projecting parts which are formed projecting from the other surface of the nut body and form a second slot having a second orientation different from the first orientation, and the invention relates to a fastening unit comprising the lock nut; and provided is a bolt-and-nut loosening prevention structure having an improved loosening-prevention function.
Chen Ching-Fu		US 8,662,808	Elastic nut	Chen Ching-Fu		The invention provides a type of elastic nut, primary comprising first and second compression slots allowing for compression and connecting strips at the bottom of the retaining nut, with the connecting strips in alternate positions, so that when the retaining nut is used to hold a plug in place on the bolt, and further torque is applied to the retaining nut, the nut is held in place on top of the plug with elastic force, effectively holding the plug in place more tightly.
Bisset John D.; Holt Jason D.; Tuttle Jeremy R. D.	Illinois Tool Works Inc.	US 8,641,347	Compression limiting nut	Bisset John D.; Holt Jason D.; Tuttle Jeremy R. D.		A hollow fastening nut assembly including an upper head adapted to engage a wrench or other tightening tool and an integral co-axial, internally threaded lower section of reduced diameter adapted for insertion into an access opening in a fastened component. The lower section acts as a compression limiter. An optional annular disc spring may be disposed about the internally threaded lower section for engagement with the rear surface of the fastened component. A locking structure may be disposed at the exterior surface of the internally threaded lower section to engage the interior of the access opening to lock the nut assembly in place.

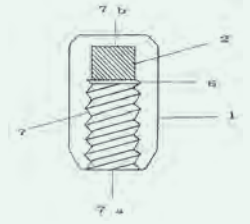
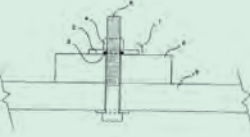
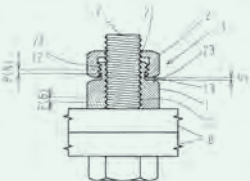
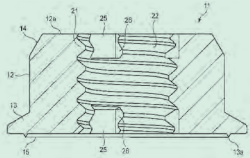
Applicant	Assignee	Patent Number	Title	Inventor		Abstract
Newfrey LLC	Newfrey LLC	US 8,851,813	Variable grip blind rivet	Smith Daniel Robin; Jones Steven Victor; Williams Graham Frank Harry; Bone Harold Martin; Davies John; Brookes David John		A variable grip blind rivet has a rivet body with a first shank adapted to be inserted into a hole in a workpiece and having an axial bore, and a flange at a first end of the first shank for abutting the workpiece when the first shank is inserted into the hole in the workpiece. A mandrel has a head, for engaging a second end of the first shank, and a second shank adapted to extend through the axial bore. The head has an abutment portion for abutting the first end of the first shank. At least one protrusion adjacent the abutment portion defines a recess for receiving the first end of the first shank during setting of the rivet.
Jokisch Matthias	Avdel UK Limited	US 8,721,241	Self-tapping blind rivet	Jokisch Matthias		Self-tapping blind rivet having a mandrel carrying a hole-forming tip at its end facing the workpiece, wherein the tip is performed as an apparatus for drilling the rivet's own placing hole, wherein a positive or non-positive connection is provided between the mandrel of the rivet and the rivet shank and, wherein a force application point for a tool is provided at or in the rivet head, and a method for placing such a blind rivet.
Michalski Jessica Lyn; DeSantis Charles V.	Hamilton Sundstrand Corporation	US 8,475,103	Sealing washer assembly for large diameter holes on flat surfaces	Michalski Jessica Lyn; DeSantis Charles V.		A sealing washer assembly includes a main washer with a bottom annular groove for a removable O-ring and a top recess for a sealing washer. A fastener such as a screw or bolt passes through the sealing washer and the main washer, into a hole in a mounting surface. When the fastener is tightened, the main washer is clamped to the mounting surface to create a metal-to-metal seal, the O-ring is deformed to create a seal between the main washer and the mounting surface, and the sealing washer is deformed to create a seal between the fastener and the main washer.

