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# United States Patent [19]

[11] Patent Number: **6,000,832**

Franklin et al.

[45] Date of Patent: **Dec. 14, 1999**

[54] **ELECTRONIC ONLINE COMMERCE CARD WITH CUSTOMER GENERATED TRANSACTION PROXY NUMBER FOR ONLINE TRANSACTIONS**

[57] **ABSTRACT**

[75] Inventors: **D. Chase Franklin**, Seattle; **Daniel Rosen**, Bellevue; **Josh Benaloh**; **Daniel R. Simon**, both of Redmond, all of Wash.

An online commerce system facilitates online commerce over a public network using an online commerce card. The "card" does not exist in physical form, but instead exists in digital form. It is assigned a customer account number that includes digits for a prefix number for bank-handling information, digits for a customer identification number, digits reserved for an embedded code number, and a digit for check sum. The bank also gives the customer a private key. During an online transaction, the customer computer retrieves the private key and customer account number from storage. The customer computer generates a code number as a function of the private key, customer-specific data (e.g., card-holder's name, account number, etc.) and transaction-specific data (e.g., transaction amount, merchant ID, goods ID, time, transaction date, etc.). The customer computer embeds the code number in the reserved digits of the customer account number to create a transaction number specific to the transaction. The customer submits that transaction number to the merchant as a proxy for a regular card number. When the merchant submits the number for approval, the issuing institution recognizes it as a proxy transaction number, indexes the customer account record, and looks up the associated private key and customer-specific data. The institution computes a test code number using the same function and input parameters as the customer computer. The issuing institution compares the test code number with the code number embedded in the transaction number. If the two numbers match, the issuing institution accepts the transaction number as valid.

[73] Assignee: **Microsoft Corporation**, Redmond, Wash.

[21] Appl. No.: **08/935,485**

[22] Filed: **Sep. 24, 1997**

[51] Int. Cl.<sup>6</sup> ..... **G06F 17/00**

[52] U.S. Cl. .... **364/479.02; 235/379; 235/380**

[58] Field of Search ..... **235/379, 380; 364/479.02**

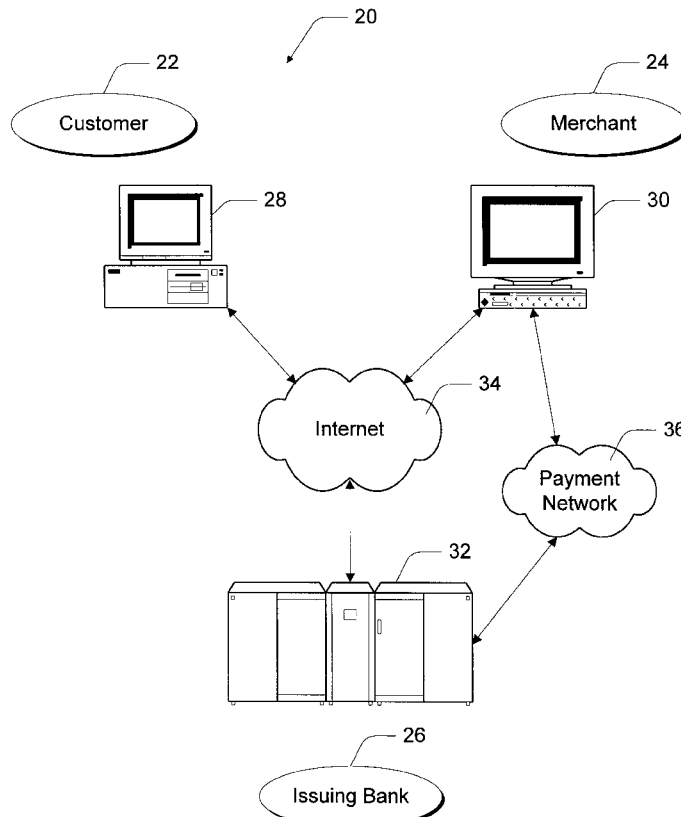
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*Primary Examiner*—Harold I. Pitts  
*Attorney, Agent, or Firm*—Lee & Hayes, PLLC

