

1) Family number: 30973368 (US2004183306 AA)

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Title: BACKPACK FOR HARVESTING ELECTRICAL ENERGY DURING WALKING AND FOR MINIMIZING SHOULDER STRAIN

Priority: US20030455477P 20030317 WO2004US08081 20040317 EP20040757536 20040317
US20040803112 20040317 US20050056849 20050211 US20060875238P 20061214
US20060875092P 20061214 WO2007US87655 20071214 EP20070865715 20071214
US20070957222 20071214

Family:	Publication number	Publication date	Application number	Application date
	AU2007333874 AA	20080626	AU20070333874	20071214
	AU2007333874 BB	20130718	AU20070333874	20071214
	CA2519138 AA	20050914	CA20042519138	20040317
	CA2519138 C	20120110	CA20042519138	20040317
	CA2674230 AA	20090629	CA20072674230	20071214
	CA2674230 C	20160216	CA20072674230	20071214
	DE602004040638 D1	20130314	DE200460040638T	20040317
	DE602007041284 D1	20150611	DE200760041284T	20071214
	EP1610646 A2	20060104	EP20040757536	20040317
	EP1610646 A4	20080514	EP20040757536	20040317
	EP1610646 B1	20130102	EP20040757536	20040317
	EP2094126 A2	20090902	EP20070865715	20071214
	EP2094126 A4	20121003	EP20070865715	20071214
	EP2094126 B1	20150429	EP20070865715	20071214
	US2004183306 AA	20040923	US20040803112	20040317
	US6982497 BB	20060103	US20040803112	20040317
	US2006192386 AA	20060831	US20050056849	20050211
	US7391123 BB	20080624	US20050056849	20050211
	US2008185411 AA	20080807	US20070957222	20071214
	US7931178 BB	20110426	US20070957222	20071214
	WO04082427 A2	20040930	WO2004US08081	20040317
	WO04082427 A3	20071011	WO2004US08081	20040317
	WO08076932 A2	20080626	WO2007US87655	20071214
	WO08076932 A3	20081016	WO2007US87655	20071214
	WO08076932 C2	20081204	WO2007US87655	20071214

Probable Assignee: LIGHTNING PACKS LLC

Assignee(s):(std): LIGHTING PACKS LLC ; LIGHTNING PACKS LLC ; ROME LAWRENCE ; ROME LAWRENCE C ; RUINA ANDY

Assignee(s): LIGHTNING PACKS LLC A CORP ; LIGHTNING PACKS LLC A OF PENNSYLVANIA CORP ; LIGHTNING PACKS LLC STRAFFORD

Inventor(s):(std): ROME LAWRENCE ; ROME LAWRENCE C ; RUINA ANDY ; RUINA ANDY L

Inventor(s): ANDY RUINA ; LAWRENCE C ROME ; LAWRENCE ROME ; ROME LAWRENCE C STRAFFORD ; ROME LAWRENCE STRAFFORD ; RUINA ANDY ITHACA

Agent(s): ACACIA LAW; BOYCE CONOR; DANIELS IP SERVICES LTD; MACPHERSON LESLIE AND TYERMAN LLP; NA; PATENTANWAELTE WALLACH KOCH DR HAIBACH FELDKAMP; TOMKINSON ALEXANDRA; WOODCOCK WASHBURN LLP; WOODCOCK WASHBURN LLP ET AL

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

International class (IPC 8-9): A45F A45F3/00 A45F3/04 A45F3/06 A45F3/08 A63B55/00 B60L1/00 B60L1/02 F02B63/00 F02B63/04 F03B63/04 F03G3/00 F03G3/02 F03G5/00 F03G5/06 F03G7/00 F03G7/08 H01L41/113 H02K7/18 H02P9/04

International class (IPC 1-7): A45F A45F3/00 A45F3/04 F03G3/02 F03G7/08 H02K7/18 H02P9/04

CPC: A45F3/04 A45F3/08 F03G5/06 F03G7/08 A45F3/06 H02N2/18 Y10S310/80

US class: 206/315.3 224/254 224/262 224/263 224/579 224/604 224/605 224/627 224/627S 224/631 224/633 224/634 224/637 224/641 254/390 254/393 290/1.00A 290/1.00R 290/1.00RP 290/1A 290/1R 310/328 310/329 310/800

[Classification Explorer](#)

Cited documents: WO07016781 A1, JP2004364486 A2, CN200983943 Y, US6179186 B1, US2004262354 AA, US5474278 A, US3282483 A, US1979978 A, US5552695 A, US3760905 A, US2008197163 AA, US2006192386 AA, US5794911 A, US5443247 A, US4949425 A, US3600855 A, US7559443 BB, US4759431 A, US4099657 A, US2002074373 AA, US4206983 A, US2421822 A, US6392314 BA, US4921202 A, US4154381 A, US7361999 BB, US1664590 A, US7498682 BB, US7345407 BB, US2006046907 AA, US6537184 BB, US5613665 A, US4013170 A, US3797718 A, US2437631 A, US4189076 A, US2004016781 AA, US5984157 A, US6802442 BA, US6626342 BA, US5806740 A, US6607107 BB, US6423412 BA, US5902073 A, US6876135 BB, US5890640 A, US6179186 BA, US5696413 A, US5818132 A, US5564612 A, US6622483 BB, US5136173 A, US5769431 A, US5762243 A, US5904282 A, US6545384 BA, US2003062723 AA, US5617984 A, US6360534 BA, US6020653 A, CA2385481 AA, WO0019862 A1, US5628443 A, US5503314 A, US4887751 A, US2002171213 AA, US2001035723 AA, DE29615526 U1, US7131534 BB, US6982497 BB, US6619523 BA, US4194656 A, US2006011689 AA,

Forward Citations: CN107029398 B, CN107029398 A, CN110425097 A, CN111000361 A, KR20150000143 A, KR102122774 B1, US10617195 BB, US10383427 BA, US10117501 BB, US2016360865 AA, US9232848 BB,

US2015076195 AA, US2014339275 AA, US8240531 BB, US2010308095 AA, US9439501 BB, US9394876 BB, US2013008157 AA, US2011131838 AA, US2010078903 AA, US9167883 BB, US8998051 BB, US8749115 BB, US8657169 BB, US8525386 BB, US8281970 BB, US8120190 BB, US10849410 BB, US10824132 BB, US10642955 BB, US10628770 BB, US10475351 BB, US10441442 BB, US10307104 BB, US10206625 BB, US10108783 BB, US10058285 BB, US10052023 BB, US2016315562 AA, US9962083 BB, US9949640 BB, US9889311 BB, US9844344 BB, US9833142 BB, US9830577 BB, US9830576 BB, US9808156 BB, US9805339 BB, US9722472 BB, US9710788 BB, US9693734 BB, US9615746 BB, EP2094126 A4, US7977806 BB, US9526455 BB, US9492120 BB, US9462977 BB, US9407125 BB, WO08076932 A3, US9256711 BB, US2011215671 AA, US2010193297 AA, US2008041644 AA, US2008203850 AA, US2010187834 AA, US2008217926 AA, US2010170729 AA, US2009243303 AA, US2009174289 AA, US2009121494 AA, US2009121493 AA, US2009108589 AA, US2008290743 AA, US2008284381 AA, US2008093849 AA, US2007096469 AA, US2007145861 AA, US8872640 BB, US8749081 BB, US8723342 BB, US8564144 BA, AU2007333874 BB, US8464838 BB, US8446022 BB, US2011278856 AA, EP2094126 A2, WO08076932 A2, US8172117 BB, US7345407 BB, US8069938 BB, US7508085 BB, US7525203 BA, EP1994841 A1, USD640195 S1, EP2177864 A2, US7703562 BB,

DE102008051184 A1

US7638889 BB,

DE102006049459 A1

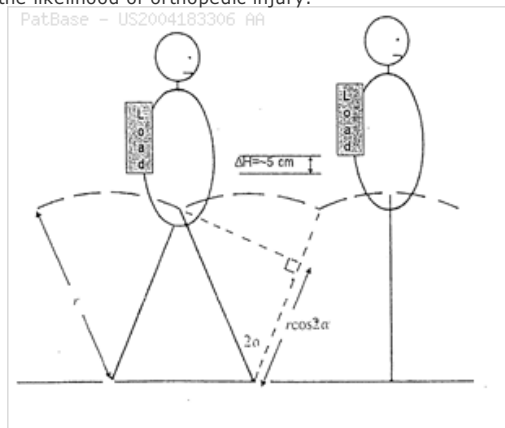
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DE102018123017 B3

CN108708837 A, GB2525662 B2, GB2525662 A1,

Abstract:

A suspended-load backpack designed to permit the load to move relative to the backpack frame during walking and running so that the large movements between the load and the frame of the backpack reduce the fluctuations of absolute vertical motion of the load. Because the hip (and thus the pack frame) go up a down a good deal during walking, a large relative movement between the frame and the load reduces the absolute excursion of the load. This movement may be, in turn, transferred to a motor through, for example, a rack and pinion gear, to convert the mechanical movement to electrical energy. The movement may also be converted to electrical energy by using an electroactive polymer (EAP) to connect the suspended load to the frame. Such designs allow the load to move in a controlled fashion to prevent the patient from losing his or her balance as the load moves up and down along the backpack frame. Such movement of the suspended-load relative to the frame also reduces the forces on the wearer's shoulders while walking or running, thus reducing the likelihood of orthopedic injury.



2) Family number: 55444526 (CN103462349 A)

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Title: BACK-PIECE-ADJUSTABLE NECK PROTECTING STRUCTURE OF CAMPING BAG
Priority: CN201310314226 20130724
Family:

Publication number	Publication date	Application number	Application date
CN103462349 A	20131225	CN201310314226	20130724

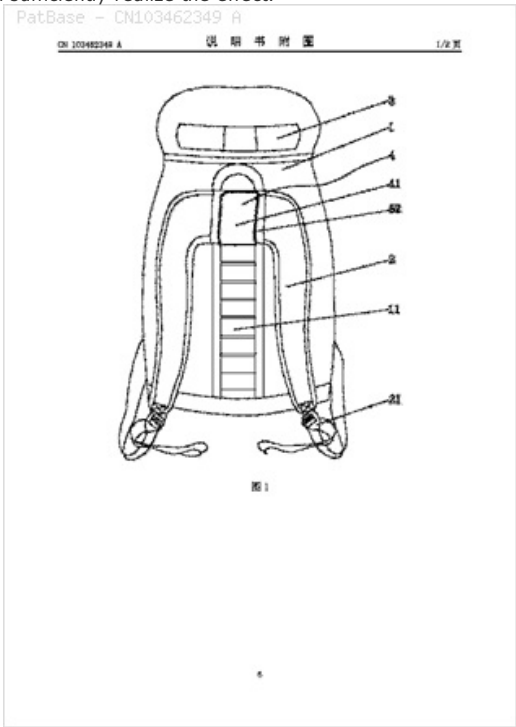
Probable Assignee: XIANGXING FUJIAN BAG AND LUGGAGE GROUP CO LTD
Assignee(s):(std): XIANGXING FUJIAN BAG AND LUGGAGE GROUP CO LTD
Assignee(s): XIANGXING FUJIAN BAG AND LUGGAGE GROUP CO
Inventor(s):(std): GAO FENG ; HUANG CHAOJIANG ; XUE AIQIN ; XUE XINGYUAN ; YAO HAIWEN
International class A45F3/04
(IPC 8-9):

[Classification Explorer](#)

Cited documents: JP8089342 A2, JP8154722 A2, CN2800884 Y, CN202525406 U, CN201418473 Y,

Abstract:

The invention discloses a back-piece-adjustable neck protecting structure of a camping bag. The structure comprises a bag body and a back strap, wherein the upper end of the back piece of the bag body is provided with a neck protecting part, the tail ends of the two sides of the back strap are respectively, correspondingly and fixedly connected with the lower ends of the two sides of the back piece of the bag body, fixing edges respectively extend from the middle of the upper part of the back strap towards the two sides, the two fixing edges are fixedly connected for forming an annular fixing part, the middle of the back piece of the bag body is provided with a fixing belt in the vertical direction, the upper part of the back strap is adjustably and fixedly connected onto the fixing belt of the back piece of the bag body through an annular fixing part, and the neck protecting part of the upper end of the back piece of the bag body corresponds to the position of the neck part of a user. The camping bag is provided with the fixing belt in the middle of the back piece of the bag body in the vertical direction, and the upper part of the back strap is adjustably wound and fixedly arranged on the fixing belt of the back piece of the bag body through the annular fixing part, so the user can wound and fix the annular fixing part of the back strap onto the fixing belt at the proper height according to the self body height, the neck protecting part at the upper end of the back piece of the bag body corresponds to the position of the neck part of the user, and the neck protecting structure of the camping bag can sufficiently realize the effect.



