

(12) **United States Patent**
Czajkowski

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(54) **SMALL MEMORY FOOTPRINT SYSTEM AND METHOD FOR SEPARATING APPLICATIONS WITHIN A SINGLE VIRTUAL MACHINE**

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(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(52) **U.S. Cl.** **717/151; 717/127; 717/118; 717/161**

(58) **Field of Search** **717/151-158, 717/159-161, 121, 118**

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Primary Examiner—Gregory Morse

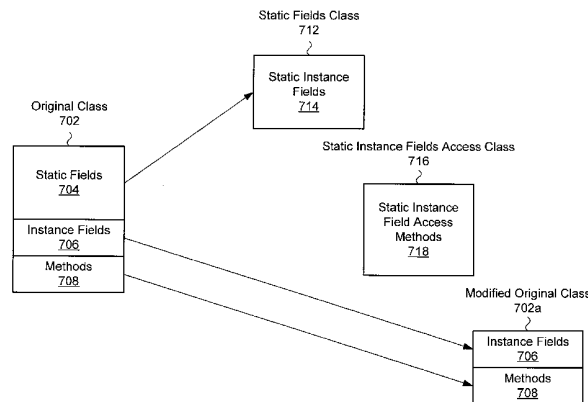
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(57) **ABSTRACT**

A system and method for isolating the execution of a plurality of applications. The applications may utilize or share one or more "original" classes. Only one copy of each original class is maintained, regardless of how many applications utilize it. Static fields are extracted from the original classes. A separate copy of the static fields is created for each of the utilizing applications. A static field class which includes instance fields corresponding to the static fields may be created, wherein each instance of the static field class corresponds to one of the utilizing applications. Access methods for the one or more static fields may be created, wherein the access methods are operable to access the corresponding separate copy of the static fields based upon the identity of the utilizing application. A single access methods class may be created for each original class, wherein the single access methods class includes the access methods for accessing the extracted fields from the original class. The method and system may be optimized by exempting from extraction static fields that are classified as secure for utilization by the plurality of applications without inter-application interference. The secure set of static fields may include final static fields of primitive types, final static strings, immutable arrays of primitive types, and/or other appropriate fields.

