

Search history

Search 1: FT=(ASSEMBLY~ AND PIECE~ AND OF AND WEAR~) (Results 210588)
Search 2: IC=(E02F) (Results 142376)
Search 3: 1 and 2 (Results 1467)
Search 4: FT=(ASSEMBLY~ AND PIECE~ AND OF AND WEAR~ AND PIN housing) (Results 162)
Search 5: 2 and 4 (Results 4)
Search 6: FT=(ASSEMBLY~ AND PIECE~ AND OF AND WEAR~ AND digging teeth) (Results 72)
Search 7: 6 and 2 (Results 65)

Title: APPARATUS FOR MOUNTING GEAR SEGMENTS

Abstract: The invention is an improvement in a gear **assembly** having a gear segment attached to a spider. The improvement comprises a pair **of** spaced spider webs and a segment-attached mounting member received between the webs. The mounting member has a pair **of** spaced plates, one plate against each web. Each **of** a group **of** tube-like generally cylindrical segment coupling members extends between a particular web and its adjacent plate while each **of** another group **of** coupling members extends between the other web and its adjacent plate. The coupling members **of** a group are in opposed relationship to corresponding coupling members **of** another group. A bolt-like retaining member extends through each pair **of** opposed coupling members (with clearance therebetween) and prevents such members "working" out **of** position.

Classifications:

International (IPC 8-9): F16H55/00 F16H55/12 (Advanced/Invention); F16H55/02 (Core/Invention)

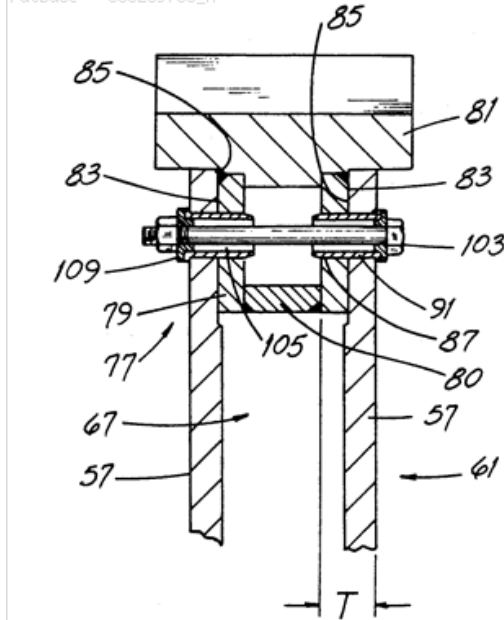
International (IPC 1-7): E02F E02F9/02 F16H F16H55/00 F16H55/12 F16H55/17

CPC: Y10T74/19926 Y10T74/1993 F16H55/12 F16B2200/503

European: F16H55/12

US: 403/336 74/447 74/448

PatBase - US5289733_A

**Family:**

Publication number	Publication date	Application number	Application date
AU199350765 A1	19940616	AU19930050765	19931117
AU669011 B2	19960523	AU19930050765	19931117
CA2094579 AA	19940604	CA19932094579	19930421
CA2094579 C	19970114	CA19932094579	19930421
US5289733 A	19940301	US19920985264	19921203
ZA9308514 A	19940802	ZA19930008514	19931115

Priority:

US19920985264 19921203 CA19932094579 19930421

Probable Assignee: HARNISCHFEGER TECHNOLOGIES INC

Assignee(s): (std): HARNISCHFEGER CORP

Assignee(s): HARNISCHFEGER TECHNOLOGIES INC ; KALLENBERGER HARVEY J ; BANKERS TRUST CO ; BANKERS TRUST CO AGENT AS

Inventor(s): (std): KALLENBERGER HARVEY J

Inventor(s): HARVEY J KALLENBERGER

Agent(s): SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; RIDOUT AND MAYBEE LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199350765 A1	19940616	LSPB	+	published / reissued	
AU669011 B2	19960523	LSGT	+	granted / extensions (spc, cpc, pte)	
AU669011 B2	20131117	PEXP		Calculated Patent Term Expiry	
CA2094579 AA	19940604	LSPB	+	published / reissued	
CA2094579 AA	19930421	LSES	+EEER	EXAMINATION REQUEST	
CA2094579 C	19970114	LSGT	+	granted / extensions (spc, cpc, pte)	

CA2094579 C	20110421	LSLE	-MKLA	LAPSED	
CA2094579 C	20130421	PEXP		Calculated Patent Term Expiry	
US5289733 A	19940301	LSGT	+	granted / extensions (spc, cpc, pte)	
US5289733 A	19921203	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER CORPORATION, WISCONSIN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:KALLENBERGER, HARVEY J.; REEL/FRAME:006356/0746 EFFECTIVE DATE : 19921111
US5289733 A	19940217	LSGT	PAT1	Patented Case	
US5289733 A	19970811	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5289733 A	19980507	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HARNISCHFEGER CORPORATION; REEL/FRAME:009168/0359 EFFECTIVE DATE : 19980504
US5289733 A	20010501	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5289733 A	20010712	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANKERS TRUST COMPANY, AS AGENT, NEW YORK OLDPARTY : GRANT OF PATENT SECURITY INTEREST; ASSIGNOR:HARNISCHFEGER TECHNOLOGIES, INC., A DELAWARE CORPORATION; REEL/FRAME:011958/0584 EFFECTIVE DATE : 20010629
US5289733 A	20050706	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US5289733 A	20121203	PEXP		Calculated Patent Term Expiry	
ZA9308514 A	19940802	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA9308514 A	20131114	PEXP		Calculated Patent Term Expiry	

Title: TRENCHER TOOTH QUICK ATTACHMENT

Abstract: A support **assembly** for trencher teeth or other tools including a mounting bracket which is retained on a bracket support by only one retaining pin thereby permitting quick and convenient installation on or detachment from a trencher digging chain. The mounting bracket is constructed for holding a pair **of** reversible trencher teeth made in accordance with the present invention, each tooth including plural cutting edges. The operator mounts a trencher tooth to one side **of** the mounting bracket until its forward cutting edge becomes dulled or damaged, and then, reverses the tooth to the opposite side **of** the bracket for further use. One end **of** the mounting bracket is formed with a downwardly depending hook-like projection which engages and locks against an end **of** the bracket support. The opposite end **of** the mounting bracket abuts against an upstanding vertical projection on the bracket support and is held thereto by a single retaining pin passing through the upstanding projection and into the bracket support. The trencher teeth are held within the mounting bracket by tooth attaching pins which are retained in transverse openings through the opposed ends **of** the mounting bracket. The longitudinal axes **of** the retaining pins are substantially perpendicular to and lockingly engage the tooth mounting portions which extend into the opposed sides **of** the mounting bracket. Thus, the present invention reduces the number **of** mounting parts required and material cost for trencher tooth attachments and provides an **assembly** that is convenient and quick to operate.

Classifications:

International (IPC 8-9): E02F3/14 E02F9/28 (Advanced/Invention);
E02F3/08 E02F9/28 (Core/Invention)

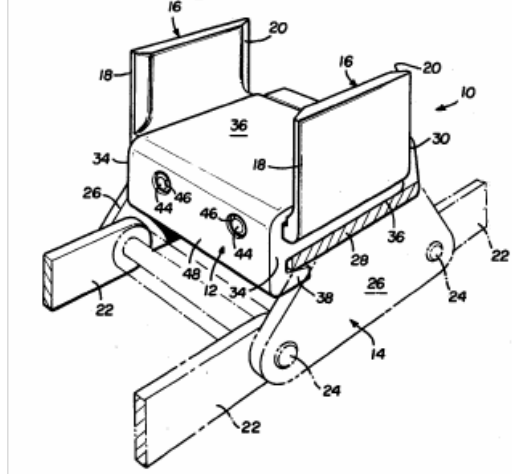
International (IPC 1-7): E02F3/14

CPC: E02F9/28 E02F3/142 Y10T403/7041 Y10T83/913

European: E02F3/14F E02F9/28

US: 175/413 299/103 37/191A 37/455 37/465 403/362 83/831

PatBase - US4363178_R

**Family:**

Publication number	Publication date	Application number	Application date
US4363178 A	19821214	US19810272812	19810611

Priority:

US19810272812 19810611

Probable Assignee: CASE CO J I

Assignee(s): (std): CASE CO J I

Assignee(s): J I CASE CO ; J I CASE COMPANY ; JI CASE CO

Inventor(s): (std): ERICKSON TERRY D

Legal status (INPADOC)

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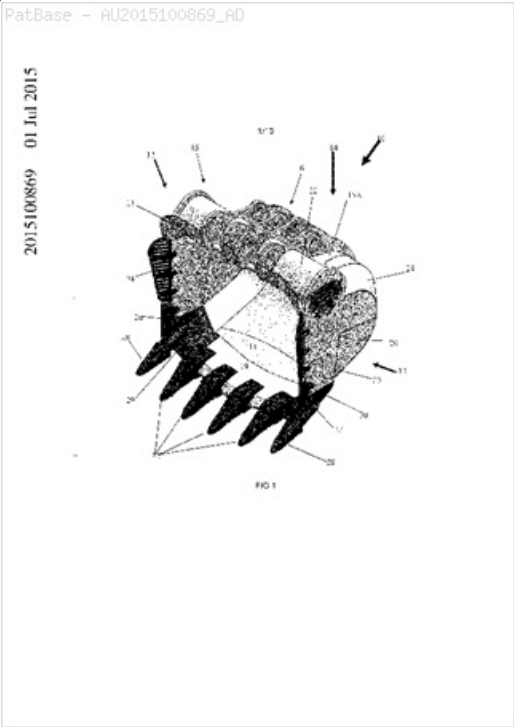
Patent	Date recorded	Event group	Code	Event	Details
US4363178 A	19821214	LSGT	+	granted / extensions (spc, cpc, pte)	
US4363178 A	19810611	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : J.I. CASE COMPANY, 700 STATE ST., RACINE, WIS. OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:ERICKSON, TERRY D.; REEL/FRAME:003919/0589 EFFECTIVE DATE : 19810514
US4363178 A	19860321	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US4363178 A	19901216	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US4363178 A	19901216	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US4363178 A	19910226	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 19901216

Title: An Excavator Bucket

Abstract: An excavator bucket having an open front and a guide means (61-64) associated with an upper periphery of the open front to guide material into the bucket; a horizontally disposed lower lip holding spaced digging teeth (66-70); the lip having a ground contact surface (65a) with a stepped or raised profile in relation to the floor (60a) of the bucket wherein frictional drag on the bucket is reduced by the lip on penetrating the ground. mD r+ ol

Classifications:

International (IPC 8-9): E02F3/40 E02F9/28 (Advanced/Invention)



Family:

Publication number	Publication date	Application number	Application date
AU2015100869 AD	20150730	AU20150100869	20150701

Priority:

AU20150100869 20150701

Probable Assignee: TAURUS IP PTY LTD

Assignee(s): (std): TAURUS IP PTY LTD

Inventor(s): (std): ANNETTS RICHARD BRUCE

Agent(s): CULLENS PATENT AND TRADE MARK ATTORNEYS; CULLENS PTY LTD; SPRUSON AND FERGUSON

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2015100869 AD	20150730	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2015100869 AD	20150730	LSGT	+FGI	LETTERS PATENT SEALED OR GRANTED (INNOVATION PATENT)	
AU2015100869 AD	20350701	PEXP		Calculated Patent Term Expiry	

Title: APPARATUS AND METHOD FOR REPAIRING A GEAR

Abstract: The invention relates to a machine having a driven gear, service access to which is partially obstructed. An aspect of the invention involves an aperture permitting access to the driven gear through a spatial area away from the obstructed region. The driven gear includes a plurality of arc-like segments mounted on a spider for removal individually and the dimensions of at least one segment and the aperture are cooperatively selected to permit a segment to be removed through the aperture to the spatial area. Segments of the driven gear may thereby be removed for service while yet avoiding removal of the driving gear or other substantial disassembly. A method for replacing the driven gear includes forming the aperture, detaching a segment and removing the segment through the aperture to the spatial area.

Classifications:

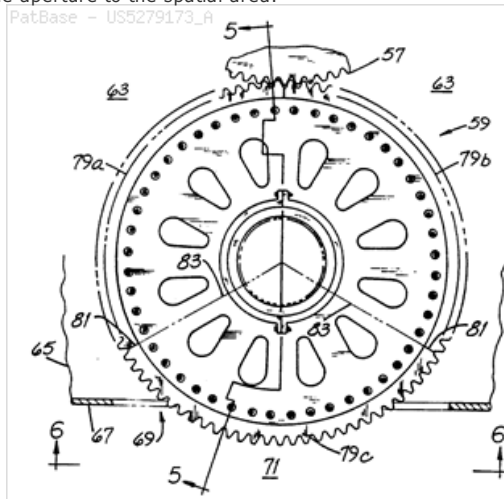
International (IPC 8-9): B23P6/00 F16H55/12 (Advanced/Invention); B23P6/00 F16H55/02 (Core/Invention)

International (IPC 1-7): B21D53/28 B23P6/00 E02F9/02 F16H55/12

CPC: Y10T74/19893 Y10T74/1993 F16H55/12 B23P6/00

European: B23P6/00 F16H55/12

US: 74/439 74/448



Family:

Publication number	Publication date	Application number	Application date
AU199344853 A1	19940519	AU19930044853	19930824
AU662236 B2	19950824	AU19930044853	19930824
CA2094580 AA	19940507	CA19932094580	19930421
CA2094580 C	19950328	CA19932094580	19930421
US5279173 A	19940118	US19920972851	19921106

Priority:

US19920972851 19921106 CA19932094580 19930421

Probable Assignee: HARNISCHFEGER TECHNOLOGIES INC

Assignee(s): (std): HARNISCHFEGER CORP ; HARNISCHFEGER CORP

Assignee(s): HARNISCHFEGER TECHNOLOGIES INC ; SEM JERRY C ; BANKERS TRUST CO ; BANKERS TRUST CO
AGENT AS ; BLASZYNSKI ROBERT H

Inventor(s): (std): BLASZYNSKI ROBERT H ; SEM JERRY C

Inventor(s): JERRY C SEM ; ROBERT H BLASZYNSKI

Agent(s): SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; RIDOUT AND MAYBEE LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199344853 A1	19940519	LSPB	+	published / reissued	
AU662236 B2	19950824	LSGT	+	granted / extensions (spc, cpc, pte)	
AU662236 B2	20130824	PEXP		Calculated Patent Term Expiry	
CA2094580 AA	19940507	LSPB	+	published / reissued	
CA2094580 AA	19930421	LSES	+EEER	EXAMINATION REQUEST	
CA2094580 C	19950328	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2094580 C	19951022	LSLE	-MKLA	LAPSED	
CA2094580 C	20130421	PEXP		Calculated Patent Term Expiry	
US5279173 A	19940118	LSGT	+	granted / extensions (spc, cpc,	

pte)					
US5279173 A	19921106	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER CORPORATION OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNORS:BLASZYNSKI, ROBERT H.; SEM, JERRY C.; REEL/FRAME:006297/0133 EFFECTIVE DATE : 19921026
US5279173 A	19940105	LSGT	PAT1	Patented Case	
US5279173 A	19940712	LSRE	CC	CERTIFICATE OF CORRECTION	
US5279173 A	19970626	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5279173 A	19980507	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HARNISCHFEGER CORPORATION; REEL/FRAME:009168/0359 EFFECTIVE DATE : 19980504
US5279173 A	20010319	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5279173 A	20010712	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANKERS TRUST COMPANY, AS AGENT, NEW YORK OLDPARTY : GRANT OF PATENT SECURITY INTEREST; ASSIGNOR:HARNISCHFEGER TECHNOLOGIES, INC., A DELAWARE CORPORATION; REEL/FRAME:011958/0584 EFFECTIVE DATE : 20010629
US5279173 A	20050128	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US5279173 A	20121106	PEXP		Calculated Patent Term Expiry	

Title: APPARATUS AND METHOD FOR ATTACHING A DIGGING TOOTH TIP

Abstract: A digging tooth **assembly** has a base nose, a replaceable tooth tip mounted on the base nose and a pin securing the tip to the nose. The pin includes a locking head eccentric to the pin and a pad-like resilient member is placed between the head and the tooth tip. The locking head is rotated so that the resilient member is compressed to urge the tooth tip in a direction such that the tip is maintained in a nose-contacting position.

Classifications:

International (IPC 8-9): E02F3/36 E02F3/60

E02F9/28 (Advanced/Invention);

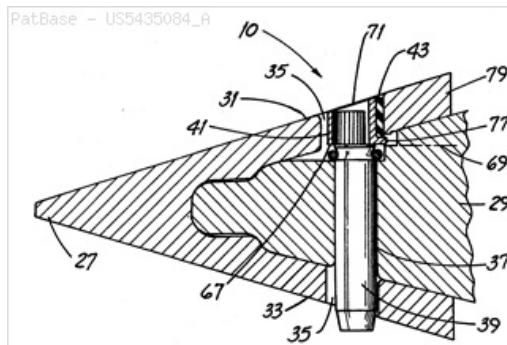
E02F9/28 (Core/Invention)

International (IPC 1-7): E02F3/36 E02F3/60 E02F9/28

CPC: Y10T403/589 E02F9/2841

European: E02F9/28A2C2

US: 172/713 172/772 37/398 37/452 37/457 403/320 411/941.1



Family:

Publication number	Publication date	Application number	Application date
AU199480405 A1	19950824	AU19940080405	19941213
AU675368 B2	19970130	AU19940080405	19941213
CA2120087 AA	19950818	CA19942120087	19940328
CA2120087 C	19970325	CA19942120087	19940328
US5435084 A	19950725	US19940197821	19940217
ZA9409759 A	19950818	ZA19940009759	19941207

Priority:

US19940197821 19940217 CA19942120087 19940328

Probable Assignee: HARNISCHFEGER TECHNOLOGIES INC

Assignee(s): (std): HARNISCHFEGER CORP

Assignee(s): HARNISCHFEGER TECHNOLOGIES INC ; IMMEL DARRYL R

Inventor(s): (std): IMMEL DARRYL R

Inventor(s): DARRYL R IMMEL

Agent(s): SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; RIDOUT AND MAYBEE LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199480405 A1	19950824	LSPB	+	published / reissued	
AU675368 B2	19970130	LSGT	+	granted / extensions (spc, cpc, pte)	
AU675368 B2	20141213	PEXP		Calculated Patent Term Expiry	
CA2120087 AA	19950818	LSPB	+	published / reissued	
CA2120087 AA	19940328	LSES	+EEER	EXAMINATION REQUEST	
CA2120087 C	19970325	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2120087 C	20080328	LSLE	-MKLA	LAPSED	
CA2120087 C	20140328	PEXP		Calculated Patent Term Expiry	
US5435084 A	19950725	LSGT	+	granted / extensions (spc, cpc, pte)	
US5435084 A	19940217	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER CORPORATION, WISCONSIN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:IMMEL, DARRYL R.; REEL/FRAME:006884/0595 EFFECTIVE DATE : 19940209

US5435084 A	19950714	LSGT	PAT1	Patented Case	
US5435084 A	19980507	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HARNISCHFEGER CORPORATION; REEL/FRAME:009168/0359 EFFECTIVE DATE : 19980504
US5435084 A	19980904	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5435084 A	20020916	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5435084 A	20060906	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US5435084 A	20140217	PEXP		Calculated Patent Term Expiry	
ZA9409759 A	19950818	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA9409759 A	20141206	PEXP		Calculated Patent Term Expiry	

Title: PIN **ASSEMBLY** FOR A TWO-PART GROUND ENGAGING TOOTH SYSTEM AND METHOD FOR CONNECTING COMPONENTS **OF** A TWO-PART GROUND ENGAGING TOOTH SYSTEM TO EACH OTHER

Abstract: A pin **assembly** for releasably maintaining an adapter and replaceable part or tool **of** a two-part digging system in operable combination relative to each other. The pin **assembly** includes a pair **of** axially aligned retaining pins whose opposed ends are arranged in operable combination relative to each other. Each retaining pin has an enlarged head portion configured to fit within one **of** the openings defined by the tool, and a shank portion. An axially arranged and rotatable fastener maintains the opposed distal ends **of** the pins in releasably secured relation relative to each other. A method for releasably maintaining the digging tooth/tool and adapter in operable combination is also disclosed.

Classifications:

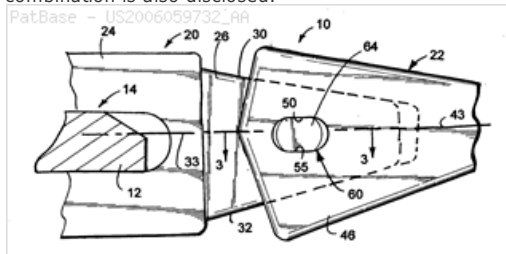
International (IPC 8-9): E02F9/28 (Advanced/Invention);

E02F9/28 (Core/Invention)

CPC: Y10T403/45 E02F9/2833

European: E02F9/28A2C

US: 37/456 37/456P 37/459 403/220



Family:

Publication number	Publication date	Application number	Application date
US2006059732 AA	20060323	US20050218173	20050901
US7313877 BB	20080101	US20050218173	20050901
WO06033818 A2	20060330	WO2005US31597	20050906
WO06033818 A3	20070301	WO2005US31597	20050906

Priority:

US20040610798P 20040917 US20050218173 20050901

Probable Assignee: H AND L TOOTH CO

Assignee(s): (std): CLENDENNING CHARLES ; LAUNDER BRIAN L ; TOOTH H AND L CO

Assignee(s): H AND L TOOTH CO ; H AND L TOOTH COMPANY

Inventor(s): (std): CLENDENNING CHARLES ; LAUNDER BRIAN L

Inventor(s): LAUNDER BRIAN

Agent(s): JOHN W HARBST; HARBST JOHN W; JOHN W

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KM KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2006059732 AA	20060323	LSPB	+	published / reissued	
US2006059732 AA	20050930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : H&L TOOTH COMPANY, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: CLENDENNING, MR. CHARLES; LAUNDER, MR. BRIAN L.; REEL/FRAME: 016614/0623 EFFECTIVE DATE : 20050829
US7313877 BB	20080101	LSGT	+	granted / extensions (spc, cpc, pte)	
US7313877 BB	20071212	LSGT	PAT1	Patented Case	
US7313877 BB	20110214	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7313877 BB	20150701	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7313877 BB	20250901	PEXP		Calculated Patent Term Expiry	
WO06033818 A2	20060330	LSPB	+	published / reissued	
WO06033818 A3	20070320	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO06033818 A3	20071024	LSNE	-122	EP: PCT	REF COUNTRY CODE : WO

Title: HOT EXTRUSION **OF** METALS AND LUBRICANT THEREFOR

Abstract: ABSTRACT **OF** THE DISCLOSURE A method **of** lubricating metal workpieces employed in the hot extrusion **of** metals at a temperature in excess **of** 500 degrees C. comprising applying a substantially uniform, thin layer **of** a mixture formed by dispersing a finely divided powder **of** glass material in a grease to the surfaces to be lubricated prior to extrusion. The glass material constitutes 5% to 50% by weight **of** the mixture and the grease is volatile or decomposable at or below the extrusion temperature.

Classifications:

International (IPC 8-9): B21C23/32 C10M125/00 C10M125/28 E02F3/40 (Advanced/Invention);

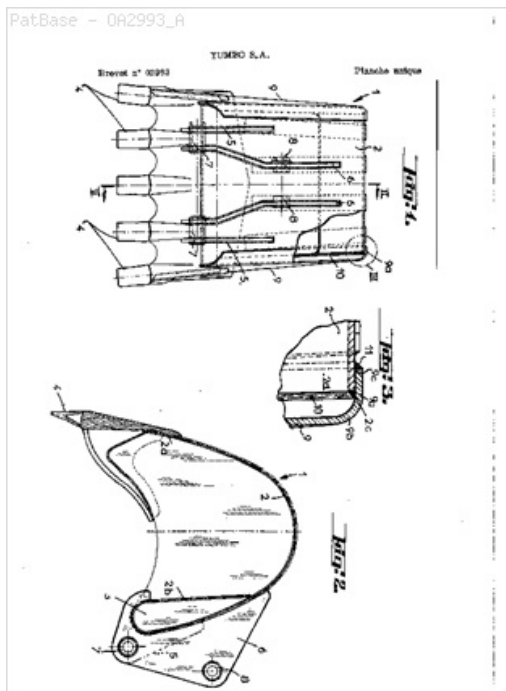
B21C23/00 C10M125/00 E02F3/40 (Core/Invention)

International (IPC 1-7): B21C23/00 B21C23/32 B21C9/02 C10M5/00 E02F E02F3/40 F16N

CPC: E02F3/40 B21C23/32 C10M125/00 C10M125/28 C10M2201/041 C10M2201/042 C10M2201/103 C10M2201/12 C10M2207/40 C10M2207/404 C10M2229/02 C10M2229/05 C10N2240/402 C10N2240/403 C10N2240/404 C10N2240/405 C10N2240/406 C10N2240/407 C10N2240/408 C10N2240/409 C10N2250/10 C10M5/00

European: B21C23/32 C10M125/00 C10M125/28 C10M5/00 E02F3/40

US: 264/332 508/126 508/136 72/42



Family:

Publication number	Publication date	Application number	Application date
BE728269 A	19690716		00000000
DE1452246 A1	19690327	DE19651452246	19650521
DE1452246 B2	19740418	DE19651452246	19650521
DE1906535 A1	19690918	DE19691906535	19690210
ES309313 A1	19651016	ES19650309313	19650212
ES363550 A1	19701216	ES19690363550	19690212
FR1405421 A	19650709	FR19640976447	19640529
FR1440651 A	19660603	FR19640000412	19641230
FR1583417 A	19691031	FR19680139722	19680213
GB1081583 A	19670831	GB19650017320	19650423
GB1222056 A	19710210	GB19690007615	19690212
IL22971 A1	19680620	IL19650022971	19650211
IL31589 A0	19690430	IL19690031589	19690210
LU47963 A	19650412	LU19650047963	19650211
LU57963 A	19690522		00000000
MC752 A	19691017	MC19690000805	19690212
NL6902231 A	19690815	NL19690002231	19690212
OA2993 A	19701215	OA19690053503	19690212
SE307118 B	19681223	SE19650003284	19650312
US3485753 A	19691223	US19650446722	19650408
ZM1069 A	19700116	ZM19690000010	19690210

Priority:

FR19640976447 19640529 FR19640000412 19641230 FR19680139722 19680213

Probable Assignee: CEFILAC

Assignee(s): (std): CEFILAC ; CIE DU FILAGE DES METAUX ET DE ; CIE DU FILAGE DES METAUX ET DES JOINTS CURTY ; CO DU FILAGE DES METAUX ET DES ; YUMBO ; SOC YUMBO ; SOCIETE ANONYME YUMBO ; YUMBO SA ; YUMBO S A ; YUMBO GENAS SOC

Assignee(s): ANONYME YUMBO SOC ; COMPAGNIE DU FILAGE DES METAUX ET DES JOINTS CURTY ; COMPAGNIE DU FILAGE DES METAUX ET DES JOINTS CURTY CEFILAC ; COMPAGNIE DU FILAGE DES METAUX ET DES JOINTS CURTY CEFILAC PARIS ; DU FILAGE DES METAUX ET DES JOINTS CURTY CEFILAC CIE ; DU FILAGE DES METAUX ET DES JOINTS CURTY COMP ; DU FILAGE DES METAUX ET DES JOINTS CURTY CEFILAC COMP ; SOCIETE YUMBO ; SOCIETE YUMBO GENAS ; DU FILAGE DES METAUX ET DES JOINTS CURTY CEFILAC C ; CO DU FILAGE DES METAUX ET DES JOINTS CURTY

Inventor(s): (std): BIENAIME JACQUES ; ALLAIS PHILIPPE ; ALLAIS P

Inventor(s): PHILIPPE ALLAIS ; ALLAIS PHILIPPE ISLE ADAM SEINE ET OISE FRANKREICH ; ALLAIS PHILIPPE ISLE ADAM SEINE ET OISE FRANKREIC ; ALLAIS PHILIPPE ISLE ADAM SEINE ET OISE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
BE728269 A	19690716	LSPB	+	published / reissued	
BE728269 A	19200101	PEXP		Calculated Patent Term Expiry	
DE1452246 A1	19690327	LSPB	+	published / reissued	
DE1452246 B2	19740418	LSPB	+	published / reissued	
DE1906535 A1	19690918	LSPB	+	published / reissued	
ES309313 A1	19651016	LSGT	+	granted / extensions (spc, cpc, pte)	
ES363550 A1	19701216	LSGT	+	granted / extensions (spc, cpc, pte)	
FR1405421 A	19650709	LSGT	+	granted / extensions (spc, cpc, pte)	
FR1405421 A	19840529	PEXP		Calculated Patent Term Expiry	
FR1440651 A	19660603	LSGT	+	granted / extensions (spc, cpc, pte)	
FR1440651 A	19841230	PEXP		Calculated Patent Term Expiry	
FR1583417 A	19691031	LSGT	+	granted / extensions (spc, cpc, pte)	
FR1583417 A	19720428	LSLE	-ST	NOTIFICATION OF LAPSE	
FR1583417 A	19880213	PEXP		Calculated Patent Term Expiry	
GB1081583 A	19670831	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1081583 A	19850423	PEXP		Calculated Patent Term Expiry	
GB1222056 A	19710210	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1222056 A	19711006	LSRV	CSNS	APPLICATION OF WHICH COMPLETE SPECIFICATION HAVE BEEN ACCEPTED AND PUBLISHED, BUT PATENT IS NOT SEALED	
GB1222056 A	19890212	PEXP		Calculated Patent Term Expiry	
IL22971 A1	19680620	LSPB	+	published / reissued	
LU47963 A	19650412	LSGT	+	granted / extensions (spc, cpc, pte)	
LU47963 A	19850212	PEXP		Calculated Patent Term Expiry	
LU57963 A	19690522	LSGT	+	granted / extensions (spc, cpc, pte)	
MC752 A	19691017	LSGT	+	granted / extensions (spc, cpc, pte)	
MC752 A	19890212	PEXP		Calculated Patent Term Expiry	
NL6902231 A	19690815	LSPB	+	published / reissued	
OA2993 A	19701215	LSGT	+	granted / extensions (spc, cpc, pte)	
OA2993 A	19890212	PEXP		Calculated Patent Term Expiry	
SE307118 B	19681223	LSPB	+	published / reissued	
US3485753 A	19691223	LSGT	+	granted / extensions (spc, cpc, pte)	
ZM1069 A	19700116	LSGT	+	granted / extensions (spc, cpc, pte)	
ZM1069 A	19850210	PEXP		Calculated Patent Term Expiry	

Title: REVERSIBLE EXCAVATOR TOOTH WITH SOCKETED TIP

Abstract: 1. A replaceable excavating tooth having :1 renewable tip; said tooth, as a whole, con- stituting an approximately uninterrupted wedge comprising a vertically -tapered body portion and a; correspondingly tapered tip portion; said body portion having a forwardly opening socket, and said tip portion having a rearwardly presented tang fitted in said socket; said body portion also having rearwardly extending spaced jaws through 'which thc tooth is adapted to be mounted upon a base, said jaws diverging from a crotch adjacent the inner end-**of** said socket, said socket and said crotch opening up said body portion to heat treatz ment, and said socket having vertical lat~ eral walls constituting rearwardly enlarging bracing webs strengthening ,the divergent jaws at their crotch. _ Q.

Classifications:

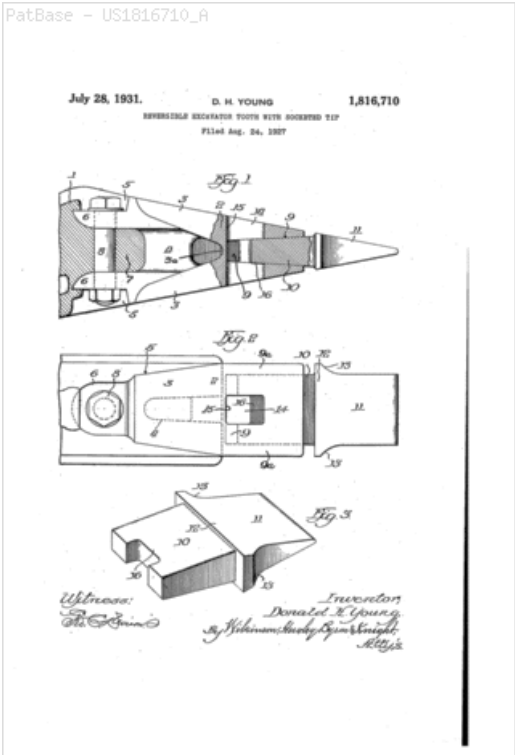
International (ipc 8-9): E02F9/28 (Advanced/Invention); E02F9/28 (Core/Invention)

International (ipc 1-7): E02F9/28

CPC: E02F9/2825

European: E02F9/28A2B

US: 37/454



Family:

Publication number	Publication date	Application number	Application date
US1816710 A	19310728	US19270215064	19270824

Priority:

US19270215064 19270824

Probable Assignee: AMERICAN MANGANESE STEEL CO
Assignee(s): (std): AMERICAN MANGANESE STEEL CO
Assignee(s): AMERICAN MANGANESE STEEL COMPANY
Inventor(s): (std): YOUNG DONALD H

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US1816710 A	19310728	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: REPLACEABLE **WEAR** TOOTH **ASSEMBLY**

Abstract: An improved tooth 21 and tooth holder 22 **assembly** for use with a digging implement such as a post hole digger has a first retention member 23 and a second retention member 24 each **of** which can be used in isolation or in combination. The first retention member 23 comprises a nylon plug having opposed serrated teeth 25 and which is pushed into an opening in the tooth holder 22. The tooth contains rigid profiles 26 and when the tooth is pushed into the tooth holder, the serrations and profiles mesh together to positively retain the tooth within the tooth holder. The second retention means 24 comprises a resilient pin. The tooth and the tooth holder have a positive and negative wedge type shape which allows the tooth to be attached in one orientation only.

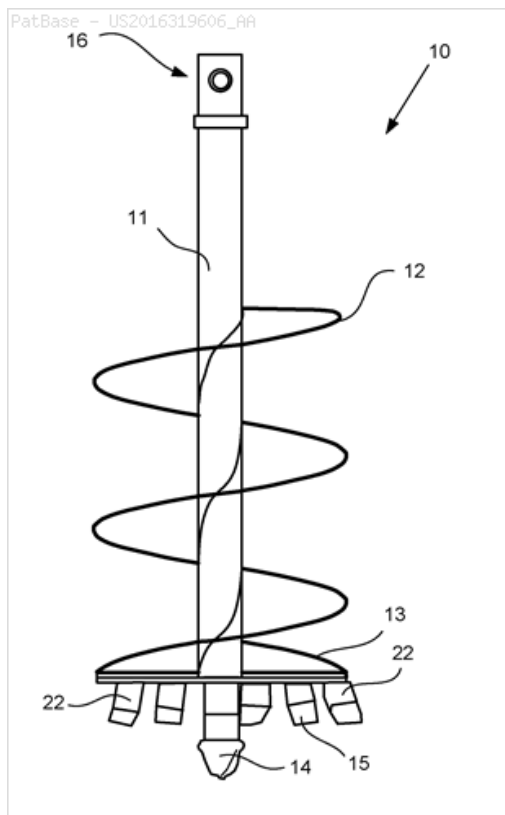
Classifications:

International (IPC 8-9): E02F3/60 E02F9/28 E21B10/44

E21B10/46 (Advanced/Invention)

CPC: E21B10/633 E21B10/44

US: 175/413



Family:

Publication number	Publication date	Application number	Application date
AU2016202163 AA	20161117	AU20160202163	20160406
US2016319606 AA	20161103	US20160095449	20160411

Priority:

AU20150901525 20150429

Probable Assignee: EARTHPRO ATTACHMENTS PTY LTD

Assignee(s): (std): EARTHPRO ATTACHMENTS PTY LTD

Inventor(s): (std): BOXSELL GEORGE ANOLIS ; WRIGHT GRANT RICHARD

Agent(s): MICHAEL BUCK IP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2016202163 AA	20161117	LSPB	+	published / reissued	
US2016319606 AA	20161103	LSPB	+	published / reissued	
US2016319606 AA	20160427	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : EARTHPRO ATTACHMENTS PTY LTD, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:WRIGHT, GRANT RICHARD; BOXSELL, GEORGE ANOLIS; REEL/FRAME:038390/0473 EFFECTIVE DATE : 20150428
US2016319606 AA	20180215	LSSES	NFA1	Non Final Action Mailed	
US2016319606 AA	20180829	LSWD	-ABD3	Abandoned - Failure to	

Respond to
an Office
Action

Title: BUCKET FOR IMPLEMENT SYSTEM HAVING SYMMETRICAL TOOTH MOUNTING MEMBERS

Abstract: A bucket for an implement system includes a bucket body, and a first tooth mounting member and a second tooth mounting member forming first and second corners of the bucket body. The first and second tooth mounting members may be identical to one another, and are each bilaterally symmetrical. A flared shape of a longitudinal fin of each of the tooth mounting members enables abutment against a side wall of a bucket at a plurality of orientations, enabling tooth mounting members of the same design to be used at opposite corners of the bucket for positioning digging teeth at kicked-out orientations.

Classifications:

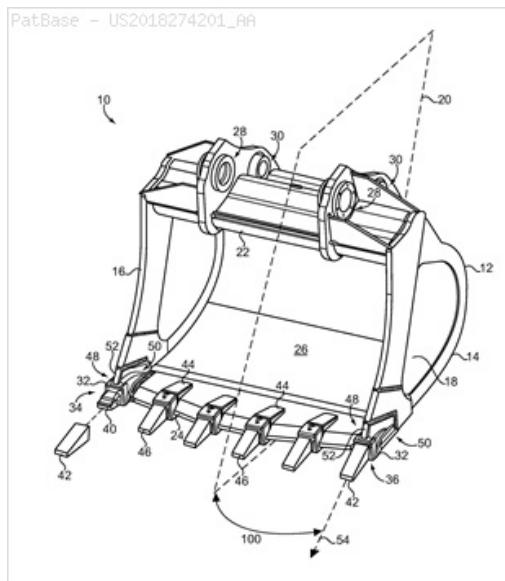
International (IPC 8-9): E02F3/40 E02F9/22

E02F9/28 (Advanced/Invention);

E02F3/30 E02F3/32 (Advanced/Non-invention)

CPC: E02F3/40 E02F9/2825 E02F9/2858 E02F9/2816 E02F9/2271

E02F9/2808 E02F3/304 E02F3/308 E02F3/32



Family:

Publication number	Publication date	Application number	Application date
CN108625427 A	20181009	CN201810208435	20180314
US2018274201 AA	20180927	US20170466402	20170322
US10208452 BB	20190219	US20170466402	20170322

Priority:

US20170466402 20170322

Probable Assignee:

CATERPILLAR INC

Assignee(s): (std):

CATERPILLAR INC

Inventor(s): (std):

KUNZ PHILLIP ; PHILLIP KUNZ

Agent(s):

YATES JONATHAN F

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Patent	Date recorded	Event group	Code	Event	Details
CN108625427 A	20181009	LSPB	+	published / reissued	
CN108625427 A	20181009	LSPB	PB01	PUBLICATION	
US10208452 BB	20190219	LSGT	+	granted / extensions (spc, cpc, pte)	
US10208452 BB	20190130	LSGT	PAT1	Patented Case	
US10208452 BB	20370322	PEXP		Calculated Patent Term Expiry	
US2018274201 AA	20180927	LSPB	+	published / reissued	
US2018274201 AA	20170322	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CATERPILLAR INC., ILLINOIS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:KUNZ, PHILLIP; REEL/FRAME:041685/0929 EFFECTIVE DATE : 20170322
US2018274201 AA	20190112	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	

Title: Excavation bucket incorporating an impact actuator **assembly**

Abstract: An excavation bucket incorporating an impact actuator **assembly** is described herein. The excavation bucket includes a bucket body, a movable head, a movable floor portion mounted to the movable head and an impact actuator provided between and mounted to the bucket body and the movable head. The movable head is longitudinally movable in the bucket body. The movable head is provided with tools, such as teeth, to penetrate hard soils. These tools are slidably mounted in the movable head to reach a retracted position when they are pushed against hard soil. When the impact actuator is activated, the longitudinal impacts generated by the impact actuator drive the tools into the hard soil if the tools are in their retracted positions. However, if the impact actuator is activated while the tools are not in their retracted position, the longitudinal impacts will cause the repetitive longitudinal movements **of** the movable head and thus **of** the movable floor with respect to the bucket body.