3) Family number: 82549771 (JP2020198957 A2)

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Title: A backpack and waist belt for the support mechanism of the shoulder belt using the same, and a backpack (Machine translation)

Priority: JP20190106400 20190606

Family:	Publication number	Publication date	Application number	Application date
	JP2020198957 A2	20201217	JP20190106400	20190606

Probable Assignee: CO LTD F DR

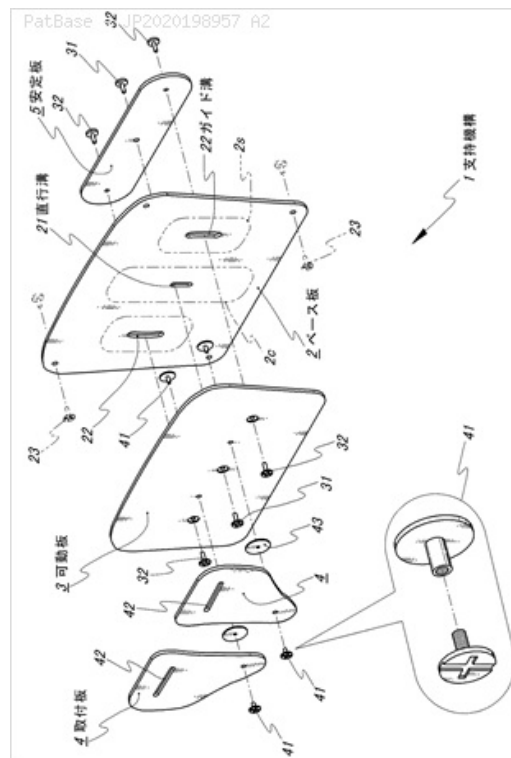
Assignee(s): CO LTD F DR

International class (IPC 8-9): A45F3/04

[Classification Explorer](#)

Cited documents: US2016316895 AA, JP10146217 A2, JP2006520242 T2, JP2008544779 T2,

Abstract:
Source: JP2020198957 A2 **Machine translation:** [Problems] The present invention contrast, in hands and large motion without losing the balance, it is possible to quickly follow the shoulder belt and waist belt back pack for the provision of the support mechanism of using the same, and an object thereof is to provide a backpack. A's spine stabbed in the center along the spine portion area and the two spaced apart arranging across the lateral direction a pair of side portions, the area of the backpack and stabbed in the back surface of the base plate 2 the base plate the central portion area in the range of a predetermined length in the upper and lower linear movement of the shaft freely around the fulcrum, thereby pivotally supporting the center of the circle center to a predetermined angle range swings freely, the movable plate, the movable plate 3 of the symmetrical position to sandwich each pivot point mounted rotatably predetermined shoulder belt or waist belt 4, and the mounting of the mounting plate 1 constituting the support mechanism from The support mechanism to the back surface of the shoulder portion and / or the pack backpack waist disposed to. .Field 1



4) Family number: 1281358 (US3797718 A)

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Title: PACK FRAME HAVING PULLEY ADJUSTING STRAPS

Priority: US19720308244 19721120

Family:	Publication number	Publication date	Application number	Application date
	US3797718 A	19740319	US19720308244	19721120

Probable Assignee: PLANT R

Assignee(s):(std): PLANT R

Assignee(s): PLANT R US

Inventor(s):(std): PLANT R

Inventor(s): PLANT R US

International class
(IPC 8-9): A45F3/04 A45F3/08

International class
(IPC 1-7): A45F3/10 B65G47/34 B67D5/08 G06K9/00

CPC: A45F3/08

US class: 224/262 224/263 224/264

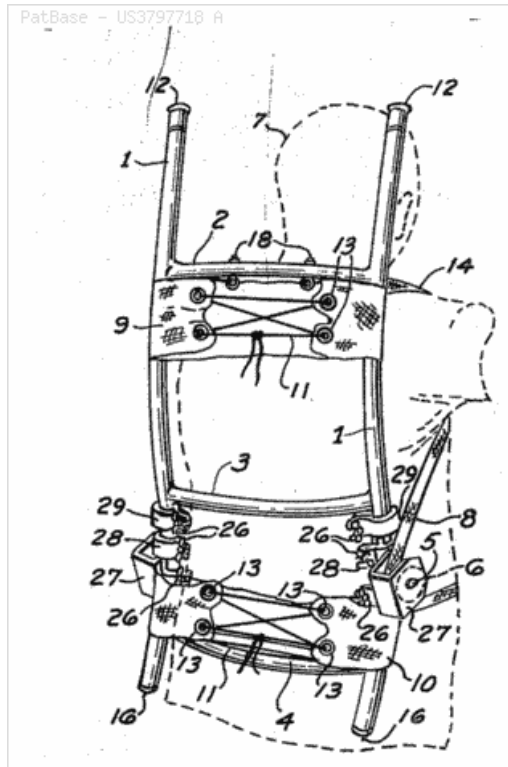
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Cited documents: US3442427 A, US3174664 A, IT474581 A, FR910436 A,

Forward Citations: US6179187 BB, US10485690 BB, US2008185411 AA, US2008197163 AA, US2006289586 AA, US2013283492 AA, US2014074003 AA, US6202910 BA, US8172117 BB, FR2806595 A1, US2012000948 AA, US7946460 BB, US7931178 BB, FR2806596 A1, US7431184 BB, US4189075 A, US6179187 BA, US4154381 A, US5957355 A, US5779121 A, US5429287 A, US4982884 A,

Abstract:

This invention is concerned with a strap and pulley assembly mounted on a back pack frame. A back pack frame is a device that hikers employ to carry a load of supplies and/or equipment on their back. On the lower side of each of the frame members are mounted pulley assemblies. The straps that connect the frame to the person pass through the pulley assemblies and fasten to the front of the person's body. With this invention, the weight on the pack is no longer carried solely on the back and shoulders, but the weight is more evenly distributed to other parts of the body. The pulleys have means for locating them in order to conform to the person's configuration. There is a separate bracket for locking the pulley means into fixed positions.



5) Family number: 31347520 (WO04100706 A1)

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Title: BALANCED BACKPACK
Priority: IT2003RM00237 20030514
Family:

Publication number	Publication date	Application number	Application date
ITRM20030237 A0	20030514	IT2003RM00237	20030514
ITRM20030237 A1	20041115	IT2003RM00237	20030514
WO04100706 A1	20041125	WO2004IB50141	20040224

Probable Assignee: MANONI ANGELO
Assignee(s):(std): MANONI ANGELO
Inventor(s):(std): MANONI ANGELO
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 LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

International class (IPC 8-9): A45C A45F3/04

International class (IPC 1-7): A45F3/04

CPC: A45F3/047

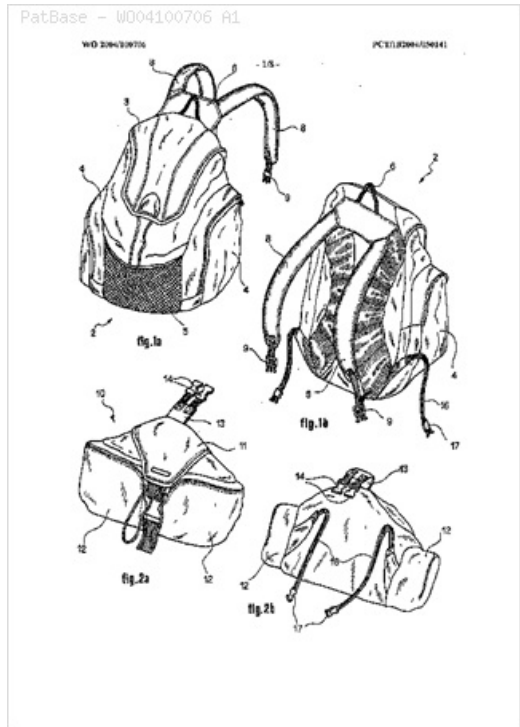
[Classification Explorer](#)

Cited documents: US6336576 BA, US6179186 BA, US5799851 A, US5497922 A, FR2635655 A1, FR2387002 A1, DE19603131 A1,

Forward Citations: FR2958135 B1, US7946460 BB, FR2967025 A1, GB2473233 A1, FR2958135 A1, WO07003104 A1,

Abstract:

A balanced backpack (1), of the type comprising bag containers supported on the shoulders of a user by shoulder straps, allowing an appropriate weight distribution, with a front-rear balance as well as a side balance, and comprising: a rear bag container (2) associable to a bust by means of a pair of shoulder straps (8), said rear bag container (2) being located symmetrically with respect to said shoulder straps (8); a fastening point (15) associated to said shoulder straps (8) and located frontally to the bust in a symmetrical position; a front bag container (10) fastenable to said fastening point (15), so as to charge the associated load thereon, wherein the weight loadable in each bag container (2, 10) with regard to the volume of the bag containers (2, 10) has a rear/front ratio ranging from 2.0 to 0.8.



6) Family number: 48843728 (US2012000948 AA)

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Title: STABLE BACKPACK
Priority: US20090257130P 20091102 WO2010US55088 20101102 EP20100827639 20101102
US20100254351 20101102

Family:	Publication number	Publication date	Application number	Application date
	CA2785135 AA	20110505	CA20102785135	20101102
	CA2785135 C	20170620	CA20102785135	20101102
	DE602010050084 D1	20180517	DE201060050084T	20101102
	EP2496112 A2	20120912	EP20100827639	20101102
	EP2496112 A4	20160824	EP20100827639	20101102
	EP2496112 B1	20180418	EP20100827639	20101102
	US2012000948 AA	20120105	US20100254351	20101102
	US8172117 BB	20120508	US20100254351	20101102
	WO11053961 A2	20110505	WO2010US55088	20101102
	WO11053961 A3	20110915	WO2010US55088	20101102

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

International class A45C13/30 A45F3/04 A45F3/08 A45F3/10 A45F3/12
(IPC 8-9):
CPC: A45F2003/045 A45F3/047 A45F3/08
US class: 224/262 224/263 224/604 224/631 224/634 224/637 224/641

[Classification Explorer](#)

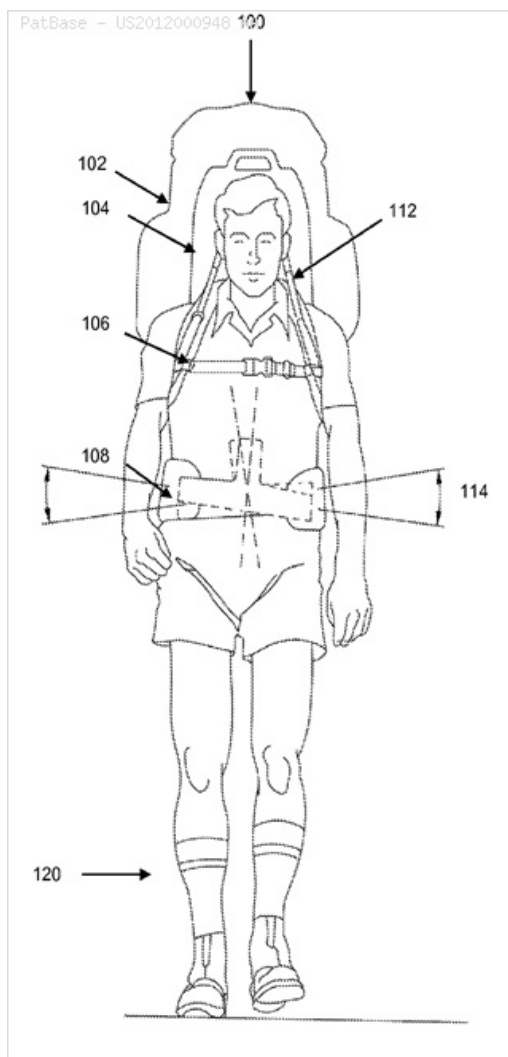
Cited documents: DE29704491 U, CH198024 A, CH107499 A, WO11044357 A1, WO10079354 A1, NZ523148 A, NZ506106 A, GB1566704 A, GB907687 A, FR2819700 A1, CN2659216 Y, CH198024, CH107499, US2011036883 AA, US2010270348 AA, US2010243694 AA, US2010243693 AA, US2009127301 AA, US2008203129 AA, US2008197163 AA, US2008179364 AA, US2006131355 AA, US2005092802 AA, US2004262343 AA, US2002162871 AA, US8020738 BB, US7931178 BB, US7431184 BB, US7287677 BB, US7100809 BB, US6982497 BB, US6802442 BA, US6607108 BB, US6375053 BA, US6290111 BA, US6276584 BA, US6199732 BA, US6070776 A, US6024265 A, US5806740 A, US5730347 A, US5618249 A, US5617984 A, US5449102 A, US5114059 A, US5090604 A, US4483070 A, US4214685 A, US4194656 A, US3957184 A, US3090621 A, US2197427 A, US1635928 A, DE10033738 A1, DE10228388 A1, US2006191969 AA, US3797718 A, US4015759 A, US4303186 A, US5184763 A, US7946460 BB, US7997466 BB, US7967175 BB, US5184764 A, US4676418 A, US2002170932 AA, US5497922 A, WO9806297 A1, US2006151559 AA, WO04082426 A2,

Forward Citations: CN110236289 A, CN110345969 A, GB2498917 B2,
DE102014103260 A1
GB2498917 A1, WO13052670 A1, FR2977771 A1, EP2545803 A1, US10849409 BB, CN110678105 A,

US2019350347 AA, US10806238 BB, US2018339812 AA, US10617194 BB, US10383427 BA, US10251465 BB, US10165846 BA, US10117501 BB, US10098440 BB, US2018220779 AA, US2017231369 AA, US10004320 BB, US2017049218 AA, US2016360865 AA, US9220333 BB, US9200871 BB, US2015144675 AA, US2014074003 AA, US2013042376 AA, US8941777 BA, US2013240588 AA, US10849410 BB, US10485690 BB, US2017018806 AA, US2015282597 AA, US9161609 BB, WO12061806 A1, US2013283492 AA,

Abstract:

A stabilized backpack comprises a hip suspension and a shoulder suspension. The hip suspension comprises vertical support rods pivotally attached to the hip belt and pack frame to allow motion of the wearer's hips without causing varying forces on the pack. The shoulder suspension comprises pulleys and cords attaching the shoulder straps to the pack so that the motion of the wearer's shoulders does not cause varying forces on the pack. The net effect is that a person can run with the pack, with heavy load, in rough terrain, with the pack staying relatively stable.



