



New connection on: : 15-11-2017 : 22:32:30 - Last disconnection on: : 15-11-2017 : 17:18:20

V 4.0.0.44176(LP,U,linux) (Rev:41675 2016-01-15 13:33:59 +0100#(D201713)) (RPM D201713)

Welcome to EPOQUE Rebuild under the Production Environment

[EPODOC: SS 2] ..fiepodoc



Database: EPODOC

[EPODOC: SS 2] tube+ or mandrel+

Results in EPODOC 1.798.510

[SS 3] * and (soil+ or ground+)

Results in EPODOC 48.851

[SS 4] * and PD<2013-09-05

Results in EPODOC 33.883

[SS 5] ..field



Database: EPODOC

Field	Index	Synonym	Type	Title
AB	BI	ABEN	TEXT	Abstract of the invention in English
ABDE	DE		TEXT	Abstract of the invention in German
ABFR	FR		TEXT	Abstract of the invention in French
ABOL	OLAN		TEXT	Abstract of the invention (other languages)
AN	AN		CODE	Accession number
AP	AP		KW	Application number
CCA	C		KW	CPC Single symbols Confirmed Additional Information
CCI	C		KW	CPC Single symbols Confirmed Invention Information
CLC	CL		KW	CPC Linked symbols Confirmed
CLQ	CL		KW	CPC Linked symbols Raise-Hand by EPO
CLU	CL		KW	CPC Linked symbols Unreviewed
CNOA	CNO		KW	CPC National Office Additional Information
CNOI	CNO		KW	CPC National Office Invention Information

CNOL	CNOL		KW	CPC National Office, Linked symbols
CQA	C		KW	CPC Single symbols Raise-Hand by EPO Additional Information
CQI	C		KW	CPC Single symbols Raise-Hand by EPO Invention Information
CT	CTP		KW	Patents cited in the search report
CTNP	CTL		TEXT	Literature cited in the search report
CTSI	CTSI		TEXT	Citation set Information
CUA	C		KW	CPC Single symbols Unreviewed Additional Information
CUI	C		KW	CPC Single symbols Unreviewed Invention Information
DPK	DPK		KW	DPK classification
DT	DT		KW	Document type
EX	CTP		KW	Patents cited during examination
EXNP	CTL		TEXT	Literature cited during examination
FAMN	FAMN		TEXT	EPO family number
FI	FI		KW	JPO classification
FT	FT		KW	Theme/FTerm identification
IC	IC		KW	IPC issuing office
ICAI	IC		KW	IPC -Advanced Level- Invention
ICAN	IC		KW	IPC -Advanced Level- Additional
ICCI	IC		KW	IPC -Core Level- Invention
ICCN	IC		KW	IPC -Core Level- Additional
IDT	IDT		KW	IDT classification
IN	IN		KW	Inventor name
INW	IN		TEXT	Inventor name
LA	LA		TEXT	Languages
NPR	NPR		ONUM	Number of priorities
OC	CTP		KW	Other patent citations
OCAP	CTA		KW	Other applications citations
OCNP	CTL		TEXT	Other literature citations
OP	CTP		KW	Patents used in opposition
OPAP	CTA		KW	Applications used in opposition
OPD	OPD		ODATE	Oldest priority date
OPNP	CTL		TEXT	Literature used in opposition
PA	PA		KW	Applicant name
PAW	PA		TEXT	Applicant name
PD	PD		ODATE	Oldest publication date
PN	PN	TRID	KW	Publication number
PNFP	PN		KW	Publication numbers
PR	PR		KW	Priority data
PULA	PULA		TEXT	Publication languages
RF	CTP		KW	Patents cited by the applicant
RFAP	CTA		KW	Applications cited by the applicant
RFNP	CTL		TEXT	Literature cited by the applicant
RID	RID01		TEXT	Document Identifier
TI	BI	TIEN	TEXT	Title of the invention in English

