

- [54] **FLEXIBLE AND DYNAMIC DERIVATION OF PERMISSIONS**
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- [52] **U.S. Cl.** ..... **713/200**
- [58] **Field of Search** ..... 713/200, 201; 709/225, 229; 364/222.5, 286.4, 286.5; 711/163; 707/9

Sandhu et al., "Role-Based Access Control: A Multi-Dimensional View", IEEE 10th Annual Computer Security Applications Conference Proceedings, pp 54-62, Dec. 1994.

Anand et al., "A Flexible Security Model for Using Internet Content", IEEE The Sixteenth Symposium on Reliable Distributed Systems Proceedings, pp 89-96, Oct. 1997.

Unknown, "HotJava(tm): The Security Story", <http://java.sun.com/sfaq/may95/security.html>, pp. 1-7, May 1995.

Trent Jaeger, Aviel D. Rubin, Atul Prakash, "Building Systems That Flexibly Control Downloaded Executable Content", USENIX Association, 6th USENIX Security Symposium, pp. 131-148.

Nayeem Islam, Rangachari Anand, Trent Jaeger and Josyula R. Rao, "A Flexible Security System For Using Internet Content", IEEE Software, Sep./Oct. 1997, pp. 52-59.

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

5,265,221	11/1993	Miller	395/725
5,335,346	8/1994	Fabbio	395/600
5,649,099	7/1997	Theimer et al.	395/187.01
5,911,143	6/1999	Deinhart et al.	707/103
5,924,094	7/1999	Sutter	707/10
5,925,126	7/1999	Hsieh	713/200
5,966,715	10/1999	Sweeney et al.	707/203
5,968,177	10/1999	Batten-Carew et al.	713/201

**OTHER PUBLICATIONS**

Yellin, "Low Level Security in Java", <http://java.sun.com/sfaq/verifier.html>, pp 1-12, Dec. 1996.

Bank, "Java Security", <http://www-swiss.ai.mit.edu/~jbank/javapaper.html>, pp 1-11, Dec. 1995.

Thomas, "The Navigator Java Environment: Current Security Issues", <http://developer.netscape.com/docs/manuals/javasecurity.html>, pp. 1-3, Jan. 1996.

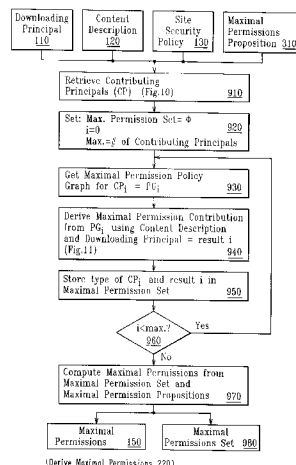
Jaeger et al., "Implementation of a Discretionary Access Control Model for Scrip-based Systems", 8th IEEE Computer Security Foundations Workshop Proceedings, pp 70-84, Jun. 1995.

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[57] **ABSTRACT**

A dynamic derivation mechanism is defined which enables limited permissions to be dynamically and flexibly derived for executables based upon their authenticated description. The dynamic derivation mechanism uses the authenticated description to determine the maximal permissions that individual principals can delegate to the content. A principal's maximal permissions for content define a superset of the rights that that principal will actually delegate to that content. Although the maximal permissions are derived from predefined specifications, the specifications can be sensitive to runtime state on the downloader's system or previous delegations to enable the dynamic (i.e., runtime) derivation. Multiple principals can delegate a subset of their maximal permissions for the executable content. The mechanism uses policy for combining the delegated permissions into the content's runtime permissions.

