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United States Patent [19]

Nachenberg

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[54] **POLYMORPHIC VIRUS DETECTION MODULE**

[75] Inventor: **Carey Nachenberg**, Northridge, Calif.

[73] Assignee: **Symantec Corporation**, Cupertino, Calif.

[21] Appl. No.: **535,340**

[22] Filed: **Sep. 28, 1995**

[51] **Int. Cl.**[6] **H04L 9/00**; G06F 3/00; H04K 3/00

[52] **U.S. Cl.** **380/4**; 364/709.05; 380/1; 380/25; 395/183.01; 395/183.09; 395/183.14

[58] **Field of Search** 380/49, 4, 25; 395/183.01, 183.09, 183.14; 364/709.05

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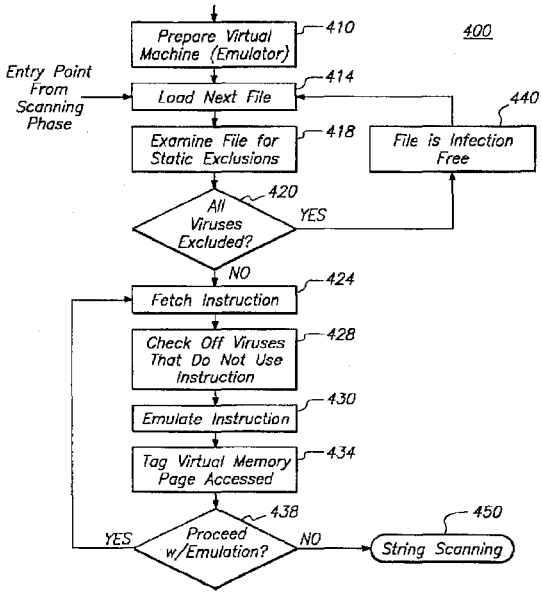
Primary Examiner—Stephen C. Buczinski

Attorney, Agent, or Firm—Fenwick & West LLP

[57] **ABSTRACT**

A Polymorphic Anti-Virus Module (PAM) (**200**) comprises a CPU emulator (**210**) for emulating the target program, a virus signature scanning module (**250**) for scanning decrypted virus code, and an emulation control module (**220**), including a static exclusion module (**230**), a dynamic exclusion module (**240**), instruction/interrupt usage profiles (**224**) for the mutation engines (**162**) of the known polymorphic viruses (**150**), size and target file types (**226**) for these viruses, and a table (**228**) having an entry for each known polymorphic virus (**150**). Prior to emulation, the static exclusion module (**230**) examines the gross characteristics of the target file for attributes that are inconsistent with the size/type data (**226**), and excludes polymorphic viruses (**150**) from the list (**228**) accordingly. During emulation, the dynamic exclusion module (**240**) compares fetched instructions with the instruction/interrupt usage profiles (**224**) to determine when emulation has proceeded to a point where at least some code from the decrypted static virus body (**160**) may be scanned for virus signatures.

