



- [54] **METHOD OF OPERATING A DATA PROCESSING SYSTEM HAVING A DYNAMIC SOFTWARE UPDATE FACILITY**
- [75] Inventor: Assaf Marron, Poughkeepsie, N.Y.
- [73] Assignee: International Business Machines Corporation, Armonk, N.Y.
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- [51] Int. Cl.⁵ G06F 9/06
- [52] U.S. Cl. 395/650; 364/DIG. 1; 364/280; 364/286
- [58] Field of Search 364/DIG. 1 MS File; 395/650, 700

IEEE Seventh Conf. on Software Engrg. for Telecommunication Switching Systems, pp. 168, 172, 1989.

Primary Examiner—Thomas M. Heckler
Attorney, Agent, or Firm—William B. Porter; Douglas R. McKechnie

[57] **ABSTRACT**

A dynamic software update facility (DSUF) is installed in a data processing system for the purpose of non-disruptively replacing old operating system programs or modules with new updated versions thereof while providing continuous availability and operation of the system. The new versions are loaded into the system along with change instructions providing information controlling the update. Task or process control blocks contain markers indicating the corresponding tasks are safe or unsafe to run the new programs. The markers are set initially to unsafe. A change descriptor table is stored and contains control information derived from the change instructions. When the DSUF is activated, an interrupt handler is installed and traps are stored in the old programs at entry points and safety points therein. Entry point traps are tripped when a task or process enters the old program and interrupts are generated that are handled by the interrupt handler to route tasks which are unsafe to the old program and tasks which are safe to a new program. When all tasks are safe, the new programs replace the old programs. When safety point traps are tripped, a task or process may change its state from unsafe to safe when predetermined conditions are met.