7) Family number: 74168715 (US2019125061 AA)

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Title: SUPPORT STRUCTURE

Priority: DE201710219211 20171026

Family:

Publication number	Publication date	Application number	Application date
DE102017219211 A1	20190502	DE201710219211	20171026
US10874198 BB	20201229	US20180165104	20181019
US2019125061 AA	20190502	US20180165104	20181019

Probable Assignee: MAMMUT SPORTS GROUP AG

Assignee(s):(std): MAMMUT SPORTS GROUP AG

Inventor(s):(std): FISCHER ANDREAS ; LANGER JULIAN

Agent(s): WEBB LAW FIRM

International class
(IPC 8-9): A45F3/04 A45F3/08

CPC: A45F2003/045 A45F3/08

US class: 1/1

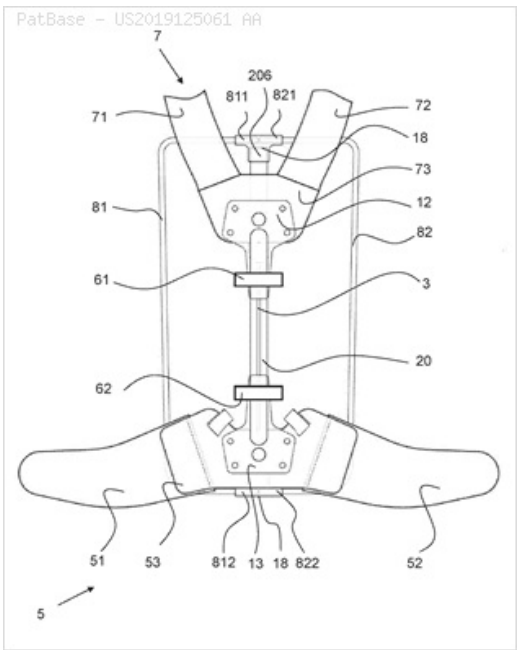
[Classification Explorer](#)

Cited documents: US2014061263 AA, US2008197163 AA, US10368626 BB, US10230077 BB, US9918540 BB, US9629443 BB, US8991671 BB, US8182439 BB, US6637631 BB, US5954250 A, US4189076 A, US2886031 A, US5954253 A, AT503417 A4, DE10228388 A1,

Abstract:

The present invention relates to a support structure for a rucksack, including a support framework having a first and a second bearing point arranged at a spacing from one another along a first direction, and a first and a second rotation element. The first rotation element is mounted on the support framework at the first bearing point and is rotatable about a first rotation axis and the

second rotation element is mounted on the support framework at the second bearing point and is rotatable about a further rotation axis. The first and second rotation elements are constructed for receiving a shoulder belt and hip belt, respectively, in a torsion-resistant manner. The first and the second rotation element are rotationally coupled to one another in a manner reversing the direction of rotation.



8) Family number: 20725408 (US5806740 A)

© PatBase

Title: Modular load carrying equipment
Priority: US19960589809 19960122 WO1997US00566 19970120 AU19970018284 19970120
AU19980094179 19981127

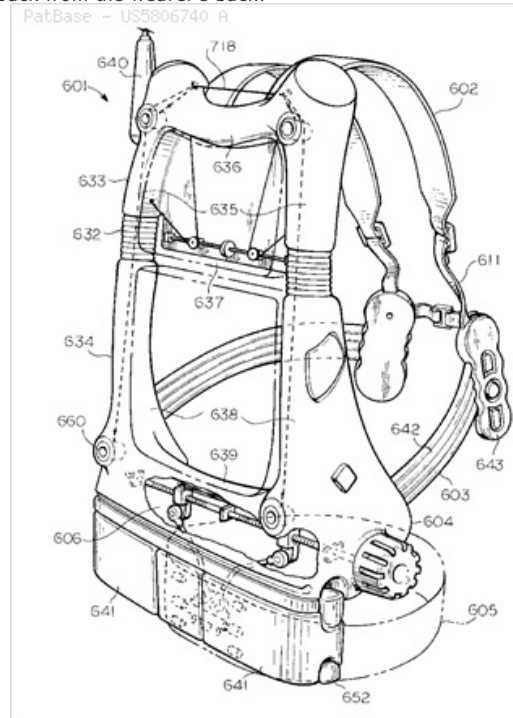
Family:	Publication number	Publication date	Application number	Application date
	AU199718284 A1	19970811	AU19970018284	19970120
	AU704642 B2	19990429	AU19970018284	19970120
	AU199894179 A1	19990211	AU19980094179	19981127
	AU720273 B2	20000525	AU19980094179	19981127
	CA2216093 AA	19970922	CA19972216093	19970120
	CA2216093 C	20030401	CA19972216093	19970120
	DE69713555 D1	20020801	DE19976013555T	19970120
	DE69713555 T2	20030213	DE19976013555T	19970120
	EP0823840 A1	19980218	EP19970903804	19970120
	EP0823840 B1	20020626	EP19970903804	19970120
	IL121817 A0	19980222	IL19970121817	19970120
	IL121817 A1	20001031	IL19970121817	19970120
	US5806740 A	19980915	US19960589809	19960122
	WO9725896 A1	19970724	WO1997US00566	19970120

Probable Assignee: RAYTHEON CO
Assignee(s):(std): HE HOLDINGS INC ; HE HOLDINGS INC DBA HUGHES ELECTRONICS ; HUGHES AIRCRAFT CO ; RAYTHEON CO ; RAYTHEON COMPANY
Assignee(s): CARLSON DENNIS ; HE HOLDINGS INC DOING BUSINESS AS HUGHES ELECTRO ; HUGHES ELECTRONICS ; RAYTHEON CO LEXINGTON
Inventor(s):(std): CARLSON DENNIS
Inventor(s): DENNIS CARLSON
Agent(s): GRIFFITH HACK; SANFORD TCOLB AND CO; SIM AND MCBURNEY
Designated states: AT AU BE CA CH DE DK ES FI FR GB GR IE IL IT KR LU MC NL PT SE SG
International class A45F3/04 A45F3/06 A45F3/08
(IPC 8-9):
International class A45F A45F3/04 A45F3/06 A45F3/08
(IPC 1-7):
CPC: A45F3/047 A45F3/06 A45F3/08
US class: 224/259 224/262 224/627 224/628 224/631 224/632 224/633 224/634 224/635 224/637
[Classification Explorer](#)
Cited documents: EP0692206 A1, WO8701017 A1, US5564612 A, US5503314 A, US5449102 A, US5004135 A, US4911346 A, US4676418 A, US4361259 A, US4013201 A, US3563431 A, US2428906 A, GB870215 A, GB764880 A, EP0628265 A1, EP0350841 A2, US5564612, US4676418, US4013201, US3563431, US2428906, GB870215, GB764880, FR2677235, WO8701017, EP0692206, EP0628265, EP0350841, FR2677235 A1,
Forward Citations: EP3468411 A4, EP2291604 A4, WO12164057 A3, EP2291604 A2, WO15092346 A1, FR2770755 A1, US6179175 BB, US6179187 BB, WO19116372 A1, US10342319 BA, US10342318 BB, US10194733 BB, US10117501 BB, US2018184787 AA, US10034533 BA, US10021955 BB, US2017095063 AA, US2016360865 AA, US9820556 BB, US2016213127 AA, US9668567 BB, US2014074003 AA, US9545144 BB, USD691792 S1, US7851932 BB, US2014361058 AA, US9232848 BB, US2008203128 AA, US2009015022 AA, US2007245441 AA, US2011114684 AA, US2011094006 AA, US2014339275 AA, US2008235841 AA, US2008185411 AA, US2008197163 AA, US2008263737 AA, US2008010730 AA, US2015021368 AA, US2007107109 AA, US2006192386 AA, US2006106643 AA, US2005102636 AA,

US2005005343 AA, US2005005342 AA, US2004065704 AA, US2004124224 AA, US2004108350 AA, US8997262 BB, US8857681 BB, US8783537 BB, US8641056 BA, WO09092006 A1, US2012084906 AA, US8490212 BA, US2011278338 AA, US2011278339 AA, US2011290842 AA, ES2304301 AA, US7391123 BB, US6315177 BA, US8172117 BB, AU2005259226 BB, US7010500 BB, US7036420 BA, US8066161 BB, US6536641 BA, US7987523 BB, US7100809 BB, US7967175 BB, US7243376 BB, US7047570 BB, US7020897 BB, US7946460 BB, US7931178 BB, US6869219 BA, US6259228 BA, US6948188 BB, US6179187 BA, US6651853 BB, US7424748 BA, US6840419 BB, US6179175 BA, US10892626 BB, US10230077 BB, EP2172126 A1, US9402456 BB, EP2420155 A1,

Abstract:

An improved universal adjustable modular load backpack for carrying heavy loads to be used in conjunction with a multi-functional, soldier-centered, computer enhanced warfare system includes storage modules releasably mounted on a flexible pack frame extending the wearer's level of comfort and range of motion. The storage modules provide for a versatile pack load configuration and may be quickly withdrawn from the pack frame by the wearer without removing the pack frame. The pack frame is also provided with an integrated adjustment mechanism for selectively increasing or decreasing the length of the shoulder support straps and rib-cage straps of the backpack, and the distance between the waist belt and the pack frame so as to adapt to the wearer's torso and waist without having to remove the backpack from the wearer's back.



9) Family number: 6817724 (US4099657 A)

© PatBase

Title:	Backpack and frame apparatus																																		
Priority:	US19760690068 19760526		US19780894872 19780410		US19780894871 19780410																														
Family:	<table><tr><th>Publication number</th><th>Publication date</th><th>Application number</th><th>Application date</th><th></th></tr><tr><td>US4099657 A</td><td>19780711</td><td>US19760690068</td><td>19760526</td><td></td></tr><tr><td>US4114788 A</td><td>19780919</td><td>US19770820741</td><td>19770801</td><td></td></tr><tr><td>US4154381 A</td><td>19790515</td><td>US19770863663</td><td>19771223</td><td></td></tr><tr><td>US4194656 A</td><td>19800325</td><td>US19780894871</td><td>19780410</td><td></td></tr><tr><td>US4189076 A</td><td>19800219</td><td>US19780894872</td><td>19780410</td><td></td></tr></table>					Publication number	Publication date	Application number	Application date		US4099657 A	19780711	US19760690068	19760526		US4114788 A	19780919	US19770820741	19770801		US4154381 A	19790515	US19770863663	19771223		US4194656 A	19800325	US19780894871	19780410		US4189076 A	19800219	US19780894872	19780410	
Publication number	Publication date	Application number	Application date																																
US4099657 A	19780711	US19760690068	19760526																																
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US4189076 A	19800219	US19780894872	19780410																																

Probable Assignee: ZUFICH ANTHONY C

Assignee(s):(std): ZUFICH ANTHONY C

Inventor(s):(std): ZUFICH ANTHONY C

International class (IPC 8-9): A45F3/00 A45F3/04 A45F3/08 A45F3/10

International class (IPC 1-7): A45F3/10

CPC: A45F3/08 A45F3/10

US class: 224/153 224/211 224/25A 224/262 224/631 224/634 224/635 224/637 280/1.5 D3/216

[Classification Explorer](#)

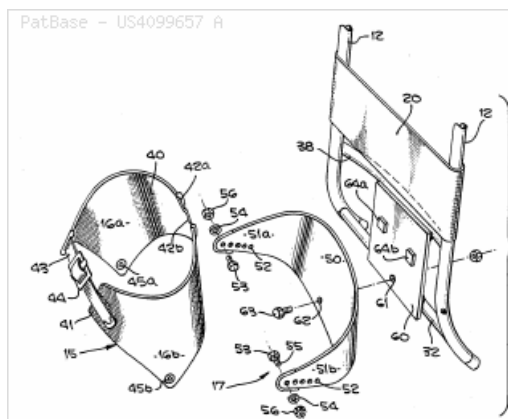
Cited documents: US3889859 A, US3827612 A, US3797718 A, US3106037 A, NO82261 A, NO63451 A, FR1017357 A, US4015759 A, US3840162 A, US3831827 A, US3516586 A, US3355075 A, US2133717 A,

Forward Citations: EP0122764 A3, EP0350841 A3, EP2094126 A4, US7851932 BB, WO08076932 A3, US2009015022 AA, US2010065693 AA, US2008035686 AA, US7789279 BB, US5904282 A, US2007075105 AA, AU2007333874 BB, US8474672 BA, EP2094126 A2, WO9825499 A1, WO08076932 A2, WO9806298 A1, US8172117 BB, EP0122764 A2, WO9105493 A1, WO9632568 A1, US6070776 A, US4605143 A, US4303186 A, FR2666969 A1, EP0350841 A2, US7490358 BA, US7266850 BA, DE8704750 U1, US5984157 A, US5806741 A, US5730424 A, US5184764 A, USD516777 S1, USD528784 S1, US10874198 BB, US10383377 BA, EP1691640 A4, US2008245835 AA, US2006011689 AA, US2005082330 AA, US7287677 BB, EP1691640 A1, US5090604 A, US5184763 A, US4676418 A, US10842243 BB, US10835018 BB, US10455922 BB, US10080418 BB, US2017347777 AA, US2016255942 AA, WO05004667 A3, US2010294820 AA, US2008197163 AA, US7350683 BB, US2006201981 AA, US2004262354 AA, US2004065704 AA, US2014074003 AA, US8584917 BB, US2012024924 AA, WO8701016 A1, US7946460 BB, WO05004667 A2, US6840419 BB, US7232049 BB, US4660751 A, US10828186 BB, US10617552 BB, US10561520 BB, US10357391 BB, US10206488 BB, US10159592 BB, US10064476 BB, US2018168322 AA, US9987158 BB, US9949557 BB, US9877571 BB,

US9872794 BB, US9795500 BB, US2017079412 AA, US9597219 BB, US9572705 BB, US9554935 BB, US9468554 BB, US9439800 BB, US9414953 BB, US9393144 BB, US9370440 BB, US9314363 BB, US9282806 BB, US9220625 BB, US2007246499 AA, US9161609 BB, US2006049226 AA, US8997262 BB, US8945034 BB, US8926537 BB, US8887976 BB, US2012132784 AA, US2013240588 AA, US8556147 BB, US8353434 BB, US8181834 BA, WO0126502 A1, US6698631 BA, US8070030 BB, WO9526659 A1, WO9400036 A1, US4858797 A, WO9749312 A1, US5064108 A, FR2717992 A1, US6290111 BA, US6607108 BB, US7316340 BB, US4441025 A, US6041444 A, US5341974 A, US5183194 A, US4687414 A, USD443758 S1, USD431364 S1, US10806238 BB, EP2694171 B1, EP3569100 A1, US10137322 BB, US9808686 BB, US9713754 BB, US9220333 BB, US2008203129 AA, US2008203128 AA, US9205313 BB, USD744231 S1, US2008185411 AA, US8820524 BB, US5954253 A, US6199732 BA, US2006289586 AA, US2006289589 AA, US2006151559 AA, US2005092802 AA, US2004262356 AA, US2015144675 AA, WO13056095 A3, US6493944 BB, US5836489 A, US6015076 A, US8066164 BB, US7967175 BB, US7931178 BB, US7021508 BA, FR2812068 A1, US4298149 A, US7431184 BB, FR2414312 A1, US7350682 BB, US5901968 A, US4504002 A,

Abstract:

A backpack and frame apparatus comprising a pair of tubular side bars and lateral cross members for supporting the backpack and upper terminus of the shoulder harness. A supporting belt adapted to be coupled about the user's waist and hips includes downwardly projecting panels disposed on diametrically opposed sides of the belt and adapted to lie substantially below the waist of the user. A supporting frame is coupled to the lower extensions of the belt and extends about the rear of the user, the support frame being reciprocally coupled to a pack frame cross member to provide independent movement between the pack frame and the support frame.



