



- (51) **International Patent Classification:**
A62B 18/08 (2006.01) *A41D 13/11* (2006.01)
- (21) **International Application Number:**
PCT/US2014/012500
- (22) **International Filing Date:**
22 January 2014 (22.01.2014)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
13/757,337 1 February 2013 (01.02.2013) US
- (71) **Applicant:** **3M INNOVATIVE PROPERTIES COMPANY** [US/US]; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).
- (72) **Inventors:** **COWELL, Michael J.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **MITTELSTADT, William A.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **RAINES, Carl W. III**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **SKULLEY, Thomas G.**; 3M Center, Post Office Box 33427,

Saint Paul, Minnesota 55133-3427 (US). **ABEL, Nathan A.**; 3M Center, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US). **ERICSSON, Fredrik**; Box 14004, Missionsvägen 24, S-16733 Bromma (SE). **MERT, Aydin**; Box 14044, Missionsvägen 24, S-16733 Bromma (SE). **MICHAEL, August**; Box 14004, Missionsvägen 24, S-16733 Bromma (SE). **JUHLIN, Oskar**; Box 14004, Missionsvägen 24, S-16733 Bromma (SE).

- (74) **Agents: DEUTSCH, Craig A.** et al.; 3M Center Office of Intellectual Property Counsel, Post Office Box 33427, Saint Paul, Minnesota 55133-3427 (US).

- (81) Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LD, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

[Continued on next page]

- (54) Title:** RESPIRATORY PROTECTION DEVICE HARNESS ASSEMBLY

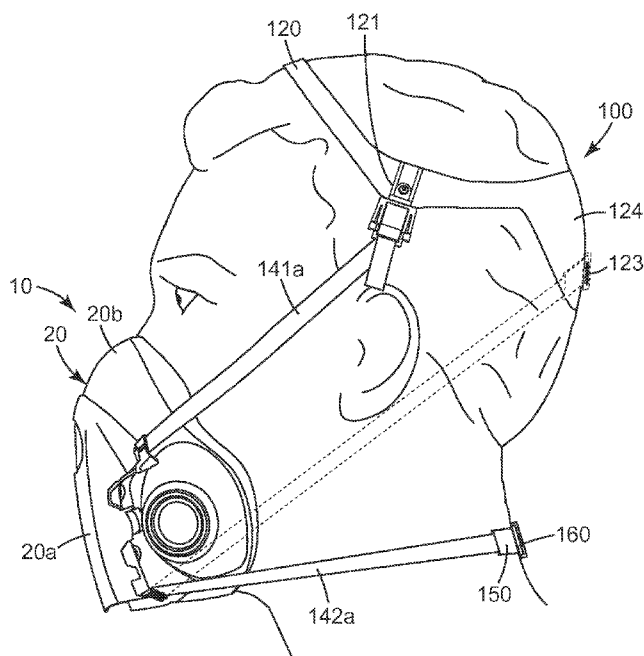


FIG. 1

- (57) Abstract:** A harness assembly (100) for a respiratory protection device (10) is provided. In an exemplary embodiment, the harness assembly includes a strap support (120) having an attachment point (123), a first strap (142a) having a first strap attachment element (150), and a second strap (142b) having a second strap attachment element (160), wherein the first strap attachment element is attachable to the second strap attachment element and attachable to the attachment point of the strap support, and the first and second straps are positionable between the first configuration in which the first strap attachment element is attached only to the second attachment element and a second configuration in which the first strap attachment element is attached to the second strap attachment element and the attachment point of the strap support.



(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:

8 January 2015

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/012500

A. CLASSIFICATION OF SUBJECT MATTER
INV. A62B18/08
ADD. A41D13/11

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A41D A61M A62B

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A A	DE 642 683 C (DRAEGERWERK HEINR U BERNH) 25 February 1937 (1937-02-25) the whole document ----- US 2011/220115 A1 (CASTIGLIONE DAVID M [US] ET AL) 15 September 2011 (2011-09-15) figures paragraphs [0028], [0029], [0031] -----	1-10, 18-23 11-17,24 1-24



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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

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

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

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

"&" document member of the same patent family

Date of the actual completion of the international search

17 November 2014

Date of mailing of the international search report

25/11/2014

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Nehrdich, Martin

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2014/012500

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 642683	C	25-02-1937	NONE

US 2011220115	A1	15-09-2011	AU 2011224670 A1 27-09-2012
			CA 2791688 A1 15-09-2011
			CN 102781521 A 14-11-2012
			EP 2544769 A2 16-01-2013
			JP 2013521865 A 13-06-2013
			KR 20130049180 A 13-05-2013
			RU 2012137181 A 20-04-2014
			US 2011220115 A1 15-09-2011
			WO 2011112401 A2 15-09-2011
