

(12) **United States Patent**  
**Lee et al.**

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(54) **PERSONALIZATION OF SMART CARDS**

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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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**Related U.S. Application Data**

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(51) **Int. Cl.<sup>7</sup>** ..... **G04L 9/00**

(52) **U.S. Cl.** ..... **713/172; 712/165; 712/168; 380/255**

(58) **Field of Search** ..... 713/172, 164, 713/165, 168, 200, 201; 380/255, 33, 283

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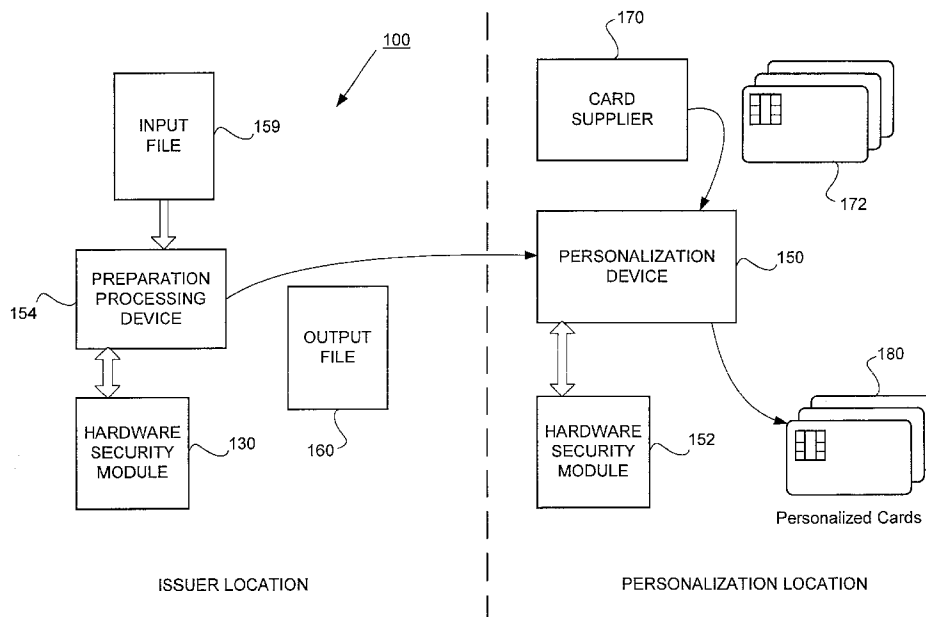
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(57) **ABSTRACT**

Smart card personalization includes a personalization preparation process prior to the personalization session at the personalization bureau. The personalization preparation process derives the derived card keys for a single or for multiple applications. The preparation process also generates issuer and card public key pairs and certificates. Master keys are used in conjunction with the personalization preparation process rather than utilizing the master keys during the remainder of the personalization process at the personalization bureau. Because the personalization preparation process does not require highly specialized, expensive machinery, it is straightforward for an issuer to derive the card keys at the issuer's location. Once the personalization preparation process is complete, the derived card keys are stored in an output file merged with other card personalization data. The output file contains records of secret and non-secret card data, each record corresponding to personalization information for a single card to be personalized. The output file is sent to the personalization bureau which process the file using standard processing modules to personalize each smart card. The preparation process and the personalization process may be performed at the same location or at different locations.

