

T.A.I.



Libertad y Orden

REPÚBLICA DE COLOMBIA
DIVISIÓN DE PROPIEDAD INDUSTRIAL

PCT
PATENTE DE INVENCION



Industria y Comercio
SUPERINTENDENCIA

06-33242

TITULO: CUERDA DE SEGURIDAD AUTO-RETRACTIL.

SOLICITANTE: D.B INDUSTRIES, INC.

DIRECCIÓN: 3833 Sala Way. Red Wing. MN 55066-5005. E.U.A.

APODERADO: CARLOS R. OLARTE

BOGOTÁ, Abril 5 de 2006

P2006/000007

PETITORIO - FORMULARIO ÚNICO DE SOLICITUD
PATENTE PCT
ENTRADA EN FASE NACIONAL

SOLICITUD DE:

1

☒

Patente de Invención.

☐

Patente de Modelo de Utilidad.

☒

Capítulo I.

☐

Capítulo II.

2

SOLICITANTE
(71)

Nombre: D B INDUSTRIES, INC.

Dirección: 3833 Sala Way, Red Wing, MN
55066-5005 E.U.A.

Nacionalidad o Domicilio: ESTADOUNIDENSE

Lugar de Constitución: Estados
Unidos de América.

Teléfono: _____ **Fax:** _____

E-mail: _____

IDENTIFICACIÓN

C.C.

☐

NIT

☐

C.E.

☐

Otro

☐

Cual _____

Número _____

REPRESENTANTE
APODERADO

Nombre: CARLOS R. OLARTE

Dirección: World Trade Center Torre A,
Calle 100 No. 8A-37 Piso 10

Teléfono: 601-7700 **Fax:** 601-7799

E-mail: office@olarteraisbeck.com

IDENTIFICACIÓN

C.C.

☒

NIT

☐

C.E.

☐

Otro

☐

Cual _____

Número 79.782.747Bta
TP 74.295

INVENTOR (ES)
(72)

Nombre: WOLNER, J. THOMAS y CASEBOLT, Scott C.

Dirección: 1504 Norwood Street, Red Wing, Minnesota 55066, E.U.A. y
1450 Laurel Avenue, St. Paul Park, Minnesota 55071, E.U.A.

Nacionalidad o Domicilio: ESTADOUNIDENSE

3

PCT (86)

Solicitud Internacional No. PCT/US2004/027243

Fecha Agosto 23, 2004

Publicación Internacional No. WO 2005/025678

Fecha Marzo 24, 2005

4

Título (54) CUERDA DE SEGURIDAD AUTO- RETRÁCTIL

Clasificación Internacional (51) A62B 35/04, 1/10, F16D 59/00, 41/12.

Prioridad

SI

☒

NO

☐

(33) País de Origen

US

US

(32) Fecha

Septiembre 5, 2003

Agosto 9, 2004

(31) Número de Solicitud

60/500.491

10/914.631

5

Comprobante de pago No. 06 - 23.270

Fecha Marzo 23, 2006

10

ANEX S

☒

Comprobante de pago de la tasa de presentación de la solicitud.

☐

Documento que acredita la existencia y representación legal cuando el solicitante sea persona jurídica.

☐

Poderes, si fuere el caso.

☐

Documento de cesión del inventor al solicitante o a su causante.

☐

Declaraciones.

☒

Copia de la solicitud Internacional. (Resumen, descripción, reivindicaciones, dibujos).

☒

Traducción de la solicitud Internacional al castellano. (Resumen, descripción, reivindicaciones, dibujos).

☒

Copia del examen preliminar Internacional efectuado por la Autoridad Internacional de Examen Preliminar (IPEA).

☐

Traducción del examen preliminar Internacional efectuado por la IPEA.

☐

De ser el caso, copia del contrato de acceso.

☐

De ser el caso, documento que acredite la licencia o autorización de uso de conocimientos tradicionales de las comunidades indígenas.

☐

De ser el caso, certificado de depósito del material biológico.

☐

Arte final 12 x 12.

☐

De ser el caso, información sobre otras solicitudes de patente o títulos obtenidos en el extranjero por el mismo titular o su causante, relacionadas parcial o totalmente con la invención de esta solicitud.

☒

De ser el caso, modificaciones efectuadas a la solicitud Internacional.

☒

Otros. Búsqueda Internacional

11

FIGURA CARACTERÍSTICA:

12

Solicito la concesión de la patente,

NOMBRE: CARLOS R. OLARTE

FIRMA:

C.C. 78.782.747 Btá T.P. 74.295

3 ~~3~~

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
Rad: 08-033242- -00000-0000 Fea: 2006-04-06 16:52:32
Dep. 2020 NUECREACIONES
Tra: 11 PATENTE/II Eje 378 FASENACIONAL
Act 411 PRESENTACION Folio: 74

RECIBO OFICIAL DE CAJA : 06 - 23,270
FECHA : MARZO 23 DE 2006

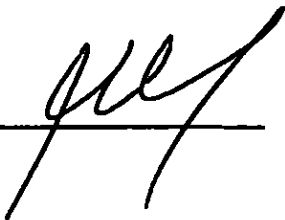
***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PGO	Vr. PAGO
OLARTE RAISBEGR	CONSIGNACION	BANCO POPULAR	050-00110-6	51156208	23/03/2006	2,539,000.

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01	SOLICITUDES	
1		TRANITES DE SOL. DE PATENTE DE IN	463,000.00
		TOTAL :	\$ 463,000.00

SON: CUATROCIENTOS SESENTA Y TRES MIL PESOS

RESPONSABLE : 

RECIBO DE CAJA APLICADO AL EXPEDIENTE No. _____

(19) World Intellectual Property
Organization
International Bureau



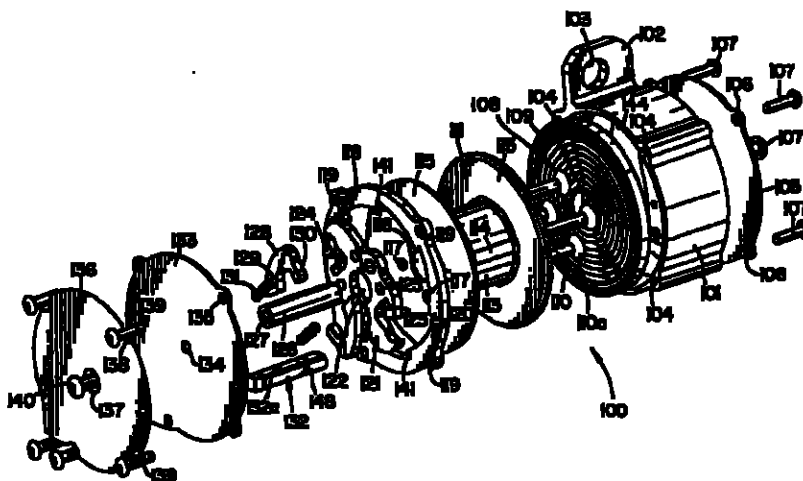
(43) International Publication Date
24 March 2005 (24.03.2005)

PCT

(10) International Publication Number
WO 2005/025678 A1

- (51) International Patent Classification: A62B 35/04, 1/10, F16D 59/00, 41/12
- (21) International Application Number: PCT/US2004/027243
- (22) International Filing Date: 23 August 2004 (23.08.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/500,491 5 September 2003 (05.09.2003) US
10/914,631 9 August 2004 (09.08.2004) US
- (71) Applicant: D B INDUSTRIES, INC. [US/US]; 3965 Poplar Avenue, Red Wing, MN 55066 (US).
- (72) Inventors: WOLNER, J., Thomas; 1504 Norwood Street, Red Wing, MN 55066 (US). CASEBOLT, Scott, C.; 1460 Laurel Avenue, St. Paul Park, MN 55071 (US).
- (74) Agent: MAU, Michael, L.; IPLM Group, P.A., Post Office Box 18455, Minneapolis, MN 55413 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AN, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EG, ES, FI, GB, GD, GE, GR, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TO).
- Published:
— with international search report
— with amended claims
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SELF-RETRACTING LIFELINE



(57) Abstract: A preferred embodiment self-retracting lifeline (100) includes a centrifugal clutch assembly (121) having a pawl (128) and a spring (131). The pawl (128) and the spring (131), which do not require any fixed attachment to any other component of the device, are held in place and pivotable within a plate (143). The plate (143) is rotatable within a cavity (120) of a brake hub (118) including teeth (141) extending into the cavity (120). When a centrifugal force is applied, the pawl (128) compresses the spring (131) and moves away from the plate (143) to engage the teeth (141) thereby activating a brake assembly within the self-retracting lifeline (100).

WO 2005/025678 A1

S 57

SELF-RETRACTING LIFELINE

This application claims the benefit of U.S. Provisional Application No.

5 60/500,491, filed September 5, 2003.

Background of the Invention**1. Field of the Invention**

The present invention relates to a self-retracting lifeline for use with fall protection safety equipment.

10 **2. Description of the Prior Art**

Self-retracting lifelines are well known in the art of fall protection safety equipment for use by workers performing tasks during which there is a risk a fall may occur. Self-retracting lifelines generally include a housing containing a drum around which a cable, rope, or webbing is wound. The drum is spring biased to pay out cable as tension pulling the cable is applied and to retract any of the cable that has been unwound from the drum as the tension on the cable is reduced or released. The housing also includes a brake assembly for stopping rotation of the drum when the cable suddenly unwinds from the drum at a rate greater than a predetermined maximum angular velocity.

15 20

A self-retracting lifeline is typically connected to a support structure within the vicinity the worker is performing the task, and the end of the cable is typically connected to a safety harness worn by the worker. The cable is easily drawn out of the self-retracting lifeline housing as the worker moves away from the device, and the cable is automatically drawn back into the housing as the worker moves toward the device. Should a fall occur, the brake assembly within the device is automatically engaged by a centrifugal clutch assembly, which gradually and quickly stops the worker's fall by gradually and quickly stopping the rotation of the drum. As the rotation of the drum is stopped, additional cable is prevented from being paid out of the housing to stop the fall of the worker.

25 30

6 ~~15~~Summary of the Invention

A preferred embodiment centrifugal clutch assembly for use with a self-retracting lifeline has a brake hub with ratcheting teeth within a cavity of the brake hub and a plate with a first end and a second end. The first end and the second end each have a first portion and a second portion defining an inlet portion. A pawl is configured and arranged to be placed within the inlet portion between the first portion and the second portion on each end of the plate, and the inlet portion provides a cavity within which the pawl is kept in place by the first portion and the second portion. The pawl is pivotable proximate the first portion and the second portion. A spring is configured and arranged to be placed within the inlet portion between the second portion and the pawl, the second portion and the pawl keeping the spring in place within the inlet portion, and the spring placing a biasing force upon the pawl.

A preferred embodiment centrifugal clutch assembly for use with a self-retracting lifeline includes a plate having an end with a first portion and a second portion. The first portion and the second portion define an inlet portion, and the inlet portion extends from the end toward a central portion of the plate. A pawl has a base portion, an intermediate portion, and an extension portion. The intermediate portion interconnects the base portion and the extension portion, and the intermediate portion is configured and arranged to be placed between the first portion and the second portion. The first portion and the second portion keep the intermediate portion in place while allowing the pawl to be pivotable therein proximate the intermediate portion. The base portion extends outward from the intermediate portion and away from the inlet portion. The extension portion extends outward from the intermediate portion and into the inlet portion. A spring is configured and arranged to be placed within the inlet portion between the second portion of the plate and the extension portion of the pawl, the spring biasing the pawl.

A preferred embodiment centrifugal clutch assembly for use with a self-retracting lifeline includes a hub having a cavity and teeth, the teeth extending into the cavity. A plate has an end with a first portion and a second portion. The plate is configured and arranged to fit within the hub. The first

portion and the second portion define an inlet portion, the inlet portion extending from the end toward a central portion of the plate. A pawl has a base portion, an intermediate portion, and an extension portion. The intermediate portion interconnects the base portion and the extension portion.

5 The intermediate portion is configured and arranged to be placed between the first portion and the second portion. The first portion and the second portion keep the intermediate portion in place while allowing the pawl to be pivotable therein proximate the intermediate portion. The base portion extends outward from the intermediate portion into the cavity of the hub, the extension portion

10 extending outward from the intermediate portion into the inlet portion. A spring is configured and arranged to be placed within the inlet portion between the second portion of the plate and the extension portion of the pawl. The spring biases the pawl, wherein a centrifugal force causes the extension portion to compress the spring thereby causing the pawl to pivot, wherein the

15 base portion moves away from the plate and engages the teeth of the hub.

A preferred embodiment brake assembly includes an enclosure defining boundaries of a confinement cavity, a pawl, and a spring. The pawl and the spring are contained within the boundaries of the confinement cavity by the enclosure absent interconnections. The enclosure holds the pawl and

20 the spring in place from movement in a first direction and from movement in a second direction. The first direction and the second direction are generally perpendicular to one another.

A preferred embodiment brake assembly includes a hub having a cavity and teeth, the teeth extending into the cavity. A plate has an end with a first portion and a second portion, and the plate is configured and arranged to

25 fit within the hub. The first portion and the second portion define an inlet portion, and the inlet portion extends from the end toward a central portion of the plate. A drum is operatively connected to the plate. A pawl has a base portion, an intermediate portion, and an extension portion. The intermediate

30 portion interconnects the base portion and the extension portion, and the intermediate portion is configured and arranged to be placed between the first portion and the second portion. The first portion and said second portion keep

the intermediate portion in place while allowing the pawl to be pivotable therein proximate the intermediate portion. The base portion extends outward from the intermediate portion into the cavity of the hub, the extension portion extending outward from the intermediate portion into the inlet portion. A
5 spring is configured and arranged to be placed within the inlet portion between the second portion of the plate and the extension portion of the pawl, the spring biasing the pawl, wherein a sudden acceleration causes the extension portion to compress the spring thereby causing the pawl to pivot, wherein the base portion moves away from the plate and engages the teeth of the hub
10 thereby braking the drum.

Brief Description of the Drawings

Figure 1 is an exploded perspective view of a self-retracting lifeline constructed according to the principles of the present invention; and

15 Figure 2 is a top view of the self-retracting lifeline shown in Figure 1 with two plate members removed to show a centrifugal clutch assembly.

Detailed Description of a Preferred Embodiment

With reference to the drawings, a preferred embodiment self-retracting
20 lifeline constructed according to the principles of the present invention is referenced by the numeral 100.

As shown in Figures 1 and 2, the preferred embodiment self-retracting lifeline 100 includes a housing 101, which is preferably cylindrical in shape with a cavity 144. A tab 102 extends outwardly from the housing 101. Tab
25 102 includes an aperture 103 to enable the self-retracting lifeline 100 to be connected to a support structure (not shown) by a hook (not shown) or other suitable fasteners well known in the art. Within the cylindrical wall of the housing 101, extending longitudinally therethrough, there are preferably four bores 104. The bores 104 are spaced approximately evenly around the
30 housing 101 and are configured and arranged to engage bolts 107. A back plate member 105 is configured and arranged to cover one end of the housing 101 and includes apertures 106, which are in alignment with the bores 104.

9 ~~73~~
~~8~~

The bolts 107 connect the back plate member 105 to the housing 101 by engaging apertures 106 and bores 104, respectively. A spring assembly 108 fits within the cavity 144 of the housing 101. The spring assembly 108 includes a spiral motor spring 109 with an inner end (not shown) and an outer end (not shown).