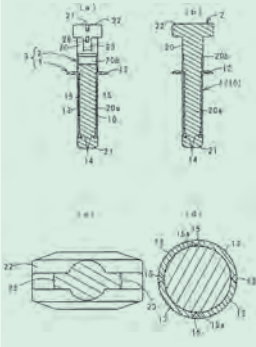
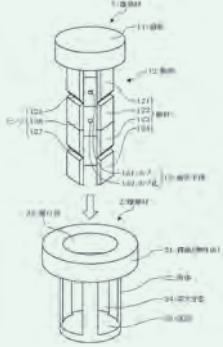
Japan

Applicant	Publication Number	Invention Title	Inventor		Abstract
Nitto Seiko Co., Ltd.	2014-126164	Press-Fit Fastener And Mounting Structure Of The Same	Matsuo Yasushi Katayama Naoto Kunimatsu Masatomo		To provide a press-fit fastener that can secure a high detent effect and retaining effect without losing beautiful appearance of a workpiece, and to provide a mounting structure of the same. Structure: A press-fit fastener of the present invention is made by forming a press-fit locking part continuously arranged below a neck of a head part substantially in a truncated cone shape, and integrally forming a plurality of protrusions in its outer circumference. Top parts of the protrusions are inclined to the axial direction of a shank as going to the side of the shank, and the widths become wider as the side of the shank. In a member to be press-fit, a prepared hole of a diameter is formed that allows entry of a small diameter end part of the press-fit locking part and does not allow entry of a large diameter end part, and the press-fit locking part is press-fit here to deform the circumferential edge part of the prepared hole along the protrusions.
Shinnippon Fastener Kogyo K.K.	2014-40895	Press-In Bolt	Suzuki Hidenao Assignee: Mori Osamu		To provide a press-in bolt which can have large fixation strength for a base material of the bolt without providing a caulking part, and is free of roughening of a surface of the base material on the opposite side of a head as a seating surface of a nut. Structure: A press-in bolt has a head part (11), a screw part (12), and a knurl formation part (13) which is formed on a base side of the screw part (12), and fixed to the base material (2) by being pressed in a lower hole (21) formed in the base material (2). Further, a step part (14) which absorbs an excess thickness of the base material (2) when the press-in bolt (1) is pressed in the base material (2), and has a diameter (D14) larger than a diameter (D) of crests of the screw part (12) and equal to or smaller than a diameter (D13) of roots of the knurl formation part (13) is formed between the screw part (12) and knurl formation part (13).

