US005398196A

United States Patent [19]

Chambers

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[45] Date of Patent: Mar. 14, 1995

[54] **METHOD AND APPARATUS FOR DETECTION OF COMPUTER VIRUSES**

[76] Inventor: **David A. Chambers**, 3655 Eastwood Cir., Santa Clara, Calif. 95054

[21] Appl. No.: **99,368**

[22] Filed: **Jul. 29, 1993**

[51] **Int. Cl.**[6] **G06F 15/20**

[52] **U.S. Cl.** **364/580**; 364/550; 364/578; 364/579; 395/500

[58] **Field of Search** 364/550, 578, 579, 580, 364/286.4; 371/16.2, 19; 395/500

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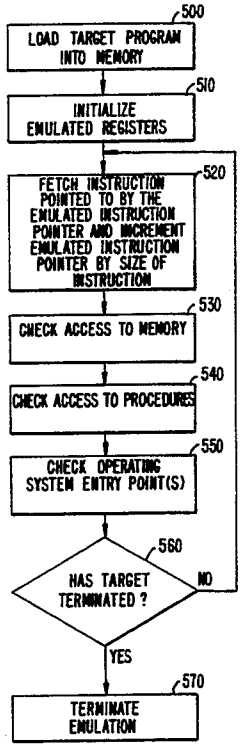
Attorney, Agent, or Firm—Townsend and Townsend Khourie and Crew

[57] **ABSTRACT**

A behavior analyzing antivirus program detects viral infection of a target program by emulating the execution of the target program and analyzing the emulated execution to detect viral behavior. The antivirus monitor program contains both variables corresponding to the CPU's registers and emulation procedures corresponding to the CPU's instructions. The target program is loaded into memory and its execution is emulated by the antivirus monitor program. Intelligent procedures contained in the monitor program are given control between every instruction emulated so as to detect aberrant or dangerous behavior in the target program in which case the danger of a viral presence is flagged and emulation is terminated.

27 Claims, 9 Drawing Sheets

Microfiche Appendix Included
(2 Microfiche, 167 Pages)



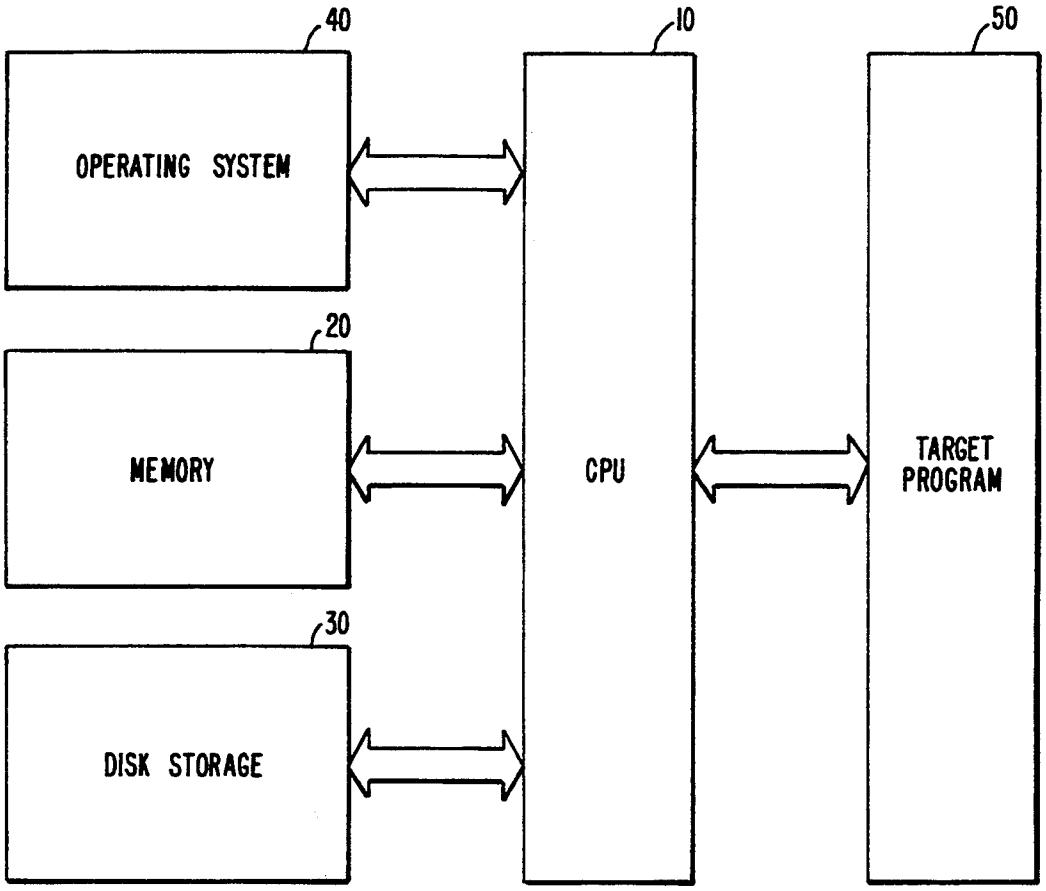


FIG. 1A.
(PRIOR ART)