TIDE	DE	TEXT	Title of the invention in German	
TIFR	FR	TEXT	Title of the invention in French	
TIOL	OLAN	OT	TEXT	Title of the invention (other languages)
TXT	BI	TEXT	Free text	
UC	UC	KW	USPTO classification	
UKC	UKC	KW	UKPO classification	
UNAP	UNAP	KW	Application number - unstandardised	
UNIN	UNIN	TEXT	Inventor name - unstandardised	
UNPA	UNPA	TEXT	Applicant name - unstandardised	
UNPN	UNPN	TEXT	Publication numbers - unstandardised	
UNPR	UNPR	KW	Priority data - unstandardised	
UPA	UPA01	ODATE	Date of addition of record	
UPM	UPM01	ODATE	Date of most recent modification of record	

[SS 5] 4 and CUI=E02D

No relational operator can be used with TEXT, CODE or KW type indexes/fields. *ERROR(-50091)*

[SS 5] 4 and CUI/E02D

EPODOC: 'E02D' is an invalid/unknown field/index/format/thesaurus relation.
- Check with the commands ..FIELD / ..FOR / ..TH, respectively. *ERROR(-23857)*

[SS 5] 4 and CUI(E02D)

An operator is missing. *ERROR(-101310)*

[SS 5] 4 and CUI\E02D

Results in EPODOC 0

EPODOC: term 'CUI\E02D' not found in index 'BI'. *WARNING(1)*

[SS 6] 4 and CUI:E02D

For SS ranges, use the syntax: OR 1-5

For NUMERICAL ranges, the correct syntax is: n:m

For TERM ranges, double quotes are mandatory: "A23L1/212":"A23L1/214" *ERROR(-50076)*

[SS 6] 4 and E02D

Results in EPODOC 1

[SS 7] 4 and /CUI E02D

Different expressions or operators have been used without brackets. *ERROR(-50002)*

[SS 7] 4 and E02D/CCI

Results in EPODOC 1.705

[SS 8] 4 and E02D/CUI

Results in EPODOC 8

[SS 9] ..li



1/8 © EPODOC / EPO

PN - [CA2852746](#) A1 20130425

PR - BR2011PI05449 20111019; WO2012BR00356 20120918

AP - CA20122852746 20120918

DT - I

CCI - [E04H12/20](#)

CUI - [E02D27/42](#) ; [E04H12/10](#)

CQI - [E04H12/16](#)

PA - MCA TECNOLOGIA DE ESTRUTURAS LTDA [BR]; METALVIX ENGENHARIA E CONSULTORIA LTDA [BR]

TI - WINDBREAK SUPPORTING TOWER FOR REDUCING THE SPEED OF NATURAL WIND ON OPEN-AIR ORE STACKS

AB - The present invention relates to a windfence supporting tower with tension-integrity, comprising a tubular metal tower formed by a central tubular column (1) and four inclined, tubular structural traction elements (2) fastened to the column by the coupling ring (3), with the lower ends attached to the free ends of a cross of compression **tubes** (4) , which cross is in turn attached to the column (1) by the reaction flange of the cross (5). Four vertical structural traction elements (6) are also inserted into the free ends of the cross (4), tensioned and anchored to the **ground** by means of tensioners (7), at four independent foundations (8) located around the foundation of the central **tube**. These vertical ties pull on the connection point to the cross and the inclined structural elements are in turn coupled to the coupling ring, providing stability with tension-integrity, which is the main feature of the present tower for absorbing forces due to the wind. The central tubular column has a clear top height above the coupling ring. Another feature of the tension-integrity tower is that the foundation is formed by a central base and four **ground** anchorage points.

