

1) Family number: 44330138 (US2011109170A)

© PatBase

Title: HAND-HELD ELECTRONIC DEVICE AND METHOD FOR PREVENTING FALL OF THE SAME

**Abstract:** The hand-held electronic device includes a central processing unit, a memory unit, a state-detecting unit, a state-determining unit, a main power supply unit, a standby power supply unit, and a power supply switching unit. After determining the presence of a fall state, the state-determining unit will output a fall prevention instruction and which causes the central processing unit to enter a low-potential current mode; meanwhile, the power supply switching unit monitors power output and continues to supply low-potential power. In case of a fall of the hand-held electronic device, the device and method protect operation data and reduce the otherwise power-consuming current. The less power-consuming current is conducive to the reduction of capacitance required for a backup battery. The low-potential current mode is effective in reducing the time taken to recover the operation mode of the electronic device.

**Classifications:**

**International (IPC 8-9):** G01P15/02 G06F1/30 G06F11/07 G08B21/00 H01H35/14 H02H1/00 H04M1/00 H04M1/725 (Advanced/Invention); G01P15/02 G06F11/07 (Core/Non-invention)

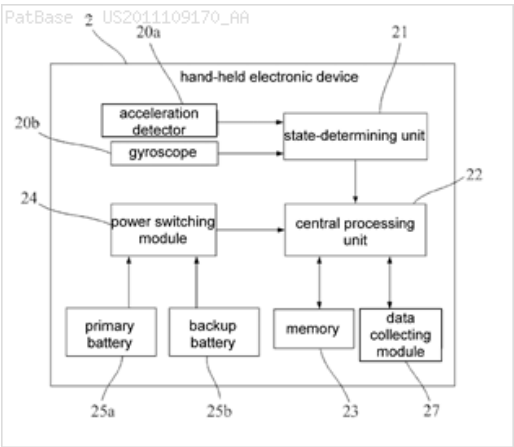
**CPC:** Y10T307/799 H02H1/0007 G11B19/043 H02J9/061

**European:** G11B19/04B4

**US:** 307/121 307/121P

**JP F-Term:** 5B011 5B011/DA07 5B011/JB01 5B011/KK01 5B011/LL12 5K027 5K127 5K127/AA07 5K127/BA03 5K127/GE19 5K127/JA25 5K127/JA27 5K127/KA24 5K127/MA16 5K127/NA17

**JP F-Index:** G06F1/00/341/L G06F1/00/341/V G06F1/30/L G06F1/30/V H04M1/00/R H04M1/725



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| FR2952460 A1       | 20110513         | FR20090059389      | 20091222         |
| GB200921070 A0     | 20100113         | GB20090021070      | 20091202         |
| GB2475107 A1       | 20110511         | GB20090021070      | 20091202         |
| JP2011100432 A2    | 20110519         | JP20090282713      | 20091214         |
| JP4914914 B2       | 20120411         | JP20090282713      | 20091214         |
| TW201116989 A      | 20110516         | TW20090137795      | 20091106         |
| US2011109170 AA    | 20110512         | US20090624971      | 20091124         |
| US8212422 BB       | 20120703         | US20090624971      | 20091124         |

**Priority:**

TW20090137795 20091106

**Probable Assignee:** ASKEY COMPUTER CORP

**Assignee(s):** (std): ASKEY COMPUTER CORP ; CHEN WEN YU ; HSIEH CHING FENG

**Inventor(s):** (std): HSIEH CHING FENG ; CHEN WEN YU

**Inventor(s):** WEN YU CHEN ; CHING FENG HSIEH

**Agent(s):** BREVALEX; ANTHONY; WPAT PC

2) Family number: 61601166 (US2019076679A)

© PatBase

Title: PORTABLE FALL PROTECTION DEVICE

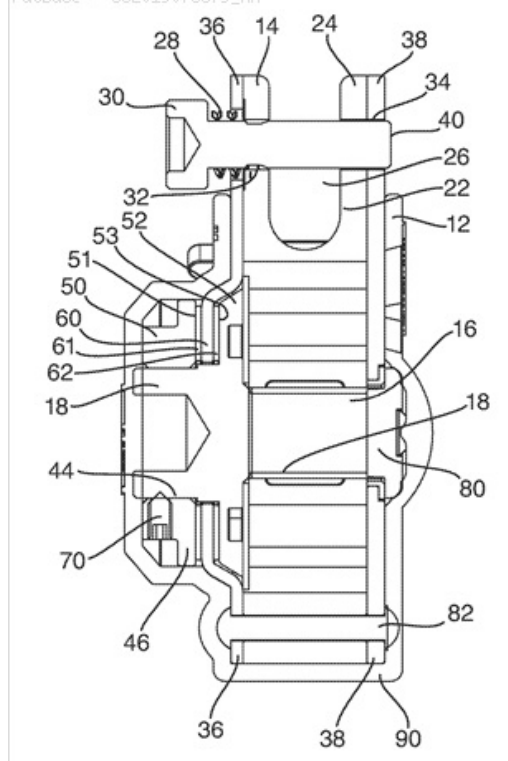
**Abstract:** The portable fall protection device essentially comprises a force reduction device that gradually absorbs a tensile force created within a safety line as a user falls from a height. One aim of the portable fall protection device is to gradually arrest the descent of the user falling in a gradual controlled manner to prevent injury to the user. Furthermore, the portable fall protection device is compact such that it can be constantly worn and carried on the back of the user without impinging on the tasks of the user. As a result of the structure of the portable fall protection device, each portable fall protection device can be individually tested prior to use and can be re-used (and/or reset), if necessary after a fall. In addition, the capacity of the portable fall protection device is adjustable and can be set by a manufacturer and/or operator to produce a bespoke device.

**Classifications:**

**International (IPC 8-9):** A62B1/08 A62B35/00

A62B35/04 (Advanced/Invention)

**CPC:** A62B1/08 A62B35/0025 A62B35/0093 A62B35/04

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AU2016342565 AA    | 20180510         | AU20160342565      | 20161021         |
| CA3002618 AA       | 20180419         | CA20163002618      | 20161021         |
| EP3365078 A2       | 20180829         | EP20160797969      | 20161021         |
| GB201518793 A0     | 20151209         | GB20150018793      | 20151023         |
| GB2543568 A1       | 20170426         | GB20150018793      | 20151023         |
| US2019076679 AA    | 20190314         | US20160769262      | 20161021         |
| WO17068365 A2      | 20170427         | WO2016GB53298      | 20161021         |
| WO17068365 A3      | 20170601         | WO2016GB53298      | 20161021         |

**Priority:**

GB20150018793 20151023 WO2016GB53298 20161021

**Probable Assignee:** CHECKMATE LIFTING AND SAFETY LTD**Assignee(s):** (std): CHECKMATE LIFTING AND SAFETY LTD**Assignee(s):** NEWING WILLIAM MICHAEL GORDON ; AUSTON OLIVER**Inventor(s):** (std): OLIVER AUSTON ; WILLIAM MICHAEL GORDON NEWING ; AUSTON OLIVER ; NEWING WILLIAM MICHAEL GORDON ; NEWING WILLIAM MICHAEL GORDON**Agent(s):** APT PATENT AND TRADE MARK ATTORNEYS; MBM INTELLECTUAL PROPERTY LAW LLP; DUMMETT COPP LLP; JACKSON NICHOLAS ET AL

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

**3) Family number: 52067197 (DK201100095U)**

© PatBase

**Title:** BAERBAR FALDSIKRING Portable FALL PROTECTION (Machine translation)

**Abstract:** Source: DK201100095U [DA] Baerbar faldsikring (1) udformet til midlertidig installation over et hul (20), hvil- ken faldsikring (1) er konfigureret til at bære et eller flere fa (30), hvil ken faldsikring (1) omfatter et antal ben, der er udformet til gensidigt at bære det ene eller de flere fa over et hul, hvor benene er tilvejebragt med midler (10), som er udformet til midlertidig kobling af benene på en i hoved sagen lodret karm (21), som omgiver et hul (20).

**Machine translation:** Portable fall protection (1) designed for the temporary installation of a hole (20), break-ken fall protection (1) is configured to bear one or more of the FA (30), resting tank fall protection (1) comprises a plurality of legs, which is designed to mutually carry the one or more FA over a hole, the legs are provided with means (10), which are designed for temporary coupling of the legs on the one of the substantially vertical frame (21) surrounding a hole (20).

**Classifications:****International (IPC 8-9):** B62B1/00 B66B17/00 B66C5/00 (Advanced/Invention)**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DK201100095 U4     | 20120914         | DK20110000095U     | 20110603         |

**Priority:**

DK20110000095U 20110603

**Probable Assignee:** AP MOELLER MAERSK AS  
**Assignee(s):** (std): A P MOELLER MAERSK AS ; AP MOELLER MAERSK AS  
**Assignee(s):** A P MOELLER MAERSK A S ; AP MOELLER MAERSK A S  
**Inventor(s):** (std): KRISTIAN DYBRO  
**Inventor(s):** DYBRO KRISTIAN

**4) Family number: 50820243 (TWM424744Y)**

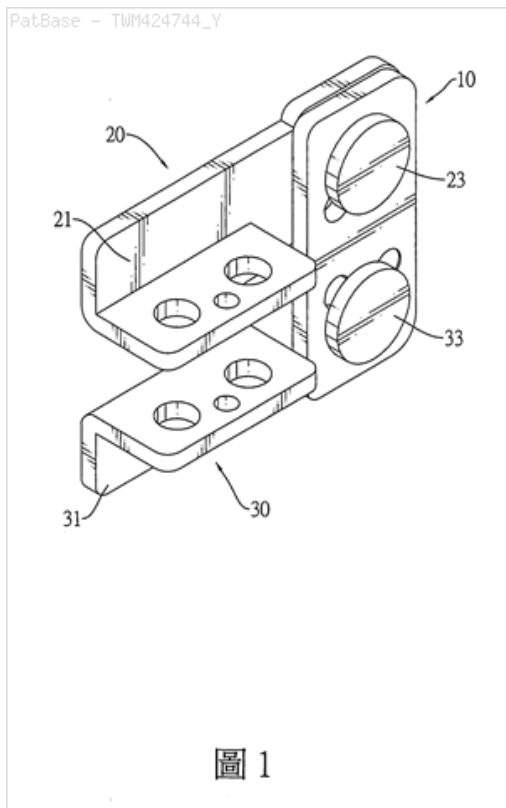
© PatBase

**Title:** Protection of flat fall hinge and portable device

**Abstract:** Source: TWM424744Y **Machine translation:** This is a kind of record as no level difference of the pivot, New York, which is provided to cover and base of the above formula can be ? devices 00 having a torsion yield green emitting unit, a first axle and a second axle set, the torsion yield green emitting unit having a first rail and a second rail, the first group a shaft having a first shaft and the first sub-main turn turn axis, which may be disposed beneath the first slide moving rail, the second group has a second main shaft and shaft, turn the second turn axis, which can slide moving deputy, the second rail disposed beneath, through double axle group can be disposed such that the upper cover respectively by double axle pivot turn, leaving the heart of ? open to 180 degrees 00 and base was completely horizontal like state.