A drum 111, which resembles a spool, includes a cylinder portion 113 and a rim 115 on each end of the cylinder portion 113. A bore 116 extends longitudinally through the center of the cylinder portion 113, and four bores 117 extend longitudinally through the cylinder portion 113 about the bore 116. The bores 117 form ribs 114 along the cylinder portion 113. The bores 117 are preferably countersunk on one side (not shown) and are configured and arranged to engage bolts 110 with heads 110a. The heads 110a fit within the countersunk portions of the bores 117 so as to not interfere with operation of the self-retracting lifeline 100. The rim 115 facing the housing 101 includes a boss (not shown), which extends outward around the bore 116. The boss includes a slot (not shown) therein. The drum 111 is also configured and arranged to fit within the cavity 144 of the housing 101.

A brake assembly includes a brake hub 118 and a centrifugal clutch assembly 121. The brake hub 118 is generally ring-shaped to form a cavity 120. Proximate the perimeter of the brake hub 118 are apertures 119, which are in alignment with bores 104. Ratcheting catches or teeth 141 extend from the brake hub 118 into the cavity 120.

The centrifugal clutch assembly 121 includes a plate 143, pawls 128, and springs 131. The plate 143 is generally an oval-shaped disk including a finger portion 145 and a hook portion 146 at each end. An aperture 122 proximate the center of the plate 143 is in alignment with bore 116, and apertures 125 are arranged about aperture 122 in alignment with bores 117. The aperture 122 and the apertures 125 form a central, generally circular, portion 147 of the plate 143. The finger portions 145 and the hook portions 146 extend from the central portion 147 of the plate 143 to form the generally oval-shaped disk. Between the finger portions 145 and the hook portions 146 are inlet portions 124, which include expanded inlet portions 123. The finger

10

portions 145 extend outward proximate one side of each end, and the hook portions 146 extend outward and then inward toward the finger portions 145 proximate the opposite side of each end. The finger portions 145 extend outward to the end of the plate 143, but the hook portions 146 do not extend outward to the end of the plate 143. The hook portions 146 extend outward approximately half the distance of the finger portions 145 before they extend inward toward the finger portions 145. Each end is basically a mirror image of the other end so the finger portions 145 are diagonal from one another and the hook portions 146 are diagonal from one another.

10 The inlet portions 124 and the expanded inlet portions 123 are notches in the plate 143 between the finger portions 145 and the hook portions 146. The inlet portions 124 are approximately 1/2 to 1/3 the width of the plate 143 and extend from proximate the middle of each end to proximate midway to the aperture 122. The expanded inlet portions 123 extend from the end of the inlet portions 124 proximate midway to the aperture 122 inward toward the hook portions 146. In other words, the inlet portions 124 and the expanded inlet portions 123 coordinate to define the shapes of the finger portions 145 and the hook portions 146 and to form notches within which the springs 131 and portions the pawls 128 are arranged.

20 The pawls 128 each include a base portion 129, an intermediate portion 142, and an extension portion 130. The intermediate portion 142 is generally circular in shape, and the base portion 129 extends from one side and the extension portion 130 extends from another, generally opposite side of the intermediate portion 142. The base portion 129 is preferably curved to form an arc-shape. As shown in Figures 1 and 2, the intermediate portion 142 and the base portion 129 resemble a mirror image of a comma. The extension portion 130 is generally rectangular and extends generally 90° from the base portion 129.

25 The inlet portion 124 is configured and arranged to receive the intermediate portion 142, which may pivot therein. The extension portion 130 extends into the expanded inlet portion 123, and the base portion 129 extends outward from the inlet portion 124. The arc-shape of the base portion 129

coordinates with the finger portion 145 and the hook portion 146. The top of the arc-shape of the base portion 129 follows the line of the curvature of the end of the finger portion 145 (and the end of the plate 143), and the bottom of the arc-shape follows the curvature of the hook portion 146. The top of the arc-shape is like an extension of the finger portion 145, and the bottom of the arc-shape fits around the hook portion 146. Springs 131 are configured and arranged to fit within the expanded inlet portions 123 between the hook portions 146 and the extension portions 130. In a first position A, the spring 131 provides a constant force upon the extension portion 130 thereby pushing the extension portion 130 against the finger portion 145 and the base portion 129 against the hook portion 146. In a second position B, the force of the spring 130 is overcome by the extension portion 130 to compress the spring 130 thereby pivoting the pawl 128 so that the extension portion 130 moves toward the hook portion 146 and the base portion 129 moves away from the hook portion 146. The first position A allows the pawl 130 to bypass the ratcheting teeth 141 of the brake hub 118 while the second position B allows the pawl 130 to engage the ratcheting teeth 141 of the brake hub 118. Positions A and B are shown in Figure 2.

A shaft 126 having a longitudinal bore 127 is configured and arranged to fit within aperture 122, bore 116, and into cavity 144 proximate the inner end of the spiral motor spring 109. The inner end of the spiral motor spring 109 is inserted into the slot of the boss in rim 115 and is operatively connected thereto, keeping the inner end stationary. The boss is larger in diameter than the shaft 126 and is preferably as thick as the spiral motor spring 109. The outer end of the spiral motor spring 109 is operatively connected to the inner surface of the housing 101 by means well known in the art. The spiral motor spring 109 coils more or less tightly in response to rotation of the drum 111 as the webbing is unwound from and wound about the drum 111. The spiral motor spring 109 maintains a continuous turning force on the drum 111 so that the webbing is continuously urged to be wound about the drum 111.

A plate member 133, which is similarly configured and arranged as back plate member 105, covers the other end of the housing 101 and includes

apertures 135, which are in alignment with the apertures 119 and bores 104. The plate member 133 also includes an aperture 134 in alignment with bore 127. A front plate member 136 may also be used and includes notches 138 in alignment with apertures 135 and an aperture 137 in alignment with aperture 134. The front plate member 136 may be a label. Bolts 139 operatively connect the front plate member 136, the plate member 133, the brake hub 118, and the housing 101 by engaging the notches 138, the apertures 135, the apertures 119, and the bores 104, respectively. Bolt 140 is inserted through apertures 137 and 134 to engage bore 127.

10 A rectangular webbing guide 132 includes an elongate aperture 132a configured and arranged to allow webbing (not shown) to extend from the drum 111 out of the housing 101 through the aperture 132a. Raised portions 148 extend from each side of the webbing guide 132 and fit within a notch 149 in the housing 101. The webbing guide 132 is then held in place between the
15 back plate member 105 and the plate member 133.

The webbing (not shown) includes a first end, a second end, and an intermediate portion therebetween. Although the preferred embodiment utilizes webbing, it is recognized that cable, rope, or other suitable elongate member may be used. The webbing serves as the lifeline of the self-retracting
20 lifeline 100. The intermediate portion is wound onto and off of the cylinder portion 113 of the drum 111, and the rims 115 on either side of the cylinder portion 113 keep the webbing on the cylinder portion 113. The first end of the webbing is fixedly operatively connected by means well known in the art to the drum 111. For example, one such way is shown and described in U.S.
25 Patent 5, 186,289, which is incorporated by reference herein. The second end of the webbing extends through the housing 101 and is operatively connected to a fastening device (not shown) such as a snap hook.

In operation, the self-retracting lifeline 100 is operatively connected to a support structure, and the webbing is operatively connected to a safety
30 harness worn by a worker. The worker is free to move about the vicinity of the self-retracting lifeline 100, with only the length of the webbing restricting the distance of the worker's movement. As the worker moves further away

from the self-retracting lifeline 100, webbing is paid out of the device as it is unwound from the drum 111. As the worker moves closer to the self-retracting lifeline 100, webbing is retracted into the device as it is wound about the drum 111. In the event a fall should occur, the sudden acceleration or high rate of speed at which the drum 111 turns to pay out webbing causes the pawls 128 to overcome the force of the springs 131. The centrifugal force causes the pawls 128 to pivot away from the central portion 147 of the plate 143. The intermediate portion 142 rotates within the inlet portion 124, causing the extension portion 130 to pivot and compress the spring 131 and the base portion 129 to pivot away from the plate 143 and engage at least one of the ratcheting teeth 141 of the brake hub 118. Engagement of the brake hub 118 by the pawls 128 activates the rest of the brake assembly. Because the pawls 128 engage the ratcheting teeth 141 and can no longer rotate within cavity 120, the pawls 128 cause the brake hub 118 to rotate. The brake hub 118, which is rotatably mounted to shaft 126 but does not normally rotate about shaft 126, begins to rotate with the pawls 128 and the drum 111. Once pawls 128 have engaged ratcheting teeth 141, they cannot be disengaged until the drum 111 begins to rotate backward to rewind the webbing onto the cylinder portion 113.

One of the advantages of the present invention is the ease of manufacture and assembly of the self-retracting lifeline 100. In prior art self-retracting lifelines, the pawls include pins about which the pawls pivot and the pawls are fixedly attached to the springs, which are fixedly attached to another component. The present invention does not include pins on the pawls or fixedly attach the springs to any component. The pawls 128 and the springs 131 must only be placed within the appropriate spaces formed by the plate 143. As the self-retracting lifeline is being assembled, the pawls 128 and the springs 131 are simply dropped into place.

The rim 115, the plate member 133, the brake hub 118, and the plate 143 form an enclosure that defines boundaries of a confinement cavity, wherein the pawls 128 and the springs 131 are held in place from movement in a first direction by a front stop (rim 115) and a back stop (plate member 133).

The pawls 128 are held in place from movement in a second direction generally perpendicular to the first direction by the brake hub 118 and the plate 143 between the finger portions 145 and the hook portions 146. The springs are held in place from movement in the second direction by the hook portions 146 of the plate 143 and the extension portions 130 of the pawls 128. The pawls 128 and the springs 131 are held in place by the boundaries of the confinement cavity. Therefore, the pawls 128 and the springs 131 do not require any interconnections such as pins or other fixed attachments well known in the art.

It is recognized that the centrifugal clutch assembly 121, including the plate 143, the pawls 128, and the springs 131, of the present invention is not limited to use with the preferred embodiment self-retracting lifeline 100 and may be used with any other suitable self-retracting lifeline well known in the art. For example, another such self-retracting lifeline with which the present invention may be used is U.S. Patent 5,186,289, which has been incorporated by reference herein.

The above specification, examples and data provide a complete description of the manufacture and use of the composition of the invention. Since many embodiments of the invention can be made without departing from the spirit and scope of the invention, the invention resides in the claims hereinafter appended.

We Claim:

1. A centrifugal clutch assembly for use with a self-retracting lifeline having a brake hub with ratcheting teeth within a cavity of the brake hub and a plate with a first end and a second end, said first end and said second end each having a first portion and a second portion defining an inlet portion, comprising:

a) a pawl configured and arranged to be placed within the inlet portion between the first portion and the second portion on each end of the plate, the inlet portion providing a cavity within which said pawl is kept in place by the first portion and the second portion, said pawl being pivotable proximate the first portion and the second portion; and

b) a spring configured and arranged to be placed within the inlet portion between the second portion and said pawl, the second portion and said pawl keeping said spring in place within the inlet portion, said spring placing a biasing force upon said pawl.

2. The centrifugal clutch assembly of claim 1, wherein said pawl is pivotable between a first position and a second position relative to the plate, said spring pushing said pawl toward the plate in the first position thereby bypassing the ratcheting teeth, said spring being compressed thereby allowing said pawl to pivot away from the plate to the second position thereby engaging the ratcheting teeth.

3. A centrifugal clutch assembly for use with a self-retracting lifeline, comprising:

a) a plate having an end with a first portion and a second portion, said first portion and said second portion defining an inlet portion, said inlet portion extending from said end toward a central portion of said plate;

b) a pawl having a base portion, an intermediate portion, and an extension portion, said intermediate portion interconnecting said base portion and said extension portion, said intermediate portion configured and arranged to be placed between said first portion and said second portion, said first portion and said second portion keeping said intermediate portion in place while allowing said pawl to be pivotable therein proximate said intermediate

16 ~~15~~

portion, said base portion extending outward from said intermediate portion and away from said inlet portion, said extension portion extending outward from said intermediate portion and into said inlet portion; and

c) a spring configured and arranged to be placed within said inlet portion between said second portion of said plate and said extension portion of said pawl, said spring biasing said pawl.

4. The centrifugal clutch assembly of claim 3, further comprising an expanded inlet portion extending from said inlet portion proximate the central portion of said plate and toward said second portion of said plate, said expanded inlet portion being configured and arranged to receive said spring.

5. The centrifugal clutch assembly of claim 3, wherein said pawl is pivotable between a first position and a second position relative to the plate, said spring pushing said pawl toward the plate in the first position thereby bypassing the ratcheting teeth, said spring being compressed thereby allowing said pawl to pivot away from the plate in the second position thereby engaging the ratcheting teeth.

6. A centrifugal clutch assembly for use with a self-retracting lifeline, comprising:

a) a hub having a cavity and teeth, said teeth extending into said cavity;

b) a plate having an end with a first portion and a second portion, said plate configured and arranged to fit within said hub, said first portion and said second portion defining an inlet portion, said inlet portion extending from said end toward a central portion of said plate;

c) a pawl having a base portion, an intermediate portion, and an extension portion, said intermediate portion interconnecting said base portion and said extension portion, said intermediate portion configured and arranged to be placed between said first portion and said second portion, said first portion and said second portion keeping said intermediate portion in place while allowing said pawl to be pivotable therein proximate said intermediate portion, said base portion extending outward from said intermediate portion

into said cavity of said hub, said extension portion extending outward from said intermediate portion into said inlet portion; and

d) a spring configured and arranged to be placed within said inlet portion between said second portion of said plate and said extension portion of said pawl, said spring biasing said pawl, wherein a centrifugal force causes said extension portion to compress said spring thereby causing said pawl to pivot, wherein said base portion moves away from said plate and engages said teeth of said hub.

7. The centrifugal clutch assembly of claim 6, further comprising an expanded inlet portion extending from said inlet portion proximate the central portion of said plate and toward said second portion of said plate, said expanded inlet portion being configured and arranged to receive said spring.

8. The centrifugal clutch assembly of claim 6, wherein said pawl is pivotable between a first position and a second position relative to the plate, said spring pushing said pawl toward the plate in the first position thereby bypassing the ratcheting teeth, said spring being compressed thereby allowing said pawl to pivot away from the plate in the second position thereby engaging the ratcheting teeth.

9. A brake assembly, comprising:

- a) an enclosure defining boundaries of a confinement cavity;
- b) a pawl; and
- c) a spring, the pawl and the spring being contained within the

boundaries of the confinement cavity by the enclosure absent interconnections, the enclosure holding the pawl and the spring in place from movement in a first direction and from movement in a second direction, the first direction and the second direction being generally perpendicular to one another.

10. The brake assembly of claim 9, wherein the enclosure is formed by a rim, a plate member, a brake hub, and a plate, the pawl and the spring being held in place from movement in the first direction by the rim and the plate member, the pawl being held in place from movement in the second direction by the brake hub and the plate, the spring being held in place from movement in the second direction by the pawl and the plate.