2/8 © EPODOC / EPO

PN - [WO2013056324](#) A1 20130425

PR - BR2011PI05449 20111019

AP - WO2012BR00356 20120918

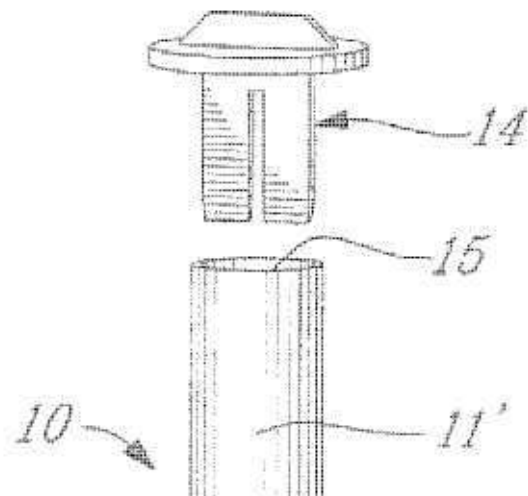
DT - **

CT - |BR| ISR (A1)
[CN201225026Y](#) Y [A];

	JPS5859106 A [A]; US3226091 A [A]; CN201141221Y Y [A]; JPH01250507 A [A]; JPS5648311 A [A]; EP0154577 A1 [A]; US6901714 B2 [A]; US3063521 A [A]; US3169611 A [A]; US3866366 A [A]
CCI	- E04H12/20
CUI	- E02D27/42 ; E04H12/10
CQI	- E04H12/16
PA	- METALVIX ENGENHARIA E CONSULTORIA LTDA [BR]; MCA TECNOLOGIA DE ESTRUTURAS LTDA [BR]
TI	- WINDBREAK SUPPORTING TOWER FOR REDUCING THE SPEED OF NATURAL WIND ON OPEN-AIR ORE STACKS
AB	- The present invention relates to a windfence supporting tower with tension-integrity, comprising a tubular metal tower formed by a central tubular column (1) and four inclined, tubular structural traction elements (2) fastened to the column by the coupling ring (3), with the lower ends attached to the free ends of a cross of compression tubes (4) , which cross is in turn attached to the column (1) by the reaction flange of the cross (5). Four vertical structural traction elements (6) are also inserted into the free ends of the cross (4), tensioned and anchored to the ground by means of tensioners (7), at four independent foundations (8) located around the foundation of the central tube. These vertical ties pull on the connection point to the cross and the inclined structural elements are in turn coupled to the coupling ring, providing stability with tension-integrity, which is the main feature of the present tower for absorbing forces due to the wind. The central tubular column has a clear top height above the coupling ring. Another feature of the tension-integrity tower is that the foundation is formed by a central base and four ground anchorage points.

3/8 © EPODOC / EPO

PN	- US2012087741 A1 20120412
PNFP	- US8506206 B2 20130813
PR	- US20100900876 20101008
AP	- US20100900876 20101008
DT	- *; Rep
CT	- STSE (B2) US1361345 A 19201207 [] (NESS ANTON P, et al) US2874547 A 19590224 [] (FIORE VINCENT J, et al) US3004784 A 19611017 [] (SELBY MAX M) US3314241 A 19670418 [] (MAYHALL GEORGE F)



J (MATHIEU GEORGE L.)

- || R141 (A1)
[US2874547](#) A [];
[US3004784](#) A [];
[US3314241](#) A [];
[US1361345](#) A []

CCI - [E02D5/285](#)