**Classifications:**

**International (IPC 8-9):** F16C11/04 H05K7/16 (Advanced/Invention)



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| TWM424744 Y        | 20120311         | TW20110221699U     | 20111117         |

**Priority:**

TW20110221699U 20111117

**Probable Assignee:** SHIN ZU SHING PREC ELECTRONIC SUZHOU CO LTD  
**Assignee(s):** (std): SHIN ZU SHING PREC ELECTRONIC SUZHOU CO LTD  
**Assignee(s):** SHIN ZU SHING PRECISION ELECTRONIC SUZHOU CO  
**Inventor(s):** (std): ZHUANG ZHI GUANG

**5) Family number: 63645311 (CN205606159U)**

© PatBase

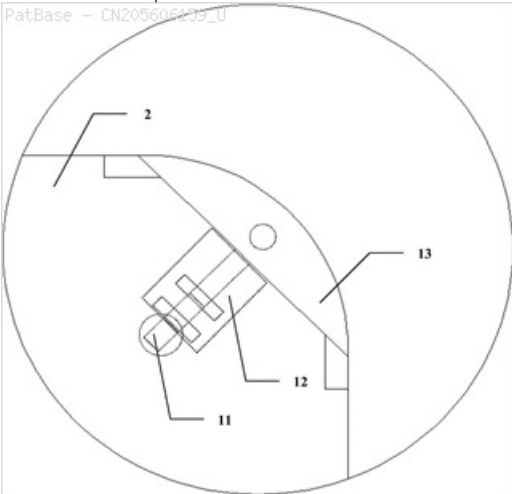
**Title:** PORTABLE TERMINAL DEVICE FALL PROTECTION DEVICE AND PORTABLE TERMINAL DEVICE

**Abstract:** An embodiment of the utility model provides a portable terminal device fall protection device and portable terminal device relates to equipment protection technical field. The device install in an at least bight of portable terminal device, the device

includes: fixed part, the portion of popping out and elasticity part, the fixed part is received portable terminal device internal inductor sensing fall the signal, the portion of popping out can the quilt the fixed part is fixed, and can the quilt the fixed part triggers and pops out, the elasticity part is connected the portion of popping out follows when the portion of popping out pops out, the perpendicular to the screen direction of portable terminal device is expanded. The embodiment of the utility model provides a can protect, and low in manufacturing cost is honest and clean convenient to use when the portable terminal device falls.

**Classifications:**

**International (IPC 8-9):** F16F15/02 F16P7/00 (Advanced/Invention)



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN205606159 U      | 20160928         | CN201620205944U    | 20160317         |

**Priority:**

CN201620205944U 20160317

**Probable Assignee:** LETV ZHIXIN ELECTRONIC TECH TIANJIN CO LTD

**Assignee(s):** (std): LETV ZHIXIN ELECTRONIC TECH TIANJIN CO LTD

**Assignee(s):** LETV ZHIXIN ELECTRONIC TECHNOLOGY TIANJIN CO ; MUSIC ZHIXIN ELECTRONICS TECHNOLOGY CO LTD TIANJIN AS ; MUSIC ZHIXIN ELECTRONICS TECHNOLOGY TIANJIN CO LTD AS

**Inventor(s):** (std): DUAN WEI

**6) Family number: 57081337** (CN203746074U)

© PatBase

**Title:** LANDING CONTROL PROTECTION DEVICE FOR FREE-FALL OF PORTABLE COMPUTER

**Abstract:** The utility model provides a landing control protection device for the free-fall of a portable computer. The ground control protection device comprises a USB (Universal Serial Bus) inversion I2C bus chip U1, a digital output gyroscope U2, diodes D1 and D2, a diode IN4007, audions Q1, Q2, Q3 and Q4, and centrifugal vibrators A, B, C and D, wherein a pin 2 of the digital output gyroscope U2 outputs an I2C serial clock, the computer gives an order to control the pin of the USB inversion I2C bus chip U1 to be connected with the audions so as to drive the four rotary centrifugal vibrations according to the inclining state of the computer. When the portable computer freely falls, the landing way of the portable computer can be controlled by controlling the strong and weak vibration of the centrifugal vibrations arranged at the four corners of the portable computer. The landing control protection device provided by the utility model has the advantages that the portable computer can be controlled to land at a set position when the portable computer freely falls, so as to protect the portable computer.

**Classifications:**

**International (IPC 8-9):** G06F21/70 (Advanced/Invention)

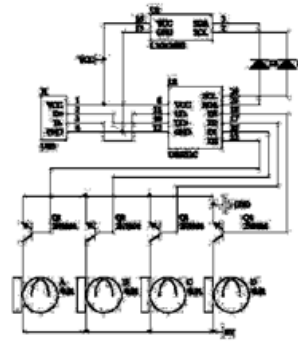


图 1

5

**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN203746074 U      | 20140730         | CN201420141279U    | 20140327         |

**Priority:**

CN201420141279U 20140327

**Probable Assignee:** UNIV JIANGXI TECHNOLOGY**Assignee(s):** (std): JIANGXI UNIV OF TECHNOLOGY ; UNIV JIANGXI TECHNOLOGY**Inventor(s):** (std): WU HUALIANG**7) Family number: 44908380 (TW200952442A)**

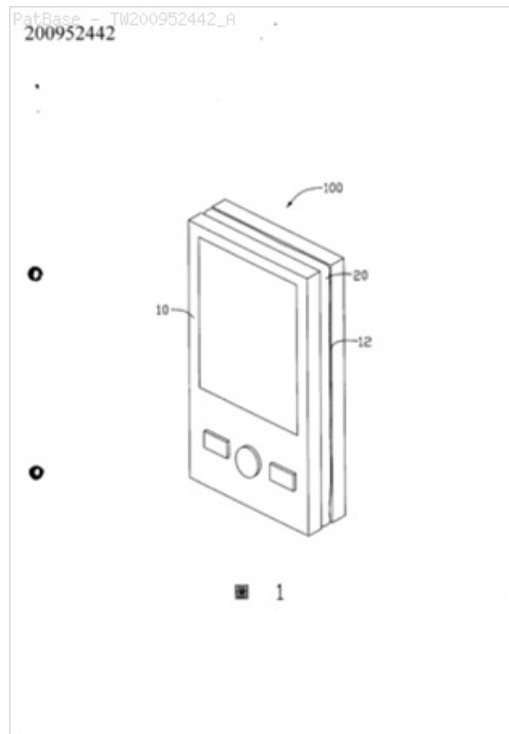
© PatBase

**Title:** Portable electronic device and method for providing fall protection to the portable electronic device

**Abstract:** A portable electronic device includes an enclosure, an airbag, a gas-filling apparatus, a fall detecting apparatus and a control apparatus. The enclosure defines a receiving slot at a sidewall. The gas-filling apparatus is mounted in the enclosure and connected with the airbag for filling air to the airbag. The airbag is received in the received slot in a folded state, and can spread to protrude out of the received slot when the air is filled in. The fall detecting apparatus is used for detecting whether the portable electronic device is falling and generating a detecting signal when the portable electronic device is falling. The control apparatus is used for controlling the gas-filling apparatus to fill air to the airbag for responding to the detecting signal. A method for providing fall protection to the portable electronic device is also provided.

**Classifications:**

**International (IPC 8-9):** H04M1/02 (Advanced/Invention);  
H04M1/02 (Core/Non-invention)



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| TW200952442 A      | 20091216         | TW20080121106      | 20080606         |

#### Priority:

TW20080121106 20080606

**Probable Assignee:** HON HAI PREC IND CO LTD

**Assignee(s):** (std): HON HAI PREC IND CO LTD ; HON HAI PRECISION IND CO LTD

**Assignee(s):** HON HAI PRECISION INDUSTRY CO ; HON HAI PRECISION INDUSTRY CO LTD ; HON HAI PRECISION INDUSTRY CO LTD TW