18

11. The brake assembly of claim 9, wherein the pawl and the spring are held in place from movement in the first direction by a front stop and a back stop.
12. The brake assembly of claim 11, wherein the front stop is a rim and the back stop is a plate member.
13. The brake assembly of claim 12, wherein the pawl is held in place from movement in the second direction by a brake hub and a plate and the spring is held in place from movement in the second direction by the pawl and the plate.
14. The brake assembly of claim 9, wherein the pawl is held in place from movement in the second direction by a brake hub and a plate and the spring is held in place from movement in the second direction by the pawl and the plate.
15. A brake assembly, comprising:
 - a) a hub having a cavity and teeth, said teeth extending into said cavity;
 - b) a plate having an end with a first portion and a second portion, said plate configured and arranged to fit within said hub, said first portion and said second portion defining an inlet portion, said inlet portion extending from said end toward a central portion of said plate;
 - c) a drum operatively connected to said plate;
 - d) a pawl having a base portion, an intermediate portion, and an extension portion, said intermediate portion interconnecting said base portion and said extension portion, said intermediate portion configured and arranged to be placed between said first portion and said second portion, said first portion and said second portion keeping said intermediate portion in place while allowing said pawl to be pivotable therein proximate said intermediate portion, said base portion extending outward from said intermediate portion into said cavity of said hub, said extension portion extending outward from said intermediate portion into said inlet portion; and
 - e) a spring configured and arranged to be placed within said inlet portion between said second portion of said plate and said extension portion of

said pawl, said spring biasing said pawl, wherein a sudden acceleration causes said extension portion to compress said spring thereby causing said pawl to pivot, wherein said base portion moves away from said plate and engages said teeth of said hub thereby braking the drum.

16. The brake assembly of claim 15, wherein boundaries of a confinement cavity hold the pawl and the spring in place from movement in a first direction and from movement in a second direction absent interconnections, the first direction and the second direction being generally perpendicular to one another.

20/26

AMENDED CLAIMS

**[Received by the International Bureau on 27 January 2005 (27.01.2005);
original claims 1 and 9 amended,
original claims 2-8 and 10-16 unchanged (5 pages)]**

1. A centrifugal clutch assembly for use with a self-retracting lifeline having a brake hub with ratcheting teeth within a cavity of the brake hub and a plate with a first end and a second end, said first end and said second end each having a first portion and a second portion defining an inlet portion, comprising:

a) a pawl having a base portion, an intermediate portion, and an extension portion, said intermediate portion interconnecting said base portion and said extension portion, said intermediate portion configured and arranged to be placed within the inlet portion between the first portion and the second portion on each end of the plate, the inlet portion providing a cavity within which said pawl is kept in place by the first portion and the second portion, said pawl being pivotable proximate the first portion and the second portion, said intermediate portion being kept in place while allowing said pawl to be pivotable therein proximate said intermediate portion, said base portion extending outward from said intermediate portion and away from said inlet portion, said extension portion extending outward from said intermediate portion and into said inlet portion; and

b) a spring configured and arranged to be placed within the inlet portion between the second portion and said extension portion of said pawl, the second portion and said pawl keeping said spring in place within the inlet portion, said spring placing a biasing force upon said pawl.

2. The centrifugal clutch assembly of claim 1, wherein said pawl is pivotable between a first position and a second position relative to the plate, said spring pushing said pawl toward the plate in the first position thereby bypassing the ratcheting teeth, said spring being compressed thereby allowing said pawl to pivot away from the plate in the second position thereby engaging the ratcheting teeth.

21/3

3. A centrifugal clutch assembly for use with a self-retracting lifeline, comprising:

- a) a plate having an end with a first portion and a second portion, said first portion and said second portion defining an inlet portion, said inlet portion extending from said end toward a central portion of said plate;
- b) a pawl having a base portion, an intermediate portion, and an extension portion; said intermediate portion interconnecting said base portion and said extension portion; said intermediate portion configured and arranged to be placed between said first portion and said second portion, said first portion and said second portion keeping said intermediate portion in place while allowing said pawl to be pivotable therein proximate said intermediate portion, said base portion extending outward from said intermediate portion and away from said inlet portion, said extension portion extending outward from said intermediate portion and into said inlet portion; and
- c) a spring configured and arranged to be placed within said inlet portion between said second portion of said plate and said extension portion of said pawl, said spring biasing said pawl.

4. The centrifugal clutch assembly of claim 3, further comprising an expanded inlet portion extending from said inlet portion proximate the central portion of said plate and toward said second portion of said plate, said expanded inlet portion being configured and arranged to receive said spring.

5. The centrifugal clutch assembly of claim 3, wherein said pawl is pivotable between a first position and a second position relative to the plate, said spring pushing said pawl toward the plate in the first position thereby bypassing the ratcheting teeth, said spring being compressed thereby allowing said pawl to pivot away from the plate in the second position thereby engaging the ratcheting teeth.

6. A centrifugal clutch assembly for use with a self-retracting lifeline, comprising:

- a) a hub having a cavity and teeth, said teeth extending into said cavity;
- b) a plate having an end with a first portion and a second portion, said plate configured and arranged to fit within said hub, said first portion and

22

said second portion defining an inlet portion, said inlet portion extending from said end toward a central portion of said plate;

c) a pawl having a base portion, an intermediate portion, and an extension portion, said intermediate portion interconnecting said base portion and said extension portion, said intermediate portion configured and arranged to be placed between said first portion and said second portion, said first portion and said second portion keeping said intermediate portion in place while allowing said pawl to be pivotable therein proximate said intermediate portion, said base portion extending outward from said intermediate portion into said cavity of said hub, said extension portion extending outward from said intermediate portion into said inlet portion; and

d) a spring configured and arranged to be placed within said inlet portion between said second portion of said plate and said extension portion of said pawl, said spring biasing said pawl; wherein a centrifugal force causes said extension portion to compress said spring thereby causing said pawl to pivot, wherein said base portion moves away from said plate and engages said teeth of said hub.

7. The centrifugal clutch assembly of claim 6, further comprising an expanded inlet portion extending from said inlet portion proximate the central portion of said plate and toward said second portion of said plate, said expanded inlet portion being configured and arranged to receive said spring.

8. The centrifugal clutch assembly of claim 6, wherein said pawl is pivotable between a first position and a second position relative to the plate, said spring pushing said pawl toward the plate in the first position thereby bypassing the ratcheting teeth, said spring being compressed thereby allowing said pawl to pivot away from the plate in the second position thereby engaging the ratcheting teeth.

9. A brake assembly, comprising:

- a) an enclosure defining boundaries of a confinement cavity;
- b) a pawl having a base portion, an intermediate portion, and an extension portion, the intermediate portion interconnecting the base portion and the extension portion, the intermediate portion configured and arranged to be placed within the confinement cavity, the confinement cavity providing a cavity within which the pawl is kept in place by the enclosure, the intermediate portion being kept in place while allowing the pawl to be pivotable therein proximate the intermediate portion, the base portion extending outward from the intermediate portion and away from the confinement cavity, the extension portion extending outward from the intermediate portion and into the confinement cavity; and
- c) a spring, the pawl and the spring being contained within the boundaries of the confinement cavity by the enclosure absent interconnections, the enclosure holding the pawl and the spring in place from movement in a first direction and from movement in a second direction, the first direction and the second direction being generally perpendicular to one another, the spring being configured and arranged to be placed within the confinement cavity between the enclosure and the extension portion of the pawl.

10. The brake assembly of claim 9, wherein the enclosure is formed by a rim, a plate member, a brake hub, and a plate, the pawl and the spring being held in place from movement in the first direction by the rim and the plate member, the pawl being held in place from movement in the second direction by the brake hub and the plate, the spring being held in place from movement in the second direction by the pawl and the plate.

11. The brake assembly of claim 9, wherein the pawl and the spring are held in place from movement in the first direction by a front stop and a back stop.

12. The brake assembly of claim 11, wherein the front stop is a rim and the back stop is a plate member.

13. The brake assembly of claim 12, wherein the pawl is held in place from movement in the second direction by a brake hub and a plate and the spring is held in place from movement in the second direction by the pawl and the plate.

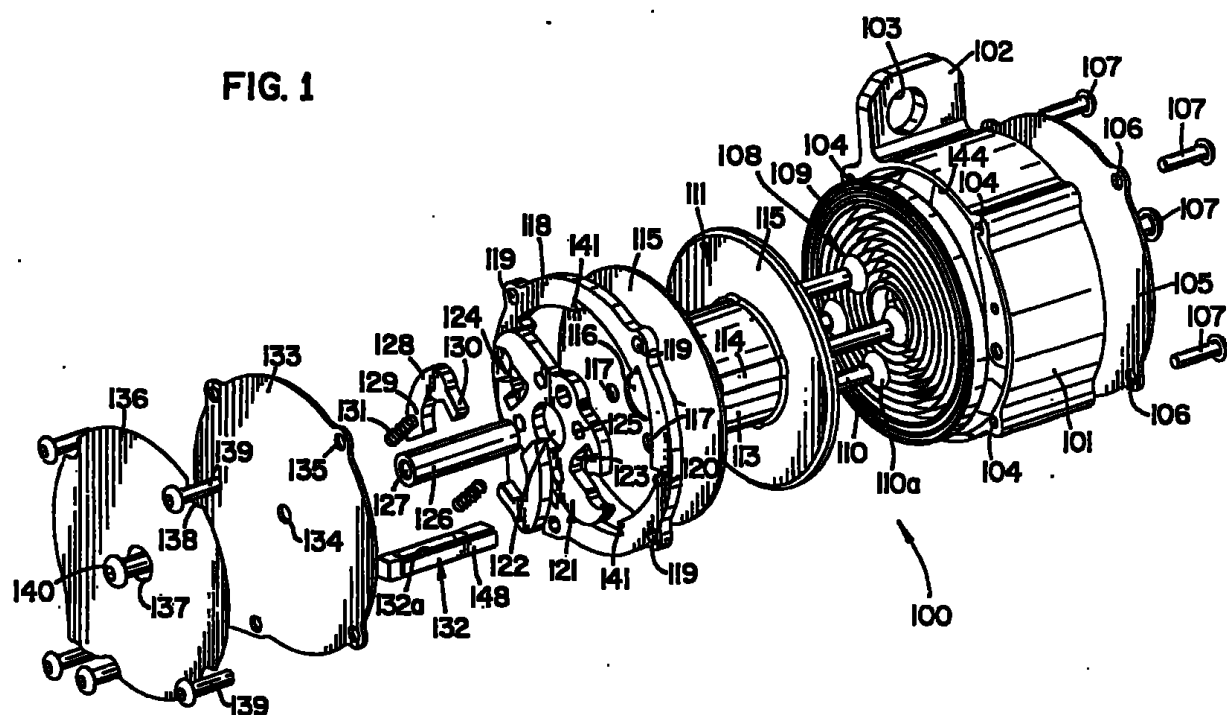
14. The brake assembly of claim 9, wherein the pawl is held in place from movement in the second direction by a brake hub and a plate and the spring is held in place from movement in the second direction by the pawl and the plate.

15. A brake assembly, comprising:

- a) a hub having a cavity and teeth, said teeth extending into said cavity;
- b) a plate having an end with a first portion and a second portion, said plate configured and arranged to fit within said hub, said first portion and said second portion defining an inlet portion, said inlet portion extending from said end toward a central portion of said plate;
- c) a drum operatively connected to said plate;
- d) a pawl having a base portion, an intermediate portion, and an extension portion, said intermediate portion interconnecting said base portion and said extension portion, said intermediate portion configured and arranged to be placed between said first portion and said second portion, said first portion and said second portion keeping said intermediate portion in place while allowing said pawl to be pivotable therein proximate said intermediate portion, said base portion extending outward from said intermediate portion into said cavity of said hub, said extension portion extending outward from said intermediate portion into said inlet portion; and
- e) a spring configured and arranged to be placed within said inlet portion between said second portion of said plate and said extension portion of said pawl, said spring biasing said pawl, wherein a sudden acceleration causes said extension portion to compress said spring thereby causing said pawl to pivot, wherein said base portion moves away from said plate and engages said teeth of said hub thereby braking the drum.

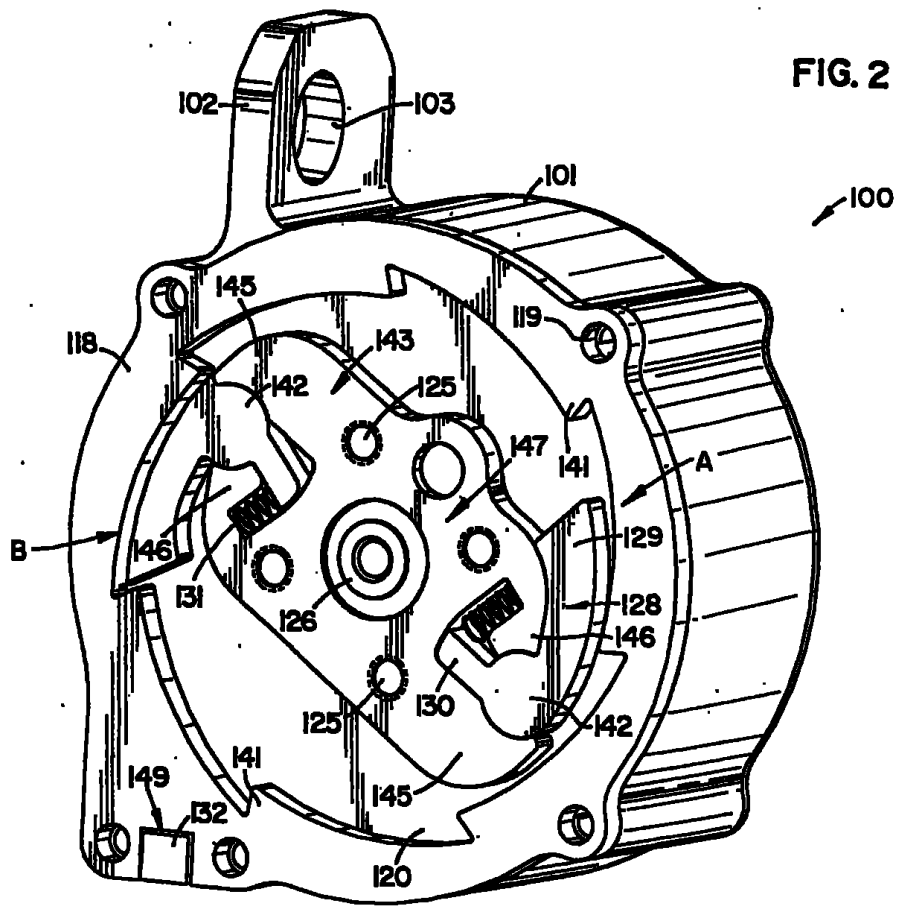
16. The brake assembly of claim 15, wherein boundaries of a confinement cavity hold the pawl and the spring in place from movement in a first direction and from movement in a second direction about interconnections, the first direction and the second direction being generally perpendicular to one another.