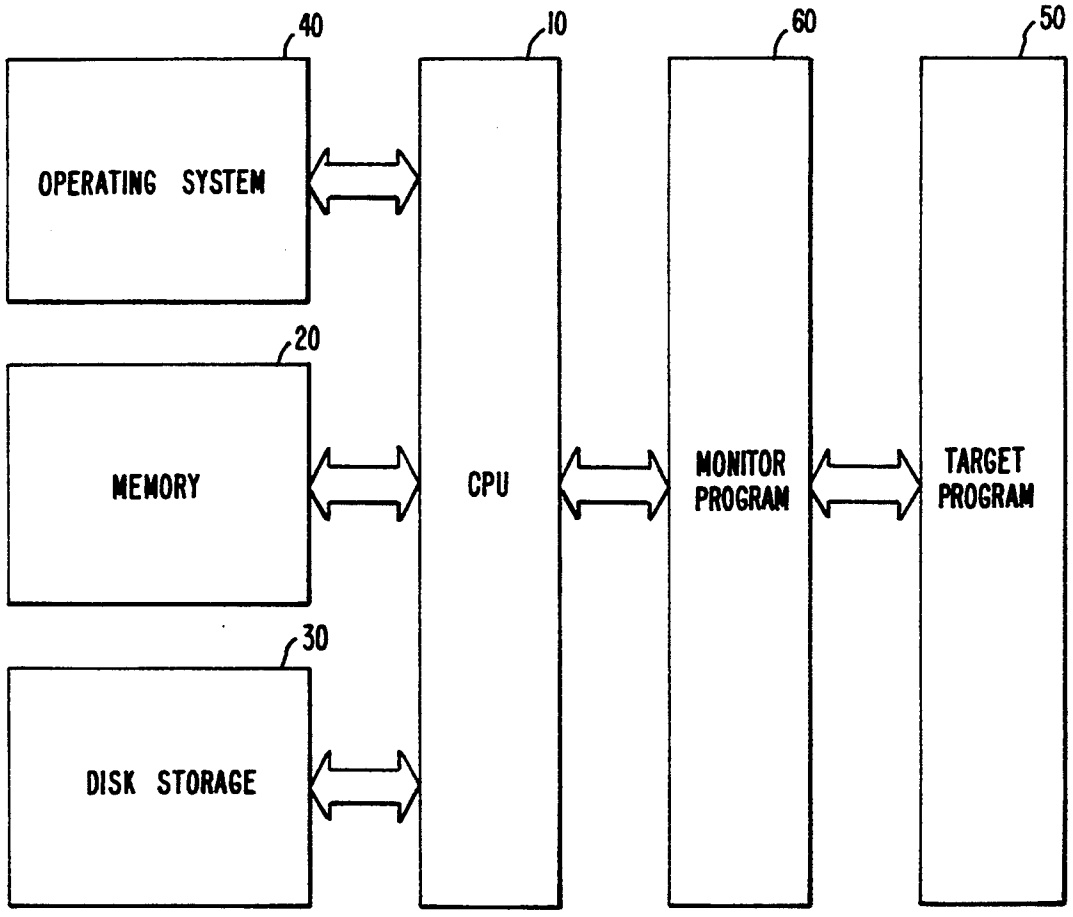


FIG. IB.

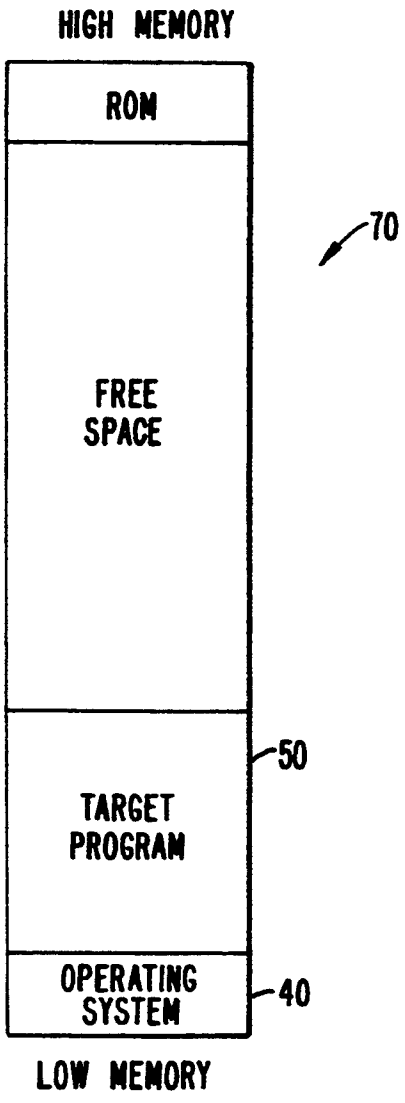


FIG. 2A.
(PRIOR ART)