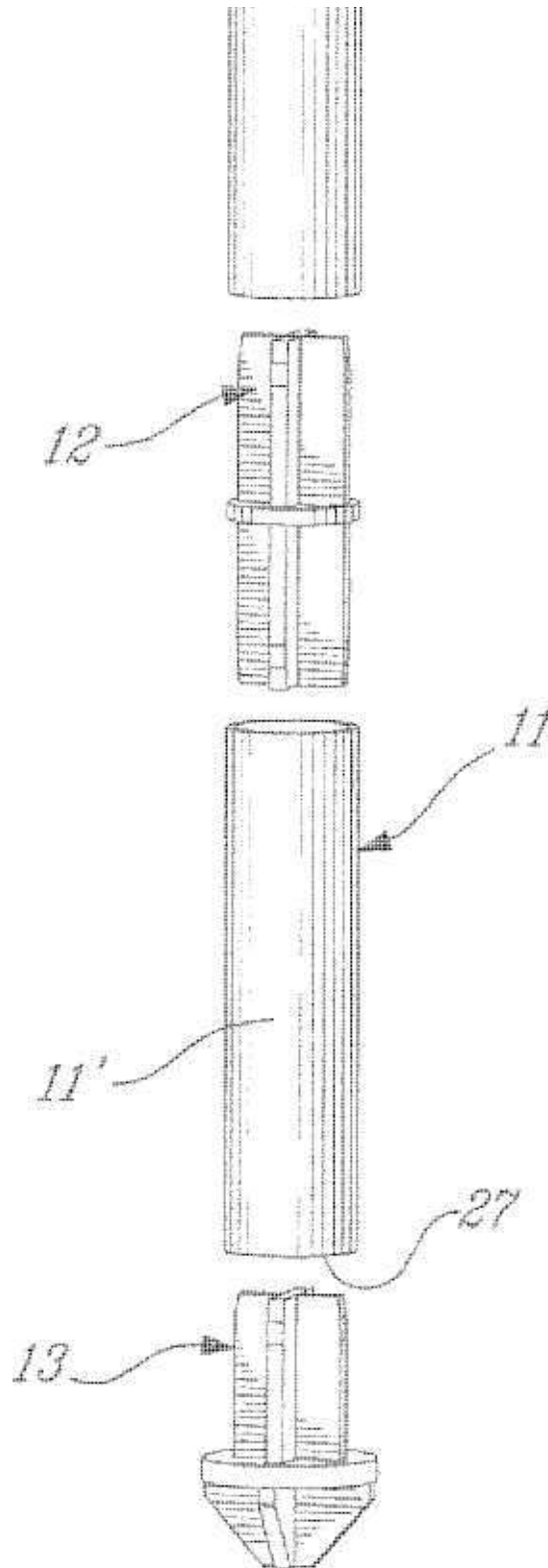
CUI - [E02D5/526](#) ; [E02D27/12](#)

CCA - [Y10T403/55](#)

PA - (A1)
 DESMEULES ALAIN [CA]
 - (B2)
 DESMEULES ALAIN [CA]; 9267
 9075 QUEBEC INC [CA]

TI - (A1 B2)
 COMPOSITE PILE FORMED OF
 INTERCONNECTED RIGID
 HOLLOW **TUBES**

AB - (A1 B2)
 A composite pile is comprised of
 two or more rigid hollow **tubes**
 interconnected together end-to-
 end by a pile connector. A boring
 head is secured to a leading
 lower end of a lowermost one of
 the **tubes**. A force transmitting
 member is removably
 connectable to a top end of an
 uppermost one of the rigid
 hollow **tubes** to receive a driving
 force for driving each of the two
 or more rigid hollow **tubes** into
 the **ground**. The pile connector
 has opposed axially aligned
 projecting pile connecting
 members extending from
 opposed parallel faces of a
 transverse impact transfer disc
 and extend a predetermined
 distance in adjacent open ends
 of the **tubes** to maintain
 the **tubes** in alignment with one
 another. The impact transfer disc
 is dimensioned to extend to an
 outer periphery of
 circumferential end edges of the
 rigid hollow **tubes**
 interconnected end-to-end and to



receive the end edges in contact with the opposed parallel faces to transfer the driving force substantially uniformly between the end edges of the **tubes** interconnected together.

4/8 © EPODOC / EPO

PN - [EP2487320](#) A1 20120815

PNFP - EP2487320 B1 20131009

PR - EP20110001142 20110211

AP - EP20110001142 20110211

DT - *; Rep

CT - || STSE (A1)

[DE102006022613](#) A1 20071122

[AD] (KLEMM BOHRTECHNIK ZWEIGNIEDERL [DE])

[AD] 1-15

* the whole document *;

[FR1436049](#) A 19660422

[A] (RAYMOND GRAIPIN)

[A] 1-15

* page 3, column 1,

paragraph 1 - paragraph 4 *;