FIG. 1



4

FIG. 2



INTERNATIONAL SEARCH REPORT

International Application No.
PCT/US2004/027243

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A62B35/04 A62B1/10 F16D59/00 F16D41/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A62B F16D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data bases consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 287 950 A (FEATHERS LEONARD J ET AL) 22 February 1994 (1994-02-22) the whole document	1,2,9-14
Y	EP 0 247 818 A (BARROW HEPBURN EQUIP LTD) 2 December 1987 (1987-12-02) the whole document	1,2,9-14
A		1,3,6,15
Y	US 5 070 978 A (PIRES PAUL B) 10 December 1991 (1991-12-10) figure 1	1,2,9-14
Y	GB 238 302 A (ARTHUR TREVE HOLMAN; JOHN LEONARD HOLMAN) 17 August 1925 (1925-08-17) figures 1,2	1,2,9-14
	-/-	

☒ Further documents are listed in the classification of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (see specification)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to substantiate the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

Z document member of the same patent family

Date of the actual completion of the international search

25 November 2004

Date of mailing of the international search report

02/12/2004

Name and mailing address of the ISA

European Patent Office, P.O. Box 5816 Patentweg 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 840-8040, Tx. 81 861 epo nl,
Fax: (+31-70) 840-8016

Authorized officer

Schut, T

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/027243

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WD 97/12786 A (FOEHL ARTUR) 10 April 1997 (1997-04-10) the whole document	1,2,9-14
A	US 4 589 523 A (OLSON WAYNE L ET AL) 20 May 1986 (1986-05-20) figure 5	

Form PCT/ISA/210 (continuation of annex 2) (January 2004)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/027243

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5287950	A	22-02-1994	AU 645364 B2 AU 8759091 A CA 2069503 A1 EP 0507911 A1 WO 9207626 A1 GB 2250008 A ,B JP 5503238 T	13-01-1994 26-05-1992 01-05-1992 14-10-1992 14-05-1992 27-05-1992 03-06-1993
EP 0247818	A	02-12-1987	AU 589775 B2 AU 7344487 A EP 0247818 A2 GB 2192679 A ,B JP 63023677 A US 4846313 A	19-10-1989 03-12-1987 02-12-1987 20-01-1988 30-01-1988 11-07-1989
US 5070978	A	10-12-1991	AT 142752 T DE 69122096 D1 DE 69122096 T2 EP 0525126 A1 JP 3184520 B2 JP 5506707 T KR 196907 B1 WO 9116553 A1	15-09-1996 17-10-1996 03-04-1997 03-02-1993 09-07-2001 30-09-1993 15-06-1999 31-10-1991
GB 238302	A	17-08-1925	NONE	
WO 9712786	A	10-04-1997	DE 29515703 U1 CN 1166157 A ,B CZ 9701685 A3 DE 59604957 D1 WO 9712786 A1 EP 0793588 A1 ES 2146021 T3 JP 10513417 T ZA 9608277 A	08-02-1996 26-11-1997 17-09-1997 18-05-2000 10-04-1997 10-09-1997 16-07-2000 22-12-1998 02-05-1997
US 4589523	A	20-05-1986	AT 44242 T DE 3571206 D1 EP 0152041 A2	15-07-1989 03-08-1989 21-08-1985

29
29

CUERDA DE SEGURIDAD AUTO- RETRÁCTIL

Esta solicitud reivindica el beneficio de la Solicitud Provisional Americana No. 60/500.491, registrada en Septiembre 5 de 2003.

5

Fundamento del Invento

1. Campo del Invento

El presente invento se relaciona con una cuerda de seguridad auto- retráctil para utilizar con equipo de seguridad de protección contra caídas.

10

2. Descripción del Estado de la Técnica Anterior

Las cuerdas de seguridad auto- retráctiles son bien conocidas en el estado de la técnica de equipo de seguridad de protección contra caídas para utilizar por trabajadores que desempeñan tareas durante las cuales existe el riesgo de ocurrencia de una caída. Las cuerdas de seguridad auto- retráctiles generalmente incluyen un receptáculo que contiene un tambor alrededor del cual un cable, cuerda o cincha es enrollada. El tambor es inclinado por resorte para expender cable cuando la tensión que hala el cable es aplicada y para retractar el cable que ha sido desenrollado del tambor a medida que la tensión sobre el cable es reducida o liberada. El receptáculo también incluye un ensamble de freno para detener la rotación (giro) del tambor cuando el cable repentinamente se desenrolla del tambor a una tasa mayor que la velocidad angular máxima predeterminada.

15

20

25

30

Una cuerda de seguridad auto- retráctil típicamente está conectada a una estructura de soporte dentro de la proximidad donde el trabajador está realizando la tarea, y el extremo del cable típicamente está conectado a un arnés de seguridad utilizado por el trabajador. El cable fácilmente es extraído del receptáculo de cuerda de seguridad auto- retráctil a medida que el trabajador se retira del dispositivo, y el cable es automáticamente retractado hacia el receptáculo cuando el trabajador se mueve hacia el dispositivo. Si ocurre una caída, el ensamble de freno dentro del dispositivo automáticamente es acoplado por un ensamble de embrague centrífugo, el cual detiene de manera gradual y rápida la caída del trabajador al detener de manera gradual y

rápida la rotación del tambor. A medida que la rotación del tambor es detenida, se evita que se expendan cable adicional del receptáculo para detener la caída del trabajador.

Resumen del Invento

5

Una realización preferida de ensamble de embrague centrífugo para utilizar con una cuerda de seguridad auto- retráctil tiene un cubo de freno con trinquete dentro de una cavidad del cubo de freno y una placa con un primer extremo y un segundo extremo. El primer extremo y el segundo extremo cada uno tienen una primera porción y una segunda porción que definen una porción de entrada. Una uña es configurada y dispuesta para ser colocada dentro de la porción de entrada entre la primera porción y la segunda porción sobre cada extremo de la placa, y la porción de entrada proporciona una cavidad dentro de la cual la uña es mantenida en lugar mediante la primera porción y la segunda porción. La uña es girable cerca de la primera porción y la segunda porción. Un resorte está configurado y dispuesto para ser colocado dentro de la porción de entrada entre la segunda porción y la uña, la segunda porción y la uña manteniendo el resorte en lugar dentro de la porción de entrada, y el resorte colocando una fuerza sesgadora sobre la uña.

Una realización preferida de ensamble de embrague centrífugo para utilizar con una cuerda de seguridad autoretráctil incluye una placa con un extremo con una primera porción y una segunda porción. La primera porción y la segunda porción definen una porción de entrada, y la porción de entrada se extiende desde el extremo hacia una porción central de la placa. Una uña tiene una porción base, una porción intermedia, y una porción de extensión. La porción intermedia interconecta la porción base y la porción de extensión, y la porción intermedia está configurada y dispuesta para ser colocada entre la primera porción y la segunda porción. La primera porción y la segunda porción mantienen la porción intermedia en lugar mientras permiten a la uña ser girable allí cerca de la porción intermedia. La porción base se extiende hacia afuera desde la porción intermedia y lejos de la porción de entrada. La porción de extensión se extiende hacia afuera desde la porción intermedia y hacia la porción de entrada. Un resorte es configurado y dispuesto para ser colocado dentro de la porción de entrada entre la segunda porción de la placa y la porción de extensión de la uña, el resorte inclinando la uña.

32

Una realización preferida de ensamble de embrague centrífugo para utilizar con una cuerda de seguridad auto- retráctil incluye un cubo con una cavidad y dientes, los dientes extendiéndose en la cavidad. Una placa tiene un extremo con una primera porción y una segunda porción. La placa está configurada y dispuesta para encajar dentro del cubo. La primera porción y la segunda porción definen una porción de entrada, la porción de entrada se extiende desde el extremo hacia una porción central de la placa. Una uña tiene una porción base, una porción intermedia, y una porción de extensión. La porción intermedia interconecta la porción base y la porción de extensión. La porción intermedia está configurada y dispuesta para ser colocada entre la primera porción y la segunda porción. La primera porción y la segunda porción mantienen la porción intermedia en lugar mientras permiten a la uña ser girable cerca de la porción intermedia. La porción base se extiende hacia fuera desde la porción intermedia hacia la cavidad del cubo, la porción de extensión se extiende hacia fuera desde la porción intermedia hacia la porción de entrada. Un resorte está configurado y dispuesto para ser colocado dentro de la porción de entrada entre la segunda porción de la placa y la porción de extensión de la uña. El resorte inclina la uña, en donde una fuerza centrífuga hace que la porción de extensión comprima el resorte produciendo así la rotación de la uña, en donde la porción base se mueve desde la placa y acopla los dientes del cubo.

Una realización preferida del ensamble de frenos incluye un cerramiento que define extremos de una cavidad de confinamiento, una uña, y un resorte. La uña y el resorte están contenidos dentro de los extremos de la cavidad de confinamiento mediante las interconexiones carentes de cerramiento. El cerramiento evita que la uña y el resorte se muevan en una primera dirección y en una segunda dirección. La primera dirección y la segunda dirección generalmente son perpendiculares entre sí.

Una realización preferida del ensamble de frenos incluye un cubo con una cavidad y dientes, los dientes extendiéndose en la cavidad. Una placa tiene un extremo con una primera porción y una segunda porción, y la placa está configurada y dispuesta para encajar dentro del cubo. La primera porción y la segunda porción definen una porción de entrada, y la porción de entrada se extiende desde el extremo hacia una porción central de la placa. Un tambor está operativamente conectado a la placa. Una uña tiene una porción base, una porción intermedia, y una porción de extensión. La porción intermedia interconecta la porción base y la porción de extensión, y la porción intermedia está configurada y dispuesta para ser colocada entre la primera

23
33

porción y la segunda porción. La primera porción y la segunda porción mantienen la porción intermedia en lugar mientras permiten a la uña rotar cerca de la porción intermedia. La porción base se extiende hacia fuera desde la porción intermedia hacia la cavidad del cubo, la porción de extensión se extiende hacia fuera desde la porción intermedia hacia la porción de entrada. Un resorte está configurado y dispuesto para ser colocado dentro de la porción de entrada entre la segunda porción de la placa y la porción de extensión de la uña, el resorte que inclina la uña, en donde una aceleración repentina hace la porción de extensión comprima el resorte haciendo así que la uña gire, en donde la porción base se mueve desde la placa y acopla los dientes del cubo frenando así el tambor.

10

Breve Descripción de las Ilustraciones

La figura 1 es una vista de perspectiva desarrollada de una cuerda de seguridad auto-retráctil construida según los principios del presente invento; y

15

La figura 2 es una vista superior de la cuerda de seguridad auto- retráctil mostrada en la figura 1 con dos miembros de placa retirados para mostrar un ensamble de embrague centrífugo.

Descripción Detallada de una Realización Preferida

20

Con referencia a las ilustraciones, una realización preferida de una cuerda de seguridad auto- retráctil construida según los principios del presente invento es citada en el numeral 100.

Como se muestra en las Figuras 1 y 2, la realización preferida de la cuerda de seguridad auto- retráctil 100 incluye un receptáculo 101, el cual tiene forma preferiblemente cilíndrica con una cavidad 144. Una lengüeta 102 se extiende hacia fuera desde el receptáculo 101. La lengüeta 102 incluye un orificio 103 para permitir que la cuerda de seguridad auto- retráctil 100 se conecte a una estructura de soporte (no mostrada) por un gancho (no mostrado) u otros sujetadores apropiados bien conocidos en el estado de la técnica. Dentro de la pared cilíndrica del receptáculo 101, extendiéndose longitudinalmente entre la misma, se encuentran preferiblemente cuatro diámetros interiores 104. Los diámetros interiores 104 están espaciados de manera uniforme alrededor del receptáculo 101 y están configurados y dispuestos para acoplar los pernos 107. Un miembro de placa posterior 105 está configurado y dispuesto para cubrir un extremo del

25

30

receptáculo 101 e incluye orificios 106, los cuales están en alineación con los diámetros interiores 104. Los pernos 107 conectan el miembro de placa posterior 105 al receptáculo 101 al acoplar los orificios 106 y los diámetros interiores 104, respectivamente. Un ensamble de resorte 108 acopla dentro de la cavidad 144 del receptáculo 101. El ensamble de resorte 108 incluye un resorte de motor espiral 109 con un extremo interior (no mostrado) y un extremo exterior (no mostrado).

Un tambor 111, el cual se asemeja a un carrete, incluye una porción de cilindro 113 y una pestaña 115 sobre cada extremo de la porción de cilindro 113. Un diámetro interior 116 se extiende longitudinalmente a través del centro de la porción de cilindro 113, y cuatro diámetros interiores 117 se extienden longitudinalmente a través de la porción de cilindro 113 cerca del diámetro interior 116. Los diámetros interiores 117 forman costillas 114 a lo largo de la porción de cilindro 113. Los diámetros interiores 117 preferiblemente son avellanados en un lado (no mostrado) y están configurados y dispuestos para acoplar los pernos 110 con las cabezas 110a. Las cabezas 110a encajan dentro las porciones avellanadas de los diámetros interiores 117 para no interferir con la operación de la cuerda de seguridad auto- retráctil 100. La pestaña 115 que enfrenta el receptáculo 101 incluye un resalte (no mostrado), el cual se extiende hacia fuera alrededor del diámetro interior 116. El resalte incluye una ranura (no mostrada) en el mismo. El tambor 11 también está configurado y dispuesto para encajar dentro de la cavidad 144 del receptáculo 101.

Un ensamble de frenos incluye un cubo de frenos 118 y un ensamble de embrague centrífugo 121. El cubo de frenos 118 generalmente tiene forma de anillo para formar una cavidad 120. Cerca del perímetro del cubo de frenos 118 están los orificios 119, los cuales están en alineación con los diámetros interiores 104. Los retenes o trinquete 141 se extienden desde el cubo de freno 118 hacia la cavidad 120.

El ensamble de embrague centrífugo 121 incluye una placa 143, uñas 128, y resortes 131. La placa 143 generalmente es un disco en forma de óvalo que incluye una porción de uña 145 y una porción de gancho 146 en cada extremo. Un orificio 122 cerca del centro de la placa 143 está en alineación con el diámetro interior 116, y los orificios 125 están dispuestos alrededor del orificio 122 en alineación con los diámetros interiores 117. El orificio 122 y los orificios 125 forman una porción central generalmente circular 147 de la placa 143. Las porciones de uña 145 y las porciones de gancho 146 se extienden desde la porción central 147 de la placa 143 para formar el disco generalmente en forma de óvalo. Entre las porciones de uña 145 y las porciones

35
35

de gancho 146 se encuentran las porciones de entrada 124, las cuales incluyen porciones de entrada expandidas 123. Las porciones de uña 145 se extienden hacia fuera cerca de un lado de cada extremo, y las porciones de gancho 146 se extienden hacia fuera y luego adentro hacia las porciones de uña 145 cerca del lado opuesto en cada extremo. Las porciones de uña 145 se extienden hacia fuera al extremo de la placa 143, pero las porciones de gancho 146 no se extienden hacia fuera al extremo de la placa 143. Las porciones de gancho 146 se extienden hacia fuera aproximadamente la mitad de la distancia de las porciones de uña 145 antes que se extiendan adentro hacia las porciones de uña 145. Cada extremo básicamente es una imagen invertida del otro extremo de manera que las porciones de uña 145 son diagonales entre sí y las porciones de gancho 146 son diagonales entre sí.

Las porciones de entrada 124 y las porciones de entrada expandidas 123 son muescas en la placa 143 entre las porciones de uña 145 y las porciones de gancho 146. Las porciones de entrada 124 son aproximadamente 1/2 a 1/3 el ancho de la placa 143 y se extienden desde cerca de la parte media de cada extremo hasta cerca de la mitad del camino al orificio 122. Las porciones de entrada expandidas 123 se extienden desde el extremo de las porciones de entrada 124 a medio camino al orificio 122 adentro hacia las porciones de gancho 146. En otras palabras, las porciones de entrada 124 y las porciones de entrada expandidas 123 coordinan para definir las formas de las porciones de uña 145 y las porciones de gancho 146 para formar muescas dentro de las cuales los resortes 131 y las porciones de las uñas 128 están dispuestas.