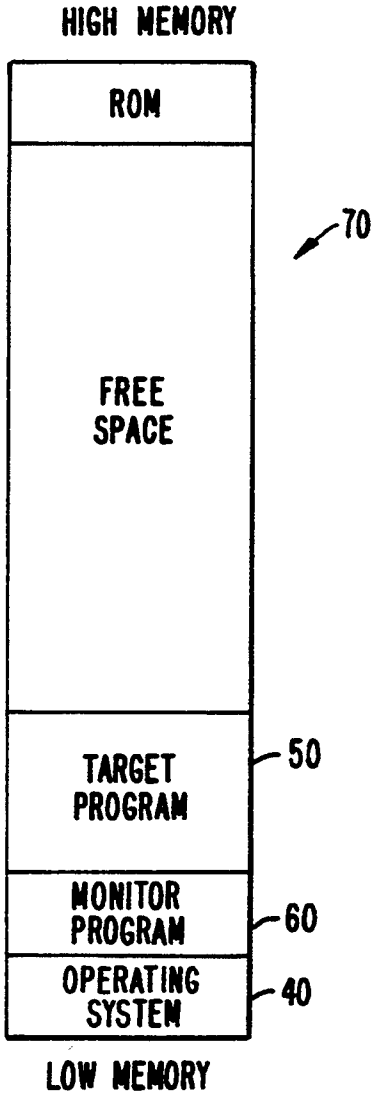


FIG. 2B.

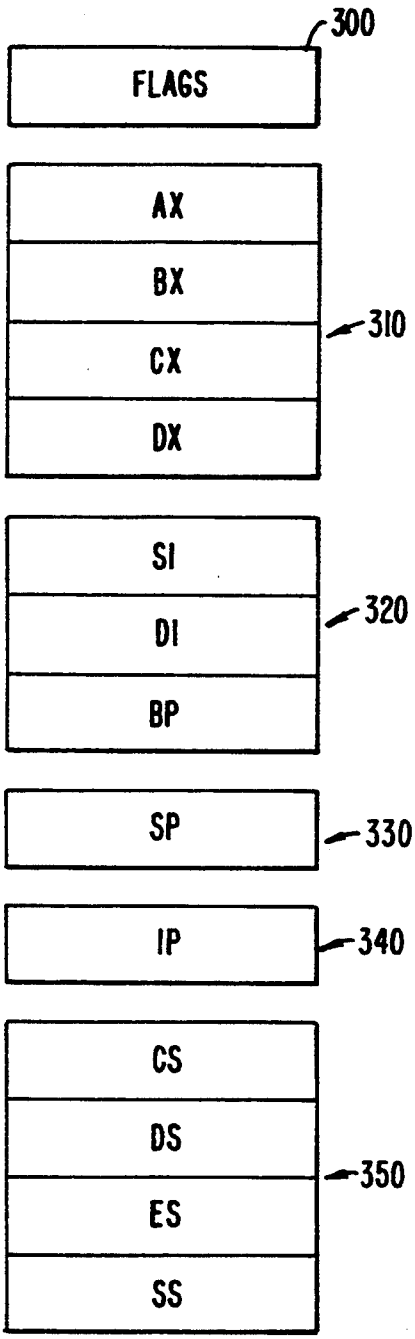


FIG. 3.
(PRIOR ART)

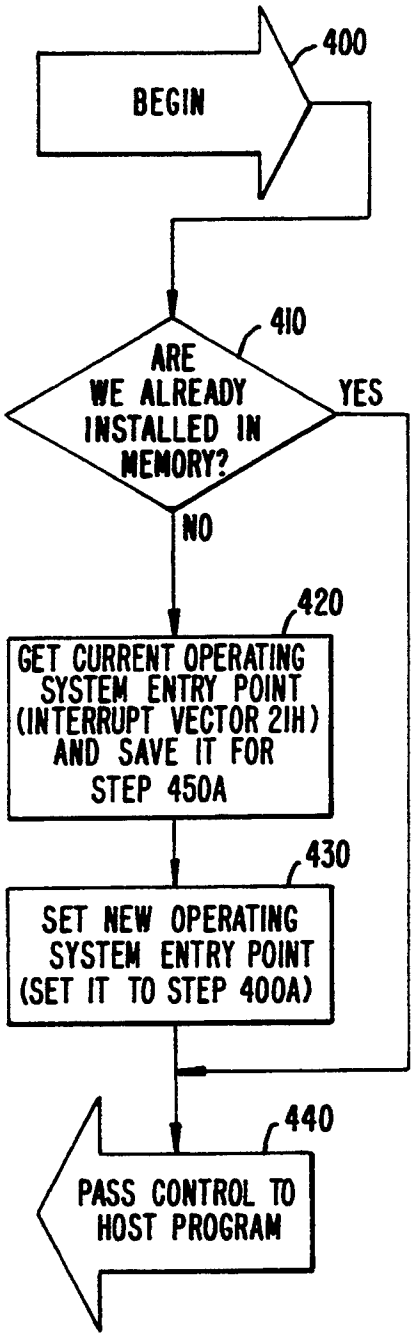


FIG. 4A.
(PRIOR ART)

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