**53 Claims, 5 Drawing Sheets**



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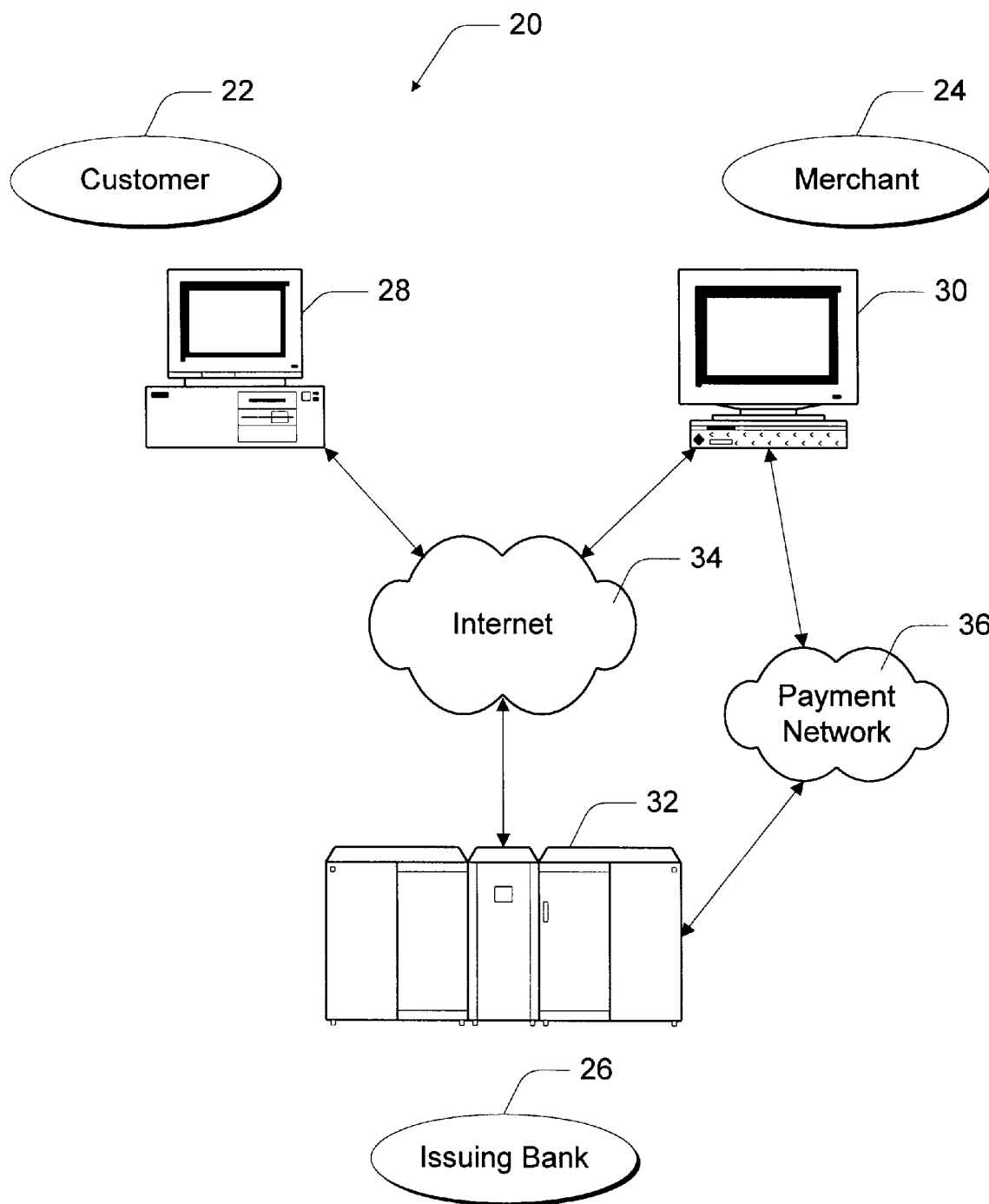