**28 Claims, 5 Drawing Sheets**



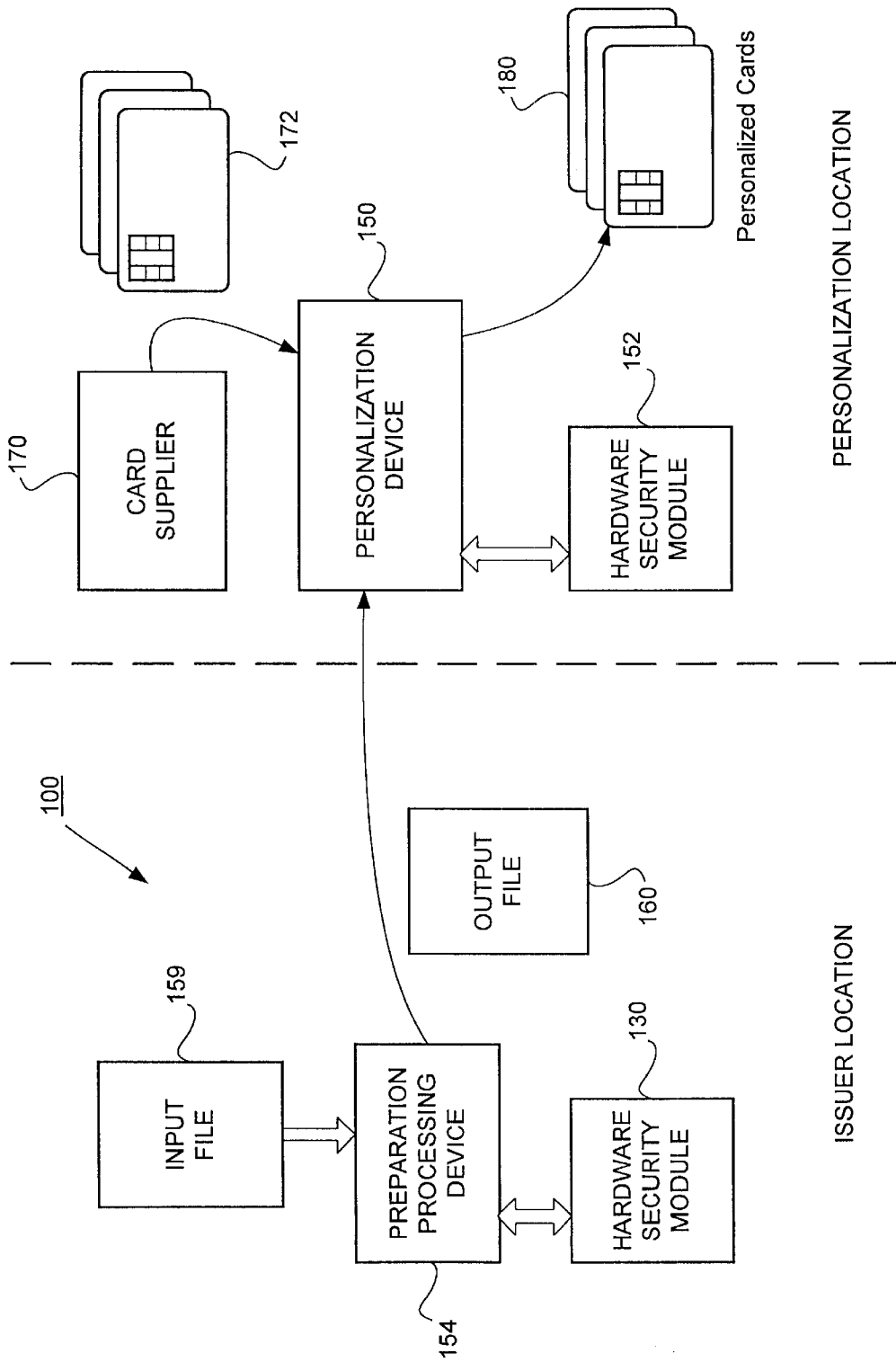


FIG. 1

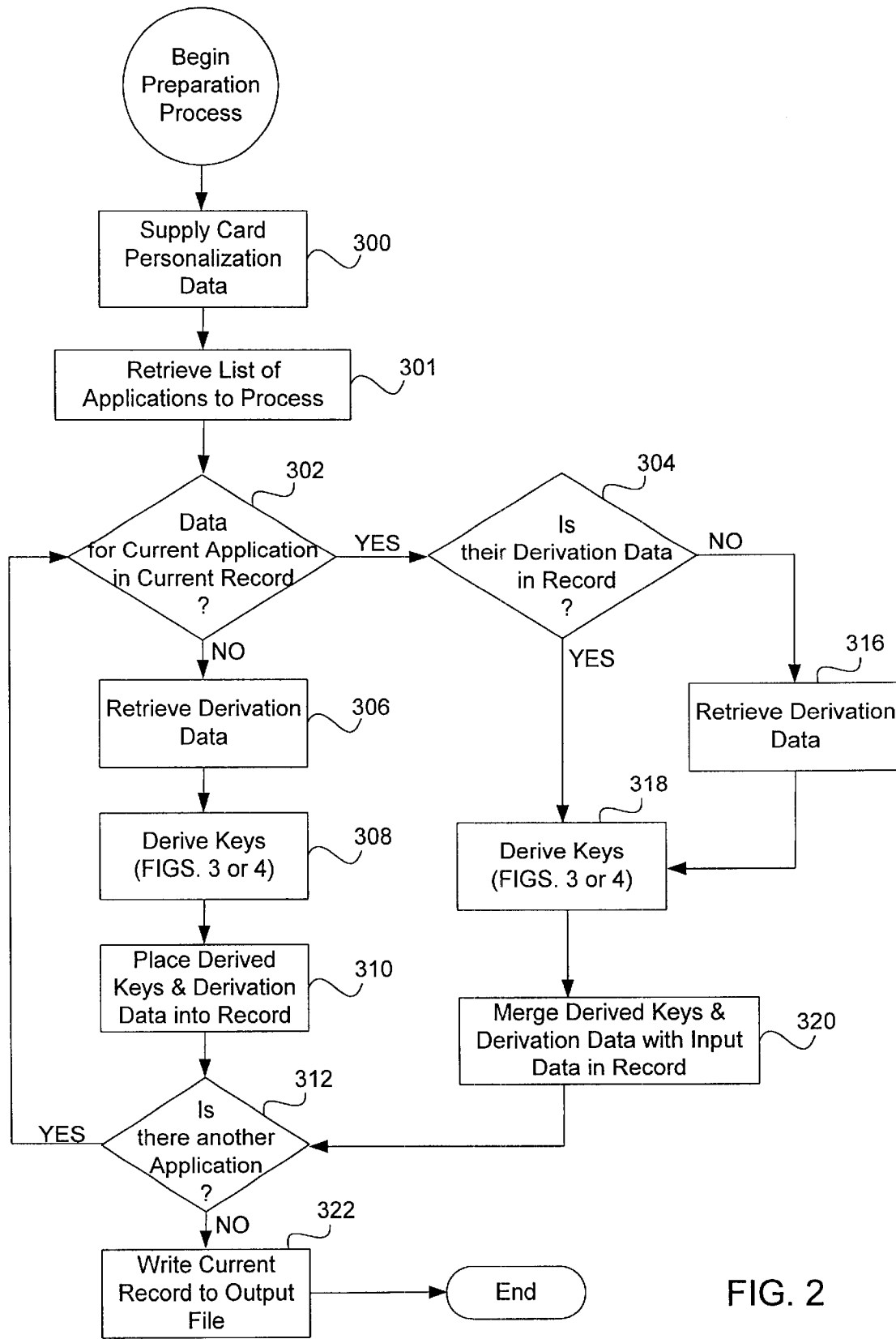


FIG. 2

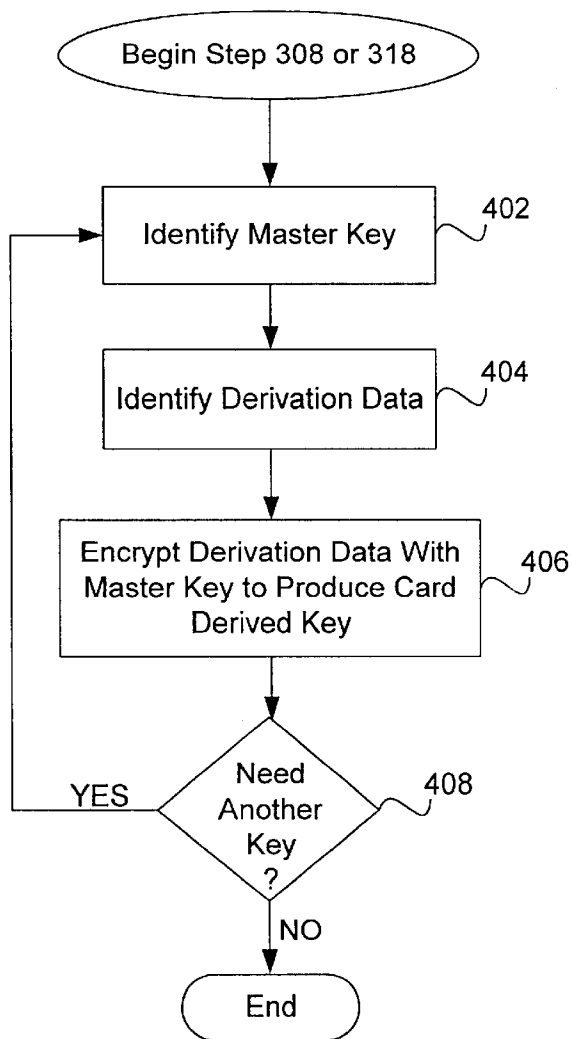


FIG. 3