Classifications:

International (IPC 8-9): E02F3/40 E02F3/96 (Advanced/Invention);
E02F3/04 E02F3/40 (Core/Invention)

International (IPC 1-7): E02F3/36 E02F3/40 E02F3/96

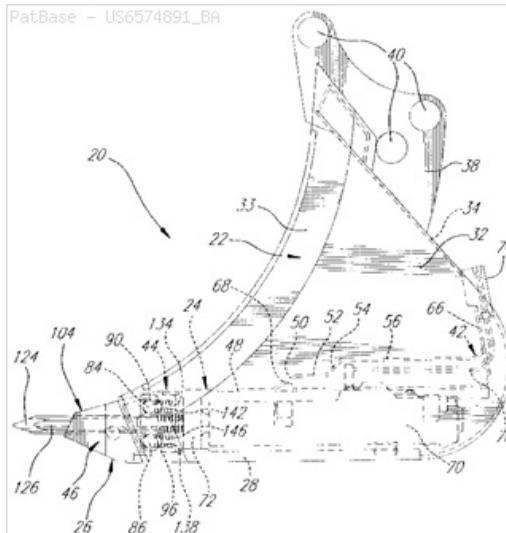
CPC: E02F3/405 E02F3/966

European: E02F3/40G4 E02F3/96H

US: 37/403 37/447 374/470

JP F-Term: 2D012 2D012/GB00

JP F-Index: E02F3/40/B



Family:

Publication number	Publication date	Application number	Application date
AT269451 E	20040715	AT19980907792T	19980310
AU199866058 A1	19990927	AU19980066058	19980310
BRPI9815777 A	20001121	BR1998PI15777	19980310
CA2322852 AA	20000906	CA19982322852	19980310
CA2322852 C	20070522	CA19982322852	19980310
DE69824641 D1	20040722	DE19986024641	19980310
DE69824641 D1	20040722	DE19986024641T	19980310
DE69824641 T2	20050630	DE19986024641T	19980310
EP1062393 A1	20001227	EP19980907792	19980310
EP1062393 B1	20040616	EP19980907792	19980310
ES2224363 T3	20050301	ES19980907792T	19980310
JP2002506151 T2	20020226	JP20000535803T	19980310
JP4057240 B2	20080305	JP20000535803T	19980310
US6574891 BA	20030610	US20000623749	20000908
WO9946451 A1	19990916	WO1998CA00205	19980310

Priority:

BR1998PI15777 19980310 WO1998CA00205 19980310

Probable Assignee: CORPROATION POWER TECH INC

Assignee(s): (std): 3786111 CANADA INC ; CLAUDE COTE ; CORP POWER TECH INC ; IRELAND ODIN ; COTE CLAUDE ; ODIN IRELAND

Assignee(s): POWER TECH INC BLAINVILLE CORP ; POWER TECH INC CORP ; CORPROATION POWER TECH INC 1060 BOUL MICHELE ; CORPROATION POWER TECH INC ; 3786111 CANADA INC SMALL ENTITY ; 3786111 CANADA INC STE JULIE

Inventor(s): (std): CLAUDE COTE ; COTE CLAUDE ; IRELAND ODIN ; ODIN IRELAND

Agent(s): CULLENS PATENT AND TRADE MARK ATTORNEYS; CULLENS PTY LTD; SPRUSON AND FERGUSON; FINCHAM ERIC

Designated states: AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CU CZ DE DK EE ES FI FR GA GB GE GH GM GN GR GW HU ID IE IL IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MC MD MG MK ML MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT UA UG US UZ VN YU ZW

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Patent	Date recorded	Event group	Code	Event	Details
AT269451 E	20040715	LSGT	+	granted / extensions (spc, cpc, pte)	
AT269451 E	20050415	LSPB	+UEP	PUBLICATION OF TRANSLATION OF EUROPEAN PATENT SPECIFICATION	REF DOCUMENT NUMBER : 1062393 COUNTRY OF REF DOCUMENT : EP

AT269451 E	20111215	LSLE	-REN	CEASED DUE TO NON-PAYMENT OF THE ANNUAL FEE	
AT269451 E	20180310	PEXP		Calculated Patent Term Expiry	
AU199866058 A1	19990927	LSPB	+	published / reissued	
AU199866058 A1	20010510	LSLE	-MK1	APPLICATION LAPSED SECTION 142(2)(A) - NO REQUEST FOR EXAMINATION IN RELEVANT PERIOD	
BRPI9815777 A	20001121	LSPB	+	published / reissued	
BRPI9815777 A	20031125	LSRV	-FA10	DISMISSAL: DISMISSAL - ARTICLE 33 OF INDUSTRIAL PROPERTY LAW	
BRPI9815777 A	20040713	LSRV	-B11Y	DEFINITIVE DISMISSAL ACC. ARTICLE 33 OF IPL - EXTENSION OF TIME LIMIT FOR REQUEST OF EXAMINATION EXPIRED	
CA2322852 AA	20000906	LSPB	+	published / reissued	
CA2322852 AA	20040309	LSES	+EEER	EXAMINATION REQUEST	
CA2322852 C	20070522	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2322852 C	20120312	LSLE	-MKLA	LAPSED	
CA2322852 C	20180310	PEXP		Calculated Patent Term Expiry	
DE69824641 D1	20041028	LSAS	8327	CHANGE IN THE PERSON/NAME/ADDRESS OF THE PATENT OWNER	PARTYTYPE : OWNER OWNER : CORPORATION POWER TECH INC., BLAINVILLE, QUEBEC, C
DE69824641 D1	20041028	LSAS	8327	CHANGE IN THE PERSON/NAME/ADDRESS OF THE PATENT OWNER	PARTYTYPE : OWNER OWNER : CORPORATION POWER TECH INC., BLAINVILLE, QUEBEC, C
DE69824641 D1	20041028	LSAS	8327	CHANGE IN THE PERSON/NAME/ADDRESS OF THE PATENT OWNER	PARTYTYPE : OWNER OWNER : CORPORATION POWER TECH INC., BLAINVILLE, QUEBEC, C
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DE69824641 D1	20060727	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE69824641 T2	20050630	LSGT	+	granted / extensions (spc, cpc, pte)	
DE69824641 T2	20060727	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE69824641 T2	20180310	PEXP		Calculated Patent Term Expiry	
EP1062393 A1	20001227	LSPB	+	published / reissued	
EP1062393 A1	20001227	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20000919
EP1062393 A1	20030502	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20021104
EP1062393 A1	20040421	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : 3786111 CANADA INC.
EP1062393 B1	20040616	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1062393 B1	20040616	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT

EP1062393 B1	20040616	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	LAPSED DATE : 20040616 COUNTRY OF REF DOCUMENT : FI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20040616
EP1062393 B1	20040616	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20040616
EP1062393 B1	20040616	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1062393 B1	20040630	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP1062393 B1	20040728	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP1062393 B1	20040811	LSAS	RAP2	RIGHTS OF A PATENT TRANSFERRED	PARTY TYPE : OWNER OWNER : CORPORATION POWER TECH INC.
EP1062393 B1	20040916	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DK NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20040916
EP1062393 B1	20040916	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20040916
EP1062393 B1	20040916	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20040916
EP1062393 B1	20041029	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : AEN TEXT : DAS PATENT IST AUFGRUND DES WEITERBEHANDLUNGSANTRAGS VOM 28.09.2004 REAKTIVIERT WORDEN.
EP1062393 B1	20041201	LSLE	-NLV1	NL: LAPSED OR ANNULLED DUE TO FAILURE TO FULFILL THE REQUIREMENTS OF ART. 29P AND 29M OF THE PATENTS ACT	REF COUNTRY CODE : EP
EP1062393 B1	20050301	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FG2A REF DOCUMENT NUMBER : 2224363 COUNTRY OF REF DOCUMENT : ES KIND CODE OF REF DOCUMENT : T3 DESIGNATED STATE(S) :
EP1062393 B1	20050310	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20050310

EP1062393 B1	20050310	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20050310
EP1062393 B1	20050331	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20050331
EP1062393 B1	20050608	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20050317
EP1062393 B1	20051229	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP1062393 B1	20080102	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20041116
EP1062393 B1	20100430	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH PAYMENT DATE : 20100323 YEAR OF FEE PAYMENT : 13
EP1062393 B1	20100531	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20100324 YEAR OF FEE PAYMENT : 13
EP1062393 B1	20100630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20100312 YEAR OF FEE PAYMENT : 13
EP1062393 B1	20100630	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20100310 YEAR OF FEE PAYMENT : 13
EP1062393 B1	20100730	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20100408 YEAR OF FEE PAYMENT : 13
EP1062393 B1	20100831	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20100326 YEAR OF FEE PAYMENT : 13
EP1062393 B1	20110331	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20090310
EP1062393 B1	20110729	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20100320 YEAR OF FEE PAYMENT : 13
EP1062393 B1	20110729	LSRE	+PGRI	PATENT REINSTATED IN CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT REINSTATED DATE : 20110616
EP1062393 B1	20111031	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP1062393 B1	20111123	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20110310
EP1062393 B1	20111130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110310
EP1062393 B1	20111223	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20111130

EP1062393 B1	20120131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110331
EP1062393 B1	20120131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20111001
EP1062393 B1	20120131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110331
EP1062393 B1	20120131	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110331
EP1062393 B1	20120229	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110310
EP1062393 B1	20120229	LSRE	+PGRI	PATENT REINSTATED IN CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT REINSTATED DATE : 20110616
EP1062393 B1	20120315	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 69824641 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20111001
EP1062393 B1	20120424	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FD2A EFFECTIVE DATE : 20120424
EP1062393 B1	20120731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20110311
EP1062393 B1	20180310	PEXP		Calculated Patent Term Expiry	
ES2224363 T3	20050301	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2224363 T3	20180310	PEXP		Calculated Patent Term Expiry	
JP2002506151 T2	20020226	LSPB	+	published / reissued	
JP2002506151 T2	20050225	LSSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20050224
JP2002506151 T2	20070620	LSSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20070619
JP2002506151 T2	20070824	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20070823
JP2002506151 T2	20071107	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP2002506151 T2	20071114	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20071113
JP2002506151 T2	20071220	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING	TEXT : JAPANESE INTERMEDIATE CODE: A61

GRANT PROCEDURE)					EFFECTIVE DATE : 20071213
JP2002506151 T2	20071221	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150
JP2002506151 T2	20071227	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 3
JP4057240 B2	20080305	LSGT	+	granted / extensions (spc, cpc, pte)	
JP4057240 B2	20101221	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP4057240 B2	20180310	PEXP		Calculated Patent Term Expiry	
US6574891 BA	20030610	LSGT	+	granted / extensions (spc, cpc, pte)	
US6574891 BA	20021220	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : 3786111 CANADA INC. (SMALL ENTITY), CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:IRELAND, ODIN; COTE, CLAUDE; REEL/FRAME:013606/0250 EFFECTIVE DATE : 20020510
US6574891 BA	20040622	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CORPROATION POWER TECH. INC., QUEBEC OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:37876111 CANADA INC.; REEL/FRAME:015571/0995 EFFECTIVE DATE : 20040617
US6574891 BA	20061130	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6574891 BA	20110610	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6574891 BA	20110711	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6574891 BA	20110802	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20110610
US6574891 BA	20200908	PEXP		Calculated Patent Term Expiry (a terminal disclaimer has been filed)	
WO9946451 A1	19990916	LSPB	+	published / reissued	
WO9946451 A1	20000906	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2322852 COUNTRY OF REF DOCUMENT : CA KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO9946451 A1	20000906	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2322852 COUNTRY OF REF DOCUMENT : CA
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WO9946451 A1	20000910	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : KR
WO9946451 A1	20000918	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1998907792 COUNTRY OF REF DOCUMENT : EP
WO9946451 A1	20000928	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 66058/98 COUNTRY OF REF DOCUMENT : AU
WO9946451 A1	20001227	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN	REF DOCUMENT NUMBER : 1998907792

				NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : EP
WO9946451 A1	20010111	LSWD	REG	REFERENCE TO NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : 8642
WO9946451 A1	20040616	LSGT	+WWG	WIPO INFORMATION: GRANT IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1998907792 COUNTRY OF REF DOCUMENT : EP

Title: Bucket chain excavator

Abstract: A continuous excavating and loading machine having a front mounted rotary digging element divided into sections to allow cantilevered support, digs a width greater than that of any other part of the machine so that the machine may advance on the surface it has cut. The digging element is driven by digging chains which also break up material in their path so that the full digging face is excavated. Excavated material is discharged outwardly from the digging element by both centrifugal force and gravity after rotation past top center. The excavated material falls onto a conveyor system to be elevated and transported to the rear of the machine for transfer to appropriate carriers. A moldboard blade trims surface irregularities and pushes passed material forward into the bucket wheel. A movable skid plate, held against the cut surface by a constant force, supports digging torque reaction loads and damping is provided for shock conditions.

Classifications:

International (IPC 8-9): E02F3/10 E02F3/14 E02F5/06

E02F7/02 (Advanced/Invention);

E02F3/08 (Advanced/Non-invention);

E02F3/08 E02F5/02 E02F7/00 (Core/Invention)

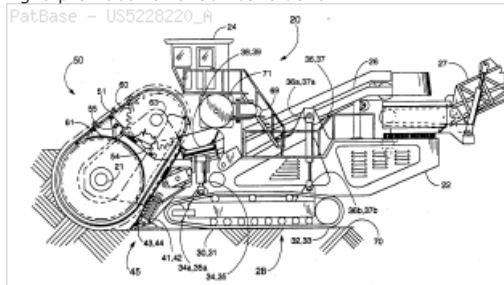
International (IPC 1-7): E02F5/06

CPC: E02F3/082 E02F3/10 E02F3/142 E02F3/143 E02F7/02

European: E02F3/08C E02F3/10 E02F3/14F E02F3/14G E02F7/02

US: 299/36 37/190 37/359 37/360 37/364 37/464 37/96 37/97

373/640



Family:

Publication number	Publication date	Application number	Application date
US5228220 A	19930720	US19910811924	19911223

Priority:

US19900549132 19900706 US19910680512 19910404 US19910811924 19911223

Probable Assignee:

BRYAN JR JOHN F

Assignee(s): (std):

BRYAN JR JOHN F

Inventor(s): (std):

BRYAN JR JOHN F

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US5228220 A	19930720	LSGT	+	granted / extensions (spc, cpc, pte)	
US5228220 A	19930707	LSGT	PAT1	Patented Case	
US5228220 A	19970717	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5228220 A	20010722	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5228220 A	20010925	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20010720
US5228220 A	20180127	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5228220 A	20111223	PEXP		Calculated Patent Term Expiry	

Title: Earth working implement and tooth **assembly** therefor

Abstract: An implement suitable for use with an earth moving, excavating or mining machine generally comprising a body including a wall provided with a forwardly and transversely disposed lip portion, means for attaching the body to the machine, the lip portion **of** the body wall having a plurality **of** transversely spaced ribs, each **of** the ribs having forwardly and rearwardly disposed pin receiving openings, a pair **of** base plates mounted on the sides **of** each **of** the ribs, each **of** the base plates having pin receiving openings registered with the openings in an adjoining rib, a plurality **of** tooth points each having a rearwardly opening socket receiving the forward end **of** a set **of** rib and adjoining base plates for mounting the tooth point thereon, each **of** the tooth points having side walls with openings registered with a set **of** openings in the adjoining set **of** base plates and rib on which the tooth point is mounted, and pins disposed in the registered openings for securing the base plates on the ribs and the tooth points on adjoining rib and base plate sets.

Classifications:

International (IPC 8-9): E02F3/40 E02F9/28 (Advanced/Invention);
E02F3/40 E02F9/28 (Core/Invention)

International (IPC 1-7): E02D E02F3/28 E02F3/40 E02F3/81
E02F9/28 E21D

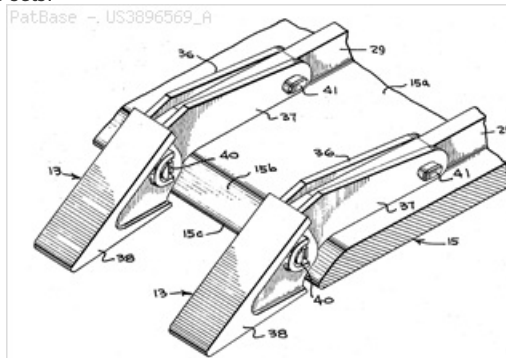
CPC: E02F3/40 E02F9/2825

European: E02F3/40 E02F9/28A2B

US: 37/456 414/722

JP F-Term: 2D012 2D012/GB01 2D015 2D015/JA03

JP F-Index: E02F3/40/B E02F9/28/A



Family:

Publication number	Publication date	Application number	Application date
AU197474236 A1	19760415	AU19740074236	19741011
CA1022587 A1	19771213	CA19740211169	19741010
DE2452649 A1	19751023	DE19742452649	19741106
DE2452649 B2	19770428	DE19742452649	19741106
DE2452649 C3	19771215	DE19742452649	19741106
DE2462382 A1	19770407	DE19742462382	19741106
FR2267422 A1	19751107	FR19750000335	19750107
GB1451729 A	19761006	GB19740051622	19741128
IN144051 A	19780318	IN1974CA02405	19741102
JP50136905 A2	19751030	JP19740141114	19741205
JP52048402 B4	19771209	JP19740141114	19741205
JP924629 C3	19780922	JP19740141114	19741205
NO140606 B	19790625	NO19750001164	19750404
NO140606 C	19791003	NO19750001164	19750404
NO751164 A	19751010	NO19750001164	19750404
OA5003 A	19801231	OA19750055501	19750516
PH10762 A	19770902	PH19750017004	19750402
SE407600 B	19790402	SE19750004020	19750408
SE407600 C	19790712	SE19750004020	19750408
SE7504020 A	19751010	SE19750004020D	19750408
US3896569 A	19750729	US19740459401	19740409
ZA7406585 A	19751126	ZA19740006585	19741016
ZM4175 A	19760521	ZM19750000041	19750409

Priority:

US19740459401 19740409

Probable Assignee: MARION POWER SHOVEL CO

Assignee(s): (std): DRESSER IND ; MARION POWER SHOVEL CIE (std) ; MARION POWER SHOVEL CO ; MARION POWER SHOVEL COMP INC

Assignee(s): MARION POWER SHOVEL COMPANY INC ; MARION POWER SHOVEL CY INC US ; THOMPSON GEORGE J ; MARION POWER SHOVEL CO INC ; DRESSER INDUSTRIES INC ; INDRESCO INC ; DALRYMPLE THOMAS H

Inventor(s): (std): DAILRYMPIE T ; DAIRYMPLE T ; DALRYMPLE T ; DALRYMPLE T H ; DALRYMPLE THOMAS H ; DALRYMPLE THOMAS T ; THOMPSON G ; THOMPSON G J ; THOMPSON GEORGE J ; THOMPSON GOERGE J ; THONPSON GEORGE J

Inventor(s): G J THOMPSON ; GEORGE J THOMPSON AND THOMAS H DALRYMPLE ; GOERGE J THOMPSON ; H DALRYMPLE THOMAS ; J THONPSON GEORGE ; MARION OHIO ; T H DALRYMPLE ; THOMAS H DALRYMPLE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU197474236 A1	19760415	LSPB	+	published / reissued	
DE2452649 A1	19751023	LSPB	+	published / reissued	
DE2452649 B2	19770428	LSPB	+	published / reissued	
DE2452649 B2	19771215	LSGT	+C3	GRANT AFTER TWO PUBLICATION STEPS	

(3RD PUBLICATION)					
DE2452649 B2	19820513	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
DE2452649 B2	19820826	LSAS	8327	CHANGE IN THE PERSON/NAME/ADDRESS OF THE PATENT OWNER	PARTYTYPE : OWNER OWNER : DRESSER INDUSTRIES, INC., 75221 DALLAS, TEX., US
DE2452649 C3	19771215	LSGT	+	granted / extensions (spc, cpc, pte)	
DE2462382 A1	19770407	LSPB	+	published / reissued	
FR2267422 A1	19751107	LSPB	+	published / reissued	
FR2267422 A1	19770318	LSLE	-ST	NOTIFICATION OF LAPSE	
GB1451729 A	19761006	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1451729 A	19770216	LSGT	+PS	PATENT SEALED	
GB1451729 A	19810708	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	
GB1451729 A	19941128	PEXP		Calculated Patent Term Expiry	
IN144051 A	19780318	LSPB	+	published / reissued	
JP50136905 A2	19751030	LSPB	+	published / reissued	
JP52048402 B4	19771209	LSPB	+	published / reissued	
JP924629 C3	19780922	LSGT	+	granted / extensions (spc, cpc, pte)	
NO140606 B	19790625	LSPB	+	published / reissued	
NO140606 C	19791003	LSGT	+	granted / extensions (spc, cpc, pte)	
NO140606 C	19950404	PEXP		Calculated Patent Term Expiry	
NO751164 A	19751010	LSPB	+	published / reissued	
OA5003 A	19801231	LSGT	+	granted / extensions (spc, cpc, pte)	
OA5003 A	19950516	PEXP		Calculated Patent Term Expiry	
PH10762 A	19770902	LSGT	+	granted / extensions (spc, cpc, pte)	
PH10762 A	19940902	PEXP		Calculated Patent Term Expiry	
SE407600 B	19790402	LSPB	+	published / reissued	
SE407600 C	19790712	LSGT	+	granted / extensions (spc, cpc, pte)	
SE407600 C	19950408	PEXP		Calculated Patent Term Expiry	
SE7504020 A	19751010	LSPB	+	published / reissued	
US3896569 A	19750729	LSGT	+	granted / extensions (spc, cpc, pte)	
US3896569 A	19921120	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : INDRESCO, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:DRESSER INDUSTRIES, INC.; REEL/FRAME:006334/0060 EFFECTIVE DATE : 19920731
ZA7406585 A	19751126	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA7406585 A	19901015	PEXP		Calculated Patent Term Expiry	
ZM4175 A	19760521	LSGT	+	granted / extensions (spc, cpc, pte)	
ZM4175 A	19910409	PEXP		Calculated Patent Term Expiry	

Title: Hammerless attachment **assembly** for a two-part digging tooth system

Abstract: A hammerless attachment **assembly** for releasably maintaining an adapter and replaceable part or tool **of** a two-part digging system in operable combination relative to each other. The hammerless attachment **assembly** includes an insert nonrotatably fitted within a recess defined on a side **of** the adapter nose portion and a rotatable fastener having a head portion and an externally threaded shank portion. A lengthwise portion **of** the extends through an opening having a closed margin defined in a side **of** the tool, with the opening in the side **of** the tool registering with the internally threaded bore in the insert when the tool is positioned on the adapter nose portion. The externally threaded shank portion **of** the fastener forms a threaded juncture with the internally threaded bore on the insert such that, in response to rotation **of** the fastener in a first direction, the insert is drawn toward and, ultimately, tightly clamped against an interior side surface **of** said blind cavity while remaining, at least partially, within the recess in the adapter thereby releasably maintaining the tool and adapter in operable combination relative to each other. Elastomeric material is disposed in operable combination with the rotatable fastener and the insert for inhibiting contaminants from adversely effecting the threaded juncture between the fastener and the insert thereby facilitating rotation **of** the fastener in a direction to effect release **of** the attachment **assembly** so as to allow repair/replacement **of** the replacement part **of** the two-part digging system.

Classifications:

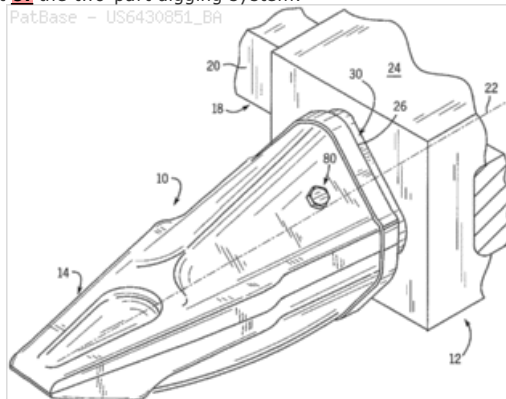
International (IPC 8-9): E02F9/28 (Advanced/Invention)

International (IPC 1-7): E02F9/28

CPC: E02F9/2825 E02F9/2841

European: E02F9/28A2B E02F9/28A2C2

US: 37/457



Family:

Publication number	Publication date	Application number	Application date
US6430851 BA	20020813	US20010829722	20010410

Priority:

US20010829722 20010410

Probable Assignee: H AND L TOOTH CO

Assignee(s): (std): TOOTH H AND L CO

Assignee(s): H AMP AMP ; H AND L TOOTH CO ; L TOOTH CO

Inventor(s): (std): CLENDENNING CHARLES

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US6430851 BA	20020813	LSGT	+	granted / extensions (spc, cpc, pte)	
US6430851 BA	20010524	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : H& L TOOTH CO., OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: CLENDENNING, CHARLES; REEL/FRAME: 011836/0500 EFFECTIVE DATE : 20010404
US6430851 BA	20020725	LSGT	PAT1	Patented Case	
US6430851 BA	20050817	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6430851 BA	20090910	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6430851 BA	20130906	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6430851 BA	20210410	PEXP		Calculated Patent Term Expiry	

Title: MOUNTING **OF WEAR** MEMBERS

Abstract: A retaining pin **assembly** for an excavator tooth **assembly**. The retaining pin **assembly** has opposable locating members each having a shank portion able to be slidably insertable via a respective retaining pin aperture on opposite sides **of a wear** member into a transversely extending mounting aperture **of** a mounting nose **of** an excavator. Each locating member also has an enlarged inwardly convergent tapered wedge portion adjacent a normally outer end. The retaining pin **assembly** also has a tensionable retaining member extending between the locating members from one side **of** the retaining pin **assembly**. When tension is applied to the retaining member relative contraction **of** the locating members occurs to urge the **wear** member into engagement with the mounting nose by wedging engagement between each **of** the wedge portions and a rear wall **of** respective retaining pin apertures.

Classifications:

International (IPC 8-9): E02F E02F9/28 (Advanced/Invention);

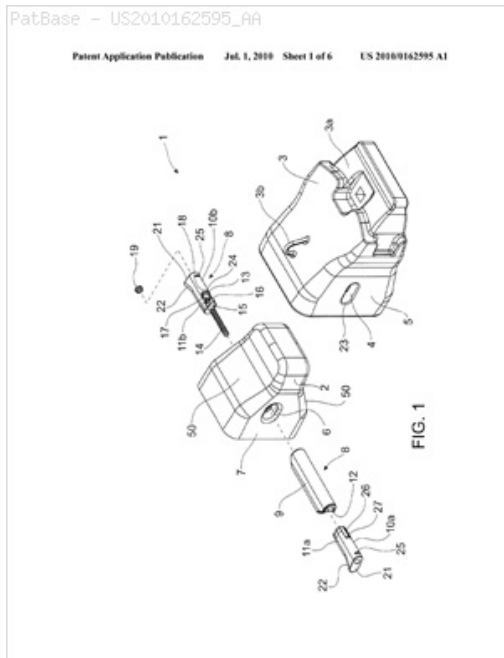
E02F9/28 (Core/Invention);

E02F (Subclass/Invention)

CPC: E02F9/2841

European: E02F9/28A2C2

US: 172/722 37/456 37/456P



Family:

Publication number	Publication date	Application number	Application date
AU2008234400 AA	20081009	AU20080234400	20080229
AU2008234400 BB	20130214	AU20080234400	20080229
AU2013100615 AD	20130530	AU20130100615	20130429
AU2013100615 BD	20130822	AU20130100615	20130429
CA2719712 AA	20081009	CA20082719712	20080229
CA2719712 C	20131119	CA20082719712	20080229
US2010162595 AA	20100701	US20080593608	20080229
US8468724 BB	20130625	US20080593608	20080229
WO08119102 A1	20081009	WO2008AU00268	20080229
ZA200906675 A	20140326	ZA20090006675	20090923

Priority:

AU20070901686 20070329 AU20080234400 20080229 WO2008AU00268 20080229
 AU20130100615 20130429

Probable Assignee: CENTRAL QUEENSLAND MINING SUPPLIES PTY LTD

Assignee(s): (std): CQMS PTY LTD ; LESLIE BRUCE ALEXANDER ; PLANT BENJAMIN CHARLES ; ORTON SIMON PETER ; BOLT RODERICK MARK

Assignee(s): CENTRAL QUEENSLAND MINING SUPPLIES PTY LTD ; MEYERS THOMAS ANTHONY

Inventor(s): (std): BOLT RODERICK MARK ; LESLIE BRUCE ALEXANDER ; ORTON SIMON PETER ; PLANT BENJAMIN CHARLES

Inventor(s): SIMON PETER ORTON ; RODERICK MARK BOLT ; BRUCE ALEXANDER LESLIE ; BENJAMIN CHARLES PLANT

Agent(s): FISHER ADAMS KELLY; FISHER ADAMS KELLY CALLINANS; SPRUSON AND FERGUSON; FISHER ADAMS KELLY PTY LTD; GOWLING LAFLEUR HENDERSON LLP; WONG CABELLO LUTSCH RUTHERFORD AND BRUCCULERI LLP; WONG CABELLO LUTSCH RUTHERFORD AND BRUCCULERI L L P

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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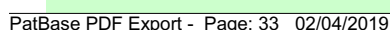
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AU2008234400 BB	20130214	LSGT	+	granted /	

					extensions (spc, cpc, pte)	
AU2008234400 BB	20130530	LSOP	-CB	OPPOSITION LODGED BY	PARTYTYPE : OPPONENT OPPONENT : ESCO CORPORATION	
AU2008234400 BB	20130725	LSOP	-CB	OPPOSITION LODGED BY	PARTYTYPE : OPPONENT OPPONENT : ESCO CORPORATION	
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AU2013100615 AD	20130530	LSGT	+	granted / extensions (spc, cpc, pte)		
AU2013100615 AD	20130530	LSGT	+FGI	LETTERS PATENT SEALED OR GRANTED (INNOVATION PATENT)		
AU2013100615 AD	20330429	PEXP		Calculated Patent Term Expiry		
AU2013100615 BD	20130822	LSGT	+	granted / extensions (spc, cpc, pte)		
AU2013100615 BD	20130822	LSGT	+FF	CERTIFIED INNOVATION PATENT		
AU2013100615 BD	20140717	LSLI	GD	LICENCE REGISTERED	PARTYTYPE : LICENSEE LICENSEE : CQMS RAZER PTY LTD	
AU2013100615 BD	20160317	LSLE	-MK22	PATENT CEASED SECTION 143A(D), OR EXPIRED - NON PAYMENT OF RENEWAL FEE OR EXPIRY		
AU2013100615 BD	20330429	PEXP		Calculated Patent Term Expiry		
CA2719712 AA	20081009	LSPB	+	published / reissued		
CA2719712 AA	20101221	LSES	+EEER	EXAMINATION REQUEST		
CA2719712 C	20131119	LSGT	+	granted / extensions (spc, cpc, pte)		
CA2719712 C	20280229	PEXP		Calculated Patent Term Expiry		
US2010162595 AA	20100701	LSPB	+	published / reissued		
US8468724 BB	20130625	LSGT	+	granted / extensions (spc, cpc, pte)		
US8468724 BB	20090930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MEYERS, THOMAS ANTHONY, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:LESLIE, BRUCE ALEXANDER; ORTON, SIMON PETER; PLANT, BENJAMIN CHARLES; AND OTHERS; REEL/FRAME:023307/0376 EFFECTIVE DATE : 20070329	
US8468724 BB	20090930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CENTRAL QUEENSLAND MINING SUPPLIES PTY LTD,AUSTRAL OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:MEYERS, THOMAS ANTHONY; REEL/FRAME:023307/0702 EFFECTIVE DATE : 20080403	

US8468724 BB	20090930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MEYERS, THOMAS ANTHONY,AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:LESLIE, BRUCE ALEXANDER; ORTON, SIMON PETER; PLANT, BENJAMIN CHARLES; AND OTHERS; REEL/FRAME:023307/0376 EFFECTIVE DATE : 20070329
US8468724 BB	20090930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CENTRAL QUEENSLAND MINING SUPPLIES PTY LTD, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:MEYERS, THOMAS ANTHONY; REEL/FRAME:023307/0702 EFFECTIVE DATE : 20080403
US8468724 BB	20090930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CQMS PTY LTD, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:CENTRAL QUEENSLAND MINING SUPPLIES PTY LTD; REEL/FRAME:023307/0804 EFFECTIVE DATE : 20080403
US8468724 BB	20090930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MEYERS, THOMAS ANTHONY, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:BOLT, RODERICK MARK; PAC MINING PTY LTD; REEL/FRAME:023307/0606 EFFECTIVE DATE : 20070329
US8468724 BB	20090930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CQMS PTY LTD,AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:CENTRAL QUEENSLAND MINING SUPPLIES PTY LTD; REEL/FRAME:023307/0804 EFFECTIVE DATE : 20080403
US8468724 BB	20090930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MEYERS, THOMAS ANTHONY,AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:BOLT, RODERICK MARK; PAC MINING PTY LTD; REEL/FRAME:023307/0606 EFFECTIVE DATE : 20070329
US8468724 BB	20100216	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MEYERS, THOMAS ANTHONY,AUSTRALIA OLDPARTY : CORRECTIVE ASSIGNMENT TO CORRECT THE UNSIGNED PAGE 3 WHICH WAS IN THE ORIGINAL RECORDATION. EXECUTED PAGE 3 IS NOW INCLUDED. ASSIGNMENT PREVIOUSLY RECORDED ON REEL 023307 FRAME 0606. ASSIGNOR(S) HEREBY CONFIRMS THE CHAIN OF TITLE FROM RODERICK MARK BOLT AND PAC MINING PTY LTD TO THOMAS MEYERS; ASSIGNORS:BOLT, RODERICK MARK; PAC MINING PTY LTD (ACN 007 694 895); REEL/FRAME:023942/0720 EFFECTIVE DATE : 20070329
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US8468724 BB	20130605	LSGT	PAT1	Patented Case	
US8468724 BB	20161208	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4

US8468724 BB	20290415	PEXP		Calculated Patent Term Expiry (PTA 411 days and a terminal disclaimer has been filed)	
WO08119102 A1	20081009	LSPB	+	published / reissued	
WO08119102 A1	20090917	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2008234400 COUNTRY OF REF DOCUMENT : AU
WO08119102 A1	20090930	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO08119102 A1	20091015	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2008234400 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20080229 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO08119102 A1	20100308	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 12593608 COUNTRY OF REF DOCUMENT : US
WO08119102 A1	20100602	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 08714322 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :
WO08119102 A1	20100927	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2719712 COUNTRY OF REF DOCUMENT : CA
ZA200906675 A	20140326	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA200906675 A	20290922	PEXP		Calculated Patent Term Expiry	

US: 172/722 37/456 37/456P



AU2008234401 BB	20150212	LSGT	+CH	OPPOSITION WITHDRAWN	PARTYTYPE : OPPONENT OPPONENT : ESCO CORPORATION
AU2008234401 BB	20150305	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2008234401 BB	20280229	PEXP		Calculated Patent Term Expiry	
CA2720287 AA	20081009	LSPB	+	published / reissued	
CA2720287 AA	20110203	LSES	+EEER	EXAMINATION REQUEST	
CA2720287 C	20131203	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2720287 C	20280229	PEXP		Calculated Patent Term Expiry	
US2010229433 AA	20100916	LSPB	+	published / reissued	
US8468725 BB	20130625	LSGT	+	granted / extensions (spc, cpc, pte)	
US8468725 BB	20090930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : MEYERS, THOMAS ANTHONY, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:LESLIE, BRUCE ALEXANDER; ORTON, SIMON PETER; LAWLER, TODD JOHN; AND OTHERS; REEL/FRAME:023306/0798 EFFECTIVE DATE : 20070330
US8468725 BB	20090930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CQMS PTY LTD, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:CENTRAL QUEENSLAND MINING SUPPLIES PTY LTD; REEL/FRAME:023307/0150 EFFECTIVE DATE : 20080403
US8468725 BB	20090930	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CENTRAL QUEENSLAND MINING SUPPLIES PTY LTD, AUSTRA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:MYERS, THOMAS ANTHONY; REEL/FRAME:023306/0966 EFFECTIVE DATE : 20080403
US8468725 BB	20100831	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CQMS PTY LTD, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HEAPHY, PAUL LINDSAY; REEL/FRAME:024916/0056 EFFECTIVE DATE : 20100820
US8468725 BB	20130605	LSGT	PAT1	Patented Case	
US8468725 BB	20161208	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8468725 BB	20280718	PEXP		Calculated Patent Term Expiry (PTA 140 days)	
WO08119103 A1	20081009	LSPB	+	published / reissued	
WO08119103 A1	20090917	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2008234401 COUNTRY OF REF DOCUMENT : AU
WO08119103 A1	20091006	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO08119103 A1	20091015	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2008234401 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20080229 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :

WO08119103 A1	20100308	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 12593952 COUNTRY OF REF DOCUMENT : US
WO08119103 A1	20100526	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 08706149 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :
WO08119103 A1	20101001	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2720287 COUNTRY OF REF DOCUMENT : CA
ZA200906676 A	20140326	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA200906676 A	20290922	PEXP		Calculated Patent Term Expiry	

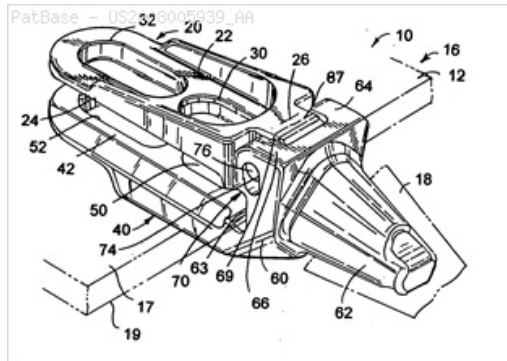
Title: UNIVERSAL DIGGING TOOTH ATTACHMENT APPARATUS

Abstract: A universal digging tooth attachment apparatus adapted to be secured to a forward edge of a bucket lip of an earth moving implement. The universal digging tooth attachment has a first element with an elongate section defining a first generally planar surface for abutting and engaging along the length thereof with one face of the bucket lip of the earth moving implement and a second element. The second element has an elongate section defining a second generally planar surface for abutting and engaging along the length thereof with the bucket lip of the earth moving implement directly opposite from the elongate section of the first element. One of the first and second elements has an earth engaging tooth projecting therefrom. A slip joint operably connects the first and second elements to each other to allow for adjustment of a distance between the first and second planar surfaces to accommodate attachment of the digging tooth to implements having bucket lips of differing thicknesses.

Classifications:**International (IPC 8-9):** E02F3/08 E02F5/02 E02F9/28

E21C25/10 (Advanced/Invention);

E02F3/08 E02F5/02 E02F9/28 E21C25/00 (Core/Invention)

CPC: E02F9/28**European:** E02F9/28**US:** 299/102 299/85.2 37/449 37/452 37/454 37/455**Family:**

Publication number	Publication date	Application number	Application date
US2008005939 AA	20080110	US20060481643	20060706
US7658024 BB	20100209	US20060481643	20060706
WO08005163 A2	20080110	WO2007US13928	20070614
WO08005163 A3	20080313	WO2007US13928	20070614

Priority:

US20060481643 20060706

Probable Assignee: H AND L TOOTH CO**Assignee(s):** (std): CLENDENNING CHARLES ; LAUNDER BRIAN L ; TOOTH H AND L CO**Assignee(s):** H AND L TOOTH CO ; H AND L TOOTH COMPANY**Inventor(s):** (std): CLENDENNING CHARLES ; LAUNDER BRIAN L**Agent(s):** JOHN W HARBST; LAW OFFICE OF JOHN W HARBST; HARBST JOHN W

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
US2008005939 AA	20080110	LSPB	+	published / reissued	
US7658024 BB	20100209	LSGT	+	granted / extensions (spc, cpc, pte)	
US7658024 BB	20060807	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : H&L TOOTH COMPANY, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: LAUNDER, MR. BRIAN L.; CLENDENNING, MR. CHARLES; REEL/FRAME: 018064/0118 EFFECTIVE DATE : 20060710
US7658024 BB	20060807	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : H&L TOOTH COMPANY, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: LAUNDER, MR. BRIAN L.; CLENDENNING, MR. CHARLES; REEL/FRAME: 018064/0118 EFFECTIVE DATE : 20060710
US7658024 BB	20100120	LSGT	PAT1	Patented Case	
US7658024 BB	20130809	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7658024 BB	20170925	LSFE	FEPP	FEE PAYMENT	TEXT : MAINTENANCE FEE

				PROCEDURE	REMINDER MAILED (ORIGINAL EVENT CODE: REM.)
US7658024 BB	20180312	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	TEXT : PATENT EXPIRED FOR FAILURE TO PAY MAINTENANCE FEES (ORIGINAL EVENT CODE: EXP.)
US7658024 BB	20180312	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US7658024 BB	20180403	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20180209
US7658024 BB	20271015	PEXP		Calculated Patent Term Expiry (PTA 466 days)	
WO08005163 A2	20080110	LSPB	+	published / reissued	
WO08005163 A3	20090107	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO08005163 A3	20090206	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : RU
WO08005163 A3	20090805	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 07809544 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) :

Title: RETAINING DEVICE

Abstract: A digging bucket has a lip, a lip aperture with a forward surface, a digging component mounted on the lip, and a component retaining device. The device comprises a keeper wedge with protrusions bearing against the component and a wedge member interposed between the forward surface and the component. In the improvement, the keeper wedge has at least one angled face and the wedge member has a pair of angled faces, at least one of which bears against the angled face of the keeper wedge. The wedge member is retained in position by a tension bolt extending through the aperture. Several embodiments are disclosed with wedge members having one or two wedges to urge the keeper wedge (and thus the digging component) rearward tightly against the lip.

Classifications:

International (IPC 8-9): E02F3/40 E02F3/60

E02F9/28 (Advanced/Invention);

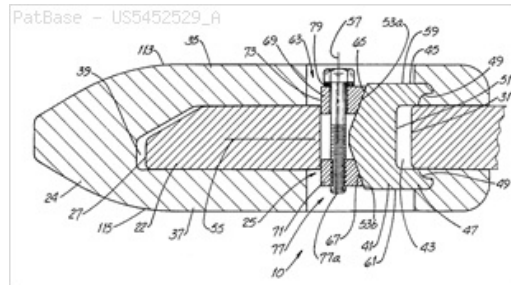
E02F9/28 (Core/Invention)

International (IPC 1-7): E02F3/40 E02F3/60 E02F9/28

CPC: Y10T403/589 Y10T403/7067 E02F9/2825

European: E02F9/28A2B

US: 02F/9.28 37/395 37/455 403/320 403/374.3



Family:

Publication number	Publication date	Application number	Application date
AU199468677 A1	19950309	AU19940068677	19940722
AU676060 B2	19970227	AU19940068677	19940722
CA2107005 AA	19950226	CA19932107005	19930927
CA2107005 C	19970715	CA19932107005	19930927
US5452529 A	19950926	US19930111425	19930825
ZA9405248 A	19950227	ZA19940005248	19940718

Priority:

US19930111425 19930825 CA19932107005 19930927

Probable Assignee: HARNISCHFEGER TECHNOLOGIES INC

Assignee(s): (std): HARNISCHFEGER CORP

Assignee(s): HARNISCHFEGER TECHNOLOGIES INC ; SWICK CARL D ; IMMEL DARRYL R ; NEUENFELDT FREDERICK E ; BANKERS TRUST CO ; BANKERS TRUST CO AGENT AS

Inventor(s): (std): IMMEL DARRYL R ; SWICK CARL D ; NEUENFELDT FREDERICK E ; IMMEL DARRYL L

Inventor(s): CARL D SWICK ; DARRYL L IMMEL ; FREDERICK E NEUENFELDT

Agent(s): SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; RIDOUT AND MAYBEE LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199468677 A1	19950309	LSPB	+	published / reissued	
AU676060 B2	19970227	LSGT	+	granted / extensions (spc, cpc, pte)	
AU676060 B2	20140722	PEXP		Calculated Patent Term Expiry	
CA2107005 AA	19950226	LSPB	+	published / reissued	
CA2107005 AA	19930927	LSES	+EEER	EXAMINATION REQUEST	
CA2107005 C	19970715	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2107005 C	20050927	LSLE	-MKLA	LAPSED	
CA2107005 C	20130927	PEXP		Calculated Patent Term Expiry	
US5452529 A	19950926	LSGT	+	granted / extensions (spc, cpc, pte)	
US5452529 A	19930825	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER CORPORATION, WISCONSIN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:NEUFELD, FREDERICK E.; IMMEL, DARRYL R.; SWICK, CARL

					D.; REEL/FRAME:006670/0426; SIGNING DATES FROM 19930813 TO 19930816
US5452529 A	19980507	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HARNISCHFEGER CORPORATION; REEL/FRAME:009168/0359 EFFECTIVE DATE : 19980504
US5452529 A	19981013	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5452529 A	20010712	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANKERS TRUST COMPANY, AS AGENT, NEW YORK OLDPARTY : GRANT OF PATENT SECURITY INTEREST; ASSIGNOR:HARNISCHFEGER TECHNOLOGIES, INC., A DELAWARE CORPORATION; REEL/FRAME:011958/0584 EFFECTIVE DATE : 20010629
US5452529 A	20030203	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5452529 A	20070926	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5452529 A	20071022	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5452529 A	20071113	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	
US5452529 A	20130825	PEXP		Calculated Patent Term Expiry	
ZA9405248 A	19950227	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA9405248 A	20140717	PEXP		Calculated Patent Term Expiry	

Title: MULTI-SHANK RIPPER

Abstract: An excavating tool for pivotal attachment about an axis to the outboard end of the dipperstick of an excavating system, the tool having multiple shanks offset longitudinally of the axis and offset radially about the axis. The tool does not have a bucket configuration. The shanks are arranged on the axis so the, as the tool is rotated about the axis, the shanks engage the substrate serially and axially offset.