[US3092190](#) A 19630604

[A] (CHARLES GRUERE)

[A] 1-15

* column 3, line 28 - column 4, line 18 *;

[EP2246478](#) A1 20101103

[A] (SOILMEC SPA [IT])

[A] 1-15

* paragraph [0017] -

paragraph [0018] *

CCI - [E21B7/005](#)

CUI - [E02D5/36](#) ; [E21B10/44](#) ;
[E21B17/22](#)

CUA - [B65G33/00](#) ; [B65G33/265](#)

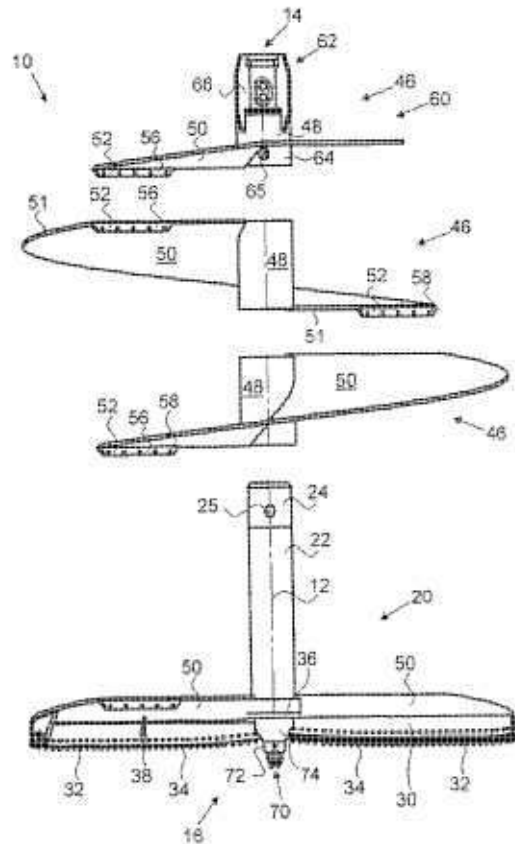
PA - (A1 B1)
BAUER MASCHINEN GMBH [DE]

TI - (A1 B1)
Gimlet

AB - (A1)

The screw borer (10) comprises a cutting unit (30) for removing **soil** material, a conveyor coil for

Fig. 1



conveying **soil** material removed by the cutting unit, and a central supporting shaft at which the cutting unit is rotatably arranged. The conveyor coil has conveying spiral pieces (46) connected together along an axial direction of the borer. Each of the conveying spiral pieces has attachment **tubes** (48), which are installed on the central supporting shaft. The supporting shaft protrudes through the attachment **tube**. The conveying spiral pieces are rotationally fixed on the supporting shaft. The screw borer (10) comprises a cutting unit (30) for removing **soil** material, a conveyor coil for conveying **soil** material removed by the cutting unit, and a central supporting shaft at which the cutting unit is rotatably arranged. The conveyor coil has conveying spiral pieces (46) connected together along an axial direction of the borer. Each of the conveying spiral pieces has attachment **tubes** (48), which are installed on the central supporting shaft. The supporting shaft protrudes through the attachment **tube**. The conveying spiral pieces are rotationally fixed on the supporting shaft, and comprise helical plates (50), which are arranged at a circumference of the attachment **tubes**. The supporting shaft comprises a terminal portion at one of the cutting units, where the mounting shaft is driven in rotation via the terminal portion. The length of the shaft is equivalent to the entire length of the borer. Each of the helical plates has windings, where

connecting units are arranged at the helical plates for releasably connecting the supporting shaft with the adjacent supporting shaft. The connecting units extend along radial edges of the helical plates. The cutting unit has a cutting edge in the region of the supporting shaft. The diameter of the conveyor coil or the conveying spiral pieces amounts to a multiple of the diameter of the supporting shaft and/or the attachment **tubes**. Each of the conveying spiral pieces exhibits an axial length, which is smaller than its diameter. The conveying spiral pieces comprise a connecting portion, with which the mounting shaft is rotationally fixed. A coupling region is provided at one of the cutting units for rotating the borer with a drive element. The shaft is executed as a hollow shaft. An independent claim is included for a method of creating a hole in the **ground** by a screw borer.