**Inventor(s):** (std): LIU YONG QIANG

**Inventor(s):** LIU, YONG-QIANG

#### 8) Family number: 4276428 (JP49116590A)

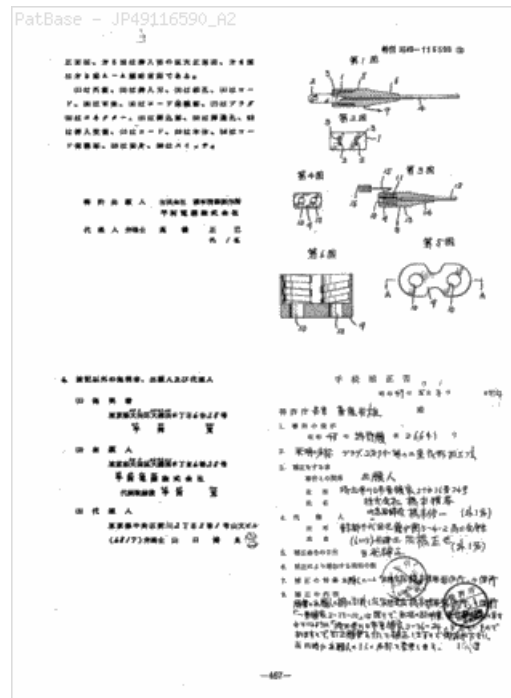
© PatBase

**Title:** The three-Koo Dae-o" in Krakow, the third largest party nectar bird#39;s hand take-ku, Kyoto oxalic crystal is accumulate Shirota address SAN, Il-4 Seki JT inductor (8), (6) the Japan Patent Office on ? # red in JP-A-49-115548 1.16 @-A 590, 49 (1974), Japanese Patent Application No. Sho 11.7 (8) (1) # C4 / a-2g973) filed on 3. Buy 1 r arato examination (Total 4 pages) degrees Saisho have the name of the invention plug, bright: ! Such as L-shaped double nectar II processing method of 2, two kinds of different hardness Ji predetermined position E respectively brought into position in the resin blend was integrally coupled by a connector or the like, characterized in that to double plug, forming method of the present invention detailed description the present invention is hardness of two different kinds of resin, respectively predetermined position is positioned in the threats integrally molding a molding, characterized in that it relates to a process for the conventional synthetic resin 4 O#39; insertion of insertion lugs or blade or connector receiving cylinder-TP1 by the single injection molding Kaoru] finished product of the whole of the plug or connector the same hardness of a synthetic resin made of hard ? ? therefore use of the synthetic resin hardness plug plug and cord 9, the insertion of the connecting portion between the R that is, the flexibility of the protective portion a-a cross-sectional say psst occur there was a point A = 0t, on the contrary, and takes into account the flexibility of the flexible coercive waist threats. Plug-molding resin. Insertion into the socket blade holding force is weak in a task t pulled out from the safety, there is a disadvantage lose ? furthermore. In general, the connector and the fitting of the hold'.sub.i[t@ Prefecture, synthetic resin is used in order for ages-in" for portable devices in the AC-kai "ri flow power changeover switch Kimi Raikkonen! 4-is performed by insertion and removal of the Bohr ? and thus, the mercapto bin installing protrudes to have the spacing or network and a built-in the receiving cylinder 9 inserted into the insert, slightly shifted to the receiving cylinder to be accommodated in the soft synthetic resin, as long as it slightly move the insertion by the receiving cylinder 1 on the other hand, fitting both the spring pressure, it is possible to changeover switch by the switch body is distorted, the malfunction of the boo-nectar may lead-or 1 was wound reversely inserted into hard synthetic resin receiving cylinder within t-Dpa Ge: when accommodating the KL! The switching operation of the switch on the other hand, the height of the correct bin interval t-1 hssx wherein the tatami number required bottle even a little different with 3 bins of the zero interval - not fitted there has been a drawback or @ for the present invention, in order to remove the conventional drawbacks and hard synthetic resin of a soft synthetic resin and t-so as to position the appropriate necessary places both hoi integrally molded, is obtained by so as to process the first embodiment - In the present invention, O over 21.1! Fig. Prada by (7), that is, the distal end of the outer casing (1) outer portion corresponding to the hard resin to threats by], Ru. (1) the outer casing of the positive 11K! Blade (2) (2) inserted into the pores for inserting the (3) (3), together with the rear end of the drilling and the inner wall of the opening of the outer casing appropriately uneven groove or the like to form a helical groove, soft resin and firmly integrally bonding the threat to be able to. Then, the pores of the outer t (1) (3) (3) (2) (2) inserted into the circular blade, are inserted into the insert, the cutting edge (2) (2), the other end connected to the distal end of code (4), the outer casing (1), soft synthetic resin integrally form a body (5) to (1) a pipe forming the main body in the rear portion of the code (4) to prevent disconnection of the bent portion of the bent-up the code protection unit (6) can be integrally molded into a T%-oh · and thus, NEW! The quality of the synthetic resin outer casing Bu-kai (1), (2) soft synthetic resin of the main body of the body, the contact at the

time of molding, heat at 21 integrally done tcj wearing this, it is intended to be inserted into the field edge (2) (2) the pores of the outer casing (1) (3) (3), since the position on a circle having a sufficient holding force for the code protection portion (6) together with the flexibility is also sufficiently. Second Embodiment Fig. 2 to 6)-8. Bright, and a connector (8), the distal end portion of the insertion portion of (9), pushing hard molded of a synthetic resin (9) and the push portion t) Air Bin (not shown) for inserting the insertion hole bored. (optimum). Further, the pushing (9) optimal circle, and the insertion hole) the optimal insertion hole o of the arc o develops from Bin (not Shimese) was inserted into the II-insertion for inserting the conductive receiving cylinder to each position a, M-inserted into the receiving cylinder 11, ku (11 (distal end of the #39;optimal v' and C connected to the insert via a receiving cylinder 1 then the tip portion of the main body incorporated in the soft synthetic resin, ss Q3 insertion portion by molding (9), in this case, integrally forming the body @ the rear portion of the wrinkles of the bent-code 1LS for protecting the a bendable portion a-the code protection unit 4 to the main body # K optimal W) is integrally molded, the insertion ?, (and thus the synthetic resin flexible, receiving cylinder is located in the insertion hold a rolling, the spring characteristics of the receiving cylinder causes not inserted into the bottle, also, ? bin (not shown), That is, the slight deviation, the distance between the bins for the differences, the insertion receiving cylinder is sufficiently follow, it is possible to smoother-fitting opening in the connector insertion and removal of the sound This is much further, life, so that the insertion portion @ (9) is made of a hard synthetic resin, as compared with the h slip for soft) selfishness, it is possible to perform smooth insertion and removal of the AC-DC switch with, furthermore, the switching of the TEWI receptacle for use in the case of the Ig--and push the contact piece (11), so that the lubricity) is optimal operating switch) is smoothly. (2) spring pressure contact piece insertion portion by the outer wall of the TEWI-II (-) switch, such as a x.sym.It is not malfunction. As shown in Fig. 1, porcelain insertion portion (g4 to the spiral groove provided on the inner wall of the left and right opposite, respectively for forming Bu), whereby the insertion portion, the soft synthetic resin by injection of Bernoulli#39;s gold, the sum of both, in which it is possible to binder. More as the present invention is made of a hard 4r! II Iij and integrally of a soft synthetic resin molding as appropriate by the soft synthetic resin raw], the advantages of the two disadvantages of ? fall down, further removing the hard synthetic resin, while utilizing the advantages of (i) to remove the disadvantages -), a failure such as Prada, further enhanced connector and durability, further t for only big or hard resin outer casingss-order authority in the automatic insertion number number S of the inner non-ng forms, it is very suitable for mass production - in the present brief description of the drawings shows an embodiment of the present invention, Fig. 1 is a longitudinal side view of the Prada, 22 figure is an honest figure-1 shown in Fig. 8 longitudinal sectional side view of the connector shown in Fig. 24 are denoted by the same EN\_e: 2 a front view, Fig. 16 shows an enlarged front view of the insertion portion 2s in Fig. 1 Fig. 6 line cross-sectional L-Lii, is a diagram (1), page and outer casing, the insertion blade (powder, (3), (4) = the pore, (S) body, (6) a w ss <nt-ii, (8) is x-y-y / 1 (9), kimi raikkonen tame insertion portion is inserted, the insertion hole, @ over-receiving cylinder body, the code q4, q3 is, via the coercive buss contact piece, and the suitsuchi patent applicant of the hirakawacho 2-wire bu co., ltd. seiki seisakusho co., ltd. hashimoto attorney who do or die/\$smoke outside 14, takahashi1 positive the present applicant#39;s 0 ss m other than the above (1), and agent-ku, tokyo; i inventors %' to no. 2-6-3 co laughs noodles a stomach-present people relax luogang ss 1 (... i to the rlu summer kyoto no. 4 no. early times of lid ding complex i co., ltd. true conductive clamping allowance kick-v (3) win rate" attorney hiroshi shinkawa 2 ij, chuo-ku, tokyo no. 1 ti <4> axis Yamabun Electronics 117 and anvil Bu-Storm Mountain Hiroshi, Showa 19 (y + 1 of procedure amendment, October 30, 1968, 8% R#39; contribute roi frame second-woo 1.61, No. 2, 4 ? Park is a silent) 77 .tau..sub.q, the ?-shaped double coated person E N1 = 7D: 3 nd page 1968 March 5, Secretary r to "S Patent Office (1) asking for and receive \ (Machine translation)

#### Classifications:

**International (IPC 8-9):** H01R13/405 H01R43/24 (Advanced/Invention)



#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| JP49116590 A2      | 19741107         | JP19730026641      | 19730308         |

#### Priority:

JP19730026641 19730308

#### 9) Family number: 32181448 (US2007259259A)

**Title:** LITHIUM BATTERY WHICH IS PROTECTED IN CASE OF INAPPROPRIATE USE

**Abstract:** A lithium battery comprises at least a positive electrode containing a material whose lithium insertion and deinsertion potential is lower than or equal to 3.5 Volts in relation to the potential of the Li+/Li couple, a negative electrode and a non-aqueous electrolyte disposed between the positive and negative electrodes. The electrolyte comprises at least a lithium salt

dissolved in an aprotic organic solvent wherein a polymerizable additive is added, chosen from carbazol and the derivatives thereof and being used to prevent the battery from operating as soon as the voltage at the terminal connections of the battery reaches a value resulting in polymerization of the additive.

**Classifications:**

**International (IPC 8-9):** H01M10/0567 H01M10/08 H01M10/26 H01M10/42 H01M2/10 H01M4/38 H01M6/16 (Advanced/Invention); H01M10/08 H01M2/10 H01M4/48 H01M4/50 H01M4/58 H01M6/16 (Advanced/Non-invention); H01M10/06 H01M10/42 H01M2/10 H01M4/38 H01M6/16 (Core/Invention); H01M4/48 H01M4/50 H01M4/58 (Core/Non-invention)

**International (IPC 1-7):** H01M10/40 H01M10/42 H01M4/62 H01M6/16

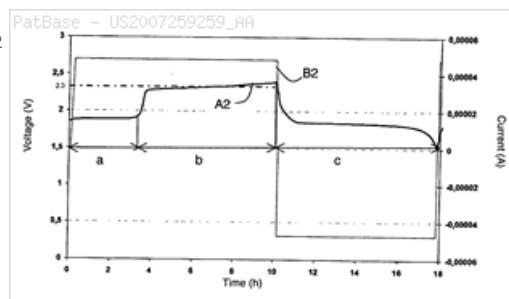
**CPC:** H01M10/4235 H01M4/485 H01M4/505 H01M4/581 H01M4/5825 H01M6/168 H01M10/0567

**European:** H01M10/0567 H01M10/42M H01M6/16E5 T01M4/485 T01M4/505 T01M4/58B T01M4/58D Y02E60/12B

**US:** 429/122 429/122P 429/207 429/207S 429/326 429/326S 429/332 429/332S 429/50 429/50P

**JP F-Term:** 5H029 5H029/AJ12 5H029/AK01 5H029/AK02 5H029/AK03 5H029/AK05 5H029/AL03 5H029/AL06 5H029/AM03 5H029/AM05 5H029/AM07 5H029/BJ27 5H029/HJ01 5H029/HJ02 5H029/HJ18 5H050 5H050/AA15 5H050/BA15 5H050/CA01 5H050/CA02 5H050/CA05 5H050/CA11 5H050/CB03 5H050/CB07 5H050/HA01 5H050/HA02 5H050/HA18

**JP F-Index:** H01M10/00/112 H01M10/00/113 H01M10/0567 H01M10/0568 H01M4/38/Z H01M4/48 H01M4/48/101 H01M4/48/102 H01M4/485