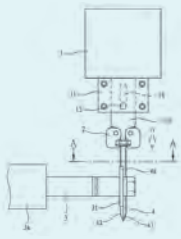
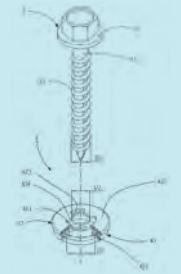
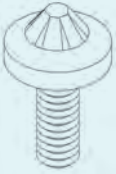
Applicant	Publication Number	Invention Title	Inventor		Abstract
Nippon POP Rivets and Fasteners Ltd.	2013-249850	Blind Rivet And Method Of Fastening The Same	Sakota Kanji		<p>To provide a blind rivet which can easily be fastened with a commercially available tool without using a fastening tool.</p> <p>Structure: A blind rivet for fastening a mounting member (51), in which a mounting hole (53) is formed, to a mounted member (50), in which a mounting hole (52) is formed, includes: a bolt (10), which has a flange (11) of a large diameter, a column (13) adjacent to the flange, and a male screw part (15) adjacent to the column; a collar (40), on which a circular hole (43), through which the column of the bolt is passed, and a polygonal hole (44) adjacent to the circular hole are formed; a buckling nut (30), which has a polygonal head (31) that can be held in the polygonal hole of the collar so as not to be rotated, a tubular part (33) adjacent to the polygonal head and of which diameter can be expanded, and a female screw part (34) adjacent to the tubular part and which can be engaged with the male screw part of the bolt; and a shearable washer (20), which can be accommodated inside the polygonal hole of the collar around the column of the bolt.</p>
Sakamura Machine Co.,Ltd. & Nippon Fastener Corporation	2014-194403	Bolt Tensile Inspection	Wakiyama Koza, Tatsumi Akio, Sofuke Hiromichi		<p>To measure plasticity tension at the elastic region located on the shaft of the bolt without being affected by the tension of the screw part. Measuring bolt tension with better precision during bolt deterioration management.</p> <p>Structure: The screw part (3) located at the center of the bolt (1) is the plasticity region, and the shaft (4) is the elastic region. Drill on the bolt head (2) a small hole (5) whose depth is equivalent to the designated depth of the shaft. After fastening the bolt (1), measure the tensile length of the small hole (5) with a dial gauge (10) as the shaft(4) at the elastic region extends. Subtract the hole area from the cross sectional area of the shaft to make a new area, multiply the new area by Young's modulus and then divide it by hole depth to make a value, and multiple that value by the tensile length of the small hole to make the tension value.</p>
Nippon Steel & Sumitomo Metal Corporation	2014-202266	Highly Anti-corrosive Selp-tapping Screw & Its Manufacturing Method	Baba Nao, Harada Yoshiyuki		<p>To provide a self-tapping screw that fastens steel plates with thick plating or anti-corrosion plating and extends the time of anti-corrosiveness.</p> <p>Structure: This product uses 3% to 7% chromium alloy steel as the material, and its surface is zinc plated or zinc alloy plated. It is first plated with Nickel or Copper via strong hydrochloric acid, and then plated with zinc or zinc alloy.</p>
Nitto Seiko Co., Ltd.	2014-167333	Anti-loosening Screw	Kakuma Yasunobu		<p>Screw providing highly-effective anti-loosening effect on a part being fastened to another part with female screw.</p> <p>Structure: The threads' (4) following flank (6) comes with multi-step shape (4). This structure enables the vertical angles (6a, 6b, 6s, 6d) of each step on the following flank (6) to bite into all the female nuts, thus gaining highly-effective anti-loosening effect. In addition, the vertical angles (6a, 6b, 6s, 6d) of each step on the following flank (6) are set on the hypothetical flank located on the symmetric side of the leading flank (5). Via this structure, during screw-in these vertical angles (6a, 6b, 6s, 6d) will remain in the range where they cannot contact the female screws, and during fastening they will bite deeply into the female screws, thus making screw-in much easier while gaining highly-effective anti-loosening effect.</p>
Railway Technical Research Institute & Nihon Kido Kogyo Co.,Ltd. & Teikoku Seiby Co., Ltd.	2014-205976	Bolt Compatible with Mechanic Construction and for the Use with Rail Fastening Device	Kataoka Hiroo, Motono Takayuki, Deshimaru Tadashi, Nonaka Masayuki, Abe Noritsugu, Wakatsuki Osamu, Takahashi Takeshi, Suzuki Norikazu		<p>Easily grabbed with construction machines, the bolt can maintain constant contact with the inner side of the purporting area on the tie plate. Even under preset condition, the bolt can carry out stable fastening performance. It is compatible with mechanical construction and used on rail fastening device.</p> <p>Structure: The bolt has a polygonal head (3) so that construction machines can grab it with ease and fasten it tightly. The extension part (7) located on the base (6) of the bolt extends towards the rail side. A spherical seat is set on top of the bolt's base.</p>