5/8 © EPODOC / EPO

PN - [WO2005054395](#) A1 20050616

PR - US20030724030 20031126; US20040767320 20040129

AP - WO2004US39711 20041124

DT - *; Rep

CT - |US| ISR (A1)
[US3131074](#) A 19640428 [A] (THOMPSON JR CHARLES E);
[US4575391](#) A 19860311 [A] (DEBOODT MARCEL F [BE], et al);
[US6790245](#) B2 20040914 [AT] (WOLFF ANDREW R [US], et al)

CUI - [B09C1/08](#) ; [C09K3/22](#) ; [C09K17/50](#) ; [E02D3/12](#)

PA - SEQUOIA PACIFIC RES COMPANY LT [US]; MAILE RICHARD L [US]; WILLIAMS JOHN [US]; HOLMES TERRY R [US]

TI - **SOIL** AND OTHER PARTICLE BINDING COMPOSITIONS AND METHODS OF MAKING AND USING SUCH COMPOSITIONS

AB - Particle binding compositions useful for stabilizing **soil** and other particles comprise water, an endosperm, an iron compound, a strong base, and a pH adjustor. **Soil** binding and revegetation compositions useful for stabilizing **soil** and promoting vegetation or

revegetation of **soil** comprise water, an endosperm, an iron compound, a strong base, and a fibrous material comprising at least two different types of fibers. The endosperm comprises the carbohydrate and protein portions of grains, seeds, or **tubers**. The strong base is reacted with the endosperm in the presence of water added in order to ionize the carbohydrate and protein of the endosperm and render them more soluble or dispersible in water. The iron compound promotes . an electrochemical reaction that assists in the formation of a silicate crystal matrix when applied to **soil**. The pH adjustor lowers the pH of the composition, which improves handling ability and renders the composition more compatible with **soil**. Fibrous materials and/or seeds can be added to promote vegetation or revegetation of denuded **soils**.

6/8 © EPODOC / EPO

PN - [US2008083172](#) A1 20080410

PNFP - US7950200 B2 20110531

PR - US20070903383 20070920; US20040842224 20040510

AP - US20070903383 20070920

DT - *; Rep

CT - || R141 (A1)

[US4800909](#) A 19890131 [] (SEIDEL JOACHIM [DE], et al);

[US5482246](#) A 19960109 [] (DERKOSKI BARBARA [US]);

[USD366372S](#) S 19960123 [] (SKARDA JAMES F [US]);

[US6334281](#) B1 20020101 [] (OLIVER JAMES [US], et al);

[US6675819](#) B2 20040113 [] (ARROWOOD LYNN B [US], et al);

[US5293889](#) A 19940315 [] (HALL TERRANCE A [US], et al);

[USD421532S](#) S 00000000 [];

[US6202368](#) B1 20010320 [] (WALLACE III MILLARD F [US]);

[US3949962](#) A 19760413 [] (WILSON ARNOLD);

[US4148455](#) A 19790410 [] (OLIVER ROBERT J);

[US5199361](#) A 19930406 [] (ROBINSON MILTON W [US]);

[US6547203](#) B1 20030415 [] (WILLARD DOUGLAS [CA]);

[US2709573](#) A 19550531 [] (REED FORREST E);

[US4920897](#) A 19900501 [] (REED ROSS [US], et al);

[US4923165](#) A 19900508 [] (COCKMAN BOYCE R [US], et al);

[US5417166](#) A 19950523 [] (CREDLE SR MICHAEL T [US]);

[USD394544S](#) S 00000000 [];

[US5906077](#) A 19990525 [] (ANDIARENA OSCAR [US]);

[US2003079766](#) A1 20030501 [] (ARROWOOD LYNN B [US], et al);