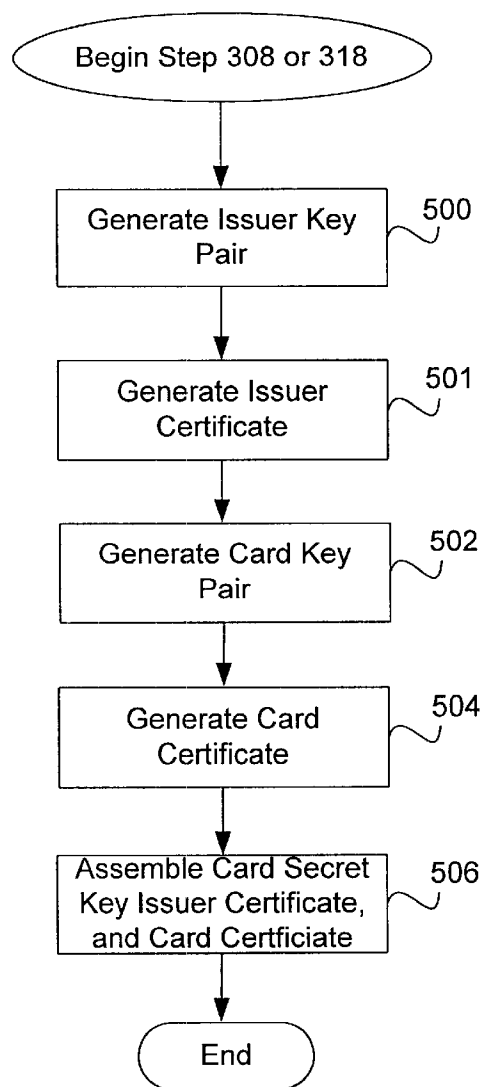


FIG. 4

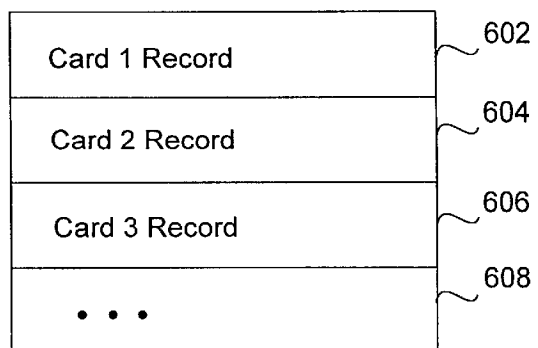
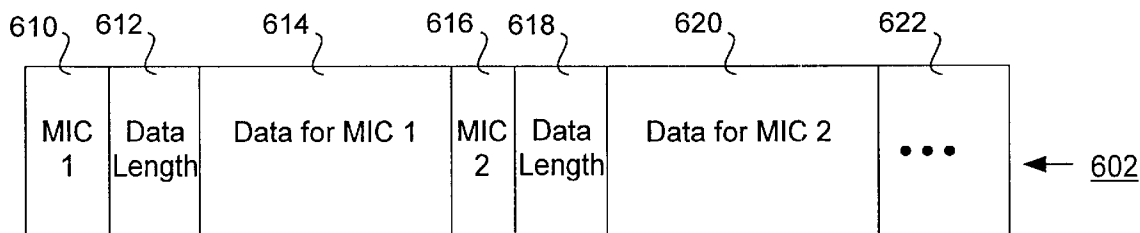


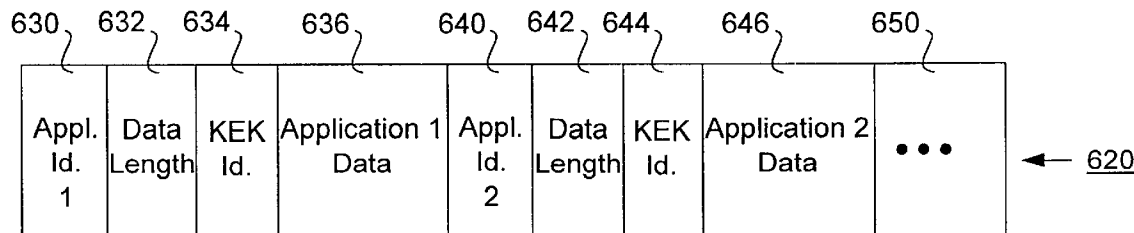
FIG. 5A

← 160



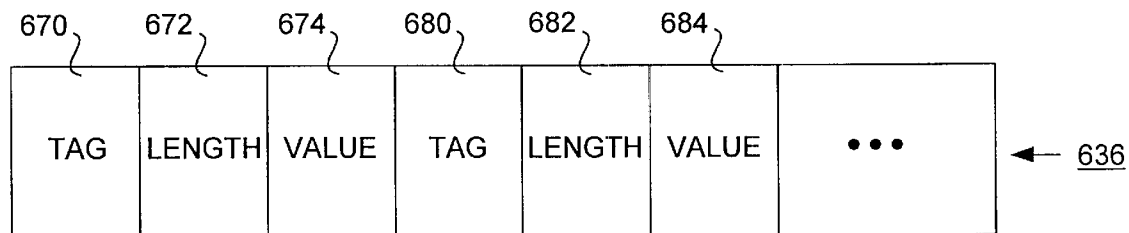
Card 1 Input Record

FIG. 5B



Data for MIC 2 (Chip Data)

FIG. 5C



Application 1 Data

FIG. 5D

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