Las uñas 128 cada una incluyen una porción base 129, una porción intermedia 142, y una porción de extensión 130. La porción intermedia 142 generalmente es de forma circular, y la porción base 129 se extiende desde un lado y la porción de extensión 130 se extiende desde otro, el lado generalmente opuesto de la porción intermedia 142. La porción base 129 es preferiblemente curva para formar una figura en arco. Como se muestra en las Figuras 1 y 2, la porción intermedia 142 y la porción base 129 se asemejan a una imagen invertida de una coma. La porción de extensión 130 generalmente es rectangular y se extiende generalmente 90° desde la porción base 129.

La porción de entrada 124 está configurada y dispuesta para recibir la porción intermedia 142, la cual puede girar allí. La porción de extensión 130 se extiende hacia la porción de entrada expandida 123, y la porción base 129 se extiende hacia fuera desde la porción de entrada 124. La figura en arco de la porción base 129 coordina con la porción de uña 145 y la porción de gancho

3/6
36

146. La parte superior de la figura en arco de la porción base 129 sigue la línea de la curvatura del extremo de la porción de uña 145 (y el extremo de la placa 143), y la parte inferior de la figura en arco sigue la curvatura de la porción de gancho 146. La parte superior de la figura en arco es una extensión de la porción de uña 145, y la parte inferior de la figura en arco ajusta
5 alrededor de la porción de gancho 146. Los resortes 131 están configurados y dispuestos para ajustar dentro de las porciones de entrada expandidas 123 entre las porciones de gancho 146 y las porciones de extensión 130. En una primera posición A, el resorte 131 proporciona una fuerza constante sobre la porción de extensión 130 empujando así la porción de extensión 130 contra la porción de uña 145 y la porción base 129 contra la porción de gancho 146. En una segunda
10 posición B, la fuerza del resorte 130 es superada por la porción de extensión 130 para comprimir el resorte 130 girando así la uña 128 de manera que la porción de extensión 130 se mueve hacia la porción de gancho 146 y la porción base 129 se mueve desde la porción de gancho 146. La primera posición A permite a la uña 130 desviar los trinquetes 141 del cubo de freno 118 mientras la segunda posición B permite a la uña 130 acoplar los trinquetes 141 del cubo de freno
15 118. Las posiciones A y B se muestran en la Figura 2.

Un eje 126 con un diámetro interior longitudinal 127 está configurado y dispuesto para ajustar dentro del orificio 122, el diámetro interior 116, y en la cavidad 144 cerca del extremo interno del resorte de motor espiral 109. El extremo interno del resorte de motor espiral 109 es insertado en la ranura del resalte en la pestaña 115 y está operativamente conectado al mismo,
20 manteniendo el extremo interno estacionario. El resalte es mayor en diámetro que el eje 126 y preferiblemente es tan grueso como el resorte de motor espiral 109. El extremo exterior del resorte de motor espiral 109 está operativamente conectado a la superficie interna del receptáculo 101 mediante medios bien conocidos en el estado de la técnica. El resorte de motor espiral 109 enrolla más o menos de manera ajustada en respuesta a la rotación del tambor 111 a medida que
25 la cincha es desenrollada y enrollada alrededor del tambor 111. El resorte de motor espiral 109 mantiene una fuerza de giro continua sobre el tambor 111 de manera que la cincha es continuamente impulsada para ser enrollada alrededor del tambor 111.

Un miembro de placa 133, el cual está configurado y dispuesto de manera similar al miembro de placa posterior 105, cubre el otro extremo del receptáculo 101 e incluye los orificios
30 135, los cuales están en alineación con los orificios 119 y los diámetros interiores 104. El miembro de placa 133 también incluye un orificio 134 en alineación con el diámetro interior 127.

37
37

Un miembro de placa frontal 136 también se puede utilizar e incluye muescas 138 en alineación con orificios 135 y un orificio 137 en alineación con un orificio 134. El miembro de placa frontal 136 puede ser un rótulo. Los pernos 139 operativamente conectan el miembro de placa frontal 136, el miembro de placa 133, el cubo de freno 118, y el receptáculo 101 al acoplar las muescas 138, los orificios 135, los orificios 119, y los diámetros interiores 104, respectivamente. El perno 140 es insertado a través de los orificios 137 y 134 para acoplar el diámetro interior 127.

Una guía de cincha rectangular 132 incluye un orificio alargado 132a configurado y dispuesto para permitir a la cincha (no mostrada) extenderse desde el tambor 111 fuera del receptáculo 101 a través del orificio 132a. Las porciones elevadas 148 se extienden desde cada lado de la guía de cincha 132 y encajan dentro de una muesca 149 en el receptáculo 101. Luego la guía de cincha 132 es mantenida en lugar entre el miembro de placa posterior 105 y el miembro de placa 133.

La cincha (no mostrada) incluye un primer extremo, un segundo extremo, y una porción intermedia entre los mismos. Aunque la realización preferida utiliza la cincha, se reconoce que se puede utilizar cable, cuerda, u otro miembro elongable. La cincha sirve como la cuerda de seguridad de la cuerda de seguridad auto- retráctil 100. La porción intermedia es enrollada sobre la porción de cilindro 113 del tambor 111, y las pestañas 115 sobre uno u otro lado de la porción de cilindro 113 mantienen la cincha sobre la porción de cilindro 113. El primer extremo de la cincha está operativamente conectado de manera fija por medios bien conocidos en el estado de la técnica al tambor 111. Por ejemplo, una de estas formas es mostrada y descrita en la Patente U.S. 5.186.289, la cual es incorporada en la presente como referencia. El segundo extremo de la cincha se extiende a través del receptáculo 101 y está operativamente conectado a un dispositivo sujetador (no mostrado) tal como un gancho de presión.

En operación, la cuerda de seguridad auto- retráctil 100 está conectada operativamente a una estructura de soporte, y la cincha está operativamente conectada a un arnés de seguridad utilizado por un trabajador. El trabajador tiene libertad de movimiento en la proximidad de la cuerda de seguridad auto- retráctil 100, con solamente la longitud de la cincha restringiendo la distancia del movimiento del trabajador. A medida que el trabajador se mueve más allá de la cuerda de seguridad auto- retráctil 100, se expende cincha del dispositivo a medida que se desenrolla del tambor 111. Cuando el trabajador se mueve más cerca de la cuerda de seguridad auto- retráctil 100, la cincha se retracta hacia el dispositivo a medida que está es enrollada

alrededor del tambor 111. En el evento de una caída, la aceleración repentina o alta tasa de velocidad a la cual el tambor 111 gira para expender la cincha hace que las uñas 128 superen la fuerza de los resortes 131. La fuerza centrífuga hace las uñas 128 giren desde la porción central 147 de la placa 143. La porción intermedia 142 gira dentro de la porción de entrada 124, haciendo que la porción de extensión 130 gire y comprima el resorte 131 y la porción base 129 para girar desde la placa 143 y acoplar al menos uno de los trinquetes 141 del cubo de freno 118. El acoplamiento del cubo de freno 118 por las uñas 128 activa el resto del ensamble de freno. Puesto que las uñas 128 acoplan los trinquetes 131 y no pueden rotar más dentro de la cavidad 120, las uñas 128 hacen que el cubo de freno 118 gire. El cubo de freno 118, el cual está montado de manera girable al eje 126 no gira normalmente alrededor del eje 126, comienza a girar con las uñas 128 y el tambor 111. Una vez las uñas 128 han acoplado los trinquetes 141, estos no pueden desacoplarse hasta que el tambor 111 comienza a rotar hacia atrás para enrollar la cincha sobre la porción de cilindro 113.

Una de las ventajas del presente invento es la facilidad de fabricación y ensamble de la cuerda de seguridad auto- retráctil 100. En cuerdas de seguridad auto- retráctiles del estado de la técnica anterior, las uñas incluyen pasadores alrededor de los cuales las uñas giran y las uñas están unidas de manera fija a los resortes, los cuales están unidos de manera fija a otro componente. El presente invento no incluye pasadores sobre las uñas o une de manera fija los resortes a cualquier componente. Las uñas 128 y los resortes 131 solamente se deben colocar dentro de espacios apropiados formados por la placa 143. A medida la cuerda auto- retráctil está siendo ensamblada, las uñas 128 y los resortes 131 son simplemente bajados en lugar.

La pestaña 115, el miembro de placa 133, el cubo de freno 118, y la placa 143 forman un cerramiento que define extremos de una cavidad de confinamiento, en donde las uñas 128 y los resortes 131 son mantenidos en lugar para evitar movimiento en una primera dirección por un tope frontal (pestaña 115) y un tope posterior (miembro de placa 133). Las uñas 128 son mantenidos en lugar para evitar movimiento en una segunda dirección generalmente perpendicular a la primera dirección por el cubo de freno 118 y la placa 143 entre las porciones de uña 145 y las porciones de gancho 146. Los resortes son mantenidos en lugar para evitar movimiento en la segunda dirección mediante las porciones de gancho 146 de la placa 143 y las porciones de extensión 130 de las uñas 128. Las uñas 128 y los resortes 131 son mantenidos en lugar mediante los extremos de la cavidad de confinamiento. Por lo tanto, las uñas 128 y los

31

resortes 131 no requieren interconexiones tales como pasadores u otras uniones fijas bien conocidas en el estado de la técnica.

5 Se reconoce que el ensamble de embrague centrífugo 121, que incluye la placa 143, las uñas 128, y los resortes 131, del presente invento no está limitado al uso con la cuerda de seguridad auto- retráctil 100 de la realización preferida y se puede utilizar con cualquier otra cuerda de seguridad auto- retráctil bien conocida en el estado de la técnica. Por ejemplo, otra cuerda de seguridad auto- retráctil con la cual el presente invento se puede utilizar se muestra en la Patente Americana 5.186.289, la cual se ha incorporado en la presente como referencia.

10 La anterior especificación, ejemplos y datos proporcionan una descripción completa de la fabricación y uso de la composición del invento. Puesto que muchas realizaciones del invento se pueden realizar sin apartarse del espíritu y alcance del invento, el invento radica en las reivindicaciones anexadas a continuación.

40
40

Reivindicaciones

1. Un ensamble de embrague centrífugo para utilizar con una cuerda de seguridad auto-retráctil que tiene un cubo de freno con trinquete dentro de una cavidad del cubo de freno y una placa con un primer extremo y un segundo extremo, dicho primer y segundo extremos cada uno con una primera porción y una segunda porción definiendo una porción de entrada, que comprende:
- 5
- 10 a) una uña configurada y dispuesta para ser colocada dentro de la porción de entrada entre la primera porción y la segunda porción sobre cada extremo de la placa, la porción de entrada proporcionando una cavidad dentro de la cual dicha uña es mantenida en lugar mediante la primera porción y la segunda porción, dicha uña es girable cerca de la primera porción y la segunda porción; y
- 15 b) un resorte configurado y dispuesto para ser colocado dentro de la porción de entrada entre la segunda porción y dicha uña, la segunda porción y dicha uña manteniendo dicho resorte en lugar dentro de la porción de entrada, dicho resorte colocando una fuerza inclinadora sobre dicha uña.
- 20
2. El ensamble de embrague centrífugo de la reivindicación 1, en donde dicha uña es girable entre una primera posición y una segunda posición relativa a la placa, dicho resorte empujando dicha uña hacia la placa en la primera posición desviando los trinquetes, dicho resorte siendo comprimido así permitiendo que dicha uña gire lejos de la placa en la segunda posición acoplando así los trinquetes.
- 25
3. Un ensamble de embrague centrífugo para utilizar con una cuerda de seguridad auto-retráctil, que comprende:

ST
41

a) una placa con un extremo con una primera porción y una segunda porción, dicha primera porción y dicha segunda porción definiendo una porción de entrada, dicha porción de entrada extendiéndose desde dicho extremo hacia una porción central de dicha placa;

5 b) una uña con una porción base, una porción intermedia, y una porción de extensión, dicha porción intermedia interconectando dicha porción base y dicha porción de extensión, dicha porción intermedia configurada y dispuesta para ser colocada entre dicha primera porción y dicha segunda porción, dicha primera porción y dicha segunda porción manteniendo dicha porción intermedia en su lugar mientras permiten a dicha uña ser girable cerca de dicha porción intermedia, dicha porción base extendiéndose hacia fuera desde dicha porción intermedia y desde
10 dicha porción de entrada, dicha porción de extensión extendiéndose hacia fuera desde dicha porción intermedia y hacia dicha porción de entrada; y

c) un resorte configurado y dispuesto para ser colocado dentro de dicha porción de entrada entre dicha segunda porción de dicha placa y dicha porción de extensión de dicha uña, dicho resorte inclinando dicha uña.

15

4. El ensamble de embrague centrífugo de la reivindicación 3, que comprende además una porción de entrada expandida que se extiende desde dicha porción de entrada cerca de la porción central de dicha placa y hacia dicha segunda porción de dicha placa, dicha porción de entrada expandida es configurada y dispuesta para recibir dicho resorte.

20

5. El ensamble de embrague centrífugo de la reivindicación 3, en donde dicha uña es girable entre una primera posición y una segunda posición relativa a la placa, dicho resorte empujando dicha uña hacia la placa en la primera posición desviando así los trinquetes, dicho resorte siendo comprimido permitiendo así que dicha uña gire fuera de la placa en la segunda posición
25 acoplando así los trinquetes.

6. Un ensamble de embrague centrífugo para utilizar con una cuerda de seguridad auto-retráctil, que comprende:

a) un cubo con una cavidad y dientes; dichos dientes extendiéndose hacia dicha
30 cavidad;

42

b) una placa con un extremo con una primera porción y una segunda porción, dicha placa configurada y dispuesta para encajar dentro de dicho cubo, dicha primera porción y dicha segunda porción definiendo una porción de entrada, dicha porción de entrada extendiéndose desde dicho extremo hacia una porción central de dicha placa;

5 c) una uña con una porción base, una porción intermedia, y una porción de extensión, dicha porción intermedia interconectando dicha porción base y dicha porción de extensión, dicha porción intermedia configurada y dispuesta para ser colocada entre dicha primera porción y dicha segunda porción, dicha primera porción y dicha segunda porción manteniendo dicha porción intermedia en su lugar mientras se permite a dicha uña ser girable cerca de dicha porción
10 intermedia, dicha porción base extendiéndose hacia fuera desde dicha porción intermedia hacia dicha cavidad de dicho cubo, dicha porción de extensión extendiéndose hacia fuera desde dicha porción intermedia hacia dicha porción de entrada, y

d) un resorte configurado y dispuesto para ser colocado dentro de dicha porción de entrada entre dicha segunda porción de dicha placa y dicha porción de extensión de dicha uña,
15 dicho resorte inclinando dicha uña, en donde una fuerza centrífuga hace que dicha porción de extensión comprima dicho resorte produciendo la rotación de dicha uña, en donde dicha porción base se mueve fuera de dicha placa y se acopla con dichos dientes de dicho cubo.

7. El ensamble de embrague centrífugo de la reivindicación 6, que comprende además una
20 porción de entrada expandida extendiéndose desde dicha porción de entrada cerca de la porción central de dicha placa y hacia dicha segunda porción de dicha placa, dicha porción de entrada expandida es configurada y dispuesta para recibir dicho resorte.

25 8. El ensamble de embrague centrífugo de la reivindicación 6, en donde dicha uña es girable entre una primera posición y una segunda posición relativa a la placa, dicho resorte empujando dicha uña hacia la placa en la primera posición desviando así los trinquetes, dicho resorte siendo comprimido permitiendo así que dicha uña gire desde la placa en la segunda posición acoplando así los trinquetes.