10) Family number: 1779474 (CN2659216 Y)

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Title: Knapsack able to balance centre of gravity

Priority: CN200320118101U 20031114

Family:

Publication number	Publication date	Application number	Application date
CN2659216 Y	20041201	CN200320118101U	20031114

Probable Assignee: YE QIMING

Assignee(s):(std): YE QIMING

Inventor(s):(std): YE QIMING

Inventor(s): QIMING YE

International class (IPC 8-9): A45F3/04

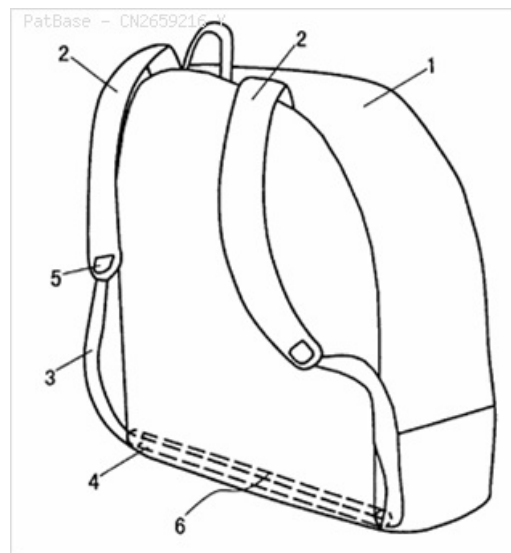
International class (IPC 1-7): A45F3/04

[Classification Explorer](#)

Forward Citations: US8172117 BB, US7946460 BB, WO07003104 A1,

Abstract:

The utility model relates to a barycenter balanced backpack which comprises a main body and left and right shoulder belts. The backpack is characterized in that a slip device which drives the balanced barycenter of the belt through left and right shoulder belts is arranged at the bottom of the main body bottom or near the bottom. The slip device comprises a main channel which is arranged at the bottom or near the bottom, and a connecting belt connected with the ends of left and right shoulders through two ends behind the channel. The utility model has simple structure, when the shoulders of users move up and down, left and right, the belt can drive the connecting belt sliding left and right in the channel, and immediately adjust the length of the left and right shoulder belts. Thus the utility model adjusts the barycenter of the backpack; the weight of backpack always assesses an average on the two shoulders to achieve balance; and the backpack resolves the problem that the shoulders load unbalanced when the shoulders move; this utility model can be widely used in tourism bags, bags or other backpacks, the straps shelves for backing a baby or a child.



11) Family number: 62892401 (US2017350046 AA)

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Title: ANTI-GRAVITY BACKPACK

Priority: CN201610108348 20160225 WO2016CN098383 20160908

Family:	Publication number	Publication date	Application number	Application date
	CN105747477 A	20160713	CN201610108348	20160225
	CN105747477 B	20171024	CN201610108348	20160225
	HK1222774 A1	20170714	HK20160111060	20160921
	HK1222774 B	20180907	HK20160111060	20160921
	US2017350046 AA	20171207	US20160502493	20160908
	WO17143760 A1	20170831	WO2016CN098383	20160908

Probable Assignee: MRS WU TAO

Assignee(s):(std): NG PAK TO PETTO ; WU BAITAO

Assignee(s): MRS WU TAO

Inventor(s):(std): NG PAK TO PETTO ; WU BAITAO

Agent(s): SCIHEAD PATENT AGENT CO LTD

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

International class (IPC 8-9): A45C13/00 A45C13/30 A45F A45F3/04 A45F3/14 D03D15/08 D03D3/00 D03D7/00

CPC: A45C13/002 A45C13/30 A45F2003/122 A45F3/04 A45F3/047 A45F3/12 A45F3/14 D03D15/56 D03D3/00 D03D7/00

US class: 1/1 224/153

[Classification Explorer](#)

Cited documents: EP1602299 A1, EP1902646 A1, CN201079122 Y, CN101327069 A, CN105747477 A, US2011046598 AA, US5954253 A, US2009206115 AA, US7198186 BB, US8926537 BB, US7717310 BB, US6848120 BB, US5954250 A, US2016000772 AA, US5284279 A, US6070776 A, US6375053 BA, CN101835399 A, CN102578784 A, CN102578794 A, CN204908086 U, CN105231638 A,

Forward Citations: US10849410 BB, EP3685701 A1, CN107549983 B, WO19056846 A1, CN107549983 A, WO17143760 A1,

Abstract:

The present invention discloses an anti-gravity backpack, which comprises a backpack body and two shoulder straps. A supporting plate is provided on a back of the backpack body, and a pressure reducing plate is provided on a back of the supporting plate. A first elastic band and a length fixing band are provided between the pressure reducing plate and the supporting plate. The existence of the pressure reducing plate, the first elastic band and the length fixing band causes the backpack to bounce up and down to act as a buffer, which not only relieves the pressure on the wearer's shoulders but also saves the wearer's energy with the resilience produced by the elastic band, thus helping slow down the wearer's rate of muscle fatigue and make the wearer feel less burden on the body.



12) Family number: 31511055 (JP2004364486 A2)

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Title: SHOULDER BELT GENERATOR
Priority: JP20030170074 20030512 JP20030383132 20031007
Family:

Publication number	Publication date	Application number	Application date
JP2004364486 A2	20041224	JP20030383132	20031007

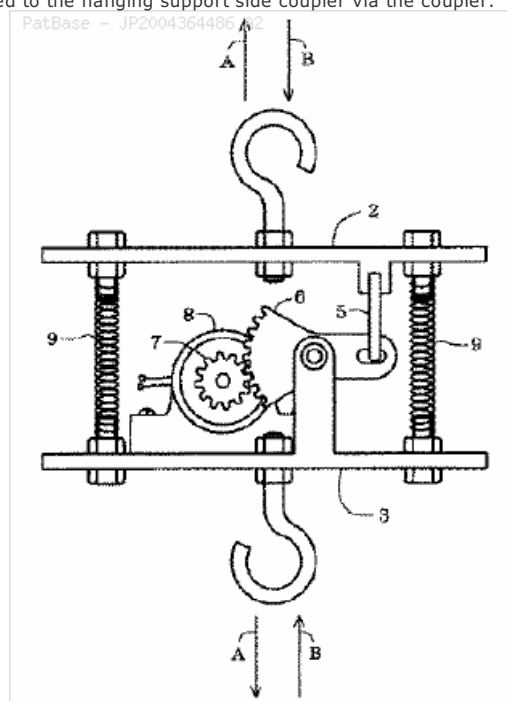
Probable Assignee: SHINOYAMA AKIMASA
Assignee(s):(std): SHINOYAMA AKIMASA
Inventor(s):(std): SHINOYAMA AKIMASA
International class (IPC 8-9): A45C13/30 A45C15/00 A45F3/04 F16H31/00 H02K21/12 H02K7/06 H02N2/00
International class (IPC 1-7): A45C13/30 A45C15/00 A45F3/04 F16H31/00 H02K21/12 H02K7/06 H02N2/00
CPC: A45C13/001 A45F2003/001

[Classification Explorer](#)

Forward Citations: KR102089217 B1, CN103855783 A, CN103855783 B, US7946460 BB, US7931178 BB, WO07003104 A1,

Abstract:

PROBLEM TO BE SOLVED: To provide a shoulder belt generator which can utilize generated power as a power supply of a portable electronic device by reducing a load applied to a shoulder due to a vibration at a person walking time, carrying a shoulder bag, a rucksack through a flexure of a spring by converting the load into an electric power. **SOLUTION:** The shoulder type belt generator includes couplers coupled to a hanging support for hanging a body and the body and coupled via springs, a generator fixed to the body side coupler, a gear transmission mechanism coupled to the generator and provided at the body side coupler in such a manner that the gear transmission mechanism is coupled to the hanging support side coupler via the coupler.

**13) Family number: 52394584** (CN102771997 A)

© PatBase

Title: BACKPACK
Priority: CN201210267949 20120731
Family:

Publication number	Publication date	Application number	Application date
CN102771997 A	20121114	CN201210267949	20120731

Probable Assignee: SUZHOU LUNQIN IND DESIGN CO LTD
Assignee(s):(std): SUZHOU LUNQIN IND DESIGN CO LTD
Assignee(s): SUZHOU LUNQIN INDUSTRIAL DESIGN CO ; SUZHOU LUNQIN INDUSTRIAL DESIGN CO LTD
Inventor(s):(std): GENCHANG MA
Inventor(s): MA GENCHANG
International class (IPC 8-9): A45F3/04

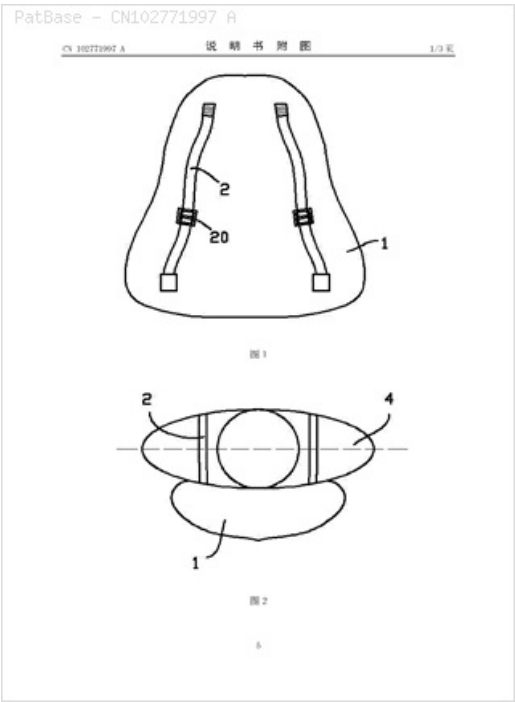
[Classification Explorer](#)

Cited documents: DE202008016014 U, BE893012 A, CN2446842 Y, CN101116571 A, US5975292 A, CN2800884 Y,

Abstract:

The invention provides a backpack which comprises a backpack body and straps; both ends of the backpack are symmetrically and fixedly arranged on both sides of the bottom on the back surface of the backpack; a slide sleeve is connected onto the upper part in the center of the back surface of the backpack body; the straps penetrate through the slide sleeve; the slide sleeve comprises a slide seat which is fixed with the upper part of the back surface of the backpack body, and a turntable which is pin jointed with the slide seat through a rotating shaft; the surface of the turntable is towards the back part of a human body; and the

side surface of the turntable is provided with slide holes which penetrate through the turntable sideways and are matched with the straps. The backpack not only can effectively reduce the local burden of shoulders, but also can automatically adapt to the gesture of the human body when moving, a position state with more stable center of gravity is adjusted to, so that the movement of the human body is convenient.



14) Family number: 43207225 (US2010308095 AA)

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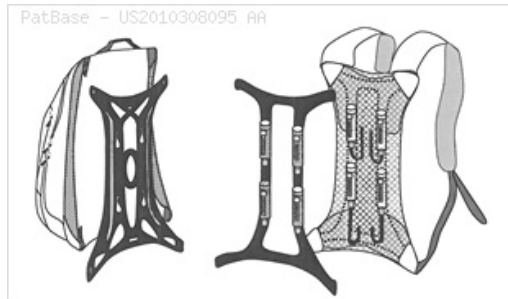
Title:	BACKPACK WITH AN INTELLIGENT AUTOMATIC ADJUSTING INFLATION AIRCUSHION AND A PNEUMATIC SHOCK ABSORBER SYSTEM			
Priority:	CN200810219275 20081121		WO2009CN75055 20091120	
Family:	Publication number	Publication date	Application number	Application date
	CN101406343 A	20090415	CN200810219275	20081121
	CN101406343 B	20101229	CN200810219275	20081121
	HK1134740 A2	20100507	HK20090110905	20091120
	US2010308095 AA	20101209	US20090744327	20091120
	US8240531 BB	20120814	US20090744327	20091120
	WO10057441 A1	20100527	WO2009CN75055	20091120

Probable Assignee:	RICAERO ASIA CO LTD
Assignee(s):(std):	HANXIONG LIN ; LAM HON HUNG RICKY ; LAM HON HUNG RICKY SUITE ; LAM RICKY HON HUNG
Assignee(s):	LIN HANXIONG ; RICAERO (ASIA) CO LTD ; RICAERO ASIA CO LTD
Inventor(s):(std):	HANXIONG LIN ; LAM HON HUNG RICKY ; LAM RICKY HON HUNG ; RICKY LAM HON HUNG
Inventor(s):	LIN HANXIONG
Agent(s):	DONGGUANG HUANAN PATENT AND TRADEMARK OFFICE CO LTD; SCIHEAD INTELLECTUAL PROPERTY LAW GROUP LTD
Designated states:	AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW
International class (IPC 8-9):	A45F A45F3/02 A45F3/04 A45F3/08
CPC:	A45F2003/122 A45F3/04 A45F3/12
US class:	224/631 224/644

[Classification Explorer](#)

Cited documents:	US6820783 BB, US2006175367 AA, CN2713868 Y, CN201337079 Y, CN101026976 A, US7997466 BB, US7946460 BB, US7931178 BB, CN201079122 Y, JP2003305416 A2,
Forward Citations:	US9636875 BB, US9364072 BB, US8740028 BB, US2012031936 AA, US2014332576 AA, US2019254397 AA, US10750834 BB, US2010065598 AA, US8783537 BB, US2013075438 AA, US2012024926 AA, US10849410 BB, CN107549983 B, WO19056846 A1, CN107549983 A, CN102578794 A, CN102028353 A, WO11085689 A1,

Abstract:
The present invention relates to the field of backpack technology, and more particularly to a backpack with an intelligent automatic adjusting inflation aircushion and a pneumatic shock absorber system, which comprising: a backpack main body and a shoulder strap and back cushion; the backside of said backpack main body is installed with a back frame; said shoulder strap and back cushion is provided with said adjustable inflation aircushion; the backside of said shoulder strap and back cushion is provided with said pneumatic shock absorber system; said pneumatic shock absorber system can be movably connected with said back frame. Said pneumatic shock absorber system of the present invention can effectively reduce the vibration generated during the usage of the said backpack, while the smart connection between said pneumatic shock absorber system and said adjustable inflation aircushion can automatic adjust air pressure of said inflation aircushion inside said shoulder strap and back cushion according to the number of the load of said backpack. Hence, an optimum softness of said shoulder strap and back cushion is achieved and, as a result, the user will feel more comfortable and can effectively avoid the harm generated from the weight of backpack to his body.