Classifications:

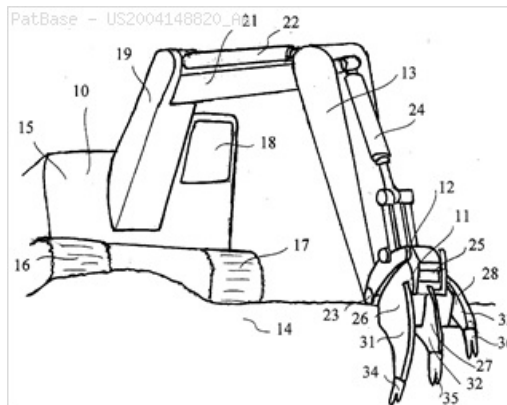
International (IPC 8-9): E02F3/28 E02F3/36 E02F3/40 E02F3/96 E02F5/32 E02F9/28 (Advanced/Invention); E02F9/28 (Advanced/Non-invention); E02F3/04 E02F3/28 E02F3/40 E02F5/00 (Core/Invention)

International (IPC 1-7): E02F3/04 E02F3/28 E02F3/32 E02F3/36 E02F3/40 E02F3/64 E02F3/76 E02F5/32 E02F9/28

CPC: E02F3/40 E02F5/32 E02F9/2858 E02F3/8152 E02F9/28 E02F9/2833 E02F9/2875

European: E02F3/40 E02F3/815C E02F5/32 E02F9/28 E02F9/28A2C E02F9/28A6 E02F9/28D

US: 37/379 37/404 37/404P 37/411 37/411P 37/444 37/444P 37/452



Family:

Publication number	Publication date	Application number	Application date
AT495311 E	20110115	AT20050849064T	20051128
AU2004203162 AA	20060209	AU20040203162	20040714
AU2004203162 AH	20060427	AU20040203162	20040714
AU2005234727 AA	20060615	AU20050234727	20051123
AU2012216738 AA	20120927	AU20120216738	20120910
AU2012216738 BB	20131219	AU20120216738	20120910
CA2455695 AA	20040723	CA20042455695	20040123
CA2521725 AA	20060529	CA20052521725	20050930
CA2521725 C	20081230	CA20052521725	20050930
CA2683749 AA	20081023	CA20082683749	20080327
CA2683749 C	20150616	CA20082683749	20080327
DE602005025926 D1	20110224	DE200560025926T	20051128
EP1828492 A2	20070905	EP20050849064	20051128
EP1828492 A4	20090701	EP20050849064	20051128
EP1828492 B1	20110112	EP20050849064	20051128
MX2007006237 A1	20070911	MX20070006237	20051128
NZ534113 A	20060428	NZ20040534113	20040715
NZ543728 A	20070727	NZ20050543728	20051123
US2004148820 AA	20040805	US20040762733	20040122
US2006070267 AA	20060406	US20050214607	20050829
US2007180743 AA	20070809	US20070735117	20070413
US2008010870 AA	20080117	US20070776966	20070712
US2011000108 AA	20110106	US20100882820	20100915
US7322133 BB	20080129	US20050214607	20050829
US7739815 BB	20100622	US20070735117	20070413
US7992329 BB	20110809	US20100882820	20100915
WO06058308 A2	20060601	WO2005US42993	20051128
WO06058308 A3	20061130	WO2005US42993	20051128
WO06058308 C1	20070927	WO2005US42993	20051128
WO08127859 A1	20081023	WO2008US58418	20080327

Priority:

US20030442031P	20030123	US20040762733	20040122	CA20042455695	20040123
AU20040203162	20040714	US20040631525P	20041129	US20050214607	20050829
CA20052521725	20050930	WO2005US42993	20051128	US20060834865P	20060801
US20070735117	20070413	US20070776966	20070712	WO2008US58418	20080327
US20100882820	20100915	AU20120216738	20120910		

Probable Assignee: LEE HORTON

Assignee(s): (std): HORTON LEE ; HORTON LEE A ; LEE A ; LEE A HORTON ; LEE HORTON

Inventor(s): (std): HORTON LEE A ; LEE A HORTON

Inventor(s): HORTON LEE

Agent(s): PETER VERBOEKET LAW; ELLIS TERRY; RICHES MCKENZIE AND HERBERT LLP; SMART AND BIGGAR; MUELLER BORE AND PARTNER PATENTANWALTE; FISH AND RICHARDSON PC; FRENCH TIMOTHY A ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT495311 E	20110115	LSGT	+	granted / extensions (spc, cpc, pte)	
AT495311 E	20110715	LSLE	-RER	CEASED AS TO PARAGRAPH 5 LIT. 3 LAW INTRODUCING PATENT TREATIES	
AT495311 E	20251128	PEXP		Calculated Patent Term Expiry	
AU2004203162 AA	20060209	LSPB	+	published / reissued	
AU2004203162 AA	20060223	LSLE	-MK7	APPLICATION LAPSED REG. 3.2A(3) - APPLICANT DID NOT COMPLY WITH FORMALITIES DIRECTION WITHIN PRESCRIBED TIME	
AU2004203162 AA	20110728	LSLE	-MK5	APPLICATION LAPSED SECTION 142(2)(E) - PATENT REQUEST AND COMPL. SPECIFICATION NOT ACCEPTED	
AU2004203162 AA	20120830	LSLE	-MK5	APPLICATION LAPSED SECTION 142(2)(E) - PATENT REQUEST AND COMPL. SPECIFICATION NOT ACCEPTED	
AU2004203162 AA	20121025	LSLE	-MK5	APPLICATION LAPSED SECTION 142(2)(E) - PATENT REQUEST AND COMPL. SPECIFICATION NOT ACCEPTED	
AU2005234727 AA	20060615	LSPB	+	published / reissued	
AU2005234727 AA	20110616	LSLE	-MK4	APPLICATION LAPSED SECTION 142(2)(D) - NO CONTINUATION FEE PAID FOR THE APPLICATION	
AU2012216738 AA	20120927	LSPB	+	published / reissued	
AU2012216738 BB	20131219	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2012216738 BB	20140417	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2012216738 BB	20320910	PEXP		Calculated Patent Term Expiry	
CA2455695 AA	20040723	LSPB	+	published / reissued	
CA2455695 AA	20100125	LSLE	-FZDE	DEAD	
CA2521725 AA	20060529	LSPB	+	published / reissued	
CA2521725 AA	20050930	LSSES	+EEER	EXAMINATION REQUEST	
CA2521725 C	20081230	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2521725 C	20250930	PEXP		Calculated Patent Term Expiry	
CA2683749 AA	20081023	LSPB	+	published / reissued	
CA2683749 AA	20121102	LSSES	+EEER	EXAMINATION REQUEST	
CA2683749 C	20150616	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2683749 C	20280327	PEXP		Calculated Patent Term Expiry	
EP1828492 A2	20070905	LSPB	+	published / reissued	
EP1828492 A2	20070905	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20070628
EP1828492 A2	20071107	LSSES	R17D	DEFERRED SEARCH REPORT PUBLISHED (CORRECTED)	EFFECTIVE DATE : 20070927
EP1828492 A2	20160129	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20151127 YEAR OF FEE PAYMENT : 11
EP1828492 A2	20160129	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20151127

EP1828492 A2	20160229	LSFE	+PGFP	NATIONAL OFFICE TO EPO] ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	YEAR OF FEE PAYMENT : 11 COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20151127 YEAR OF FEE PAYMENT : 11
EP1828492 A2	20160229	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20151117 YEAR OF FEE PAYMENT : 11
EP1828492 A4	20090701	LSSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	EFFECTIVE DATE : 20090603
EP1828492 A4	20100106	LSSES	R17D	DEFERRED SEARCH REPORT PUBLISHED (CORRECTED)	EFFECTIVE DATE : 20061130
EP1828492 B1	20110112	LSGT	+	granted / extensions (spc, cpc, pte)	
EP1828492 B1	20110112	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP1828492 B1	20110114	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP1828492 B1	20110216	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : FG4D
EP1828492 B1	20110224	LSPB	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R096 REF DOCUMENT NUMBER : 602005025926 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20110224
EP1828492 B1	20110525	LSRV	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : NL REF LEGAL EVENT CODE : VDEP EFFECTIVE DATE : 20110112
EP1828492 B1	20110627	LSRV	-LTIE	LT: INVALIDATION OF EUROPEAN PATENT OR PATENT EXTENSION	REF COUNTRY CODE : EP EFFECTIVE DATE : 20110112
EP1828492 B1	20110729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IS NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110512
EP1828492 B1	20110729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LV NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20110729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110512
EP1828492 B1	20110729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110423
EP1828492 B1	20110729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO	COUNTRY OF REF DOCUMENT : LT NOTIFICATIONNOFLAPSE : LAPSE BECAUSE OF FAILURE

				EPO]	TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20110729	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110413
EP1828492 B1	20110831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BG NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110412
EP1828492 B1	20110831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20110831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20110831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20110831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20110831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : PL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20110831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20110831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20111031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM	COUNTRY OF REF DOCUMENT : DK NOTIFICATION OF LAPSE :

				NATIONAL OFFICE TO EPO]	LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20111031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : EE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20111130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CZ NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20111130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SK NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20111130	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : RO NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20111221	LSGT	+26N	NO OPPOSITION FILED	EFFECTIVE DATE : 20111013
EP1828492 B1	20111230	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20120209	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 602005025926 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20111013
EP1828492 B1	20120629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20111130
EP1828492 B1	20120629	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP1828492 B1	20120731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20111130
EP1828492 B1	20120731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20111130
EP1828492 B1	20120829	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A

EP1828492 B1	20121031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20111128
EP1828492 B1	20130531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20111128
EP1828492 B1	20130930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : TR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20131031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20110112
EP1828492 B1	20151117	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 11
EP1828492 B1	20161123	LSFE	REG	REFERENCE TO A NATIONAL CODE	COUNTRY OF REF DOCUMENT : FR REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 12
EP1828492 B1	20170131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20161123 YEAR OF FEE PAYMENT : 12
EP1828492 B1	20170131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20161128 YEAR OF FEE PAYMENT : 12
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EP1828492 B1	20170228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20161125 YEAR OF FEE PAYMENT : 12
EP1828492 B1	20171127	LSFE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : PLFP YEAR OF FEE PAYMENT : 13
EP1828492 B1	20180131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20171129 YEAR OF FEE PAYMENT : 13
EP1828492 B1	20180131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20171127 YEAR OF FEE PAYMENT : 13
EP1828492 B1	20180228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20171129 YEAR OF FEE PAYMENT : 13
EP1828492 B1	20180228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20171127 YEAR OF FEE PAYMENT : 13
EP1828492 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO	COUNTRY OF REF DOCUMENT

				NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	: SE PAYMENT DATE : 20181128 YEAR OF FEE PAYMENT : 14
EP1828492 B1	20190131	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20181128 YEAR OF FEE PAYMENT : 14
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EP1828492 B1	20190228	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20181127 YEAR OF FEE PAYMENT : 14
EP1828492 B1	20251128	PEXP		Calculated Patent Term Expiry	
MX2007006237 A1	20070911	LSPB	+	published / reissued	
MX2007006237 A1	20091218	LSGT	+FG	GRANT OR REGISTRATION	
NZ534113 A	20060428	LSPB	+	published / reissued	
NZ534113 A	20060831	LSGT	+PSEA	PATENT SEALED	
NZ534113 A	20080627	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	
NZ534113 A	20120727	LSRE	S35A	APPLICATION FOR PROCEEDINGS UNDER SECTION 35 (RESTORATION OF LAPSED PATENTS)	
NZ534113 A	20121026	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	
NZ534113 A	20121026	LSRE	+S35R	PROCEEDINGS UNDER SECTION 35 (RESTORATION OF LAPSED PATENTS): PATENT RESTORED	
NZ534113 A	20140829	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	TEXT : PATENT RENEWED FOR 3 YEARS UNTIL 15 JUL 2017 BY COMPUTER PACKAGES INC EFFECTIVE DATE : 20140729
NZ534113 A	20170630	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	TEXT : PATENT RENEWED FOR 1 YEAR UNTIL 15 JUL 2018 BY COMPUTER PACKAGES INC EFFECTIVE DATE : 20170620
NZ534113 A	20180629	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	TEXT : PATENT RENEWED FOR 1 YEAR UNTIL 15 JUL 2019 BY COMPUTER PACKAGES INC EFFECTIVE DATE : 20180619
NZ543728 A	20070727	LSPB	+	published / reissued	
NZ543728 A	20071130	LSGT	+PSEA	PATENT SEALED	
NZ543728 A	20091127	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	
NZ543728 A	20121221	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	
NZ543728 A	20151127	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	TEXT : PATENT RENEWED FOR 1 YEAR UNTIL 23 NOV 2016 BY COMPUTER PACKAGES INC EFFECTIVE DATE : 20151031
NZ543728 A	20161125	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	TEXT : PATENT RENEWED FOR 1 YEAR UNTIL 23 NOV 2017 BY COMPUTER PACKAGES INC EFFECTIVE DATE : 20161101
NZ543728 A	20171124	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	TEXT : PATENT RENEWED FOR 1 YEAR UNTIL 23 NOV 2018 BY COMPUTER PACKAGES INC EFFECTIVE DATE : 20171031
US2004148820 AA	20040805	LSPB	+	published / reissued	
US2004148820 AA	20050907	LSWD	-EAB1	Expressly Abandoned - - During Examination	
US2006070267 AA	20060406	LSPB	+	published / reissued	
US2007180743 AA	20070809	LSPB	+	published / reissued	
US2008010870 AA	20080117	LSPB	+	published / reissued	

US2008010870 AA	20101117	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
US2011000108 AA	20110106	LSPB	+	published / reissued	
US7322133 BB	20080129	LSGT	+	granted / extensions (spc, cpc, pte)	
US7322133 BB	20080109	LSGT	PAT1	Patented Case	
US7322133 BB	20110729	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7322133 BB	20150729	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7322133 BB	20260204	PEXP		Calculated Patent Term Expiry (PTA 159 days)	
US7739815 BB	20100622	LSGT	+	granted / extensions (spc, cpc, pte)	
US7739815 BB	20100602	LSGT	PAT1	Patented Case	
US7739815 BB	20101109	LSRE	CC	CERTIFICATE OF CORRECTION	
US7739815 BB	20131223	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7739815 BB	20171222	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7739815 BB	20280323	PEXP		Calculated Patent Term Expiry (PTA 345 days)	
US7992329 BB	20110809	LSGT	+	granted / extensions (spc, cpc, pte)	
US7992329 BB	20110720	LSGT	PAT1	Patented Case	
US7992329 BB	20120221	LSRE	CC	CERTIFICATE OF CORRECTION	
US7992329 BB	20150209	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7992329 BB	20190211	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7992329 BB	20300915	PEXP		Calculated Patent Term Expiry	
WO06058308 A2	20060601	LSPB	+	published / reissued	
WO06058308 A3	20070524	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : MX/A/2007/006237 COUNTRY OF REF DOCUMENT : MX
WO06058308 A3	20070530	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO06058308 A3	20070627	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2005849064 COUNTRY OF REF DOCUMENT : EP
WO06058308 A3	20070905	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2005849064 COUNTRY OF REF DOCUMENT : EP
WO08127859 A1	20081023	LSPB	+	published / reissued	
WO08127859 A1	20091013	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2683749 COUNTRY OF REF DOCUMENT : CA
WO08127859 A1	20091014	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO08127859 A1	20100526	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 08744452 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: A MOUNTING PIN **ASSEMBLY** FOR AN EXCAVATOR **WEAR** MEMBER

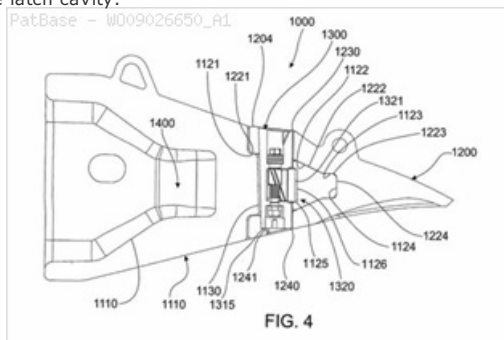
Abstract: A retaining pin **assembly** having a body member with a latch cavity defined therein such that the latch cavity opens at an outer face **of** said body member. A latch member is located within the latch cavity and the latch member has a drive slot. A drive member is slidably located within the drive slot **of** the latch member. The retaining pin **assembly** also has an adjustment **assembly** adapted to move the drive member within the drive slot to thereby move the latch member from a retracted position whereby the latch member is located within the latch cavity, and an extended position, whereby at least a portion **of** the latch member extends outwardly **of** the opening **of** the latch cavity.

Classifications:

International (IPC 8-9): E02F9/28 F16B3/00 (Advanced/Invention);
E02F9/28 F16B3/00 (Core/Invention)

CPC: E02F9/2833 F16B2/14 F16B37/00

European: E02F9/28A2C F16B2/14 F16B37/00



Family:

Publication number	Publication date	Application number	Application date
WO09026650 A1	20090305	WO2008AU01283	20080829

Priority:

AU20070904723 20070831

Probable Assignee: CQMS PTY LTD

Assignee(s): (std): CQMS PTY LTD ; ORTON SIMON PETER ; PLANT BENJAMIN CHARLES

Inventor(s): (std): ORTON SIMON PETER ; PLANT BENJAMIN CHARLES

Agent(s): FISHER ADAMS KELLY

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
WO09026650 A1	20090305	LSPB	+	published / reissued	
WO09026650 A1	20100302	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO09026650 A1	20101103	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 08783028 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: REVERSIBLE **DIGGING TEETH** AND HOLDER THEREFOR

Abstract: A combination digging tooth and holder therefor for use on excavating machines. Each holder has provisions by which it can be attached to an endless chain **of** a trencher or to a bucket lip. The forward part **of** the holder has an outwardly opening pocket formed therein **of** a particular configuration which receives part **of** the digging tooth in close tolerance relationship therewithin such that a forward marginal part **of** the tooth extends forwardly from the holder for engaging and digging in the earth. Each opposed marginal end **of** each **of** the teeth has identical cutting edges formed thereon so that a tooth can be reversed as well as being substituted one for the other. The teeth cooperate with the holder pocket in an unusual manner.

Classifications:

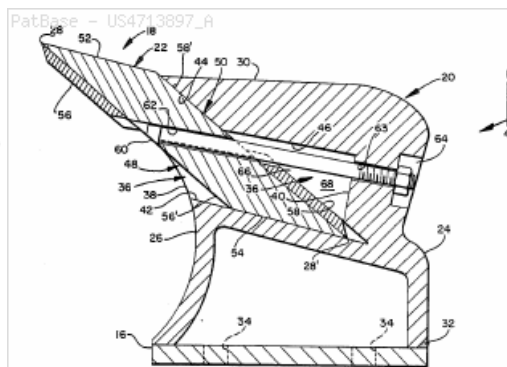
International (IPC 8-9): E02F9/28 (Advanced/Invention);
E02F9/28 (Core/Invention)

International (IPC 1-7): E02F5/06

CPC: E02F9/2833 E02F9/2858 Y10T403/7084

European: E02F9/28A2C E02F9/28A6

US: 299/103 299/91 37/142R 37/191A 37/353 37/454 37/83 403/379 403/379.3



Family:

Publication number	Publication date	Application number	Application date
US4713897 A	19871222	US19850725434	19850422

Priority:

US19850725434 19850422

Probable Assignee:

HEMPHILL CHARLES W

Assignee(s): (std):

HEMPHILL CHARLES W

Inventor(s): (std):

HEMPHILL CHARLES W

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US4713897 A	19871222	LSGT	+	granted / extensions (spc, cpc, pte)	
US4713897 A	19871020	LSGT	PAT1	Patented Case	
US4713897 A	19880607	LSRE	CC	CERTIFICATE OF CORRECTION	
US4713897 A	19911222	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US4713897 A	19920225	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 19911222
US4713897 A	20180131	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	

Title: METHOD AND APPARATUS FOR SERVICING A GEAR **ASSEMBLY**

Abstract: An aspect of the invention is an improved method for servicing a gear assembly having a gear segment and a spider for supporting the segment. The method includes the steps of providing a jack assembly with a jacking bolt mounted for radial outward movement, moving the jacking bolt radially outward, applying a separating force to the segment and disengaging the segment from the spider. Further steps involve providing a drawtight assembly with a coupler attached to the segment, applying a force to the coupler, moving the coupler radially inward and engaging the segment with the spider. Other aspects of the invention include the "jacking" apparatus for separating a segment from the spider (for service purposes) and the "drawtight" apparatus for re-attaching the segment to the spider. The invention is particularly useful in connection with large machinery, e.g., a walking dragline, involving heavy and/or unevenly-wearing gear parts and difficult field service conditions.

Classifications:

International (IPC 8-9): B23P6/00 F16H55/00

F16H55/12 (Advanced/Invention);

F16H55/02 (Core/Invention)

International (IPC 1-7): B23P19/04 B23P6/00 D02J3/14 E02F9/02

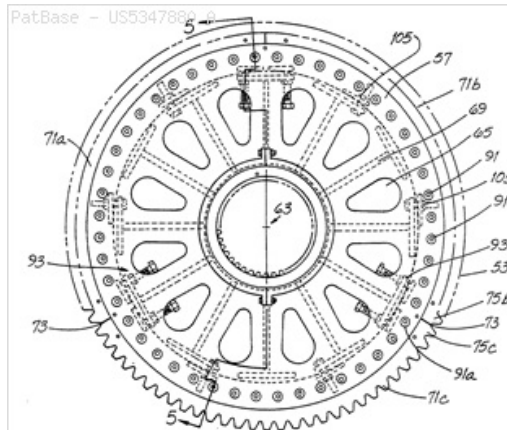
F16H55/00 F16H55/12 F16H57/02

CPC: Y10T29/49462 Y10T29/4973 Y10T29/53683 Y10T74/19926

Y10T74/1993 F16H55/12

European: F16H55/12

US: 29/239 29/402.08 29/893 74/447 74/448



Family:

Publication number	Publication date	Application number	Application date
AU199344855 A1	19940602	AU19930044855	19930824
AU661915 B2	19950810	AU19930044855	19930824
CA2094551 AA	19940524	CA19932094551	19930421
US5347880 A	19940920	US19920980365	19921123

Priority:

US19920980365 19921123 CA19932094551 19930421

Probable Assignee: HARNISCHFEGER TECHNOLOGIES INC

Assignee(s): (std): HARNISCHFEGER CORP

Assignee(s): HARNISCHFEGER TECHNOLOGIES INC ; KALLENBERGER HARVEY J ; BANKERS TRUST CO ; BANKERS TRUST CO AGENT AS

Inventor(s): (std): KALLENBERGER HARVEY J

Inventor(s): HARVEY J KALLENBERGER

Agent(s): SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; RIDOUT AND MAYBEE LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199344855 A1	19940602	LSPB	+	published / reissued	
AU661915 B2	19950810	LSGT	+	granted / extensions (spc, cpc, pte)	
AU661915 B2	20130824	PEXP		Calculated Patent Term Expiry	
CA2094551 AA	19940524	LSPB	+	published / reissued	
CA2094551 AA	19930421	LSSES	+EEER	EXAMINATION REQUEST	
CA2094551 AA	19951022	LSLE	-FZDE	DEAD	
US5347880 A	19940920	LSGT	+	granted / extensions (spc, cpc, pte)	
US5347880 A	19921123	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER CORPORATION, WISCONSIN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:KALLENBERGER, HARVEY J.; REEL/FRAME:006333/0699 EFFECTIVE DATE : 19921111

US5347880 A	19940909	LSGT	PAT1	Patented Case	
US5347880 A	19971103	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5347880 A	19980507	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HARNISCHFEGER CORPORATION; REEL/FRAME:009168/0359 EFFECTIVE DATE : 19980504
US5347880 A	20010712	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANKERS TRUST COMPANY, AS AGENT, NEW YORK OLDPARTY : GRANT OF PATENT SECURITY INTEREST; ASSIGNOR:HARNISCHFEGER TECHNOLOGIES, INC., A DELAWARE CORPORATION; REEL/FRAME:011958/0584 EFFECTIVE DATE : 20010629
US5347880 A	20011013	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5347880 A	20051010	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US5347880 A	20121123	PEXP		Calculated Patent Term Expiry	

Title: Tooth **assembly** for a digger bucket

Abstract: The invention is an improvement in a tooth **assembly** used with excavating and digging buckets such as those found in draglines, backhoes and the like. Such tooth **assemblies** include a top portion (such as a **wear** cap), a nose protruding beyond the portion and a digging tip. The tip has high-hardness upper and lower exterior **wear** surfaces and a sharp-edged tip end for biting into earth, mineral and rock. Either embodiment **of** the improved **assembly** involves mounting parts (a tip or tip and sleeve) directly on the nose. In one improved **assembly**, a sleeve is interposed between the tip and the portion and includes high-hardness **wear** surfaces extending between tip and portion. The tooth and sleeve cooperate to substantially entirely shroud the nose. In another version having no sleeve, the tip includes high-hardness active digging surfaces extending substantially entirely rather than only partially between the portion and the tip end. The tooth entirely shrouds the nose rather than being attached to the nose by a separate tip holder. With the improved arrangements, the tip and sleeve (or tip alone) comprise the primary replaceable parts and the nose is protected in that it is between high-hardness surfaces.

Classifications:

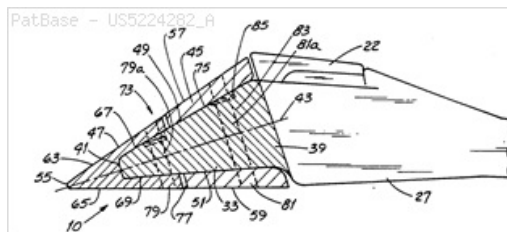
International (IPC 8-9): E02F3/36 E02F9/28 (Advanced/Invention); E02F9/28 (Core/Invention)

International (IPC 1-7): E02F3/36 E02F9/28 E21B10/58 E21C35/18

CPC: E02F9/2833 E02F9/285

European: E02F9/28A2C E02F9/28A4

US: 37/453 37/454



US5224282 A	19961219	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5224282 A	19980507	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HARNISCHFEGER CORPORATION; REEL/FRAME:009168/0359 EFFECTIVE DATE : 19980504
US5224282 A	20010708	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5224282 A	20010911	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20010706
US5224282 A	20180127	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5224282 A	20120121	PEXP		Calculated Patent Term Expiry	
ZA9300045 A	19930805	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA9300045 A	20130104	PEXP		Calculated Patent Term Expiry	

Title: EXCAVATING DIPPER

Abstract: [Class 68 (i)] An excavator bucket is formed of a plate 11 bent to form the back, sides and part of the front, the ends meeting in the centre of the front, where they may be welded, and their upper edges forming an open V space which is filled by a Y-shaped cast front 13 held by rivets 20 and provided with sockets 14 in which teeth 15 are held by tapered pins driven through holes 17; adjacent the sockets are projections 19 fitting into the sides of the teeth. A latch keeper 21 for the door 23 is secured by bolts 25 and binds the ends of the plate 11 to the tail 26 of the front. Ribs 32 are welded and c. to the back of the bucket and to reinforcements 30, 31 therefor, and are suitably spaced to receive the bucket arm; pins inserted through holes 33, 34 hold the arm and its brace, and a pulley may be supported on pin 35. If a bail is to be applied to the bucket, plugs 36, Fig. 8, may be inserted in holes bored through the plate 11 and overlapping parts of the front 13 and reinforcement 30, and secured by weld 38; bail pins 37 are supported in the plugs 36 and in brackets 39 secured by rivets 42, the brackets 39 bearing against abutments 40, 41 on the front 13.

Classifications:

International (IPC 8-9): E02F3/40 (Advanced/Invention);
E02F3/40 (Core/Invention)

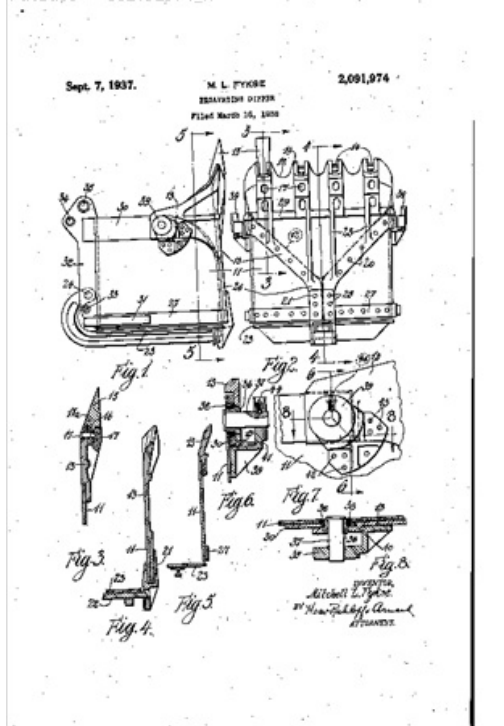
International (IPC 1-7): E02F3/40

CPC: E02F3/40

European: E02F3/40

US: 37/444 37/453

PatBase - US2091974_A



Family:

Publication number	Publication date	Application number	Application date
GB475542 A	19371122	GB19370004904	19370218
US2091974 A	19370907	US19360069171	19360316

Priority:

US19360069171 19360316

Probable Assignee: BUCYRUS ERIE CO

Assignee(s): (std): BUCYRUS ERIE CO ; RUSTON BUCYRUS LTD

Assignee(s): BUCYRUS ERIE COMPANY ; RUSTON BUCYRUS LIMITED

Inventor(s): (std): FYKSE MITCHELL L

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
GB475542 A	19371122	LSGT	+	granted / extensions (spc, cpc, pte)	
GB475542 A	19570218	PEXP		Calculated Patent Term Expiry	
US2091974 A	19370907	LSGT	+	granted / extensions (spc, cpc, pte)	

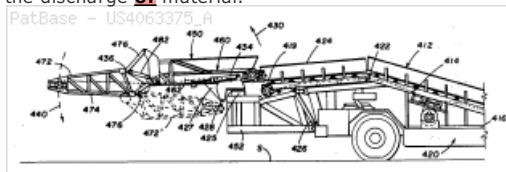
Title: CONVEYOR FOLDING AND MOLDBOARD OPERATION FOR EXCAVATING AND LOADING SYSTEMS

Abstract: An excavating and loading system is disclosed which includes a vehicle with an excavating wheel **assembly** at the front and a plurality **of** conveyors toward the rear. The conveyors **of** the excavating and loading system include cross conveyors and a main conveyor for receiving material from the excavating wheels. The main conveyor transports the material rearwardly from the excavating wheel **assembly** and delivers the material to the opposite end **of** the vehicle. An auxiliary conveyor **assembly** is detachably supported at the opposite end **of** the vehicle to receive material from the main conveyor and to transport the material either laterally or rearwardly. The rear portion **of** the main conveyor is adapted to fold under the auxiliary conveyor **assembly** to reduce the overall height **of** the excavating and loading system during travel. The auxiliary conveyor **assembly** has a pair **of** conveyors mounted with the discharge end **of** one conveyor adjacent the receiving end **of** the other conveyor. The conveyors are mounted so that the relative attitude **of** the conveyors with respect to each other can be adjusted. Also, the conveyors can be selectively positioned to discharge material from the end **of** either conveyor. A variably positionable deflector plate is provided to direct the discharge **of** material.

Classifications:**International (IPC 8-9):** B65G65/20 E02F3/18 E02F3/24

E02F7/02 (Advanced/Invention);

B65G65/00 E02F3/18 E02F7/00 (Core/Invention)

International (IPC 1-7): E02F3/24**CPC:** Y10S37/901 E02F3/248 E02F3/18 E02F7/02**European:** E02F3/18 E02F3/24K E02F7/02**US:** 172/33 172/611 198/313 198/314 198/318 198/581 37/190 371/90**Family:**

Publication number	Publication date	Application number	Application date
US4063375 A	19771220	US19760660515	19760223

Priority:

US19720238089 19720327 US19730400043 19730924 US19750554671 19750303

Probable Assignee: UNIT RIG AND EQUIP**Assignee(s):** (std): UNIT RIG AND EQUIP

Assignee(s): SII 70% PARTNERSHIP ; KRUPP INDUSTRIETECHNIK GMBH ; SATTERWHITE CHARLES R ; SATTERWHITE IND ; SATTERWHITE IND INC ; SII 70 PERCENT PARTNERSHIP ; UNIT RIG AND EQUIPMENT CO

Inventor(s): (std): SATTERWHITE CHARLES R**Legal status (INPADOC)**

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Patent	Date recorded	Event group	Code	Event	Details
US4063375 A	19771220	LSGT	+	granted / extensions (spc, cpc, pte)	
US4063375 A	19821101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE INDUSTRIES INC., 111 S. GARLAND AVE., OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO.; REEL/FRAME:004058/0654 EFFECTIVE DATE : 19821019
US4063375 A	19840206	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SII 70% PARTNERSHIP OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST. SUBJECT TO AGREEMENT RECITED.; ASSIGNOR:SATTERWHITE INDUSTRIES INC; REEL/FRAME:004225/0758 EFFECTIVE DATE : 19831228
US4063375 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNS A THIRTY PERCENT INTEREST (30%); ASSIGNOR:SATTERWHITE INDUSTRIES, INC., A TX CORP.; REEL/FRAME:005020/0220 EFFECTIVE DATE : 19881128
US4063375 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO., A TX CORP., DEBOTOR; REEL/FRAME:005020/0207 EFFECTIVE DATE : 19880422
US4063375 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : KRUPP INDUSTRIETECHNIK GMBH, GERMANY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:SATTERWHITE, CHARLES R.; REEL/FRAME:005020/0222 EFFECTIVE DATE : 19881129

Title: Conveyor folding and moldboard operation for excavating and loading systems

Abstract: An excavating and loading system is disclosed which includes a vehicle with an excavating wheel **assembly** at the front and a plurality **of** conveyors toward the rear. The excavating wheel **assembly** comprises three excavating wheels having an overall width in excess **of** that **of** the remainder **of** the system. Each excavating wheel includes a plurality **of** digging buckets each comprising a wall supported for pivotal movement between a material receiving position and a material dumping position. The excavating wheel **assembly** is supported for vertical movement to vary the grade angle **of** the excavation made by the system, and a moldboard is linked to the excavating wheel **assembly** for movement therewith. Hydraulic cylinders may be utilized to vary the wheel **assembly** support provided by the moldboard in accordance with the material being excavated. The conveyors **of** the excavating and loading system include cross conveyors and a main conveyor for receiving material from the excavating wheels. The main conveyor transports the material rearwardly from the excavating wheel **assembly** and delivers the material to the opposite end **of** the vehicle. An auxiliary conveyor **assembly** is detachably supported at the opposite end **of** the vehicle to receive material from the main conveyor and to transport the material either laterally or rearwardly. The rear portion **of** the main conveyor is adapted to fold under the auxiliary conveyor **assembly** to reduce the overall height **of** the excavating and loading system during travel. The auxiliary conveyor **assembly** has a pair **of** conveyors mounted with the discharge end **of** one conveyor adjacent the receiving end **of** the other conveyor. The conveyors are mounted so that the relative attitude **of** the conveyors with respect to each other can be adjusted. Also, the conveyors can be selectively positioned to discharge material from the end **of** either conveyor. A variably positionable deflector plate is provided to direct the discharge **of** material.

Classifications:

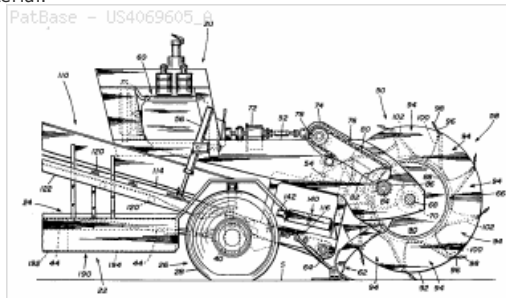
International (IPC 8-9): E02F3/18 E02F7/02 (Advanced/Invention)

International (IPC 1-7): E02F3/24

CPC: E02F3/18 E02F7/02

European: E02F3/18 E02F7/02

US: 299/39.2 299/75 37/190 37/91



Family:

Publication number	Publication date	Application number	Application date
US4069605 A	19780124	US19760658860	19760218

Priority:

US19720238089 19720327 US19730400043 19730924 US19750544671 19750127
US19750554671 19750303

Probable Assignee: UNIT RIG AND EQUIP

Assignee(s): (std): UNIT RIG AND EQUIP

Assignee(s): UNIT RIG AND EQUIPMENT CO ; KRUPP INDUSTRIETECHNIK GMBH ; SATTERWHITE CHARLES R ; SATTERWHITE IND ; SATTERWHITE IND INC ; SII 70 PERCENT PARTNERSHIP ; SII 70% PARTNERSHIP

Inventor(s): (std): SATTERWHITE CHARLES R

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US4069605 A	19780124	LSGT	+	granted / extensions (spc, cpc, pte)	
US4069605 A	19821101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE INDUSTRIES INC., 111 S. GARLAND AVE., OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO.; REEL/FRAME:004058/0654 EFFECTIVE DATE : 19821019
US4069605 A	19840206	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SII 70% PARTNERSHIP OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST. SUBJECT TO AGREEMENT RECITED.; ASSIGNOR:SATTERWHITE INDUSTRIES INC; REEL/FRAME:004225/0758 EFFECTIVE DATE : 19831228
US4069605 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO., A TX CORP., DEBOTOR; REEL/FRAME:005020/0207 EFFECTIVE DATE : 19880422
US4069605 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNS A THIRTY PERCENT INTEREST (30%); ASSIGNOR:SATTERWHITE INDUSTRIES, INC., A TX CORP.; REEL/FRAME:005020/0220 EFFECTIVE DATE : 19881128

US4069605 A 19881202

LSAS

AS

ASSIGNMENT

PARTYTYPE : OWNER
OWNER : KRUPP INDUSTRIE-TECHNIK GMBH,
GERMANY
OLDPARTY : ASSIGNMENT OF ASSIGNORS
INTEREST.; ASSIGNOR:SATTERWHITE,
CHARLES R.; REEL/FRAME:005020/0222
EFFECTIVE DATE : 19881129

Title: CONVEYOR FOLDING AND MOLDBOARD OPERATION FOR EXCAVATING AND LOADING SYSTEMS

Abstract: An excavating and loading system is disclosed which includes a vehicle with an excavating wheel **assembly** at the front and plurality **of** conveyors toward the rear. The excavating wheel **assembly** comprises individual excavating wheels including a plurality **of** digging buckets. Each bucket comprises a wall supported for pivotal movement between a material receiving position and a material dumping position. A predetermined cam track is disposed around the axis **of** rotation **of** the buckets and is engaged by a plurality **of** cam followers each connected to one **of** the movable walls to thereby positively pivot the movable wall **of** each digging bucket between the material receiving and the material dumping positions.