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19 Claims, 4 Drawing Sheets

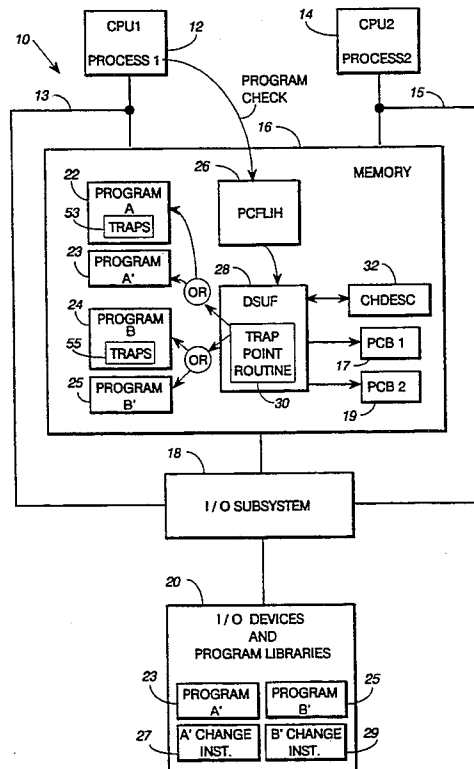
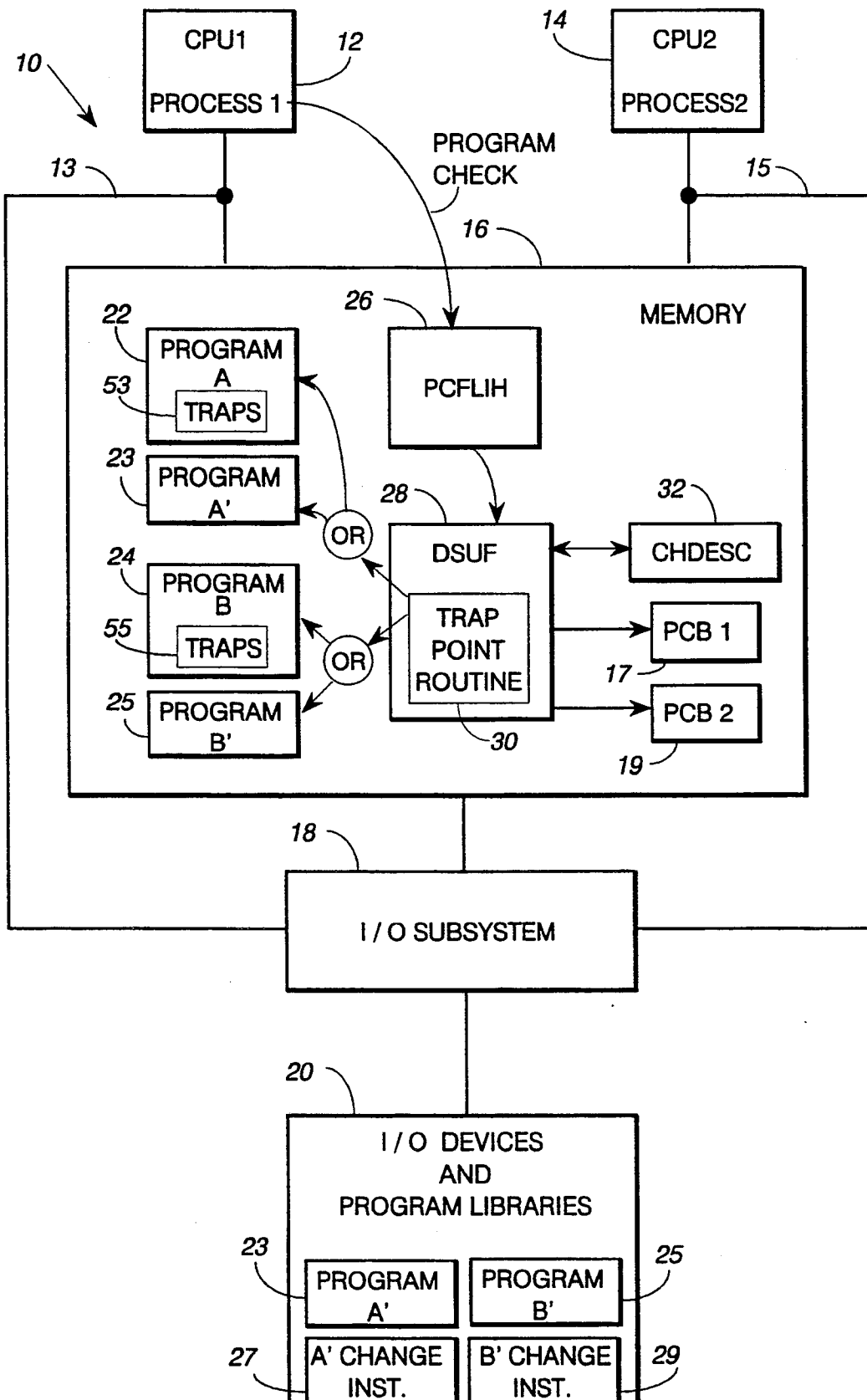
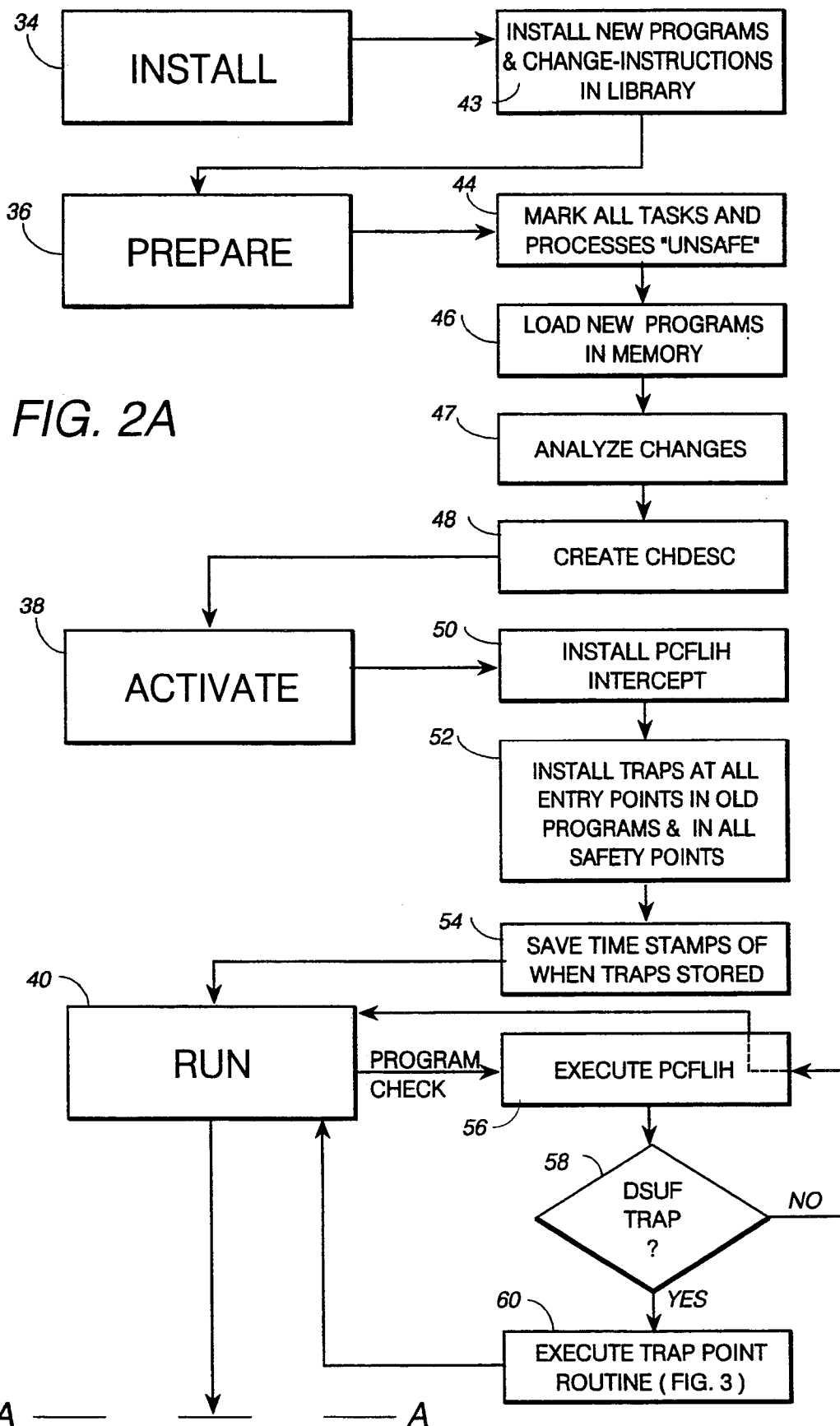


