

# Exhibit 1

US007162735B2

(12) **United States Patent**  
**Safa**

(10) **Patent No.:** **US 7,162,735 B2**  
(45) **Date of Patent:** **Jan. 9, 2007**

(54) **DIGITAL DATA PROTECTION  
ARRANGEMENT**

(75) Inventor: **John Aram Safa**, Nottingham (GB)

(73) Assignee: **Simplex Major Sdn.Bhd**, Selangor DE  
(MY)

(\*) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 932 days.

(21) Appl. No.: **09/905,571**

(22) Filed: **Jul. 13, 2001**

(65) **Prior Publication Data**

US 2002/0038428 A1 Mar. 28, 2002

(30) **Foreign Application Priority Data**

Jul. 18, 2000 (GB) ..... 0017481.3  
Feb. 7, 2001 (GB) ..... 0102982.6

(51) **Int. Cl.**  
**G00F 17/30** (2006.01)

(52) **U.S. Cl.** ..... **726/6; 726/21; 726/27**

(58) **Field of Classification Search** ..... 713/200,  
713/190-193; 726/3, 21, 27, 6  
See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

4,120,030 A	10/1978	Johnstone
4,525,599 A	6/1985	Curran et al.
4,633,388 A	12/1986	Chiu
4,634,807 A	1/1987	Chorley et al.
4,847,902 A	7/1989	Hampson
4,888,802 A	12/1989	Cooney
5,081,675 A	1/1992	Kittirutsunetorn
5,224,166 A	6/1993	Hartman, Jr.

5,666,411 A	9/1997	McCarty
5,982,887 A	11/1999	Hirofani
5,995,623 A	11/1999	Kawano et al.
6,006,328 A	12/1999	Drake
6,052,780 A	4/2000	Glover
6,185,686 B1	2/2001	Glover

**FOREIGN PATENT DOCUMENTS**

EP	0 191 162	2/1993
EP	0 727 746	8/1996
EP	0 768 601	4/1997
EP	0 706 118	3/2000
GB	2 140 592	11/1984
GB	2330 932	5/1999
WO	00/26791	5/2000
WO	01/08345	2/2001

**OTHER PUBLICATIONS**

e-NeXSh: achieving an effectively non-executable stack and heap via system-call policing Kc, G.S.; Keromytis, A.D.; Computer Security Applications Conference, 21st Annual Dec. 5-9, 2005 pp. 15.\*

(Continued)

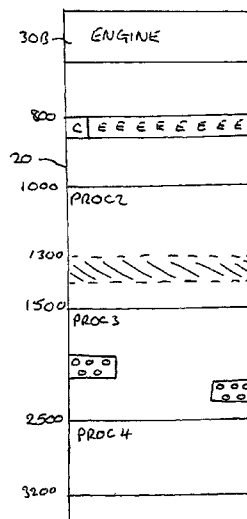
*Primary Examiner*—David Jung

(74) *Attorney, Agent, or Firm*—Smith-Hill and Bedell

(57) **ABSTRACT**

When software is initially loaded to RAM 20, an engine 30A is installed at the beginning of an otherwise empty area of RAM 20. When the protected application is called, the engine first creates a series of steps (FIG. 3D), including a CALL command to a protection block 38. On reaching the call 36, the protection block 38 is executed, to complete various security checks. If these are successful, step 2 is created and written over the call 36 so that execution of steps 2 and 3 can continue as normal. Consequently, the protected software (steps 1, 2 and 3) is not exposed to scrutiny unless the security checks have successfully been completed.

**40 Claims, 9 Drawing Sheets**



**US 7,162,735 B2**

Page 2

---

OTHER PUBLICATIONS

Managing system and active-content integrity Michener, J.R.; Acar, T.; Computer vol. 33, Issue 7, Jul. 2000 pp. 108-110.\*

A method for detecting obfuscated calls in malicious binaries Arun Lakhotia; Eric Uday Kumar; Venable, M.; Software Engineering, IEEE Transactions on vol. 31, Issue 11, Nov. 2005 pp. 955-968.\*