Classifications:

International (IPC 8-9): B65G65/20 E02F3/18 E02F3/24 E02F7/02 (Advanced/Invention);

B65G65/00 E02F3/18 E02F7/00 (Core/Invention)

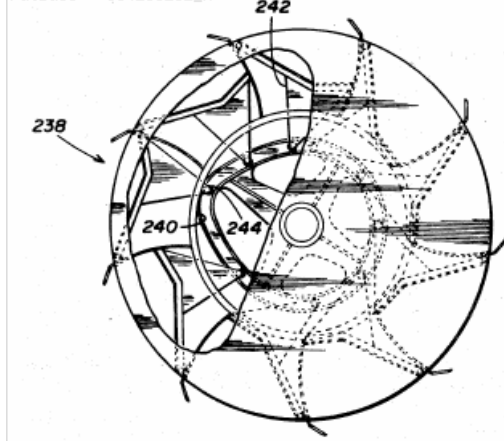
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CPC: Y10S37/901 E02F3/248 E02F3/18 E02F7/02

European: E02F3/18 E02F3/24K E02F7/02

US: 198/705 37/190 37/901

PatBase - US4155181_A



Family:

Publication number	Publication date	Application number	Application date
US4155181 A	19790522	US19780904382	19780510
US4156977 A	19790605	US19780904384	19780510
US4162584 A	19790731	US19780904383	19780510

Priority:

US19720238089 19720327 US19730400043 19730924 US19750554671 19750303
US19760660515 19760223 US19760745860 19761129

Probable Assignee: UNIT RIG AND EQUIP

Assignee(s): (std): UNIT RIG AND EQUIP

Assignee(s): KRUPP INDUSTRIETECHNIK GMBH ; SATTERWHITE CHARLES R ; SATTERWHITE IND ; SATTERWHITE IND INC ; SII 70 PERCENT PARTNERSHIP ; SII 70% PARTNERSHIP ; UNIT RIG AND EQUIPMENT

Inventor(s): (std): SATTERWHITE CHARLES L ; SATTERWHITE CHARLES R

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US4155181 A	19790522	LSGT	+	granted / extensions (spc, cpc, pte)	
US4155181 A	19790522	LSGT	PAT1	Patented Case	
US4155181 A	19821101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE INDUSTRIES INC., 111 S. GARLAND AVE., OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO.; REEL/FRAME:004058/0654 EFFECTIVE DATE : 19821019
US4155181 A	19840206	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SII 70% PARTNERSHIP OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST. SUBJECT TO AGREEMENT RECITED.; ASSIGNOR:SATTERWHITE INDUSTRIES INC; REEL/FRAME:004225/0758 EFFECTIVE DATE : 19831228
US4155181 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : KRUPP INDUSTRIETECHNIK GMBH, GERMANY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:SATTERWHITE, CHARLES R.; REEL/FRAME:005020/0222 EFFECTIVE DATE : 19881129
US4155181 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNS A THIRTY PERCENT INTEREST (30%); ASSIGNOR:SATTERWHITE

					INDUSTRIES, INC., A TX CORP.; REEL/FRAME:005020/0220 EFFECTIVE DATE : 19881128
US4155181 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO., A TX CORP., DEBOTOR; REEL/FRAME:005020/0207 EFFECTIVE DATE : 19880422
US4156977 A	19790605	LSGT	+	granted / extensions (spc, cpc, pte)	
US4156977 A	19821101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE INDUSTRIES INC., 111 S. GARLAND AVE., OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO.; REEL/FRAME:004058/0654 EFFECTIVE DATE : 19821019
US4156977 A	19840206	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SII 70% PARTNERSHIP OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST. SUBJECT TO AGREEMENT RECITED.; ASSIGNOR:SATTERWHITE INDUSTRIES INC; REEL/FRAME:004225/0758 EFFECTIVE DATE : 19831228
US4156977 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNS A THIRTY PERCENT INTEREST (30%); ASSIGNOR:SATTERWHITE INDUSTRIES, INC., A TX CORP.; REEL/FRAME:005020/0220 EFFECTIVE DATE : 19881128
US4156977 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO., A TX CORP., DEBOTOR; REEL/FRAME:005020/0207 EFFECTIVE DATE : 19880422
US4162584 A	19790731	LSGT	+	granted / extensions (spc, cpc, pte)	
US4162584 A	19790731	LSGT	PAT1	Patented Case	
US4162584 A	19821101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE INDUSTRIES INC., 111 S. GARLAND AVE., OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO.; REEL/FRAME:004058/0654 EFFECTIVE DATE : 19821019
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US4162584 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : KRUPP INDUSTRIETECHNIK GMBH, GERMANY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:SATTERWHITE, CHARLES R.; REEL/FRAME:005020/0222 EFFECTIVE DATE : 19881129
US4162584 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO., A TX CORP., DEBOTOR; REEL/FRAME:005020/0207 EFFECTIVE DATE : 19880422
US4162584 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNS A THIRTY PERCENT INTEREST (30%); ASSIGNOR:SATTERWHITE INDUSTRIES, INC., A TX CORP.; REEL/FRAME:005020/0220 EFFECTIVE DATE : 19881128

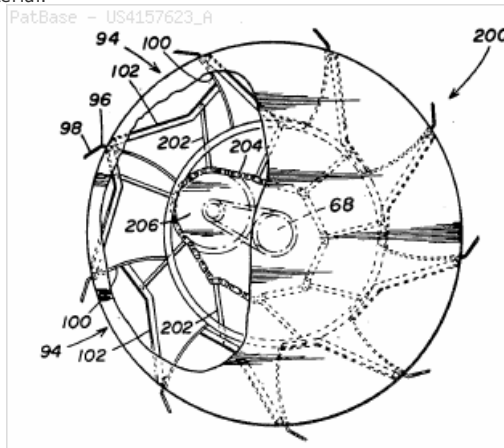
Title: CONVEYOR FOLDING AND MOLDBOARD OPERATION FOR EXCAVATING AND LOADING SYSTEMS

Abstract: An excavating and loading system is disclosed which includes a vehicle with an excavating wheel **assembly** at the front and a plurality **of** conveyors toward the rear. The excavating wheel **assembly** comprises three excavating wheels having an overall width in excess **of** that **of** the remainder **of** the system. Each excavating wheel includes a plurality **of** digging buckets each comprising a wall supported for pivotal movement between a material receiving position and a material dumping position. The excavating wheel **assembly** is supported for vertical movement to vary the grade angle **of** the excavating made by the system, and a moldboard is linked to the excavating wheel **assembly** for movement therewith. Hydraulic cylinders may be utilized to vary the wheel **assembly** support provided by the moldboard in accordance with the material being excavated. The conveyors **of** the excavating and loading system include cross conveyors and a main conveyor for receiving material from the excavating wheels. The main conveyor transports the material rearwardly from the excavating wheel **assembly** and delivers the material to the opposite end **of** the vehicle. An auxiliary conveyor **assembly** is detachably supported at the opposite end **of** the vehicle to receive material from the main conveyor and to transport the material either laterally or rearwardly. The rear portion **of** the main conveyor is adapted to fold under the auxiliary conveyor **assembly** to reduce the overall height **of** the excavating and loading system during travel. The auxiliary conveyor **assembly** has a pair **of** conveyors mounted with the discharge end **of** one conveyor adjacent the receiving end **of** the other conveyor. The conveyors are mounted so that the relative attitude **of** the conveyors with respect to each other can be adjusted. Also, the conveyors can be selectively positioned to discharge material from the end **of** either conveyor. A variably positionable deflector plate is provided to direct the discharge **of** material.

Classifications:**International (IPC 8-9):** B65G65/20 E02F3/18 E02F3/24

E02F7/02 (Advanced/Invention);

B65G65/00 E02F3/18 E02F7/00 (Core/Invention)

International (IPC 1-7): E02F3/24**CPC:** Y10S37/901 E02F3/248 E02F3/18 E02F7/02**European:** E02F3/18 E02F3/24K E02F7/02**US:** 37/190**Family:**

Publication number	Publication date	Application number	Application date
US4157623 A	19790612	US19760745860	19761129

Priority:

US19720238089 19720327 US19730400043 19730924 US19750554671 19750303
 US19760660515 19760223

Probable Assignee: UNIT RIG AND EQUIP**Assignee(s):** (std): UNIT RIG AND EQUIP

Assignee(s): KRUPP INDUSTRIE-TECHNIK GMBH ; SATTERWHITE CHARLES R ; SATTERWHITE IND ; SATTERWHITE IND INC ; SII 70 PERCENT PARTNERSHIP ; SII 70% PARTNERSHIP ; UNIT RIG AND EQUIPMENT

Inventor(s): (std): SATTERWHITE CHARLES R**Legal status (INPADOC)**

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Patent	Date recorded	Event group	Code	Event	Details
US4157623 A	19790612	LSGT	+	granted / extensions (spc, cpc, pte)	
US4157623 A	19821101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE INDUSTRIES INC., 111 S. GARLAND AVE., OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO.; REEL/FRAME:004058/0654 EFFECTIVE DATE : 19821019
US4157623 A	19840206	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SII 70% PARTNERSHIP OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST. SUBJECT TO AGREEMENT RECITED.; ASSIGNOR:SATTERWHITE INDUSTRIES INC; REEL/FRAME:004225/0758 EFFECTIVE DATE : 19831228
US4157623 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNS A THIRTY PERCENT INTEREST (30%); ASSIGNOR:SATTERWHITE INDUSTRIES, INC., A TX CORP.; REEL/FRAME:005020/0220 EFFECTIVE DATE : 19881128

US4157623 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : KRUPP INDUSTRIE TECHNIK GMBH, GERMANY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:SATTERWHITE, CHARLES R.; REEL/FRAME:005020/0222 EFFECTIVE DATE : 19881129
US4157623 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO., A TX CORP., DEBOTOR; REEL/FRAME:005020/0207 EFFECTIVE DATE : 19880422

Title: DIGGING BUCKET CYLINDER POWERED EJECTOR SYSTEM

Abstract: An excavating wheel is disclosed which includes a plurality of digging buckets each comprising a wall supported for pivotal movement between a material receiving position and a material dumping position. A plurality of cylinders each connected to one of the movable walls are selectively actuated under fluid pressure to pivot each movable wall to the material dumping position. A plurality of springs each connected to one of the movable walls are provided to pivot each movable wall to the material receiving position.

Classifications:

International (IPC 8-9): B65G65/20 E02F3/18 E02F3/24 E02F7/02 (Advanced/Invention);

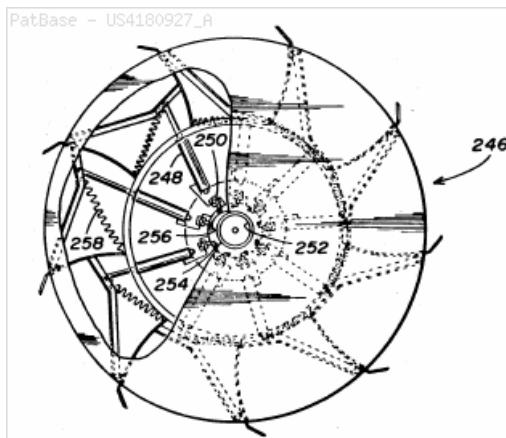
B65G65/00 E02F3/18 E02F7/00 (Core/Invention)

International (IPC 1-7): E02F3/24

CPC: Y10S37/901 E02F3/248 E02F3/18 E02F7/02

European: E02F3/18 E02F3/24K E02F7/02

US: 198/703 37/190



Family:

Publication number	Publication date	Application number	Application date
US4180927 A	19800101	US19780904385	19780510

Priority:

US19720238089 19720327	US19730400043 19730924	US19750554671 19750303
US19760660515 19760223	US19760745860 19761129	US19780904385 19780510

Probable Assignee: UNIT RIG AND EQUIP

Assignee(s): (std): UNIT RIG AND EQUIP

Assignee(s): KRUPP INDUSTRIETECHNIK GMBH ; SATTERWHITE CHARLES R ; SATTERWHITE IND ; SATTERWHITE IND INC ; SII 70 PERCENT PARTNERSHIP ; SII 70% PARTNERSHIP ; UNIT RIG AND EQUIPMENT

Inventor(s): (std): SATTERWHITE CHARLES R

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US4180927 A	19800101	LSGT	+	granted / extensions (spc, cpc, pte)	
US4180927 A	19800101	LSGT	PAT1	Patented Case	
US4180927 A	19821101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE INDUSTRIES INC., 111 S. GARLAND AVE., OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO.; REEL/FRAME:004058/0654 EFFECTIVE DATE : 19821019
US4180927 A	19840206	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SII 70% PARTNERSHIP OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST. SUBJECT TO AGREEMENT RECITED.; ASSIGNOR:SATTERWHITE INDUSTRIES INC; REEL/FRAME:004225/0758 EFFECTIVE DATE : 19831228
US4180927 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : KRUPP INDUSTRIETECHNIK GMBH, GERMANY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:SATTERWHITE, CHARLES R.; REEL/FRAME:005020/0222 EFFECTIVE DATE : 19881129
US4180927 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNS A THIRTY PERCENT INTEREST (30%); ASSIGNOR:SATTERWHITE INDUSTRIES, INC., A TX CORP.; REEL/FRAME:005020/0220 EFFECTIVE DATE : 19881128

US4180927 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO., A TX CORP., DEBOTOR; REEL/FRAME:005020/0207 EFFECTIVE DATE : 19880422
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Title: Conveyor folding and deflector operation for excavating and loading systems

Abstract: An excavating loading system is disclosed which includes a vehicle with an excavating wheel **assembly** at the front and a plurality **of** conveyors toward the rear. The conveyors **of** the excavating and loading system include cross conveyors and a main conveyor for receiving material from the excavating wheels. The main conveyor transports the material rearwardly from the excavating wheel **assembly** and delivers the material to the opposite end **of** the vehicle. An auxiliary conveyor **assembly** is pivotally supported at the rear end **of** the vehicle to receive material from the main conveyor and to transport the material either laterally or rearwardly. The auxiliary conveyor **assembly** has inner and outer conveyors mounted with the discharge end **of** one conveyor adjacent the receiving end **of** the other conveyor. The conveyors are connected so that the outer conveyor can be folded under the inner conveyor. Also, the conveyors in the auxiliary conveyor **assembly** can be selectively positioned to discharge material from the end **of** either conveyor. A variably positionable deflector plate is provided to direct the discharge **of** material.

Classifications:

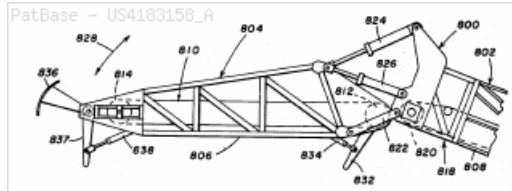
International (IPC 8-9): E02F3/18 E02F3/76
E02F7/02 (Advanced/Invention)

International (IPC 1-7): E02F3/24

CPC: E02F3/18 E02F3/783 E02F7/02

European: E02F3/18 E02F3/78B E02F7/02

US: 172/611 198/313 198/314 198/318 198/581 37/190



Family:

Publication number	Publication date	Application number	Application date
US4183158 A	19800115	US19770822206	19770805

Priority:

US19720238089 19720327	US19750554671 19750303	US19760658860 19760218
US19770822206 19770805		

Probable Assignee: UNIT RIG AND EQUIPMENT

Assignee(s): (std): UNIT RIG AND EQUIPMENT

Assignee(s): SII 70% PARTNERSHIP ; KRUPP INDUSTRIETECHNIK GMBH ; SATTERWHITE CHARLES R ; SATTERWHITE IND ; SATTERWHITE IND INC ; SII 70 PERCENT PARTNERSHIP

Inventor(s): (std): SATTERWHITE CHARLES R

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US4183158 A	19800115	LSGT	+	granted / extensions (spc, cpc, pte)	
US4183158 A	19800115	LSGT	PAT1	Patented Case	
US4183158 A	19821101	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE INDUSTRIES INC., 111 S. GARLAND AVE., OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO.; REEL/FRAME:004058/0654 EFFECTIVE DATE : 19821019
US4183158 A	19840206	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SII 70% PARTNERSHIP OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST. SUBJECT TO AGREEMENT RECITED.; ASSIGNOR:SATTERWHITE INDUSTRIES INC; REEL/FRAME:004225/0758 EFFECTIVE DATE : 19831228
US4183158 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNS A THIRTY PERCENT INTEREST (30%); ASSIGNOR:SATTERWHITE INDUSTRIES, INC., A TX CORP.; REEL/FRAME:005020/0220 EFFECTIVE DATE : 19881128
US4183158 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : KRUPP INDUSTRIETECHNIK GMBH, GERMANY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:SATTERWHITE, CHARLES R.; REEL/FRAME:005020/0222 EFFECTIVE DATE : 19881129
US4183158 A	19881202	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : SATTERWHITE, CHARLES R., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:UNIT RIG & EQUIPMENT CO., A TX CORP., DEBOTOR; REEL/FRAME:005020/0207 EFFECTIVE DATE : 19880422

Title: GROUND ENGAGING DIGGING TOOTH

Abstract: A one-piece digging tooth having a socket opening to a rear end of the tooth for receiving and accommodating at least a lengthwise portion of a nose portion of an adapter extending forward from earth working equipment. The digging tooth has a top surface and a bottom surface which angularly diverge from each other between a forward end and the rear end of the tooth and two side surfaces. The tooth further includes a longitudinally elongated and centrally disposed tine with another longitudinally elongated tine outwardly cantilevered from and disposed to opposite lateral sides of and extending generally parallel to the central tine. To enhance their penetration capability, a width and thickness of all the tines constantly diminishes as the tines longitudinally extend toward the forward edge of the tooth. Opposed side surfaces on each tine are separated from each other by a longitudinally cleft whereby providing the digging tooth with at least two channels for directing materials, worked free by the tines, rearwardly toward and into the earth working equipment.

Classifications:

International (IPC 8-9): E02F9/28 (Advanced/Invention);
E02F9/28 (Core/Invention)

CPC: E02F9/2858

European: E02F9/28A6

US: 37/452 37/454 37/455 37/456 37/457 D15/29

PatBase - US2010115803_AA

Patent Application Publication May 13, 2010 Sheet 1 of 7 US 2010/0115803 A1

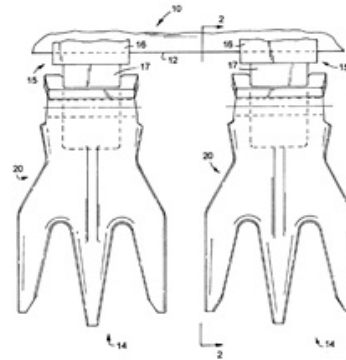


FIG.1

Family:

Publication number	Publication date	Application number	Application date
US2010115803 AA	20100513	US20080291568	20081112
US7818902 BB	20101026	US20080291568	20081112

Priority:

US20080291568 20081112

Probable Assignee: H AND L TOOTH CO

Assignee(s): (std): CLENDENNING CHARLES ; DRAKE RUSSELL N ; LAUNDER BRIAN L ; TOOTH H AND L CO

Assignee(s): H AND L TOOTH COMPANY ; H AND L TOOTH CO

Inventor(s): (std): LAUNDER BRIAN L ; CLENDENNING CHARLES ; DRAKE RUSSELL N

Agent(s): LAW OFFICE OF JOHN W HARBST

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2010115803 AA	20100513	LSPB	+	published / reissued	
US7818902 BB	20101026	LSGT	+	granted / extensions (spc, cpc, pte)	
US7818902 BB	20081215	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : H&L TOOTH COMPANY, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: LAUNDER, BRIAN L., MR.; CLENDENNING, CHARLES, MR.; DRAKE, RUSSELL N., MR.; REEL/FRA: 021977/0795 EFFECTIVE DATE : 20081110
US7818902 BB	20081215	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : H&L TOOTH COMPANY, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: LAUNDER, BRIAN L., MR.; CLENDENNING, CHARLES, MR.; DRAKE, RUSSELL N., MR.;

US7818902 BB	20101006	LSGT	PAT1	Patented Case	
US7818902 BB	20140408	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7818902 BB	20180312	LSFE	+MAFP	MAINTENANCE FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7818902 BB	20281112	PEXP		Calculated Patent Term Expiry	

Title: ROPE CAM DIPPER

Abstract: A mining machine **assembly** includes a dipper having a main body, the main body having a front side, a back side, a bottom side, and a top side. A ground engagement portion extends from the front side, the ground engagement portion including **digging teeth**. The mining machine **assembly** also includes a hoist rope attachment **assembly** coupled to the dipper. The hoist rope attachment **assembly** is configured to directly couple a hoist rope to the dipper. The hoist rope attachment **assembly** includes a cam having a first portion extending from the top side **of** the main body **of** the dipper, and a second portion that extends from the first portion and away from the main body and **digging teeth**.

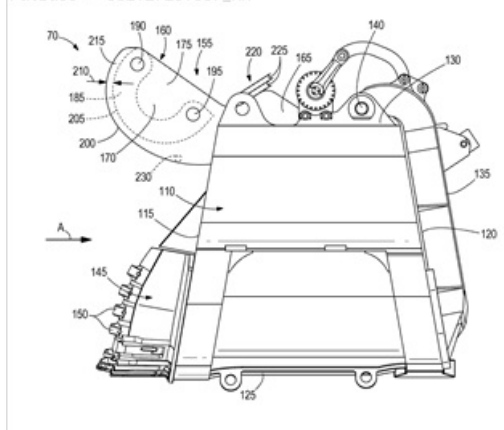
Classifications:

International (IPC 8-9): E02F3/30 E02F3/40 E02F3/42 E02F3/43 E02F3/52 E02F3/54 E02F3/60 E02F9/14

E21C27/30 (Advanced/Invention)

CPC: E21C27/30 E02F3/308 E02F3/40 E02F3/427 E21C47/00 E02F3/52 E02F3/60

PatBase - US2017260857_RH



Family:

Publication number	Publication date	Application number	Application date
AU2017201557 AA	20170928	AU20170201557	20170307
CA2960658 AA	20170910	CA20172960658	20170309
CL2017000580 A1	20171215	CL20170000580	20170309
CN107178106 A	20170919	CN201710138097	20170309
CN207047922 U	20180227	CN201720229679U	20170309
US2017260857 AA	20170914	US20170454980	20170309

Priority:

US20160306263P 20160310 US20170454980 20170309

Probable Assignee: HARNISCHFEGER TECHNOLOGIES INC

Assignee(s): (std): HARNISCHFEGER TECH INC ; HARNISCHFEGER TECHNOLOGIES INC

Assignee(s): JOY GLOBAL SURFACE MINING INC ; GROSS MATTHEW L

Inventor(s): (std): MATTHEW L GROSS ; GROSS MATTHEW L

Inventor(s): MATTHEW LGROSS

Agent(s): GRIFFITH HACK; BLAKE CASSELS AND GRAYDON LLP; CLARO SWINBURN LUIS FELIPE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2017201557 AA	20170928	LSPB	+	published / reissued	
AU2017201557 AA	20181011	LSAS	PC1	ASSIGNMENT BEFORE GRANT (SECT. 113)	PARTYTYPE : OWNER OWNER : JOY GLOBAL SURFACE MINING INC OLDPARTY : FORMER APPLICANT(S): HARNISCHFEGER TECHNOLOGIES, INC.
CA2960658 AA	20170910	LSPB	+	published / reissued	
CL2017000580 A1	20171215	LSPB	+	published / reissued	
CN107178106 A	20170919	LSPB	+	published / reissued	
CN107178106 A	20170919	LSPB	PB01	PUBLICATION	
CN107178106 A	20180821	LSAS	TA01	TRANSFER OF PATENT APPLICATION RIGHT	
CN207047922 U	20180227	LSGT	+	granted / extensions (spc, cpc, pte)	
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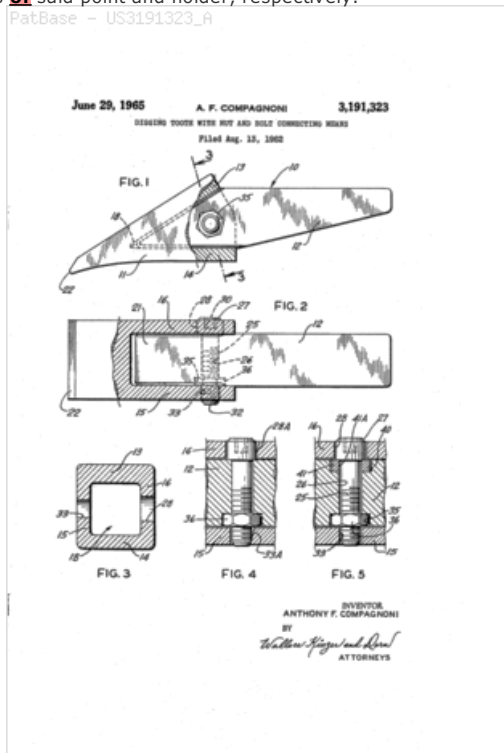
CN207047922 U	20270309	PEXP		PATENT RIGHT	Calculated Patent Term Expiry
US2017260857 AA	20170914	LSPB	+	published / reissued	
US2017260857 AA	20170309	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:GROSS, MATTHEW L.; REEL/FRAME:041533/0090 EFFECTIVE DATE : 20170308
US2017260857 AA	20180919	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : JOY GLOBAL SURFACE MINING INC, WISCONSIN OLDPARTY : MERGER; ASSIGNOR:HARNISCHFEGER TECHNOLOGIES, INC.; REEL/FRAME:047111/0786 EFFECTIVE DATE : 20180430
US2017260857 AA	20190306	LSES	NFA1	Non Final Action Mailed	

Title: DIGGING TOOTH WITH NUT AND BOLT CONNECTING MEANS

Abstract: (Claim 1) 1. A tooth assembly of the kind described including a holder and a point being detachably secured thereto; said point having first and second opposite walls defining a recess in which is received a complementary part of the holder; said holder having first and second walls on said complementary part and having a bore therethrough, said bore terminating in an enlarged seat in said second wall of said holder opposite the second wall of said point; said point having a first opening in said first wall aligned with said bore and a second, non-threaded opening in said second wall opposite said seat and aligned with said bore; a bolt having a head portion for seating within said first opening in said point and into engagement with said first wall of said holder, said head portion being closely dimensioned to the first opening in said point to prevent relative movement between said first walls of said holder and points, respectively; a nut seated in said seat in said holder and being wholly within said seat, said seat being CO dimensioned to prevent turning of said nut in said seat, and an end portion of said bolt extending into said nonthreaded opening in said second wall of said point, said non-threaded opening being closely dimensioned to said bolt, engagement of said end portion with said non-threaded opening in said second wall preventing relative movement between said second walls of said point and holder, respectively.

Classifications:**International (IPC 8-9):** E02F9/28 (Advanced/Invention);

E02F9/28 (Core/Invention)

International (IPC 1-7): E02F9/28**CPC:** Y10S411/974 E02F9/2833 Y10T403/7084 F16B2200/10**European:** E02F9/28A2C**US:** 172/762 37/455 403/361 403/379.3 411/974**Family:**

Publication number	Publication date	Application number	Application date
US3191323 A	19650629	US19620216412	19620813

Priority:

US19620216412 19620813

Probable Assignee:

AMERICAN BRAKE SHOE CO

Assignee(s): (std):

AMERICAN BRAKE SHOE CO

Assignee(s):

AMERICAN BRAKE SHOE COMPANY

Inventor(s): (std):

COMPAGNONI ANTHONY F

Legal status (INPADOC)[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
US3191323 A	19650629	LSGT	+	granted / extensions (spc, cpc, pte)	
US3191323 A	19820813	PEXP		Calculated Patent Term Expiry	

Title: **Assembly** and method for tooth tip retention

Abstract: A digging tooth **assembly** has first and second wedged members retaining a digging tooth tip on a tooth base. The improvement comprises a tension member, e.g., a bolt, coupled to the first member and engaging the second member. The bolt has an adjustable effective length so that the first member can be drawn into wedged engagement with the second member. Other aspects **of** the invention involve a method for assembling a digging tooth **assembly** having an apertured tooth tip on an apertured, supporting tooth base. The method includes the steps **of** inserting a first wedge-like member into the aperture, inserting a second wedge-like member into the aperture and drawing the first member upward into wedged engagement with the second member.

Classifications:

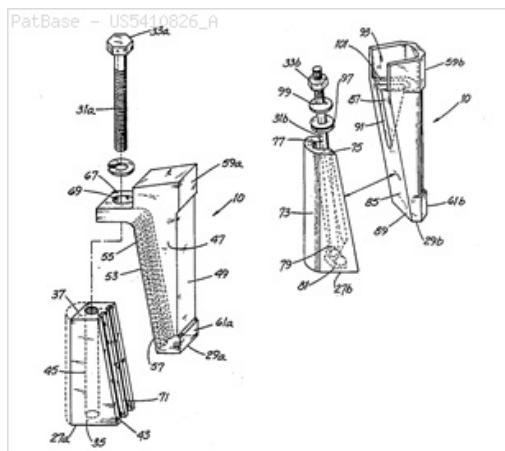
International (IPC 8-9): E02F3/60 E02F9/28 (Advanced/Invention);
E02F9/28 (Core/Invention)

International (IPC 1-7): E02F3/60 E02F9/28

CPC: E02F9/2833

European: E02F9/28A2C

US: 37/455 37/457 37/4570



Family:

Publication number	Publication date	Application number	Application date
AU199454935 A1	19940908	AU19940054935	19940204
AU666242 B2	19960201	AU19940054935	19940204
CA2094553 AA	19940902	CA19932094553	19930421
CA2094553 C	19961203	CA19932094553	19930421
US5410826 A	19950502	US19930024393	19930301

Priority:

US19930024393 19930301 CA19932094553 19930421 CA19932094553 19930421

Probable Assignee: HARNISCHFEGER TECHNOLOGIES INC

Assignee(s): (std): HARNISCHFEGER CORP

Assignee(s): HARNISCHFEGER TECHNOLOGIES INC ; IMMEL DARRYL R ; KALLENBERGER HARVEY J ; BANKERS TRUST CO ; DRETZKA ANDREW P

Inventor(s): (std): DRETZKA ANDREW P ; IMMEL DARRYL R ; KALLENBERGER HARVEY J

Inventor(s): HARVEY J KALLENBERGER ; ANDREW P DRETZKA ; DARRYL R IMMEL

Agent(s): SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; RIDOUT AND MAYBEE LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199454935 A1	19940908	LSPB	+	published / reissued	
AU666242 B2	19960201	LSGT	+	granted / extensions (spc, cpc, pte)	
AU666242 B2	20140204	PEXP		Calculated Patent Term Expiry	
CA2094553 AA	19940902	LSPB	+	published / reissued	
CA2094553 AA	19930421	LSES	+EEER	EXAMINATION REQUEST	
CA2094553 C	19961203	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2094553 C	20130421	PEXP		Calculated Patent Term Expiry	
US5410826 A	19950502	LSGT	+	granted / extensions (spc, cpc, pte)	
US5410826 A	19930301	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER

					CORPORATION, WISCONSIN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNORS:IMMEL, DARRYL R.; DRETZKA, ANDREW P.; KALLENBERGER, HARVEY D.; REEL/FRAME:006493/0613 EFFECTIVE DATE : 19930219
US5410826 A	19950420	LSGT	PAT1	Patented Case	
US5410826 A	19980507	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HARNISCHFEGER CORPORATION; REEL/FRAME:009168/0359 EFFECTIVE DATE : 19980504
US5410826 A	19980825	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5410826 A	20010712	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANKERS TRUST COMPANY, AS AGENT, NEW YORK OLDPARTY : GRANT OF PATENT SECURITY INTEREST; ASSIGNOR:HARNISCHFEGER TECHNOLOGIES, INC., A DELAWARE CORPORATION; REEL/FRAME:011958/0584 EFFECTIVE DATE : 20010629
US5410826 A	20020607	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5410826 A	20060904	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US5410826 A	20130301	PEXP		Calculated Patent Term Expiry	

Title: MOUNTING OF WEAR MEMBERS

Abstract: An excavator tooth assembly comprises a first wear member and a second wear member. The second wear member is releasably mountable on the first wear member. The first wear member has a lock face. The second wear member also has a lock face. The lock face of the first wear member opposes the lock face of the second wear member to define a lock passage therebetween when the second wear member is mounted on the first wear member. The excavator tooth assembly includes a lock pin which is adapted to be received in the lock passage to releasably secure the second wear member to the first wear member.

Classifications:

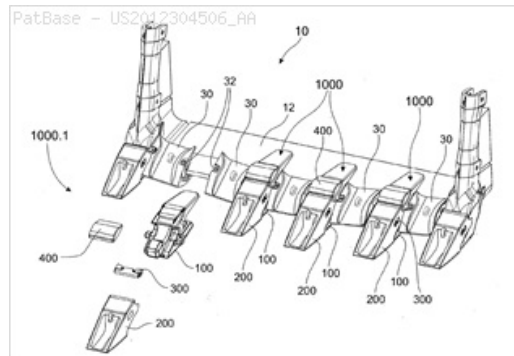
International (IPC 8-9): B23P11/00 E02F9/28

F16B2/04 (Advanced/Invention)

CPC: Y10T29/49826 Y10T29/49959 Y10T403/7069 E02F9/2825 E02F9/2833

European: E02F9/28A2B E02F9/28A2C

US: 29/428 29/525.08 37/452 37/453 37/455 37/456 37/457 403/374.4



Family:

Publication number	Publication date	Application number	Application date
AP201206335 A0	20120630	AP20120006335	20101210
AP201206341 A0	20120630	AP20120006341	20101210
AU2010330699 AA	20110616	AU20100330699	20101210
AU2010330700 AA	20110616	AU20100330700	20101210
BR112012014010 A2	20180605	BR20121114010	20101210
CA2783700 AA	20110616	CA20102783700	20101210
CA2783705 AA	20110616	CA20102783705	20101210
CL2012001552 A1	20130125	CL20120001552	20120611
CL2012001553 A1	20130125	CL20120001553	20120611
CN102713090 A	20121003	CN201080061675	20101210
CN102770607 A	20121107	CN201080061761	20101210
EP2507437 A1	20121010	EP20100835312	20101210
EP2507438 A1	20121010	EP20100835313	20101210
IN01416KN2012 A	20130201	IN2012KN01416	20120611
IN01417KN2012 A	20130201	IN2012KN01417	20120611
PE03302013 A1	20130403	PE20120000808	20101210
PE03312013 A1	20130403	PE20120000809	20101210
RU2012126820 A	20140120	RU20120126820	20101210
RU2012126822 A	20140120	RU20120126822	20101210
US2012304506 AA	20121206	US20100514874	20101210
US2012304508 AA	20121206	US20100514901	20101210
WO11069212 A1	20110616	WO2010AU01676	20101210
WO11069213 A1	20110616	WO2010AU01678	20101210

Priority:

AU20090906065 20091211	AU20100903142 20100714	AU20100330699 20101210
AU20100330700 20101210	WO2010AU01678 20101210	WO2010AU01676 20101210
CL20120001552 20120611	CL20120001553 20120611	

Probable Assignee: CQMS PTY LTD

Assignee(s): (std): COMS PTY LTD ; CQMS PTY LTD ; GUIMARAES MIGUEL ; LILLEY BRUCE

Assignee(s): CQMS RAZER PTY LTD

Inventor(s): (std): LILLEY BRUCE ; GUIMARAES MIGUEL ; BRUCE LILLEY ; MIGUEL GUIMARAES

Agent(s): FISHER ADAMS KELLY; FISHER ADAMS KELLY PTY LTD; FISHER ADAMS KELLY CALLINANS; SPRUSON AND FERGUSON; GOWLING LAFLEUR HENDERSON LLP; ESTUDIO SARGENT; SLINGSBY PHILIP ROY

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

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Patent	Date recorded	Event group	Code	Event	Details
AU2010330699 AA	20110616	LSPB	+	published / reissued	
AU2010330699 AA	20150709	LSLE	-MK4	APPLICATION LAPSED SECTION 142(2)(D) - NO CONTINUATION FEE PAID FOR THE APPLICATION	

AU2010330700 AA	20110616	LSPB	+	published / reissued	
AU2010330700 AA	20150709	LSLE	-MK4	APPLICATION LAPSED SECTION 142(2)(D) - NO CONTINUATION FEE PAID FOR THE APPLICATION	
BR112012014010 A2	20180612	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	
BR112012014010 A2	20181023	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	TEXT : EM VIRTUDE DO ARQUIVAMENTO PUBLICADO NA RPI 2475 DE 12-06-2018 E CONSIDERANDO AUSENCIA DE MANIFESTACAO DENTRO DOS PRAZOS LEGAIS, INFORMO QUE CABE SER MANTIDO O ARQUIVAMENTO DO PEDIDO DE PATENTE, CONFORME O DISPOSTO NO ARTIGO 12, DA RESOLUCAO 113/2013.
CA2783700 AA	20110616	LSPB	+	published / reissued	
CA2783700 AA	20150204	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20141210
CA2783705 AA	20110616	LSPB	+	published / reissued	
CA2783705 AA	20150204	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20141210
CL2012001552 A1	20130125	LSPB	+	published / reissued	
CL2012001553 A1	20130125	LSPB	+	published / reissued	
CN102713090 A	20121003	LSPB	+	published / reissued	
CN102713090 A	20121003	LSPB	+C06	PUBLICATION	
CN102713090 A	20150318	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
CN102770607 A	20121107	LSPB	+	published / reissued	
CN102770607 A	20121107	LSPB	+C06	PUBLICATION	
CN102770607 A	20150429	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
EP2507437 A1	20121010	LSPB	+	published / reissued	
EP2507437 A1	20121010	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20120705
EP2507438 A1	20121010	LSPB	+	published / reissued	
EP2507438 A1	20121010	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20120705
EP2507438 A1	20141231	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20140701
IN01416KN2012 A	20130201	LSPB	+	published / reissued	
IN01417KN2012 A	20130201	LSPB	+	published / reissued	
PE03302013 A1	20130403	LSPB	+	published / reissued	
PE03302013 A1	20131016	LSWD	-FA	ABANDONMENT OR WITHDRAWAL	
PE03312013 A1	20130403	LSPB	+	published / reissued	
PE03312013 A1	20131016	LSWD	-FA	ABANDONMENT OR	

WITHDRAWAL					
RU2012126820 A	20140120	LSPB	+	published / reissued	
RU2012126822 A	20140120	LSPB	+	published / reissued	
RU2012126822 A	20140210	LSWD	-FA93	ACKNOWLEDGEMENT OF APPLICATION WITHDRAWN (NO REQUEST FOR EXAMINATION)	EFFECTIVE DATE : 20131211
US2012304506 AA	20121206	LSPB	+	published / reissued	
US2012304506 AA	20120918	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CQMS RAZER PTY LTD., AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:GUIMARAES, MIGUEL; LILLEY, BRUCE; REEL/FRAME:028977/0928 EFFECTIVE DATE : 20091211
US2012304506 AA	20120918	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CQMS PTY LTD, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:CQMS RAZER PTY LTD.; REEL/FRAME:028978/0039 EFFECTIVE DATE : 20091211
US2012304506 AA	20150419	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
US2012304508 AA	20121206	LSPB	+	published / reissued	
US2012304508 AA	20120918	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CQMS RAZER PTY LTD., AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:GUIMARAES, MIGUEL; LILLEY, BRUCE; REEL/FRAME:028977/0928 EFFECTIVE DATE : 20091211
US2012304508 AA	20120918	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CQMS PTY LTD, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:CQMS RAZER PTY LTD.; REEL/FRAME:028978/0039 EFFECTIVE DATE : 20091211
US2012304508 AA	20150504	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
WO11069212 A1	20110616	LSPB	+	published / reissued	
WO11069212 A1	20101210	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 201080061761.8 COUNTRY OF REF DOCUMENT : CN
WO11069212 A1	20120608	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2783700 COUNTRY OF REF DOCUMENT : CA
WO11069212 A1	20120611	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO11069212 A1	20120611	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1416/KOLNP/2012 COUNTRY OF REF DOCUMENT : IN
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WO11069212 A1	20120705	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2010835312 COUNTRY OF REF DOCUMENT : EP
WO11069212 A1	20120711	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2012126820 COUNTRY OF REF DOCUMENT : RU
WO11069212 A1	20120712	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2010330699 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20101210 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO11069212 A1	20120814	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 13514901 COUNTRY OF REF DOCUMENT : US
WO11069213 A1	20110616	LSPB	+	published / reissued	
WO11069213 A1	20101210	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 201080061675.7 COUNTRY OF REF DOCUMENT : CN
WO11069213 A1	20120608	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2783705 COUNTRY OF REF DOCUMENT : CA
WO11069213 A1	20120611	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
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WO11069213 A1	20120611	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1417/KOLNP/2012 COUNTRY OF REF DOCUMENT : IN
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WO11069213 A1	20120815	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 13514874 COUNTRY OF REF DOCUMENT : US
WO11069213 A1	20180605	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112012014010 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20120611

Title: SELF CONTAINED RETAINING MEANS FOR REMOVABLE DIGGING TOOTH

Abstract: Self contained retaining means for removable **digging teeth** for digging buckets, wheels and the like. The digging tooth has a hollow interior portion in the form of a socket fitting along the leading end of a shank attached to and extending from the leading edge of a digger bucket. A retainer bar is carried by the shank for movement laterally of the shank and is held in position by a rubber insert in the bar and is retained to the shank when in its locked and release positions. The retainer bar has an upwardly opening slot positionable to register with a projection extending from the digger tooth into the socket. Access to the retainer bar for moving the bar into its locking and releasing positions is provided through the side walls of the tooth, to accommodate movement of the bar to position the slot into and out of alignment with the projection to release or hold the tooth to the shank.