15) Family number: 70482569 (US2018255910 AA)

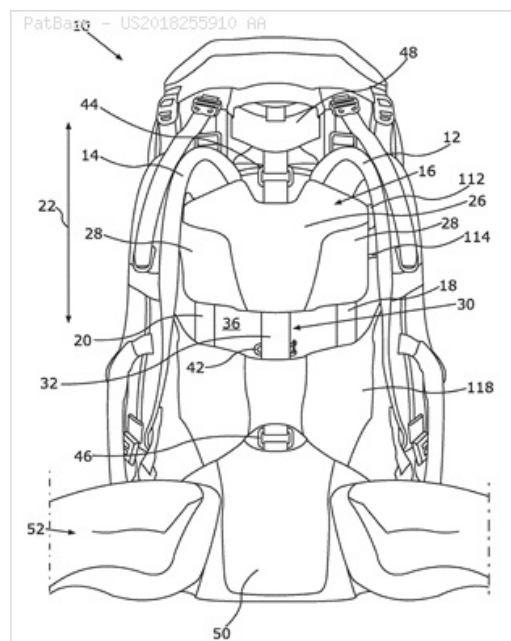
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Title: RUCKSACK WITH CONTINUOUS BACK LENGTH ADJUSTMENT
Priority: DE201720101329U 20170308 EP20180159915 20180305 JP20180040601 20180307
Family:

Publication number	Publication date	Application number	Application date
DE202017101329 U1	20180719	DE201720101329U	20170308
DE502018003289 D1	20201231	DE201850003289T	20180305
EP3372112 A1	20180912	EP20180159915	20180305
EP3372112 B1	20201216	EP20180159915	20180305
JP2018149279 A2	20180927	JP20180040601	20180307
JP6584556 B2	20191002	JP20180040601	20180307
US10694833 BB	20200630	US20180916111	20180308
US2018255910 AA	20180913	US20180916111	20180308

Probable Assignee: DEUTER SPORT GMBH
Assignee(s):(std): DEUTER SPORT GMBH
Inventor(s):(std): MIGUEL TIBLAS ; TIBLAS MIGUEL
Agent(s): BRADLEY ARANT BOULT CUMMINGS; CAPRIA TIMOTHY L; HOFSTETTER SCHURACK AND PARTNER; MORITA HIROSHI
Designated states: AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR
International class (IPC 8-9): A44B11/25 A45F3/02 A45F3/04 A45F3/14
CPC: A45F2003/045 A45F3/04 A45F3/047
US class: 1/1 224/637
[Classification Explorer](#)
Cited documents: JP3468819 B, CH678796 A, US2016037895 AA, US2011284609 AA, US2010301085 AA, US8544709 BB, US7946460 BB, US7232048 BB, US7152771 BB, US6179188 BA, US5971244 A, US5904282 A, US5449102 A, US5432984 A, US5284279 A, US2014252059, JP2012020111, JP3468819 B1, US2014252059 AA, JP10117845 A2, JP2012020111 A2, JP3468819 B2, JP2005532844 T2, KR101518174 B1, US9826816 BA, EP0821895 A1, WO03077704 A1, EP0122764 A2, EP1602299 A1, US10561225 BB,
Forward Citations: US10561225 BB,

Abstract:
A rucksack is provided with a first shoulder strap and a second shoulder strap, whereby respective end sections of the shoulder straps are connected with each other by means of a middle piece. The middle piece is continuously slidable along at least one guide element in a vertical direction of the rucksack. The middle piece is attached to a strap with a first free end and a second free end, whereby the free ends are coupled with each other in a way that permits a transfer of a tensile force. The strap is redirected at a first redirecting element and a second redirecting element, which are located opposite each other in the vertical direction of the rucksack.



16) Family number: 21219785 (US2197427 A)

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Title: CAMPER'S PACK
Priority: US19380216364 19380628
Family:

Publication number	Publication date	Application number	Application date
US2197427 A	19400416	US19380216364	19380628

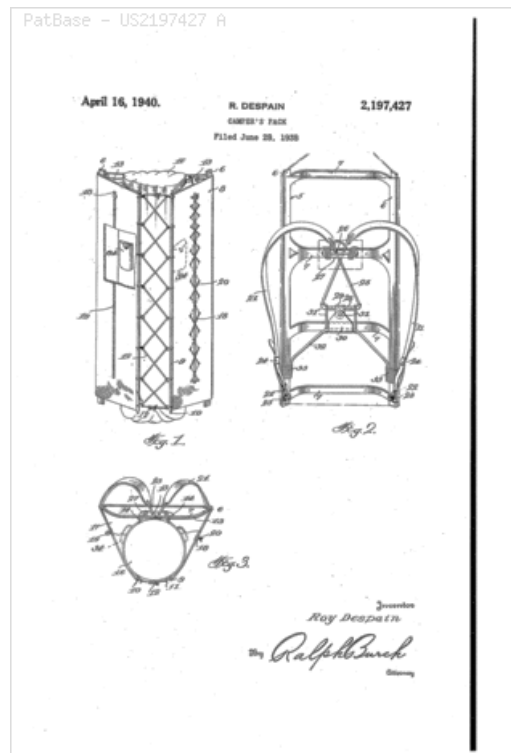
Probable Assignee: ROY DESPAIN
Assignee(s):(std): ROY DESPAIN
Inventor(s):(std): ROY DESPAIN
Inventor(s): DESPAIN ROY
International class (IPC 8-9): A45F3/00 A45F3/10
CPC: A45F3/10
US class: 224/635 D3/216

[Classification Explorer](#)

Forward Citations: EP3756505 A1, WO19201358 A1, US2018220779 AA, US2008179367 AA, US2008197163 AA, US2004124224 AA, US8172117 BB, US8020738 BB, US7100809 BB, US7946460 BB, US6070776 A, US3931918 A, US4484700 A, US3221959 A, US3184128 A, USD432870 S1, USD431968 S1, USD431967 S1, USD431903 S1, USD431755 S1,

Abstract:

1. A campers pack comprising a concavo-conVex supporting frame, a sheet of canvas stretched across the concave side of said frame and around the sides thereof with its ends reversely folded on the convex side of the frame with their free edges secured to the canvas adjacent the sides of the frame, means securing the bights of the 2 ' e 2,197,427 " ` ' A folds to each other, means securing the inner layers of the folds to each other at a point intermediate the width of the layers, and shoulder straps attached to said frame.

**17) Family number: 12968115 (JP11164734 A2)**

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Title: BAG PART MOVABLE TYPE BACKPACKING
Priority: JP19970367484 19971205
Family:

Publication number	Publication date	Application number	Application date
JP11164734 A2	19990622	JP19970367484	19971205

Probable Assignee: AMANO MUTSUMI
Assignee(s):(std): AMANO MUTSUMI
Inventor(s):(std): AMANO MUTSUMI
International class (IPC 8-9): A45F3/04
International class (IPC 1-7): A45F3/04

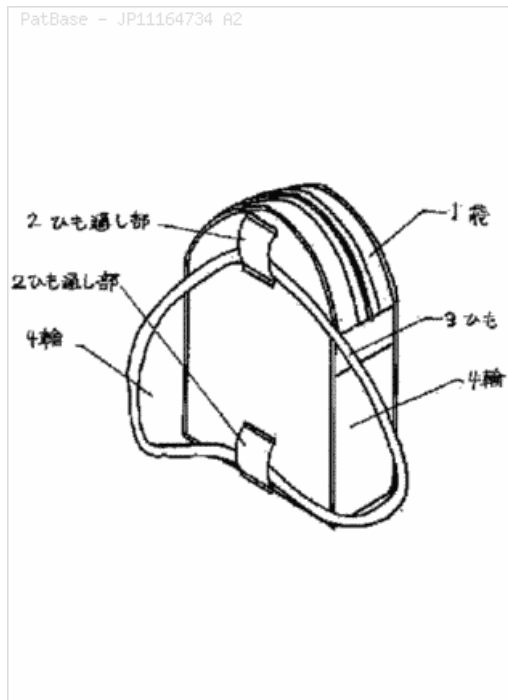
[Classification Explorer](#)

Forward Citations: CN102406296 A, JP4783828 B2,

Abstract:

PROBLEM TO BE SOLVED: To provide a bag part movable type backpacking which enables a bag to freely move round a strap of

the backpacking by fixing the strap indirectly through a strap passing part without attaching the strap to the backpacking directly and enables the bag on the back to move up to the front of a body while the strap is applied on the shoulders so that contents can be taken in and out easily. SOLUTION: The bag 1 is provided with a strap passing part 2, and a strap is passed through the strap passing part 2 to form the strap 3 into an annular shape. The hand passes one by one through a part formed like a ring 4 of two strap 3 formed on the right and left of this strap passing part 2 to lift the strap 3 up to the shoulder and apply it on the shoulder so as to mount it on the body.



18) Family number: 29032966 (US2004178245 AA)

© PatBase

Title: DEVICE FOR ADJUSTING THE CARRYING POSITION OF A RUCKSACK
Priority: FR20020003497 20020315 WO2003FR00786 20030312 US20040811718 20040329
Family:

Publication number	Publication date	Application number	Application date
AT333224 E	20060815	AT20030722698T	20030312
AU2003229862 AA	20030929	AU20030229862	20030312
CN100435688 C	20081126	CN20038001683	20030312
CN1596077 A	20050316	CN20038001683	20030312
DE60306905 D1	20060831	DE20036006905T	20030312
DE60306905 T2	20061116	DE20036006905T	20030312
EP1484996 A1	20041215	EP20030722698	20030312
EP1484996 B1	20060719	EP20030722698	20030312
ES2270021 T3	20070401	ES20030722698T	20030312
FR2837078 A1	20030919	FR20020003497	20020315
FR2837078 B1	20051202	FR20020003497	20020315
HK1073768 A1	20051021	HK20050106400	20050726
HK1073768 A3	20051021	HK20050106400	20050726
HK1073768 B	20090828	HK20050106400	20050726
JP2005532844 T2	20051104	JP20030575764T	20030312
JP4130633 B2	20080806	JP20030575764T	20030312
RU2004116310 A	20050310	RU20040116310	20030312
RU2303940 C2	20070810	RU20040116310	20030312
US2004178245 AA	20040916	US20040811718	20040329
US7152771 BB	20061226	US20040811718	20040329
WO03077704 A1	20030925	WO2003FR00786	20030312

Probable Assignee: LAFUMA SA
Assignee(s):(std): FROIDEVAUX MATTHIEU ; LAFUMA SA ; LE GAL YANN ; LJAFJUMA SA
Assignee(s): LAFUMA F 26140 ANNEYRON FRANCE SA ; LAFUMA S A ANNEYRON
Inventor(s):(std): FROIDEVAUX MATHIEU ; FROIDEVAUX MATTHIEU ; FRUADVO MATT E ; GAL YANN LE ; LE GAL IANN ; LE GAL YANN ; MATTHIEU FROIDEVAUX
Inventor(s): FRUADVO MATT'E ; LE GAL' IANN ; MATHIEU FROIDEVAUX ; YANN LE GAL
Agent(s): BURR AND BROWN; CABINET GERMAIN ET MAUREAU; CHINA PATENT AGENT HK LTD; CHINA PATENT AGENT HK LTD 22 F GREAT EAGLE CENTRE 23 HARBOUR ROAD
Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE 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 NE NL NO NZ OM PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
International class A45F A45F3/00 A45F3/04 A45F3/08 A45F3/10
(IPC 8-9):
International class A45F3/04 A45F3/08 A45F3/10
(IPC 1-7):
CPC: A45F3/047 A45F3/08

US class: 224/631 224/632 224/634 224/636 224/631P

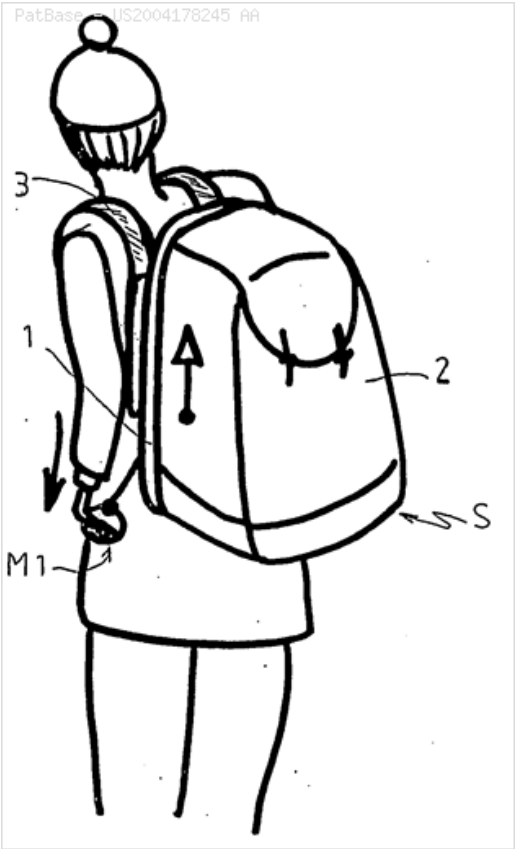
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Cited documents: US6547218 BA, US6179188 B1, US6293601 BA, US6547218 BB, US6179188 BA, US5920963 A, JP8154722, JP9010036, JP7008319, DE3843597, EP405035, JP8154722 A2, JP9010036 A2, JP7008319 A2, EP0628265 A1, US5449102 A, EP0405035 A1, DE3843597 A1,

Forward Citations: EP3372112 B1, EP3372112 A1, US10806237 BA, US2018255910 AA, US10092071 BA, DE102017104847 B3

US10021955 BB, US2016213127 AA, US2009026241 AA, US2008197163 AA, US9113697 BB, US8991671 BB, US8950644 BB, US2014001220 AA, US2014014700 AA, US8561866 BB, US8157138 BB, US7946460 BB, US10251466 BB, US9848687 BB, KR101382586 B1, US8544709 BB, US2012085803 AA, JP2016202495 A2, JP6523031 B2, JP6584556 B2, US10694833 BB, WO20071585 A1, JP2018149279 A2, KR101947114 B1, KR101931279 B1, JP2012020111 A2, KR101518174 B1, KR200469441 Y1, WO19201358 A1, CN110636776 A, WO20156369 A1, CN106263471 B, CN106263471 A, CN105795690 A, CN104986142 A, WO07003104 A1,

Abstract:
The device for adjusting the carrying position of a rucksack consists of a rucksack back (1) on which a carrying harness (3) is positioned, characterized in that it comprises two means for controlling and adjusting the position (M 1 -M 2), established with the aid of remote manual controls which are autonomous in relation to each other and which enable the position of the back of the sack to be adjusted in relation to the carrying harness, whereby the first means enables the back of the sack to be raised in relation to the harness and the second means enables the back of the sack to be lowered in relation to the harness, so that the dimensions of the back of the rucksack to the person carrying said rucksack can be adjusted the support areas can be modified during walking in order to reduce any injuries that might occur.