**44 Claims, 11 Drawing Sheets**



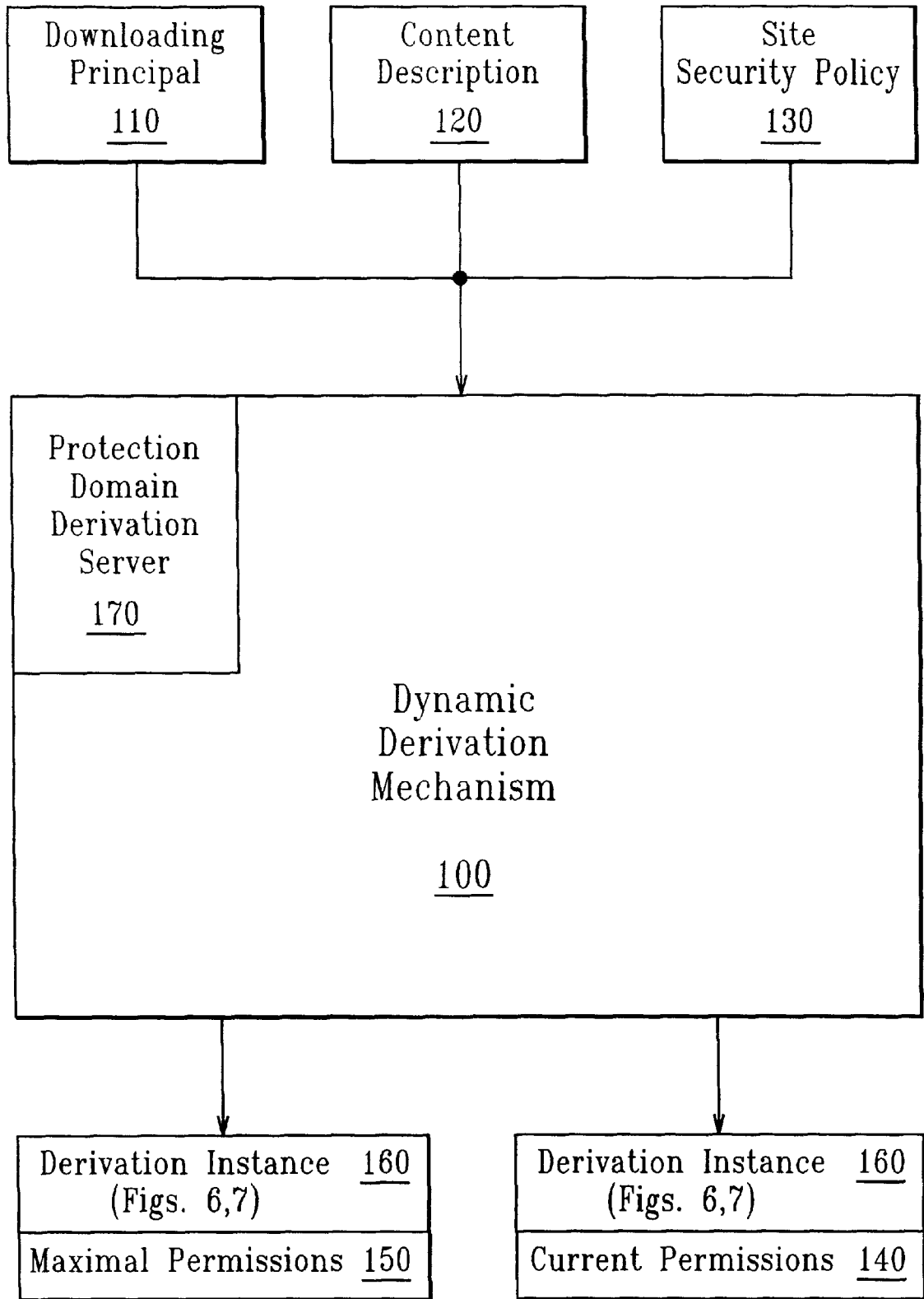


