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Gruzman et al.

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(54) **SYSTEM AND METHOD FOR INSPECTING DYNAMICALLY GENERATED EXECUTABLE CODE**

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G06F 21/00 (2006.01)

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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,359,659 A *	10/1994	Rosenthal	....	726/24
5,974,549 A *	10/1999	Golan	....	726/23
5,983,348 A	11/1999	Ji	....	726/13
6,092,194 A *	7/2000	Touboul	....	726/24
6,167,520 A	12/2000	Touboul	....	726/23
6,272,641 B1	8/2001	Ji	....	726/24
6,934,857 B1	8/2005	Bartleson et al.	....	726/5
6,965,968 B1	11/2005	Touboul	....	711/118
7,203,934 B2 *	4/2007	Souloglou et al.	....	717/146
7,287,279 B2 *	10/2007	Bertman et al.	....	726/23
7,313,822 B2 *	12/2007	Ben-Itzhak	....	726/24
2002/0116635 A1 *	8/2002	Sheymov	....	713/200
2004/0133796 A1 *	7/2004	Cohen et al.	....	713/200
2004/0153644 A1 *	8/2004	McCorkendale et al.	....	713/156
2004/0158729 A1	8/2004	Szor	....	713/190
2005/0108562 A1 *	5/2005	Khazan et al.	....	713/200

(Continued)

OTHER PUBLICATIONS

Web printout from http://www.finjan.com/Content.aspx?id=1456, printed on Sep. 10, 2009, 6 pages.*

(Continued)

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(57)   **ABSTRACT**

A method for protecting a client computer from dynamically generated malicious content, including receiving at a gateway computer content being sent to a client computer for processing, the content including a call to an original function, and the call including an input, modifying the content at the gateway computer, including replacing the call to the original function with a corresponding call to a substitute function, the substitute function being operational to send the input to a security computer for inspection, transmitting the modified content from the gateway computer to the client computer, processing the modified content at the client computer, transmitting the input to the security computer for inspection when the substitute function is invoked, determining at the security computer whether it is safe for the client computer to invoke the original function with the input, transmitting an indicator of whether it is safe for the client computer to invoke the original function with the input, from the security computer to the client computer, and invoking the original function at the client computer with the input, only if the indicator received from the security computer indicates that such invocation is safe. A system and a computer-readable storage medium are also described and claimed.

46 Claims, 5 Drawing Sheets
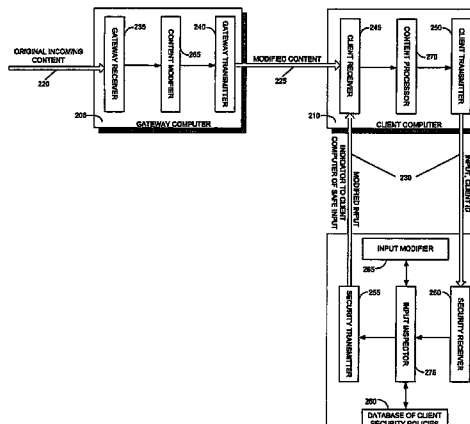
U.S. PATENT DOCUMENTS

2006/0015940	A1		1/2006	Zamir et al.	.... 726/22
2006/0161981	A1	*	7/2006	Sheth et al.	.... 726/22
2007/0016948	A1	*	1/2007	Dubrovsky et al.	.... 726/22

OTHER PUBLICATIONS

Web printout from http://www.finjan.com/secure_web_gateway.aspx, printed on Sep. 10, 2009, 7 pages.*

Mark LaDue, "Hostile Applets Home Page", 6 pages, printed Sep. 10, 2009.*

Mark LaDue, "The Rube Goldberg Approach to Java Security", 1998, 9 pages.*

Mark LaDue, "Drowning in the Surf: A Review of Finjan Software's SurfinShield 2.0", 1997, 6 pages.*

Mark LaDue, "With Trousers Down and Duke Exposed: How Finjan Software Handles Criticism", 1997, 5 pages.*

Huang et al, "Web Application Security Assessment by Fault Injection and Behavior Monitoring", ACM, 2003, 12 pages.*