\* cited by examiner

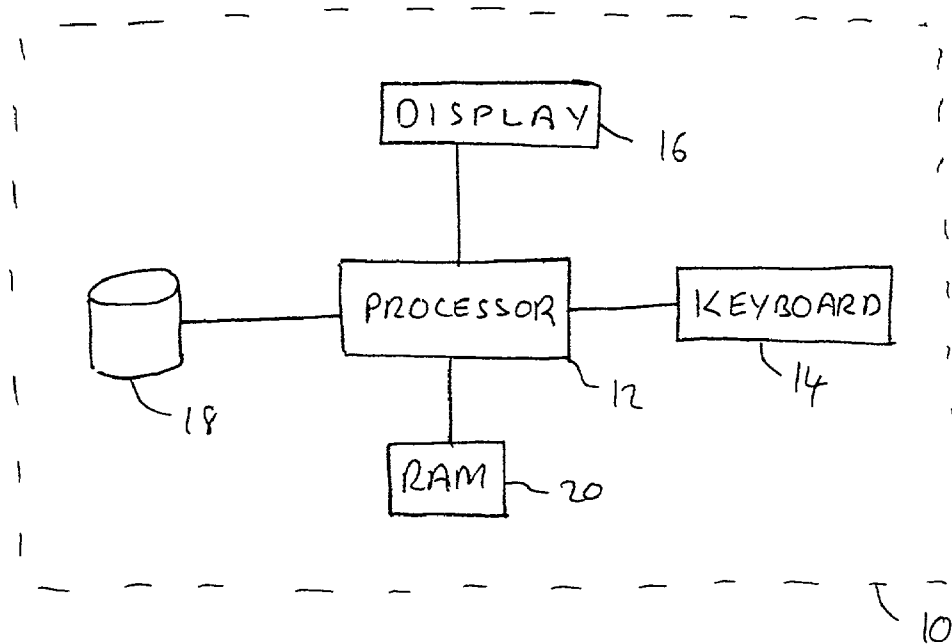


FIG. 1

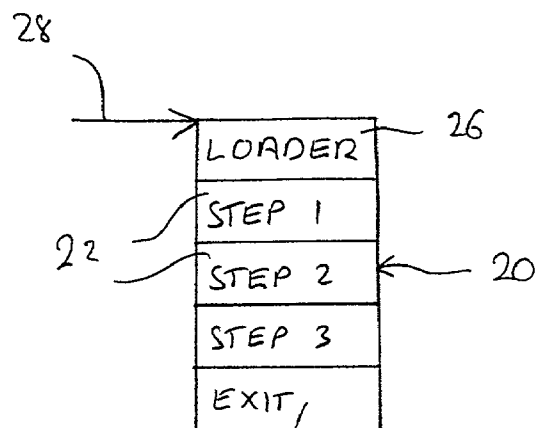


FIG. 2

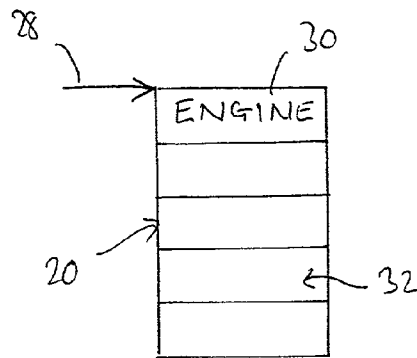


FIG 3a

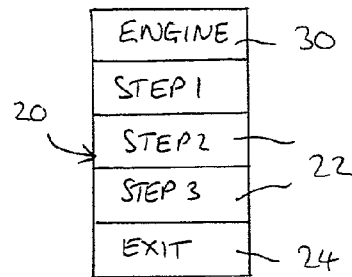


FIG 3b

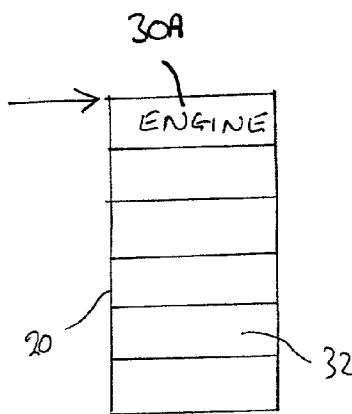


FIG 3c

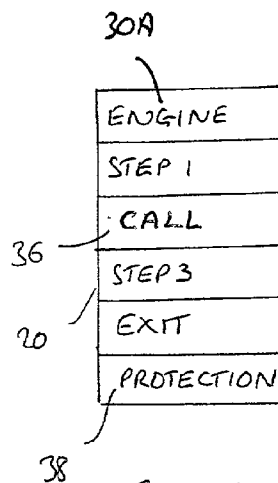


FIG 3d

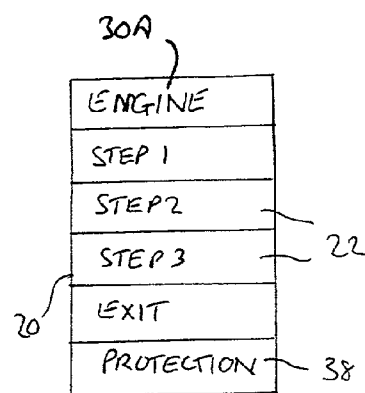


FIG 3e

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.