30 9. Un ensamble de freno, que comprende:

a) un cerramiento definiendo extremos de una cavidad de confinamiento;

b) una uña; y
c) un resorte; la uña y el resorte contenidos dentro de los extremos de la cavidad de confinamiento por las interconexiones carentes de cerramiento, el cerramiento sosteniendo la uña y el resorte en lugar para evitar movimiento en una primera dirección y en una segunda dirección, la primera dirección y la segunda dirección generalmente perpendiculares entre sí.

10. El ensamble de frenos de la reivindicación 9, en donde el cerramiento está formado por una pestaña, un miembro de placa, un cubo de freno, y una placa, la uña y el resorte mantenidos en lugar para evitar movimiento en la primera dirección mediante la pestaña y el miembro de placa, la uña mantenida en lugar por el cubo de freno y la placa para evitar movimiento en la segunda dirección, el resorte mantenido en lugar por la uña y la placa para evitar movimiento en la segunda dirección.

11. El ensamble de freno de la reivindicación 9, en donde la uña y el resorte son mantenidos en lugar por un tope frontal y un tope posterior para evitar movimiento en la primera dirección.

12. El ensamble de freno de la reivindicación 11, en donde el tope frontal es una pestaña y el tope posterior es un miembro de placa.

13. El ensamble de freno de la reivindicación 12, en donde la uña es mantenida en lugar por un cubo de freno y una placa para evitar movimiento en la segunda dirección y el resorte es mantenido en lugar por la uña y la placa para evitar movimiento en la segunda dirección.

14. El ensamble de freno de la reivindicación 9, en donde la uña es mantenida en lugar por un cubo de freno y una placa para evitar movimiento en la segunda dirección y el resorte es mantenido en lugar por la uña y la placa para evitar movimiento en la segunda dirección.

15. Un ensamble de freno, que comprende:

a) un cubo que tiene una cavidad y dientes, dichos dientes extendiéndose hacia dicha cavidad;

STG
44

- b) una placa con un extremo con una primera porción y una segunda porción, dicha placa configurada y dispuesta para encajar dentro de dicho cubo, dicha primera porción y dicha segunda porción definiendo una porción de entrada, dicha porción de entrada extendiéndose desde dicho extremo hacia una porción central de dicha placa;
- 5 c) un tambor operativamente conectado a dicha placa;
- d) una uña con una porción base, una porción intermedia, y una porción de extensión, dicha porción intermedia interconectando dicha porción base y dicha porción de extensión, dicha porción intermedia configurada y dispuesta para ser colocada entre dicha primera porción y dicha segunda porción, dicha primera porción y dicha segunda porción manteniendo dicha porción
- 10 intermedia en lugar mientras se permite a dicha uña ser girable cerca de dicha porción intermedia, dicha porción base extendiéndose fuera de dicha porción intermedia hacia dicha cavidad de dicho cubo, dicha porción de extensión extendiéndose hacia fuera desde dicha porción intermedia hacia dicha porción de entrada; y
- e) un resorte configurado y dispuesto para ser colocado dentro de dicha porción de
- 15 entrada entre dicha segunda porción de dicha placa y dicha porción de extensión de dicha uña, dicho resorte inclinando dicha uña, en donde una aceleración repentina hace que dicha porción de extensión comprima dicho resorte haciendo así que dicha uña gire, en donde dicha porción base se mueve desde dicha placa y acopla dichos dientes de dicho cubo frenando así el tambor.
- 20 16. El ensamble de freno de la reivindicación 15, en donde los extremos de una cavidad de confinamiento tienen a la uña y al resorte en lugar para así no permitir movimiento en una primera dirección y movimiento en una segunda dirección carentes de cerramiento, la primera dirección y la segunda dirección son generalmente perpendiculares entre sí.

45

REIVINDICACIONES MODIFICADAS

[Recibidas por la Agencia Internacional el 27 de enero de 2005 (27.01.2005);

Reivindicaciones originales 1 y 9 corregidas,

5 Reivindicaciones originales 2- 8 y 10- 16 sin cambiar (5 páginas)

1. Un ensamble de embrague centrífugo para utilizar con una cuerda de seguridad auto-retráctil que tiene un cubo de freno con trinquete dentro de una cavidad del cubo de freno y una placa con un primer extremo y un segundo extremo, dicho primer y segundo extremo cada uno
- 10 con una primera porción y una segunda porción definiendo una porción de entrada, que comprende:
- a) una uña que tiene una porción base, una porción intermedia, y una porción de extensión, dicha porción intermedia interconectando dicha porción base y dicha porción de
- 15 extensión, dicha porción intermedia configurada y dispuesta para ser colocada dentro de la porción de entrada entre la primera porción y la segunda porción sobre cada extremo de la placa, la porción de entrada proporcionando una cavidad dentro de la cual dicha uña es mantenida en su lugar mediante la primera porción y la segunda porción, dicha uña es girable cerca de la primera porción y la segunda porción, dicha porción intermedia es mantenida en lugar mientras permite
- 20 que dicha uña sea girable cerca de dicha porción intermedia, dicha porción base extendiéndose fuera de dicha porción intermedia y desde dicha porción de entrada, dicha porción de extensión extendiéndose fuera desde dicha porción intermedia y hacia dicha porción de entrada; y
- b) un resorte configurado y dispuesto para ser colocado dentro de la porción de
- 25 entrada entre la segunda porción y dicha porción de extensión de dicha uña, la segunda porción y dicha uña manteniendo dicho resorte en lugar dentro de la porción de entrada, dicho resorte colocando una fuerza inclinadora sobre dicha uña.
2. El ensamble de embrague centrífugo de la reivindicación 1, en donde dicha uña es girable
- 30 entre una primera posición y una segunda posición relativa a la placa, dicho resorte empujando dicha uña hacia la placa en la primera posición desviando los trinquetes, dicho resorte siendo

comprimido así permitiendo que dicha uña gire lejos de la placa en la segunda posición acoplando así los trinquetes.

46
46

3. Un ensamble de embrague centrífugo para utilizar con una cuerda de seguridad auto-retráctil, que comprende:

- 5
- a) una placa con un extremo con una primera porción y una segunda porción, dicha primera porción y dicha segunda porción definiendo una porción de entrada, dicha porción de entrada extendiéndose desde dicho extremo hacia una porción central de dicha placa;
- 10 b) una uña con una porción base, una porción intermedia, y una porción de extensión, dicha porción intermedia interconectando dicha porción base y dicha porción de extensión, dicha porción intermedia configurada y dispuesta para ser colocada entre dicha primera porción y dicha segunda porción, dicha primera porción y dicha segunda porción manteniendo dicha porción intermedia en su lugar mientras permiten a dicha uña ser girable cerca de dicha porción
- 15 intermedia, dicha porción base extendiéndose hacia fuera desde dicha porción intermedia y desde dicha porción de entrada, dicha porción de extensión extendiéndose hacia fuera desde dicha porción intermedia y hacia dicha porción de entrada; y
- c) un resorte configurado y dispuesto para ser colocado dentro de dicha porción de entrada entre dicha segunda porción de dicha placa y dicha porción de extensión de dicha uña,
- 20 dicho resorte inclinando dicha uña.

4. El ensamble de embrague centrífugo de la reivindicación 3, que comprende además una porción de entrada expandida que se extiende desde dicha porción de entrada cerca de la porción central de dicha placa y hacia dicha segunda porción de dicha placa, dicha porción de entrada expandida es configurada y dispuesta para recibir dicho resorte.

25

5. El ensamble de embrague centrífugo de la reivindicación 3, en donde dicha uña es girable entre una primera posición y una segunda posición relativa a la placa, dicho resorte empujando dicha uña hacia la placa en la primera posición desviando así los trinquetes, dicho resorte siendo

30 comprimido permitiendo así que dicha uña gire fuera de la placa en la segunda posición acoplando así los trinquetes.

47
47

6. Un ensamble de embrague centrífugo para utilizar con una cuerda de seguridad auto-retráctil, que comprende:

a) un cubo con una cavidad y dientes; dichos dientes extendiéndose hacia dicha cavidad;

b) una placa con un extremo con una primera porción y una segunda porción, dicha placa configurada y dispuesta para encajar dentro de dicho cubo, dicha primera porción y dicha segunda porción definiendo una porción de entrada, dicha porción de entrada extendiéndose desde dicho extremo hacia una porción central de dicha placa;

c) una uña con una porción base, una porción intermedia, y una porción de extensión, dicha porción intermedia interconectando dicha porción base y dicha porción de extensión, dicha porción intermedia configurada y dispuesta para ser colocada entre dicha primera porción y dicha segunda porción, dicha primera porción y dicha segunda porción manteniendo dicha porción intermedia en su lugar mientras se permite a dicha uña ser girable cerca de dicha porción intermedia, dicha porción base extendiéndose hacia fuera desde dicha porción intermedia hacia dicha cavidad de dicho cubo, dicha porción de extensión extendiéndose hacia fuera desde dicha porción intermedia hacia dicha porción de entrada, y

d) un resorte configurado y dispuesto para ser colocado dentro de dicha porción de entrada entre dicha segunda porción de dicha placa y dicha porción de extensión de dicha uña, dicho resorte inclinando dicha uña, en donde una fuerza centrífuga hace que dicha porción de extensión comprima dicho resorte produciendo la rotación de dicha uña, en donde dicha porción base se mueve fuera de dicha placa y se acopla con dichos dientes de dicho cubo.

7. El ensamble de embrague centrífugo de la reivindicación 6, que comprende además una porción de entrada expandida extendiéndose desde dicha porción de entrada cerca de la porción central de dicha placa y hacia dicha segunda porción de dicha placa, dicha porción de entrada expandida es configurada y dispuesta para recibir dicho resorte.

8. El ensamble de embrague centrífugo de la reivindicación 6, en donde dicha uña es girable entre una primera posición y una segunda posición relativa a la placa, dicho resorte empujando dicha uña hacia la placa en la primera posición desviando así los trinquetes, dicho resorte siendo

comprimido permitiendo así que dicha uña gire desde la placa en la segunda posición acoplando así los trinquetes.

9. Un ensamble de freno, que comprende:

- a) un cerramiento definiendo extremos de una cavidad de confinamiento;
- b) una uña con una porción base, una porción intermedia, y una porción de extensión, la porción intermedia interconectando la porción base y la porción de extensión, la porción intermedia configurada y dispuesta para ser colocada dentro de la cavidad de confinamiento, la cavidad de confinamiento proporcionando una cavidad dentro de la cual la uña es mantenida en su lugar mediante el cerramiento, la porción intermedia siendo mantenida en lugar mientras se permite que la uña sea girable cerca de la porción intermedia, la porción base extendiéndose hacia fuera desde la porción intermedia y fuera de la cavidad de confinamiento, la porción de extensión extendiéndose fuera de la porción intermedia y hacia la cavidad de confinamiento; y
- c) un resorte; la uña y el resorte contenidos dentro de los extremos de la cavidad de confinamiento por las interconexiones ausentes de cerramiento, el cerramiento sosteniendo la uña y el resorte en lugar para evitar movimiento en una primera dirección y en una segunda dirección, la primera dirección y la segunda dirección generalmente perpendiculares entre sí, el resorte configurado y dispuesto para ser colocado dentro de la cavidad de confinamiento entre el cerramiento y la porción de extensión de la uña.

10. El ensamble de frenos de la reivindicación 9, en donde el cerramiento está formado por una pestafía, un miembro de placa, un cubo de freno, y una placa, la uña y el resorte mantenidos en lugar para evitar movimiento en la primera dirección mediante la pestafía y el miembro de placa, la uña mantenida en lugar por el cubo de freno y la placa para evitar movimiento en la segunda dirección, el resorte mantenido en lugar por la uña y la placa para evitar movimiento en la segunda dirección.

11. El ensamble de freno de la reivindicación 9, en donde la uña y el resorte son mantenidos en lugar por un tope frontal y un tope posterior para evitar movimiento en la primera dirección.

49
49

12. El ensamble de freno de la reivindicación 11, en donde el tope frontal es una pestaña y el tope posterior es un miembro de placa.

5 13. El ensamble de freno de la reivindicación 12, en donde la uña es mantenida en lugar por un cubo de freno y una placa para evitar movimiento en la segunda dirección y el resorte es mantenido en lugar por la uña y la placa para evitar movimiento en la segunda dirección.

10 14. El ensamble de freno de la reivindicación 9, en donde la uña es mantenida en lugar por un cubo de freno y una placa para evitar movimiento en la segunda dirección y el resorte es mantenido en lugar por la uña y la placa para evitar movimiento en la segunda dirección.

15. Un ensamble de freno, que comprende:

a) un cubo que tiene una cavidad y dientes, dichos dientes extendiéndose hacia dicha cavidad;

15 b) una placa con un extremo con una primera porción y una segunda porción, dicha placa configurada y dispuesta para encajar dentro de dicho cubo, dicha primera porción y dicha segunda porción definiendo una porción de entrada, dicha porción de entrada extendiéndose desde dicho extremo hacia una porción central de dicha placa;

c) un tambor operativamente conectado a dicha placa;

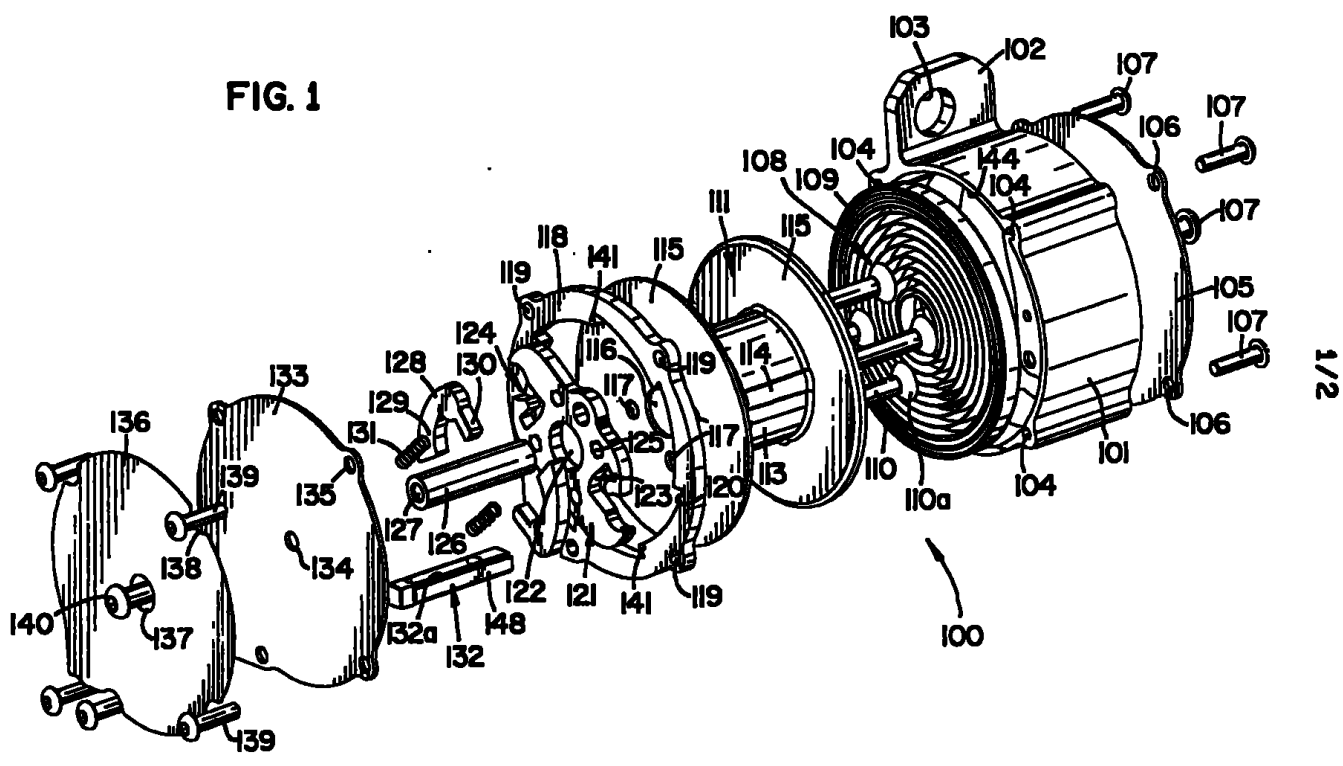
20 d) una uña con una porción base, una porción intermedia, y una porción de extensión, dicha porción intermedia interconectando dicha porción base y dicha porción de extensión, dicha porción intermedia configurada y dispuesta para ser colocada entre dicha primera porción y dicha segunda porción, dicha primera porción y dicha segunda porción manteniendo dicha porción intermedia en lugar mientras se permite a dicha uña ser girable cerca de dicha porción intermedia, dicha porción base extendiéndose fuera de dicha porción intermedia hacia dicha cavidad de dicho cubo, dicha porción de extensión extendiéndose hacia fuera desde dicha porción intermedia hacia dicha porción de entrada; y