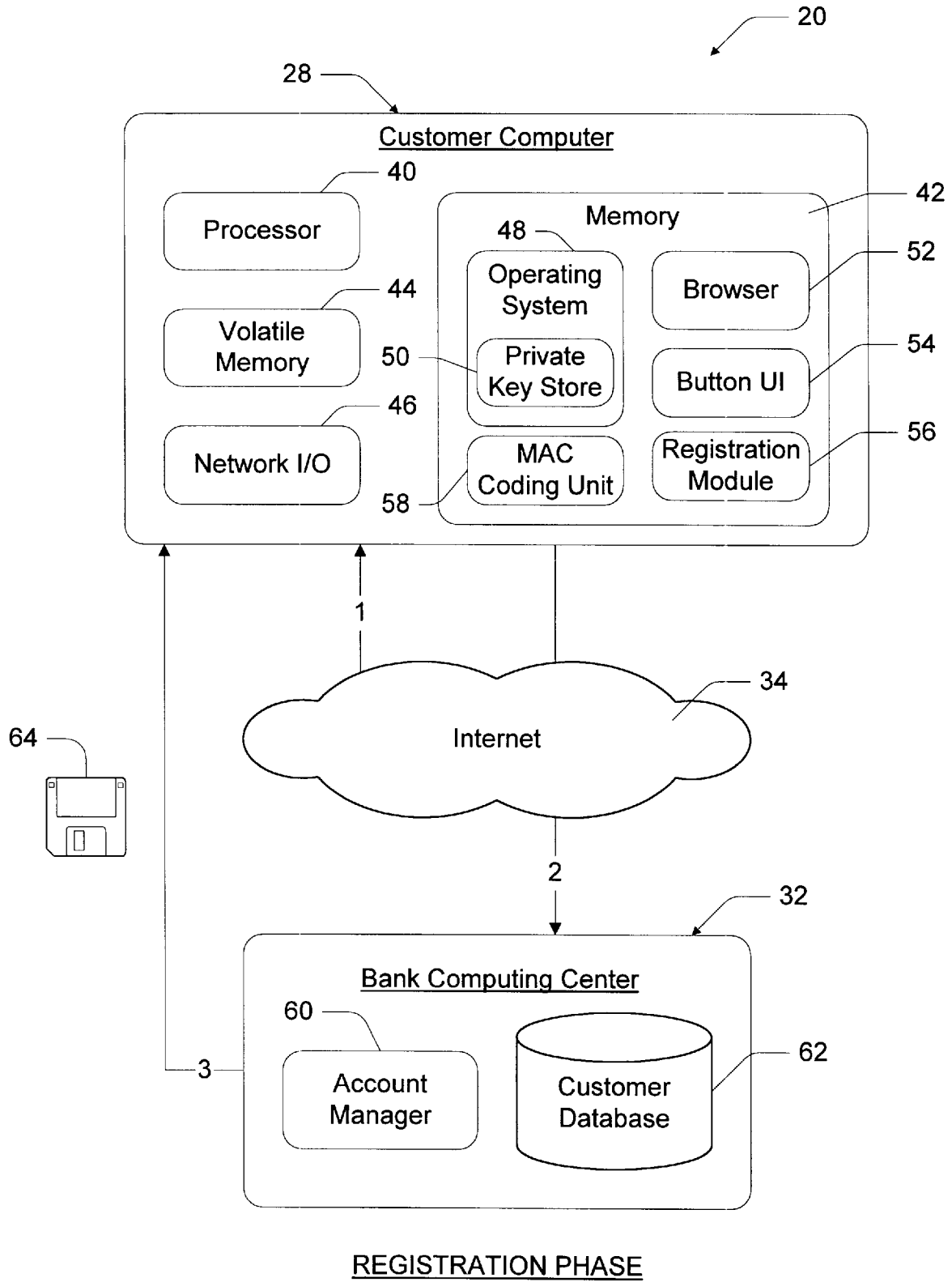
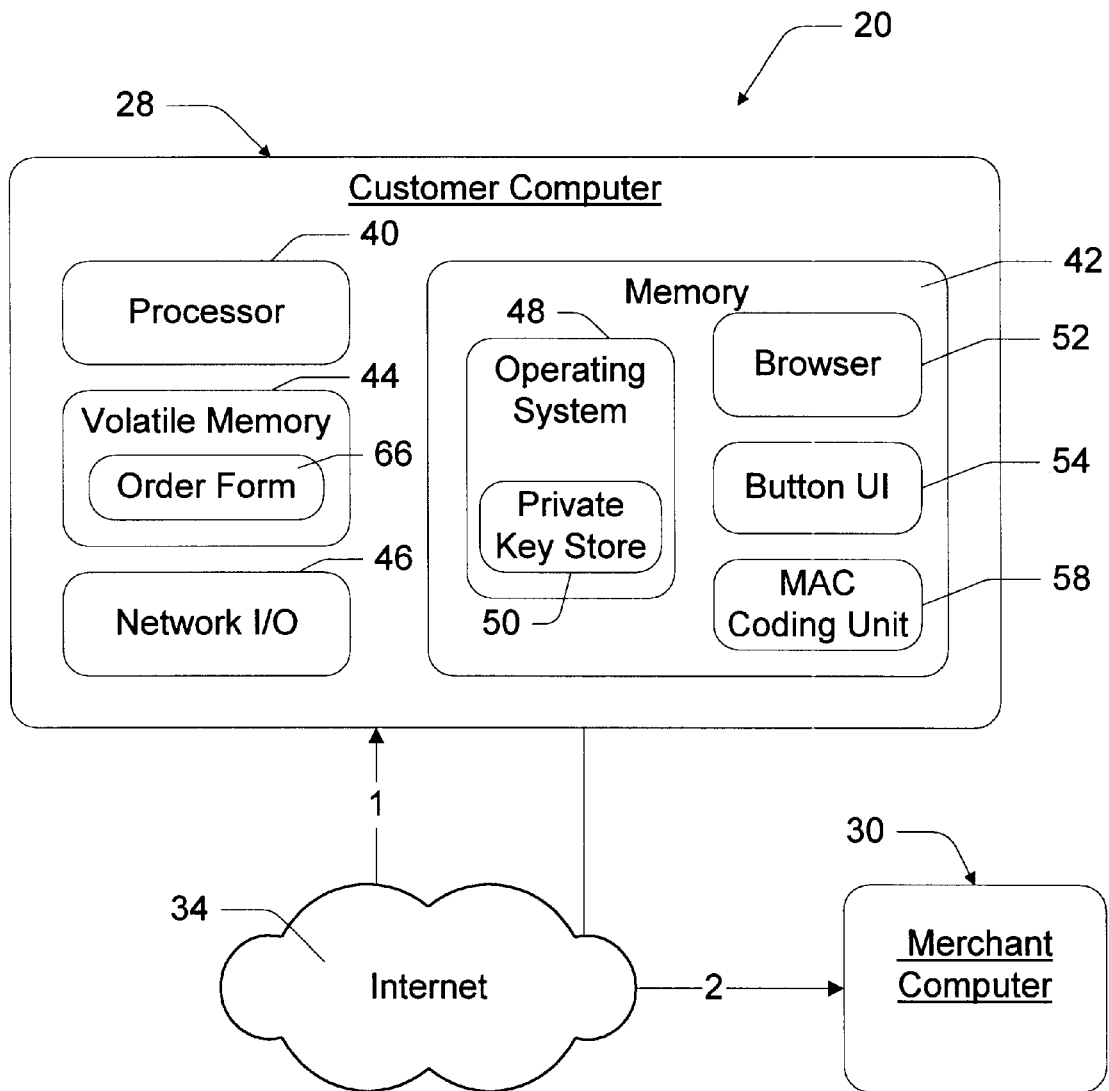