[US2838285](#) A 19580610 [] (GREDELL OTTO N);

[US4592284](#) A 19860603 [] (FUKUDA TOMIICHI [JP]);

[US6401739](#) B1 20020611 [] (BRIGHT ROBERT G [US], et al);

[US2165962](#) A 19390711 [] (MARTIN MUELLER-CUNRADI, et al);

[US3043383](#) A 19620710 [] (NEWBOLD ALBERT G);

[US4850555](#) A 19890725 [] (LEMKIN JACK L [US], et al);

[US4850564](#) A 19890725 [] (PADIN GILBERTO [US]);

[US4939877](#) A 19900710 [] (CLAFFEY PAUL J [US]);

[US5645094](#) A 19970708 [] (WU WOH-WEN [TW]);

[US6418950](#) B1 20020716 [] (TSENG CHENG YUAN [TW]);

[US2004129184](#) A1 20040708 [] (KRAKER KARL V [US]);

[USD507817S](#) S 20050726 [] (MITCHELL LARRY W [US]);
[US7246783](#) B2 20070724 [] (HAROLD ROBERT [US], et al);
[US4687012](#) A 19870818 [] (SCHULTES TILMANN [DE], et al);
[US2001017150](#) A1 20010830 [] (DORESTE ERIC K [US]);
[US7090437](#) B2 20060815 [] (PINKLETON MICHAEL A [US]);
[US4609175](#) A 19860902 [] (CONOVER LYNN [US]);
[US5046699](#) A 19910910 [] (PERREAULT GILLES R [CA], et al);
[US6113339](#) A 20000905 [] (ADAMS WILLIAM WESLEY [US]);
[US5152495](#) A 19921006 [] (JACINTO MANUEL A [US], et al);
[US5156369](#) A 19921020 [] (TIZZONI SALVATORE [CA]);
[US5358209](#) A 19941025 [] (WARD WILLIAM H [US]);
[US5823214](#) A 19981020 [] (SEIDEL JOACHIM [DE]);
[US6128867](#) A 20001010 [] (MACKARVICH CHARLES J [US]);
[US6298611](#) B1 20011009 [] (OLIVER JAMES [US], et al);
[US6305882](#) B1 20011023 [] (COAST JOHN B [US], et al);
[US2261527](#) A 19411104 [] (CLAIR SHANNON RONALD);
[US3285203](#) A 19661115 [] (MEYER CARL R);
[US4624275](#) A 19861125 [] (BALDWIN BLAIR F [US]);
[US4972978](#) A 19901127 [] (DELUCA RAYMOND F [US]);
[US6314976](#) B1 20011113 [] (CLARKE DOUGAN H [US]);
[US2002175262](#) A1 20021128 [] (BROOKS EDWARD J [US]);
[US4789200](#) A 19881206 [] (MUNGUIA RICHARD [US]);
[US5069237](#) A 19911203 [] (FLANAGAN MICHAEL L [US]);
[US5692720](#) A 19971202 [] (GRIGGS GEORGE J [US]);
[US2002185167](#) A1 20021212 [] (LIN CHUNG-KUANG [TW], et al);
[US6487977](#) B1 20021203 [] (WILLIAMS STEVEN [US], et al);
[US6497296](#) B1 20021224 [] (MCGRIFF MICHAEL LEE [US], et al);
[US6668471](#) B1 20031230 [] (COOK PAUL [US], et al)

- || STSE (B2)