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| CN102299379 A      | 20111228         | CN201110170488     | 20050204         |
| CN1918733 A        | 20070221         | CN200580004664     | 20050204         |
| EP1714340 A2       | 20061025         | EP20050717555      | 20050204         |
| FR2866478 A1       | 20050819         | FR20040001404      | 20040212         |
| JP2007522628 T2    | 20070809         | JP20060552653T     | 20050204         |
| KR20070001129 A    | 20070103         | KR20067016271      | 20050204         |
| US2007259259 AA    | 20071108         | US20050585922      | 20050204         |
| US2010297480 AA    | 20101125         | US20100852183      | 20100806         |
| WO05083819 A2      | 20050909         | WO2005FR00252      | 20050204         |
| WO05083819 A3      | 20060601         | WO2005FR00252      | 20050204         |

**Priority:**

FR20040001404 20040212 US20050585922 20050204 WO2005FR00252 20050204  
US20060585922 20060713 US20100852183 20100806

**Probable Assignee:** COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES

**Assignee(s):** (std): COMMISSARIAT A L'EN ANTOMIQUE ; COMMISSARIAT ENERGIE ATOMIQUE ; MARTINET AUDREY ; MARTINET SEBASTIEN ; LIGNIER HELENE ; MOURZAGH DJAMEL

**Assignee(s):** COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES ; COMMISSARIAT A L'ENERGIE ATOMIQUE ; COMMISSARIAT A L'ENERGIE ATOMIQUE ; COMMISSARIAT A L'ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES ; COMMISSARIAT A L'ENERGIE ATOMIQUE ; COMMISSARIAT A L AND 39 ENERGIE ATOMIQUE

**Inventor(s):** (std): AUDREY MARTINET ; DJAMEL MARTINET AUDREY MARTIN ; DJAMEL MOURZAGH ; HELENE LIGNIER ; LIGNIER HELENE ; MARTINET AUDREY ; MARTINET SEBASTIEN ; MOURZAGH DJAMEL ; SEBASTIEN MARTINET

**Inventor(s):** MARTINET AUDREY MARTINET SEBASTIEN LIGNIER HELENE ; MARTINET AUDREY MARTINET SEBASTIEN LIGNIER HELENE MOURZAGH DJAMEL ; MANET SEBASTIEN LIGNIER

**Agent(s):** CABINET HECKE; OLIFF AND BERRIDGE PLC

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

**10) Family number: 30560556 (US2002007510A)**

PatBase

**Title:** Smart bathroom fixtures and systems

**Abstract:** Image sensors, processors, and control systems facilitate automatic sensor operated bathroom fixtures, systems for controlling bathroom fixtures, and methods of bathroom fixture design, control, and management, as well as the control and management of hygiene and water resources. The networked plumbing systems also help facility managers and law enforcement personnel monitor the operation of various bathrooms in a facility or at remote facilities. Image sensors are used for controlling several showers, faucets, urinals, or water closets in large bathroom complexes. Image based intelligent bathroom fixtures and systems help enhance the privacy of users by ensuring that law abiding users need not be disturbed by police foot patrols into the restroom areas, or by security guards entering simply to make inspections. An aquionics bathroom control system of the invention maintains the cleanliness, safety, security, and privacy of the occupants in a smart bathroom environment. Additionally, in some embodiments, a bathroom facility of the invention may be used for mass decontamination during times of emergency for processing victims of a nuclear, biological, or chemical incident. Once ubiquitously installed for routine control of fixtures, the apparatus facilitates a secondary usage such as monitoring by triage staff, medical personnel, decontamination officers, or law enforcement officers during times of terrorist consequence management.

**Classifications:**

**International (IPC 8-9):** A45C1/06 A45C13/18 A47K3/28 A61B5/00 A61F2/14 A61H33/00 A63F13/80 A63F9/00 A63F9/24 A63H30/04 B62D1/00 B64F1/36 E03C1/05 E03D3/00 E03D5/10 E03D9/00 E04H1/12 E05B47/00 E05B65/00 G02B23/12 G02B27/00 G02B27/01 G02B27/18 G02B27/20 G02C1/00 G02C11/00 G02C11/04 G02C11/06 G02C7/02 G02C7/04 G02C7/10 G02C9/00 G02F1/01 G03B1/00 G03B13/02 G03B13/04 G03B13/06 G03B13/16 G03B15/02 G03B15/05 G03B15/08 G03B17/18 G03B17/48 G03B17/56 G03B19/00 G03B29/00 G03B33/08



G03B43/00 G03B7/00 G04G21/04 G04G9/00 G04G99/00 G05B11/16  
G05B19/00 G05B23/00 G05B23/02 G05D1/00 G05D7/06 G06F1/16  
G06F17/00 G06F19/00 G06F3/00 G06F3/01 G06F3/02 G06F7/00 G06F7/04  
G06K19/00 G06K9/00 G06K9/20 G06K9/36 G06T1/00 G06T5/50  
G06T7/00 G07C9/00 G07F7/02 G07F7/12 G07G1/00 G07G1/12  
G08B13/00 G08B13/196 G08B15/00 G08B19/00 G08B21/00 G08B21/02  
G08B21/08 G08B23/00 G08B25/00 G08B29/00 G08C19/00 G09G3/00  
G09G3/32 G09G5/00 G21F9/00 H04B1/00 H04B3/00 H04L12/16 H04L9/14  
H04L9/28 H04L9/32 H04N5/00 H04N5/222 H04N5/225 H04N5/232  
H04N5/243 H04N5/247 H04N5/30 H04N5/335 H04N5/77 H04N7/00  
H04N7/14 H04N7/15 H04N7/18 H04N9/12 H04Q1/00 H04Q9/00 H04R1/40  
H04R25/00 (Advanced/Invention);

A63H30/04 G02B27/00 G06T1/00 H04N5/92 H04N7/15 (Advanced/Non-invention);

A45C1/00 A45C13/00 A47K3/28 A61B5/00 A61F2/14 A63F9/00

A63H30/00 B62D1/00 B64F1/00 E03D3/00 E03D5/00 E03D9/00 E04H1/12  
E05B47/00 E05B65/00 G02B27/00 G02B27/01 G02B27/18 G02B27/20

G02C1/00 G02C11/00 G02C7/00 G02C7/02 G02C7/04 G02C9/00 G02F1/01 G03B1/00 G03B13/02 G03B13/04 G03B13/06  
G03B13/16 G03B15/02 G03B15/05 G03B15/08 G03B17/48 G03B17/56 G03B19/00 G03B29/00 G03B33/00 G04G1/00 G04G9/00  
G05B11/01 G05B19/00 G05B23/00 G05B23/02 G05D1/00 G05D7/06 G06F1/16 G06F19/00 G06F3/00 G06F3/01 G06F3/02  
G06F7/00 G06F7/02 G06K19/00 G06K9/00 G06K9/20 G06K9/36 G06T1/00 G06T5/50 G06T7/00 G07C9/00 G07F7/00 G07G1/00  
G07G1/12 G08B13/00 G08B19/00 G08B21/00 G08B23/00 G08B25/00 G08B29/00 G08C19/00 G09G3/00 G09G3/32 G09G5/00  
G21F9/00 H04B1/00 H04B3/00 H04L9/14 H04L9/28 H04L9/32 H04N5/00 H04N5/222 H04N5/225 H04N5/232 H04N5/243 H04N5/247  
H04N5/30 H04N5/77 H04N7/00 H04N7/15 H04N7/18 H04N9/12 H04Q1/00 H04Q9/00 H04R1/40 H04R25/00 (Core/Invention);

A63H30/00 (Core/Non-invention)

**International (IPC 1-7):** A45C1/06 A45C13/18 A47K3/28 A61B5/00 A61F2/14 A61H33/00 A63F9/00 A63F9/24 B62D1/00 B64F1/36  
E03C1/05 E03D11/00 E03D3/00 E03D5/10 E03D9/00 E05B47/00 E05B65/00 G02B23/12 G02B27/00 G02B27/01 G02B27/18  
G02B27/20 G02C1/00 G02C11/00 G02C11/04 G02C11/06 G02C7/02 G02C7/04 G02C7/10 G02C9/00 G02F1/01 G03B1/00  
G03B13/02 G03B13/04 G03B13/06 G03B13/16 G03B15/02 G03B15/05 G03B15/08 G03B17/48 G03B17/56 G03B19/00 G03B29/00  
G03B33/08 G05B11/16 G05B19/00 G05B23/00 G05B23/02 G05D7/06 G06F1/16 G06F15/00 G06F17/00 G06F17/40 G06F17/60  
G06F3/00 G06F3/02 G06F3/14 G06F7/00 G06F7/04 G06K19/00 G06K5/00 G06K9/00 G06K9/20 G06K9/36 G06T1/00 G06T5/50  
G06T7/00 G07G1/00 G07G1/12 G08B13/00 G08B19/00 G08B21/00 G08B21/02 G08B21/08 G08B23/00 G08B25/00 G08B29/00  
G08C19/00 G09G3/00 G09G3/32 G09G5/00 H04B1/00 H04B3/00 H04L12/16 H04L9/14 H04L9/28 H04L9/32 H04N5/00 H04N5/222  
H04N5/225 H04N5/232 H04N5/243 H04N5/247 H04N5/30 H04N5/77 H04N7/00 H04N7/15 H04N7/18 H04N9/12 H04Q1/00 H04Q9/00  
H04R1/40 H04R25/00

**CPC:** G06F1/165 G06F1/1626 G06F1/163 G06F1/1632 G06F1/1686 G06F2200/1632 H04N5/772 H04N5/9206 H04N7/141 H04N7/15  
G08B13/19613 G08B13/19643 G08B13/19669 G08B13/19686 G08B13/19619 G08B13/19621 G08B13/1966 G08B15/001  
H04N7/183 G07C9/00087 G02B5/30 G02B27/0172 G02B2027/0138 H04N5/2251 H04N7/185 G06Q20/343 G07F7/02 G07G1/0081  
G07G1/12 G02B2027/0134 G06F3/0386 G06Q10/101 G06Q30/0641 H04N7/18 E03C1/057 E03D5/105 E03C1/05 G02B27/0101  
G02B2027/0118 G02B2027/0178 H04N5/332 A47K3/286 E04H1/1277 G21F9/001 G05D1/0016 G05D1/0038 G05D2201/0214  
G07F7/08 G07F7/12 H04N5/2355 G03B15/02 G03B15/05 G03B15/08 G03B29/00 G03B33/08 G08C19/00 H04N5/232 G06T5/50  
G06F1/16 H04N5/222 H04N9/12 G02C11/00 G02C11/04 G03B13/06 G02C7/02 G02C9/00 G03B13/04 G09G3/00 G09G3/32  
G03B13/02 H04N5/77 G02B27/18 G02B27/20 G03B17/48 G03B17/56 H04N5/243 G03B19/00 A45C1/06 A45C13/18 E05B47/00  
E05B65/00 H04N7/00 G02C7/04 G02B27/00 G02F1/01 G02C7/10 G02C11/06 H04R1/40 H04N5/247 E03D5/10 G05B11/16  
G05D7/06 G09G2380/02 G02B2027/014 G08B21/245 A47K2210/00 B62D1/00 E03D9/002 G04G21/04 G04G9/0064 G04R20/02  
H04N7/142 H04N7/147 H04R25/407 G02B27/017 H04N5/23293 G06T2207/10144 G06T2207/20221 H04N5/225 G16H10/60  
G16H40/63 G06F3/011 A63H30/04