FIG. 1





A _____ A

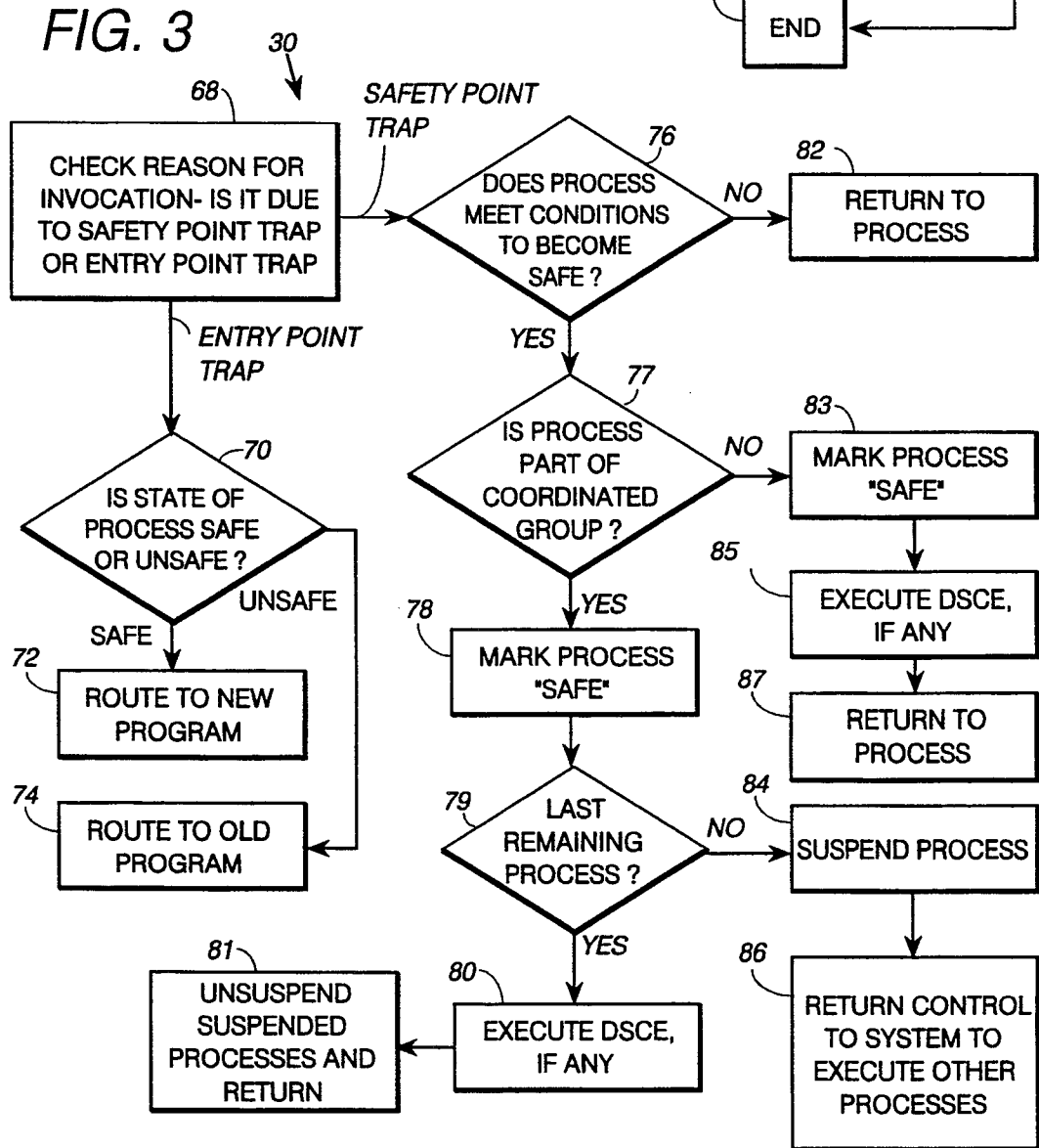
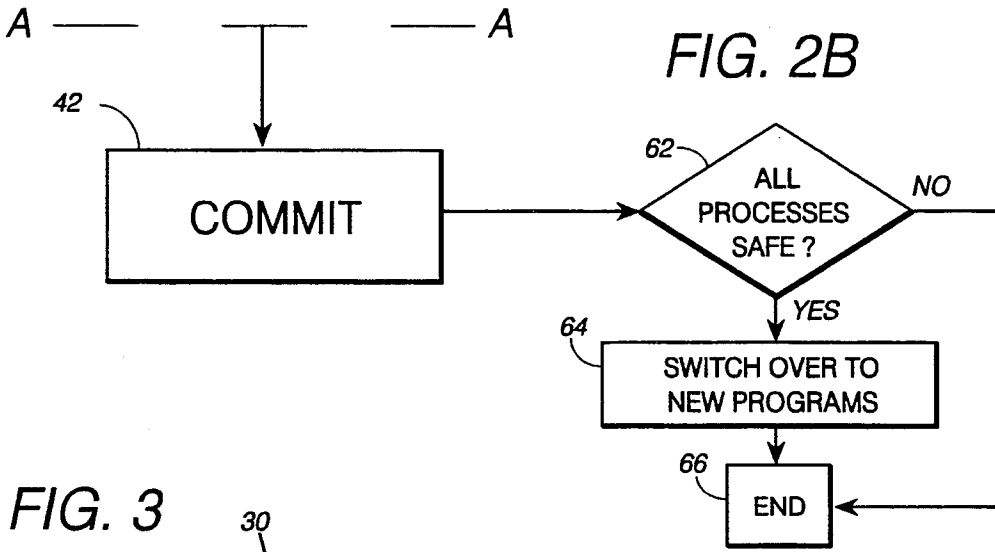