30 Claims, 11 Drawing Sheets



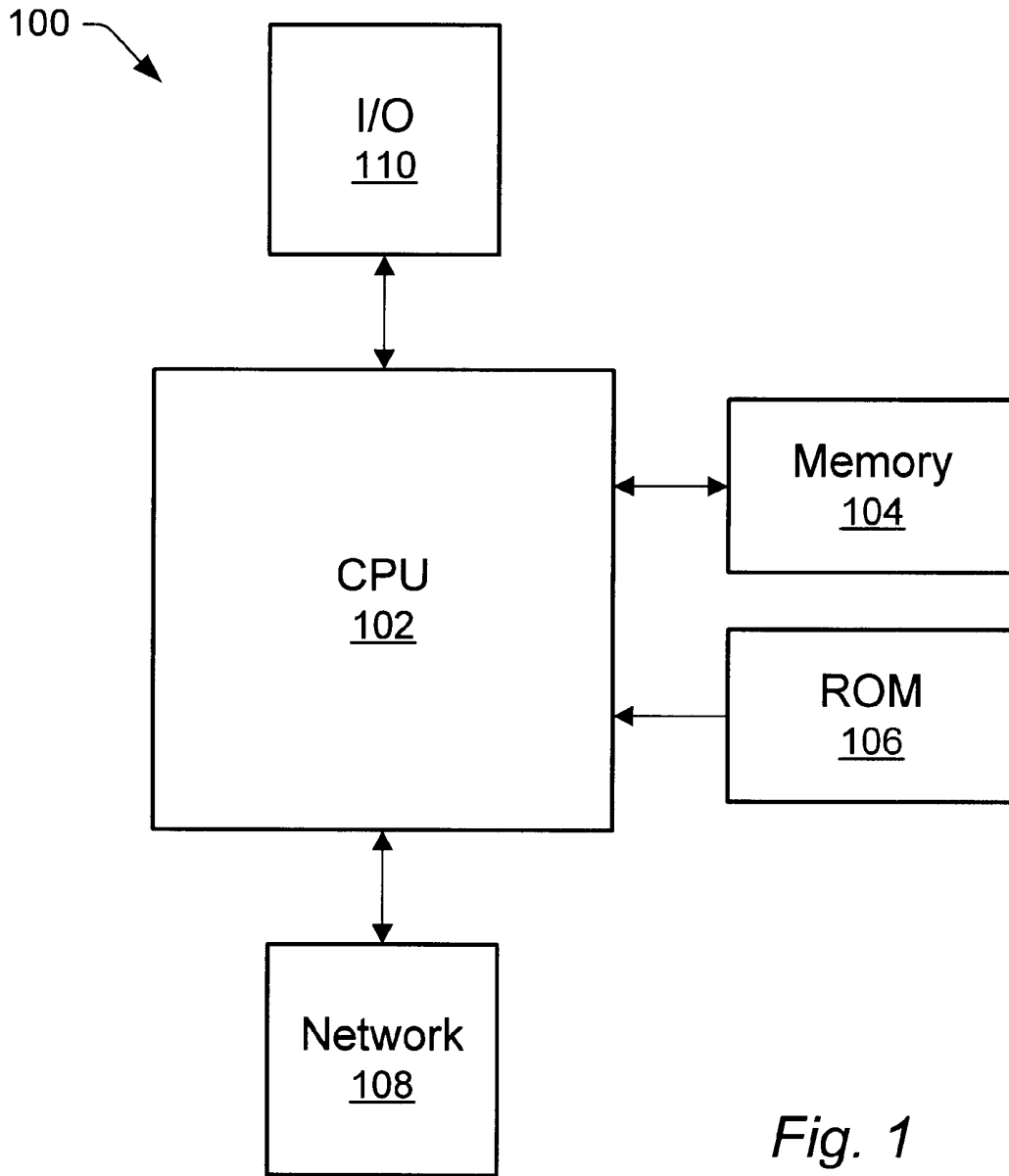


Fig. 1