18 Claims, 4 Drawing Sheets



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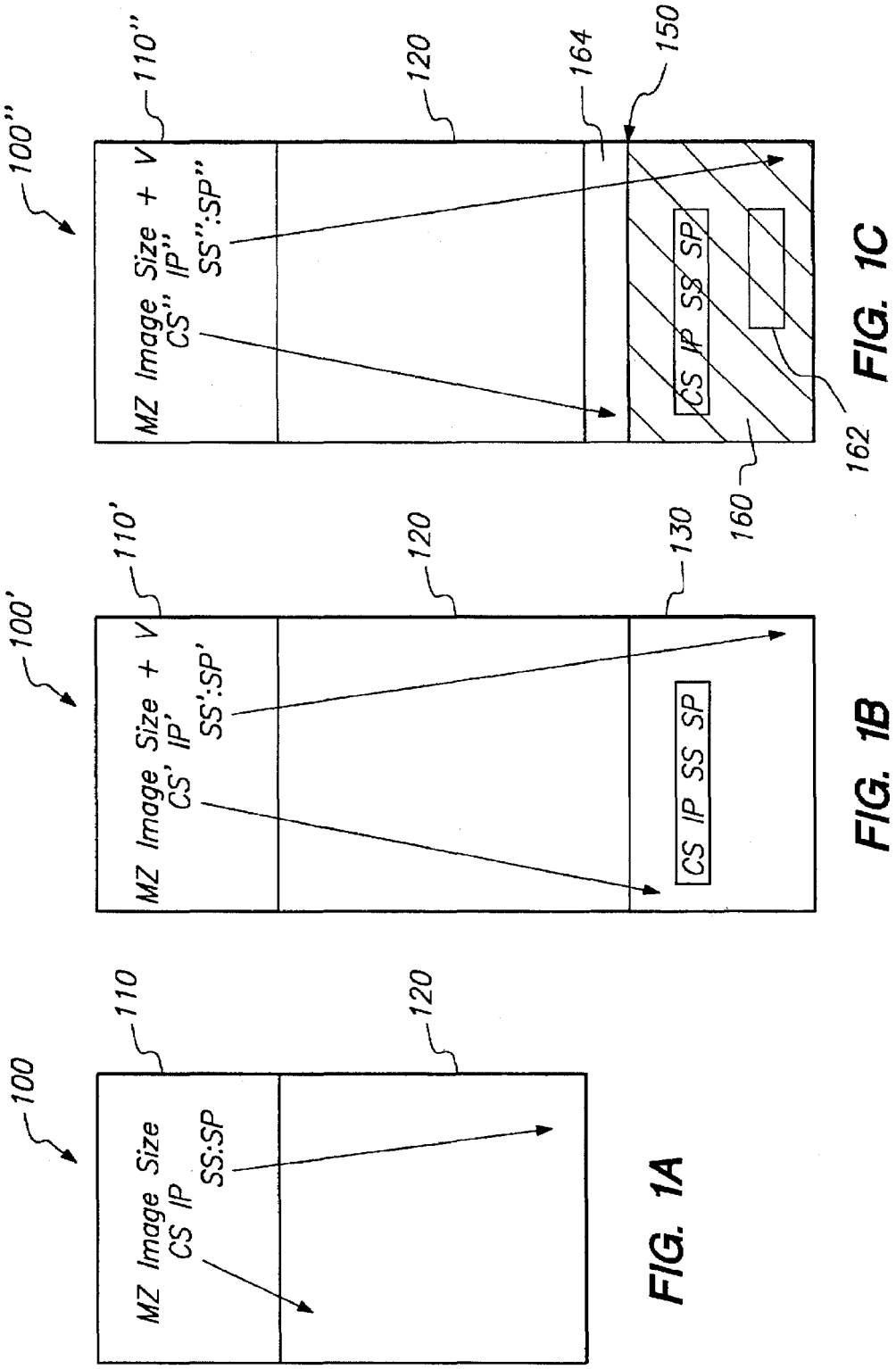