Classifications:

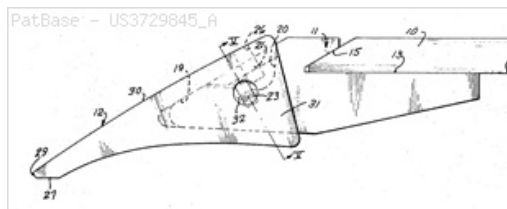
International (IPC 8-9): E02F9/28 (Advanced/Invention); E02F9/28 (Core/Invention)

International (IPC 1-7): E02F9/00 E02F9/28

CPC: E02F9/2841

European: E02F9/28A2C2

US: 37/457



Family:

Publication number	Publication date	Application number	Application date
BR7201202 A0	19730612	BR19720001202	19720301
DE2209861 A1	19720914	DE19722209861	19720301
FR2128479 A1	19721020	FR19720007077	19720301
FR2128479 B1	19760611	FR19720007077	19720301
GB1359094 A	19740710	GB19720009657	19720301
US3729845 A	19730501	US19710119533	19710301

Priority:

US19710119533 19710301

Probable Assignee: BARBER GREENE CO

Assignee(s): (std): BARBER GREENE CO

Assignee(s): FIRST AMERICAN NATIONAL BANK OF NASHVILLE NASHVILL ; FIRST NATIONAL BANK OF CHICAGO ; CITIZENS AND SOUTHERN TRUST CO ; BARBER GREENE CO US ; BARBER GREENE CY ; FIRST AMERICAN NATIONAL BANK OF NASHVILLE ; CITIZENS AND SOUTHERN TRUST CO (GEORGIA) ; CITIZENS AND SOUTHERN TRUST CO GEORGIA ; FIRST NATIONAL BANK OF CHICAGO NA ; ASTEC IND ; ASTEC IND INC

Inventor(s): (std): FLIPPIN J

Inventor(s): FLIPPIN J US

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE2209861 A1	19720914	LSPB	+	published / reissued	
FR2128479 A1	19721020	LSPB	+	published / reissued	
FR2128479 B1	19760611	LSGT	+	granted / extensions (spc, cpc, pte)	
FR2128479 B1	19780526	LSLE	-ST	NOTIFICATION OF LAPSE	
FR2128479 B1	19920301	PEXP		Calculated Patent Term Expiry	
GB1359094 A	19740710	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1359094 A	19741120	LSGT	+PS	PATENT SEALED	
GB1359094 A	19770928	LSLE	-PLNP	PATENT LAPSED THROUGH NONPAYMENT OF RENEWAL FEES	
GB1359094 A	19920301	PEXP		Calculated Patent Term Expiry	
US3729845 A	19730501	LSGT	+	granted / extensions (spc, cpc, pte)	
US3729845 A	19870706	LSAS	AS	ASSIGNMENT	OWNER NAME : FIRST AMERICAN

					NATIONAL BANK OF NASHVILLE, TENNESS DESCRIPTION : SECURITY INTEREST; ASSIGNOR:BARBER-GREENE COMPANY, A CORP. OF DE.; REEL/FRA:004748/0440 EFFECTIVE DATE : 19861229
US3729845 A	19870706	LSAS	AS	ASSIGNMENT	OWNER NAME : FIRST AMERICAN NATIONAL BANK OF NASHVILLE, NASHVIL DESCRIPTION : SECURITY INTEREST; ASSIGNOR:BARBER-GREENE COMPANY, A CORP. OF DE.; REEL/FRA:004748/0440 EFFECTIVE DATE : 19861229
US3729845 A	19880718	LSAS	AS	ASSIGNMENT	OWNER NAME : BARBER-GREENE COMPANY, 400 NORTH HIGHLAND, AURORA, DESCRIPTION : RELEASED BY SECURED PARTY; ASSIGNOR:FIRST AMERICAN NATIONAL BANK OF NASHVILLE; REEL/FRA:005000/0045 EFFECTIVE DATE : 19880606
US3729845 A	19880718	LSAS	AS	ASSIGNMENT	OWNER NAME : BARBER-GREENE COMPANY, ILLINOIS DESCRIPTION : RELEASED BY SECURED PARTY; ASSIGNOR:FIRST AMERICAN NATIONAL BANK OF NASHVILLE; REEL/FRA:005000/0045 EFFECTIVE DATE : 19880606
US3729845 A	19880718	LSAS	AS	ASSIGNMENT	OWNER NAME : BARBER-GREENE COMPANY,ILLINOIS DESCRIPTION : RELEASED BY SECURED PARTY; ASSIGNOR:FIRST AMERICAN NATIONAL BANK OF NASHVILLE; REEL/FRA:5000/45 EFFECTIVE DATE : 19880606
US3729845 A	19900614	LSAS	AS	ASSIGNMENT	OWNER NAME : FIRST NATIONAL BANK OF CHICAGO, THE DESCRIPTION : SECURITY INTEREST; ASSIGNORS:BARBER-GREENE COMPANY; ROADTEC, INC.; TRENCOR JETCO, INC.; AND OTHERS; REEL/FRA:005357/0010 EFFECTIVE DATE : 19900516
US3729845 A	19911209	LSAS	AS	ASSIGNMENT	OWNER NAME : FIRST NATIONAL BANK OF CHICAGO, THE, ILLINOIS DESCRIPTION : AMENDMENT TO A PREVIOUSLY RECORDED SECURITY AGREEMENT DATED APRIL 27, 1989; ; ASSIGNORS:BARBER-GREENECOMPANY; ROADTEC, INC.; TRENCOR JETCO, INC.; REEL/FRA:006113/0075 EFFECTIVE DATE : 19910301
US3729845 A	19911209	LSAS	AS	ASSIGNMENT	OWNER NAME : CITIZENS AND SOUTHERN TRUST COMPANY (GEORGIA), GEO DESCRIPTION : AMENDMENT TO A PREVIOUSLY RECORDED SECURITY AGREEMENT DATED APRIL 27, 1989; ; ASSIGNORS:BARBER-GREENECOMPANY; ROADTEC, INC.; TRENCOR JETCO, INC.; REEL/FRA:006113/0075 EFFECTIVE DATE : 19910301
US3729845 A	19950710	LSAS	AS	ASSIGNMENT	OWNER NAME : FIRST NATIONAL BANK OF CHICAGO, N.A., THE, ILLINOI DESCRIPTION : TERMINATION AND RELEASE OF SECURITY INTEREST IN PATENTS; ASSIGNOR:NATIONSBANK OF GEORGIA, N.A. (F/K/A CITIZENS AND SOUTHERN TRUST COMPANY, N.A.); REEL/FRA:007603/0227 EFFECTIVE DATE : 19940720
US3729845 A	19950710	LSAS	AS	ASSIGNMENT	OWNER NAME : ASTEC INDUSTRIES, INC., TENNESSEE DESCRIPTION : TERMINATION AND RELEASE OF SECURITY INTEREST IN PATENTS; ASSIGNOR:NATIONSBANK OF GEORGIA, N.A. (F/K/A CITIZENS AND SOUTHERN TRUST COMPANY, N.A.); REEL/FRA:007603/0227 EFFECTIVE DATE : 19940720

Title: Snubber having unitary elastic body

Abstract: A unitary urethane snubber is provided to snub opening and closing movements **of** a dipper door. The snubber has an elongated working section that is stretched to snub door closing and bent to snub door opening. A pair **of** integral end lugs pivotally attach the snubber to the dipper and to the door. The snubber is unstressed in an intermediate position to facilitate installation.

Classifications:

International (IPC 8-9): E02F3/407 F16F7/12 (Advanced/Invention); E02F3/40 (Core/Invention)

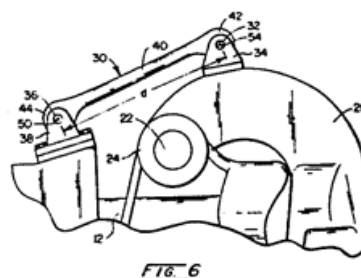
International (IPC 1-7): E02F3/22 E02F3/36 E02F3/40 E02F3/46 E02F9/00 E05F5/00 E05F5/02 F16F7/12

CPC: E02F3/4075

European: E02F3/407B

US: 267/153 294/68.21 294/69R 37/118R 37/444 414/722

PatBase - US4443957_A



Family:

Publication number	Publication date	Application number	Application date
AR230660 A1	19840531	AR19830292126	19830215
AU198310382 A1	19830901	AU19830010382	19830114
AU545902 B2	19850808	AU19830010382	19830114
BR8300818 A	19831116	BR19830000818	19830221
CA1223295 A1	19870623	CA19830420699	19830201
DE3364397 D1	19860814	DE19833364397	19830121
EP0087380 A2	19830831	EP19830630016	19830121
EP0087380 A3	19831214	EP19830630016	19830121
EP0087380 B1	19860709	EP19830630016	19830121
MX156292 A	19880808	MX19830196338	19830221
PH19641 A	19860604	PH19830028509	19830211
US4443957 A	19840424	US19820350942	19820222
ZA8300532 A	19831130	ZA19830000532	19830127

Priority:

US19820350942 19820222 CA19830420699 19830201

Probable Assignee: ESCO CORP

Assignee(s): (std): ABEX CORP

Assignee(s): AMALLOY CORP ; AMALLOY CORP A CORP OF NJ ; CHEMICAL BANK ; CHEMICAL BANK A CORP ; CHEMICAL BANK A CORP OF NY ; ESCO CORP ; CHEMICAL BANK A NEW YORK BANKING CORP ; IHLEIN HENRY J ; NOVOTNY RAYMOND J ; ABEX A CORP OF DE CORP

Inventor(s): (std): NOVOTNY RAYMOND J ; IHLEIN HENRY J

Inventor(s): RAYMOND J NOVOTNY ; RAYMOND JNOVOTNY ; HENRY J IHLEIN ; HENRY JIHLEIN

Agent(s): COLLISON AND CO; MACRAE AND CO

Designated states: DE FR GB SE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AR230660 A1	19840531	LSGT	+	granted / extensions (spc, cpc, pte)	
AR230660 A1	20030215	PEXP		Calculated Patent Term Expiry	
AU198310382 A1	19830901	LSPB	+	published / reissued	
AU545902 B2	19850808	LSGT	+	granted / extensions (spc, cpc, pte)	
AU545902 B2	20030114	PEXP		Calculated Patent Term Expiry	
BR8300818 A	19831116	LSPB	+	published / reissued	
BR8300818 A	19950418	LSLE	-MM	LAPSE DUE TO NON-PAYMENT OF FEES (ART. 50)	
DE3364397 D1	19870806	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	

DE3364397 D1	19940113	LSLE	-8339	CEASED/NON-PAYMENT OF THE ANNUAL FEE	
EP0087380 A2	19830831	LSPB	+	published / reissued	
EP0087380 A2	19840418	LSSE	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19840202
EP0087380 A2	19850102	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : ABEX CORPORATION
EP0087380 A2	19870701	LSGT	+26N	NO OPPOSITION FILED	
EP0087380 A2	19911209	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 19911209 YEAR OF FEE PAYMENT : 10
EP0087380 A2	19911211	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 19911211 YEAR OF FEE PAYMENT : 10
EP0087380 A2	19911213	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 19911213 YEAR OF FEE PAYMENT : 10
EP0087380 A2	19911216	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 19911216 YEAR OF FEE PAYMENT : 10
EP0087380 A2	19930121	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB LAPSED DATE : 19930121
EP0087380 A2	19930124	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE LAPSED DATE : 19930124
EP0087380 A2	19930915	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 19930121
EP0087380 A2	19930930	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR LAPSED DATE : 19930930
EP0087380 A2	19931001	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE LAPSED DATE : 19931001
EP0087380 A2	19931126	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST
EP0087380 A2	19950131	LSLE	-EUG	SE: EUROPEAN PATENT HAS LAPSED	REF COUNTRY CODE : EP TEXT : 83630016.0 EFFECTIVE DATE : 19930810
EP0087380 B1	19860709	LSGT	+	granted / extensions (spc, cpc, pte)	
MX156292 A	19880808	LSGT	+	granted / extensions (spc, cpc, pte)	
MX156292 A	19980808	PEXP		Calculated Patent Term Expiry	
PH19641 A	19860604	LSGT	+	granted / extensions (spc, cpc, pte)	
PH19641 A	20030604	PEXP		Calculated Patent Term Expiry	
US4443957 A	19840424	LSGT	+	granted / extensions (spc, cpc, pte)	
US4443957 A	19820222	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ABEX CORPORATION, 530 FIFTH AVENUE, NEW YORK,N.Y. OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNORS:NOVOTNY, RAYMOND

J.; IHLEIN, HENRY J.;
 REEL/FRAME:003977/0909
 EFFECTIVE DATE : 19820216

US4443957 A	19840224	LSGT	PAT1	Patented Case	
US4443957 A	19871014	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US4443957 A	19880322	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CHEMICAL BANK, NEW YORK OLDPARTY : SECURITY INTEREST; ASSIGNOR:AMALLOY CORP., A N.J. CORP.; REEL/FRAME:004893/0288 EFFECTIVE DATE : 19880311
US4443957 A	19880322	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CHEMICAL BANK, A NEW YORK BANKING CORP.,NEW YORK OLDPARTY : SECURITY INTEREST; ASSIGNOR:AMALLOY CORP., A N.J. CORP.; REEL/FRAME:004893/0288 EFFECTIVE DATE : 19880311
US4443957 A	19880322	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CHEMICAL BANK, A CORP. OF NY OLDPARTY : SECURITY INTEREST; ASSIGNOR:AMALLOY CORPORATION; REEL/FRAME:004854/0891 EFFECTIVE DATE : 19880311
US4443957 A	19880322	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CHEMICAL BANK, 110 EAST 59TH STREET, NEW YORK, NEW YORK OLDPARTY : SECURITY INTEREST; ASSIGNOR:AMALLOY CORP., A N.J. CORP.; REEL/FRAME:004893/0288 EFFECTIVE DATE : 19880311
US4443957 A	19880518	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : AMALLOY CORP., A CORP. OF NJ OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:ABEX CORPORATION; REEL/FRAME:004890/0859 EFFECTIVE DATE : 19880310
US4443957 A	19911114	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US4443957 A	19950411	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ESCO CORPORATION, OREGON OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:CHEMICAL BANK; REEL/FRAME:007437/0127 EFFECTIVE DATE : 19950113
US4443957 A	19951012	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
ZA8300532 A	19831130	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA8300532 A	20030126	PEXP		Calculated Patent Term Expiry	

Title: WINGED DIGGING TOOTH

Abstract: A digging tooth adapted to extend forward from a leading edge **of** a bucket or the like. The digging tooth has a forward end, with an edge extending thereacross, and a rear end. The digging tooth further includes wing structure formed integral with the digging tooth and extending from a surface on the tooth so as to provide the bucket with enhanced ground penetration capability while concomitantly shielding ground engaging components disposed rearwardly **of** a rear end **of** the digging tooth against **wear** and, thus, potentially extending the useful **wear** life **of** such components.

Classifications:

International (IPC 8-9): E02F9/28 (Advanced/Invention);

E02F9/28 (Advanced/Non-invention);

E02F9/28 (Core/Invention);

E02F (Subclass/Invention)

International (IPC 1-7): E02F9/28

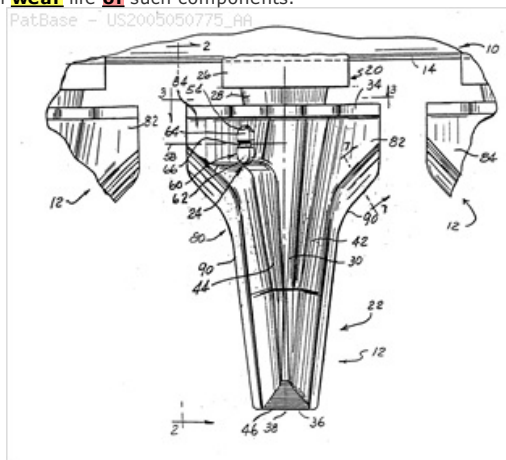
CPC: E02F9/2841 E02F9/2858 E02F9/2883

European: E02F9/28A2C2 E02F9/28A6 E02F9/28F

US: 37/450 37/452 37/452P

JP F-Term: 2D015 2D015/JA03 2D015/JA06

JP F-Index: E02F9/28/A

**Family:**

Publication number	Publication date	Application number	Application date
AT538259 E	20120115	AT20040780426T	20040806
AU2004272986 AA	20050324	AU20040272986	20040806
AU2004272986 BB	20100325	AU20040272986	20040806
BRPI0413951 A	20061024	BR2004PI13951	20040806
CA2538123 AA	20060307	CA20042538123	20040806
CA2538123 C	20100223	CA20042538123	20040806
CN1867738 A	20061122	CN200480029885	20040806
CN1867738 B	20110504	CN200480029885	20040806
DE602004035789 D1	20120223	DE200460035789T	20040806
EP1664446 A2	20060607	EP20040780426	20040806
EP1664446 A4	20080625	EP20040780426	20040806
EP1664446 B1	20111221	EP20040780426	20040806
ES2377743 T3	20120330	ES20040780426T	20040806
JP2007505243 T2	20070308	JP20060526082T	20040806
JP4671964 B2	20110420	JP20060526082T	20040806
KR20060064669 A	20060613	KR20067004702	20040806
MXPA06002736 A1	20060623	MX2006PA02736	20040806
US2005050775 AA	20050310	US20040828704	20040421
US7114272 BB	20061003	US20040828704	20040421
WO05026453 A2	20050324	WO2004US25588	20040806
WO05026453 A3	20050721	WO2004US25588	20040806
ZA200601967 A	20070530	ZA20060001967	20040806

Priority:

US20030501381P 20030909 US20040828704 20040421 EP20040780426 20040806
 WO2004US25588 20040806

Probable Assignee: H AND L TOOTH CO

Assignee(s): (std): TOOTH H AND L CO

Assignee(s): CLENDENNING CHARLES ; H AMP AMP ; H AND L TOOTH CO ; L TOOTH CO ; LAUNDER BRIAN L

Inventor(s): (std): BRIAN L LAUNDER ; CHARLES CLENDENNING ; CLENDENNING CHARLES ; CLENDENNING CHARLES LAUNDER BR ; LAUNDER BRIAN ; LAUNDER BRIAN L

Inventor(s): LAUNDER BRIAN L TULSA ; CLENDENNING CHARLES LAUNDER BRIAN L ; CLENDENNING CHARLES BROKEN ARROW

Agent(s): PATENT ATTORNEY SERVICES; SIM AND MCBURNEY; BOEHMERT AND BOEHMERT; SCHOHE STEFAN; CARVAJAL Y ISABEL; JOHN W HARBST; JOHN W

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT538259 E	20120115	LSGT	+	granted / extensions (spc, cpc, pte)	

AT538259 E	20240806	PEXP		Calculated Patent Term Expiry	
AU2004272986 AA	20050324	LSPB	+	published / reissued	
AU2004272986 BB	20100325	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2004272986 BB	20100722	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2004272986 BB	20150305	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU2004272986 BB	20240806	PEXP		Calculated Patent Term Expiry	
BRPI0413951 A	20061024	LSPB	+	published / reissued	
BRPI0413951 A	20150609	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	TEXT : REFERENTE A 11A ANUIDADE.
BRPI0413951 A	20151124	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	TEXT : EM VIRTUDE DO ARQUIVAMENTO PUBLICADO NA RPI 2318 DE 09-06-2015 E CONSIDERANDO AUSENCIA DE MANIFESTACAO DENTRO DOS PRAZOS LEGAIS, INFORMO QUE CABE SER MANTIDO O ARQUIVAMENTO DO PEDIDO DE PATENTE, CONFORME O DISPOSTO NO ARTIGO 12, DA RESOLUCAO 113/2013.
CA2538123 AA	20060307	LSPB	+	published / reissued	
CA2538123 AA	20070627	LSSES	+EEER	EXAMINATION REQUEST	
CA2538123 C	20100223	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2538123 C	20150917	LSLE	-MKLA	LAPSED	EFFECTIVE DATE : 20150806
CA2538123 C	20240806	PEXP		Calculated Patent Term Expiry	
CN1867738 A	20061122	LSPB	+	published / reissued	
CN1867738 A	20061122	LSPB	+C06	PUBLICATION	
CN1867738 B	20110504	LSGT	+	granted / extensions (spc, cpc, pte)	
CN1867738 B	20110504	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN1867738 B	20150923	LSRV	-EXPY	TERMINATION OF PATENT RIGHT OR UTILITY MODEL	
CN1867738 B	20240806	PEXP		Calculated Patent Term Expiry	
EP1664446 A2	20060607	LSPB	+	published / reissued	
EP1664446 A2	20060607	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20060404
EP1664446 A4	20080625	LSSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	EFFECTIVE DATE : 20080526
EP1664446 A4	20090819	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20090715
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cpc, pte)					
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EP1664446 B1	20111230	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP1664446 B1	20120115	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER : 538259 COUNTRY OF REF DOCUMENT : AT KIND CODE OF REF DOCUMENT : T DESIGNATED STATE(S) : EFFECTIVE DATE : 20120115
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EP1664446 B1	20120531	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20111221
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EP1664446 B1	20120629	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CY NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20111221
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EP1664446 B1	20120731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SK NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20111221

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EP1664446 B1	20121231	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20120907 YEAR OF FEE PAYMENT : 9
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EP1664446 B1	20130329	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : MC NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120831
EP1664446 B1	20130430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120831
EP1664446 B1	20130430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120831
EP1664446 B1	20130522	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : IE REF LEGAL EVENT CODE : MM4A
EP1664446 B1	20130628	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FI NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20111221
EP1664446 B1	20130731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IE NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120806
EP1664446 B1	20140423	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON- PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20130806
EP1664446 B1	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : HU NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20130807
EP1664446 B1	20140430	LSLE	-PG25	LAPSED IN A CONTRACTING	COUNTRY OF REF DOCUMENT : TR NOTIFICATIONOFLAPSE : LAPSE

				STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME-LIMIT LAPSED DATE : 20111221
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EP1664446 B1	20140522	LSDW	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R119 REF DOCUMENT NUMBER : 602004035789 COUNTRY OF REF DOCUMENT : DE EFFECTIVE DATE : 20140301
EP1664446 B1	20140523	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST EFFECTIVE DATE : 20140430
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EP1664446 B1	20140530	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : LU NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20120806
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EP1664446 B1	20140829	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20130902
EP1664446 B1	20150504	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FD2A EFFECTIVE DATE : 20150504
EP1664446 B1	20150731	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20130807
EP1664446 B1	20240806	PEXP		Calculated Patent Term Expiry	
ES2377743 T3	20120330	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2377743 T3	20240806	PEXP		Calculated Patent Term Expiry	
JP2007505243 T2	20070308	LSPB	+	published / reissued	
JP2007505243 T2	20070804	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20070803
JP2007505243 T2	20070804	LSSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20070803
JP2007505243 T2	20090824	LSSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20090821
JP2007505243 T2	20100223	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20100222
JP2007505243 T2	20101228	LSGT	+TRDD	DECISION OF	

				GRANT OR REJECTION WRITTEN	
JP2007505243 T2	20110111	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20110107
JP2007505243 T2	20110113	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01
JP2007505243 T2	20110127	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	TEXT : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20110118
JP2007505243 T2	20110128	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150
JP2007505243 T2	20110131	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 3
JP4671964 B2	20110420	LSGT	+	granted / extensions (spc, cpc, pte)	
JP4671964 B2	20110125	LSFE	R100	特許料納付書 Patent fee payment form	
JP4671964 B2	20140109	LSFE	R20	特許料納付書 Patent fee payment form	
JP4671964 B2	20140114	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP4671964 B2	20150129	LSFE	R20	特許料納付書 Patent fee payment form	
JP4671964 B2	20150203	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP4671964 B2	20160128	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP4671964 B2	20240806	PEXP		Calculated Patent Term Expiry	
KR20060064669 A	20060613	LSPB	+	published / reissued	
KR20060064669 A	20100105	LSDW	-WITN	WITHDRAWAL DUE TO NO REQUEST FOR EXAMINATION	
MXPA06002736 A1	20060623	LSPB	+	published / reissued	
MXPA06002736 A1	20090525	LSGT	+FG	GRANT OR REGISTRATION	
US2005050775 AA	20050310	LSPB	+	published / reissued	
US7114272 BB	20061003	LSGT	+	granted / extensions (spc, cpc, pte)	
US7114272 BB	20040706	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : H& L TOOTH COMPANY, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS: CLENDENNING, CHARLES; LAUNDER, BRIAN L.; REEL/FRAME: 015532/0424 EFFECTIVE DATE : 20040416
US7114272 BB	20060913	LSGT	PAT1	Patented Case	
US7114272 BB	20091012	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4

US7114272 BB	20131104	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US7114272 BB	20180514	LSFE	FEPP	FEE PAYMENT PROCEDURE	TEXT : MAINTENANCE FEE REMINDER MAILED (ORIGINAL EVENT CODE: REM.)
US7114272 BB	20181105	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	TEXT : PATENT EXPIRED FOR FAILURE TO PAY MAINTENANCE FEES (ORIGINAL EVENT CODE: EXP.); ENTITY STATUS OF PATENT OWNER: SMALL ENTITY
US7114272 BB	20181105	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US7114272 BB	20240706	PEXP		Calculated Patent Term Expiry (PTA 76 days)	
WO05026453 A2	20050324	LSPB	+	published / reissued	
WO05026453 A2	20040806	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 200480029885.2 COUNTRY OF REF DOCUMENT : CN
WO05026453 A3	20060307	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2538123 COUNTRY OF REF DOCUMENT : CA
WO05026453 A3	20060308	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 200601967 COUNTRY OF REF DOCUMENT : ZA
WO05026453 A3	20060308	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2006526082 COUNTRY OF REF DOCUMENT : JP
WO05026453 A3	20060308	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1020067004702 COUNTRY OF REF DOCUMENT : KR
WO05026453 A3	20060308	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2006/01967 COUNTRY OF REF DOCUMENT : ZA
WO05026453 A3	20060309	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : PA/A/2006/002736 COUNTRY OF REF DOCUMENT : MX
WO05026453 A3	20060404	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2004780426 COUNTRY OF REF DOCUMENT : EP
WO05026453 A3	20060407	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2004272986 COUNTRY OF REF DOCUMENT : AU
WO05026453 A3	20060427	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2004272986 COUNTRY OF REF DOCUMENT : AU
WO05026453 A3	20060607	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2004780426 COUNTRY OF REF DOCUMENT : EP
WO05026453 A3	20060613	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1020067004702 COUNTRY OF REF DOCUMENT : KR
WO05026453 A3	20061024	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : PI0413951 COUNTRY OF REF DOCUMENT : BR
ZA200601967 A	20070530	LSGT	+	granted /	

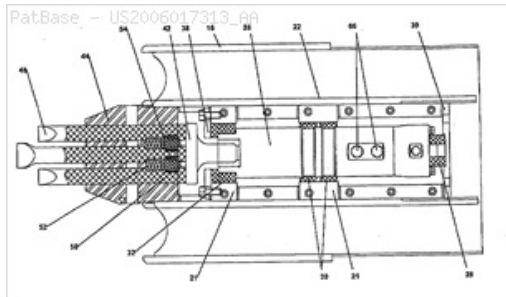
			extensions (spc, cpc, pte)
ZA200601967 A	20240805	PEXP	Calculated Patent Term Expiry

Title: HYDRAULICALLY ACTUATED IMPACT APPARATUS

Abstract: An impact actuator **assembly** has a housing having a front, a rear, two opposite sides, a top and a bottom, and defining an actuator receiving area. A hydraulic actuator is fixedly mounted in the actuator receiving area, and provided with an actuator head, at least a portion **of** which extends forwardly **of** the actuator receiving area. A nosepiece is fixedly attached to the front **of** the housing at a distance from the actuator receiving area, defining a space between the nosepiece and the actuator head. The nosepiece is provided with at least one longitudinal hollow guide for receiving a tool pin, each **of** the tool pins having a rear and a front. The rear **of** the tool pin extends in the space between the nosepiece and the actuator head and the front **of** tool pin extends beyond the front **of** the housing. A plurality **of** hydraulic connectors are mounted on the housing and operatively connected to the actuator. When the actuator is actuated, the actuator head is engaged in reciprocating longitudinal movement to cyclically impact the tool pin.

Classifications:

International (IPC 8-9): E02F3/00 E02F3/40 E02F5/30 E21B1/00 E21C25/00 (Advanced/Invention); E02F3/00 E02F3/40 (Advanced/Non-invention); E02F3/00 E02F3/40 E02F5/00 E21B1/00 E21C25/00 (Core/Invention)
International (IPC 1-7): E02F3/00 E02F3/40
CPC: E02F3/405 E02F3/966 E02F3/967
European: E02F3/40G4 E02F3/96H
US: 299/37.1 299/37.100P
JP F-Term: 2D012 2D012/GC01
JP F-Index: E02F3/40/D



Family:

Publication number	Publication date	Application number	Application date
AU2005262223 AA	20060119	AU20050262223	20050708
AU2005262223 BB	20100325	AU20050262223	20050708
BRPI0513003 A	20080422	BR2005PI13003	20050708
CA2473403 AA	20060109	CA20042473403	20040709
CA2489670 AA	20060609	CA20042489670	20041209
CA2573075 AA	20070108	CA20052573075	20050708
CN101001995 A	20070718	CN200580023084	20050708
EP1774105 A1	20070418	EP20050768136	20050708
IN03860KN2006 A	00000000	IN2006KN03860	20061220
JP2008505264 T2	20080221	JP20070519585T	20050708
KR20070045151 A	20070502	KR20067026750	20061219
MXPA06015116 A1	20070509	MX2006PA15116	20050708
NZ551949 A	20090731	NZ20050551949	20050708
RU2006143034 A	20080820	RU20060143034	20050708
RU2395643 C2	20100727	RU20060143034	20050708
US2006017313 AA	20060126	US20050176683	20050708
WO06005168 A1	20060119	WO2005CA01063	20050708

Priority:

CA20042473403 20040709 CA20042489670 20041209 CA20052573075 20050708
 WO2005CA01063 20050708

Probable Assignee: POWER TECH INC CORP

Assignee(s): (std): PAUEHR TEKH CORP INK SA SA ; POWER TECH CORP INC

Assignee(s): POWER TECH INC CORP ; PAUEHR TEKH KORPOREJSHN INK SA SA ; GAGNON PIERRE ; MURRAY CAROL

Inventor(s): (std): CAROL GAGNON PIERRE MURRAY ; GAGNON P ERRE ; GAGNON PIERRE ; MJURREJ KEHROL ; MURRAY CAROL

Inventor(s): PIERRE GAGNON ; GAGNON PIERRE MURRAY CAROL ; CAROL MURRAY

Agent(s): FB RICE PTY LTD ; FB RICE ; ROBIC ; LOWE HAUPTMAN GILMAN AND BERNER LLP

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GU HR HU ID IE IL IN IS IT JP KE KG KM KP KR KZ LC LI LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2005262223 AA	20060119	LSPB	+	published / reissued	
AU2005262223 BB	20100325	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2005262223 BB	20110203	LSLE	-MK4	APPLICATION LAPSED SECTION 142(2)(D) - NO CONTINUATION FEE PAID FOR THE APPLICATION	
AU2005262223 BB	20250708	PEXP		Calculated Patent Term Expiry	
BRPI0513003 A	20080422	LSPB	+	published / reissued	

BRPI0513003 A	20120515	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	TEXT : REFERENTE A 7A ANUIDADE.
BRPI0513003 A	20121009	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	TEXT : REFERENTE AO DESPACHO 8.6 PUBLICADO NA RPI 2158 DE 15/05/2012.
CA2473403 AA	20060109	LSPB	+	published / reissued	
CA2473403 AA	20061012	LSLE	-FZDE	DEAD	
CA2489670 AA	20060609	LSPB	+	published / reissued	
CA2489670 AA	20070312	LSLE	-FZDE	DEAD	
CA2573075 AA	20070108	LSPB	+	published / reissued	
CA2573075 AA	20110708	LSLE	-FZDE	DEAD	
CN101001995 A	20070718	LSPB	+	published / reissued	
CN101001995 A	20070718	LSPB	+C06	PUBLICATION	
CN101001995 A	20110713	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
EP1774105 A1	20070418	LSPB	+	published / reissued	
EP1774105 A1	20070418	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20070104
EP1774105 A1	20110907	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20110201
IN03860KN2006 A	00000000	LSPB	+	published / reissued	
JP2008505264 T2	20080221	LSPB	+	published / reissued	
JP2008505264 T2	20080516	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	TEXT : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20080515
JP2008505264 T2	20100513	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20100512
JP2008505264 T2	20110310	LSRV	-A02	DECISION OF REFUSAL	TEXT : JAPANESE INTERMEDIATE CODE: A02 EFFECTIVE DATE : 20110309
KR20070045151 A	20070502	LSPB	+	published / reissued	
KR20070045151 A	20100426	LSES	A201	REQUEST FOR EXAMINATION	
KR20070045151 A	20120313	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR20070045151 A	20120920	LSRV	-E601	DECISION TO REFUSE APPLICATION	
MXPA06015116 A1	20070509	LSPB	+	published / reissued	
NZ551949 A	20090731	LSPB	+	published / reissued	
NZ551949 A	20091127	LSGT	+PSEA	PATENT SEALED	
NZ551949 A	20100430	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	
NZ551949 A	20130125	LSLE	-LAPS	PATENT LAPSED	
RU2006143034 A	20080820	LSPB	+	published / reissued	
RU2395643 C2	20100727	LSGT	+	granted / extensions (spc, cpc, pte)	
RU2395643 C2	20120510	LSLE	-MM4A	THE PATENT IS INVALID DUE TO NON-PAYMENT OF FEES	EFFECTIVE DATE : 20110709
RU2395643 C2	20250708	PEXP		Calculated Patent Term Expiry	
US2006017313 AA	20060126	LSPB	+	published / reissued	
US2006017313 AA	20050819	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : POWER TECH CORPORATION INC., CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:GAGNON, PIERRE; MURRAY, CAROL; REEL/FRAME:016656/0199 EFFECTIVE DATE : 20050801
US2006017313 AA	20100927	LSWD	-ABD2	Abandoned -- Failure to Pay Issue Fee	

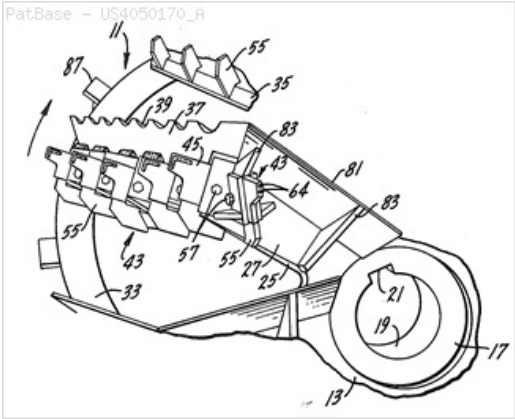
WO06005168 A1	20060119	LSPB	+	published / reissued	
WO06005168 A1	20061127	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2005262223 COUNTRY OF REF DOCUMENT : AU
WO06005168 A1	20061208	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 551949 COUNTRY OF REF DOCUMENT : NZ
WO06005168 A1	20061219	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 1020067026750 COUNTRY OF REF DOCUMENT : KR
WO06005168 A1	20061219	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : PA/A/2006/015116 COUNTRY OF REF DOCUMENT : MX
WO06005168 A1	20061220	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 3860/KOLNP/2006 COUNTRY OF REF DOCUMENT : IN
WO06005168 A1	20061221	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2005262223 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20050708 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO06005168 A1	20061221	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2005262223 COUNTRY OF REF DOCUMENT : AU
WO06005168 A1	20061225	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2007519585 COUNTRY OF REF DOCUMENT : JP
WO06005168 A1	20070104	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2005768136 COUNTRY OF REF DOCUMENT : EP
WO06005168 A1	20070108	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2573075 COUNTRY OF REF DOCUMENT : CA
WO06005168 A1	20070108	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 200580023084.X COUNTRY OF REF DOCUMENT : CN
WO06005168 A1	20070110	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO06005168 A1	20070110	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	TEXT : DE
WO06005168 A1	20070209	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2006143034 COUNTRY OF REF DOCUMENT : RU
WO06005168 A1	20070418	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2005768136 COUNTRY OF REF DOCUMENT : EP
WO06005168 A1	20080422	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : PI0513003 COUNTRY OF REF DOCUMENT : BR

Title: Dredge cutter head

Abstract: A cutter head for a suction dredge which is constructed of simplified wearing parts and strength members which may be easily assembled and replaced. The cutter includes a circular front plate mounted on a hub. Portions of the circular front plate are cut away to form a plurality of spokes extending radially outwardly of the hub. Struts extend between the circular plate and a back ring having a greater radius than the spokes to form a truncated conical cutter head. Blades are connected to the struts and are inclined in the direction of rotation of cutter head. A plurality of inclined lifter plates are attached to the circular front plate on the rear side thereof. Each lifter plate is aligned with and extends rearwardly from a cut away portion of the circular front plate. Scoops are mounted on the front side of the circular front plate and each scoop forms a forward extension of an inclined lifter plate. Cutting tooth assemblies are attached to and are positioned along the struts. The teeth extend radially to the longitudinal axis of the cutter head and project outwardly beyond the blades. Each cutter tooth is positioned in a socket mounted on a strut. Each tooth is held in its socket by a removable fastener extending through aligned openings in the socket and in the tooth. A tooth backup member engages the trailing edge of each tooth to absorb forces exerted against the tooth during digging operations.

Classifications:

International (IPC 8-9): E02F3/92 E02F9/28 (Advanced/Invention);
E02F3/88 E02F9/28 (Core/Invention)
International (IPC 1-7): E02F3/92
CPC: E02F3/9225 E02F9/285
European: E02F3/92M4 E02F9/28A4
US: 175/426 37/328 37/450



Family:

Publication number	Publication date	Application number	Application date
CA1046092 A1	19790109	CA19770270899	19770202
US4050170 A	19770927	US19760658245	19760217

Priority:

US19760658245 19760217

Probable Assignee:	PROEHL NORMAN P
Assignee(s): (std):	PROEHL NORMAN P
Inventor(s): (std):	PROEHL NORMAN P

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US4050170 A	19770927	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: Reversible tooth for earth digging equipment

Abstract: 875,235. Ground augers; earth-excavating equipment. PETERSEN, G. A. M. March 2, 1959, No. 7195/59. Classes 68(1) and 85. A reversible tooth for earth digging equipment comprises a tooth 11 secured to the surface 18 of a step cut on the cutter body 13 by a coach bolt 57. The shank of the tooth is slotted to take the square under the head of the bolt and has three further keyways 41, 41, 42 which engage corresponding keys 21, 21, 22 on the cutter body. The key 22 is rectangular with vertical sides and the keys 21 have sloping sides. of which that one 52, nearer to the cutter tip makes an angle of 15 degrees with the surface 18 and the other face 51 makes an angle of 45 degrees. When the cutter is clamped in position it is engaged by the faces 17 and 18 as well as by the keys. To reverse the cutter the nut 58 is slackened until the keys can be disengaged from the keyways and the cutter may then be withdrawn. In a modification (Fig. 5) the keys 21 and 22 are replaced by keys 61 and 62 projecting into the slot 34. The upper and lower surfaces of the tooth and the stop on the cutter body may be knurled. In a second modification (Fig. 8 there are no keys but the slot is retained and the tooth 72 is tapered. The stop 76 in the cutter body is formed at the same angle so that the tooth is located by the face 76, the wall 74 and the square 56 under the head of the coach bolt 57. Figs 10-12 (not shown) illustrate a tooth which employs the same method of clamping but in which the cutting edge of the tooth is suitably shaped for a trenching machine. In a third modification (Fig. 15) the tongues formed by the slot 34b fit into grooves 99 machined in the cutter body 13c and are gripped by resilient inserts 97. To enable the tooth to be driven out it may have projections 90 or the slot 34 b may be extended to enable a drift to be inserted. In a fourth modification (Figs. 19 and 23) the tongues 133 on the tooth, formed by the slot 129 decrease in thickness towards the slot and fit correspondingly tapered grooves 111a and 111b in the cutter body. A resilient insert 123 is contained in the central web 112 and is deformed by the inside surfaces 136 of the tongues as the tooth is inserted. A depression 137 on each side of the tooth creates a shoulder 138 by which the tooth can be driven out. In a fifth modification (Fig. 27) the tooth 11d has recesses 132 similar to those shown in Fig. 19 and the cutter body has co-operating recesses 160 formed in the upper and lower walls of each groove, so that locking pegs 162 can be inserted when the tooth is in position. In order to protect the cutter body from wear a renewable sheet metal cap 151 (Fig. 23) may be used.

Classifications:

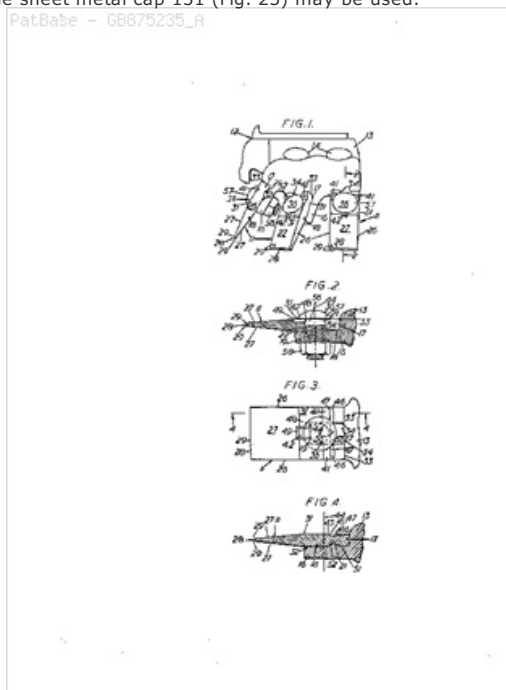
International (IPC 8-9): E02F9/28 (Advanced/Invention);
E02F9/28 (Core/Invention)

International (IPC 1-7): E02F9/28

CPC: E02F9/2841

European: E02F9/28A2C2

PatBase - GB875235_A



Family:

Publication number	Publication date	Application number	Application date
GB875235 A	19610816	GB19590007195	19590302

Priority:

GB19590007195 19590302

Probable Assignee:

GERALD ALGER MONROE PETERSEN

Assignee(s): (std):

GERALD ALGER MONROE PETERSEN

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
GB875235 A	19610816	LSGT	+	granted / extensions (spc, cpc, pte)	
GB875235 A	19790302	PEXP		Calculated Patent Term Expiry	

Title: Pitch stop **assembly** for power shovels

Abstract: In a power shovel including a base unit; a support unit rotatably mounted on the base unit; a front end **assembly** including a stiffleg pivotally connected at a lower end thereof to the support unit, a dipper handle operatively connected to the stiffleg, a dipper pivotally connected to the dipper handle, a hoist frame pivotally connected to the stiffleg, and a hoist link pivotally connected at the ends thereof to the hoist frame and the dipper, the dipper handle, dipper, hoist link and hoist frame defining a four bar linkage; a crowd system operatively interconnecting the support unit and the front end **assembly**; a hoist system operatively interconnecting the support unit and the front end **assembly**; and control means mounted on the support means for operating the crowd and hoist systems to crowd, hoist, lower and retract the dipper, a pitch stop **assembly** comprising a collapsible tension member interconnecting the hoist link and dipper **of** the front end **assembly** for limiting the angular displacement **of** the dipper relative to the dipper handle when the dipper is caused to pitch upwardly.

Classifications:

International (IPC 8-9): E02F3/30 E02F9/14 (Advanced/Invention);

E02F3/42 (Advanced/Non-invention);

E02F3/28 E02F9/14 (Core/Invention);

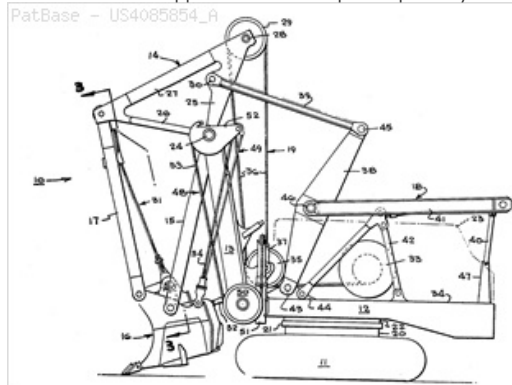
E02F3/42 (Core/Non-invention)

International (IPC 1-7): E02F3/32 E02F3/42 E02F3/75

CPC: E02F3/30 E02F3/308 E02F3/427 E02F9/14

European: E02F3/30 E02F3/30P E02F3/42M E02F9/14

US: 214/138R 414/694 414/719



Family:

Publication number	Publication date	Application number	Application date
JP1239063 C3	19841113	JP19760101040	19760823
JP52045105 A2	19770409	JP19760101040	19760823
JP59012815 B4	19840326	JP19760101040	19760823
US4085854 A	19780425	US19750619453	19751003

Priority:

US19750619453 19751003

Probable Assignee: MARION POWER SHOVEL CO

Assignee(s): (std): MARION POWER SHOVEL CO

Assignee(s): MARION POWER SHOVEL CO INC ; INDRESCO INC ; MARION PAWAA SHABERU CO INC ; MARION PAWAA SHIYABERU CO INC

Inventor(s): (std): BARON GEORGE B ; JIYOOJI BII BARON

Inventor(s): JOOJI BII BARON

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
JP1239063 C3	19841113	LSGT	+	granted / extensions (spc, cpc, pte)	
JP52045105 A2	19770409	LSPB	+	published / reissued	
JP59012815 B4	19840326	LSPB	+	published / reissued	
US4085854 A	19780425	LSGT	+	granted / extensions (spc, cpc, pte)	
US4085854 A	19921120	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : INDRESCO, INC., TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:DRESSER INDUSTRIES, INC.; REEL/FRAME:006334/0060 EFFECTIVE DATE : 19920731

Title: Excavating tooth **assembly**

Abstract: An excavating tooth **assembly** including an adapter, a point equipped with rearwardly projecting tongues, and locking means including a vertical pin external **of** the adapter nose held in place by a shrouded spring loaded plug disposed perpendicularly to the line **of** mounting the point on the adapter, the pin having arcuate front and back surfaces for wedging engagement with laterally projecting ears on the nose and a laterally projecting lug on a point tongue.