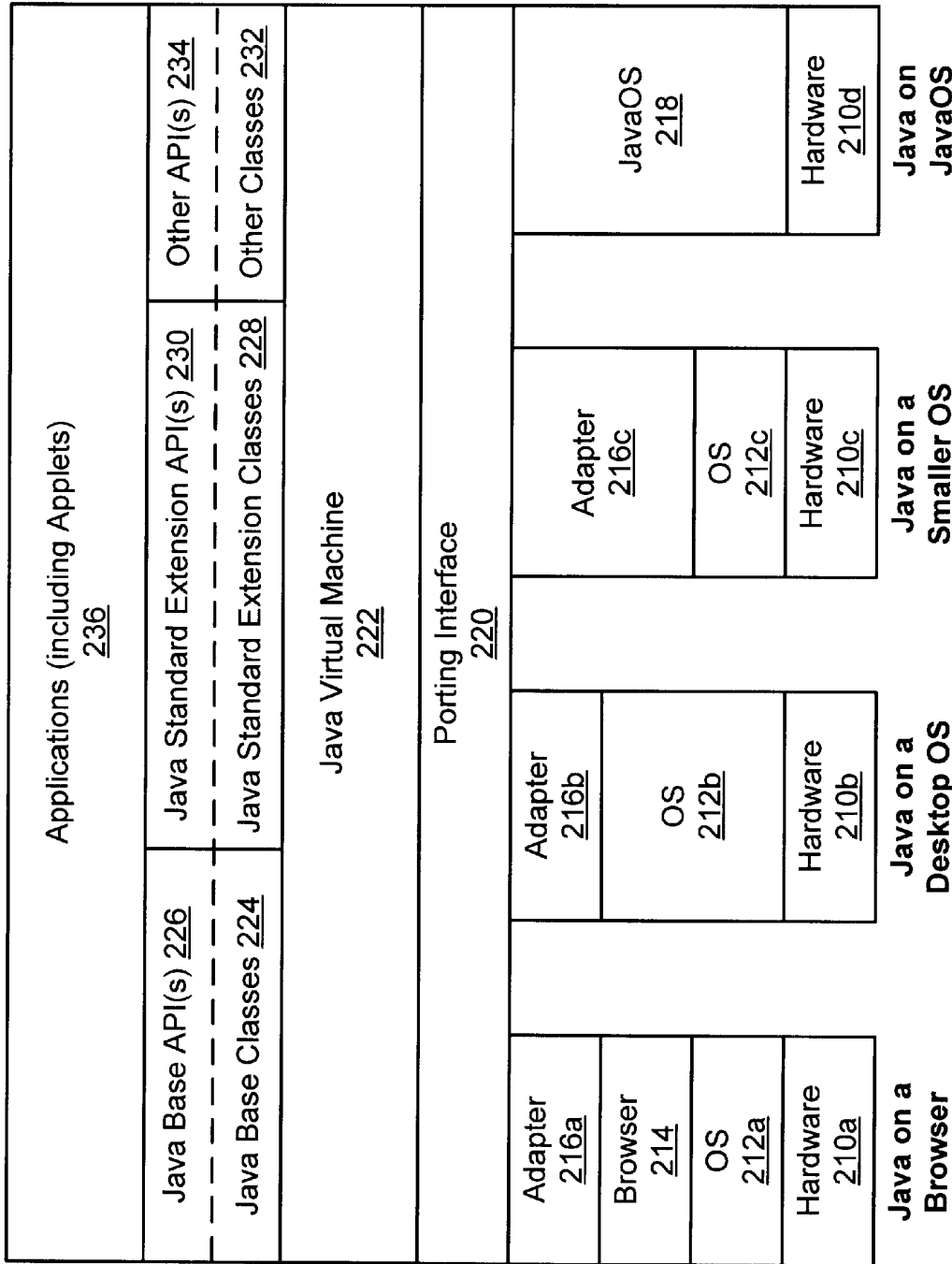


Fig. 2

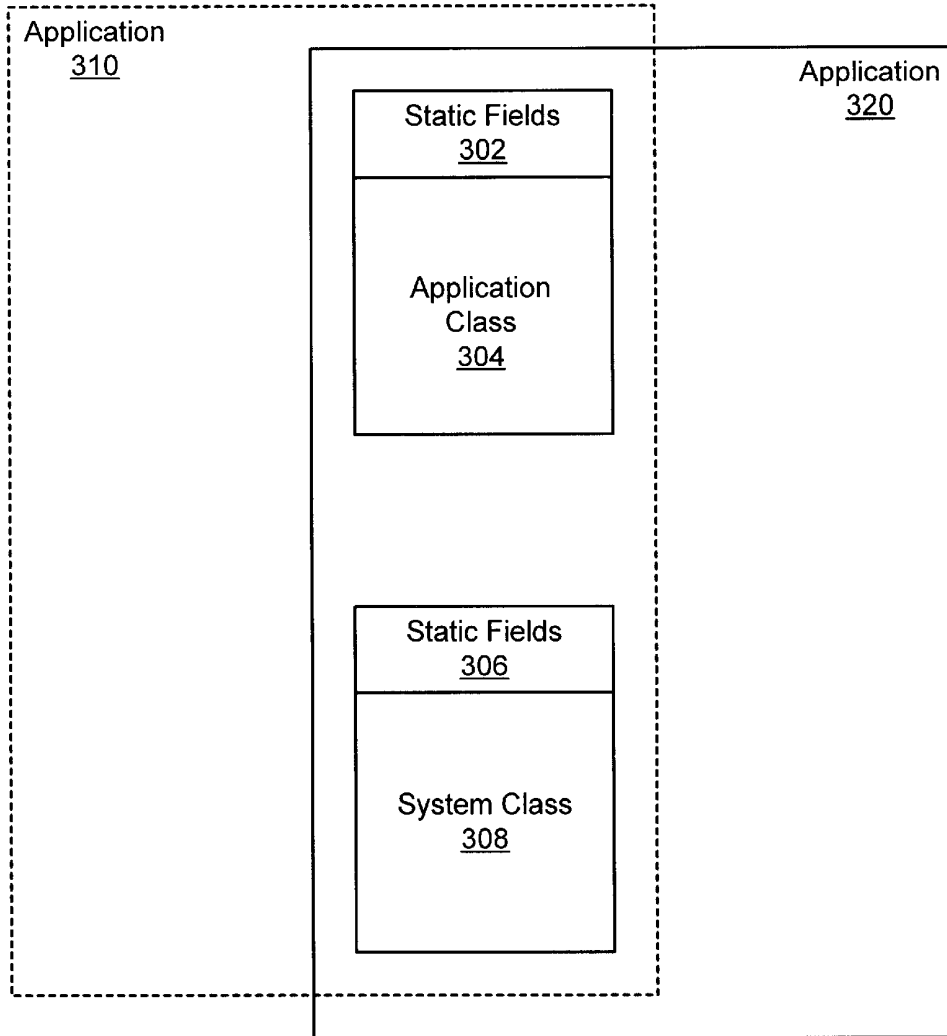


Fig. 3

