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(71) Applicant (for all designated States except US): **GENERAL ELECTRIC COMPANY** [US/US]; One River Road, Schenectady, NY 12345 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MOSGROVE, Isaac, J.** [—/US]; 3741 Hillview Drive SE, Salem, OR 97302 (US). **BRISKEY, Teri, Lynné** [US/US]; 39101 Military Road, Monmouth, OR 97361 (US). **BELLAMY,**

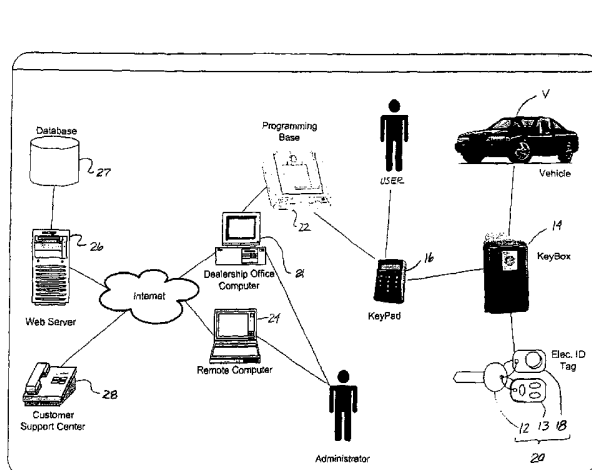
Dirk, L. [US/US]; 1642 Winter Street SE, Salem, OR 97302 (US). **BEEBE, Sean** [US/US]; 388 Ridgeview Drive, Keizer, OR 97303 (US). **WESTFALL, Scott, D.** [US/US]; 8052 Macleay Road SE, Salem, OR 97301 (US). **SINN, Dean** [US/US]; 6331 Sciam Road NE, Silverton, OR 97381 (US). **CHAPIN, Ron** [US/US]; 10391 Wheatland Road N, Gervais, OR 97026 (US). **KUENZI, Adam** [US/US]; 1657 Sonya Drive SE, Salem, OR 97301 (US). **LUEBEK, Jon, M.** [US/US]; 41500 Stayton-Scio Road, Stayton, OR 97383 (US). **CONDON, David** [US/US]; 584 Rose Street NE, Salem, OR 97301 (US).

(74) Agents: **GNIBUS, Michael, M.** et al.; General Electric Company, Patent Counsel, 3135 Easton Turnpike (W3C), Fairfield, CT 06828 (US).

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[Continued on next page]

(54) Title: MANAGING ACCESS TO PHYSICAL ASSETS



(57) Abstract: A centralized key management system (10) for controlling access to multiple vehicles (V) among multiple users includes vehicle keys (12, 20) for the respective vehicles, individual locking key containers (14) for the vehicles, electronic access devices (16) for assignment to the users and a database (27). Each of the containers has a storage area (30) within which a vehicle key or keys for one vehicle can be stored operable to unlock key containers if authorized. The access devices are operable to unlock the key containers if authorized. The access devices are programmable with information from the database such that an assigned access device is programmed with a specific user's access privileges for obtaining access to one or more of the vehicles in the system.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/02635

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04Q 1/00; G06F 17/00

US CL : 340/5.2, 5.23, 5.27, 5.28, 5.73, 568.1; 235/375

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)

U.S. : 340/5.2, 5.23, 5.27, 5.28, 5.73, 568.1; 235/375

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,791,172 A (DEIGHTON et al.) 11 August 1998 (11.08.1998), Col. 2, lines 57 - 58; Col. 3, lines 26 - 67; Col. 4, lines 1 - 6; Col. 5, lines 23 - 47.	1,2,6
Y	US 6,472,973 B1 (HAROLD et al.) 29 October 2002 (29.10.2002), Col. 3, lines 56 - 62; Col. 7, lines 53 - 67; Col. 8, lines 1 - 16).	1-22,25-32,35-37,40-50
Y	US 5,815,557 A (LARSON) 29 September 1998 (29.09.1998), Col. 2, lines 29 - 34; Col. 3, lines 66 - 67; Col. 4, lines 1 - 7; Col. 8, lines 22 - 26).	1,3,5,6
Y	US 5,475,375 A (BARRETT et al.) 12 December 1995 (12.12.1995), Col. 2, lines 54 - 62; Col. 3, lines 27 - 41.	1,4,6
Y	US 6,131,808 A (PIRES et al.) 17 October 2000 (17.10.2000), Col. 4, lines 56 - 57; Col. 5, lines 27 - 64; Col. 4, lines 20 - 24; Col. 7, lines 15 - 18; Col. 6, lines 1 - 10; Col. 8, lines 22 - 43; Col. 9, lines 31 - 41.	6-22,25-32,35-37,40-50
Y	US 5,280,518 A (DANLER et al.) 18 January 1994 (18.01.1994), Col. 6, lines 11-17 and 64-68; Col. 7, lines 1-7 and 56-68; Col. 8, lines 1-3; Col. 10, lines 65-68; Col. 11, lines 1-47; Col. 12, lines 36-55 and 64-68; Col. 14, lines 22-68; Col. 15, lines 1-60; Col. 16, lines 20-28	7-22,25-32,35-37,40-50
Y	US 5,373,282 A (CARTER) 13 December 1994 (13.12.1994), Fig. 2; Col. 6, lines 33 - 45; Col. 8, lines 22 - 50.	10

☒ 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 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

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Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Clara Yang

Telephone No. (703) 305-4700

INTERNATIONAL SEARCH REPORT

PCT/US04/02635

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 6,075,441 A (MALONEY) 13 June 2000 (13.06.2000), Col. 22, lines 59-67 and Col. 23, lines 1-7	22
Y	US 2002/0024537 A1 (JONES et al.) 28 February 2002 (28.02.2002), sections [0034] - [0039]	35-37

INTERNATIONAL SEARCH REPORT

application No.

PCT/US04/02635

Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

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

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

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

Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

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 an additional fee, this Authority did not invite payment of any additional fee.
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.:

Remark on Protest

☐
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-34 and 40-50, is drawn to a key management system comprising of a vehicle lock box, which stores a vehicle key having an electronic identification tag, an electronic access device for communicating with and unlocking the lock box.

Group II, claim(s) 35 - 37, is drawn to a system having an organizational hierarchy for assigning user privileges.

Group III, claim(s) 38 and 39, is drawn to the locking means (i.e., the arrangement of solenoids, moving locking members, a DC power source, a switch, and a diode) of a lockbox.

The inventions listed as Group II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: A special feature of Group I is an electronic key for accessing a key container, wherein the electronic key is able to communicate with a key tag via the key container. The inventions of Group II and III fail to require this special feature.