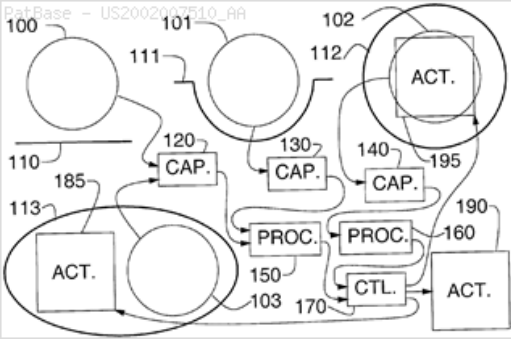
**European:** A47K3/28C3 A63H30/04 B62D1/00 B64F1/36C E03C1/05 E03C1/05D2 E03D5/10B E03D9/00D E04H1/12F G02B27/01  
G02B27/01A G02B27/01C G02B27/01C1 G04G21/04 G04G9/00F G05D1/00C G05D1/00C1 G05D1/00C5 G06F1/16P3 G06F1/16P5  
G06F1/16P6 G06F1/16P9D5S G06F1/16P9P2 G06F19/00A G06F19/32C G06F3/00B8 G06F3/01B G06F3/038L G06Q10/101  
G06Q20/343 G06Q30/0641 G07C9/00B6D4 G07F7/02 G07F7/08 G07F7/12 G07G1/00C2P G07G1/12 G08B13/196A5  
G08B13/196C1 G08B13/196C2 G08B13/196L1D G08B13/196N3 G08B13/196S2 G08B13/196U4 G08B15/00B G08B15/00C  
G08B21/24H G21F9/00B H04N5/225C H04N5/232V H04N5/235N H04N5/33D H04N5/77B H04N7/14A H04N7/14A2 H04N7/14A3  
H04N7/15 H04N7/18 H04N7/18D H04N7/18D2 K47K210/00 K63H30/04 S02B27/01A10 S02B27/01A4 S02B27/01A9A S02B27/01C3  
S02B5/30 S05D201/0214 S06F19/34A S06F200/1632 T04N5/92N6

**US:** 235/380 235/382 340/3.3 340/3.300P 340/33 340/5.3 340/5.300P 340/5.53 340/5.530S 340/5.81 340/5.810S 340/53 345/7  
345/8 345/8P 345/8S 345/9 348/115 348/143 348/143P 348/207 348/207.1 348/211 348/E7.087 348/E70.87S 396/374 396/374P  
396/661 396/661P 4/300 4/300P 702/187 702/187P

**JP F-Term:** 5C022 5C022/AB21 5C022/AB62 5C022/AB65 5C022/AC08 5C022/AC13 5C022/AC14 5C022/AC54 5C022/CA02  
5C122 5C122/DA02 5C122/DA03 5C122/DA09 5C122/EA01 5C122/EA42 5C122/EA54 5C122/EA61 5C122/FA18 5C122/FC01  
5C122/FK15 5C122/FK34 5C122/FK37 5C122/FK42 5C122/FK43 5C122/GC02 5C122/GC10 5C122/GC19 5C122/GC22  
5C122/GC51 5C122/GC52 5C122/GC86 5C122/GE04 5C122/GE07 5C122/GE11 5C122/GG03 5C122/GG05 5C122/GG17  
5C122/HA35 5C122/HB05 5C022/AB00 5C022/AC03 5C022/AC07 5C022/AC09 5C022/AC42 5C022/AC51 5C022/AC75  
5C022/AC77 5C022/AC78 5C122/EA17 5C122/EA21 5C122/EA37 5C122/EA62 5C122/FA02 5C122/FB03 5C122/FB11 5C122/FD01  
5C122/FH04 5C122/FH11 5C122/FK09 5C122/FK21 5C122/FK22 5C122/GC12 5C122/HA82

**JP F-Index:** H04N5/222/Z H04N5/225/B

**Locarno class:** 00/43



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| AT241245 E         | 20030615         | AT19990910052T     | 19990325         |
| AT242573 E         | 20030615         | AT19990908727T     | 19990325         |
| AU199928239 A1     | 19991018         | AU19990028239      | 19990325         |
| AU199929174 A1     | 19991018         | AU19990029174      | 19990325         |
| CA2228403 AA       | 19990802         | CA19982228403      | 19980202         |
| CA2233047 AA       | 19990802         | CA19982233047      | 19980325         |
| CA2233047 C        | 20000926         | CA19982233047      | 19980325         |
| CA2235030 AA       | 19990802         | CA19982235030      | 19980414         |
| CA2237939 AA       | 19980828         | CA19982237939      | 19980629         |
| CA2237939 C        | 19990921         | CA19982237939      | 19980629         |
| CA2247649 AA       | 19981127         | CA19982247649      | 19981013         |
| CA2247649 C        | 20000725         | CA19982247649      | 19981013         |
| CA2248473 AA       | 19981229         | CA19982248473      | 19981029         |
| CA2248473 C        | 20000725         | CA19982248473      | 19981029         |
| CA2249976 AA       | 19981222         | CA19982249976      | 19981015         |
| CA2249976 C        | 19991102         | CA19982249976      | 19981015         |
| CA2256918 AA       | 19990802         | CA19982256918      | 19981224         |
| CA2256918 C        | 20011016         | CA19982256918      | 19981224         |

|                 |          |                |          |
|-----------------|----------|----------------|----------|
| CA2256920 AA    | 19990802 | CA19982256920  | 19981229 |
| CA2256922 AA    | 19990802 | CA19982256922  | 19981231 |
| CA2256922 C     | 20030107 | CA19982256922  | 19981231 |
| CA2261376 AA    | 19990802 | CA19992261376  | 19990201 |
| CA2264973 AA    | 19990915 | CA19992264973  | 19990315 |
| CA2267877 AA    | 19991014 | CA19992267877  | 19990401 |
| CA2275784 AA    | 19991229 | CA19992275784  | 19990629 |
| CA2275784 C     | 20001024 | CA19992275784  | 19990629 |
| CA2275798 AA    | 19991229 | CA19992275798  | 19990629 |
| CA2275798 C     | 20001024 | CA19992275798  | 19990629 |
| CA2280022 AA    | 20010128 | CA19992280022  | 19990728 |
| CA2280420 AA    | 20000413 | CA19992280420  | 19990812 |
| CA2280425 AA    | 20000413 | CA19992280425  | 19990816 |
| CA2280425 C     | 20011009 | CA19992280425  | 19990816 |
| CA2290765 AA    | 19981127 | CA19982290765  | 19981013 |
| CA2290765 C     | 20000725 | CA19982290765  | 19981013 |
| CA2295378 AA    | 20000630 | CA19992295378  | 19991229 |
| CA2295448 AA    | 20000630 | CA19992295448  | 19991231 |
| CA2297344 AA    | 20000801 | CA20002297344  | 20000131 |
| CA2300435 AA    | 20000528 | CA20002300435  | 20000228 |
| CA2303611 AA    | 20001001 | CA20002303611  | 20000403 |
| CA2309868 AA    | 20001229 | CA20002309868  | 20000530 |
| CA2310114 AA    | 19990802 | CA19982310114  | 19980325 |
| CA2313693 AA    | 20010128 | CA20002313693  | 20000719 |
| CA2316098 AA    | 20010212 | CA20002316098  | 20000802 |
| CA2316473 AA    | 20010128 | CA20002316473  | 20000724 |
| CA2351660 AA    | 20020202 | CA20012351660  | 20010626 |
| CA2354113 AA    | 20020202 | CA20012354113  | 20010710 |
| CA2354114 AA    | 20020124 | CA20012354114  | 20010716 |
| CA2357681 AA    | 20021226 | CA20012357681  | 20010829 |
| CA2357697 AA    | 20021226 | CA20012357697  | 20010829 |
| CA2358900 AA    | 19990802 | CA19982358900  | 19981224 |
| CA2360051 AA    | 20021226 | CA20012360051  | 20011010 |
| CA2362895 AA    | 20021226 | CA20012362895  | 20011113 |
| CA2364080 AA    | 20021226 | CA20012364080  | 20011205 |
| CA2414397 AA    | 20030802 | CA20022414397  | 20021231 |
| DE69908108 D1   | 20030626 | DE19996008108  | 19990325 |
| DE69908574 D1   | 20030710 | DE19996008574  | 19990325 |
| EP1064783 A1    | 20010103 | EP19990908727  | 19990325 |
| EP1064783 B1    | 20030604 | EP19990908727  | 19990325 |
| EP1066717 A1    | 20010110 | EP19990910052  | 19990325 |
| EP1066717 B1    | 20030521 | EP19990910052  | 19990325 |
| GB200203423 A0  | 20020403 | GB20020003423  | 19990202 |
| GB2334591 A1    | 19990825 | GB19990002328  | 19990202 |
| GB2334591 B2    | 20020605 | GB19990002328  | 19990202 |
| GB2370958 A1    | 20020710 | GB20020003423  | 19990202 |
| GB2370958 B2    | 20021009 | GB20020003423  | 19990202 |
| GB9902328 A0    | 19990324 | GB19990002328  | 19990202 |
| JP2002508635 T2 | 20020319 | JP20000538502T | 19990325 |
| JP2002508636 T2 | 20020319 | JP20000538503T | 19990325 |
| US2002007510 AA | 20020124 | US20010944429  | 20010904 |
| US2002030637 AA | 20020314 | US20010987768  | 20011115 |
| US2002057915 AA | 20020516 | US20010945879  | 20010905 |
| US2002085843 AA | 20020704 | US20010953684  | 20010918 |
| US2002105410 AA | 20020808 | US20010978233  | 20011016 |
| US2002198685 AA | 20021226 | US20020145309  | 20020515 |
| US2003034874 AA | 20030220 | US20010944442  | 20010904 |
| US2003043268 AA | 20030306 | US20010944430  | 20010904 |
| US6307526 BA    | 20011023 | US19980172599  | 19981015 |
| US6446862 BA    | 20020910 | US19990480929  | 19991231 |
| US6614408 BA    | 20030902 | US19990275775  | 19990325 |
| WO9949655 A1    | 19990930 | WO1999CA00248  | 19990325 |
| WO9949656 A1    | 19990930 | WO1999CA00249  | 19990325 |