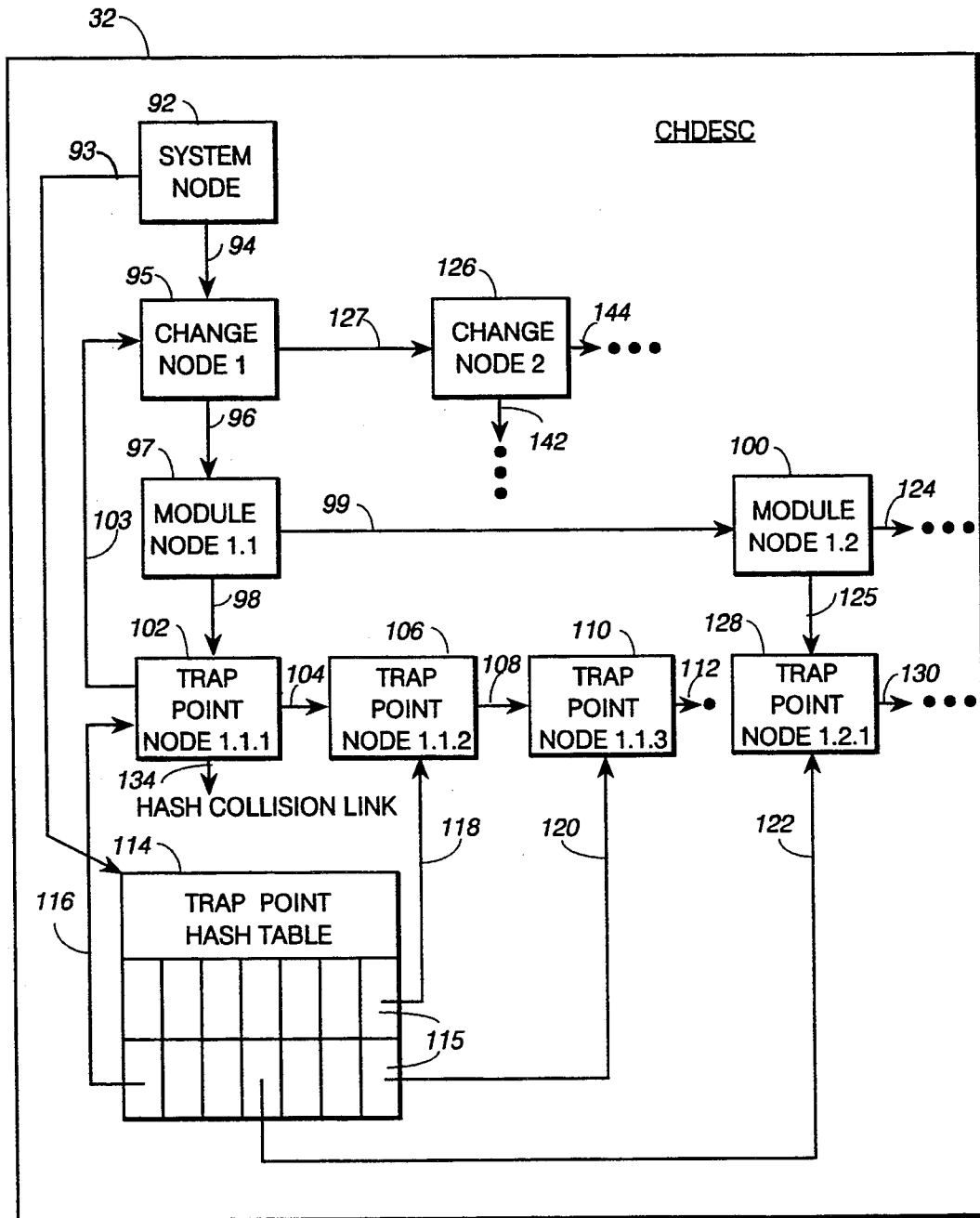


FIG. 4



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