Classifications:

International (IPC 8-9): E02F3/40 E02F9/28

E21C37/18 (Advanced/Invention);

E02F3/40 E02F9/28 (Core/Invention);

E02F (Subclass/Invention)

International (IPC 1-7): A61C7/00 A61C8/00 E02F3/40 E02F3/58

E02F9/28 E21C37/18

CPC: E02F3/40 E02F9/2841

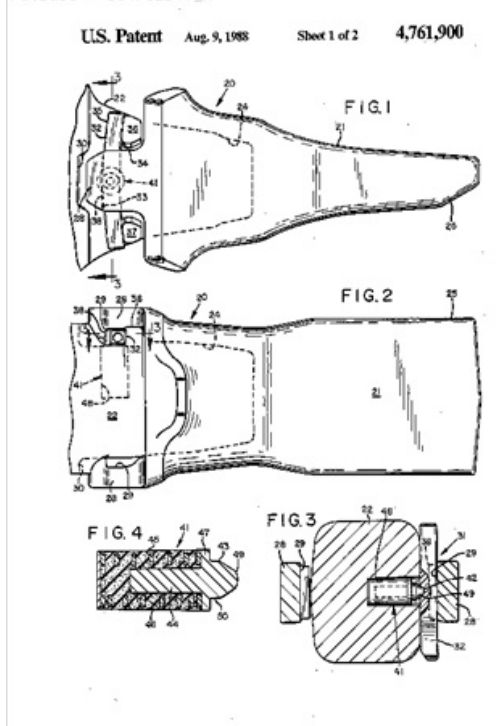
European: E02F3/40 E02F9/28A2C2

US: 37/456 37/457 37/459

JP F-Term: 2D015 2D015/JA04 2D065 2D065/DA17

JP F-Index: E02F9/28/A E21C37/18

PatBase - US4761900_R



Family:

Publication number	Publication date	Application number	Application date
AT60637 E	19910215	AT19870310531T	19871130
AU198782090 A1	19880609	AU19870082090	19871204
AU587734 B2	19890824	AU19870082090	19871204
BRPI8706543 A	19880712	BR1987PI06543	19871203
CA1279679 A1	19910129	CA19870553168	19871130
CN2030215 U	19890104	CN19872017497U	19871204
DE3767844 D1	19910307	DE19873767844	19871130
DK168092 B1	19940207	DK19870006367	19871203
DK636787 A	19880605	DK19870006367	19871203
DK636787 A0	19871203	DK19870006367	19871203
EP0270325 A1	19880608	EP19870310531	19871130
EP0270325 B1	19910130	EP19870310531	19871130
ES2020282 B3	19910801	ES19870310531T	19871130
FI875344 A	19880605	FI19870005344	19871203
FI875344 A0	19871203	FI19870005344	19871203
FI88531 B	19930215	FI19870005344	19871203
FI88531 C	19930525	FI19870005344	19871203
GR3001409 T3	19920925	GR19910400069T	19910131
IN171108 A	19920718	IN1987DE01028	19871201
JP1897838 C3	19950123	JP19870304686	19871203
JP6019150 B4	19940316	JP19870304686	19871203
JP63142131 A2	19880614	JP19870304686	19871203
KR19880007882 A	19880829	KR19870013827	19871204
KR970001728 B1	19970214	KR19870013827	19871204
MX167672 B	19930405	MX19870009624	19871204
NO174398 B	19940117	NO19870005042	19871203
NO174398 C	19940427	NO19870005042	19871203
NO875042 A	19880606	NO19870005042	19871203
NO875042 A0	19871203	NO19870005042	19871203
NZ222783 A	19890727	NZ19870222783	19871202
PH25655 A	19910821	PH19890039089	19890811
PH26932 A	19921203	PH19870036176	19871204
PT86277 A	19890117	PT19870086277	19871203
PT86277 B	19930831	PT19870086277	19871203
SU1641197 A3	19910407	SU19874203880	19871203
TR24912 A	19920721	TR19890000676	19890821
TR27127 A	19941109	TR19870000486	19870713
US4761900 A	19880809	US19860937982	19861204
US4811505 A	19890314	US19880155892	19880216

US4965945 A	19901030	US19890309309	19890210
USRE33042 E	19890905	US19880254259	19881006
ZA8709116 A	19880606	ZA19870009116	19871204

Priority:

US19860937982 19861204 CA19870553168 19871130 EP19870310531 19871130
US19880155892 19880216 US19880254259 19881006 US19890309309 19890210

Probable Assignee: ESCO CORP

Assignee(s): (std): ESCO CO ; ESCO CORP ; NEWESCO CORP ; NYUESKO CORP FA

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Inventor(s): ROBERT K EMRIKH US ; ROBAATO KEI EMURITSUCHI

Agent(s): CALLINANS; FISHER ADAMS KELLY CALLINANS; SPRUSON AND FERGUSON; FINLAYSON AND SINGLEHURST

Designated states: AT BE CH DE ES FR GB GR IT LI NL SE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AT60637 E	19910215	LSGT	+	granted / extensions (spc, cpc, pte)	
AT60637 E	19911215	LSPB	+UEP	PUBLICATION OF TRANSLATION OF EUROPEAN PATENT SPECIFICATION	
AT60637 E	20080215	LSLE	-EELA	CANCELLED DUE TO LAPSE OF TIME	
AT60637 E	20071130	PEXP		Calculated Patent Term Expiry	
AU198782090 A1	19880609	LSPB	+	published / reissued	
AU587734 B2	19890824	LSGT	+	granted / extensions (spc, cpc, pte)	
AU587734 B2	20030220	LSLI	GD	LICENCE REGISTERED	PARTYTYPE : LICENSEE LICENSEE : BRADKEN MINING SPV PTY LTD
AU587734 B2	20071204	PEXP		Calculated Patent Term Expiry	
BRPI8706543 A	19880712	LSPB	+	published / reissued	
BRPI8706543 A	20080729	LSLE	-B21A	EXPIRY ACC. ART. 78, ITEM I OF IPL- EXPIRY OF THE TERM OF PROTECTION	TEXT : PATENTE EXTINTA EM 03/12/2002
CA1279679 A1	19910129	LSGT	+	granted / extensions (spc, cpc, pte)	
CA1279679 A1	20080129	LSLE	-MKLA	LAPSED	
CA1279679 A1	20121205	LSRE	+MKEC	EXPIRY (CORRECTION)	
CA1279679 A1	20080129	PEXP		Calculated Patent Term Expiry	
CN2030215 U	19890104	LSPB	+	published / reissued	
CN2030215 U	19890104	LSPB	+C06	PUBLICATION	
CN2030215 U	19891115	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN2030215 U	19960612	LSLE	-C17	CESSATION OF PATENT RIGHT	
DE3767844 D1	19920305	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DK168092 B1	19940207	LSGT	+	granted / extensions (spc, cpc, pte)	
DK168092 B1	19940207	LSGT	+B1	PATENT GRANTED (LAW 1993)	
DK168092 B1	20071227	LSLE	-PUP	PATENT EXPIRED	
DK168092 B1	20071203	PEXP		Calculated Patent Term Expiry	
DK636787 A	19880605	LSPB	+	published / reissued	
EP0270325 A1	19880608	LSPB	+	published / reissued	
EP0270325 A1	19880921	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19880722

EP0270325 A1	19890913	LSSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 19890728
EP0270325 A1	19901010	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : ESCO CORPORATION
EP0270325 A1	19920122	LSGT	+26N	NO OPPOSITION FILED	
EP0270325 A1	19940716	LSAS	REG	REFERENCE TO A NATIONAL CODE	PARTYTYPE : OWNER REF COUNTRY CODE : ES OWNER : ESCO CORPORATION REF LEGAL EVENT CODE : PC2A
EP0270325 A1	19950131	LSGT	+EAL	SE: EUROPEAN PATENT IN FORCE IN SWEDEN	REF COUNTRY CODE : EP TEXT : 87310531.6
EP0270325 A1	19970919	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL PAYMENT DATE : 19970919 YEAR OF FEE PAYMENT : 11
EP0270325 A1	19990601	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON- PAYMENT OF DUE FEES LAPSED DATE : 19990601
EP0270325 A1	19990802	LSLE	-NLV4	NL: LAPSED OR ANULLED DUE TO NON- PAYMENT OF THE ANNUAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 19990601
EP0270325 A1	20000521	LSLE	-EUG	SE: EUROPEAN PATENT HAS LAPSED	REF COUNTRY CODE : EP
EP0270325 A1	20051012	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR PAYMENT DATE : 20051012 YEAR OF FEE PAYMENT : 19
EP0270325 A1	20061102	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : AT PAYMENT DATE : 20061102 YEAR OF FEE PAYMENT : 20
EP0270325 A1	20061117	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20061117 YEAR OF FEE PAYMENT : 20
EP0270325 A1	20061122	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20061122 YEAR OF FEE PAYMENT : 20
EP0270325 A1	20061124	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE PAYMENT DATE : 20061124 YEAR OF FEE PAYMENT : 20
EP0270325 A1	20061124	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES PAYMENT DATE : 20061124 YEAR OF FEE PAYMENT : 20
EP0270325 A1	20061124	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : CH PAYMENT DATE : 20061124 YEAR OF FEE PAYMENT : 20
EP0270325 A1	20061130	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT PAYMENT DATE : 20061130 YEAR OF FEE PAYMENT : 20
EP0270325 A1	20061220	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE PAYMENT DATE : 20061220 YEAR OF FEE PAYMENT : 20
EP0270325 A1	20070102	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20070102 YEAR OF FEE PAYMENT : 20
EP0270325 A1	20071219	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : PE20

EP0270325 A1	20071231	LSLE	-BE20	BE: PATENT EXPIRED	PARTYTYPE : OWNER REF COUNTRY CODE : EP OWNER : *ESCO CORP. EFFECTIVE DATE : 20071130
EP0270325 A1	20071231	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : PL
EP0270325 A1	20080216	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : ES REF LEGAL EVENT CODE : FD2A EFFECTIVE DATE : 20071201
EP0270325 A1	20080219	LSLE	-EUG	SE: EUROPEAN PATENT HAS LAPSED	REF COUNTRY CODE : EP
EP0270325 A1	20080430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : ES NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF EXPIRATION OF PROTECTION LAPSED DATE : 20071201
EP0270325 A1	20080430	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF EXPIRATION OF PROTECTION LAPSED DATE : 20071129
EP0270325 A1	20081031	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GR NOTIFICATIONOFLAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20070604
EP0270325 B1	19910130	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0270325 B1	20071130	PEXP		Calculated Patent Term Expiry	
ES2020282 B3	19910801	LSGT	+	granted / extensions (spc, cpc, pte)	
ES2020282 B3	20071130	PEXP		Calculated Patent Term Expiry	
FI875344 A	19880605	LSPB	+	published / reissued	
FI875344 A	19930118	LSPB	BB	PUBLICATION OF EXAMINED APPLICATION	
FI88531 B	19930215	LSGT	+	granted / extensions (spc, cpc, pte)	
FI88531 C	19930525	LSGT	+	granted / extensions (spc, cpc, pte)	
FI88531 C	19930621	LSAS	PC	TRANSFER OF ASSIGNMENT OF PATENT	PARTYTYPE : OWNER OWNER : ESCO CORPORATION
FI88531 C	20040831	LSGT	+FG	PATENT GRANTED	PARTYTYPE : OWNER OWNER : ESCO CORPORATION
FI88531 C	20080121	LSLE	-MA	PATENT EXPIRED	
FI88531 C	20071203	PEXP		Calculated Patent Term Expiry	
GR3001409 T3	19920925	LSGT	+	granted / extensions (spc, cpc, pte)	
GR3001409 T3	20110131	PEXP		Calculated Patent Term Expiry	
IN171108 A	19920718	LSPB	+	published / reissued	
JP1897838 C3	19950123	LSGT	+	granted / extensions (spc, cpc, pte)	
JP1897838 C3	20071203	PEXP		Calculated Patent Term Expiry	
JP6019150 B4	19940316	LSPB	+	published / reissued	
JP6019150 B4	20040309	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP6019150 B4	20050308	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250
JP6019150 B4	20060307	LSFE	+R250	RECEIPT OF ANNUAL FEES	TEXT : JAPANESE INTERMEDIATE CODE: R250

JP6019150 B4	20070316	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP63142131 A2	19880614	LSPB	+	published / reissued	
KR19880007882 A	19880829	LSPB	+	published / reissued	
KR970001728 B1	19970214	LSGT	+	granted / extensions (spc, cpc, pte)	
KR970001728 B1	19920713	LSES	A201	REQUEST FOR EXAMINATION	
KR970001728 B1	19960628	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR970001728 B1	19970120	LSPB	G160	DECISION TO PUBLISH PATENT APPLICATION	
KR970001728 B1	19970428	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR970001728 B1	19970611	LSGT	+GRNT	WRITTEN DECISION TO GRANT	
KR970001728 B1	20060210	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20060210 YEAR OF FEE PAYMENT : 10
KR970001728 B1	20070215	LSLE	-LAPS	LAPSE DUE TO UNPAID ANNUAL FEE	
KR970001728 B1	20120214	PEXP		Calculated Patent Term Expiry	
MX167672 B	19930405	LSGT	+	granted / extensions (spc, cpc, pte)	
MX167672 B	20070405	PEXP		Calculated Patent Term Expiry	
NO174398 B	19940117	LSPB	+	published / reissued	
NO174398 C	19940427	LSGT	+	granted / extensions (spc, cpc, pte)	
NO174398 C	20080128	LSLE	-MK1K	PATENT EXPIRED	
NO174398 C	20071203	PEXP		Calculated Patent Term Expiry	
NO875042 A	19880606	LSPB	+	published / reissued	
NZ222783 A	19890727	LSPB	+	published / reissued	
PH25655 A	19910821	LSGT	+	granted / extensions (spc, cpc, pte)	
PH25655 A	20080821	PEXP		Calculated Patent Term Expiry	
PH26932 A	19921203	LSGT	+	granted / extensions (spc, cpc, pte)	
PH26932 A	20091203	PEXP		Calculated Patent Term Expiry	
PT86277 A	19890117	LSPB	+	published / reissued	
PT86277 B	19930831	LSGT	+	granted / extensions (spc, cpc, pte)	
PT86277 B	19930831	LSGT	+FG3A	PATENT GRANTED, DATE OF GRANTING	EFFECTIVE DATE : 19930208
PT86277 B	19930930	LSAS	PD3A	CHANGE OF PROPRIETORSHIP	
PT86277 B	20070824	LSLE	-MM4A	ANNULMENT/LAPSE DUE TO NON-PAYMENT OF FEES, SEARCHED AND EXAMINED PATENT	TEXT : LAPSE DUE TO NON- PAYMENT OF FEES EFFECTIVE DATE : 20070808
PT86277 B	20080222	LSLE	-MM4A	ANNULMENT/LAPSE DUE TO NON-PAYMENT OF FEES, SEARCHED AND EXAMINED PATENT	TEXT : MAXIMUM VALIDITY LIMIT REACHED EFFECTIVE DATE : 20080208
PT86277 B	20080831	PEXP		Calculated Patent Term Expiry	
SU1641197 A3	19910407	LSGT	+	granted / extensions (spc, cpc, pte)	
TR24912 A	19920721	LSGT	+	granted / extensions (spc, cpc, pte)	
TR27127 A	19941109	LSGT	+	granted / extensions (spc, cpc, pte)	
US4761900 A	19880809	LSGT	+	granted / extensions (spc, cpc, pte)	

US4761900 A	19870128	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ESCO CORPORATION, PORTLAND, OR., A CORP OF OR. OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:EMRICH, ROBERT K.; REEL/FRAME:004663/0913 EFFECTIVE DATE : 19861202
US4761900 A	19880607	LSGT	PAT1	Patented Case	
US4761900 A	19900509	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ESCO CORPORATION OLDPARTY : CHANGE OF NAME; ASSIGNOR:NEWESCO CORPORATION; REEL/FRAME:005285/0284 EFFECTIVE DATE : 19890526
US4811505 A	19890314	LSGT	+	granted / extensions (spc, cpc, pte)	
US4811505 A	19881130	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ESCO CORPORATION, A CORP. OF OREGON, OREGON OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:EMRICH, ROBERT K.; REEL/FRAME:004978/0273 EFFECTIVE DATE : 19880211
US4811505 A	19881130	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ESCO CORPORATION, PORTLAND, OREGON A CORP. OF OREG OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:EMRICH, ROBERT K.; REEL/FRAME:004978/0273 EFFECTIVE DATE : 19880211
US4811505 A	19890113	LSGT	PAT1	Patented Case	
US4811505 A	19900509	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ESCO CORPORATION OLDPARTY : CHANGE OF NAME; ASSIGNOR:NEWESCO CORPORATION; REEL/FRAME:005285/0284 EFFECTIVE DATE : 19890526
US4811505 A	19920729	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US4811505 A	19970316	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US4811505 A	19970527	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 19970319
US4811505 A	20180130	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US4965945 A	19901030	LSGT	+	granted / extensions (spc, cpc, pte)	
US4965945 A	19890327	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ESCO CORPORATION, PORTLAND, OR, A CORP. OF OR OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:EMRICH, ROBERT K.; REEL/FRAME:005032/0595 EFFECTIVE DATE : 19890202
US4965945 A	19900509	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ESCO CORPORATION OLDPARTY : CHANGE OF NAME; ASSIGNOR:NEWESCO CORPORATION; REEL/FRAME:005285/0284 EFFECTIVE DATE : 19890526
US4965945 A	19900828	LSGT	PAT1	Patented Case	
US4965945 A	19940329	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US4965945 A	19980327	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8

US4965945 A	20020416	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US4965945 A	20090210	PEXP		Calculated Patent Term Expiry	
USRE33042 E	19890522	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ESCO CORPORATION, A CORP. OF OREGON, OREGON OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:EMRICH, ROBERT K.; REEL/FRAME:005077/0531 EFFECTIVE DATE : 19890517
USRE33042 E	19890725	LSGT	PAT1	Patented Case	
USRE33042 E	19900509	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ESCO CORPORATION OLDPARTY : CHANGE OF NAME; ASSIGNOR:NEWESCO CORPORATION; REEL/FRAME:005285/0284 EFFECTIVE DATE : 19890526
USRE33042 E	19920617	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
USRE33042 E	19960119	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
USRE33042 E	20000127	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
ZA8709116 A	19880606	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA8709116 A	20071203	PEXP		Calculated Patent Term Expiry	

Title: LIGHTWEIGHT EXCAVATOR DIPPER WITH REPLACEABLE TOP AND BOTTOM SECTIONS

Abstract: An excavating dipper for use with power shovels, draglines and the like is fabricated from steel plate and is formed to have a separable bottom body member, which may be replaced when worn. The dipper is of lightweight steel plate construction fabricated into substantially all welded top and bottom body members. The plate members forming the side and bottom walls of the bottom body member are reinforced by longitudinal and transverse girth ribs.

Classifications:

International (IPC 8-9): E02F3/40 (Advanced/Invention);

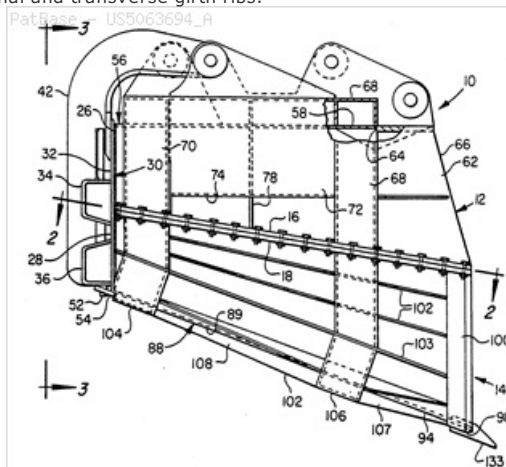
E02F3/40 (Core/Invention)

International (IPC 1-7): E02F3/28 E02F3/30 E02F3/40 E02F5/02

CPC: Y10S37/903 E02F3/40

European: E02F3/40

US: 37/103 37/118A 37/443 37/444 37/903 37/DIG.12 414/726



Family:

Publication number	Publication date	Application number	Application date
AU199186082 A1	19920813	AU19910086082	19911024
AU636515 B2	19930429	AU19910086082	19911024
CA2056880 AA	19920807	CA19912056880	19911203
CA2056880 C	20010529	CA19912056880	19911203
US5063694 A	19911112	US19910651163	19910206
ZA9108687 A	19920826	ZA19910008687	19911031

Priority:

US19910651163 19910206 CA19912056880 19911203

Probable Assignee: ARCH COAL INC

Assignee(s): (std): ATLANTIC RICHFIELD CO

Assignee(s): ATLANTIC RICHFIELD CO A CORP OF DE ; ATLANTIC RICHFIELD COMPANY ; MCCREARY ROBERT A JR ; PNC BANK NATIONAL ASSOCIATION ; WILMINGTON TRUST NATIONAL ASSOCIATION IN ITS CAPACITY ADMINISTRATIVE AGENT AND COLLATERAL AGENT FOR SECURED PARTIES AS ; ARCH COAL INC

Inventor(s): (std): MCCREARY JR ROBERT A ; ROBERT A MCCREARY JR ; MCCREARY ROBERT A JR

Inventor(s): MCCREARY ROBERT A

Agent(s): PHILLIPS ORMONDE FITZPATRICK; OSLER HOSKIN AND HARCOURT LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199186082 A1	19920813	LSPB	+	published / reissued	
AU636515 B2	19930429	LSGT	+	granted / extensions (spc, cpc, pte)	
AU636515 B2	20030529	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU636515 B2	20111024	PEXP		Calculated Patent Term Expiry	
CA2056880 AA	19920807	LSPB	+	published / reissued	
CA2056880 AA	19980511	LSSES	+EEER	EXAMINATION REQUEST	
CA2056880 C	20010529	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2056880 C	20031203	LSLE	-MKLA	LAPSED	
CA2056880 C	20111203	PEXP		Calculated Patent Term Expiry	
US5063694 A	19911112	LSGT	+	granted / extensions (spc, cpc, pte)	

US5063694 A	19910315	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ATLANTIC RICHFIELD COMPANY, LOS ANGELES, CA A CORP OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:MC CREARY, ROBERT A. JR.; REEL/FRAME:005635/0706 EFFECTIVE DATE : 19910131
US5063694 A	19911031	LSGT	PAT1	Patented Case	
US5063694 A	19950120	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5063694 A	19991012	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5063694 A	20000124	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ARCH COAL, INC., MISSOURI OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:ATLANTIC RICHFIELD COMPANY; REEL/FRAME:010557/0264 EFFECTIVE DATE : 19990624
US5063694 A	20030317	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US5063694 A	20050110	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : PNC BANK, NATIONAL ASSOCIATION, PENNSYLVANIA OLDPARTY : SECURITY AGREEMENT; ASSIGNOR:ARCH COAL, INC.; REEL/FRAME:015541/0001 EFFECTIVE DATE : 20041222
US5063694 A	20160624	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ARCH COAL, INC., MISSOURI OLDPARTY : RELEASE BY SECURED PARTY; ASSIGNOR:PNC BANK NATIONAL ASSOCIATION; REEL/FRAME:039003/0400 EFFECTIVE DATE : 20160623
US5063694 A	20161005	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : WILMINGTON TRUST, NATIONAL ASSOCIATION, IN ITS CAP OLDPARTY : PATENT SECURITY AGREEMENT; ASSIGNOR:ARCH COAL, INC.; REEL/FRAME:040234/0699 EFFECTIVE DATE : 20161005
US5063694 A	20110206	PEXP		Calculated Patent Term Expiry	
ZA9108687 A	19920826	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA9108687 A	20111030	PEXP		Calculated Patent Term Expiry	

Title: TOOTH AND GUIDING MEANS THEREFOR FOR EXCAVATING EQUIPMENT

Abstract: A tool, especially for earth-working implement, in which the tool which has a tooth section and a shank section has its shank section clamped within a tongue-equipped sleeve by screwbolt means extending through said tongue section and the adjacent shank section.

Classifications:

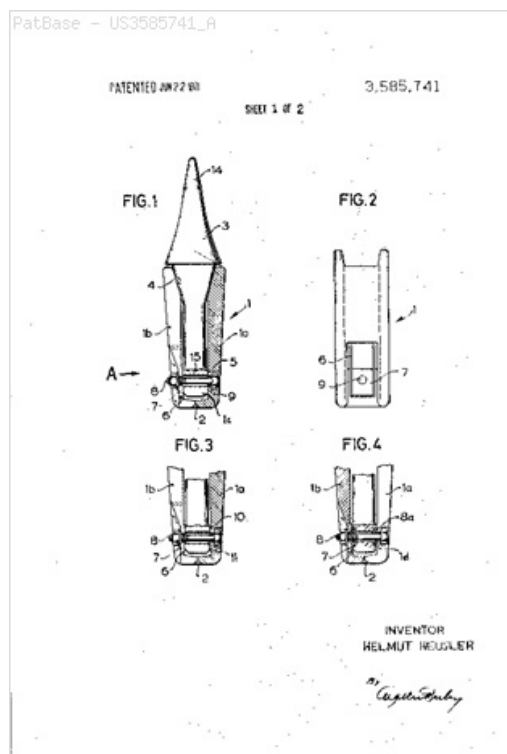
International (IPC 8-9): E02F9/28 (Advanced/Invention)

International (IPC 1-7): E02F9/28

CPC: E02F9/28 E02F9/2833

European: E02F9/28 E02F9/28A2C

US: 172/713 299/103 37/455



Family:

Publication number	Publication date	Application number	Application date
DE1634917 A1	19700813	DE19671634917	19670629
FR1570372 A	19690606	FR19680157359	19680701
FR95375 E	19700911	FR19680160384	19680724
GB1236763 A	19710623	GB19680031284	19680701
GB1239578 A	19710721		00000000
US3585741 A	19710622		00000000

Priority:

DE19671634917 19670629 DE19671634918 19670729

Probable Assignee: ORENSTEIN AND KOPPEL AG

Assignee(s): (std): ORENSTEIN AND KOPPEL AG

Assignee(s): ORENSTEIN AND KOPPEL AKTIENGESellschaft ; ORENSTEIN KOPPEL UND LUEBECKER MASCHINENBAU AKTIENGESellschaft

Inventor(s): (std): HEUSLER HELMUT

Inventor(s): HELMUT HEUSLER

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
DE1634917 A1	19700813	LSPB	+	published / reissued	
FR1570372 A	19690606	LSGT	+	granted / extensions (spc, cpc, pte)	
FR1570372 A	19750912	LSLE	-ST	NOTIFICATION OF LAPSE	
FR1570372 A	19880701	PEXP		Calculated Patent Term Expiry	
GB1236763 A	19710623	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1236763 A	19711103	LSGT	+PS	PATENT SEALED	
GB1236763 A	19750129	LSLE	-PLNP	PATENT LAPSED THROUGH NONPAYMENT OF RENEWAL FEES	
GB1236763 A	19880701	PEXP		Calculated Patent Term Expiry	
GB1239578 A	19710721	LSGT	+	granted / extensions (spc, cpc, pte)	
US3585741 A	19710622	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: DIGGING TOOTH AND HOLDER **ASSEMBLY**

Abstract: A digging tooth is removably received within a tooth receiving holder. The holder is attached to a digging apparatus, such as a trencher machine, for example. The holder includes a socket within which a shank of the tooth is removably received. The socket of the holder is in the form of an outwardly opening, elongated cavity which rearwardly tapers so that the cavity is progressively reduced in size. The tooth shank is rearwardly tapered and made complementary respective to the socket cavity, so that when the shank is telescopingly forced into the cavity, it is wedgedly held in assembled relationship and is easily removed therefrom, and the teeth therefore can subsequently be rapidly and easily replaced.

Classifications:

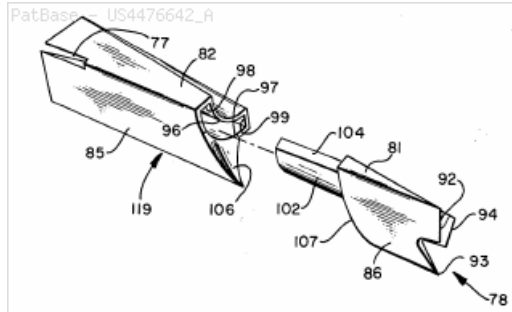
International (IPC 8-9): E02F9/28 (Advanced/Invention);
E02F9/28 (Core/Invention)

International (IPC 1-7): E02F9/28

CPC: E02F9/2866 E02F9/2816 E02F9/2858 Y10T29/49945
Y10T279/17957 Y10T403/62

European: E02F9/28A2 E02F9/28A6 E02F9/28B

US: 279/102 29/525 299/108 299/91 37/142R 37/191A 37/403
37/452 403/332



Family:

Publication number	Publication date	Application number	Application date
US4476642 A	19841016	US19820445396	19821130

Priority:

US19820445396 19821130

Probable Assignee: HEMPHILL IND INC

Assignee(s): (std): HEMPHILL IND INC

Assignee(s): HEMPHILL IND INC PO BOX 776 MANSFIELD TEXAS 76063 ; HEMPHILL INDUSTRIES INC ; HEMPHILL CHARLES W ; HEMPHILL IND

Inventor(s): (std): HEMPHILL CHARLES W

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US4476642 A	19841016	LSGT	+	granted / extensions (spc, cpc, pte)	
US4476642 A	19840730	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HEMPHILL INDUSTRIES, INC, P.O. BOX 776 MANSFIELD T OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:HEMPHILL, CHARLES W.; REEL/FRAME:004285/0814 EFFECTIVE DATE : 19840601
US4476642 A	19840815	LSGT	PAT1	Patented Case	
US4476642 A	19850625	LSRE	CC	CERTIFICATE OF CORRECTION	
US4476642 A	19870413	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HEMPHILL, CHARLES W., TEXAS OLDPARTY : ASSIGNS 20% OF ITS ENTIRE INTEREST; ASSIGNOR:HEMPHILL INDUSTRIES, INC.; REEL/FRAME:004699/0388 EFFECTIVE DATE : 19870318
US4476642 A	19870413	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HEMPHILL, CHARLES W., 1106 GREEN VALLEY LANE, DUNC OLDPARTY : ASSIGNS 20% OF ITS ENTIRE INTEREST; ASSIGNOR:HEMPHILL INDUSTRIES, INC.; REEL/FRAME:004699/0388 EFFECTIVE DATE : 19870318
US4476642 A	19880204	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US4476642 A	19921018	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US4476642 A	19921222	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 19921018
US4476642 A	20180123	LSLE	-PEX1	Patent Expired Due to	

NonPayment of
Maintenance Fees
Under 37 CFR 1.362

Title: TRENCHING CHAIN

Abstract: A link for a cutting chain comprises a reduced number of parts including a body section and a journal pin. A plurality of links can be joined to form the cutting chain. The cutting chain can be used on a trenching machine having a boom encircled by an endless chain. The link includes a top surface for the placement of cutting teeth. The link increases the freedom of cutting teeth placement, can extend the useful life of the cutting chain and the drive sprocket, can reduce thermal cracking and failure, and can resist lateral forces that would force the cutting chain from the boom.

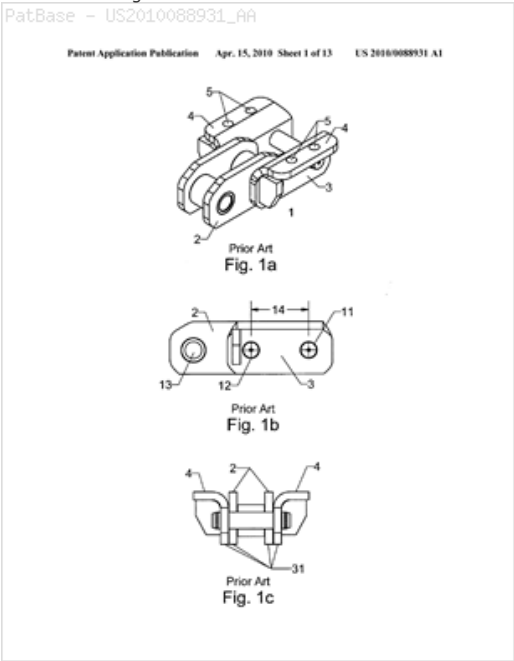
Classifications:

International (IPC 8-9): E02F3/08 E02F3/14 E02F5/06 E02F5/14 E02F9/28 (Advanced/Invention); E02F3/08 E02F5/02 E02F9/28 (Core/Invention)

CPC: E02F3/143 E02F9/2866

European: E02F3/14G E02F9/28B

US: 37/352 37/352P 37/465 37/465S



Family:

Publication number	Publication date	Application number	Application date
US2010088931 AA	20100415	US20090550358	20090829

Priority:

US20080104148P 20081009 US20090550358 20090829

Probable Assignee: TIME MACHINE INC

Assignee(s): (std): TIME MACHINE INC

Inventor(s): (std): EDMONSON WAYNE L ; LATCHAW MICHAEL W

Agent(s): JAMES R WILLIAMS

Legal status (INPADOC)

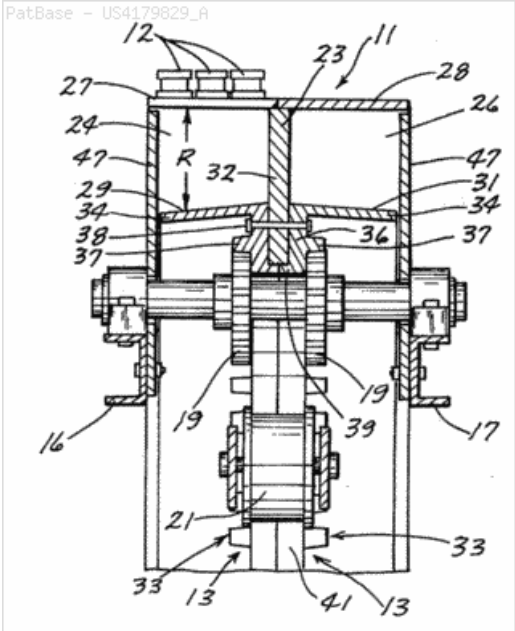
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Patent	Date recorded	Event group	Code	Event	Details
US2010088931 AA	20100415	LSPB	+	published / reissued	
US2010088931 AA	20090829	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : TIME MACHINE, INC.,PENNSYLVANIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:EDMONSON, WAYNE L.; LATCHAW, MICHAEL W.; REEL/FRAME:023167/0886 EFFECTIVE DATE : 20090819
US2010088931 AA	20150414	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	

Title: TRENCHING MACHINE

Abstract: A high speed trenching machine has a rotatable digging unit with a rim assembly symmetrically constructed relative to a flat center ring member and includes an outer peripheral spoil receiving section comprised of a pair of side by side annular channel ways open to opposite sides of the digging unit and formed in the outer peripheral side walls thereof with a series of circumferentially spaced digging teeth arranged in a staggered relation in operative association with respective spoil receiving inlets. The circumferential extent of an inlet is less than the radial dimension of a channel way, the inner peripheral side wall of which is inclined away from the outer peripheral side wall thereof in a direction toward the channel way open side. The inner peripheral channel side wall and a gear segment are of an integral unit construction with the units being identical and secured to opposite sides of the flat center ring member so that the gear segments form a complete ring gear on each side of the rim member inwardly of and within the transverse confines of the spoil receiving section.

Classifications:
International (IPC 8-9): E02F3/20 E02F3/24 E02F5/08 E02F9/28 (Advanced/Invention); E02F3/18 E02F5/02 (Advanced/Non-invention); E02F3/18 E02F5/02 E02F9/28 (Core/Invention); E02F5/02 (Core/Non-invention)
International (IPC 1-7): E02F5/08
CPC: E02F3/188 E02F3/20 E02F3/248 E02F9/2866 Y10S37/901
European: E02F3/18H E02F3/20 E02F3/24K E02F9/28B
US: 37/189 37/901 37/94



Family:

Publication number	Publication date	Application number	Application date
US4179829 A	19791225	US19770859796	19771212

Priority:

US19770859796 19771212

Probable Assignee: KINKADE FRANKLIN C
Assignee(s): (std): KINKADE FRANKLIN C
Inventor(s): (std): KINKADE FRANKLIN C

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US4179829 A	19791225	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: HYDRAULIC LOCKING MECHANISM FOR SECURING TOOTH CARRYING ADAPTERS TO LIPS **OF** EXCAVATING BUCKETS AND THE LIKE

Abstract: A connection for firmly securing an adapter for detachably carrying a replaceable digging tooth at its front end to a lip **of** an excavating container **of** excavating equipment. The adapter has an upper leg and a lower leg located proximate respective upper and lower surfaces **of** the lip. The connection has substantially aligned openings in the legs and the lip, and engagement sections **of** the adapter legs traverse the opening in the lip proximate and forward **of** an aft end thereof. A pressure applying unit, such as a hydraulic actuator, is arranged inside the opening and generates a generally horizontally acting force which draws the adapter and the lip towards each other. A stress member, which can be a C-clamp, is operatively coupled to the hydraulic actuator and resiliently deforms relative to its relaxed shape when it is subjected to the horizontally acting force. A spacer, such as a wedge, is inserted between the hydraulic actuator and the openings while the horizontally acting force resiliently deforms the stress member. The wedge is shaped so that upon a reduction or cessation **of** the horizontally acting force the stress member, e.g. the C-clamp, remains in the resiliently deformed state in which it draws the adapter and the lip towards each other and keeps them immovably secured to each other until the wedge can be withdrawn following a repressurization **of** the hydraulic actuator.