#### Priority:

|               |          |               |          |               |          |
|---------------|----------|---------------|----------|---------------|----------|
| CA19982228403 | 19980202 | CA19982233047 | 19980315 | CA19982233047 | 19980325 |
| CA19982310114 | 19980325 | CA19982235030 | 19980414 | CA19982237939 | 19980629 |
| CA19982247649 | 19981013 | CA19982290765 | 19981013 | CA19982249976 | 19981015 |
| US19980172599 | 19981015 | CA19982248473 | 19981029 | CA19982256918 | 19981224 |
| CA19982358900 | 19981224 | CA19982256920 | 19981229 | CA19982256922 | 19981231 |
| CA19992261376 | 19990201 | GB19990002328 | 19990202 | CA19992264973 | 19990315 |
| US19990275775 | 19990325 | WO1999CA00248 | 19990325 | WO1999CA00249 | 19990325 |
| CA19992267877 | 19990401 | CA19992275784 | 19990629 | CA19992275798 | 19990629 |
| CA19992280022 | 19990728 | CA19992280420 | 19990812 | CA19992280425 | 19990816 |
| US19990422559 | 19991021 | US19990421937 | 19991021 | US19990421938 | 19991021 |
| US19990422790 | 19991022 | US19990422791 | 19991022 | US19990422795 | 19991022 |
| CA19992247649 | 19991221 | CA19992295378 | 19991229 | CA19992295448 | 19991231 |
| US19990480930 | 19991231 | US19990480929 | 19991231 | US20000480929 | 20000111 |
| US20000480930 | 20000111 | CA20002297344 | 20000131 | CA20002300435 | 20000228 |
| CA20002303611 | 20000403 | CA20002309868 | 20000530 | CA20002233047 | 20000711 |

|                        |                        |                        |
|------------------------|------------------------|------------------------|
| CA20002313693 20000719 | CA20002316473 20000724 | CA20002316098 20000802 |
| CA20002316098 20000829 | CA20012351660 20010626 | CA20012354113 20010710 |
| CA20012354114 20010716 | CA20012357697 20010829 | CA20012357681 20010829 |
| US20010944430 20010904 | CA20012360051 20011010 | CA20012362895 20011113 |
| CA20012364080 20011205 | CA20022351660 20020202 | CA20022414397 20021231 |

**Probable Assignee:** MANN WILLIAM S G

**Assignee(s):** (std): MANN W S G ; MANN W STEPHAN G ; MANN W STEPHEN G ; STEPHEN G MANN W ; MANN W STEVE G ; MANN WILLIAM S G ; MANN WILLIAM STEPHEN GEORGE ; MANN STEVE

**Assignee(s):** W STEPHEN G MANN ; MANN W ; WILLIAM STEPHEN GEORGE MANN

**Inventor(s):** (std): MANN W STEPHEN G ; MANN W STEVE G ; MANN WILLIAM STEPHEN GEORGE ; W STEPHEN G MANN ; MANN STEVE ; MANN STEVE G

**Inventor(s):** MANN W ; WILLIAM STEPHEN GEORGE MANN

**Agent(s):** SMART AND BIGGAR; NA

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

11) Family number: 49584669 (US2011226548A)
© PatBase

**Title:** PORTABLE VEHICLE-STABILIZED MAST AND FALL PROTECTION SYSTEM

**Abstract:** Deployable fall protection systems and components are disclosed for protecting against worker falls in cargo handling operations. Workers wearing harnesses are attached to a lifeline supported from overhead, the support being attached to ground-standing mast assemblies stabilized by the weight of a vehicle parked on a foot portion of the mast assembly.

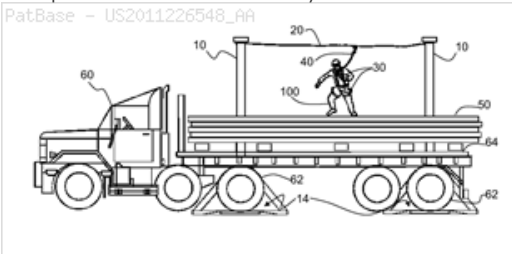
**Classifications:**

**International (IPC 8-9):** A62B35/00 E04H12/00 (Advanced/Invention)

**CPC:** A62B35/0056 A62B35/0093

**European:** A62B35/00B2 A62B35/00F A62B35/04B

**US:** 182/129 182/3 182/3P 52/651.07 52/651.070S



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| US2011226548 AA    | 20110922         | US20100728927      | 20100322         |
| US8616332 BB       | 20131231         | US20100728927      | 20100322         |

**Priority:**

US20100728927 20100322

**Probable Assignee:** IHI CORP

**Assignee(s):** (std): ALESSI CHAD ; IHI CORP ; IHI E AND C INT CORP ; AKER SOLUTIONS AMERICAS INC ; WITLAM MARK

**Assignee(s):** AKER SOLUTIONS US INC ; KVAERNER AMERICAS INC

**Inventor(s):** (std): ALESSI CHAD ; WITLAM MARK

**Agent(s):** ROTHWELL FIGG ERNST AND MANBECK PC

12) Family number: 31273723 (JP2551075Y)
© PatBase

**Title:** Portable type fall protection net (Machine translation)

**Classifications:**

**International (IPC 8-9):** E04G21/32 (Advanced/Invention); E04G21/32 (Core/Invention)

**International (IPC 1-7):** E04G21/32

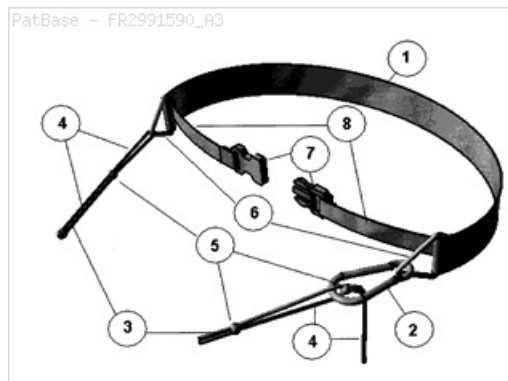
**JP F-Term:** 2E175

**JP F-Index:** E04G21/32/A

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| JP2551075 Y2       | 19971022         | JP19910097018U     | 19911126         |
| JP5047222 U1       | 19930622         | JP19910097018U     | 19911126         |

JP19910097018U 19911126

**Classifications:**  
**International (IPC 8-9):** A62B35/00 B63C9/08 (Advanced/Invention)  
**CPC:** A62B35/0006 A62B35/0075



| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| FR2991590 A3       | 20131213         | FR20120001681      | 20120611         |

## FR20120001681 20120611

PatBase PDF Export - Page: 12 21/06/2019

Inventor(s): MARIA TERESA SAN MIGUEL BARANDA  
Agent(s): MARIA TERESA SAN MIGUEL BARANDA

14) Family number: 4021916 (JP48026263A)

