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Kieffer

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- (54) **OPTIMIZED DELIVERY OF WEB APPLICATION CODE**
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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 978 days.

This patent is subject to a terminal disclaimer.

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(65) **Prior Publication Data**
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(63) Continuation of application No. 10/203,043, filed as application No. PCT/US01/02962 on Jan. 30, 2001, now Pat. No. 7,231,644.

(60) Provisional application No. 60/180,378, filed on Feb. 4, 2000.

(51) **Int. Cl.**
G06F 9/44 (2006.01)
(52) **U.S. Cl.** 719/331; 709/203; 709/219
(58) **Field of Classification Search** 719/331, 719/332; 709/203, 219
See application file for complete search history.

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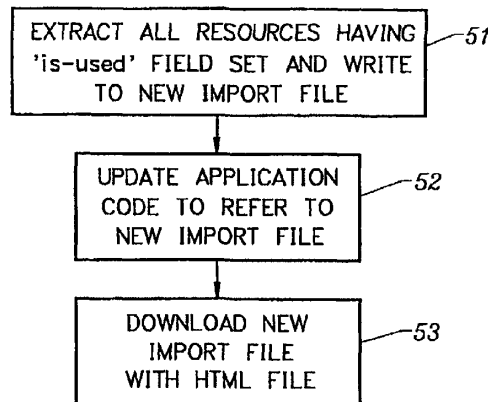
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(57) **ABSTRACT**

Systems and methods are provided for optimizing application code for deployment to a client over a data link to minimize download time by supplying only the application code with a particular object that is required by the object. In a web application that includes multiple pages, the HTML and JAVASCRIPT may be scanned to identify code resources called by a particular web page. When all called resources are identified, they may be extracted and concatenated into a single resource file. When the page is downloaded to the client, the import file may be included with the page. The import file may be cached so that it need only be downloaded once, rather than being downloaded every time the page is requested. The disclosed systems and methods are suitable for use with other interpreted scripting languages.

27 Claims, 3 Drawing Sheets



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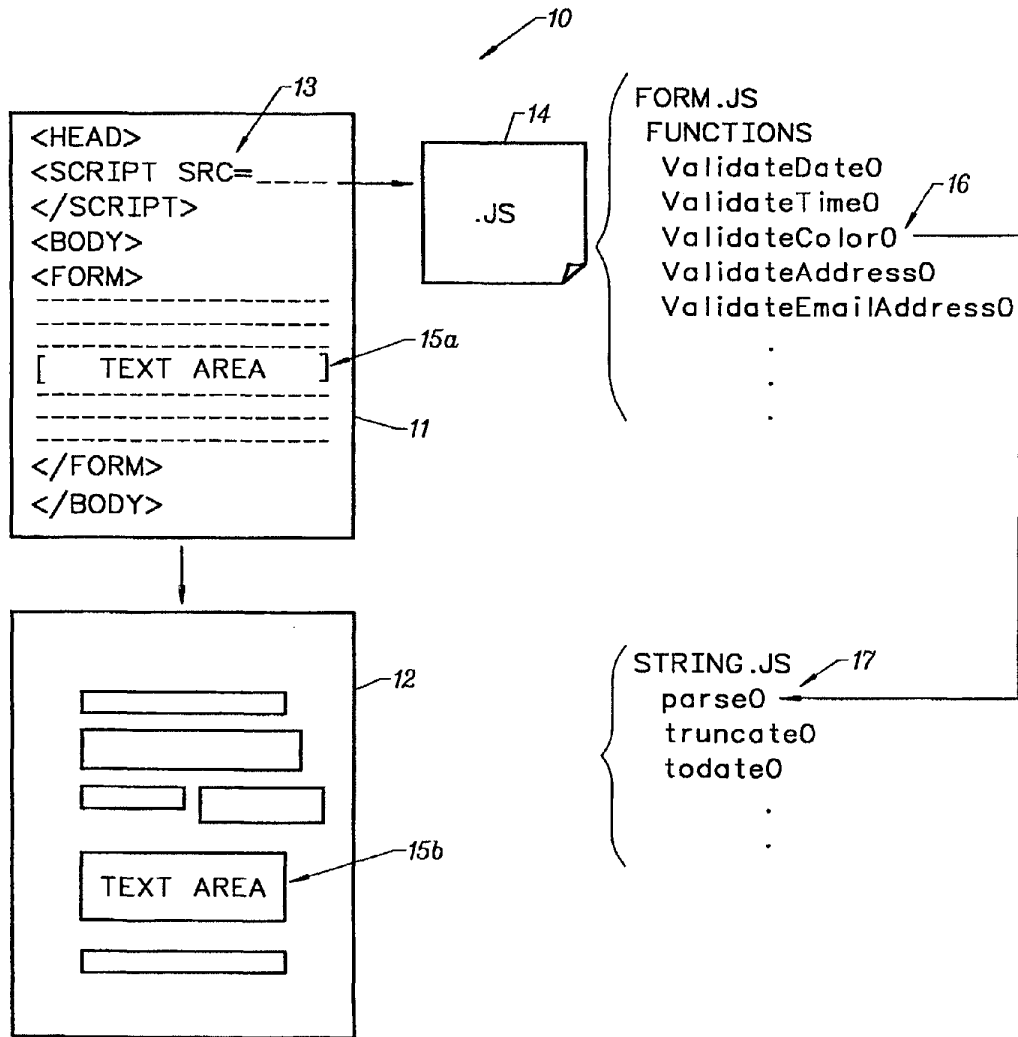