FIG.1

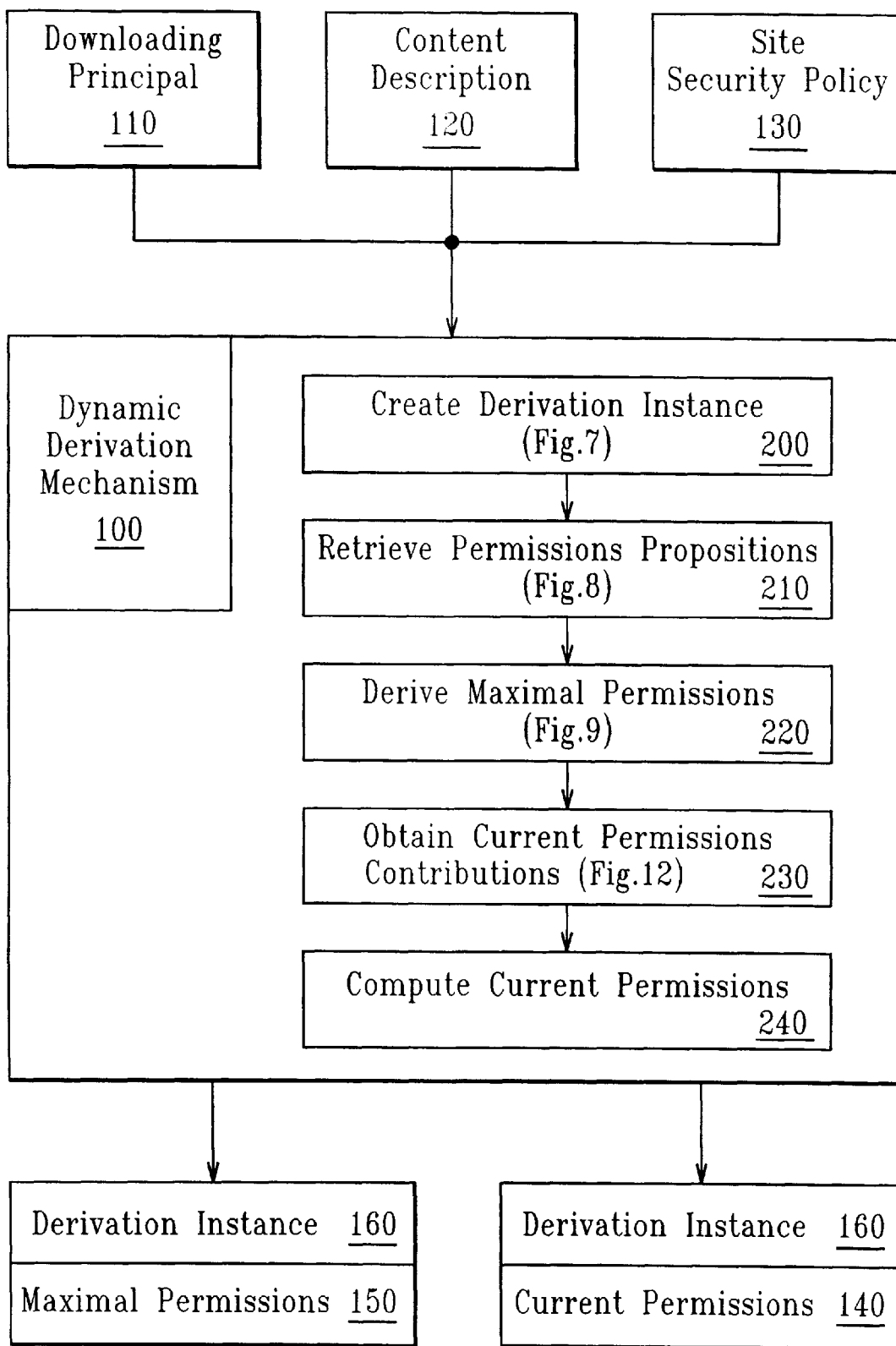


FIG. 2