[US2261527](#) A 19411104 [] (CLAIR SHANNON RONALD);
[US2709573](#) A 19550531 [] (REED FORREST E);
[US2838285](#) A 19580610 [] (GREDELL OTTO N);
[US3043383](#) A 19620710 [] (NEWBOLD ALBERT G);
[US3285203](#) A 19661115 [] (MEYER CARL R);
[US4850555](#) A 19890725 [] (LEMKIN JACK L [US], et al);
[US4850564](#) A 19890725 [] (PADIN GILBERTO [US]);
[US4920897](#) A 19900501 [] (REED ROSS [US], et al);
[US4939877](#) A 19900710 [] (CLAFFEY PAUL J [US]);
[US5046699](#) A 19910910 [] (PERREAULT GILLES R [CA], et al);
[US5152495](#) A 19921006 [] (JACINTO MANUEL A [US], et al);
[US5156369](#) A 19921020 [] (TIZZONI SALVATORE [CA]);
[US5293889](#) A 19940315 [] (HALL TERRANCE A [US], et al);
[US5358209](#) A 19941025 [] (WARD WILLIAM H [US]);
[US5417166](#) A 19950523 [] (CREDLE SR MICHAEL T [US]);
[USD366372S](#) S 19960123 [] (SKARDA JAMES F [US]);
[US5645094](#) A 19970708 [] (WU WOH-WEN [TW]);
[US5692720](#) A 19971202 [] (GRIGGS GEORGE J [US]);
[US5906077](#) A 19990525 [] (ANDIARENA OSCAR [US]);
[USD421532S](#) S1 00000000 [];

[US6487977](#) B1 20021203 [] (WILLIAMS STEVEN [US], et al);
[US6675819](#) B2 20040113 [] (ARROWOOD LYNN B [US], et al);
[USD507817S](#) S 20050726 [] (MITCHELL LARRY W [US]);
[US7090437](#) B2 20060815 [] (PINKLETON MICHAEL A [US]);
[US2001017150](#) A1 20010830 [] (DORESTE ERIC K [US]);
[US2002175262](#) A1 20021128 [] (BROOKS EDWARD J [US]);
[US2002185167](#) A1 20021212 [] (LIN CHUNG-KUANG [TW], et al);
[US2003079766](#) A1 20030501 [] (ARROWOOD LYNN B [US], et al);
[US2004129184](#) A1 20040708 [] (KRAKER KARL V [US])

CCI - [E02D5/801](#) ; [E04H12/2223](#)
CUI - [E02D5/74](#) ; [E02D5/80](#) ; [E04C5/12](#)
TI - (A1 B2)
Multi-purpose anchoring apparatus and method
AB - (A1 B2)
An apparatus is disclosed which includes a drilling device and a **tube**. The drilling device typically has a first end, at which a point is located and a second end which is connected to a first end of the **tube**. The apparatus also includes an insertion bar having a first end inserted into the **tube** and a second end at which a latching device is located. The latching device can set a location of the insertion bar with respect to the **tube** so that a height is set. The apparatus may also include a first pole receiver connected at the second end of the insertion bar. The apparatus may include a handle which can be inserted into the insertion bar for rotating the insertion bar, **tube**, and drilling device to drill the drilling device into the **ground**.

7/8 © EPODOC / EPO .

PN - [US1106606](#) A 19140811
PR - US19120739402 19121230
AP - US19120739402 19121230
DT - I
CUI - [E02D5/38](#)
PA - INT SIEGWARTBALKENGESELLSCHAFT; WILHELMI OTTO [CH]
TI - PROCESS OF MAKING FIRM FOUNDATIONS IN THE **GROUND** FOR PILES, **TUBED**SHAFTS, AND THE LIKE.

8/8 © EPODOC / EPO .

PN - [DE202004013727U](#) U1 20050210
PR - DE20042013727U 20040903
AP - DE20042013727U 20040903
DT - *; Rep
CUI - [A45B23/00](#) ; [E02D5/80](#) ; [E04H12/22](#) ; [E04H15/62](#)
PA - KOLBA ELFRIEDE [DE]
TI - Sun umbrella foot for anchoring in **ground**, comprises sliding hammer movable along hollow **tube** with pointed tip
AB - The foot has a two-part construction comprising a hollow **tube** (a) with a round cross-

section and pointed tip and a sliding hammer (d) which can be moved up and down the **tube**. Preferably the **tube** has an internal diameter of 23 mm and total length of 1200 mm. A U-shaped plate (i) welded onto the **tube** acts as stop for the hammer.

[SS 9]