19) Family number: 46542192 (US2010243693 AA)					© PatBase
Title:	CARRYING DEVICE DUAL SHOULDER STRAP SYSTEM				
Priority:	US20090162722P 20090324	US20100712315 20100225	EP20100003129 20100324		
Family:	Publication number	Publication date	Application number	Application date	
	DE202010004195 U1	20100729	DE201020004195U	20100323	
	DE602010024853 D1	20150709	DE201060024853T	20100324	
	EP2233036 A1	20100929	EP20100003129	20100324	
	EP2233036 B1	20150527	EP20100003129	20100324	
	US2010243693 AA	20100930	US20100712315	20100225	
	US9254030 BB	20160209	US20100712315	20100225	
Probable Assignee:	BLACK DIAMOND EQUIPMENT LTD				
Assignee(s):(std):	BLACK DIAMOND EQUIP LTD ; BLACK DIAMOND EQUIPMENT AG ; FRANKE THOMAS ZEBULON ; KUDER NATHAN M ; TERRY PAUL				
Assignee(s):	BLACK DIAMOND EQUIPMENT LTD ; JPMORGAN CHASE BANK NA ; JPMORGAN CHASE BANK NA ADMINISTRATIVE AGENT AS				
Inventor(s):(std):	FRANKE THOMAS ZEBULON ; KUDER NATHAN M ; KUDER NATHAN MILES ; TERRY PAUL				
Agent(s):	BAKER AND ASSOCIATES PLLC; BRAUN ANDRE JR; GRAMM LINS AND PARTNER PATENT U RECHTSANWAELTE PARTGMBB; TRENT				
Designated states:	AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR				

International class A45F3/00 A45F3/04 A45F3/08 A45F3/14
(IPC 8-9):

CPC: A45F2003/045 A45F2003/142 A45F3/04 A45F3/047 A45F3/08 A45F3/14

US class: 1/1 224/633 224/645 224/645S

[Classification Explorer](#)

Cited documents: WO05122824 A2, JP8131256 A2, EP2819700 A1, US2006289586 AA, US4303186 A, US7287677 BB, US6637631 BB, US5961019 A, US2008203129 AA, US4214685 A, US4676418 A, US2008035686 AA, US6070776 A, US8181834 BA, US5573166 A, US5823414 A, US8556147 BB, US5366126 A, US7028873 BA, US6892915 BB, US6626342 BA, US8181835 BB, US4830245 A, US5890640 A, US8118201 BA, US5005744 A, US5971244 A, US5114059 A, US5427290 A,

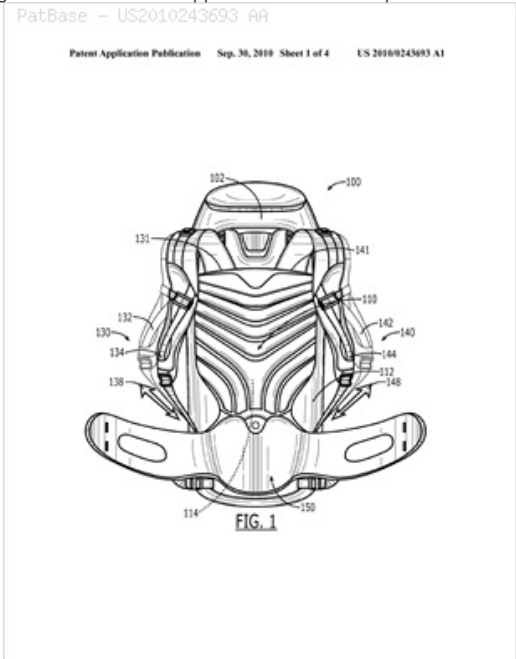
DE102005055688 A1

EP1902646 A1, FR2819700 A1, US61162722,

Forward Citations: US2019350347 AA, US10806238 BB, US2018339812 AA, US10485690 BB, USD798600 S1, USD778051 S1, US2013283492 AA, US8997262 BB, US8857681 BB, US2013232742 AA, US8172117 BB,

DE102018111349 A1

Abstract:
One embodiment of the present invention relates to a carrying system with an enclosure member and a shoulder attachment system. The shoulder attachment system includes a first and second shoulder strap individually coupled to the external surface of the enclosure member. The bottom ends of the first and second shoulder straps are intercoupled via a coupling member. The coupling member is slidably routed through a sleeve member within the internal region of the enclosure member. The sleeve member includes an internal channel having a cross-sectional shape that substantially matches the cross-sectional shape of the coupling member, thereby minimizing frictional resistance as the coupling member is translated through the sleeve member. The slidable intercoupling between the bottom ends of the first and second shoulder straps with respect to the enclosure member enables articulation of one shoulder strap to be balanced by corresponding articulation of the opposite shoulder strap.



20) Family number: 70708017 (US2018220779 AA) © PatBase

Title: LOAD ADJUSTMENT SYSTEM FOR BACKPACKS

Priority: US20170427650 20170208 WO2018US17004 20180206

Family:

Publication number	Publication date	Application number	Application date
CN110678105 A	20200110	CN201880023752	20180206
EP3568043 A1	20191120	EP20180751293	20180206
JP2020506776 T2	20200305	JP20190543004T	20180206
KR20190107739 A	20190920	KR20197025517	20180206
US10617194 BB	20200414	US20170427650	20170208
US2018220779 AA	20180809	US20170427650	20170208
WO18148184 A1	20180816	WO2018US17004	20180206

Probable Assignee: NORTH FACE APPAREL CORP

Assignee(s):(std): NORTH FACE APPAREL CORP

Inventor(s):(std): GUTHRIE BEN ; ROGERS DANIEL NORRIS ; TAGUMI CHRISTOPHER KENJI

Agent(s): HUNTON ANDREWS KURTH LLP; MURGITROYD AND CO; SHANLEY DANIEL G

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 JO JP KE KG KH 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

International class A45C13/30 A45F3/00 A45F3/04 A45F3/08 A45F3/10 A45F3/14
(IPC 8-9):

CPC: A45F2003/045 A45F3/04 A45F3/047 A45F3/08 A45C13/30

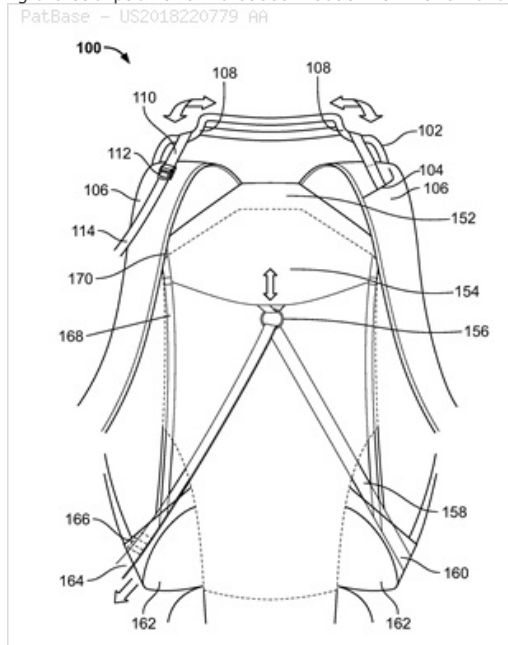
US class: 1/1 224/631

Cited documents: US2015144675 AA, US3938718 A, US7537143 BA, US2197427 A, US2013087589 AA, US2010230458 AA, US2009127301 AA, US2008197163 AA, US2006289589 AA, US2006138188 AA, US2005082330 AA, US2002170932 AA, US2002104862 AA, US8672203 BB, US7287677 BB, US6276584 BA, US5497922 A, US5184764 A, US3957184 A, US8172117 BA, US2008035695 AA, US2007251965 AA, US5725139 A, US2006102675 AA, US2006131355 AA, JP10117845 A2, JP7008319 A2, US2010270348 AA, JP6133814 A2, JP59207109 A2, JP3048971 U, KR101518174 B1, JP8038252 A2, EP2965653 A1, US8172117 BB, US2006151559 AA, NZ536593 A, US6802442 BA, EP1380227 A2, US5971244 A,

Forward Citations: US10561225 BB,

Abstract:

A backpack with an improved load adjustment system includes a body, a frame, a pair of shoulder straps, a load lifting strap extending from each of the first shoulder strap and the second shoulder strap and suspended by the frame, a yoke attached to the first shoulder strap and the second shoulder strap, a back panel attached to a hip belt having a first hip pad and a second hip pad, and a torso length adjustment strap extending from a first lower side portion of the frame to a second lower side portion of the frame opposite the first lower side portion of the frame and passing through a strap receiving member fixed to the yoke. The improved load adjustment system allows for quick adjustment while wearing the backpack and increased freedom of movement.



21) Family number: 63385342 (CN105901895 A)

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Title: SELF-ADAPTION SHOULDER BAND BACKPACK AND METHOD IMPLEMENTING SAME

Priority: CN201610230619 20160413

Family:	Publication number	Publication date	Application number	Application date
	CN105901895 A	20160831	CN201610230619	20160413

Probable Assignee: UNIV ZHEJIANG

Assignee(s):(std): UNIV ZHEJIANG ; ZHEJIANG UNIV

Inventor(s):(std): ZHU JIAQI

International class (IPC 8-9): A45F3/04

CPC: A45F3/047

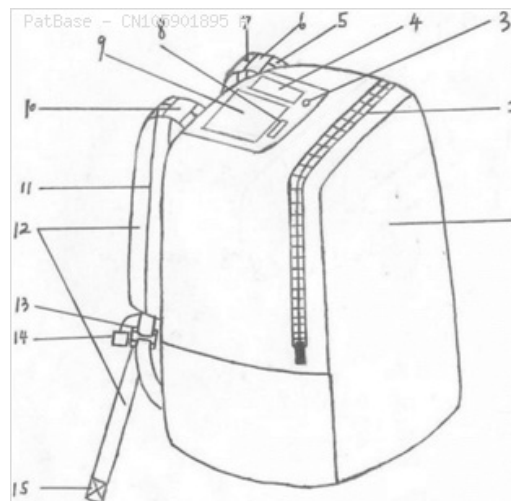
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Cited documents: CN205126594 U, CN104044554 A, CN203608949 U, CN103169243 A, CN202774819 U, CN201957970 U, KR20080066425 A, CN2800884 Y,

Forward Citations: EP3609365 A4, CN110708986 A, WO20035856 A1,

Abstract:

The invention relates to a self-adaption shoulder band backpack and method implementing the same. The backpack includes a bag, a left shoulder band, a right shoulder band, a left stress sensor, a right stress sensor, a left power source/signal bus, a right power source/signal bus, a central control chip, a left rotation motor, a right rotation motor and a rechargeable power module. The backpack can detect shoulder stress condition of a user through the stress sensors on the shoulder bands and the detection result can be feed back to the central processor. The central processor judges the lengths of the left shoulder band and the right shoulder band and sends signals for controlling rotation of the left rotation motor and the right rotation motor, so that the lengths of the two shoulder bands can be adjusted until the lengths are equal and the user feels comfortable.