Fig. 1

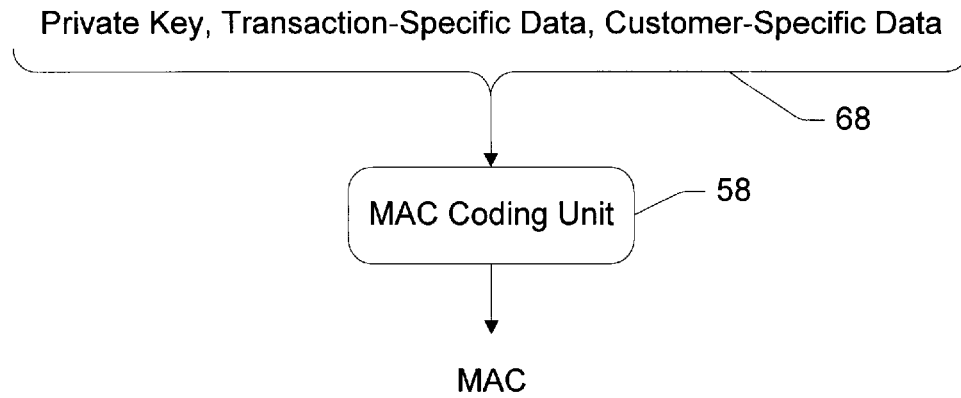


*Fig. 2*

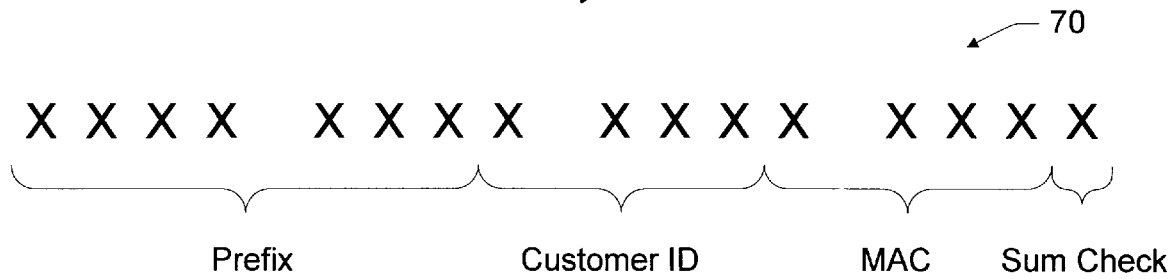


TRANSACTION PHASE

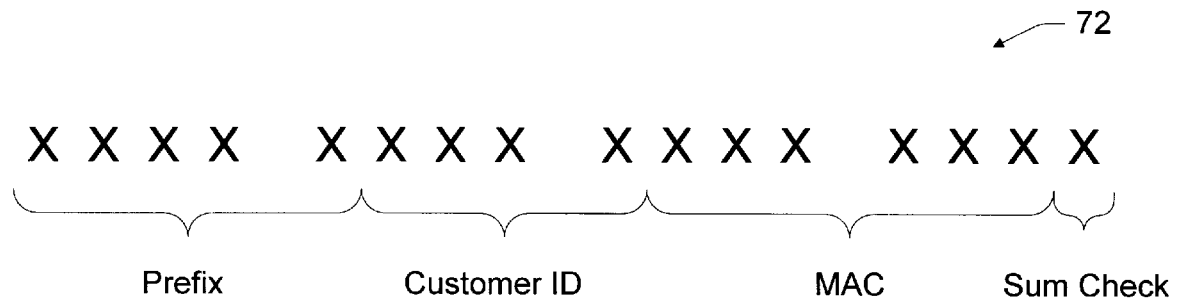
*Fig. 3*



*Fig. 4*



*Fig. 5*



*Fig. 6*

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