FIG. 1

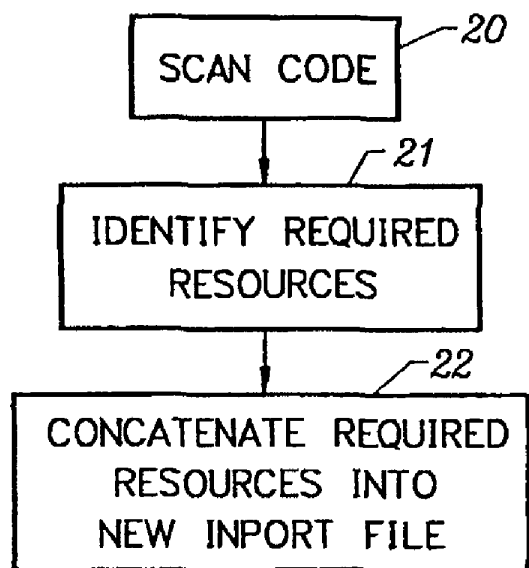


FIG. 2

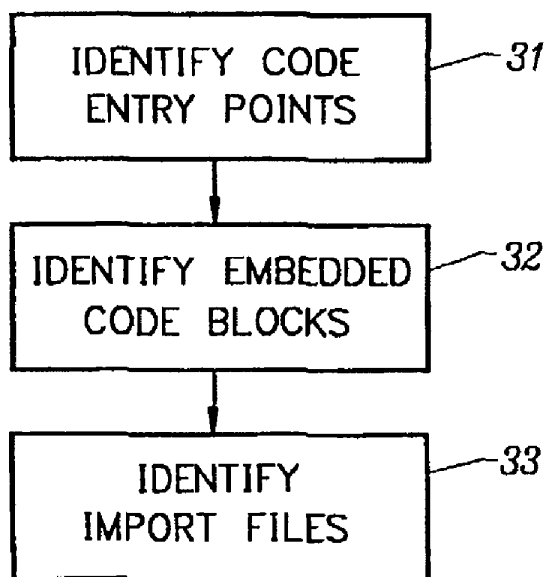
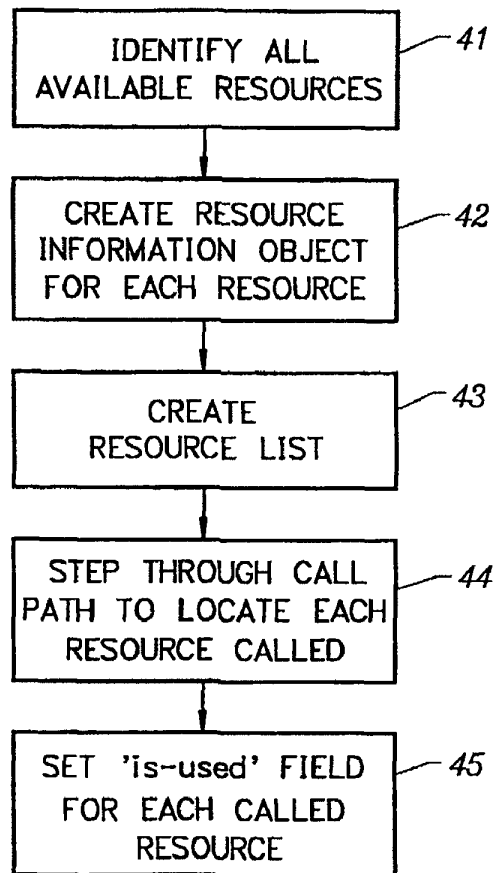
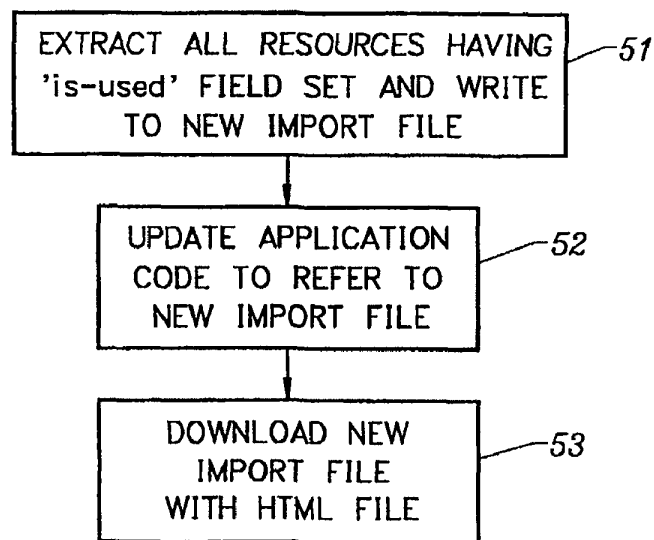


FIG. 3

*FIG. 4**FIG. 5*

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