22) Family number: 12286961 (US6070776 A)

© PatBase

Title: Backpack load centering system

Priority: US19970055006P 19970808 US19980120283 19980722

Family:	Publication number	Publication date	Application number	Application date
	US6070776 A	20000606	US19980120283	19980722

Probable Assignee: FURNARY KEVIN P

Assignee(s): FURNARY KEVIN P ; VALENTINE JOSHUA R

Inventor(s):(std): FURNARY KEVIN P ; VALENTINE JOSHUA R

International class
(IPC 8-9): A45F3/04

International class
(IPC 1-7): A45F3/04

CPC: A45F3/047

US class: 224/627 224/631 224/637

[Classification Explorer](#)

Cited documents: WO9105494 A1, GB2223930 A1, NO58853 A, NO48230 A, DE669836 A, FR2668345 A1, FR1338893 A, FR881920 A, FR834457 A, DK55350 A, US5730347 A, US5431317 A, US5427290 A, US5184764 A, US5131576 A, US4194656 A, US2197427 A,

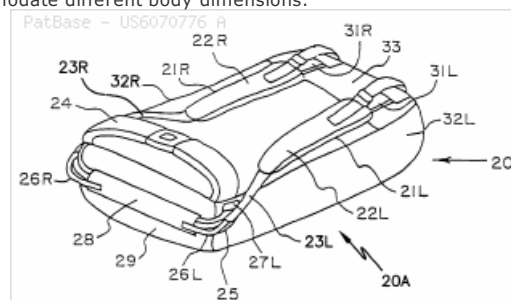
Forward Citations: US10828186 BB, CN110338552 A, JP2019188125 A2, US10617552 BB, US10561520 BB, WO19201358 A1,

DE102018205186 A1

EP3549483 A1, US10357391 BB, US10159592 BB, US10076177 BB, US9987158 BB, US9872794 BB, US9795500 BB, US9635914 BB, CN105747477 A, US9597219 BB, US9572705 BB, US9554935 BB, US9468554 BB, US9439800 BB, US9414953 BB, US9393144 BB, US9370440 BB, US9314363 BB, US2013168428 AA, US9254030 BB, US9220625 BB, US2010243694 AA, US2009266727 AA, US2009020580 AA, US2008179367 AA, US2008179364 AA, US2008197163 AA, US2007023470 AA, US2006283737 AA, US2007017948 AA, US9125478 BB, US2006131355 AA, US9113696 BB, US2005087577 AA, US2005017041 AA, US2010243693 AA, US2004124224 AA, US8945034 BB, US8926537 BB, US2012205409 AA, US8424680 BB, US8181835 BB, US8172117 BB, US8020738 BB, US7100809 BB, US7946460 BB, US7896207 BA, US6824030 BA, AU2005234623 BB, FR2819700 A1, US6802442 BA, GB2352389 A1, US6607107 BB, US6375053 BA,

Abstract:

A backpack in which length of the shoulder straps automatically adjust as to length when the wearer twists his or her torso. The shoulder straps are connected at their lower end to form one continuous strap. This strap passes below the bottom panel of the backpack, and is contained within a channel. The channel extends along the bottom panel for its entire width from right to left. The channel bends upwardly and forwardly as it exits the bottom panel to follow the side panels of the backpack. A member of low friction characteristics enables the continuous strap to slide freely within the channel. The channel is formed to resist distortion by compression from the load carried within the backpack. The shoulder straps may be elastic, and include an adjustment feature enabling adjustment of their overall length to accommodate different body dimensions.



Title: ADJUSTABLE FOOT STRAP

Priority: US20030515305P 20031028 US20040552218P 20040311 US20040903491 20041126
US20040027700 20041228

Family:

Publication number	Publication date	Application number	Application date
US2005279797 AA	20051222	US20040027700	20041228
US7600660 BB	20091013	US20040027700	20041228
US2005087115 AA	20050428	US20040903491	20041126

Probable Assignee: KASPER RAYMOND N

Assignee(s):(std): KASPER RAYMOND N ; KASPER RAYMOND NEVIN ; MARTIN JOHN D

Inventor(s):(std): KASPER RAYMOND N ; KASPER RAYMOND NEVIN ; MARTIN JOHN D

Inventor(s): MARTIN JOHN

Agent(s): BLACK LOWE AND GRAHAM PLLC

International class (IPC 8-9): A44B1/00 A44B1/04 A44B11/00 A44B11/06 A44B11/25 A45F3/00 A45F3/04 A45F3/14 B63B35/73 B63B35/79 B63H9/00 B65H75/38 B65H75/40

International class (IPC 1-7): A44B1/04 A44B11/25 A45F3/04 B63B35/79 B63H9/00 B65H75/40

CPC: B63B32/45 A44B11/065 A45F2003/144 A45F3/047 A45F3/14 B63H8/54

US class: 114/39.18 114/39.180S 114/39.19 2/338 224/162 224/631 224/637

[Classification Explorer](#)

Cited documents: JP2006149913 A2, FR2830171 A1, US6328193 BA, US4976383 A, US2005237864 AA, US2004182968 AA, US6267390 BA, US5027874 A, US3386683 A, USRE26584 E, US2006053531 AA, US1622954 A, US5157813 A, US6289558 BA, US5558552 A, US2165547 A, US5893785 A,

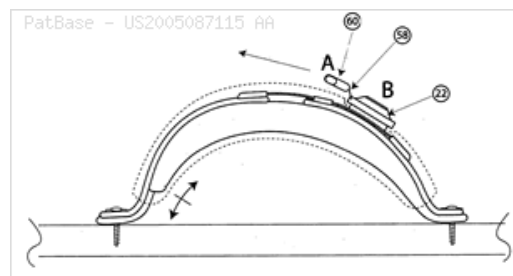
Forward Citations: EP3763423 A1, US10828186 BB, US10617552 BB, US10561520 BB, US10512305 BB, US10492940 BB, US10357391 BB, US10251465 BB, US10159592 BB, US10143293 BB, US9987158 BB, US9872794 BB, US2017360182 AA, US9795500 BB, US9763808 BB, US2015328033 AA, US9597219 BB, US9572705 BB, US9554935 BB, US9468554 BB, US9439800 BB, US9414953 BB, US9393144 BB, US9370440 BB, US9314363 BB, US9285776 BA, US2014358054 AA, US9220625 BB, US2010217167 AA, US2009287128 AA, US2008197163 AA, US2006213943 AA, US8945034 BB, US8926537 BB, US8858482 BB, US8657769 BB, US8303528 BB, US8172779 BB, US7946460 BB, US10765180 BB, US2017135448 AA, WO20035856 A1, US2017265590 AA, CN104394809 B, EP2014189 A3, EP2802298 B1, US10058163 BB, US9962589 BB, US2017099932 AA, US9554933 BB, US9510968 BB, US9452834 BB, KR101640911 B1, US2014142485 AA, WO10044072 A3, CN104394809 A, US2008201817 AA, US2008217367 AA, US2008230578 AA, US2009159752 AA, US2013261405 AA, US2013184628 AA, ITF120130024 A1, WO14075941 A1, EP2733108 A1, WO10044072 A2, WO13106620 A1, JP2009011840 A2, US7992506 BA, EP2014189 A2, US7555790 BB, USD607375 S1, WO09061347 A1, WO20247645 A1, US1088139 BB, WO20247990 A1, US10863796 BB, US10849390 BB, US10842230 BB, US10791798 BB, USRE48215 E, US10772388 BB, US10772384 BB, US10702409 BB, US10575591 BB, US10543630 BB, US10499709 BB, US10492568 BB, US10477922 BB, US10433999 BB, US10413019 BB,

DE102018104556 A1

US10362836 BB, US10342294 BB, US10327513 BB, US10264835 BB, US10251451 BB, US10182935 BB, USD835898 S1, USD835976 S1, US10123589 BB, US10076160 BB, US10070695 BB, US10039348 BB, US2015121657 AA, US9872790 BB, US9867430 BB, US9854873 BB, US9770070 BB, USD797946 S1, US9743714 BB, US9737115 BB, US9706814 BB, US9700101 BB, US9681705 BB, US9629417 BB, US9610185 BB, USD776421 S1, US8516662 BB, US8468657 BB, US8424168 BB, US9532626 BB, US9516923 BB, USD767269 S1, US9439477 BB, US9408437 BB, US9375053 BB, USD758061 S1, US9339082 BB, USD751281 S1, US9248040 BB, US2011225843 AA, US2010299959 AA, US2009254012 AA, US9179729 BB, US9149089 BB, US9125455 BB, US9101181 BB, US8984719 BB, US8939925 BB, US2012204381 AA, US8713820 BB, US8381362 BB, US8366739 BB, US2012174287 AA,

Abstract:

The present invention provides a foot strap binding system for board sports such as water sports that allows the user to easily tension foot strap over the top of his or her foot. The foot strap adjustment device includes a strap hold-down member, a guided cable, and a reel to adjust the cable length. The hold-down member has a first side and a second side. The cable is secured to the first side and the second side of the hold-down member with guide members. The reel is secured to the tension member and to one of the sides of the hold-down member. Rotational movement of the reel selectively tightens or loosens the cable between the first and second sides of the hold-down member. Quick release of the tension on the cable is accomplished with a disengagement of the reel from a ratchet.



Title: BACKPACK

Priority: JP20020108575 20020307

Family:

Publication number	Publication date	Application number	Application date
JP2003259916 A2	20030916	JP20020108575	20020307

Probable Assignee: YAGUCHI YASUMASA

Assignee(s):(std): YAGUCHI YASUMASA

Inventor(s):(std): YAGUCHI YASUMASA

International class A45F3/04

(IPC 8-9):

International class A45F3/04

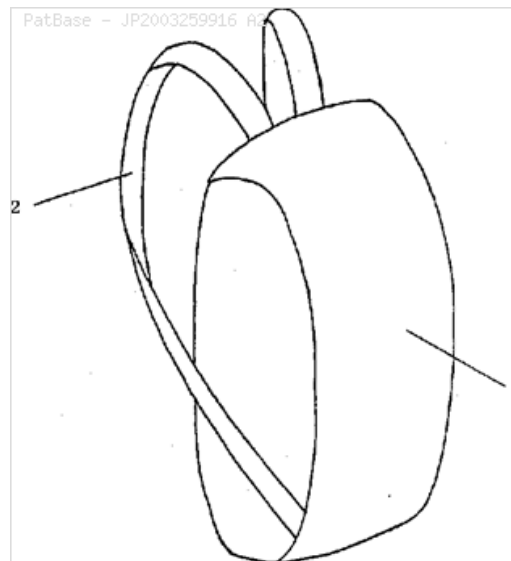
(IPC 1-7):

[Classification Explorer](#)

Forward Citations: US7946460 BB, WO07003104 A1,

Abstract:

PROBLEM TO BE SOLVED: To facilitate the carrying of the bag on the back by improving balance when it is carried on the back.
SOLUTION: The upper ends of shoulder straps are mounted on the side near the back of a load space and the lower ends of the shoulder straps on the side farther from the back thereof.



25) Family number: 34203852 (US2008179367 AA)

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Title: HARNESS FOR USE WITH BREATHING APPARATUS

Priority: GB20060023719 20061128

Family:

Publication number	Publication date	Application number	Application date
EP1927379 A1	20080604	EP20070121679	20071127
EP1927379 B1	20170726	EP20070121679	20071127
GB200623719 A0	20070110	GB20060023719	20061128
US2008179367 AA	20080731	US20070946570	20071128
US8020738 BB	20110920	US20070946570	20071128

Probable Assignee: DRAEGERWERK AG

Assignee(s):(std): DRAEGER SAFETY UK LTD ; DRAEGERWERK AG

Assignee(s): DRAEGER SAFETY UK LIMITED

Inventor(s):(std): STOREY DAVID GRAHAM

Agent(s): BANNER AND WITCOFF LTD; DLA PIPER LLP; DLA PIPER LLP (US); MCCARTNEY JONATHAN WILLIAM; MOHUN STEPHEN JOHN ET AL

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

International class A45F3/04 A45F3/08 A45F3/10 A62B9/00 A62B9/04 B63C11/22

(IPC 8-9):

CPC: A45F2003/146 A45F3/047 A45F3/10 A62B9/04 B63C11/22 B63C2011/026

US class: 224/148.7 224/262 224/262S 224/272 224/627 224/627S 224/634 224/635 224/637 224/641 224/642 224/642S

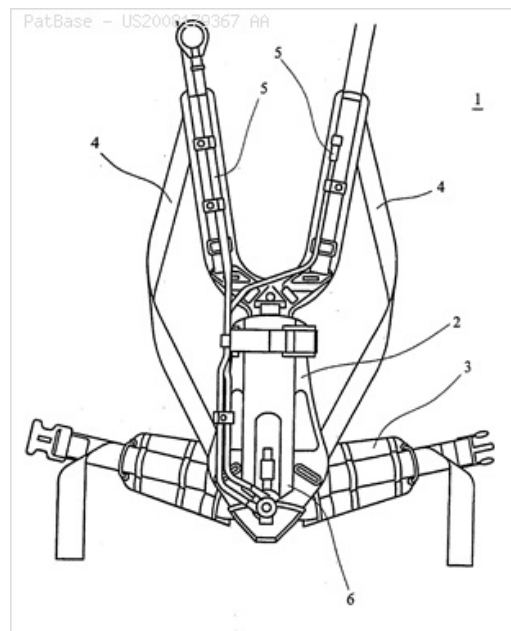
[Classification Explorer](#)

Cited documents: US2006289589 AA, US6637631 BB, US2008197163 AA, US2006131355 AA, US6070776 A, US5427290 A, US2557313 A, US2009127301 AA, US3090621 A, US2007090137 AA, US2197427 A, US6209111 BA, US4676418 A, US6290111 BA, US2002104862 AA, GB2059750 A1, WO9730609 A1, US6290111,

Forward Citations: US2019350347 AA, US10806238 BB, WO19077549 A3, US9033616 BB, US2015013673 AA, US2014027481 AA, US8172117 BB, WO20236128 A1, US10485690 BB, US9271559 BB, US2013283492 AA, CN111246921 A, EP2248556 B1, CN104114240 B, CN104114240 A, CN101879358 A, EP2248556 A1,

Abstract:

A harness (10) for use with breathing apparatus comprises: a back plate (11); two support straps (13, 14), each of which extends between an upper part of the back plate and a lower part of the back plate, the two support straps being disposed on opposite sides of a central axis of the back plate (11); and a tension equalising mechanism (15, 16; 30, 32) connected to the support straps and being arranged such that, when tension is applied to a first strap (13, 14) of the support straps, it acts to transfer the tension to the other, second strap (13, 14), thereby increasing the tension in the second strap, the tension equalising mechanism being resiliently biased towards a neutral configuration.