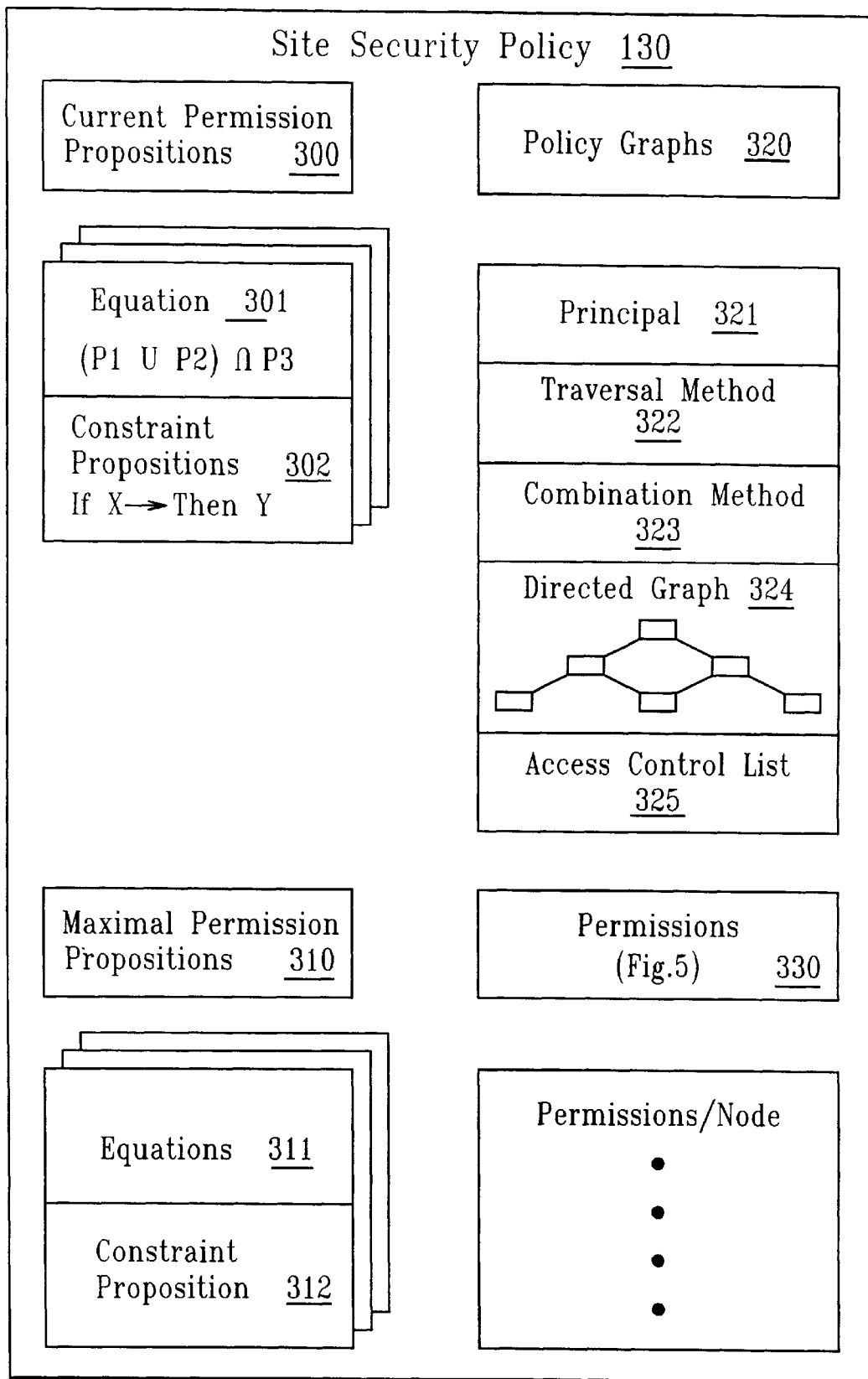


FIG. 3

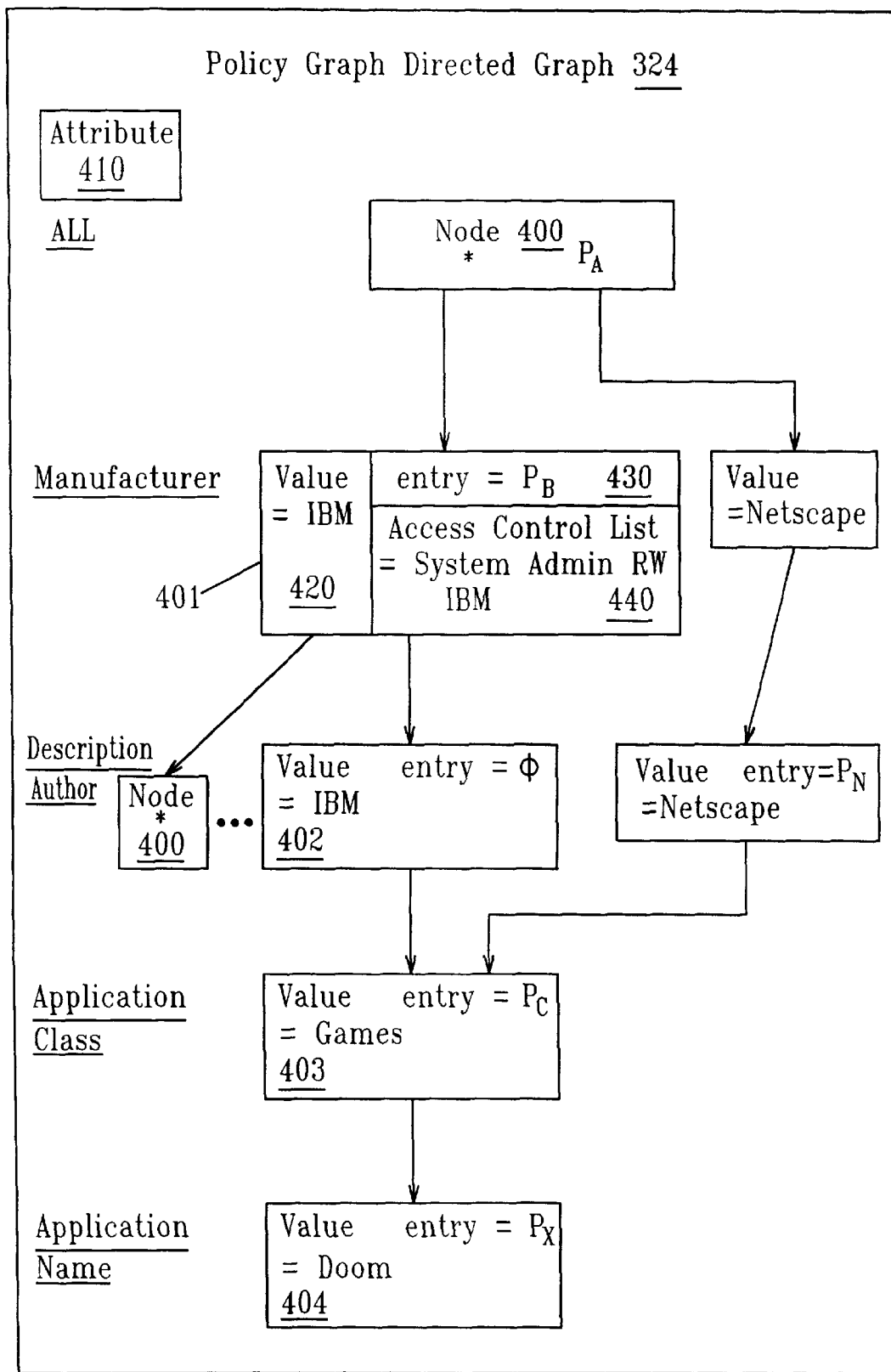


FIG. 4

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