25 e) un resorte configurado y dispuesto para ser colocado dentro de dicha porción de entrada entre dicha segunda porción de dicha placa y dicha porción de extensión de dicha uña, 30 dicho resorte inclinando dicha uña, en donde una aceleración repentina hace que dicha porción de

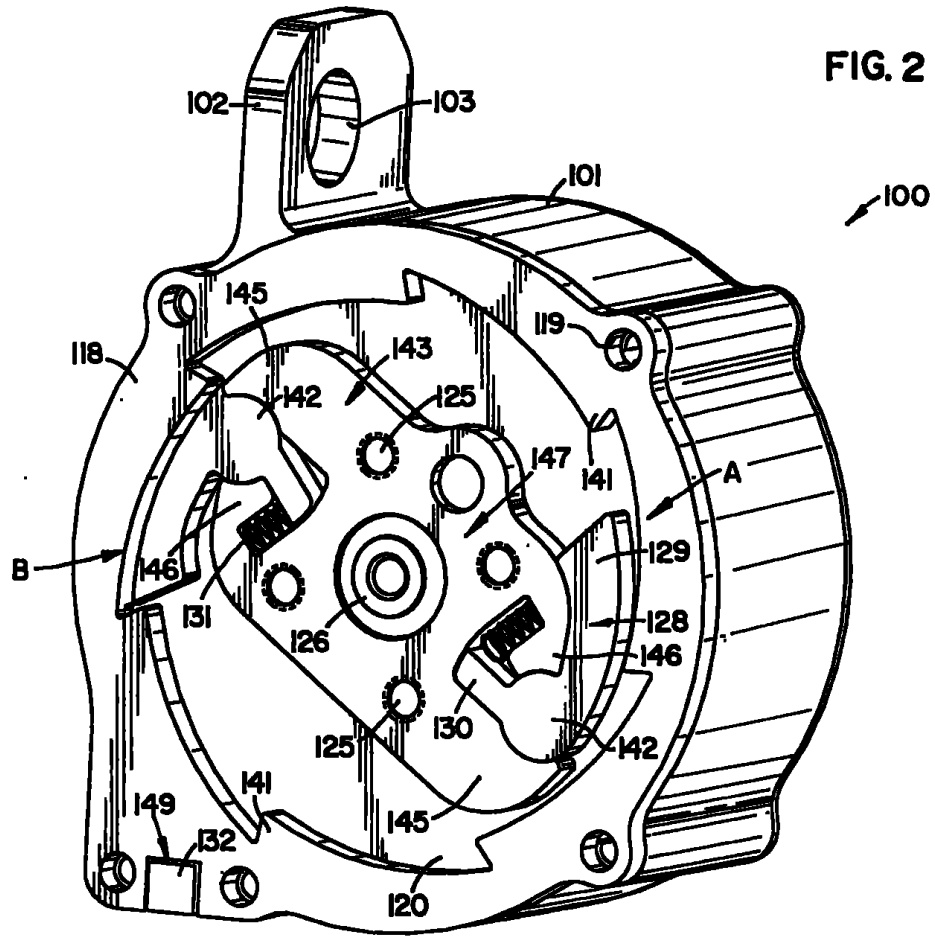
extensión comprima dicho resorte haciendo así que dicha uña gire, en donde dicha porción base se mueve desde dicha placa y acopla dichos dientes de dicho cubo frenando así el tambor.

- 5 16. El ensamble de freno de la reivindicación 15, en donde los extremos de una cavidad de confinamiento tienen a la uña y al resorte en lugar para así no permitir movimiento en una primera dirección y movimiento en una segunda dirección carentes de cerramiento, la primera dirección y la segunda dirección son generalmente perpendiculares entre sí.

FIG. 1



1/2



52

From the INTERNATIONAL BUREAU

PCT**NOTIFICATION CONCERNING
TRANSMITTAL OF COPY OF INTERNATIONAL
PRELIMINARY REPORT ON PATENTABILITY
(CHAPTER I OF THE PATENT COOPERATION
TREATY)**

(PCT Rule 44bis.1(c))

To:

MAU, Michael, L.
IPLM Group, P.A.
Post Office Box 18455
Minneapolis, MN 55413
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year)
16 March 2006 (16.03.2006)

Applicant's or agent's file reference
221P138WO01

IMPORTANT NOTICE

International application No.
PCT/US2004/027243

International filing date (day/month/year)
23 August 2004 (23.08.2004)

Priority date (day/month/year)
05 September 2003 (05.09.2003)

Applicant

D B INDUSTRIES, INC.

The International Bureau transmits herewith a copy of the International preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. +41 22 740 14 35

Form PCT/IB/326 (January 2004)

Authorized officer

Nora Lindner

Facsimile No. +41 22 338 89 65

RECEIVED

MAR 27 2006

BY:

PATENT COOPERATION TREATY

17/03

54

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 30 NOV 2004

WIBO

PCT

PCT

To:

see form PCT/ISA220

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43b/s.1)Date of mailing
(day/month/year) see form PCT/ISA210 (second sheet)Applicant's or agent's file reference
see form PCT/ISA220FOR FURTHER ACTION
See paragraph 2 belowInternational application No.
PCT/US2004/027243International filing date (day/month/year)
23.08.2004Priority date (day/month/year)
05.09.2003International Patent Classification (IPC) or both national classification and IPC
A82B35/04, A82B1/10, F16D59/00, F16D41/12Applicant
D B INDUSTRIES, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 68.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA220.

3. For further details, see notes to Form PCT/ISA220.

Name and mailing address of the ISA:



European Patent Office
D-80289 Munich
Tel. +49 89 2369 - 0 Tx: 523856 epmu d
Fax: +49 89 2369 - 4465

Authorized Officer

Schul, T

Telephone No. +49 89 2369-8970



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/027243

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/027243

Box No. II Priority

1. ☒ The following document has not been furnished:

- ☒ copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 86.7(a)).
☐ translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 86.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 84.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary: -

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-15
	No: Claims	
Inventive step (IS)	Yes: Claims	3-8,15,16
	No: Claims	1,9-14
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V.

The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of claims 1, 2 and 9-14 does not involve an inventive step in the sense of Article 33(3)PCT.

Claim 1

Centrifugal clutch or brake assemblies for use with a self-retracting lifeline are generally known, see for example US 5 287 950 A and EP 0 247 818 A. The centrifugal clutch uses a pawl and ratchet mechanism. Such mechanisms are generally used for clutches and the number of pawl is normally two or more depending on the application. The pawl normally pivots around a pin fixed to a plate. Such an arrangement is difficult to produce. Furthermore, it increases the thickness of construction which is defined by the pawl and a part of the plate holding the pin. These problems can be overcome by providing a cavity in which the pawl itself pivots. A pin is not needed. A mechanism including such an arrangement of the pawls is known from US-A-3 879 016, but the connection between pawls 32 and body 28 has not been described explicitly. However, connections of this kind are known from US-2 268 243 or US-A-5 070 578 (fig. 1). The pawl is held between first and second portions, the spring being in the second portion. WO 97/12786 A discloses a similar way of pivoting a pawl albeit for a pawl located on the outside.

Consequently, it is obvious for the skilled person to adapt the assembly known from US 5 287 950 A in order to simplify the production by providing a pivot for the pawl as taught by US-2 268 243, US-A-5 070 578 and WO 97/12786 A.

The features of independent claim 1 thus cannot be considered inventive (Article 33(3) PCT).

Claim 9

Since the clutch assembly is also considered to represent an emergency brake mechanism the argumentation used for claim 1 can also be used for claim 9. Claim 9 broadly defines that the pawl and spring are being kept in position by their surroundings. This also applies to the pawls disclosed in US-2 268 243, US-A-5 070 578 and WO 97/12786 A. Consequently, the argument is implicit in the argumentation presented above.

PATENT COOPERATION TREATY

PCT

LIST OF DOCUMENTS FILED WITH
THE
INTERNATIONAL BUREAU
AS RECEIVING OFFICE

To:

The International Bureau of WIPO¹
PCT Receiving Office Section
34, chemin des Colombettes
1211 Geneva 20
Switzerland

Facsimile No. (41-22) 910 06 10

Applicant's or agent's file reference 221-P-138-WO-01		
International application No. (if known) PCT/US2004/027243	International filing date (day/month/year) (if known) 23/08/2004	(Earliest) Priority date (day/month/year) 05/09/2003
Applicant D B INDUSTRIES, INC.		
Title of invention SELF-RETRACTING LIFELINE		

The applicant hereby requests the International Bureau to acknowledge to the following person (include full name, address, facsimile No. and telephone No.):

Michael L. Mau
IFLM Group, P.A.
Broadway Place West, Suite 6600
1300 Godward Street NE
Minneapolis, MN 55413

Telephone: 612-331-7415
Telefax: 612-331-7401

the receipt by the following means:

mail (surface, air mail, registered) delivery service facsimile transmission hand delivery

of the documents/elements listed below:

- PCT request (pages)
- description (pages)
- claims (pages)
- abstract (pages)
- drawings (pages)
- fee calculation sheet ()
- separate authorization to charge deposit account ()
- cheque (indicate currency and amount) ()
- cash (in person only) (indicate amount) ()
- power of attorney (general power, copy of general power, separate power) (indicate kind and number) ()
- statement explaining lack of signature (if more than one, indicate number) ()
- priority document (if more than one, indicate number) ()
- separate indications relating to deposited micro-organism (pages)
- nucleotide and/or amino acid sequence listing on diskette (if more than one diskette, indicate number) ()
- statement accompanying diskette containing sequence listing ()
- accompanying letter ()
- other (specify) **Article 19 Amendment (2 pages) and Replacement Pages (4 pages)**

IN THE INTERNATIONAL BUREAU OF WIPO

In re Application of: D B INDUSTRIES, INC.

Int'l App. No.: PCT/US2004/027243

Atty Ref. No.: 221P138WO01

Int'l Filing Date: 23 August 2004

Title: SELF-RETRACTING LIFELINE

International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

ARTICLE 19 AMENDMENT

Applicant respectfully submits the following amendment of the claims of the above-identified international patent application.

Claim Amendments

Claims 1 and 9 are replaced by amended claims bearing the same numbers; claims 2-8 and 10-16 are unchanged.

Consideration of this amendment is respectfully requested.

Respectfully submitted,

D B INDUSTRIES, INC.



Dated: 27 January 2005

Michael L. Mau
Registration No. 30,087
IPLM Group, P.A.
P.O. Box 18455
Minneapolis, Minnesota 55418
United States of America
Telephone: 612-331-7415
Facsimile: 612-331-7401

CERTIFICATE OF FACSIMILE TRANSMISSION

Attention: International Bureau of WIPO
Facsimile: 011-41-22-740-1435
Date: January 27, 2005

60 60

Int'l Appl. No.: PCT/US2004/027243

I hereby certify that this paper, and any papers referred to as attached thereto, are being facsimile transmitted to the International Bureau of WIPO, 34, chemin des Colombettes, 1211 Geneva 20, Switzerland on the date indicated above.

Michael L. Mau

Name of Person Signing


Signature

61 9

REPLACEMENT CLAIM SET

CLAIMS:

1. A centrifugal clutch assembly for use with a self-retracting lifeline having a brake hub with ratcheting teeth within a cavity of the brake hub and a plate with a first end and a second end, said first end and said second end each having a first portion and a second portion defining an inlet portion, comprising:
 - a) a pawl having a base portion, an intermediate portion, and an extension portion, said intermediate portion interconnecting said base portion and said extension portion, said intermediate portion configured and arranged to be placed within the inlet portion between the first portion and the second portion on each end of the plate, the inlet portion providing a cavity within which said pawl is kept in place by the first portion and the second portion, said pawl being pivotable proximate the first portion and the second portion, said intermediate portion being kept in place while allowing said pawl to be pivotable therein proximate said intermediate portion, said base portion extending outward from said intermediate portion and away from said inlet portion, said extension portion extending outward from said intermediate portion and into said inlet portion; and
 - b) a spring configured and arranged to be placed within the inlet portion between the second portion and said extension portion of said pawl, the second portion and said pawl keeping said spring in place within the inlet portion, said spring placing a biasing force upon said pawl.
2. The centrifugal clutch assembly of claim 1, wherein said pawl is pivotable between a first position and a second position relative to the plate, said spring pushing said pawl toward the plate in the first position thereby bypassing the ratcheting teeth, said spring being compressed thereby allowing said pawl to pivot away from the plate in the second position thereby engaging the ratcheting teeth.

62 62

3. A centrifugal clutch assembly for use with a self-retracting lifeline, comprising:

- a) a plate having an end with a first portion and a second portion, said first portion and said second portion defining an inlet portion, said inlet portion extending from said end toward a central portion of said plate;
- b) a pawl having a base portion, an intermediate portion, and an extension portion, said intermediate portion interconnecting said base portion and said extension portion, said intermediate portion configured and arranged to be placed between said first portion and said second portion, said first portion and said second portion keeping said intermediate portion in place while allowing said pawl to be pivotable therein proximate said intermediate portion, said base portion extending outward from said intermediate portion and away from said inlet portion, said extension portion extending outward from said intermediate portion and into said inlet portion; and
- c) a spring configured and arranged to be placed within said inlet portion between said second portion of said plate and said extension portion of said pawl, said spring biasing said pawl.

4. The centrifugal clutch assembly of claim 3, further comprising an expanded inlet portion extending from said inlet portion proximate the central portion of said plate and toward said second portion of said plate, said expanded inlet portion being configured and arranged to receive said spring.

5. The centrifugal clutch assembly of claim 3, wherein said pawl is pivotable between a first position and a second position relative to the plate, said spring pushing said pawl toward the plate in the first position thereby bypassing the ratcheting teeth, said spring being compressed thereby allowing said pawl to pivot away from the plate in the second position thereby engaging the ratcheting teeth.

6. A centrifugal clutch assembly for use with a self-retracting lifeline, comprising:

- a) a hub having a cavity and teeth, said teeth extending into said cavity;
- b) a plate having an end with a first portion and a second portion, said plate configured and arranged to fit within said hub, said first portion and

said second portion defining an inlet portion, said inlet portion extending from said end toward a central portion of said plate;

c) a pawl having a base portion, an intermediate portion, and an extension portion, said intermediate portion interconnecting said base portion and said extension portion, said intermediate portion configured and arranged to be placed between said first portion and said second portion, said first portion and said second portion keeping said intermediate portion in place while allowing said pawl to be pivotable therein proximate said intermediate portion, said base portion extending outward from said intermediate portion into said cavity of said hub, said extension portion extending outward from said intermediate portion into said inlet portion; and

d) a spring configured and arranged to be placed within said inlet portion between said second portion of said plate and said extension portion of said pawl, said spring biasing said pawl, wherein a centrifugal force causes said extension portion to compress said spring thereby causing said pawl to pivot, wherein said base portion moves away from said plate and engages said teeth of said hub.

7. The centrifugal clutch assembly of claim 6, further comprising an expanded inlet portion extending from said inlet portion proximate the central portion of said plate and toward said second portion of said plate, said expanded inlet portion being configured and arranged to receive said spring.

8. The centrifugal clutch assembly of claim 6, wherein said pawl is pivotable between a first position and a second position relative to the plate, said spring pushing said pawl toward the plate in the first position thereby bypassing the ratcheting teeth, said spring being compressed thereby allowing said pawl to pivot away from the plate in the second position thereby engaging the ratcheting teeth.

64 97

9. A brake assembly, comprising:

- a) an enclosure defining boundaries of a confinement cavity;
- b) a pawl having a base portion, an intermediate portion, and an extension portion, the intermediate portion interconnecting the base portion and the extension portion, the intermediate portion configured and arranged to be placed within the confinement cavity, the confinement cavity providing a cavity within which the pawl is kept in place by the enclosure, the intermediate portion being kept in place while allowing the pawl to be pivotable therein proximate the intermediate portion, the base portion extending outward from the intermediate portion and away from the confinement cavity, the extension portion extending outward from the intermediate portion and into the confinement cavity; and
- c) a spring, the pawl and the spring being contained within the boundaries of the confinement cavity by the enclosure absent interconnections, the enclosure holding the pawl and the spring in place from movement in a first direction and from movement in a second direction, the first direction and the second direction being generally perpendicular to one another, the spring being configured and arranged to be placed within the confinement cavity between the enclosure and the extension portion of the pawl.

10. The brake assembly of claim 9, wherein the enclosure is formed by a rim, a plate member, a brake hub, and a plate, the pawl and the spring being held in place from movement in the first direction by the rim and the plate member, the pawl being held in place from movement in the second direction by the brake hub and the plate, the spring being held in place from movement in the second direction by the pawl and the plate.

11. The brake assembly of claim 9, wherein the pawl and the spring are held in place from movement in the first direction by a front stop and a back stop.

12. The brake assembly of claim 11, wherein the front stop is a rim and the back stop is a plate member.

13. The brake assembly of claim 12, wherein the pawl is held in place from movement in the second direction by a brake hub and a plate and the spring is held in place from movement in the second direction by the pawl and the plate.

658

14. The brake assembly of claim 9, wherein the pawl is held in place from movement in the second direction by a brake hub and a plate and the spring is held in place from movement in the second direction by the pawl and the plate.

15. A brake assembly, comprising:

a) a hub having a cavity and teeth, said teeth extending into said cavity;

b) a plate having an end with a first portion and a second portion, said plate configured and arranged to fit within said hub, said first portion and said second portion defining an inlet portion, said inlet portion extending from said end toward a central portion of said plate;

c) a drum operatively connected to said plate;

d) a pawl having a base portion, an intermediate portion, and an extension portion, said intermediate portion interconnecting said base portion and said extension portion, said intermediate portion configured and arranged to be placed between said first portion and said second portion, said first portion and said second portion keeping said intermediate portion in place while allowing said pawl to be pivotable therein proximate said intermediate portion, said base portion extending outward from said intermediate portion into said cavity of said hub, said extension portion extending outward from said intermediate portion into said inlet portion; and

e) a spring configured and arranged to be placed within said inlet portion between said second portion of said plate and said extension portion of said pawl, said spring biasing said pawl, wherein a sudden acceleration causes said extension portion to compress said spring thereby causing said pawl to pivot, wherein said base portion moves away from said plate and engages said teeth of said hub thereby braking the drum.

16. The brake assembly of claim 15, wherein boundaries of a confinement cavity hold the pawl and the spring in place from movement in a first direction and from movement in a second direction absent interconnections, the first direction and the second direction being generally perpendicular to one another.

PCT

66

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 221P138WO01	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2004/027243	International filing date (day/month/year) 23/08/2004	(Earliest) Priority Date (day/month/year) 05/09/2003
Applicant D B INDUSTRIES, INC.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequences disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box II).

3. ☐ Unity of invention is lacking (see Box III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/027243

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A62B35/04 A62B1/10 F16D59/00 F16D41/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A62B F16D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 287 950 A (FEATHERS LEONARD J ET AL) 22 February 1994 (1994-02-22) the whole document	1,2,9-14
Y	EP 0 247 818 A (BARROW HEPBURN EQUIP LTD) 2 December 1987 (1987-12-02) the whole document	1,2,9-14
A		1,3,6,15
Y	US 5 070 978 A (PIRES PAUL B) 10 December 1991 (1991-12-10) figure 1	1,2,9-14
Y	GB 238 302 A (ARTHUR TREVE HOLMAN; JOHN LEONARD HOLMAN) 17 August 1925 (1925-08-17) figures 1,2	1,2,9-14
	— — — — — -/-	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another claim or other special reason (see specification)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "Z" document member of the same patent family

Date of the actual completion of the international search

25 November 2004

Date of mailing of the international search report

02/12/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5816 Paterbosse 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-3040, Tx. 31 051 epo nl,
Fax (+31-70) 340-3010

Authorized officer

Schut, T

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/027243

68

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 97/12786 A (FOEHL ARTUR) 10 April 1997 (1997-04-10) the whole document	1,2,9-14
A	US 4 589 523 A (OLSON WAYNE L ET AL) 20 May 1986 (1986-05-20) figure 5	

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/US2004/027243

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5287950	A	22-02-1994	AU 645364 B2 13-01-1994
		AU 8759091 A 26-05-1992	
		CA 2069503 A1 01-05-1992	
		EP 0507911 A1 14-10-1992	
		WO 9207626 A1 14-05-1992	
		GB 2250008 A ,B 27-05-1992	
		JP 5503238 T 03-06-1993	
EP 0247818	A	02-12-1987	AU 589775 B2 19-10-1989
		AU 7344487 A 03-12-1987	
		EP 0247818 A2 02-12-1987	
		GB 2192679 A ,B 20-01-1988	
		JP 63023677 A 30-01-1988	
		US 4846313 A 11-07-1989	
US 5070978	A	10-12-1991	AT 142752 T 15-09-1996
		DE 69122096 D1 17-10-1996	
		DE 69122096 T2 03-04-1997	
		EP 0525126 A1 03-02-1993	
		JP 3184520 B2 09-07-2001	
		JP 5506707 T 30-09-1993	
		KR 196907 B1 15-06-1999	
		WO 9116553 A1 31-10-1991	
GB 238302	A	17-08-1925	NONE
WO 9712786	A	10-04-1997	DE 29515703 U1 08-02-1996
		CN 1166157 A ,B 26-11-1997	
		CZ 9701685 A3 17-09-1997	
		DE 59604957 D1 18-05-2000	
		WO 9712786 A1 10-04-1997	
		EP 0793588 A1 10-09-1997	
		ES 2146021 T3 16-07-2000	
		JP 10513417 T 22-12-1998	
		ZA 9608277 A 02-05-1997	
US 4589523	A	20-05-1986	AT 44242 T 15-07-1989
		DE 3571206 D1 03-08-1989	
		EP 0152041 A2 21-08-1985	

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

To:

see form PCT/ISA/220

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2004/027243

International filing date (day/month/year)
23.08.2004

Priority date (day/month/year)
05.09.2003

International Patent Classification (IPC) or both national classification and IPC
A62B35/04, A62B1/10, F16D59/00, F16D41/12

Applicant
D B INDUSTRIES, INC.

Jw. 5. 2005 Resp.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 86.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-60298 Munich
Tel. +49 89 2369 - 0 Tx: 523656 sprmu d
Fax: +49 89 2369 - 4465

Authorized Officer

Schut, T

Telephone No. +49 89 2369-8970



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/027243

71/24

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/027243

72/72

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 86.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 86.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 84.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-15
	No: Claims	
Inventive step (IS)	Yes: Claims	3-8,15,16
	No: Claims	1,2,9-14
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations

see separate sheet

73 ~~73~~

Re Item V.

The present application does not meet the criteria of Article 33(1) PCT, because the subject matter of claims 1, 2 and 9-14 does not involve an inventive step in the sense of Article 33(3)PCT.

Claim 1

Centrifugal clutch or brake assemblies for use with a self-retracting lifeline are generally known, see for example US 5 287 950 A and EP 0 247 818 A. The centrifugal clutch uses a pawl and ratchet mechanism. Such mechanisms are generally used for clutches and the number of pawl is normally two or more depending on the application. The pawl normally pivots around a pin fixed to a plate. Such an arrangement is difficult to produce. Furthermore, it increases the thickness of construction which is defined by the pawl and a part of the plate holding the pin. These problems can be overcome by providing a cavity in which the pawl itself pivots. A pin is not needed. A mechanism including such an arrangement of the pawls is known from US-A-3 879 016, but the connection between pawls 32 and body 28 has not been described explicitly. However, connections of this kind are known from US-2 268 243 or US-A-5 070 578 (fig. 1). The pawl is held between first and second portions, the spring being in the second portion. WO 97/12786 A discloses a similar way of pivoting a pawl albeit for a pawl located on the outside.

Consequently, it is obvious for the skilled person to adapt the assembly known from US 5 287 950 A in order to simplify the production by providing a pivot for the pawl as taught by US-2 268 243, US-A-5 070 578 and WO 97/12786 A.

The features of independent claim 1 thus cannot be considered inventive (Article 33(3) PCT).

Claim 9

Since the clutch assembly is also considered to represent an emergency brake mechanism the argumentation used for claim 1 can also be used for claim 9. Claim 9 broadly defines that the pawl and spring are being kept in position by their surroundings. This also applies to the pawls disclosed in US-2 268 243, US-A-5 070 578 and WO 97/12786 A. Consequently, the argument is implicit in the argumentation presented above.

Claims 2, 10-14

Dependent claims 2, 10-14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

Claims 3, 6, ~~9~~ and 15

These independent claims contain the additional feature that the pawl has a base portion, an intermediate portion, and an extension portion, the first portion and the second portion keeping the intermediate portion in place while allowing the pawl to be pivotable intermediate portion, said base portion extending outward from said intermediate portion and away from said inlet portion, said extension portion extending outward from said intermediate portion and into said inlet portion, and that the spring is placed within said inlet portion between said second portion of said plate and said extension portion of said pawl.

Although spring biased pawls with a pivot in an intermediate portion thereof are known to be used in fall arrest devices, it does not seem to be obvious to arrange such a pawl in the way defined in independent claim 3, 6 and 15.

Consequently, the subject-matter of claims 3, 6 and 15 of the present application is considered as involving an inventive step (Article 33(3) PCT).

Claims 4, 5, 7, 8

Claims 4, 5 are dependent on claim 3 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Claims 7, 8 are dependent on claim 6 and as such also meet the requirements of the PCT with respect to novelty and inventive step.



Industria y Comercio

SUPERINTENDENCIA

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
Rad: 06-033242- -00000-0000 Fece 2008-04-05 16:52:32
Dep. 2020 NUECREACIONES
Tra. 11 PATENTEMII Eje 378 FASENACIONALI
Act 411 PRESENTACION Folios 74

75

75

Delegatura de Propiedad Industrial División de Nuevas Creaciones

REQUISITOS NECESARIOS PARA PRESENTACIÓN Y AGILIZACIÓN DEL TRAMITE

PATENTE DE INVENCION ()	MODELO DE UTILIDAD ()	USUARIO ()	RADICADOR ()
Indicación de que se solicita la concesión de una patente ✓		()	()
-Datos de identificación del solicitante o de la persona que se presenta la solicitud ✓		()	()
Descripción de la invención ✓		()	()
-Dibujos de ser estos pertinentes ✗		()	()
-Comprobante de Pago de las tasas establecidas ✓		()	()
COMPLETA ()	INCOMPLETA ()	()	()

DISEÑO INDUSTRIAL ()

Indicación de que se solicita el registro de Diseño Industrial	()	()
Datos de identificación del solicitante o de la persona que se presenta la solicitud	()	()
Representación gráfica y fotográfica del Diseño Industrial o muestra del Material que incorpora el diseño	()	()
Comprobante de Pago de las tasas establecidas.	()	()
COMPLETA ()	INCOMPLETA ()	()

ESQUEMA DE TRAZADO ()

Indicación de que se solicita el registro de Diseño Industrial	()	()
Datos de identificación del solicitante o de la persona que se presenta la solicitud	()	()
-Representación gráfica del Esquema Trazado	()	()
-Comprobante de Pago de las tasas establecidas	()	()
COMPLETA ()	INCOMPLETA ()	()

Firma Responsable

Fecha


4 abril 05 de 2006

26

REPUBLICA DE COLOMBIA
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

Bogotá,
2020

Doctor(a)
OLARTE GARCIA CARLOS REINALDO

REFERENCIA	Radicación No.	6 33242
	Solicitud internacional	US2004/027243
	Fecha inicio fase nacional	05/04/2006
	Trámite	11
	Evento	378
	Actuación	430
	Oficio No.	6305

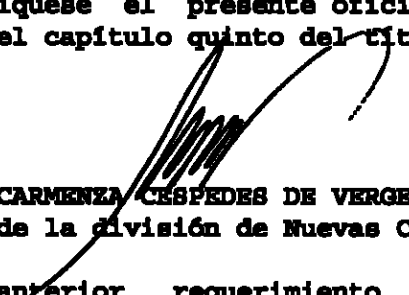
Como resultado del examen de forma, realizado con fundamento en el artículo 38 de la Decisión 486 de la Comisión de la Comunidad Andina, artículo 27 del Tratado de Cooperación en Materia de Patentes (PCT), regla 51 bis del Reglamento y Circular Única de la Superintendencia de Industria y Comercio, se le comunica que:

1. La solicitud no contiene la copia del documento en que consta la cesión del derecho a la patente del inventor al solicitante o a su causante. (Art. 26-k) Decisión 486.

2. La solicitud no contiene el poder debidamente otorgado, con el lleno de los requisitos exigidos por los artículos 63 y subsiguientes del Código de Procedimiento Civil. Adicionalmente, deberá presentar el documento que acredita la existencia y representación legal de la sociedad solicitante, cuando ésta fuere persona jurídica.

En cumplimiento de lo dispuesto por el artículo 39 de la Decisión 486, se le requiere para que dentro del término de dos meses siguientes a la fecha de notificación del presente oficio, complete los requisitos anteriormente enunciados. En caso de no dar cumplimiento al presente requerimiento, la solicitud se considerará abandonada y perderá su prelación.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Unica No.10 de 2001.


ALIX CARMONA CESPÉDES DE VERGEL
Jefe de la división de Nuevas Creaciones

El anterior requerimiento fue notificado por fijación en lista de fecha 09 JUN 2006
adpall