Applicant	Publication Number	Invention Title	Inventor		Abstract
Matsumoto Heavy Industry Co., Ltd.	2014-202314	Anti-loosening Bolt	Yokota Koichi		<p>The bolt can be made at low cost and has the anti-loosening structure that makes it easy to fasten multiple parts.</p> <p>Structure: The bolt consists of the main body and elastic parts. A part of the bolt's shank is the male screw. Grooves are formed at the front end of the shank. The grooves located on the front end of the shank's circumference connect with the end point of the grooves on the shank's front end. The elastic parts consist of: the base part embedded in the grooves on the shank's front end; the elastic base part connected with the point end of the base part and with the shape design enabling the base part to be enclosed in the grooves on the shank's circumference. The shape design of the base part enables it to protrude from the grooves on the shank's circumference if no external force is applied.</p>
Meidoh Co., Ltd.	2014-194268	Nut	Mitani Ayumi, Makino Koji, Kondo Masataka, Fukuoka Kinji		<p>Nut preventing diagonal insertion.</p> <p>Structure: A guiding part (11) is set on the entry spot of the nut. The diameter of the guiding part's (11) threads (13) are larger than that of the fastening part's threads (12).</p>
Meidoh Co., Ltd.	2014-194267	Bolt	Toyama Keiichi, Kawamura Tsutomu, Murakami Yosio, Mitani Ayumi		<p>Nut preventing simultaneous rotation even if it is fastened onto a thin component.</p> <p>Structure: A caulking part is set on the opposing side from the screw part of the bolt's head. The caulking part's circumference has the protruding part. The caulking part has a hollow structure. Push the caulking part from the inside to perform caulking, and the component, without bending, will bite into the protruding part, thus reducing the possibility of simultaneous rotation.</p>
	2014-159863	Anti-theft Bolt, Nut, and the Combination Thereof	Takenaka Yasuyosi		<p>The fastener combining an anti-theft bolt and a nut.</p> <p>Structure: This fastener consists of: A bolt; A fitting inserted into the operation hole of the bolt. After embedding the fitting into the operation hole, fastening tools cannot be inserted into the operation hole. The bolt will become an anti-theft bolt which consists of: A cap whose inner side purports the fitting; A guiding part that guides to the correct position for the cap to be pressed into the operation hole.</p>
Toyota Motor Corporation	2014-159862	Screw Fastening Structure	Tanaka Toru		<p>This structure does not cause bumps and dents on the washer, and can reduce or prevent components and washers from simultaneous rotation.</p> <p>Structure: The equivalent friction diameter on the washer's region in contact with the tank band is set larger than that on the region in contact with the flange part of the flange bolt. In this way, the fastening torque on the contact region of the washer will be larger than that on the contact region of the washer. In this way, in fastening the tank band to the car body, the washer can prevent the flange bolt and washer from simultaneous rotation.</p>
株式会社豊和 (English title unavailable)	2014-156735	Anchor Bolt	Ando Kazuaki, Yanai Toru		<p>With this anchor bolt, you only need to drill a small hole of smaller diameter to enjoy improved efficiency.</p> <p>Structure: Cut around the circumference of the front end to make four inclined surfaces which form the anchor bolt's main body. Four abutting regions are set on each inclined surface of the main body. Each inclined surface of the main body is inclined from the front end to the bottom end and the central axis of the main body. Each abutting region has the same shape with its inner circumferential surface inclined towards the main body's inclined surfaces. The inner circumferential surface of the abutting regions connects with the main body's inclined surfaces. The outer circumferential surface of each abutting region connects with the hole's outer circumferential surface. This anchor bolt has a linear part to maintain the connection between the inner circumferential surface of each abutting region and the main body's inclined surfaces.</p>

Applicant	Publication Number	Invention Title	Inventor		Abstract
Kawamura and others	2014-202357	Bag-type Nut with Magnet	Kawamura and others		<p>For driver safety, the era of dual device has arrived. This product is introduced to prevent fallen wheels resulted from loosening nuts. Users will just have to change nuts to solve the problem.</p> <p>Structure: A magnet is inserted deeply in the female screw part of the bag-type nut. Using a torque wrench to replace a common nut with this magnetic-equipped bag-type nut will turn the mechanism into a dual safety device that prevents the nuts from loosening as a result of wear and damage.</p>
Hanzawa Kaorukazu	2014-149074	Nut Preventing from Loosening & Over-fastening	Hanzawa Kaorukazu		<p>This nut can be applied to rails and public roads that often receive vibration, as well as to machines and device that allows for sliding motions. It can also be used on places requiring the use of bolts to fasten the material that causes over-fastening.</p> <p>Structure: A plain nut is embedded in a rubber washer. The plain nut is smaller and thinner than the rubber washer. By installing two commercial JIS nuts and rotating the commercial nuts with an electric drill, the rubber part of the rubber washer will reach the specified position and the friction on the rubber will stop the rotation. Thus, the commercial nut is fastened and fixed without loosening.</p>
Yokota Yoshiaki	2014-119000	Double Lock Nut	Yokota Yoshiaki		<p>To provide a double lock nut having better fastening workability and high locking effect, simply releasing a fastened state, and capable of being repeatedly used and easily controlled over its usage.</p> <p>Structure: This invention relates to a double nut (3) in which a through female threaded part threadably fitted to a fastening bolt (7), a protruded nut (1) having at a small diameter portion a connecting male threaded part (12) having a larger diameter than that of the through female threaded part, a concave nut (2) having, at one side, a through female threaded part threadably fitted to the fastening bolt and at the other side, a connecting female threaded part (22) larger than that of the through female threaded part are connected in pair by the connecting male threaded part and the connecting female threaded part. The thread pitches of the through female threaded part and the connecting threaded part threadably fitted to the fastening bolt are not the same, but different; the hexagonal holding portions of the protruded nut and the concave nut are formed in substantially the same size and the fastening bolt can be threadably fitted to both protruded nut and concave nut.</p>
Iwata Bolt Kk	2014-101990	Grounding Nut	Suzuki Yoshihide Tasaka Kenta		<p>To provide a grounding nut having large tightening force and capable of being electrically connected to a bolt reliably.</p> <p>Structure: The grounding nut (11) comprises a threaded hole (22) engaging with a bolt having a screw thread formed thereon at a pitch (P). The screw thread (21) formed on the threaded hole (22) is configured such that the pitch (Pn) of the thread (21) is greater than the pitch (P) of a screw thread of the bolt, and also that an angle (θ) of the thread (21) is greater than 60 degrees. A cutout (25) extending axially is formed on a part of the threaded hole (22) in the axial direction, and an end surface of the screw thread (21) facing the cutout (25) forms a cutting edge (26).</p>