PatBase

**Title:** Y, a thin strong ranged from 58,800~64,000 won, f; P1, T4 + 1 · j81 bulk hose 2' of vinyl acetate, box claims 1 for a; 11to 25:11 "is 3, on the shin of the normally f in the BU 41, it coalescence, vinyl F and the low degree of yarn] ? and polyethylene, the melt-toy, index is in the range of 0.1 to 15 and the content of vinyl acetate is 2 to 10 parts by weight final engagement per resin composition is 70 to 95 wt bright fat component and from about 25 to about 45 parts by weight, chlorination degree of the chlorinated polyethylene 5 parts by weight consisting of 30 to the resin composition is produced by extrusion molding method and the wall thickness for preventing 10f or more provided with a tetanus shot sujiyama wall thickness is about 15 to g + r o, s; the folding blade a flexible tough sub.jj', X-jj small. Thin hose, the detailed description of the invention The present invention time 18 is manufactured from a specific resin composition, wall thickness 13 8 Koku? to 0.3 degree of muscle 11 granted1 configuration of a folding scolding) t given a wall is small bulk fluid hose hose 35, rubber, synthetic resin or the like, or waterproof (+-A, the strength, water pressure resistance, the impact resistance and in consideration of the storage medium, 1 thick at t1 PI at the sacrifice mobile ?Wo. 11 · KO !!, double consonants, hose meat, il: 11)) to the 7r #39;row-folding-?) 8L1 · · ability temperature] 1 red or by turning the ring-T Roh-winding the portable storage, it has been performed to the mobile for delivery in addition, HI kyoto i-1 ;; 11 #39;7 of the hose 7 to the volume ratio of 1 / D · ·!, take into consideration one-person J', v the amount of meat is l (1: <thick" becomes an 'F-up also corresponds 1 further, was a conventional hose-\et al. (at the time of use, Li J [J area 1! After linear extrusion water must not bu still effort is required. Conventional hose water outage can therefore bent portion If, there is a drawback that the present inventors have found that a portable storage of the toilet in addition, each process for manufacturing a foldable thin hose conducted extensive studies and as a ethylene-vinyl acetate copolymer, polymer / low-density polyethylene or ? etc.) and of the specific product 1 and the mixing ratio, chlorinated polyethylene resin composition consisting of a material, by extrusion molding l "C-) simulator is manufactured 10f or more with respect to the wall; tetanus shot for the 1F. Ndpa anti-Ge: E Sujiyama 15 to r wall thickness is provided with a o, s is tough mm about the thin, small bulk foldable flexible hose is exposed to 5 degrees as 1, l, polyethylene'.sub.i know its crystallization in accordance with the degree of physical properties vary widely. among them, so-called high-pressure low-density polyethylene obtained by radical polymerization is a relatively low crystalline, medium pressure method or low pressure method in the resulting highly crystalline high-density polyethylene and the like rigidity is low hardness as compared with the other hand a high impact resistance and stress cracking resistance, excellent weather resistance polyethylene specific thereon, cold resistance, chemical resistance and processability. Therefore, low-density polyethylene film, sheet or the like of the extrusion properties because the excellent material is used in large amounts, higher toughness and impact resistance insufficient in low density polyethylene alone. That is, when manufacturing the thin hose to the following examples and comparative examples as shown in mykonos, cleat pressure and friction with the road surface, a large number of the bin 7 "is generated, this is unacceptable, 7 low-density polyethylene of toughness and impact resistance is more excellent properties, there is a lack of now-step on the other hand, low density polyethylene / solution of toughness and impact resistance to the reformer for auditing, vinyl acetate, copolymerized with ethylene ethylene-vinyl) obtained by acid (+ l'.sub.i, the polyethylene-coalescence of lp or used in combination with 1, it is also made possible, while, r: r, vinyl content thereof, resulting in improvement of the impact resistance by, on the other hand, significantly reduces the every moment, for example in the composition, the content of vinyl acetate is 20 or more double-strict time 10% by weight or more, the rigidity and hardness of the composition is reduced in the case of molding a thin-walled pipe in its use at the time of the expansion, rupture due to water pressure to the pin hole portion there is occurrence is unusable. Further vinyl acetate content is 10 wt% or less in the case of low density polyethylene alone, as compared to the @ increases, the impact do, as shown in the following examples and comparative examples, the thin hose when formed into a still a lot of pin holes occurs, toughness and impact resistance, not be said to be sufficient impact resistance, strength, Further, the polyethylene, women, is to provide flexibility? ? as a method of blending a rubber-like elastic body it is known, however, and polyethylene / the mixing of the rubber-like elastic body, in general, both poor compatibility with the resin comrades ('.sub.i is adequate mixing of 1. easily yet, not mixed with a mixture of both is obtained, the impact resistance or the like, the mixture is improved rigidity and hardness decreases rapidly 6 the present invention, the polyethylene or ethylene-vinyl acetate copolymer, or a combination thereof obtained from a mixture of to remove the above drawbacks of the thin hose for the purpose, it is nasare was ethylene-vinyl acetate copolymer or and a low-density polyethylene consisting of a mixture of chlorinated polyethylene specific resin component, by incorporating a specific amount has been achieved. That is, the present invention the resin composition used in the thin small bulk hose is a vinyl acetate content of 13 to 25% by weight of ethylene-vinyl acetate copolymer and low density polyethylene or a mixture of the melt index is in the range of 0.1 to 15 resin component 70 to 95 wt%, chlorination degree, f of from 25 percent to 45 regret chlorinated polyethylene 30 to 61%, 5-n one the content of vinyl acetate is the final resin composition, 2 to 10 wt%, a resin composition of the present invention resin composition of this thin small bulk cooks a conventional hose by the extrusion molding method, and the wall thickness than 1-Lo% preferably 10 to thirty percent of the anti-muscle 11, tetanus shot for the wall thickness is provided with about 15 to fit thin-walled tube o, s is obtained by molding the resin component is used as a non-invention, is a vinyl acetate content of 5 to 25 double, or ethylene-vinyl acetate copolymer and low density polyethylene, a mixture of the melt index is in the range of 0.1 to 1.5 and the content of vinyl acetate is the final per resin composition 2 to 10 wt% it is a resin. acetate in the copolymer of the ethylene-vinyl acetate content of b in the resin composition, the final to be limited by the content of vinyl acetate is of less than 5 wt%, the vinyl acetate content of the composition according to the impact resistance of can not be expected exceeds 25 double-end drink: 2 when it is not preferable because the rigidity and hardness is lowered of the ethylene-vinyl acetate copolymer, the acid-containing resin composition of the vinyl (1X is the final content of vinyl acetate in the t1l'.sub.i and 17% from 2 to 10 the range 1 (Lj j 1 if alone, it may be further for preferably a high ethylene-vinyl acetate / Song-vinyl acetate copolymer is mixed with low-density polyethylene vinyl acetate it is preferable to adjust the content of a mixture of both those used as a resin component, polyethylene, due to the ethylene-vinyl acetate copolymer hardness and rigidity due to the deflection of the impact resistance and crack resistance having both a more excellent, it is possible to cord properties of the ethylene-vinyl acetate copolymer, mixed with a low density polyethylene produced by high-pressure radical polymerization density 0.918 to 923 low crystallinity is preferably used in a particularly important it is, when the melt index of the resin component (D [J01 to l, give an example t5, it is necessary that the melt index is 01, the chlorinated polyethylene / of less than if the blended with its workability, also there is a difficulty in the composition to more than 15, toughness, those physical properties such as impact resistance, it is not preferable because not improved in the present invention, the resin component is used as a modifier of the chlorinated polyethylene, chlorination degree 25 to 45 percent by weight of semi-crystalline amorphous still / chlorinated polyethylene is high density polyethylene, it is high crystallinity of the low-pressure method or a small amount of alpha-olefin or medium pressure method comprising ethylene produced by coalescence of chlorine 1F of the heterogeneous system, it is suitably used. chlorinated polyethylene is polyethylene, diene-based synthetic rubber, the compatibility is poor of structural similarity, polyethylene relatively compatible with is good, to increase the impact resistance of the composition Not only to tear resistance, strength and elongation, to improve the mixing ratio of chlorinated polyethylene, in the latter relative to the resin component 70 to 95% by weight of 5 to 30 parts by weight, chlorinated polyethylene is preferably the mixing ratio of the composition is less than 5 wt% not observed improvement in impact resistance, also more than 30 wt%, the rigidity and hardness of the composition is lost significantly, it is unsuitable because (8) Further, the present invention 1 c for the component in the resin composition consisting of two or three of the final composition the content of vinyl acetate in the 2 to 10 Si TFT" it is Fij The heart-ahn, a vinyl acetate Fi) less than 6 straddle-L double the ML1 J12, the impact resistance can not be expected the direction J-O IR +: I still I', and hardness exceeds f [: rigid is reduced undesirable mixing of these three components. degrees -roll, a kneader, a mixer or extruder or the like pan burr even mass loading to the kneading, but not impossible, chlorinated polyethylene as a resin component, 30

to 70 of 0 to 3 weight ratio of the near-o earlier Dzu, this master, the master batch by mixing structure further re-bunching by mixing the resin component and a more complete Qt and mixed in this way obtained, according to a conventional method three-component resin composition of the extruder into a tube of the sexagenary cycle water-cooled is cooled by the discharged) j constituting the thin Porth Sujiyama is continuously formed into thin, the wall thickness is from 0.15 to hose o, s Koku? that occasion it WL degrees, varies depending on the application usually 20 to 30 it is practically preferable to w.sub.i. L is the thickness of the porth, thinner than the water pressure at the time of use and ? hose is damaged is increased, afraid that five, and moat wall thickness colophon if more than about becomes difficult bulky folding one contract for storage of long-C the effect of the present invention transportation lost. However, in the case of the 1-I, the other hand, features are Aguella tetanus shot is a disadvantage 1! Shima-sharp blade protrusion 1j, such as granulated! 9i (i use a place, for example, asphalt, sand, such as a nail in the cleat indoor when in contact with the water at the time of the YES, tetanus shot completely water-compression of the running obstacle collides with the water outage, my father tetanus shot. This bent portion is easy to eliminate the drawbacks such as reservoir 10 to prevent the wall thickness, or more preferably in a range of 10 to 30% of the to form a sujiyama thereby to absorb the shock, to prevent scratches due to friction, it is possible to fracture Sujiyama is not limited in particular the shape of the angle and 45 degrees or more, by narrowing the distance between the main body, it is advantageous to better protection of the present invention. Thin, O Porth by incorporation of a particular ternary resin composition obtained by extrusion forming method of saturation-C, because it is produced and excellent impact resistance, toughness, flexibility, an incompletely specified multiple-output: moderate rigidity and hardness of the viewed END: 3. Therefore, in the present invention, hose damage of the thin bent l711 is about embrittlement still torn without a defect, the wall o, 1-o 1"; s, s, w water pressure (about 2.0 about "y / d) surface may be light can have since it has a sujiyama cleat and at the time of use the asphalt mass such as Kono sacro-even when in contact with a tetanus shot, it is not possible to the present invention, since the hose is thin, the light, for example, song) d, the slave for water hose 5m before and after approximately 11.0 O7, the present invention is approximately 3 to 80 amino the hose on the weight, the weight about 15 to 30 minutes, and is hence an advantage that can be produced at low cost flights on the mobile phone as in the present invention is a thin, it is because it is the hose reel winding foldable or even when the storage of small bulk, and transport of the present invention is excellent in the thin-walled hose is 3 degrees even though flexibility and fracture toughness" used, for example, breakage at the time of scratches of occurrence of pinholes is unknown details of the reasons for non, ethylene-vinyl acetate copolymer and a resin component consisting of preferably low-density polyethylene and chlorinated polyethylene Specifically, impact resistance, by blending the stress crack resistance, flex crack resistance and rigidity, hardness, toughness Doo comprehensive 1-pin hole, is considered to be the city. if the light of the present invention, hose, Hi-thin.), because it is in the general household, etc., for washing the automatic garden filled the pot life is good, J still stored folded i (j hose, il when the blade without Blindstitching the inside of a row since it is possible to perform the service of a fire or the like, it is also useful as 11 in Examples 1 to 6, Comparative Examples 1 to 6 in Table 1 low-density polyethylene, ethylene-vinyl acetate copolymer and chlorinated polyethylene, and chlorinated polyethylene earlier Dzu resin component and an equal volume of the pan mixer 35) burr, then mixed with the master batch master batch to make so that the composition shown in Table 1. Resin component further added tri-blended with a tumbler mixer, then 40 g. word in the extruder set temperature 150 to 170 degrees C., the range of n, the extrusion rate of 1 minute, Ori? 10y having a thickness of about 23, a comprehensive search a sujiyama 0.05 M, ? sujiyama number (12) 120 pieces of water-cooling system, it was molded tube after the ejection angle of each side of about 500g from the co-op, molding the length of the tube each individually 7 mg cut test two sample. The practical use of thin hose assumes a state that was carried out as follows, that is, tube length of about 15cm folding rn as much as possible densely in a state in which the road surface: J / path has one end connected to the cleat and thus the snake, connecting tap in the momentarily open the cock of the snake [] and at the same time by the water pressure from the tube, remained sluggish, and self-propelled the hand extending to the road surface. At this time, the new tube is likely to fit in the friction with the road surface impact due to or from the inside and the impact for the hydrostatic pressure, pinholes may occur, once the water in the tube is blown out as described above, by removing water, after folding based on the same repeat tests. Therefore one tube for each individual five times and 10 times of the test -9 pinhole. water pressure is the total number of 1.5K-l. the generated pin number of holes 7 in Table 1 shows the t. It should be noted that, for comparison, low density polyethylene, ethylene-vinyl acetate copolymer, 1 of each of the conditions, the product of alone et al., shows an example of used as a material in Example 1 to 4 is a polyethylene-ethylene-vinyl copolymer acetate into to the chlorinated polyethylene / 3, after yarn-co1 composition by changing the kind of the vinyl acetate content in the composition, 2-group 0 fold the results in the case of noboru, both in place of the pinhole (7-alkenyl did not occur. Example 5 and 6, the body of the ethylene-vinyl acetate copolymer and chlorinated polyethylene "F is the result of the two-component system of 5 pinhole 1 PC, each of the first to fourth embodiments each occurring as compared to non-meter fall out some performance for practical use, it is determined that there is a polyethylene, Comparative Example 1, Comparative Example 2 is ethylene-acetate copolymer-based, one beer each alone in Comparative Example 3 is a polyethylene and chlorinated polyethylene / two-component system of Example 1, as compared with the improvement of the performance of Example 2 and Example 3, but admitted, et al mentioned example 1.0--as compared with the gap between Comparative Example 4 and 5, it is clear respectively. money the shortage and vinyl acetate: END, 6: 4 two in the case of juice excess It shows the results of Comparative Example 6, the melt index of the resin component is higher composition, shows the results of both of these are than the composition of the present invention, a large number the occurrence of pinholes in Comparative Example 7 shown in Table 1, in Examples 1 and 2 and the same composition in the extruder to 40 core inductor set temperature 160 ?, extrusion rate of about 10 / min, the total spent type instead of the no folded sujiyama having a smooth surface, a thickness of about diameter 250, tube 5903, it was molded the previous embodiment in exactly the same way as the water supply tap water tests of pinholes number of molded from the composition of example 1, example 2 hoses 3 Ke, was 5, 10'1ss; 120 703 510 7.0 1.30 real 2 35 7 525 15 2.5 0.60 702 510 facilities 3520 Example 4 2.5 0.60 762 510 40 0.60 15 2.5 B 109 535 165 59 8 1.5 1.5 53 0.5 0.5 51 54 3111 0.5 2'14 ratio 101 200 10.0 1.55 803 compare the 3' 5200' 0.53 Example 4 6510 153 520 5- 1.5 0.63 50' 2545 355 11.3 1.24 675 401 umbrella) 2552.5 1.99 (described in Table 1) 1) 2'Milex XLC FO4 (manufactured by Showa Denko), the melt index, umbrella, density 0. 921; F) mark (manufactured by Showa Denko KK show Rex l2t) a melt index 20, tight 2) of 0.9 22 degrees Milex XLC FO43, (manufactured by Showa Denko KK, melt index: EVA, vinyl acetate content of 5% Qi) D2021 (manufactured by Sumitomo Chemical Co.) a melt index 1.5, 10% vinyl acetate content i Ebateto K (manufactured by Sumitomo Chemical Co.) 2.0 10 melt index 3.0, vinyl acetate content 25a55A, 3) (manufactured by Showa Denko KK Erasuren) chlorine content 35% error threshold; (manufactured by Showa Denko) / 4 No5A chlorine content of 40% water, 4) body of test method test results. The same patent applicant Showa Denko Co., barber! Taisho apricot-(Attorney Attorney Suzuki 7) 5 (1), accompanying document inventory (Machine translation)