FIG. 1C

FIG. 1B

FIG. 1A

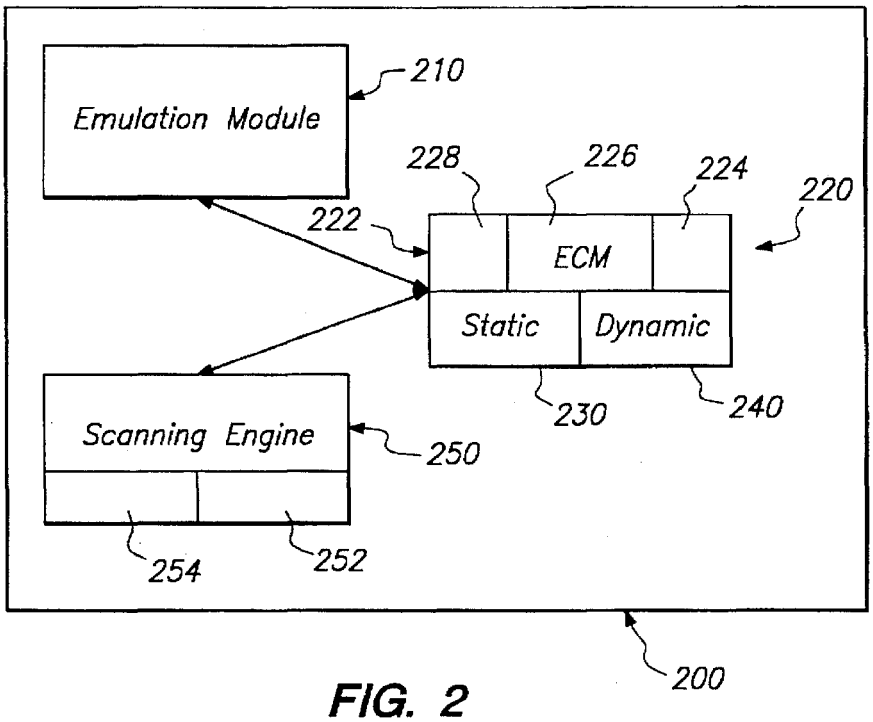

FIG. 2

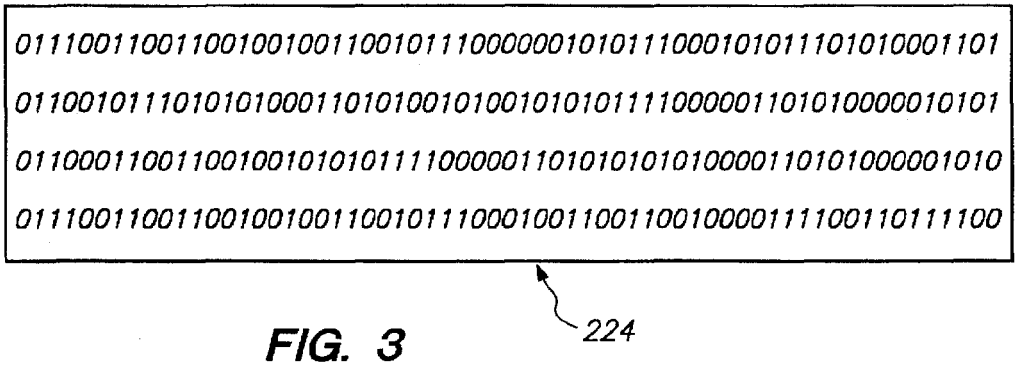

FIG. 3

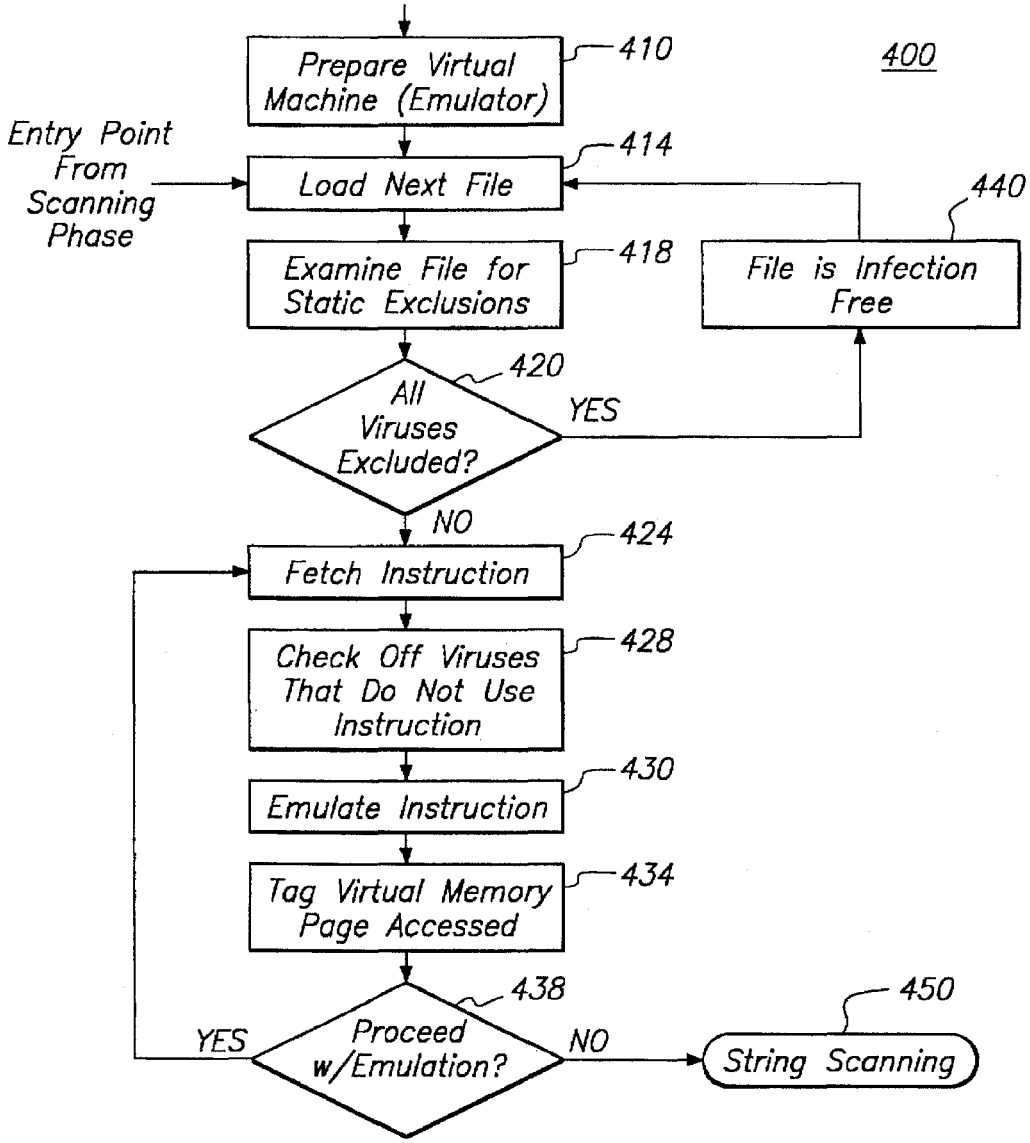

FIG. 4A

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