Applicant	Publication Number	Invention Title	Inventor		Abstract
Nifco Inc.	2013-096562	Rivet	Hoshi Shoichi Yorikawa Masahiro		To provide a rivet surely providing fastening strength, having durability in a thermal environment and superior for a multiple type. Structure: The rivet (3) includes: an almost cylindrical grommet (1) having an upper peripheral flange (12) and a buckling intended part (13) provided between the upper and lower ends; and a resin pin (2) arranged penetratingly in the cylinder of the grommet and having a lower end side engaged with the grommet lower end to be incapable of extraction, and an upper end side extending beyond the flange (12). The grommet (1) is penetrated through respective mounting holes (4a), (5a) of a plurality of plates until regulated by the flange, and is expanded in diameter via the buckling intended part (13) with relative displacement by stress in the extraction direction of the pin (2), so that the respective plates can be caught and fastened between the diameter expanded portion (16) and the flange (12). The grommet (1) is made of a metal and is insert-molded during injection molding of the pin (2) to be fixed to the peripheral portion of the resin-formed pin (2). The grommet (1) is buckled and expanded in diameter by the stress in the extraction distance of the pin.
Kawakami Sangyo Co., Ltd.	2013-29187	Rivet	Kawakami Hajime Morishima Toshiyuki		To provide a rivet hardly coming off, hardly broken, and having superior reliability, productivity, and environment friendliness. Structure: In the rivet for holding an object by a male member (1) and a female member (2), the male member (1) comprises a head part (11) and a plurality of legs (12) hung from the head part (11), the female part (2) comprises a cylinder body (22) having a bottom part (23) and a flange (21) having an opening (25) in an upper part of the cylinder body (22), by passing the male member (1) through the female member (2) fitted into a hole formed in the object, the legs (12) abut on the bottom part (23) of the cylinder body (22) and thereafter receive a force from the bottom part (23) and bend in a horizontal direction, the object is held by the bent legs (12) and the flange (21) of the female part (2).

Taiwan

Patent No.	Title	Inventor		Abstract
M487162	Device for Making Super-long flutes on Self-tapping Screws	Ron-Chu Zhao		This is a processing device used for making super-long flutes on self-tapping screws. The device includes a brake, a gripper that can be attached to the brake, and a milling cutter. This device can shorten the time required for making flutes cut by milling cutters running on a rectangular rail, thus reducing the cost of producing self-tapping screws with super-long flutes.
M460955	Bonded Washer	Su-Mei Lin		This bonded washer has a metal part on one end. On the metal part is a positioning hole whose circumference has multiple stoppers whose maximum outer diameter is smaller than the diameter of the hole. As the screw passes through the positioning hole, the jack regions will firmly position the screw. After fastening, the jack region can strongly attach the washer to the fastened object, greatly improving water-proof effect of the washer and extending the lifespan of the screw.
D162263	Anti-theft Screw	Keh-Dong Chen		This anti-theft screw consists of a nut, a front end, and a shaft. The top surface of the nut is a smooth arc with an embedded rhinestone. The hexagonal front end allows the fastening tool to be inserted. Multiple threads on the shaft form along the shaft's axis. Overall, this product is stylish and a beauty to the eyes.