#### Classifications:

**International (IPC 8-9):** B29B7/00 B29C47/00 B29C47/20 B29C53/30 B29C65/00 B29D23/18 (Advanced/Invention);

B29B7/00 B29C47/00 B29C47/20 B29C53/00 B29C65/00 B29D23/18 (Core/Invention)

**JP F-Term:** 4F003 4F003/AA01 4F003/AE11 4F003/AE19 4F003/KA13 4F003/KB01 4F003/KB08 4F003/KB09 4F003/LB08 4F003/LB17 4F012 4F012/XX00 4F028 4F028/EA05 4F028/EA07 4F201 4F207 4F207/AA04/J 4F207/AA10/C 4F207/AA10/K 4F207/AG11 4F207/AH51 4F207/AH81 4F207/AR12 4F207/KA01 4F207/KA17 4F207/KF01 4F207/KL83 4F209 4F209/AA07 4F209/AA10 4F209/AG10 4F209/NA10 4F209/NB02 4F209/NG03 4F209/NG12 4F209/NJ09 4F213 4F213/AA07/C 4F213/AA10/D 4F213/AG05 4F213/AG10 4F213/AG28 4F213/AR12 4F213/AR15 4F213/WA06 4F213/WB02

**JP F-Index:** B29C47/00/X B29C47/20 B29C47/20/Z B29C53/30 B29D23/18

#### Family:

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| JP48026263 A2      | 19730406         | JP19710060234      | 19710811         |

#### Priority:

JP19710060234 19710811

**Title:** PORTABLE FALL PROTECTION GRID SYSTEM

**Abstract:** A fall prevention grid comprises six aluminium bars which are connected to each other in a pivoting grid. When in use the bars are arranged perpendicular to each other. The bars are allowed to pivot via a rotating bolt connection, which allows the grid to collapse into a small space for transport and storage. Once opened and positioned, the grid is secured by sliding clamps positioned near the ends of the bars. Additional clamps may be used within the lattice for clamping it into small openings. The grid has been designed to fit a variety of openings up to one Metre Square, and in use will protect workers over shafts, wells etc.

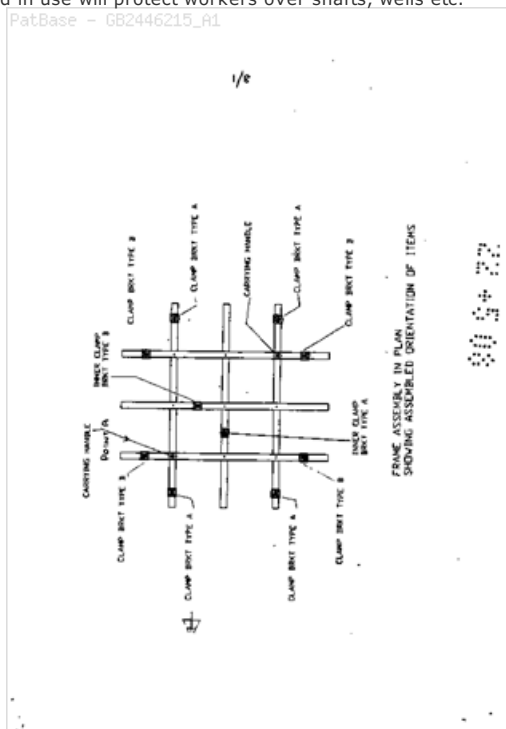
**Classifications:**

**International (IPC 8-9):** E04G21/32 (Advanced/Invention);  
E04G21/32 (Core/Invention)

**CPC:** E04G21/3204 E04G21/3266 E04G21/3261

**European:** E04G21/32B E04G21/32F

PatBase - GB2446215\_A1



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| GB200701829 A0     | 20070314         | GB20070001829      | 20070131         |
| GB2446215 A1       | 20080806         | GB20070001829      | 20070131         |

**Priority:**

GB20070001829 20070131

**Probable Assignee:**

NURSE TREVOR

**Assignee(s): (std):**

NURSE TREVOR

**Assignee(s):**

TREVOR NURSE

**Inventor(s): (std):**

NURSE TREVOR

**Inventor(s):**

TREVOR NURSE

**Title:** FREE-FALL DETECTION DEVICE AND FREE-FALL PROTECTION SYSTEM FOR A PORTABLE ELECTRONIC APPARATUS

**Abstract:** In an integrated free-fall detection device for a portable apparatus an acceleration sensor generates acceleration signals correlated to the components of the acceleration of the portable apparatus along three detection axes. A dedicated purely hardware circuit connected to the acceleration sensor generates a free-fall detection signal in a continuous way and in real-time. The free-fall detection signal has a first logic value in the event that the acceleration signals are simultaneously lower than a respective acceleration threshold, and is sent to a processor unit of the portable apparatus as an interrupt signal to activate appropriate actions of protection for the portable apparatus. Preferably, the acceleration sensor and the dedicated purely hardware circuit are integrated in a single chip and the acceleration sensor is made as a MEMS.

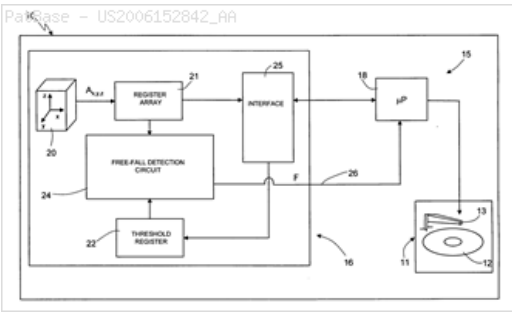
**Classifications:**

**International (IPC 8-9):** G01P15/00 G01P15/18 G11B19/02 G11B19/04  
G11B21/02 (Advanced/Invention)

**CPC:** G01P1/127 G01P1/14 G11B19/043 G01P15/0891 G01P15/18  
G11B19/04

**European:** G01P1/12C G01P1/14 G01P15/08L G01P15/18 G11B19/04  
G11B19/04B4

**US:** 360/69 360/75 360/75P 360/78.04 G9B/019.005 G9B/19.005  
G9B/19.005S



**Family:**

| Publication number | Publication date | Application number | Application date |
|--------------------|------------------|--------------------|------------------|
| DE602005025962 D1  | 20110303         | DE200560025962T    | 20050624         |
| EP1612565 A2       | 20060104         | EP20050105662      | 20050624         |
| EP1612565 A3       | 20060920         | EP20050105662      | 20050624         |
| EP1612565 B1       | 20110119         | EP20050105662      | 20050624         |
| ITTO20040436 A1    | 20040928         | IT2004TO00436      | 20040628         |
| US2006152842 AA    | 20060713         | US20050166770      | 20050624         |
| US7450332 BB       | 20081111         | US20050166770      | 20050624         |
| US7450332 C1       | 20140625         | US20050166770      | 20050624         |

**Priority:**

IT2004TO00436 20040628 US20040590997 20040726 US20040590997P 20040726  
US20050166770 20050624

**Probable Assignee:** STMICROELECTRONICS INC

**Assignee(s):** (std): LIN WEN ; PASOLINI FABIO ; RAASCH WILLIAM R ; ST MICROELECTRONICS INC ; ST MICROELECTRONICS SRL ; TRONCONI MICHELE

**Assignee(s):** STMICROELECTRONICS S R L ; STMICROELECTRONICS INC ; STMICROELECTRONICS SRL

**Inventor(s):** (std): PASOLINI FABIO ; TRONCONI MICHELE ; LIN WEN ; RAASCH WILLIAM ; RAASCH WILLIAM R

**Agent(s):** JORIO PAOLO; HOGAN AND HARTSON LLP

**Designated states:** AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR