

[54] SYSTEM FOR PROVIDING
REPROGRAMMING DATA TO AN
EMBEDDED PROCESSOR[75] Inventors: Kenneth H. Hui, Duarte; King C.
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[52] U.S. Cl. 364/900

[58] Field of Search ... 364/200 MS File, 900 MS File,
364/147

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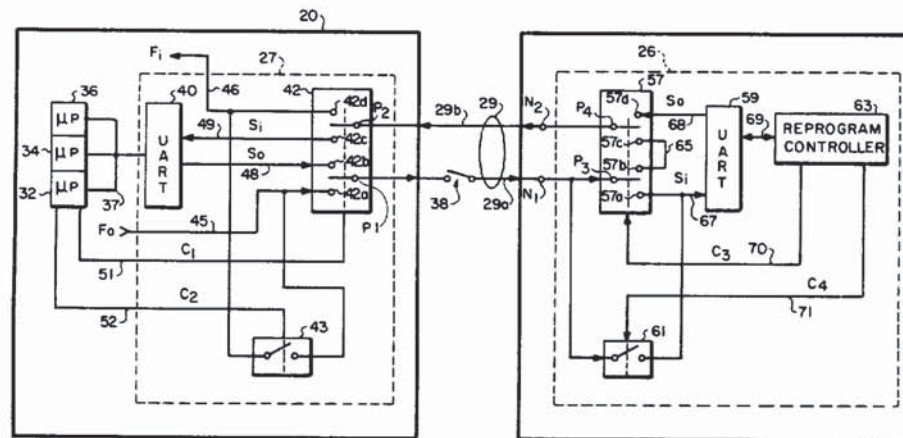
Primary Examiner—Raulfe B. Zache

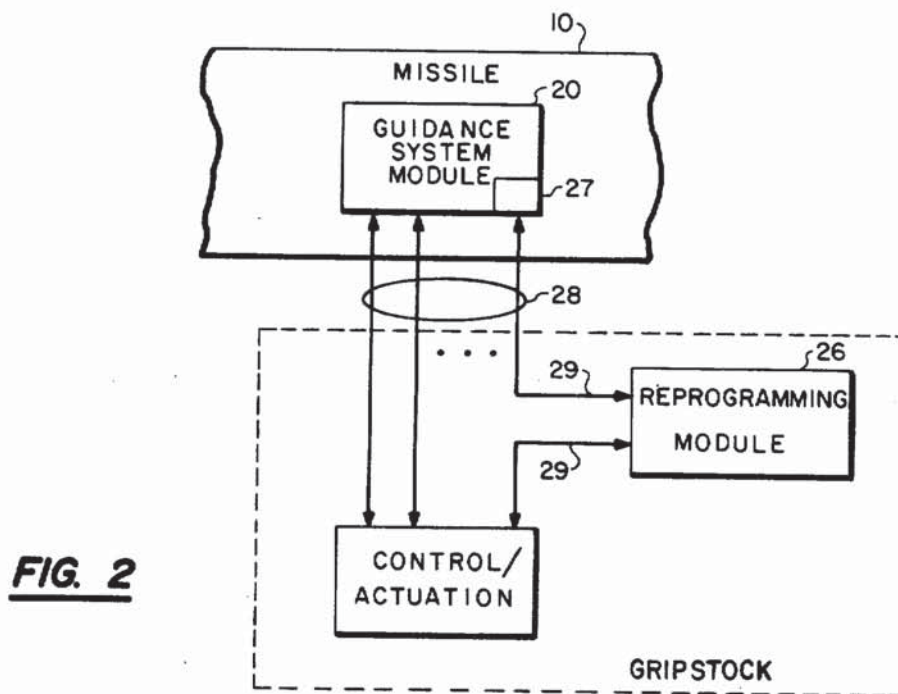
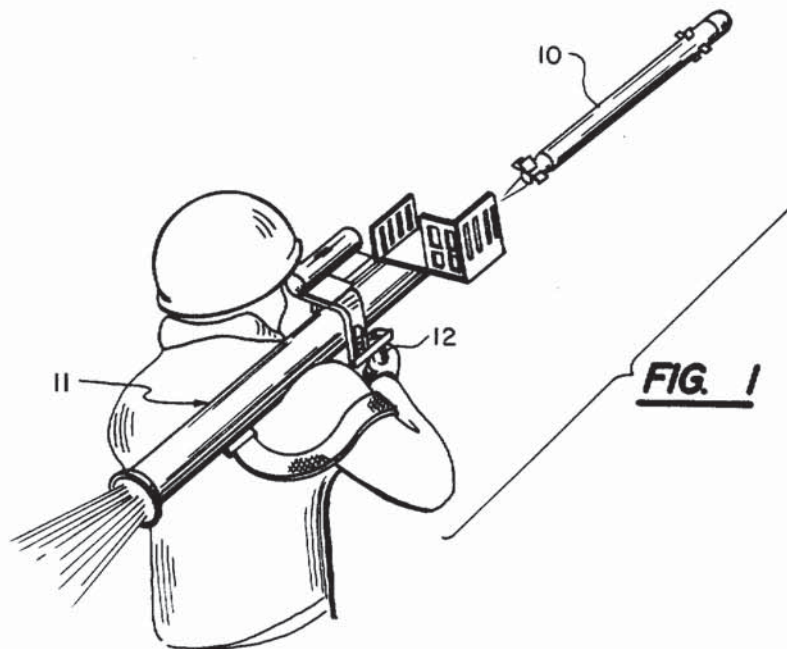
Attorney, Agent, or Firm—Neil F. Martin; Terrance A.
Meador; Edward B. Johnson

[57] ABSTRACT

A system for providing information to alter the software of an electronic data processor embedded in an electronic module includes a remote reprogramming module that conducts a sequence of operations to provide data to the processor which the processor uses to reprogram itself. The system employs a data link having a bi-directional transmission path connecting the processor and the reprogramming module. A controlled switching circuit is provided at each end of the transmission path. Under normal operating conditions, the transmission path is used to transit a function signal for a function performed by the electronic module. Periodically, the processor operates one switching network to capture the path for transmission of a reprogramming inquiry signal to the reprogramming module. At the same time, the function signal is diverted to an alternate path internal to the electronic module. When the reprogramming module detects a reprogramming inquiry, it operates the other switching circuit to gain access to the transmission path. Then, in response to commands from the processor, the reprogramming module undertakes the reprogramming sequence and transfers data to alter program information held in the memory of the processor. Thereafter, both the processor and the reprogramming module operate their respective switching circuits to restore the transmission path to its normal operational use for the transmission of the function signal.

25 Claims, 14 Drawing Figures





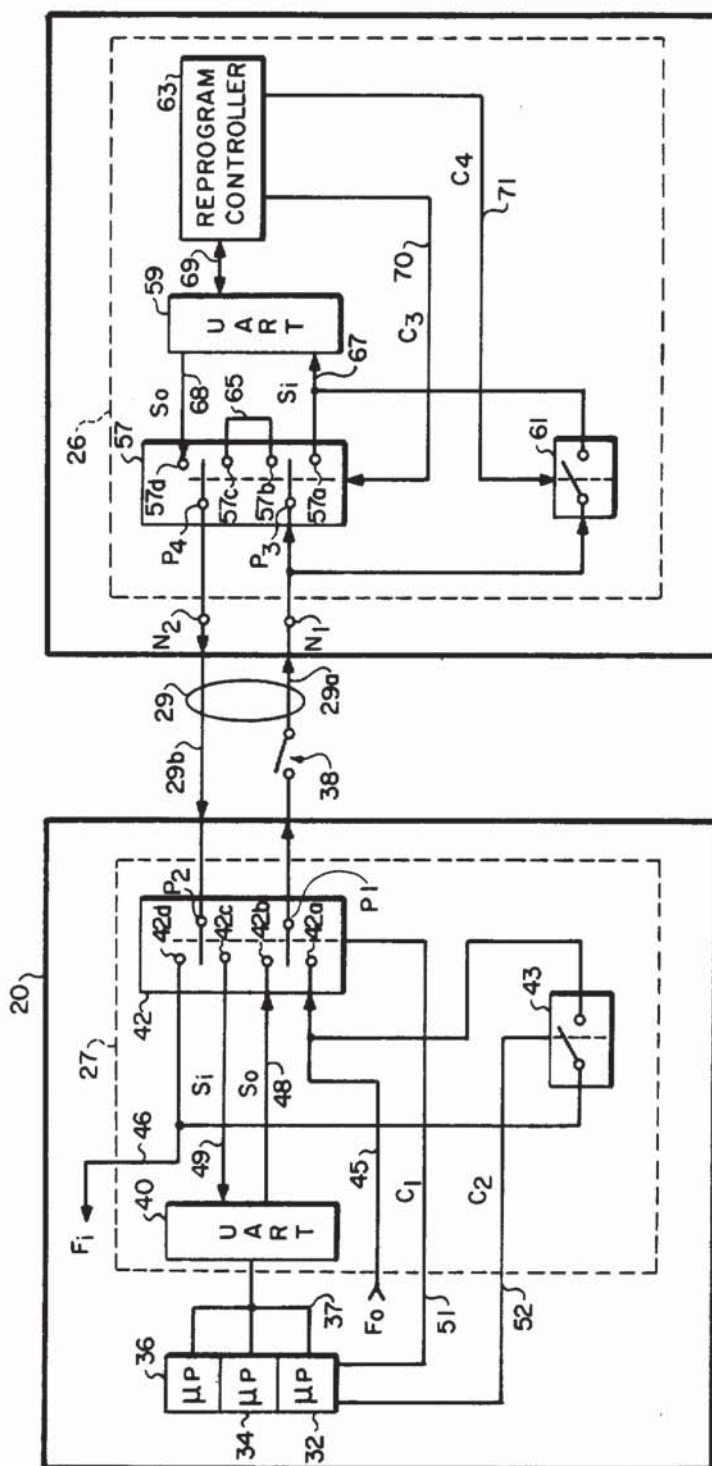
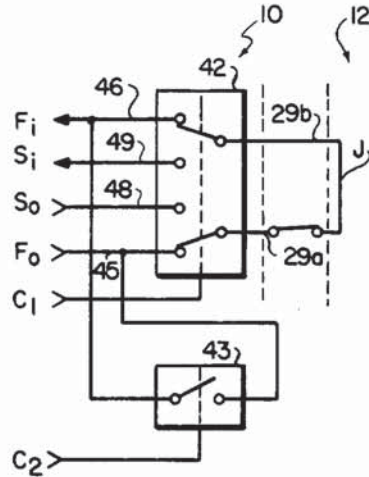
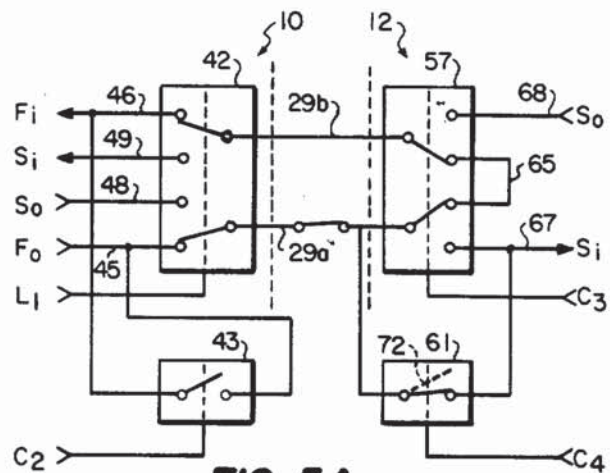
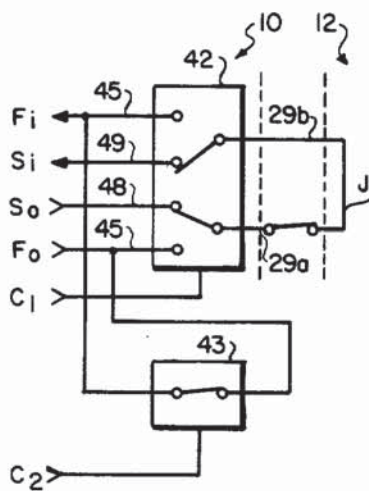
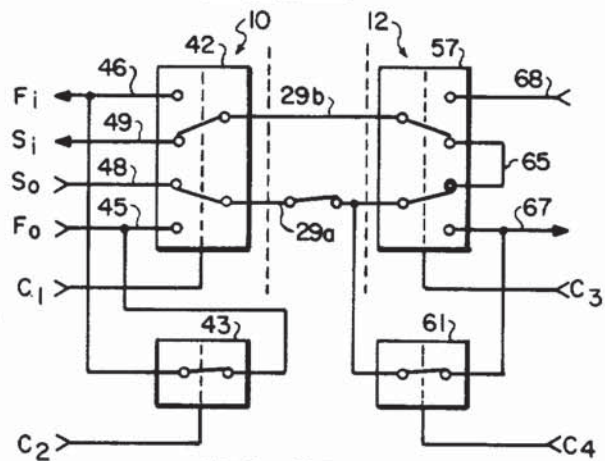
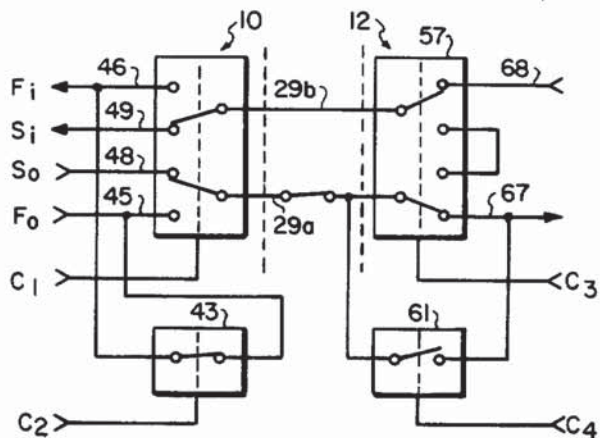


FIG. 3

**FIG. 4A****FIG. 5A****FIG. 4B****FIG. 5B****FIG. 5C**

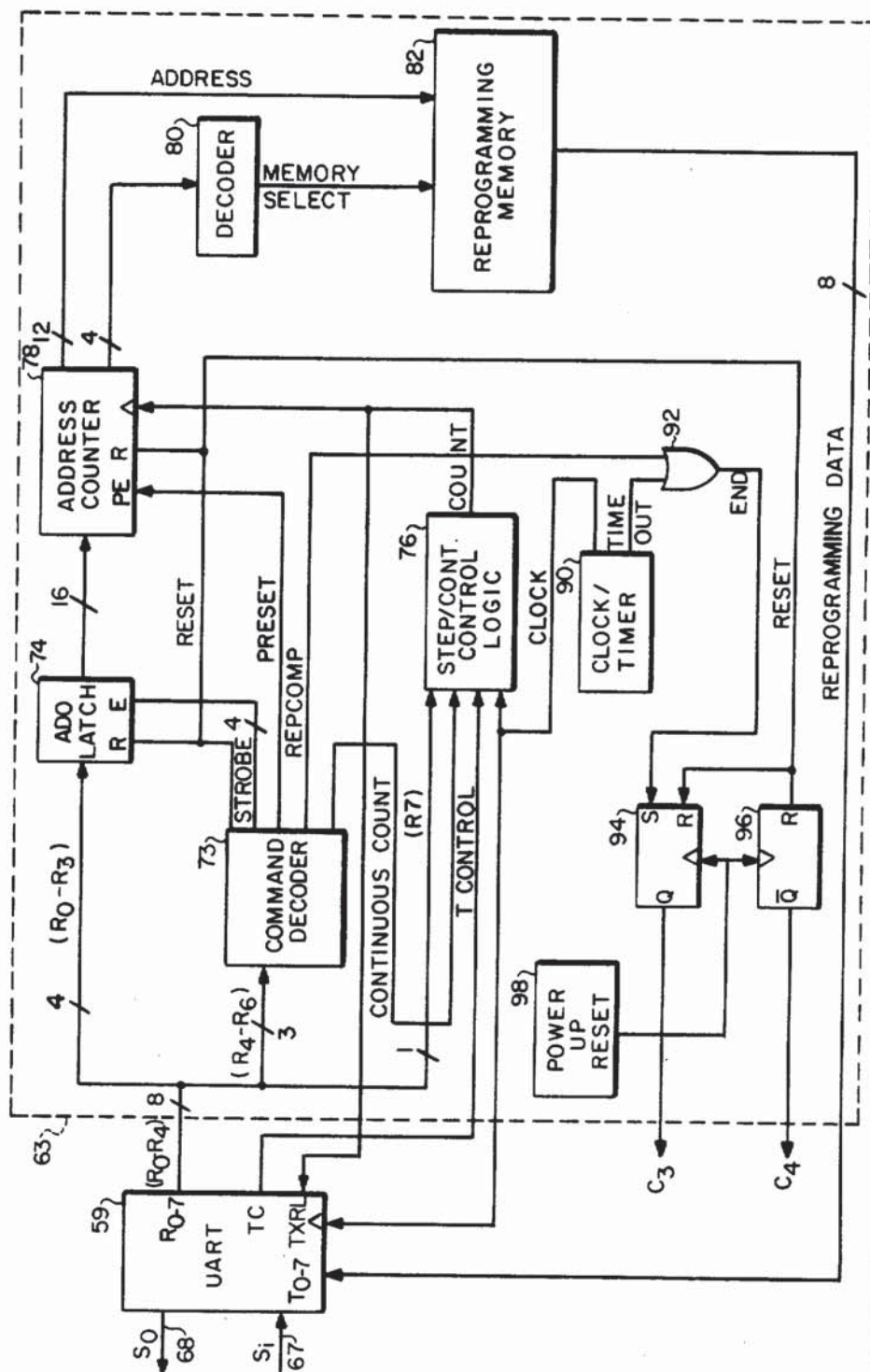


FIG. 6



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