



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : G06K 9/20, A61B 5/117, F41A 17/06</p>	<p>A3</p>	<p>(11) International Publication Number: WO 96/24283</p> <p>(43) International Publication Date: 15 August 1996 (15.08.96)</p>
<p>(21) International Application Number: PCT/US96/01615</p> <p>(22) International Filing Date: 29 January 1996 (29.01.96)</p> <p>(30) Priority Data: 08/382,220 31 January 1995 (31.01.95) US</p> <p>(71) Applicant: ARETE' ASSOCIATES INC. [US/US]; Suite 420, 5000 N. Van Nuys Boulevard, Sherman Oaks, CA 91403 (US).</p> <p>(72) Inventors: BOWKER, J., Kent; Indian Rock Lane, Essex, MA 01929 (US). LUBARD, Stephen, C.; 4812 Don Juan Place, Woodland Hills, CA 91364 (US).</p> <p>(74) Agent: LIPPMAN, Peter, I.; 4385 Ocean View Boulevard, Montrose, CA 91020 (US).</p>		<p>(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 9 January 1997 (09.01.97)</p>
<p>(54) Title: FINGERPRINT-ACQUISITION APPARATUS FOR ACCESS CONTROL; PERSONAL WEAPON AND OTHER SYSTEMS CONTROLLED THEREBY</p>		
<p>(57) Abstract</p> <p>At a first end of an optic-fiber prism assembly are fiber terminations to contact a relieved surface, e.g. finger (stabilized by a handgrip). In a region where fiber diameter is essentially constant with longitudinal position, light enters the prism, crosses the fibers and enters individual fibers through their sidewalls, lighting the terminations. To allow crosslighting of the assembly, the fiber-optic numerical aperture (NA) is small: preferably not exceeding one-half. Due to fingerprint etc. detail, fractions of light pass along the fibers; at the assembly second end a detector responds with an electrical-signal array based on the surface relief. The signals are processed to check finger etc. identity and applied to control access to a personal weapon, other equipment, facilities, data, or a money service. FTIR ("frustrated total internal reflection") bright- and dark-field versions have various benefits. For use of small, low-cost detectors - and/or internal-mirror versions that light the finger straight-on - the assembly has a separate element, e.g. a high-NA fiber-optic taper with extramural absorption or "EMA" material (no entry light crosses it). For a weapon, a unitary antibypassing module (which matches a weapon port, and must be present) holds part of the access-control and firing systems. Bullets etc. fire only on a special signal from the module.</p>		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	GB	United Kingdom	MW	Malawi
AT	Austria	GE	Georgia	MX	Mexico
AU	Australia	GN	Guinea	NE	Niger
BB	Barbados	GR	Greece	NL	Netherlands
BE	Belgium	HU	Hungary	NO	Norway
BF	Burkina Faso	IE	Ireland	NZ	New Zealand
BG	Bulgaria	IT	Italy	PL	Poland
BJ	Benin	JP	Japan	PT	Portugal
BR	Brazil	KE	Kenya	RO	Romania
BY	Belarus	KG	Kyrgystan	RU	Russian Federation
CA	Canada	KP	Democratic People's Republic of Korea	SD	Sudan
CF	Central African Republic	KR	Republic of Korea	SE	Sweden
CG	Congo	KZ	Kazakhstan	SG	Singapore
CH	Switzerland	LI	Liechtenstein	SI	Slovenia
CI	Côte d'Ivoire	LT	Lithuania	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LR	Liberia	SZ	Swaziland
CS	Czechoslovakia	LT	Lithuania	TD	Chad
CZ	Czech Republic	LU	Luxembourg	TG	Togo
DE	Germany	LV	Latvia	TJ	Tajikistan
DK	Denmark	MC	Monaco	TT	Trinidad and Tobago
EE	Estonia	MD	Republic of Moldova	UA	Ukraine
ES	Spain	MG	Madagascar	UG	Uganda
FI	Finland	ML	Mali	US	United States of America
FR	France	MN	Mongolia	UZ	Uzbekistan
GA	Gabon	MR	Mauritania	VN	Viet Nam

INTERNATIONAL SEARCH REPORT

Intern al Application No

PCT/US 96/01615

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 6 G06K9/20 A61B5/117 F41A17/06

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 6 G06K F41A

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 practical, 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.
X	DE,A,44 04 918 (MITSUBISHI ELECTRIC CORP) 18 August 1994	1-3,6, 12,13, 41-43
Y	see column 9, line 40 - column 12, line 48; figures 3-9,14 ---	23-25, 33-40
Y	US,A,4 467 545 (SHAW JR FREDERIC A) 28 August 1984 cited in the application	23-25, 33-40
A	see the whole document ---	44
A	US,A,3 906 520 (PHILLIPS BRIAN G) 16 September 1975 -----	

Further documents are listed in the continuation of box C.

Patent family members are listed in 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 document 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

18 November 1996

Date of mailing of the international search report

29.11.96

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
 NL - 2280 HV Rijswijk
 Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl,
 Fax: (+ 31-70) 340-3016

Authorized officer

Sonus, M

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 96/01615

Box I Observations where certain claims were found unsearchable (Continuation of item 1 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 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:

1. Claims 1-43 : Fingerprint image acquisition device, optical details.
 2. Claims 44-50: Personal weapon, control of "firing".
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.

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/US 96/01615

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-A-4404918	18-08-94	JP-A- 6300930 US-A- 5426296	28-10-94 20-06-95
-----	-----	-----	-----
US-A-4467545	28-08-84	NONE	
-----	-----	-----	-----
US-A-3906520	16-09-75	NONE	
-----	-----	-----	-----