"Vital Security Web Applicance", unknown author, unknown date, 7 pages.*

International Search Report and Written Opinion for Application No. PCT/IL06/01430, dated Jul. 17, 2008, 9 pp.
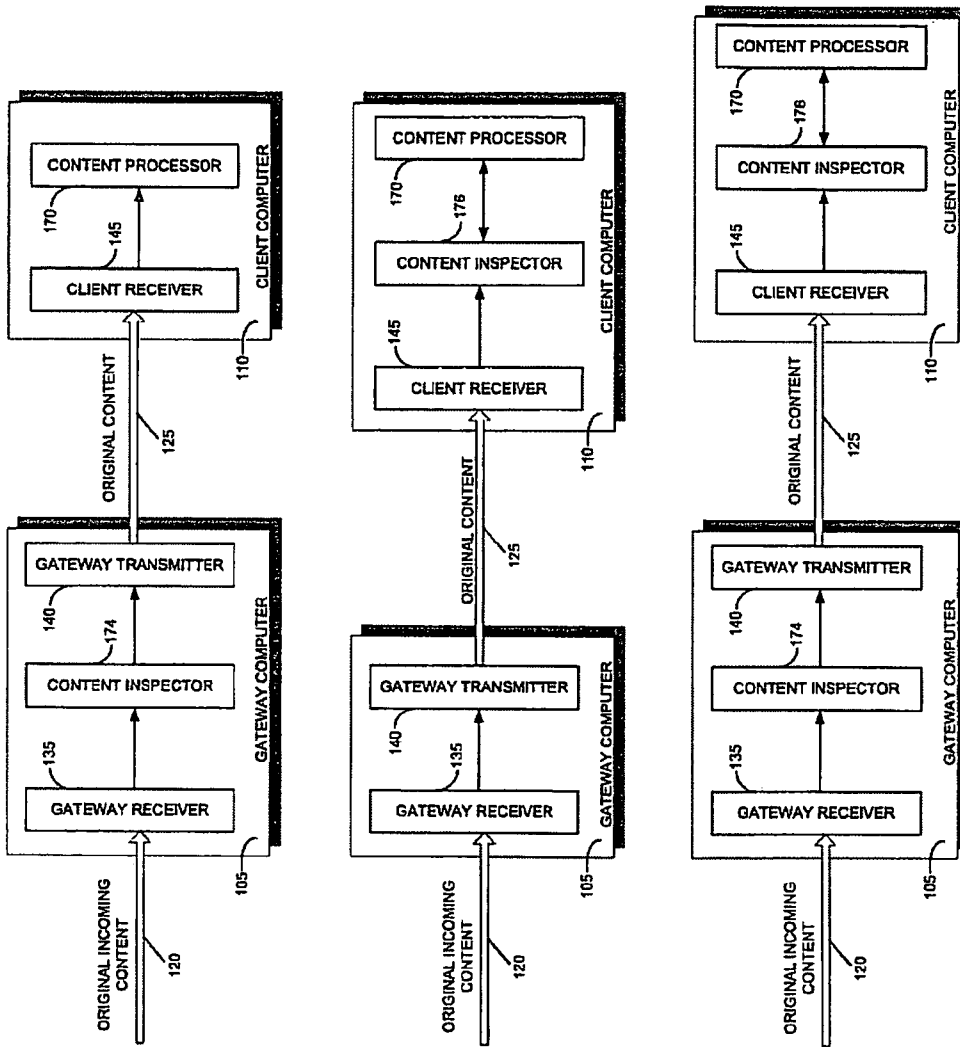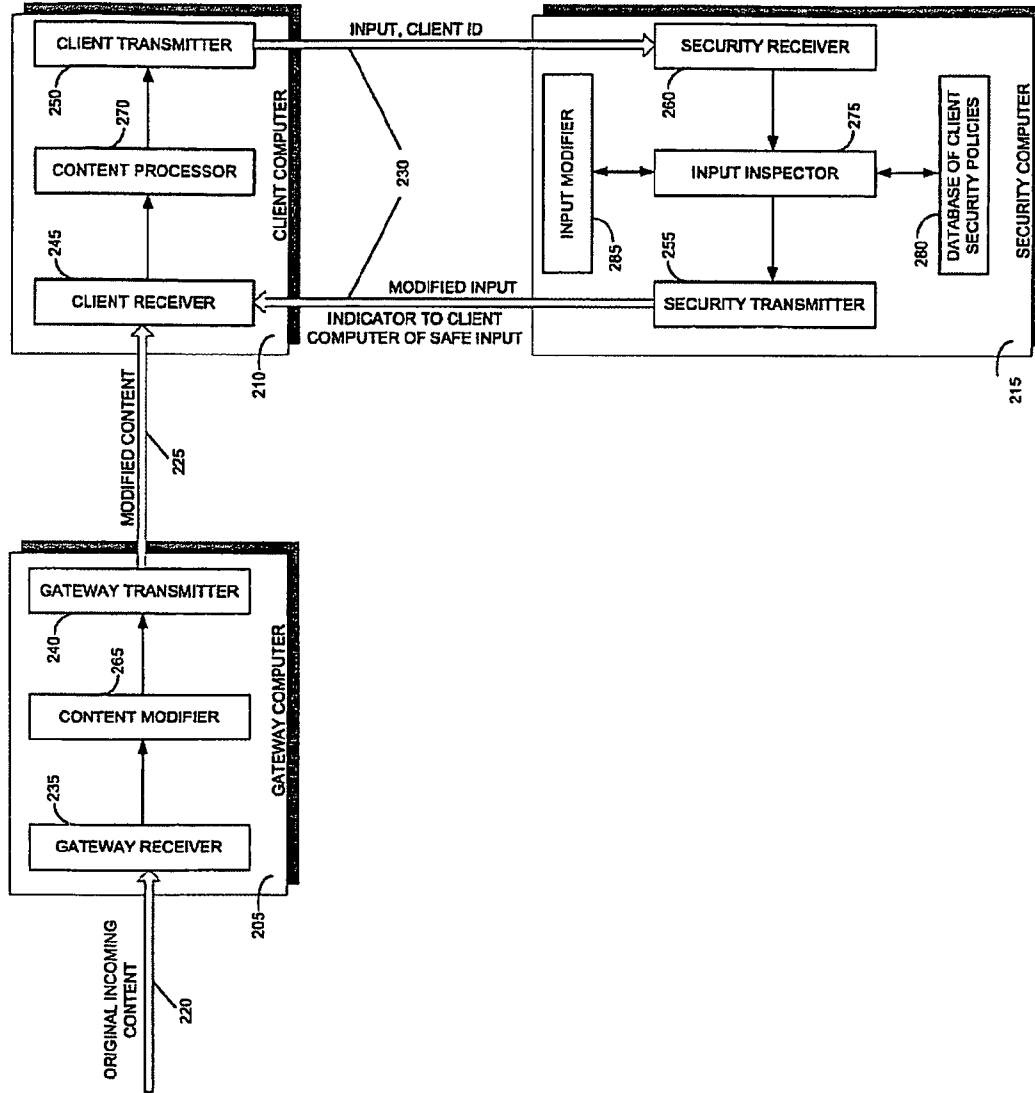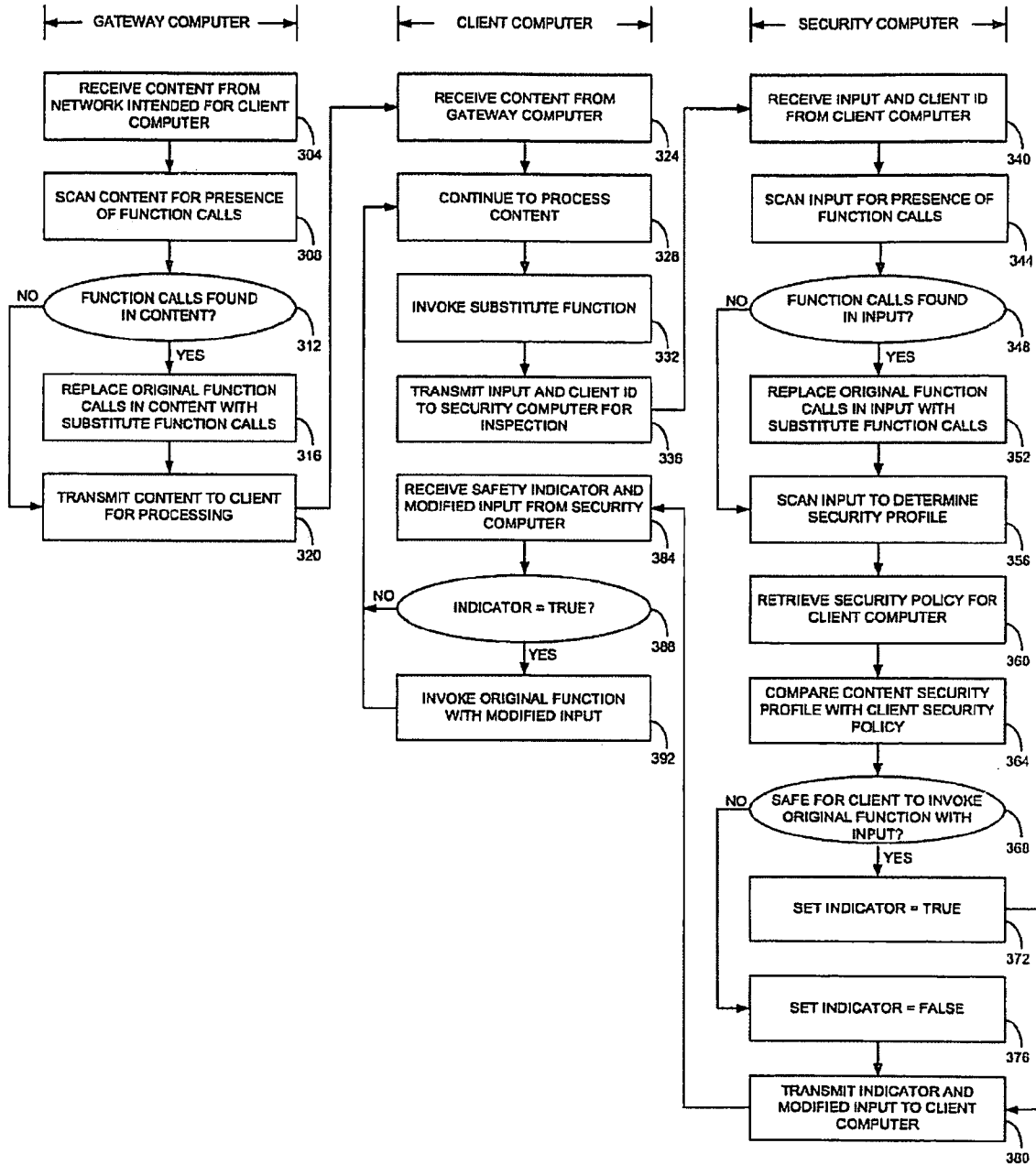
* cited by examiner

FIG. 1
(PRIOR ART)

FIG. 2

FIG. 3

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