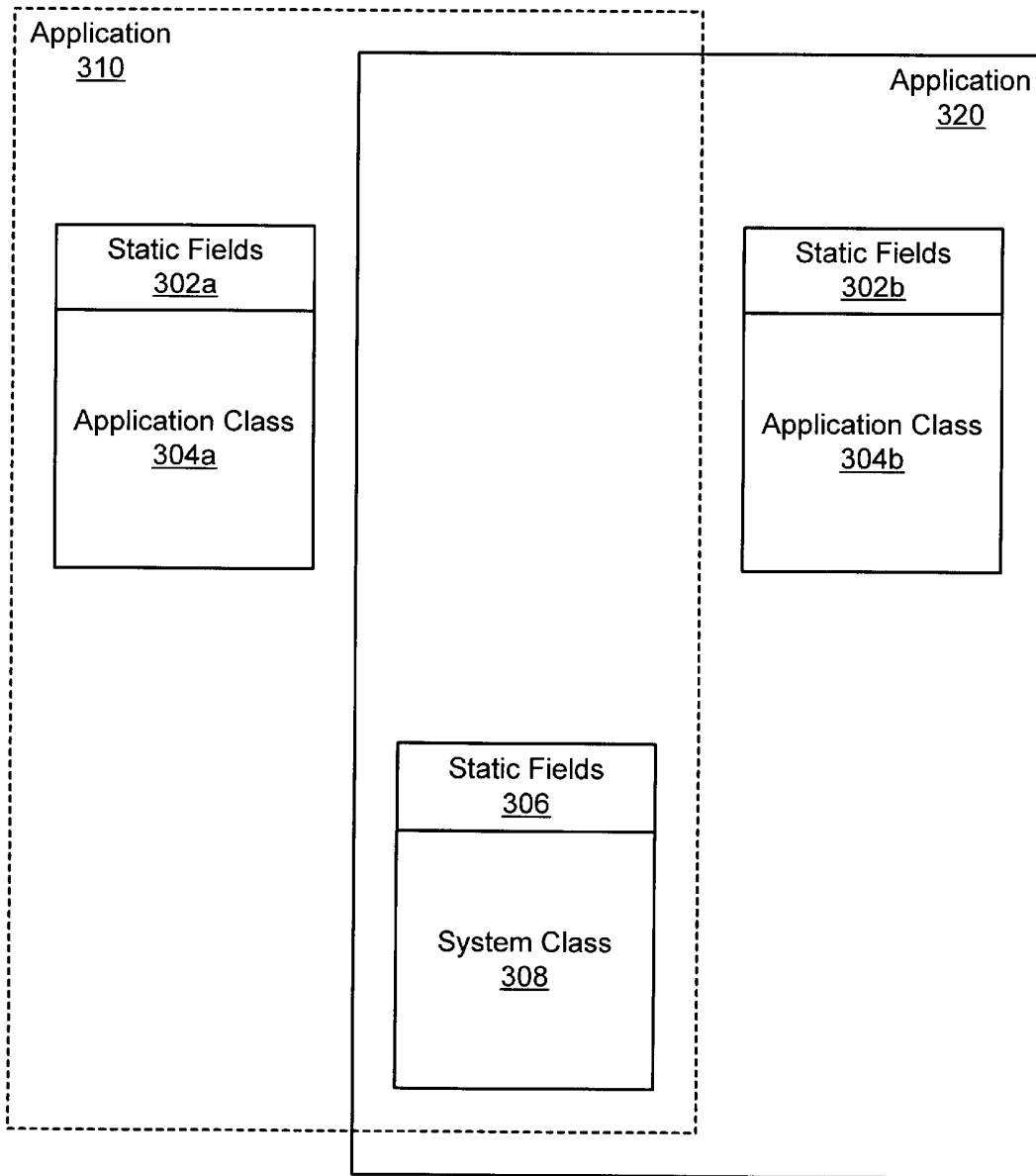


Fig. 4

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