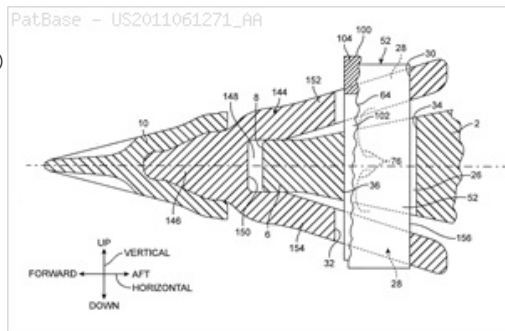
Classifications:

International (IPC 8-9): B23P11/00 B23P6/00 E02F3/40 E02F3/48 E02F3/60 E02F9/22 E02F9/28 F16B1/00 F16B2/00 (Advanced/Invention)

CPC: E02F9/2833 E02F9/2891 E02F9/2271 E02F9/2825 E02F9/2841 Y10T29/4973 Y10T29/49817 Y10T29/49863

European: E02F9/28A2B E02F9/28A2C2

US: 1/1 172/719 172/772 29/402.08 29/402.080S 29/426.2 29/446 37/411 37/411P 37/444 37/455 37/455S 37/457



Family:

Publication number	Publication date	Application number	Application date
AU2010219431 AA	20110331	AU20100219431	20100914
AU2010219431 BB	20120614	AU20100219431	20100914
AU2014268636 AA	20151210	AU20140268636	20140520
AU2014268636 BB	20171130	AU20140268636	20140520
CA2714471 AA	20110315	CA20102714471	20100908
CA2714471 C	20140902	CA20102714471	20100908
CA2912773 AA	20151117	CA20142912773	20140520
CL2010000976 A1	20110715	CL20100000976	20100914
CL2015003400 A1	20170113	CL20150003400	20151119
CL51920 B	20160209	CL20100000976	20100914
CN102041825 A	20110504	CN201010290790	20100915
CN102041825 B	20140226	CN201010290790	20100915
CN105579644 A	20160511	CN201480040285	20140520
US2011061271 AA	20110317	US20100881997	20100914
US2013318839 AA	20131205	US20130898454	20130520
US8464444 BB	20130618	US20100881997	20100914
US9249558 BB	20160202	US20130898454	20130520
WO14189979 A1	20141127	WO2014US38855	20140520

Priority:

US20090276786P 20090915 CA20102714471 20100908 US20100881997 20100914
US20130898454 20130520 WO2014US38855 20140520

Probable Assignee: ROBERT BIERWITH

Assignee(s): (std): BIERWITH ROBERT ; BIERWITH ROBERT S ; ROBERT BIERWITH

Assignee(s): ROBERT S BIERWITH ; BIERWITH ROBERT S563 CREEDON CIRCLEALAMEDACA94502US

Inventor(s): (std): BIERWITH ROBERT S

Inventor(s): BIERWITH ROBERT S563 CREEDON CIRCLEALAMEDACA94502US ; ROBERT S BIERWITH

Agent(s): SPRUSON AND FERGUSON; FETHERSTONHAUGH AND CO; SMART AND BIGGAR; VILLASECA; ESTUDIO FEDERICO VILLASECA Y CIA; KILPATRICK TOWNSEND AND STOCKTON LLP; OLSEN KINDON ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2010219431 AA	20110331	LSPB	+	published / reissued	
AU2010219431 BB	20120614	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2010219431 BB	20121011	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2010219431 BB	20150409	LSLE	-MK14	PATENT CEASED SECTION 143(A)	

(ANNUAL FEES NOT PAID) OR EXPIRED					
AU2010219431 BB	20300914	PEXP		Calculated Patent Term Expiry	
AU2014268636 AA	20151210	LSPB	+	published / reissued	
AU2014268636 BB	20171130	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2014268636 BB	20180329	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2014268636 BB	20340520	PEXP		Calculated Patent Term Expiry	
CA2714471 AA	20110315	LSPB	+	published / reissued	
CA2714471 AA	20100908	LSES	+EEER	EXAMINATION REQUEST	
CA2714471 C	20140902	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2714471 C	20300908	PEXP		Calculated Patent Term Expiry	
CA2912773 AA	20151117	LSPB	+	published / reissued	
CL2010000976 A1	20110715	LSPB	+	published / reissued	
CL2015003400 A1	20170113	LSPB	+	published / reissued	
CL51920 B	20160209	LSGT	+	granted / extensions (spc, cpc, pte)	
CL51920 B	20300914	PEXP		Calculated Patent Term Expiry	
CN102041825 A	20110504	LSPB	+	published / reissued	
CN102041825 A	20110504	LSPB	+C06	PUBLICATION	
CN102041825 B	20140226	LSGT	+	granted / extensions (spc, cpc, pte)	
CN102041825 B	20140226	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN102041825 B	20300915	PEXP		Calculated Patent Term Expiry	
CN105579644 A	20160511	LSPB	+	published / reissued	
CN105579644 A	20160511	LSPB	+C06	PUBLICATION	
US2011061271 AA	20110317	LSPB	+	published / reissued	
US2013318839 AA	20131205	LSPB	+	published / reissued	
US8464444 BB	20130618	LSGT	+	granted / extensions (spc, cpc, pte)	
US8464444 BB	20130529	LSGT	PAT1	Patented Case	
US8464444 BB	20161201	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US8464444 BB	20310215	PEXP		Calculated Patent Term Expiry (PTA 154 days)	
US9249558 BB	20160202	LSGT	+	granted / extensions (spc, cpc, pte)	
US9249558 BB	20150925	LSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US9249558 BB	20160113	LSGT	PAT1	Patented Case	
US9249558 BB	20330520	PEXP		Calculated Patent Term Expiry (a terminal disclaimer has been filed)	
WO14189979 A1	20141127	LSPB	+	published / reissued	
WO14189979 A1	20131205	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 201480040285.X COUNTRY OF REF DOCUMENT : CN
WO14189979 A1	20151117	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2912773 COUNTRY OF REF DOCUMENT : CA
WO14189979 A1	20151120	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO14189979 A1	20151210	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2014268636 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20140520 KIND CODE OF REF DOCUMENT : A

					DESIGNATED STATE(S) :
WO14189979 A1	20160608	LSNE	-122	EP: PCT APPLICATION NON- ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 14801324 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

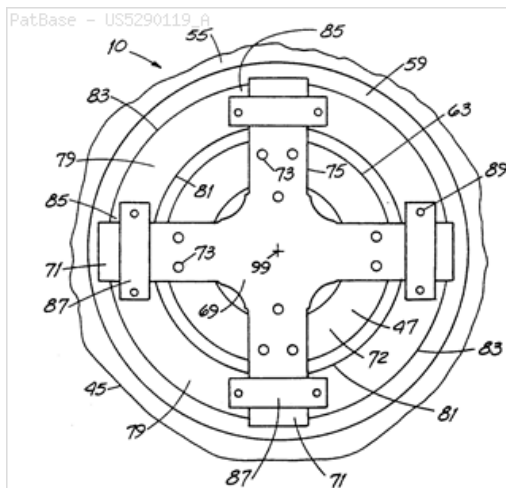
Title: APPARATUS AND METHOD FOR RETAINING A PIN

Abstract: The invention is an improvement in a machine having a housing and a pin received in the housing and coupled to a link-like movable part, either directly or with a bushing interposed between the part and the pin. The improvement comprises a retainer, preferably of cruciform-shape, which is attached to one end of the pin and has a plurality of radially-extending retaining arms. The improvement also includes a plurality of arc-shaped abutment members, each of which extends between and is in torque-absorbing contact with a pair of arms. The pin, a wearing component like the movable part or the bushing, is intended for eventual replacement when sufficiently worn. The pin is prevented from rotating with respect to the housing which is a non-wearing part expensive to replace or repair. The invention also includes a method for assembling machine components including a housing and a pin so that there is substantially zero clearance between each abutment member and a retainer arm. Relative pin-housing rotational or axial movement is prevented without the necessity of resorting to close-tolerance machining at the field erection site.

Classifications:**International (IPC 8-9):** E02F3/58 F16B21/09

F16C11/04 (Advanced/Invention);

E02F3/46 F16C11/04 (Core/Invention)

International (IPC 1-7): B23P11/00 B25G3/38 E02F E02F9/00 F16B F16B19/02 F16B21/09 F16B41/00 F16C F16C11/04 F16C33/02**CPC:** Y10T29/49696 Y10T29/49948 Y10T403/32893 Y10T403/32951 Y10T403/58 E02F3/58 F16C11/04 F16C2350/26**European:** E02F3/58 F16C11/04**US:** 29/525.02 29/525.1 29/898.07 37/397 384/439 403/154 403/161 403/315 403/405.1**Family:**

Publication number	Publication date	Application number	Application date
AU199344257 A1	19940203	AU19930044257	19930728
AU664635 B2	19951123	AU19930044257	19930728
CA2086044 AA	19940130	CA19922086044	19921222
CA2086044 C	19950307	CA19922086044	19921222
GB2269420 A1	19940209	GB19930013701	19930702
GB2269420 B2	19960221	GB19930013701	19930702
GB9313701 A0	19930818	GB19930013701	19930702
MX9304567 A1	19940228	MX19930004567	19930728
US5290119 A	19940301	US19920921846	19920729
US5377408 A	19950103	US19930130235	19931001
ZA9304743 A	19940124	ZA19930004743	19930701

Priority:

US19920921846 19920729 CA19922086044 19921222 US19930130235 19931001

Probable Assignee: HARNISCHFEGER TECHNOLOGIES INC**Assignee(s):** (std): HARNISCHFEGER CORP**Assignee(s):** HARNISCHFEGER TECHNOLOGIES INC ; KALLENBERGER HARVEY ; TOSSENBERGER EMERIC ; BANKERS TRUST CO ; BANKERS TRUST CO AGENT AS**Inventor(s):** (std): KALLENBERGER HARVEY ; KALLENBERGER HARVEY J ; TOSSENBERGER EMERIC ; TOSSENBERGER EMERIC G**Inventor(s):** EMERIC TOSSENBERGER ; HARVEY KALLENBERGER**Agent(s):** SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; RIDOUT AND MAYBEE LLP**Legal status (INPADOC)**

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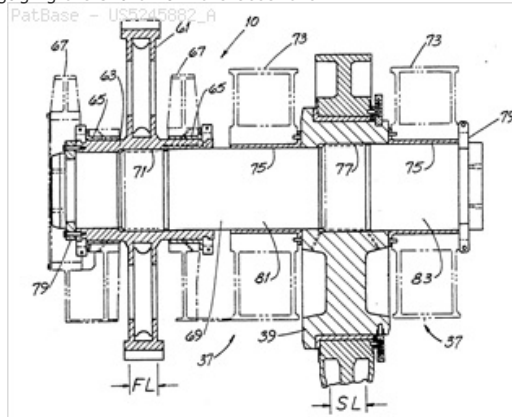
Patent	Date recorded	Event group	Code	Event	Details
AU199344257 A1	19940203	LSPB	+	published / reissued	
AU664635 B2	19951123	LSGT	+	granted / extensions (spc, cpc, pte)	
AU664635 B2	20130728	PEXP		Calculated Patent Term Expiry	
CA2086044 AA	19940130	LSPB	+	published / reissued	
CA2086044 C	19950307	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2086044 C	19921222	LSES	+EEER	EXAMINATION REQUEST	

CA2086044 C	20101222	LSLE	-MKLA	LAPSED		
CA2086044 C	20121222	PEXP		Calculated Patent Term Expiry		
GB2269420 A1	19940209	LSPB	+	published / reissued		
GB2269420 B2	19960221	LSGT	+	granted / extensions (spc, cpc, pte)		
GB2269420 B2	20010221	LSLE	-PCNP	PATENT CEASED THROUGH NON-PAYMENT OF RENEWAL FEE		EFFECTIVE DATE : 20000702
GB2269420 B2	20130702	PEXP		Calculated Patent Term Expiry		
MX9304567 A1	19940228	LSPB	+	published / reissued		
MX9304567 A1	19971013	LSGT	+FG	GRANT OR REGISTRATION		
MX9304567 A1	20041231	LSAS	PD	CHANGE OF PROPRIETORSHIP		PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC.
MX9304567 A1	20150227	LSLE	-MM	ANNULMENT OR LAPSE DUE TO NON-PAYMENT OF FEES		
US5290119 A	19940301	LSGT	+	granted / extensions (spc, cpc, pte)		
US5290119 A	19920729	LSAS	AS	ASSIGNMENT		PARTYTYPE : OWNER OWNER : HARNISCHFEGER CORPORATION, WISCONSIN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:TECHSTAFF, INC. A CORP. OF WI; REEL/FRAME:006230/0100 EFFECTIVE DATE : 19920619
US5290119 A	19920729	LSAS	AS	ASSIGNMENT		PARTYTYPE : OWNER OWNER : HARNISCHFEGER CORPORATION, WISCONSIN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNORS:KALLENBERGER, HARVEY J.; TOSSENBERGER, EMERIC G.; REEL/FRAME:006230/0102; SIGNING DATES FROM 19920714 TO 19920724
US5290119 A	19940217	LSGT	PAT1	Patented Case		
US5290119 A	19970811	LSFE	+FPAY	FEE PAYMENT		YEAR OF FEE PAYMENT : 4
US5290119 A	19980507	LSAS	AS	ASSIGNMENT		PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HARNISCHFEGER CORPORATION; REEL/FRAME:009168/0359 EFFECTIVE DATE : 19980504
US5290119 A	20010501	LSFE	+FPAY	FEE PAYMENT		YEAR OF FEE PAYMENT : 8
US5290119 A	20010712	LSAS	AS	ASSIGNMENT		PARTYTYPE : OWNER OWNER : BANKERS TRUST COMPANY, AS AGENT, NEW YORK OLDPARTY : GRANT OF PATENT SECURITY INTEREST; ASSIGNOR:HARNISCHFEGER TECHNOLOGIES, INC., A DELAWARE CORPORATION; REEL/FRAME:011958/0584 EFFECTIVE DATE : 20010629
US5290119 A	20050706	LSFE	+FPAY	FEE PAYMENT		YEAR OF FEE PAYMENT : 12
US5290119 A	20120729	PEXP		Calculated Patent Term Expiry		
US5377408 A	19950103	LSGT	+	granted / extensions (spc, cpc, pte)		
US5377408 A	19941222	LSGT	PAT1	Patented Case		
US5377408 A	19950314	LSRE	CC	CERTIFICATE OF CORRECTION		

US5377408 A	19980126	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5377408 A	19980507	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HARNISCHFEGER CORPORATION; REEL/FRAME:009168/0359 EFFECTIVE DATE : 19980504
US5377408 A	20010712	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANKERS TRUST COMPANY, AS AGENT, NEW YORK OLDPARTY : GRANT OF PATENT SECURITY INTEREST; ASSIGNOR:HARNISCHFEGER TECHNOLOGIES, INC., A DELAWARE CORPORATION; REEL/FRAME:011958/0584 EFFECTIVE DATE : 20010629
US5377408 A	20020620	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5377408 A	20060109	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US5377408 A	20131001	PEXP		Calculated Patent Term Expiry	
ZA9304743 A	19940124	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA9304743 A	20130630	PEXP		Calculated Patent Term Expiry	

Abstract: The invention involves a machine, e.g., a walking dragline having a drive gear, a driven member which loads (and wears) gear teeth unequally and an interconnecting shaft. The quill-mounted gear is separately supported by bearings. The shaft can be moved axially and when so repositioned, it is also separately supported by other bearings. When the gear needs to be "indexed," (due to unequal tooth wear) the shaft is moved axially out of connection with the gear but remains connected to the eccentric. The gear can then be indexed using its drive motor and the shaft can be re-engaged with the quill without the necessity of auxiliary lifting equipment and without disengaging the shaft from the eccentric.

International (IPC 8-9): B62D57/032 E02F9/04 F16H35/00
F16H57/02 F16H57/022 F16H57/023 (Advanced/Invention);
F16H57/02 F16H57/022 (Advanced/Non-invention);
B62D57/00 E02F9/02 F16H57/02 (Core/Invention)
International (IPC 1-7): B30B B62D57/02 B62D57/032 E02F9/00
F16C3/02 F16D F16H35/00 F16H57/00 F16H57/02 F61H
CPC: Y10T74/19614 B62D57/032 E02F9/04 F16H57/023
F16H2057/02069 F16H2057/0224 F16H2057/0235
European: B62D57/032 E02F9/04 F16H57/023 R16H57/022L2
R16H57/023B R16H57/02V4
US: 180/8.5 37/362 37/395 74/405



Publication number	Publication date	Application number	Application date
AU199344260 A1	19940203	AU19930044260	19930728
AU659024 B2	19950504	AU19930044260	19930728
CA2082246 AA	19940130	CA19922082246	19921105
CA2082246 C	19961203	CA19922082246	19921105
GB2269218 A1	19940202	GB19930013698	19930702
GB2269218 B2	19950510	GB19930013698	19930702
GB9313698 A0	19930818	GB19930013698	19930702
MX9304568 A1	19940228	MX19930004568	19930728
US5245882 A	19930921	US19920921913	19920729
ZA9304739 A	19940124	ZA19930004739	19930701

US19920921913 19920729 CA19922082246 19921105

Assignee(s): HARNISCHFEGER TECHNOLOGIES INC ; KALLENBERGER HARVEY ; SEM JERRY ; BANKERS TRUST CO ;
BANKERS TRUST CO AGENT AS ; BLASZYNSKI ROBERT

Agent(s): SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; RIDOUT AND MAYBEE LLP

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Patent	Date recorded	Event group	Code	Event	Details
AU199344260 A1	19940203	LSPB	+	published / reissued	
AU659024 B2	19950504	LSGT	+	granted / extensions (spc, cpc, pte)	
AU659024 B2	20130728	PEXP		Calculated Patent Term Expiry	
CA2082246 AA	19940130	LSPB	+	published / reissued	
CA2082246 AA	19921105	LSER	+EEER	EXAMINATION REQUEST	
CA2082246 C	19961203	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2082246 C	20101105	LSLE	-MKLA	LAPSED	
CA2082246 C	20121105	PEXP		Calculated Patent Term Expiry	
GB2269218 A1	19940202	LSPB	+	published / reissued	
GB2269218 B2	19950510	LSGT	+	granted /	

				extensions (spc, cpc, pte)	
GB2269218 B2	20010221	LSLE	-PCNP	PATENT CEASED THROUGH NON- PAYMENT OF RENEWAL FEE	EFFECTIVE DATE : 20000702
GB2269218 B2	20130702	PEXP		Calculated Patent Term Expiry	
MX9304568 A1	19940228	LSPB	+	published / reissued	
MX9304568 A1	19970106	LSGT	+FG	GRANT OR REGISTRATION	
MX9304568 A1	20041231	LSAS	PD	CHANGE OF PROPRIETORSHIP	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC.
MX9304568 A1	20150227	LSLE	-MM	ANNULMENT OR LAPSE DUE TO NON-PAYMENT OF FEES	
US5245882 A	19930921	LSGT	+	granted / extensions (spc, cpc, pte)	
US5245882 A	19920729	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER CORPORATION, WISCONSIN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNORS:KALLENBERGER, HARVEY J.; BLASZYNSKI, ROBERT H.; SEM, JERRY C.; REEL/FRAME:006220/0214 EFFECTIVE DATE : 19920724
US5245882 A	19930910	LSGT	PAT1	Patented Case	
US5245882 A	19970218	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US5245882 A	19980507	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HARNISCHFEGER CORPORATION; REEL/FRAME:009168/0359 EFFECTIVE DATE : 19980504
US5245882 A	20010115	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US5245882 A	20010712	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANKERS TRUST COMPANY, AS AGENT, NEW YORK OLDPARTY : GRANT OF PATENT SECURITY INTEREST; ASSIGNOR:HARNISCHFEGER TECHNOLOGIES, INC., A DELAWARE CORPORATION; REEL/FRAME:011958/0584 EFFECTIVE DATE : 20010629
US5245882 A	20050128	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US5245882 A	20120729	PEXP		Calculated Patent Term Expiry	
ZA9304739 A	19940124	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA9304739 A	20130630	PEXP		Calculated Patent Term Expiry	

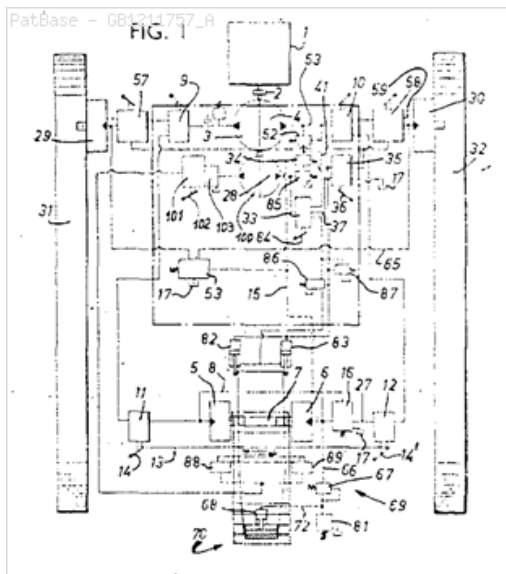
Title: IMPROVED MACHINE FOR DIGGING TRENCHES

Abstract: 1,211,757. Endless chain excavators. J. R. CRAMPTON. 1 May, 1968 [2 May, 1967], No. 20679/68. Heading E1F. In a trench-excavating machine having digging tools mounted on endless chains circulating about a vertically swingable boom pivoted on a crawler track-mounted chassis all the movements of the operable parts of the machine are hydraulically controlled and the hydraulic circuitry involved is such as to permit of automatic regulation of the movements of said parts in accordance with any variation in operating conditions encountered by the machine. The hydraulic actuators of said parts are motors 29, 30 for driving the tracks 31, 32 of the machine, motors 5, 6 for driving the endless chains, motors 88, 89 for driving an endless belt ejector provided in the machine for ejection clear to one side of the machine of material dug up by digging tools mounted on the endless chains, jacks 82, 83 controlling the vertical position of the telescopic boom and a jack 68 for maintaining a desired tension on the endless chains during extension or contraction of the boom. The circuitry is such that there is, where the machine is digging, automatic regulation of the low speed advance of the machine in accordance with the resistance to digging encountered by the machine. The parts of the circuitry then involved are a small output pump 28, a distributor 33, a flow regulator 34 dividing and directing flow from the pump to either the motors 29, 30 through distributor 35 and/or to the supply circuit of motors 5, 6 through valve 52 and distributors 10, 12. The regulator 34 involves a throttle valve, the setting of which is determined by the pressure in the supply line 8 coupling the motors 5, 6 as this pressure is a measure of the resistance encountered by the digging tools. For faster traversal of ground when the machine is not digging the motors 29 and 30 are powered from two pumps or a duoutput pump 3, 4 of large capacity through distributors 9, 10. When the machine is digging power from these pumps is solely directed through the distributors 9, 10, 11 and 12 to the motors 5, 6. When the digging load on the motors 5, 6 approaches the available power from the prime mover 1 driving the pumps 3, 4, 28 and 10 of the circuitry a regulator in the feed circuit of the motor 6 directs the flow to this motor to the reservoir of the circuitry so that the hydraulically shunt-connected motors apply more torque at a lesser speed of rotation to the endless chains. Pump 100 drives ejector motors 88, 89. Overload valves are provided in all parts of the circuitry.

Classifications:**International (IPC 8-9):** E02F9/22 F16H61/44 F16H61/456

F16H61/46 (Advanced/Invention);

E02F9/22 F16H61/40 (Core/Invention)

International (IPC 1-7): E02F9/22**CPC:** E02F9/2253 F16H61/456 F16H61/46**European:** E02F9/22T F16H61/456 F16H61/46**Family:**

Publication number	Publication date	Application number	Application date
FR1536970 A	19680823	FR19670104952	19670502
GB1211757 A	19701111	GB19680020679	19680501

Priority:

FR19670104952 19670502

Probable Assignee:

CRAMPTON JAMES RICHARD

Assignee(s): (std):

CRAMPTON JAMES RICHARD

Assignee(s):

JAMES RICHARD CRAMPTON

Inventor(s): (std):

CRAMPTON JAMES RICHARD

Inventor(s):

JAMES RICHARD CRAMPTON

Legal status (INPADOC)[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
FR1536970 A	19680823	LSGT	+	granted / extensions (spc, cpc, pte)	
FR1536970 A	19870502	PEXP		Calculated Patent Term Expiry	
GB1211757 A	19701111	LSGT	+	granted / extensions (spc, cpc, pte)	
GB1211757 A	19710512	LSGT	+PS	PATENT SEALED	
GB1211757 A	19771130	LSLE	-PLNP	PATENT LAPSED THROUGH NONPAYMENT OF RENEWAL FEES	
GB1211757 A	19880501	PEXP		Calculated Patent Term Expiry	

Title: EXCAVATION TOOTH **ASSEMBLY**

Abstract: A tooth member **of** an excavation tooth **assembly**, the tooth member comprising a body having opposite first and second ends, and a projecting portion extending in a longitudinal direction towards said first end, the projecting portion having a top surface and a bottom surface; and opposite sides extending between said top and bottom surfaces, the projecting portion being configured with spaced apart side regions extending in the longitudinal direction and being defined by portions **of** the top and bottom surfaces and respective ones **of** the sides; and a mid region disposed between said side regions, wherein the mid region is recessed relative to the side regions along at least a portion **of** at least one **of** the top and bottom surfaces.

Classifications:

International (IPC 8-9): E02F E02F9/28 (Advanced/Invention);

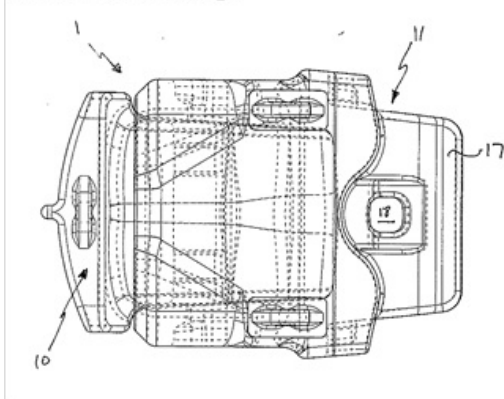
E02F (Subclass/Invention)

CPC: E02F9/2816 E02F9/2825 E02F9/2858

European: E02F9/28A2B E02F9/28A6

US: 37/455

PatBase - US2013180137_AA



Family:

Publication number	Publication date	Application number	Application date
AP201306740 A0	20130228	AP20130006740	20110728
AU2011284785 AA	20120202	AU20110284785	20110728
BR112013002053 A2	20180130	BR20131102053	20110728
CA2807076 AA	20130123	CA20112807076	20110728
CL2013000267 A1	20130517	CL20130000267	20130128
PE11862013 A1	20131025	PE20130000151	20110728
US2013180137 AA	20130718	US20110812119	20110728
WO12012828 A1	20120202	WO2011AU00942	20110728
ZA201300711 A	20140226	ZA20130000711	20130128

Priority:

AU20100903405 20100729 AU20110284785 20110728 WO2011AU00942 20110728

Probable Assignee: BRADKEN RESOURCES PTY LTD

Assignee(s): (std): ATTWOOD REECE ; BRADKEN RESOURCES PTY LTD ; BRADKEN RESOURCES PTY LTD ; HURLEY MARK

Assignee(s): BRADKEN RESOURCES PTY LIMITED

Inventor(s): (std): ATTWOOD REECE ; HURLEY MARK ; MARK HURLEY ; REECE ATTWOOD

Agent(s): GRIFFITH HACK; GOWLING LAFLEUR HENDERSON LLP; PORZIO RIOS AND ASOCIADOS

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU2011284785 AA	20120202	LSPB	+	published / reissued	
AU2011284785 AA	20160225	LSLE	-MK4	APPLICATION LAPSED SECTION 142(2)(D) - NO CONTINUATION FEE PAID FOR THE APPLICATION	
BR112013002053 A2	20180206	LSFE	-B08F	APPLICATION FEES: DISMISSAL - ARTICLE 86 OF INDUSTRIAL PROPERTY LAW	
BR112013002053 A2	20180522	LSLE	-B08K	LAPSE AS NO EVIDENCE OF PAYMENT OF THE ANNUAL FEE HAS BEEN FURNISHED TO INPI (ACC. ART. 87)	
CA2807076 AA	20130123	LSPB	+	published / reissued	
CA2807076 AA	20160908	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20160728
CL2013000267 A1	20130517	LSPB	+	published / reissued	

PE11862013 A1	20131025	LSPB	+	published / reissued	
PE11862013 A1	20160223	LSWD	-FD	APPLICATION DECLARED VOID OR LAPSED	
US2013180137 AA	20130718	LSPB	+	published / reissued	
US2013180137 AA	20130408	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BRADKEN RESOURCES PTY LIMITED, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:HURLEY, MARK; ATTWOOD, REECE; REEL/FRAME:030167/0633 EFFECTIVE DATE : 20130304
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WO12012828 A1	20120202	LSPB	+	published / reissued	
WO12012828 A1	20130123	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2807076 COUNTRY OF REF DOCUMENT : CA
WO12012828 A1	20130128	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 000151-2013 COUNTRY OF REF DOCUMENT : PE
WO12012828 A1	20130129	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO12012828 A1	20130207	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2011284785 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20110728 KIND CODE OF REF DOCUMENT : A DESIGNATED STATE(S) :
WO12012828 A1	20130405	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 13812119 COUNTRY OF REF DOCUMENT : US
WO12012828 A1	20130821	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 11811641 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :
WO12012828 A1	20180130	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112013002053 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 DESIGNATED STATE(S) : EFFECTIVE DATE : 20130128
ZA201300711 A	20140226	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA201300711 A	20330127	PEXP		Calculated Patent Term Expiry	

Title: DIGGING TOOTH WITH SCREWS SET INTO RESILIENT POCKETS

Abstract: (Claim 1) 1. In a tooth assembly of the kind described, a holder and a replaceable point supported thereby, and means detachably securing the point to the holder including screws having tapered ends disposed in openings in spaced wall portions of the point with the heads thereof disposed outward of said openings and the tapered ends thereof seated in corresponding resilient pockets in the holder.

Classifications:

International (IPC 8-9): E02F9/28 (Advanced/Invention);

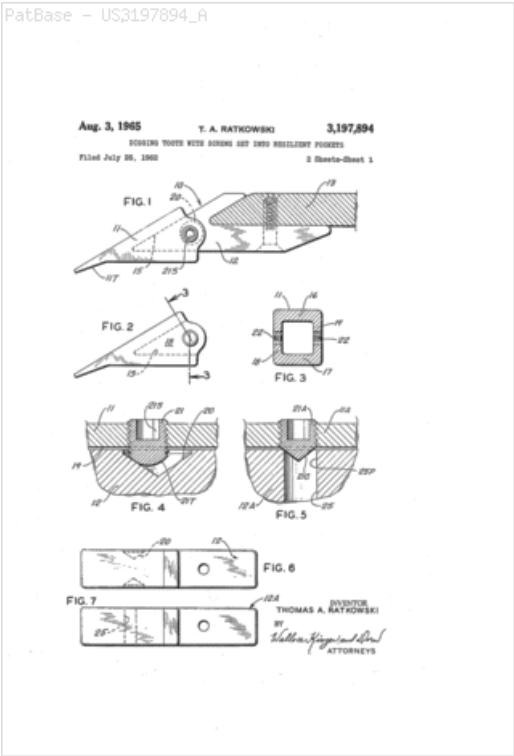
E02F9/28 (Core/Invention)

International (IPC 1-7): E02F9/28

CPC: E02F9/2841

European: E02F9/28A2C2

US: 172/762 285/404 37/457 411/393



Family:

Publication number	Publication date	Application number	Application date
US3197894 A	19650803	US19620212509	19620726

Priority:

US19620212509 19620726

Probable Assignee: AMERICAN BRAKE SHOE CO
Assignee(s): (std): AMERICAN BRAKE SHOE CO
Assignee(s): AMERICAN BRAKE SHOE COMPANY
Inventor(s): (std): RATKOWSKI THOMAS A

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
US3197894 A	19650803	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: Digger tooth arrangement

Abstract: The arrangement of the digger teeth of an excavating bucket of a bucket wheel excavator is described, wherein the excavating bucket is equipped with replaceable corner, center and side teeth of identical construction and dimensions, but which are mounted with respect to the upper edge of the excavating bucket in different angular relationships. The configuration of a digger tooth for use in this arrangement is also included.

Classifications:

International (IPC 8-9): E02F3/24 E02F9/28 (Advanced/Invention); E02F3/18 E02F9/28 (Core/Invention)

International (IPC 1-7): E02F3/24 E02F3/36 E02F5/00 E02F9/28

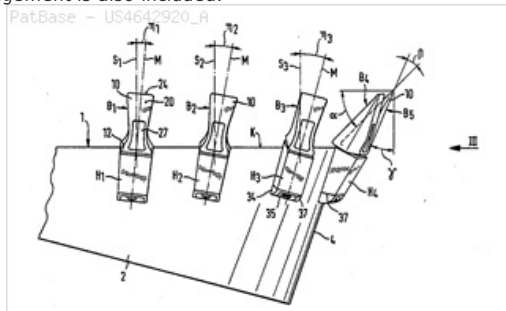
CPC: E02F9/2858 E02F9/2866

European: E02F9/28A6 E02F9/28B

US: 37/452

JP F-Term: 2D011 2D015 2D015/JA01 2D015/JA05 2D015/JA06

JP F-Index: E02F3/24/B E02F9/28/A



Family:

Publication number	Publication date	Application number	Application date
AU198550798 A1	19860612	AU19850050798	19851205
AU582512 B2	19890323	AU19850050798	19851205
BRPI8506287 A	19860826	BR1985PI06287	19851206
CA1248997 A1	19890117	CA19850496990	19851205
CN1006405 B	19900110	CN19851008788	19851204
CN85108788 A	19860610	CN19851008788	19851204
DE3444563 A1	19860619	DE19843444563	19841206
DE3444563 C2	19930916	DE19843444563	19841206
DE3569139 D1	19890503	DE19853569139	19851205
EP0184209 A1	19860611	EP19850115478	19851205
EP0184209 B1	19890329	EP19850115478	19851205
ES296768 U	19880116	ES19850296768U	19851205
ES296768 Y	19881001	ES19850296768U	19851205
ES296768 Y1	19881031	ES19850296768U	19851205
JP1936771 C3	19950609	JP19850272643	19851205
JP6051983 B4	19940706	JP19850272643	19851205
JP61137931 A2	19860625	JP19850272643	19851205
US4642920 A	19870217	US19850805890	19851206
ZA8509332 A	19860827	ZA19850009332	19851205

Priority:

DE19843444563 19841206 CA19850496990 19851205 DE19853569139 19851205

Probable Assignee: LEHNHOFF HARTSTAHL GMBH AND CO

Assignee(s): (std): LEHNHOFF HARTSTAHL GMBH AND CO ; PETER ALEXANDER LEHNHOFF ; NHOFU HARUTOSHIYUTAALE GMBH AND

Assignee(s): LEHNHOFF PETER A ; LES NHOFU HARUTOSHIYUTAALE GMBH AND CO ; LEHNHOFF HARTSTAHL GMBH AND CO 7570 BADEN BADEN DE ; LEHNHOFF HARTSTAHL G M B H AND CO ; LEHNHOFF HARTSTAHL GMBH

Inventor(s): (std): LEHNHOFF PETER A ; PETER ALEXANDER LEHNHOFF ; PEETAA AREKUSANDAA REENHOFU ; LEHNHOFF PETER ALEXANDER

Inventor(s): ALEXANDER LEHNHOFF PETER ; LEHNHOFF PETER ALEXANDER 7570 BADEN BADEN DE

Agent(s): GRIFFITH HACK ; KIRBY EADES GALE BAKER

Designated states: BE DE FR GB IT NL SE

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU198550798 A1	19860612	LSPB	+	published / reissued	
AU582512 B2	19890323	LSGT	+	granted / extensions (spc, cpc, pte)	
AU582512 B2	20040708	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU582512 B2	20051205	PEXP		Calculated Patent Term Expiry	
BRPI8506287 A	19860826	LSPB	+	published / reissued	
BRPI8506287 A	20080715	LSLE	-B21A	EXPIRY ACC. ART. 78, ITEM I OF	TEXT : PATENTE EXTINTA EM 06/12/2000

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CN1006405 B	19900110	LSPB	+	published / reissued	
CN1006405 B	19900926	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN1006405 B	20010801	LSLE	-C17	CESSATION OF PATENT RIGHT	
CN85108788 A	19860610	LSPB	+	published / reissued	
CN85108788 A	19860610	LSPB	+C06	PUBLICATION	
DE3444563 A1	19860619	LSPB	+	published / reissued	
DE3444563 A1	19860619	LSES	+OP8	REQUEST FOR EXAMINATION AS TO PARAGRAPH 44 PATENT LAW	
DE3444563 C2	19930916	LSGT	+	granted / extensions (spc, cpc, pte)	
DE3444563 C2	19930916	LSGT	+D2	GRANT AFTER EXAMINATION	
DE3444563 C2	19940310	LSGT	+8364	NO OPPOSITION DURING TERM OF OPPOSITION	
DE3444563 C2	20041021	LSLE	-8339	CEASED/NON- PAYMENT OF THE ANNUAL FEE	
DE3569139 D1	19900405	LSOP	-8363	OPPOSITION AGAINST THE PATENT	
DE3569139 D1	19931007	LSGT	+8365	FULLY VALID AFTER OPPOSITION PROCEEDINGS	
DE3569139 D1	20041021	LSLE	-8339	CEASED/NON- PAYMENT OF THE ANNUAL FEE	
EP0184209 A1	19860611	LSPB	+	published / reissued	
EP0184209 A1	19860910	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 19860715
EP0184209 A1	19870729	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 19870611
EP0184209 B1	19890329	LSGT	+	granted / extensions (spc, cpc, pte)	
EP0184209 B1	19890329	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : SE LAPSED DATE : 19890329
EP0184209 B1	19890329	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : IT NOTIFICATION OF LAPSE : LAPSE BECAUSE OF FAILURE TO SUBMIT A TRANSLATION OF THE DESCRIPTION OR TO PAY THE FEE WITHIN THE PRESCRIBED TIME- LIMIT LAPSED DATE : 19890329
EP0184209 B1	19900228	LSOP	-26	OPPOSITION FILED	PARTYTYPE : OPPONENT OPPONENT : KRUPP INDUSTRIE TECHNIK GMBH EFFECTIVE DATE : 19891223
EP0184209 B1	19900417	LSOP	-NLR1	NL: OPPOSITION HAS BEEN FILED WITH THE EPO	PARTYTYPE : OPPONENT REF COUNTRY CODE : EP OPPONENT : KRUPP INDUSTRIE TECHNIK GMBH.
EP0184209 B1	19930901	LSRE	+270	OPPOSITION REJECTED	EFFECTIVE DATE : 19910621
EP0184209 B1	19931018	LSOP	NLR2	NL: DECISION OF OPPOSITION	REF COUNTRY CODE : EP
EP0184209 B1	20021015	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE	COUNTRY OF REF DOCUMENT : GB PAYMENT DATE : 20021015 YEAR OF FEE PAYMENT : 18

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EP0184209 B1	20021112	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE PAYMENT DATE : 20021112 YEAR OF FEE PAYMENT : 18
EP0184209 B1	20021210	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR PAYMENT DATE : 20021210 YEAR OF FEE PAYMENT : 18
EP0184209 B1	20021220	LSFE	+PGFP	ANNUAL FEE PAID TO NATIONAL OFFICE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE PAYMENT DATE : 20021220 YEAR OF FEE PAYMENT : 18
EP0184209 B1	20031205	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : GB NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20031205
EP0184209 B1	20031231	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : BE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20031231
EP0184209 B1	20040630	LSLE	-BERE	BE: LAPSED	PARTY TYPE : OWNER REF COUNTRY CODE : EP OWNER : *LEHNHOFF HARTSTAHL G.M.B.H. & CO. EFFECTIVE DATE : 20031231
EP0184209 B1	20040701	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : DE NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20040701
EP0184209 B1	20040701	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : NL NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20040701
EP0184209 B1	20040728	LSLE	-GBPC	GB: EUROPEAN PATENT CEASED THROUGH NON- PAYMENT OF RENEWAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20031205
EP0184209 B1	20040831	LSLE	-PG25	LAPSED IN A CONTRACTING STATE [ANNOUNCED FROM NATIONAL OFFICE TO EPO]	COUNTRY OF REF DOCUMENT : FR NOTIFICATION OF LAPSE : LAPSE BECAUSE OF NON-PAYMENT OF DUE FEES LAPSED DATE : 20040831
EP0184209 B1	20040901	LSLE	-NLV4	NL: LAPSED OR ANULLED DUE TO NON-PAYMENT OF THE ANNUAL FEE	REF COUNTRY CODE : EP EFFECTIVE DATE : 20040701
EP0184209 B1	20040924	LSLE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : FR REF LEGAL EVENT CODE : ST
ES296768 U	19880116	LSPB	+	published / reissued	
ES296768 Y	19881001	LSGT	+	granted / extensions (spc, cpc, pte)	
ES296768 Y	20090401	LSLE	-FD1K	UTILITY MODEL LAPSED	EFFECTIVE DATE : 20040730
ES296768 Y	19951205	PEXP		Calculated Patent Term Expiry	
ES296768 Y1	19881031	LSGT	+	granted / extensions (spc, cpc, pte)	
ES296768 Y1	19951205	PEXP		Calculated Patent Term Expiry	

JP1936771 C3	19950609	LSGT	+	granted / extensions (spc, cpc, pte)	
JP1936771 C3	20051205	PEXP		Calculated Patent Term Expiry	
JP6051983 B4	19940706	LSPB	+	published / reissued	
JP6051983 B4	20040706	LSLE	-LAPS	CANCELLATION BECAUSE OF NO PAYMENT OF ANNUAL FEES	
JP61137931 A2	19860625	LSPB	+	published / reissued	
US4642920 A	19870217	LSGT	+	granted / extensions (spc, cpc, pte)	
US4642920 A	19860828	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : LEHNHOFF HARTSTAHL GMBH & CO., RUNGSTRASSE 10 D- 75 OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST.; ASSIGNOR:LEHNHOFF, PETER A.; REEL/FRAME:004595/0105 EFFECTIVE DATE : 19851121
US4642920 A	19860828	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : LEHNHOFF HARTSTAHL GMBH & CO.,GERMANY OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:LEHNHOFF, PETER A.; REEL/FRAME:004595/0105 EFFECTIVE DATE : 19851121
US4642920 A	19861213	LSGT	PAT1	Patented Case	
US4642920 A	19900611	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US4642920 A	19940805	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US4642920 A	19980727	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
ZA8509332 A	19860827	LSGT	+	granted / extensions (spc, cpc, pte)	
ZA8509332 A	20051204	PEXP		Calculated Patent Term Expiry	

Title: COMBINATION RIPPER ATTACHMENT FOR SCRAPERS AND BULLDOZERS

Abstract: (Claim 1) 1. A ripping attachment for earth moving equipment **of** the type having a plate-like, earth-engaging member, comprising: a plurality **of** ripper bars extendable adjacent said member; clamp means at one end **of** each **of** said bars engageable with one edge **of** said member, for edecting a fixed connection **of** thc bars to the mcmbcr, said clamp means including a plate-like body engageable against said edge **of** the earth-engaging member, a flange on said body adapted to hook over said edge, said body having an opening, a socket connected to said body in which the associated ripper bar is slidably engaged, the ripper bar having a plurality **of** longitudinally spaced openings, and an L-shaped clamping bolt having a lateral extension at one end engaged in a selected opening oi the ripper bar, the other end **of** the bolt being slidable in the opening **of** said plate-like body and having a take-up nut threaded thereon against said body, for adjusting the ripper bar longitudinally **of** said body; a cross member extending between the respective bars and proportioned to engage the opposite edge **of** said member; and ripping tooth means on the several ripper bars.

Classifications:

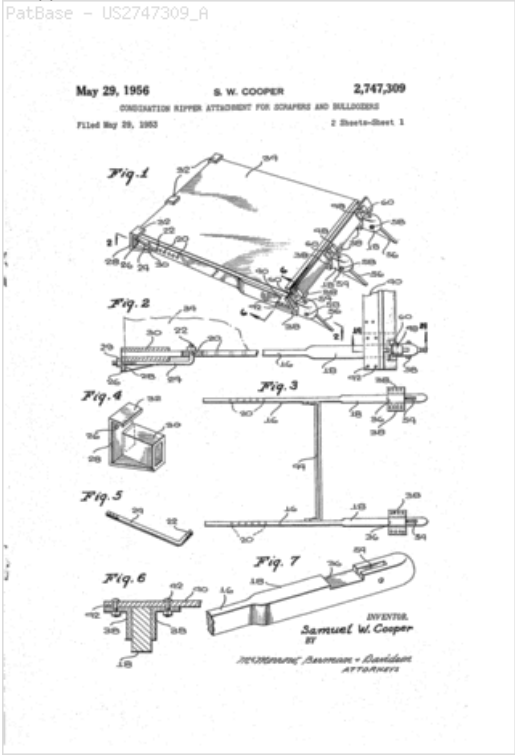
International (IPC 8-9): E02F3/815 (Advanced/Invention); E02F3/76 (Core/Invention)

International (IPC 1-7): E02F3/80

CPC: E02F3/8152

European: E02F3/815C

US: 172/778 299/36.1 299/80.1 37/404



Family:

Publication number	Publication date	Application number	Application date
US2747309 A	19560529	US19530358271	19530529

Priority:

US19530358271 19530529

Probable Assignee: COOPER SAMUEL W
Assignee(s): (std): COOPER SAMUEL W
Inventor(s): (std): COOPER SAMUEL W

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2747309 A	19560529	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: COMPACTION WHEEL AND CLEAT **ASSEMBLY** THEREFOR

Abstract: A compaction wheel (20) for landfill compactors is disclosed. The compaction wheel (20) includes a rim (21) and a plurality of cleats (50, 80) secured thereto with a plurality of spring clips (51). The rim (21) includes an exterior surface (30), an interior surface (31), and a plurality of cleat-receiving apertures (33) extending therethrough between the exterior and interior surfaces (30, 31). Each of the cleats (50, 80) includes a ground-engaging portion (52), a lug portion (53) extending from the ground-engaging portion (52), and a clip-receiving aperture (54, 55) extending through the lug portion (53). Each of the cleats (50, 80) being mountable on the rim (21) such that the ground-engaging portions (52) project from the exterior surface (30) of the rim (21) while the lug portions (53) extend through the cleat-receiving apertures (33) of the rim (21) so that the clip-receiving apertures (54, 55) are situated adjacent the interior surface (31) of the rim (21) and lateral movement of the cleats (50, 80) relative to the rim (21) is inhibited. The spring clips (51) being adapted to secure the mounted cleats (50, 80) to the rim (21) by engaging with the clip-receiving apertures (54, 55) and interacting with the rim and cleats such that the ground-engaging portions (52) of the cleats (50, 80) are pulled towards the rim (21).