26) Family number: 51638559 (JP2012130471 A2)

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Title: MOUNTING STRUCTURE OF SHOULDERING BELT

Priority: JP20100283964 20101221

Family:

Publication number	Publication date	Application number	Application date
JP2012130471 A2	20120712	JP20100283964	20101221
JP5660881 B2	20150128	JP20100283964	20101221

Probable Assignee: M AND K YOKOYA KK

Assignee(s):(std): M AND K YOKOYA KK

Inventor(s):(std): YOKOYA MASAOKI

International class A45C3/02 A45F3/04
(IPC 8-9):

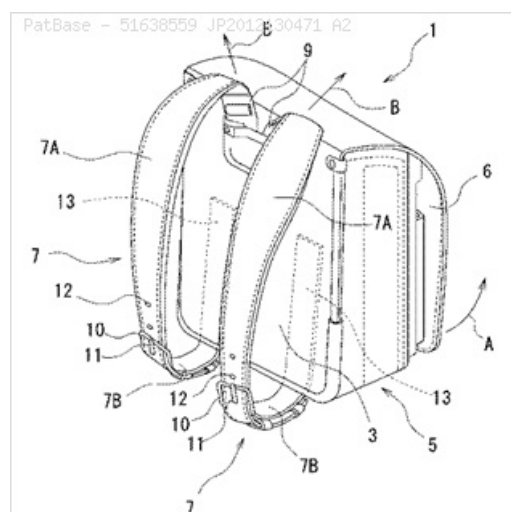
[Classification Explorer](#)

Cited documents: US6053382, US5509589, JP9010036, JP2008054940, JP2008544779, JP57072921 U1, US6053382 A, US5509589 A, JP2008544779 T2, JP9010036 A2, JP57072921 U, JP2008054940 A2, JP3133399 U,

Forward Citations: CN109310198 A, CN107218191 A,

Abstract:

PROBLEM TO BE SOLVED: To improve detaching/attaching operability of a shouldering belt when shouldering or removing a knapsack body of a satchel, a rucksack, a day bag or the like on/from a back of a human, and to secure an excellent mounting condition in which the whole of a back support part of the knapsack body adheres to the back of the human. **SOLUTION:** The satchel 1 includes: a back support part 3 which touches the back of a human by an adhering condition; and a knapsack body 5 which has a housing part in the inside. The satchel 1 includes one right and left pair of back load belts 7 which are turned to be hung at right and left shoulders of the human 2 so that the knapsack body 5 is loaded on the back, supports the upper end part of the back support part 3 of an upper portion of the knapsack body 5, and supports the lower end side of the back support part 3 of the knapsack body 5.



27) Family number: 43255685 (US2009127301 AA)

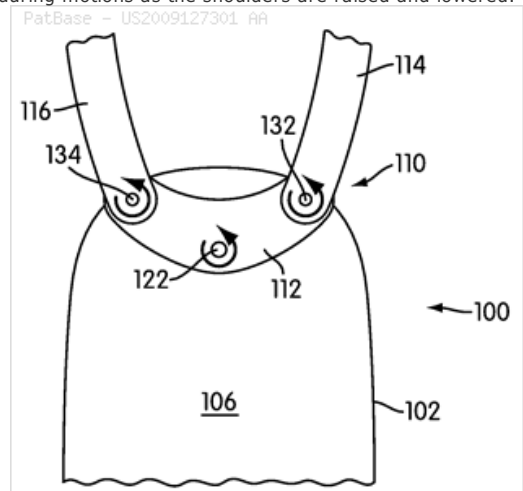
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Title: SELF STABILIZING BACKPACK
Priority: US20070942186 20071119 US20110177588 20110707
Family:

Publication number	Publication date	Application number	Application date
US2009127301 AA	20090521	US20070942186	20071119
US7997466 BB	20110816	US20070942186	20071119
US2011259935 AA	20111027	US20110177588	20110707
US8505791 BB	20130813	US20110177588	20110707

Probable Assignee: NIKE INC
Assignee(s):(std): CROSS TORY M ; FIDRYCH PAUL J ; HELMSWORTH CHRISTOPHER M ; NIKE INC
Inventor(s):(std): CROSS TORY M ; FIDRYCH PAUL J ; HELMSWORTH CHRISTOPHER M
Agent(s): PLUMSEA LAW GROUP LLC
International class (IPC 8-9): A45F3/00 A45F3/04
CPC: A45F3/047 A45F3/12
US class: 224/197 224/578 224/604 224/628 224/631 224/634 224/641
[Classification Explorer](#)
Cited documents: US2009127301 AA, WO07003104 A1, JP2006068454 A2, JP2000004918 A2, US6871766 B1, US6651853 B1, US6637631 B1, US6474523 B1, US6460746 BA, US778636 A, US3707109 A, US6651853 BB, US6474523 BB, US4356942 A, US6637631 BB, US6305535 BA, US6290111 BA, US2008197163 AA, US2006175365 AA, US6607108 BB, US385429 A, US6568575 BA, US3885722 A, US4660751 A, US6871766 BB, US6687963 BA, US2006011689 AA, US5483860 A,
Forward Citations: US9826816 BA, US2016081460 AA, US10892626 BB, US10230077 BB, US2016317884 AA, USD798600 S1, USD778051 S1, US2015041512 AA, US9220333 BB, US2015144675 AA, US2014027481 AA, US8240531 BB, US2012000948 AA, US2010308095 AA, US10617194 BB, US2018220779 AA, US2008179367 AA, US8505791 BB, US8172117 BB, US8020738 BB,

Abstract:
A backpack with a self stabilizing shoulder strap system is disclosed. The backpack includes two shoulder straps, an intermediate member, and a bag. The bag is configured to pivot about a first connector associated with the intermediate member. The shoulder straps are configured to pivot about connectors associated with the intermediate member. The configuration of the shoulder strap system allows for the bag to remain substantially vertical during motions as the shoulders are raised and lowered.



28) Family number: 76271354 (WO19201358 A1)

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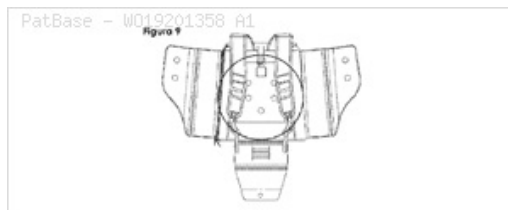
Title: ANTI-THEFT REAR MECHANISM WITH A MAGNETIC OPENING SYSTEM AND A SYSTEM OF SELF-ADJUSTING STRAPS, FOR OBJECTS INTENDED TO HOLD ELEMENTS, SUCH AS BRIEFCASES, BACKPACKS OR SUITCASES
Priority: CO20180004107 20180417 WO2019CO00003 20190305
Family:

Publication number	Publication date	Application number	Application date
CA3097228 AA	20201015	CA20193097228	20190305
CO20180004107 A1	20191021	CO20180004107	20180417
WO19201358 A1	20191024	WO2019CO00003	20190305

Probable Assignee: FRENCHIE GROUP S A S
Assignee(s):(std): FRENCHIE GROUP S A S
Assignee(s): MEJIA PLATA CAMILO
Inventor(s):(std): MEJIA PLATA CAMILO
Agent(s): MACLEAN DOUGLAS J; TOBAR BARRETO MANUEL EDUARDO
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 JO JP KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW
International class (IPC 8-9): A45C13/18 A45F3/04 E05B73/00
CPC: A45C13/18 A45F3/04 E05B73/00
[Classification Explorer](#)
Cited documents: CN103876437 A, US2011031294 AA, CN202552602 U, US9634278 BB, EP0122764 A2, FR2677235 A1, EP1457131 B1, FR2011050397, US5779036 A, US2018055199 AA, WO0110261 A1, US2197427 A,

Abstract:

The invention relates to a rear protection mechanism with a magnetic opening system, intended for objects used to hold elements, such as, for example, briefcases, backpacks or suitcases, said mechanism acting as an anti-theft system for rear, side and/or lower pockets on said objects. The rear mechanism with a magnetic opening system (positioned against the user's body) consists of flaps with non-visible magnets located inside said flaps, which, upon coming into contact with other magnets located on the rear surface of the object, generate an attraction that secures the flaps, such as to prevent third parties from gaining access to pockets on the outside of the briefcase, backpack or suitcase. The invention also relates to a system of self-adjusting straps that allow the weight or load contained in the element-holding object, such as a briefcase, backpack or suitcase, to be distributed evenly and automatically over the user's two shoulders, ensuring that the object is perfectly balanced and that it fits ergonomically on the user's back.

**29) Family number: 68908792** (WO18050982 A1)

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Title: HARNESS FOR CARRYING AN ELECTRIC BATTERY AND POWER SUPPLY DEVICE**Priority:** FR20160058493 20160913 WO2017FR52293 20170828

Family:	Publication number	Publication date	Application number	Application date
	CN109688870 A	20190426	CN201780055942	20170828
	EP3512375 A1	20190724	EP20170793685	20170828
	EP3512375 B1	20201230	EP20170793685	20170828
	FR3055781 A1	20180316	FR20160058493	20160913
	FR3055781 B1	20180907	FR20160058493	20160913
	WO18050982 A1	20180322	WO2017FR52293	20170828

Probable Assignee: PELLENC SA**Assignee(s):(std):** PELLENC SA**Assignee(s):** PELLENC ; PELLENC SOCIETE ANONYME**Inventor(s):(std):** FORTIER FREDERIC ; FORTIER FREDERIC ; GILBERT PHILIPPE ; GILBERT PHILPPE**Inventor(s):** FREDERIC FORTIER ; PHILIPPE GILBERT**Agent(s):** CABINET MAREK; WEBER ETIENNE; WEBER ETIENNE NICOLAS

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 JO JP KE KG KH 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

International class (IPC 8-9): A45F3/14**CPC:** A45F3/14[Classification Explorer](#)

Cited documents: US7946460 BB, US8991671 BB, WO08147256 A1, WO14140519, WO0041589, US2006151559, US5449102 A, US7946460, US8991671, WO08147256, CN205040704 U, EP2810579 A1, WO14140519 A1, EP2380427 A1, US2006151559 AA, WO0041589 A2,

Forward Citations: EP3756505 A1,**Abstract:**

The invention concerns a harness (1) for carrying at least one electric battery for a hand-held power tool on the back, comprising - a battery attachment plate (10), - a lumbar support appendage (30) provided with a waistband (36, 36a, 36b), - at least one rigid spacer (40), rigidly connected to the lumbar support appendage and connecting the lumbar support appendage to the battery attachment plate. According to the invention, the battery attachment plate is mounted slidably on the spacer, along a spacer axis (41), between a distal position separated from the lumbar appendage and a proximal position close to the lumbar support appendage, the harness comprising a lock (42) for immobilising the battery attachment plate (10) on the rigid spacer (40) in at least one of the proximal position, the distal position, and at least one intermediate position between the proximal position and the distal position. Applicable in the field of carrying batteries and tools.

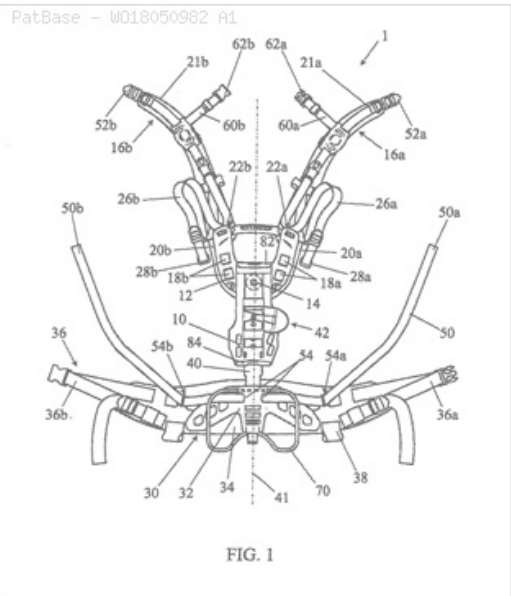


FIG. 1

30) Family number: 64525251 (US2018184787 AA)

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Title: BACKPACK WITH ADJUSTABLE SHOULDER STRAPS
Priority: US20150184582P 20150625 WO2016L50675 20160624 US20160738958 20160624
Family:

Publication number	Publication date	Application number	Application date
CN107708478 A	20180216	CN201680037087	20160624
CN107708478 B	20191105	CN201680037087	20160624
EP3294087 A1	20180321	EP20160813858	20160624
EP3294087 A4	20190109	EP20160813858	20160624
EP3294087 B1	20200318	EP20160813858	20160624
IL256518 A0	20180228	IL20160256518	20160624
JP2018522696 T2	20180816	JP20180518804T	20160624
KR20180020996 A	20180228	KR20177037555	20160624
US10342318 BB	20190709	US20160738958	20160624
US2018184787 AA	20180705	US20160738958	20160624
WO16207896 A1	20161229	WO2016L50675	20160624

Probable Assignee: STARRY LTD
Assignee(s):(std): MENACHEM PINHAS WINFIELD ; STARRY LTD ; WEINFELD MENACHEM PINHAS ; WINFIELD MENACHEM PINHAS
Inventor(s):(std): MENACHEM PINHAS WINFIELD ; WEINFELD MENACHEM PINHAS ; WINFIELD MENACHEM PINHAS
Agent(s): GRAYROBINSON PA; LOO CHI CHING; MINCH MAXWELL L; ZANGO ESHEL RONIT ET AL
Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC 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

International class A45C A45C13/30 A45C7/00 A45F3/04 A45F3/08
(IPC 8-9):

CPC: A45C13/30 A45F3/047

US class: 1/1 224/627

[Classification Explorer](#)

Cited documents: US9591910 BB, US9462875 BB, US9119459 BB, US8544709 BB, US7946460 BB, US7232048 BB, US7028873 BA, US5806740 A, US5449102 A, US5358274 A, US5165719 A, US5004135 A, JP2016513996 T2, WO15166224 A1, JP9010036 A2, US5503314 A, KR20130009108 A, KR20140066951 A, TWM477201 Y, CN203913832 U, FR2664139 A1, DE102014006194 A1

Forward Citations: GB2223930 A1, US5346419 A, US8678258 BA, GB2235617 A1, US4706993 A, US10849410 BB,

Abstract:
This invention is directed to a driving screw based adjusting mechanism for adjusting the shoulder straps length of a backpack for fitting the position of the backpack to the torso length of a wearer, said adjusting mechanism comprises: (a) a shell like element configured to be attached to the back wall of the backpack for holding a driving screw and a slider; (b) a driving screw connected to a key, said key is configured to allow rotation of the driving screw clockwise and counter clockwise; and (c) a slider configured to be attached to a shoulder straps belt of the backpack and further to be latched onto the shell like element, with the driving screw threaded within it; wherein, rotation of the driving screw clockwise and counter clockwise functionally slides the slider upward and downward along the shell like component together with the shoulder straps belt of the backpack that are attached to the slider, thereby enabling elongation/shortening of the backpack shoulder straps length. This invention is further directed to a backpack having this shoulder straps adjusting mechanism.

