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(71) Applicant (for all designated States except US):
AUTOLIV DEVELOPMENT AB [SE/SE]; S-44783
Vårgårda (SE).

(72) Inventors; and

(71) Applicants (for US only): **HOLGERS, Alf** [SE/SE];
Saxebäcksvägen 45, S-44191 Alingsås (SE). **CAVELL,**
Christian [SE/DE]; Hofmarkstrasse 39c, 82152 Planegg
(DE). **STURK, David** [SE/SE]; Lövsåskogsgatan 14, S-

41320 Göteborg (SE). **BERNER, Magnus** [SE/SE]; Ar-
rendegatan 5, S-46241 Vänersborg (SE). **HOFFMAN,**
Lars [SE/SE]; Spätta 400, S-46463 Brålanda (SE).

(74) Agent: **AUTOLIV DEVELOPMENT AB**; Patent Depart-
ment, Wallentinsvägen 22, S-44783 Vårgårda (SE).

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[Continued on next page]

(54) Title: ARRANGEMENT FOR DISCONNECTION OR BYPASSING ELECTRIC EQUIPMENT

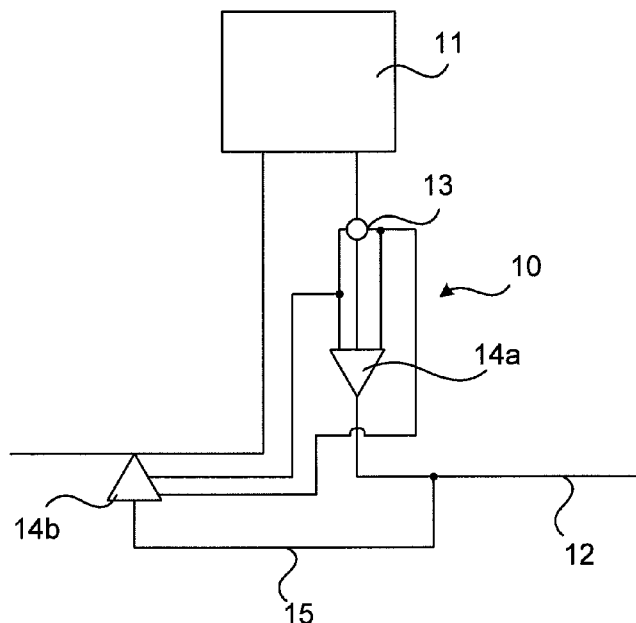


Fig. 2A

(57) Abstract: The invention relates to an arrange-
ment (10) for performing at least one of disconnecting
and bypassing electric equipment(11). The arrange-
ment (10) comprises a device (13) arranged to meas-
ure the electric property of a conductive path (12) to
which the electric equipment (11) is connected and to
transmit a control signal responsive to whether a
value of the measured signal fulfils a predetermined
threshold criteria. The arrangement (10) further com-
prises at least one switching element (14a, 14b) ar-
ranged to receive the control signal to perform at least
of one of disconnecting and bypassing the electric
equipment (11) from the conductive path(12), when
the predetermined threshold criteria is fulfilled.



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).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2014/050681

A. CLASSIFICATION OF SUBJECT MATTER IPC: see extra sheet According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC: B60L, H01H Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched SE, DK, FI, NO classes as above Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EPO-Internal, PAJ, 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	US 6333568 B1 (BITSCHKE OTMAR ET AL), 25 December 2001 (2001-12-25); column 4, line 36 - line 44; column 5, line 17 - line 35; figures 1,3	1-4, 13-16
Y	--	9, 17
X	US 20100127663 A1 (FURUKAWA KIMIHIKO ET AL), 27 May 2010 (2010-05-27); paragraphs [0027]-[0028]; figure 2 --	1-4, 13-16
X	US 20120212176 A1 (PARK JONG-DOO), 23 August 2012 (2012-08-23); paragraphs [0038]-[0040]; figure 1 --	1, 13
☒ 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 08-12-2014	Date of mailing of the international search report 09-12-2014	
Name and mailing address of the ISA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. + 46 8 666 02 86	Authorized officer Tomas Erlandsson Telephone No. + 46 8 782 25 00	

INTERNATIONAL SEARCH REPORTInternational application No.
PCT/SE2014/050681

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 20100305792 A1 (WILK MICHAEL D ET AL), 2 December 2010 (2010-12-02); figure 3 -- -----	9, 17

Continuation of: second sheet
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B60L 3/04 (2006.01)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2014/050681

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

US 6333568 B1 discloses an arrangement for disconnecting a vehicle battery (figs. 1 and 3). An operating current is measured and if a comparator (302) produces a signal indicating that a threshold value is exceeded, an emergency cutout (2) switch is opened (column 5, lines 17-23).

The invention according to independent claim 1 is disclosed by US 6333568 B1. The remaining claims form three groups of inventions:

.../...

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.: **1-4, 9, 13-17**

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

Continuation of: Box No. III

1: Claims 2-4, 9 and 13-17 relating to details of the measuring device (13) and signals caused by said device.

2: Claims 5-8 relating to a further device (16) for causing switching signals.

3: Claims 10-12 relating to properties of pyrotechnical switches.

The only common technical feature of the three groups of inventions is the arrangement according to claim 1. Since this feature is not novel, the three groups of inventions do not share a common technical feature avoiding prior art. Thus, a posteriori, inventions 1-3 lack unity of invention.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/SE2014/050681

US	6333568 B1	25/12/2001	DE	19837585 C1	20/04/2000
			EP	0980793 A2	23/02/2000
			JP	3194252 B2	30/07/2001
			JP	2000123673 A	28/04/2000
US	20100127663 A1	27/05/2010	CN	101740839 B	06/02/2013
			DE	102009053712 A1	17/06/2010
			JP	2010130768 A	10/06/2010
			KR	20100059685 A	04/06/2010
			KR	101086573 B1	23/11/2011
			US	8228037 B2	24/07/2012
US	20120212176 A1	23/08/2012	KR	20120095608 A	29/08/2012
US	20100305792 A1	02/12/2010	WO	2010138744 A3	22/09/2011