Classifications:

International (IPC 8-9): A01B33/00 B25B31/00 B25B33/00
B60B15/02 E01C19/23 E01C19/26 E02D3/026 E02F3/40 E02F3/60
E02F3/65 E02F3/80 E02F3/815 E02F9/28
F16B2/04 (Advanced/Invention);

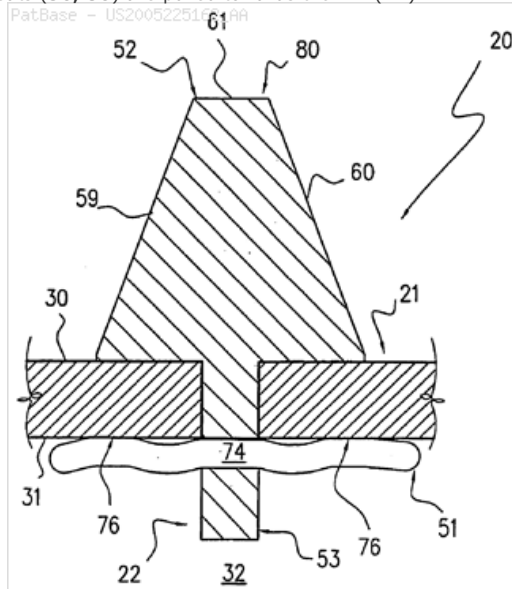
B25B31/00 B25B33/00 B60B15/00 E01C19/22 E02D3/00 E02F3/40
E02F3/46 E02F3/64 E02F3/76 E02F9/28 F16B2/02 (Core/Invention)

International (IPC 1-7): B60B15/02 E01C19/26 E02D3/026

CPC: E02F9/28 B60B15/025 E02F9/2841 B60B15/02 E02D3/026
E02F3/40 E02F9/2883

European: B60B15/02E1 E02D3/026 E02F3/40 E02F9/28
E02F9/28A2C2 E02F9/28F

US: 172/122 301/43 301/43P 301/44.1 301/44.3 404/121 404/124
404/124P



Family:

Publication number	Publication date	Application number	Application date
AU124302 A0	20020418	AU2002PS01243	20020320
AU2002001243 A0	20020418	AU2002PS01243	20020320
AU2003209847 AA	20030929	AU20030209847	20030319
AU2005237129 AA	20070607	AU20050237129	20051124
AU2006203131 AA	20070607	AU20060203131	20060721
AU2006203131 BB	20120809	AU20060203131	20060721
EP1954891 A1	20080813	EP20060804559	20061124
EP1954891 A4	20101229	EP20060804559	20061124
US2005225162 AA	20051013	US20030506351	20030319
US2006255653 AA	20061116	US20060458693	20060720
US2010247242 AA	20100930	US20100766945	20100426
US8333439 BB	20121218	US20100766945	20100426
WO03078738 A1	20030925	WO2003AU00330	20030319
WO07059587 A1	20070531	WO2006AU01785	20061124
WO07059587 C2	20070712	WO2006AU01785	20061124

Priority:

AU2002PS01243	20020320	AU20030209847	20030319	US20030506351	20030319
WO2003AU00330	20030319	US20040506351	20040902	AU20050237129	20051124
US20060458693	20060720	AU20060203131	20060721	WO2006AU01785	20061124
US20100766945	20100426				

Probable Assignee: KCQ PTY LTD

Assignee(s): (std): EQUIPMENT COMPONENT HOLDINGS PTY LTD ; GIBBINS J ; GIBBINS JOHN ; KCQ PTY LIMITED ; KCQ PTY LTD

Assignee(s): JOHN GIBBINS

Inventor(s): (std): GIBBINS JOHN ; KCQ PTY LTD ; KCQ PTY LIMITED

Inventor(s): JOHN GIBBINS

Agent(s): EAGAR BARRY; EAGAR AND MARTIN PTY LTD; EAGAR AND ASSOCIATES PTY LTD; EAGAR BARRY MR; BARRY EAGAR; PRATT DAVID MARTIN ET AL; DAVID A GUERRA; JOHN ALEXANDER GALBREATH; GALBREATH LAW OFFICES PC; JOHN A

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT HW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
AU2003209847 AA	20030929	LSPB	+	published / reissued	
AU2003209847 AA	20041209	LSLE	-MK6	APPLICATION LAPSED SECTION 142(2)(F)/REG. 8.3(3) - PCT APPLIC. NOT ENTERING NATIONAL PHASE	
AU2005237129 AA	20070607	LSPB	+	published / reissued	
AU2005237129 AA	20080731	LSAS	PC1	ASSIGNMENT BEFORE GRANT (SECT. 113)	PARTYTYPE : OWNER OWNER : KCQ PTY LTD OLDPARTY : FORMER APPLICANT(S): GIBBINS, JOHN
AU2005237129 AA	20100527	LSLE	-MK1	APPLICATION LAPSED SECTION 142(2)(A) - NO REQUEST FOR EXAMINATION IN RELEVANT PERIOD	
AU2006203131 AA	20070607	LSPB	+	published / reissued	
AU2006203131 AA	20080731	LSAS	PC1	ASSIGNMENT BEFORE GRANT (SECT. 113)	PARTYTYPE : OWNER OWNER : KCQ PTY LTD OLDPARTY : FORMER APPLICANT(S): GIBBINS, JOHN
AU2006203131 AA	20120705	LSAS	PC1	ASSIGNMENT BEFORE GRANT (SECT. 113)	PARTYTYPE : OWNER OWNER : EQUIPMENT COMPONENT HOLDINGS PTY LTD OLDPARTY : FORMER APPLICANT(S): KCQ PTY LTD
AU2006203131 BB	20120809	LSGT	+	granted / extensions (spc, cpc, pte)	
AU2006203131 BB	20121206	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2006203131 BB	20160616	LSLE	-MK14	PATENT CEASED SECTION 143(A) (ANNUAL FEES NOT PAID) OR EXPIRED	
AU2006203131 BB	20260721	PEXP		Calculated Patent Term Expiry	
EP1954891 A1	20080813	LSPB	+	published / reissued	
EP1954891 A1	20080813	LSSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20080618
EP1954891 A1	20080820	LSAS	RAP1	RIGHTS OF AN APPLICATION TRANSFERRED	PARTYTYPE : OWNER OWNER : KCQ PTY LIMITED
EP1954891 A4	20101229	LSSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	EFFECTIVE DATE : 20101126
EP1954891 A4	20101229	LSRE	RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : E02F 3/815 20060101ALI20101122BHEP
EP1954891 A4	20101229	LSRE	RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : E02D 3/026 20060101ALI20101122BHEP
EP1954891 A4	20101229	LSRE	RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : E02F 9/28 20060101AFI20070724BHEP
EP1954891 A4	20101229	LSRE	RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : E01C 19/23 20060101ALI20101122BHEP
EP1954891 A4	20101229	LSRE	RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : E02F 3/40 20060101ALI20101122BHEP
EP1954891 A4	20101229	LSRE	RIC1	INFORMATION PROVIDED ON IPC CODE	CLASSIFICATIONSCHEME : IPC

				ASSIGNED BEFORE GRANT	CLASSIFICATIONSYMBOL : E02F 3/65 20060101ALI20101122BHEP
EP1954891 A4	20101229	LSRE	RIC1	INFORMATION PROVIDED ON IPC CODE ASSIGNED BEFORE GRANT	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : E02F 3/60 20060101ALI20101122BHEP
EP1954891 A4	20140514	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20140409
EP1954891 A4	20141105	LSDW	-18D	APPLICATION DEEMED TO BE WITHDRAWN	EFFECTIVE DATE : 20140602
US2005225162 AA	20051013	LSPB	+	published / reissued	
US2005225162 AA	20061023	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
US2006255653 AA	20061116	LSPB	+	published / reissued	
US2006255653 AA	20080709	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : KCQ PTY LTD, AUSTRALIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:GIBBINS, JOHN; REEL/FRAME:021211/0491 EFFECTIVE DATE : 20080619
US2006255653 AA	20100727	LSWD	-ABD3	Abandoned -- Failure to Respond to an Office Action	
US2010247242 AA	20100930	LSPB	+	published / reissued	
US8333439 BB	20121218	LSGT	+	granted / extensions (spc, cpc, pte)	
US8333439 BB	20121128	LSGT	PAT1	Patented Case	
US8333439 BB	20161218	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US8333439 BB	20170116	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US8333439 BB	20170207	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20161218
US8333439 BB	20300426	PEXP		Calculated Patent Term Expiry	
WO03078738 A1	20030925	LSPB	+	published / reissued	
WO03078738 A1	20040902	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 10506351 COUNTRY OF REF DOCUMENT : US
WO03078738 A1	20050511	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF COUNTRY CODE : WO
WO03078738 A1	20060623	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : JP
WO03078738 A1	20060623	LSWD	-WWW	WIPO INFORMATION: WITHDRAWN IN NATIONAL OFFICE	TEXT : JP
WO07059587 A1	20070531	LSPB	+	published / reissued	
WO07059587 C2	20080527	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO07059587 C2	20080618	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2006804559 COUNTRY OF REF DOCUMENT : EP
WO07059587 C2	20080813	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2006804559 COUNTRY OF REF DOCUMENT : EP

Title: RELIABLE CONNECTION SYSTEM AND **ASSEMBLIES** AND METHODS FOR USING THE RELIABLE CONNECTIONS

Abstract: A securing apparatus including a first and second component. The first component has an opening extending along an axis. The elongated member has a piston hole penetrating the first component and aligned with the opening. A piston is located within the piston hole, and is complimentary shaped to sit within the piston. A pressure member is located within the opening, and an activator is configured to coordinate with and extend into the opening. The activator applies a force to the pressure member and distorts the pressure member. The second component, which compliments and mates with the first component, has an engaging surface that coordinates with an end of the piston. The force applied to the pressure member causes the pressure member to distort and apply pressure to the piston to extend the piston outward to interact with the engaging surface of the second component to restrain the second component.

Classifications:

International (IPC 8-9): B23P19/04 E02F9/28

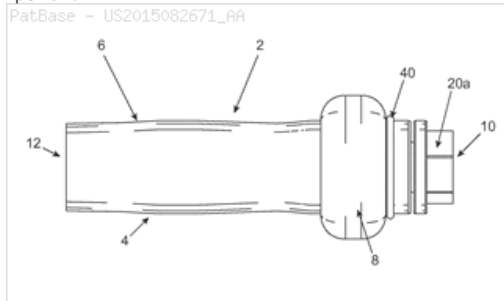
F16B39/34 (Advanced/Invention);

F16B39/34 (Advanced/Non-invention)

CPC: B23P19/04 E02F9/2825 E02F9/2883 E02F9/2833 F16B39/34

Y10T29/49826 Y10T29/53

US: 1/1 29/428 29/700 37/455 37/456 403/376



Family:

Publication number	Publication date	Application number	Application date
US2015082671 AA	20150326	US20130033364	20130920
US2016053466 AA	20160225	US20150930638	20151102
US9187881 BB	20151117	US20130033364	20130920
US9689146 BB	20170627	US20150930638	20151102
WO15042448 A1	20150326	WO2014US56631	20140919

Priority:

US20130033364 20130920 US20150930638 20151102

Probable Assignee: BERKELEY FORGE AND TOOL INC

Assignee(s): (std): BERKELEY FORGE AND TOOL INC

Inventor(s): (std): KATSMAN ROBERT ; BIERWITH PAUL

Agent(s): KILPATRICK TOWNSEND AND STOCKTON LLP; OLSEN KINDON ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US2015082671 AA	20150326	LSPB	+	published / reissued	
US2015082671 AA	20131022	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BERKELEY FORGE & TOOL, INC., CALIFORNIA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:BIERWITH, PAUL; KATSMAN, ROBERT; SIGNING DATES FROM 20130923 TO 20131007; REEL/FRAME:031456/0844
US2016053466 AA	20160225	LSPB	+	published / reissued	
US2016053466 AA	20170302	LSSES	+NAM1	Notice of Allowance Mailed -- Application Received in Office of Publications	
US2016053466 AA	20170525	LSFE	+PPV1	Publications -- Issue Fee Payment Verified	
US9187881 BB	20151117	LSGT	+	granted / extensions (spc, cpc, pte)	
US9187881 BB	20151028	LSGT	PAT1	Patented Case	
US9187881 BB	20340130	PEXP		Calculated Patent Term	

				Expiry (PTA 132 days)	
US9689146 BB	20170627	LSGT	+	granted / extensions (spc, cpc, pte)	
US9689146 BB	20170607	LSGT	PAT1	Patented Case	
US9689146 BB	20351102	PEXP		Calculated Patent Term Expiry	
WO15042448 A1	20150326	LSPB	+	published / reissued	
WO15042448 A1	20160321	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO15042448 A1	20161012	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 14845816 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1 DESIGNATED STATE(S) :

Title: RETARDING MECHANISM FOR THE DIPPER DOOR **OF** A MINING SHOVEL

Abstract: Disclosed is a digging implement such as a mining shovel dipper which has a body, a movable door mounted with respect to the body and a mechanism for retarding swinging movement **of** the door. The mechanism includes first and second housings and plural retarding discs compressed between the housings. In the improvement, a resilient member is interposed between the first housing and the discs. And most preferably, a separate resilient member is interposed between each housing, respectively, and the discs. The thickness **of** each resilient member is selected in view **of** the aggregate thickness **of** the discs and the number **of** resilient members if more than one such member is used. A highly preferred resilient member is an elastomeric washer. The new retarding mechanism substantially extends the time period between mechanism adjustments and results in improved machine productivity.

Classifications:

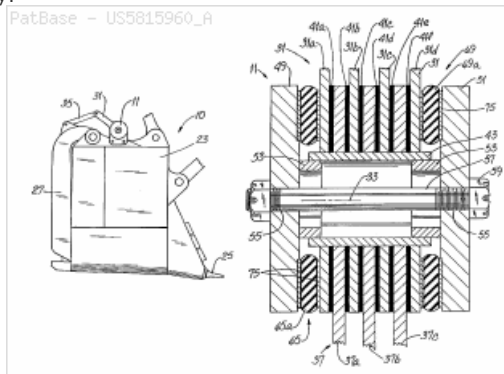
International (IPC 8-9): E02F3/407 (Advanced/Invention);
E02F3/40 (Core/Invention)

International (IPC 1-7): E02F3/407

CPC: E02F3/4075 Y10T16/629

European: E02F3/407B

US: 16/86B 267/154 37/444 37/445 374/450 414/726



Family:

Publication number	Publication date	Application number	Application date
US5815960 A	19981006	US19970874434	19970616

Priority:

US19970874434 19970616

Probable Assignee: HARNISCHFEGER TECHNOLOGIES INC

Assignee(s): (std): HARNISCHFEGER CORP

Assignee(s): HARNISCHFEGER TECHNOLOGIES INC ; BANKERS TRUST CO ; BANKERS TRUST CO AGENT AS

Inventor(s): (std): SOCZKA CARL A

Legal status (INPADOC)

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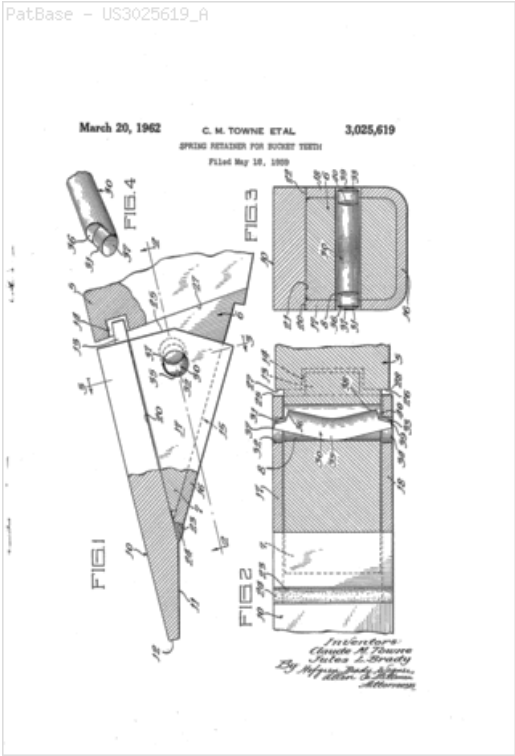
Patent	Date recorded	Event group	Code	Event	Details
US5815960 A	19981006	LSGT	+	granted / extensions (spc, cpc, pte)	
US5815960 A	19970616	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER CORPORATION, WISCONSIN OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: SOCZKA, CARL A.; REEL/FRAME: 008608/0660 EFFECTIVE DATE : 19970522
US5815960 A	19980507	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : HARNISCHFEGER TECHNOLOGIES, INC., DELAWARE OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: HARNISCHFEGER CORPORATION; REEL/FRAME: 009168/0359 EFFECTIVE DATE : 19980504
US5815960 A	20010712	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : BANKERS TRUST COMPANY, AS AGENT, NEW YORK OLDPARTY : GRANT OF PATENT SECURITY INTEREST; ASSIGNOR: HARNISCHFEGER TECHNOLOGIES, INC., A DELAWARE CORPORATION; REEL/FRAME: 011958/0584 EFFECTIVE DATE : 20010629
US5815960 A	20021007	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5815960 A	20021106	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR	

US5815960 A 20021203		LSLE	-FP	1.362 EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20021006
US5815960 A 20170616		PEXP		Calculated Patent Term Expiry	

Title: SPRING RETAINER FOR BUCKET TEETH

Abstract: (Claim 1) 1. An earth digging replaceable tooth cap retainer for securing a cap having aligned side openings upon a base having a cross bore, comprising: a spring-steel elongated pin bent intermediate its ends forming a wide angle V to permit resilient yielding of the pin upon movement of the legs thereof toward and away from each other, a wedge surface formed on each end of the pin for engaging the replaceable tooth cap within said side opening, permitting springing of the pin within the adapter bore by endwise insertion, and a shoulder on the pin at the base of the wedge surface for retaining the pin within the adapter bore against accidental removal, said pin is inserted into the cap on said base when the pin is sprung in the cross bore and cap side openings with the central pin portion engaging said bore and the ends of the pin engaging said cap.

Classifications:
International (IPC 8-9): E02F9/28 (Advanced/Invention); E02F9/28 (Core/Invention)
International (IPC 1-7): E02F9/28
CPC: E02F9/2841
European: E02F9/28A2C2
US: 37/458 411/352



Family:

Publication number	Publication date	Application number	Application date
US3025619 A	19620320	US19590813904	19590518

Priority:
US19590813904 19590518

Probable Assignee: GEN METALS CORP

Assignee(s): (std): GEN METALS CORP

Assignee(s): GENERAL METALS CORP

Inventor(s): (std): BRADY JULES L ; TOWNE CLAUDE M

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US3025619 A	19620320	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: Trenching machine

Abstract: In a machine for digging a trench, in which the digging apparatus comprises an elongated boom having a movable chain around its periphery and which is lowered into the ground, the problem of dislodged boulders which heretofore would be excavated into the machine where they often damaged the conveyor belt system or became stuck, is prevented by an elongate bar or drum which is attached to the frame of the machine in close proximity to the operating chain and immediately before the boulder would otherwise enter the machine. The boulder is held there until it either breaks apart or is abraded by further action of the chain to a sufficiently small size that it can safely navigate through the machine and be expelled in the normal course.

Classifications:

International (IPC 8-9): E02F3/10 E02F5/06 (Advanced/Invention);
E02F3/08 (Advanced/Non-invention);

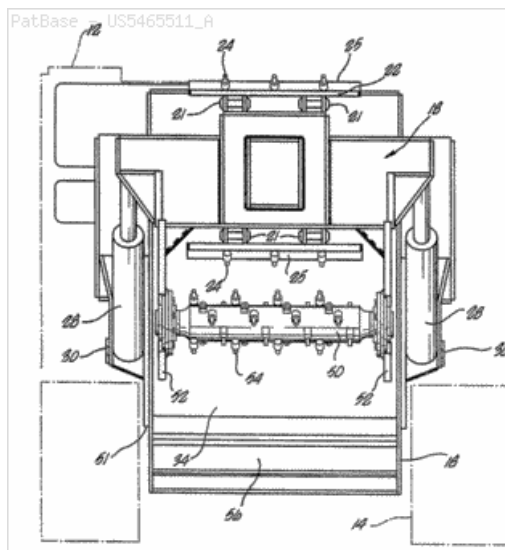
E02F3/08 E02F5/02 (Core/Invention)

International (IPC 1-7): E02F5/06

CPC: E02F3/085 E02F3/088 E02F3/10

European: E02F3/08G E02F3/08T E02F3/10

US: 37/351 37/355 373/550



Family:

Publication number	Publication date	Application number	Application date
US5465511 A	19951114	US19930092227	19930715

Priority:

US19930092227 19930715

Probable Assignee:

CAPITOL TRENCHER CORP

Assignee(s): (std):

CAPITOL TRENCHER CORP

Inventor(s): (std):

UMBERSON GERALD E

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US5465511 A	19951114	LSGT	+	granted / extensions (spc, cpc, pte)	
US5465511 A	19930715	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : CAPITOL TRENCHER CORPORATION, TEXAS OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:UMBERSON, GERALD; REEL/FRAME:006618/0721 EFFECTIVE DATE : 19930714
US5465511 A	19951103	LSGT	PAT1	Patented Case	
US5465511 A	19991114	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US5465511 A	20000125	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 19991114
US5465511 A	20180126	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US5465511 A	20130715	PEXP		Calculated Patent Term Expiry	

Title: TWO-PIECE TOOTH FOR EXCAVATING APPARATUS

Abstract: (Claim 1) I Claim. (Cl. 37-142) This invention relates to digging teeth for an excavating bucket or dipper and more particularly to a two-pieced tooth having a removable blade.

Classifications:

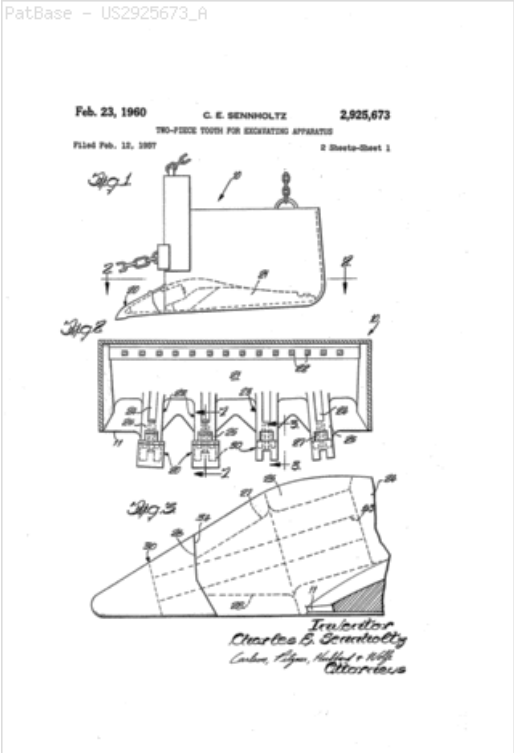
International (IPC 8-9): E02F9/28 (Advanced/Invention);
E02F9/28 (Core/Invention)

International (IPC 1-7): E02F9/28

CPC: E02F9/2825 E02F9/2833

European: E02F9/28A2B E02F9/28A2C

US: 37/455



Family:

Publication number	Publication date	Application number	Application date
US2925673 A	19600223	US19570639718	19570212

Priority:

US19570639718 19570212

Probable Assignee: SENNHOLTZ CHARLES E

Assignee(s): (std): SENNHOLTZ CHARLES E

Inventor(s): (std): SENNHOLTZ CHARLES E

Legal status (INPADOC)

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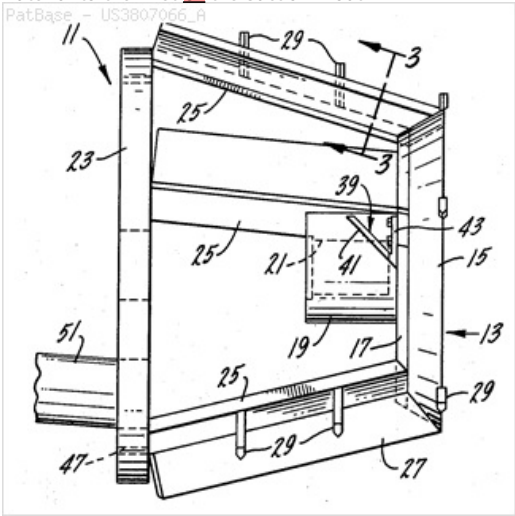
Patent	Date recorded	Event group	Code	Event	Details
US2925673 A	19600223	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: CUTTER HEAD FOR SUCTION DREDGE

Abstract: A truncated, conical cutting head for a suction dredge constructed of simplified wearing parts and strength members which may be easily assembled and removed for replacement. The cutter head has blades directly attached to strengthening struts with the blades inclined in the direction of rotation of the head. Cutter teeth which extend radially outwardly beyond the blades are also attached directly to the struts. Both the struts and the blades are formed of straight pieces of material of conventional cross-sections such as rectangular or square, which have been cut to fit. Lifter plates are provided in the cutter head between the hub and the blades to move material to the inlet of the suction mouth.

Classifications:

International (IPC 8-9): E02F3/92 (Advanced/Invention);
E02F3/88 (Core/Invention)
International (IPC 1-7): E02F3/92
CPC: E02F3/9225 E02F3/9293
European: E02F3/92M4 E02F3/92W
US: 37/189 37/327 37/450 37/6.7



Family:

Publication number	Publication date	Application number	Application date
CA984417 A1	19760224	CA19730176392	19730713
US3807066 A	19740430	US19720311013	19721129

Priority:

US19720311013 19721129

Probable Assignee:

PROEHL NORMAN P

Assignee(s): (std):

PROEHL N ; PROEHL NORMAN P

Assignee(s):

PROEHL N US

Inventor(s): (std):

PROEHL N ; PROEHL NORMAN P

Inventor(s):

PROEHL N US

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
US3807066 A	19740430	LSGT	+	granted / extensions (spc, cpc, pte)	

Title: MULTIPIECE EXCAVATING TOOTH **ASSEMBLY**

Abstract: A multipiece excavating tooth **assembly** including an adapter, a digging or excavating tooth, and retaining pin structure for interconnecting the adapter and tooth in operable combination relative to each other. The tooth and adapter have a uniquely configured interface or juncture therebetween. Moreover, the juncture between the digging tooth and adapter is configured to advantageously orientate the retaining pin structure to avoid those problems inherent with conventional vertical and horizontal pin systems.

Classifications:

International (IPC 8-9): E02F3/36 E02F9/28 (Advanced/Invention);
E02F9/28 (Advanced/Non-invention);
E02F9/28 (Core/Invention)

International (IPC 1-7): E02F9/28

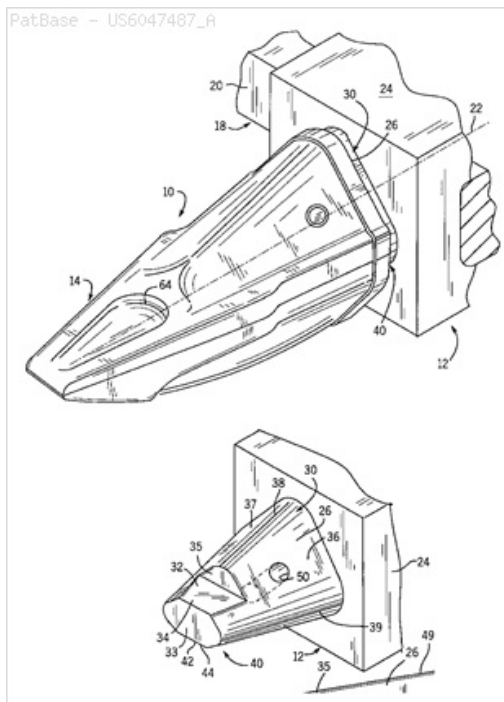
CPC: E02F9/2841

European: E02F9/28A2C2

US: 37/452 37/455 37/456

JP F-Term: 2D015 2D015/JA04

JP F-Index: E02F9/28/A

**Family:**

Publication number	Publication date	Application number	Application date
AU199951039 A1	20000207	AU19990051039	19990714
AU199951039 A5	20000207	AU19990051039	19990714
AU753118 B2	20021010	AU19990051039	19990714
BRPI9912422 A	20011120	BR1999PI12422	19990714
BRPI9912422 B1	20090505	BR1999PI12422	19990714
CA2336824 AA	20010109	CA19992336824	19990714
CA2336824 C	20080520	CA19992336824	19990714
CL1999001583 A1	20000602	CL19990001583	19990715
CL47172 B	20110120	CL19990001583	19990715
CN1182304 C	20041229	CN1998008746	19990714
CN1314965 A	20010926	CN1998008746	19990714
EP1121495 A1	20010808	EP19990935593	19990714
EP1121495 A4	20030102	EP19990935593	19990714
EP1121495 B1	20171206	EP19990935593	19990714
ES2197788 AA	20040101	ES20010050004	19990714
ES2197788 BB	20070216	ES20010050004	19990714
GB200100558 A0	20010221	GB20010000558	19990714
GB2356000 A1	20010509	GB20010000558	19990714
GB2356000 B2	20030305	GB20010000558	19990714
HU0200086 AB	20020529	HU20020000086	19990714
HU226503 B1	20090302	HU20020000086	19990714
JP2002520524 T2	20020709	JP20000560329T	19990714
JP4469501 B2	20100526	JP20000560329T	19990714
KR100632911 B1	20061011	KR20017000704	19990714
KR20010083121 A	20010831	KR20017000704	19990714
RU2001101268 A	20030110	RU20010101268	19990714
RU2249655 C2	20050410	RU20010101268	19990714
TR200100199 T2	20011022	TR20010000199T	19990714
US6047487 A	20000411	US19980118658	19980717
US6247255 BA	20010619	US19990448737	19991124
WO0004244 A1	20000127	WO1999US16025	19990714

Priority:

US19980118658 19980717
KR20017000704 20010117

WO1999US16025 19990714

US19990448737 19991124

Probable Assignee: H AND L TOOTH CO

Assignee(s): (std): H AND L TOOTH CO ; TOOTH H AND L CO

Assignee(s): L TOOTH CO ; H AND L TOOTH CO TULSA ; CLENDENNING CHARLES ; H AMP AMP ; H AND EL TOOTH CAMPANIA

Inventor(s): (std): CLENDENNING CHARLES ; KLENDENNING CHARL Z

Inventor(s): CHARLES CLENDENNING
Agent(s): PATENT ATTORNEY SERVICES; MCCARTHY TETRAULT LLP; SARGENT; SCHOHE STEFAN
Designated states: AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CU CY CZ DE DK EE ES FI FR GA GB GE GH GM GN GR GW HR HU ID IE IL IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MC MD MG MK ML MN MR MW MX NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT UA UG UZ VN YU ZW

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
AU199951039 A1	20000207	LSPB	+	published / reissued	
AU753118 B2	20021010	LSGT	+	granted / extensions (spc, cpc, pte)	
AU753118 B2	20030213	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU753118 B2	20190714	PEXP		Calculated Patent Term Expiry	
BRPI9912422 A	20011120	LSPB	+	published / reissued	
BRPI9912422 A	20090317	LSGT	B09A	DECISION: INTENTION TO GRANT	
BRPI9912422 B1	20090728	LSGT	+B16A	PATENT OR CERTIFICATE OF ADDITION OF INVENTION GRANTED	TEXT : PRAZO DE VALIDADE: 10 (DEZ) ANOS CONTADOS A PARTIR DE 28/07/2009, OBSERVADAS AS CONDICOES LEGAIS.
BRPI9912422 B1	20190728	PEXP		Calculated Patent Term Expiry	
CA2336824 AA	20010109	LSPB	+	published / reissued	
CA2336824 AA	20040422	LSES	+EEER	EXAMINATION REQUEST	
CA2336824 C	20080520	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2336824 C	20190714	PEXP		Calculated Patent Term Expiry	
CL1999001583 A1	20000602	LSPB	+	published / reissued	
CL47172 B	20110120	LSGT	+	granted / extensions (spc, cpc, pte)	
CL47172 B	20260120	PEXP		Calculated Patent Term Expiry	
CN1182304 C	20041229	LSGT	+	granted / extensions (spc, cpc, pte)	
CN1182304 C	20041229	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN1182304 C	20190714	PEXP		Calculated Patent Term Expiry	
CN1314965 A	20010926	LSPB	+	published / reissued	
CN1314965 A	20010926	LSPB	+C06	PUBLICATION	
EP1121495 A1	20010808	LSPB	+	published / reissued	
EP1121495 A1	20010808	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20010116
EP1121495 A4	20030102	LSES	+A4	SUPPLEMENTARY SEARCH REPORT DRAWN UP AND DESPATCHED	EFFECTIVE DATE : 20021108
EP1121495 A4	20080116	LSES	+17Q	FIRST EXAMINATION REPORT DESPATCHED	EFFECTIVE DATE : 20071217
EP1121495 A4	20170607	LSGT	+INTG	INTENTION TO GRANT ANNOUNCED	EFFECTIVE DATE : 20170511

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EP1121495 B1	20180907	LSRE	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : R097 REF DOCUMENT NUMBER : 69945823 COUNTRY OF REF DOCUMENT : DE
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GB2356000 B2	20190714	PEXP		Calculated Patent Term Expiry	
HU0200086 AB	20020529	LSPB	+	published / reissued	
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HU226503 B1	20190714	PEXP		Calculated Patent Term Expiry	
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JP2002520524 T2	20080422	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20080421

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JP2002520524 T2	20090109	LSRE	A521	WRITTEN AMENDMENT	TEXT : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20090108
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JP2002520524 T2	20100222	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	TEXT : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20100219
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JP2002520524 T2	20100305	LSGT	+R150	CERTIFICATE OF PATENT OR REGISTRATION OF UTILITY MODEL	TEXT : JAPANESE INTERMEDIATE CODE: R150
JP2002520524 T2	20100308	LSFE	+FPAY	RENEWAL FEE PAYMENT (EVENT DATE IS RENEWAL DATE OF DATABASE)	YEAR OF FEE PAYMENT : 3
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KR100632911 B1	20040713	LSES	A201	REQUEST FOR EXAMINATION	
KR100632911 B1	20060210	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
KR100632911 B1	20060718	LSGT	+E701	DECISION TO GRANT OR REGISTRATION OF PATENT RIGHT	
KR100632911 B1	20060929	LSGT	+GRNT	WRITTEN DECISION TO GRANT	
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KR100632911 B1	20170913	LSFE	FPAY	ANNUAL FEE PAYMENT	PAYMENT DATE : 20170914 YEAR OF FEE PAYMENT : 12
KR100632911 B1	20190714	PEXP		Calculated Patent Term Expiry	
KR20010083121 A	20010831	LSPB	+	published / reissued	
RU2001101268 A	20030110	LSPB	+	published / reissued	
RU2249655 C2	20050410	LSGT	+	granted / extensions (spc, cpc, pte)	
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TR200100199 T2	20011022	LSPB	+	published / reissued	
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US6047487 A	19980903	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : H& L TOOTH COMPANY, OKLAHOMA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR: CLENDENNING, CHARLES; REEL/FRAME: 009440/0543 EFFECTIVE DATE : 19980709
US6047487 A	20000331	LSGT	PAT1	Patented Case	
US6047487 A	20031013	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6047487 A	20071018	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6047487 A	20111011	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US6047487 A	20180717	PEXP		Calculated Patent Term Expiry	
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US6247255 BA	20010531	LSGT	PAT1	Patented Case	

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US6247255 BA	20191124	PEXP		Calculated Patent Term Expiry	
WO0004244 A1	20000127	LSPB	+	published / reissued	
WO0004244 A1	19990714	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 99808746.7 COUNTRY OF REF DOCUMENT : CN
WO0004244 A1	20010104	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 51039/99 COUNTRY OF REF DOCUMENT : AU
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WO0004244 A1	20010523	LSWD	REG	REFERENCE TO NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : 8642
WO0004244 A1	20010808	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1999935593 COUNTRY OF REF DOCUMENT : EP
WO0004244 A1	20010831	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 1020017000704 COUNTRY OF REF DOCUMENT : KR
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Title: **ASSEMBLY** FOR FASTENING A GROUND ENGAGING TOOL TO A SUPPORT STRUCTURE

Abstract: The present invention provides for an **assembly** for locking a first workpiece mountable onto a second workpiece. The first workpiece has an opening adapted to allow a locking pin to pass therethrough. The opening is cooperatively disposed with respect to a pin receiving means in the second workpiece when the first workpiece is mounted on the second workpiece. At least one **of** the first and second workpieces has a recess to receive a pin carrier. The **assembly** comprises a locking pin adapted to pass through the opening and be received by the pin receiving means when the first workpiece is mounted on the second workpiece; and a pin carrier receivable in the recess. The pin carrier has a pin receiving orifice and is alignable with both the opening and the pin receiving means when the first workpiece is mounted on said second workpiece. The **assembly** further comprises magnetic means on the locking pin and/or the pin carrier to magnetically attract the locking pin and the pin carrier.

Classifications:

International (IPC 8-9): E02F3/40 E02F3/60

E02F9/28 (Advanced/Invention);

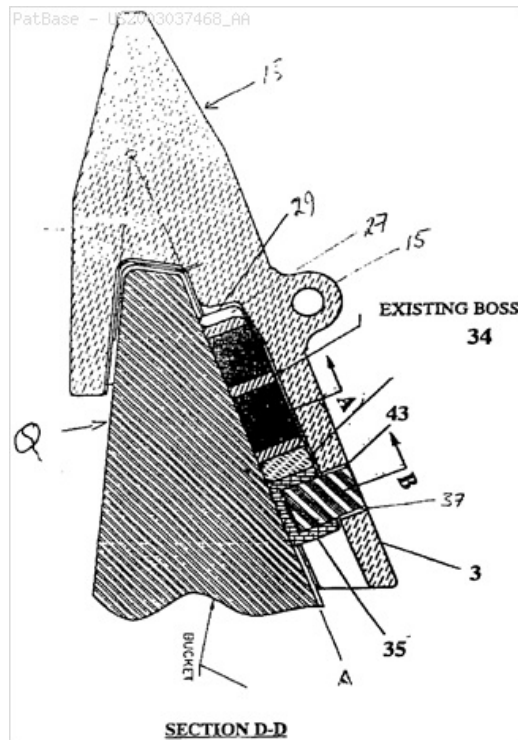
E02F9/28 (Core/Invention)

International (IPC 1-7): E02F3/40 E02F3/60 E02F9/28

CPC: Y10S403/01 E02F9/2833 Y10T403/7088

European: E02F9/28A2C

US: 37/455 37/455P 37/456 403/379.5 403/DIG.1



Family:

Publication number	Publication date	Application number	Application date
CA2274236 AA	20001210	CA19992274236	19990610
CA2274236 C	20031230	CA19992274236	19990610
US2003037468 AA	20030227	US20020223889	20020819
US6725582 BB	20040427	US20020223889	20020819

Priority:

CA19992274236 19990610 US20000591764 20000612 US20020223889 20020819

Probable Assignee: ESCO CANADA LTD

Assignee(s): (std): QUALITY STEEL FOUNDRIES LTD

Assignee(s): QUALITY STEEL FOU ; QUALITY STEEL LTD ; ADAMIC DWIGHT L ; ESCO CANADA LTD ; NETTERVILLE DENNETT ; QSF ACQUISITIONS INC

Inventor(s): (std): ADAMIC DWIGHT L ; NETTERVILLE DENNETT

Agent(s): DIMOCK STRATTON LLP

Legal status (INPADOC)

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Patent	Date recorded	Event group	Code	Event	Details
CA2274236 AA	20001210	LSPB	+	published / reissued	
CA2274236 AA	20020822	LSSES	+EEER	EXAMINATION REQUEST	
CA2274236 C	20031230	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2274236 C	20100610	LSLE	-MKLA	LAPSED	
CA2274236 C	20190610	PEXP		Calculated Patent Term Expiry	
US2003037468 AA	20030227	LSPB	+	published / reissued	
US6725582 BB	20040427	LSGT	+	granted / extensions (spc,	

cpc, pte)					
US6725582 BB	20050701	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : QUALITY STEEL FOUNDRIES LTD., CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:ADAMIC, DWIGHT; REEL/FRAME:016745/0009 EFFECTIVE DATE : 20050524
US6725582 BB	20050701	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : QSF ACQUISITIONS INC., CANADA OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:QUALITY STEEL FOUNDRIES LTD.; REEL/FRAME:016745/0004 EFFECTIVE DATE : 20050524
US6725582 BB	20061018	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : QUALITY STEEL LIMITED, OREGON OLDPARTY : CHANGE OF NAME; ASSIGNOR:QSF ACQUISITIONS INC.; REEL/FRAME:018433/0631 EFFECTIVE DATE : 20060310
US6725582 BB	20071029	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6725582 BB	20090723	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : ESCO CANADA LTD, OREGON OLDPARTY : CHANGE OF NAME; ASSIGNOR:QUALITY STEEL LIMITED; REEL/FRAME:022990/0822 EFFECTIVE DATE : 20090320
US6725582 BB	20120427	LSLE	-LAPS	LAPSE FOR FAILURE TO PAY MAINTENANCE FEES	
US6725582 BB	20120528	LSLE	-PEX1	Patent Expired Due to NonPayment of Maintenance Fees Under 37 CFR 1.362	
US6725582 BB	20120619	LSLE	-FP	EXPIRED DUE TO FAILURE TO PAY MAINTENANCE FEE	EFFECTIVE DATE : 20120427
US6725582 BB	20220819	PEXP		Calculated Patent Term Expiry	