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(54) **DIGITAL AUTHENTICATION WITH DIGITAL AND ANALOG DOCUMENTS**

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Related U.S. Application Data

(63) Continuation-in-part of application No. 10/164,899, filed on Jun. 4, 2002, which is a continuation of application No. 09/198,022, filed on Nov. 23, 1998, now Pat. No. 6,546,112, which is a continuation of application No. 08/763,847, filed on Dec. 4, 1996, now Pat. No. 5,841,886, which is a continuation of application No. 08/512,993, filed on Aug. 9, 1995, now abandoned.
Continuation-in-part of application No. 09/775,934, filed on Feb. 2, 2001, which is a continuation-in-part of application No. 09/625,577, filed on Jul. 25, 2000.

Continuation-in-part of application No. 09/837,564, filed on Apr. 17, 2001, and which is a continuation-in-part of application No. 09/503,881, filed on Feb. 14, 2000, now Pat. No. 6,614,914, which is a continuation-in-part of application No. 09/186,962, filed on Nov. 5, 1998, which is a continuation of application No. 08/649,419, filed on May 16, 1996, now Pat. No. 5,862,260, which is a continuation-in-part of application No. 08/637,531, filed on Apr. 25, 1996, now Pat. No. 5,822,436, which is a continuation-in-part of application No. 08/512,993, filed on Aug. 9, 1995, now abandoned.

(List continued on next page.)

(30) **Foreign Application Priority Data**

May 7, 1996 (WO) PCT/US96/06618

Publication Classification

(51) **Int. Cl.**^{7} **H04L 9/00**
(52) **U.S. Cl.** **713/176**

(57) **ABSTRACT**

The disclosure describes systems for creating and authenticating printed objects using authentication information. Techniques for incorporating authentication information into digital representations of objects and using the authentication information to authenticate the objects are also provided.
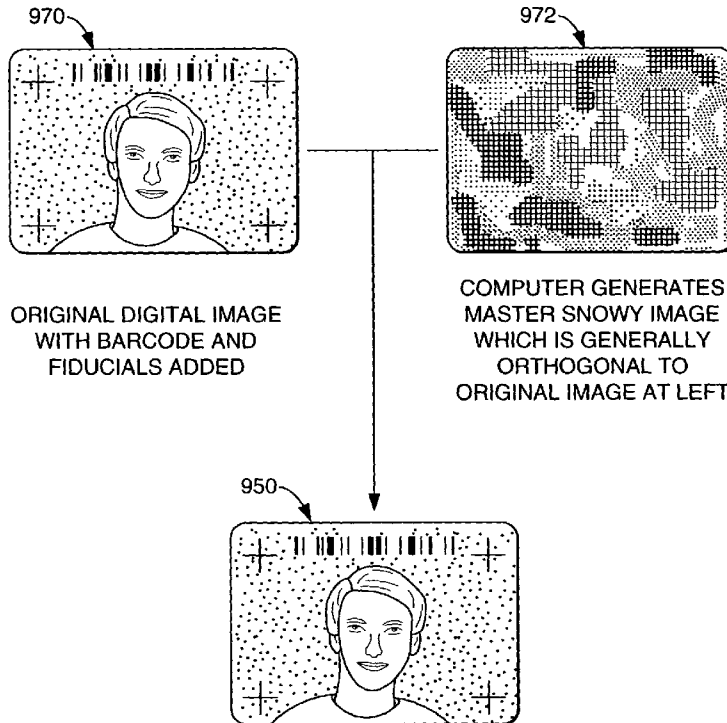
970
ORIGINAL DIGITAL IMAGE
WITH BARCODE AND
FIDUCIALS ADDED

972
COMPUTER GENERATES
MASTER SNOWY IMAGE
WHICH IS GENERALLY
ORTHOGONAL TO
ORIGINAL IMAGE AT LEFT

950

Related U.S. Application Data

Continuation-in-part of application No. 09/571,422, filed on May 15, 2000, which is a continuation-in-part of application No. 09/343,104, filed on Jun. 29, 1999, now abandoned, and which is a continuation-in-part of application No. 09/342,688, filed on Jun. 29, 1999, now Pat. No. 6,650,761, and which is a continuation-in-part of application No. 09/343,101, filed on Jun. 29, 1999, and which is a continuation-in-part of application No. 09/314,648, filed on May 19, 1999, now Pat. No. 6,681,028.
Continuation-in-part of application No. 10/011,129, filed on Nov. 9, 2001, which is a continuation of application No. 09/442,780, filed on Nov. 18, 1999, now Pat. No. 6,389,151, and which is a continuation-in-part of application No. 09/074,034, filed on May 6, 1998, now Pat. No. 6,449,377.
Said application No. 10/011,129 is a continuation-in-part of application No. 09/763,847, filed on Feb. 27, 2001, now abandoned, which is a continuation of application No. 08/512,993, filed on Aug. 9, 1995, now abandoned.
Continuation-in-part of application No. 09/465,418, filed on Dec. 16, 1999.
Continuation-in-part of application No. 10/147,228, filed on May 15, 2002, which is a continuation-in-part of application No. 09/670,115, filed on Sep. 26, 2000, now abandoned, and which is a continuation-in-part of application No. 09/563,664, filed on May 2, 2000, now Pat. No. 6,505,160, and which is a continuation-in-part of application No. 09/476,686, filed on Dec. 30, 1999, and which is a continuation-in-part of application No. 08/746,613, filed on Nov. 12, 1996, now Pat. No. 6,122,403, which is a continuation-in-part of application No. 08/649,419, filed on May 16, 1996, now Pat. No. 5,862,260, and which is a continuation-in-part of application No. 08/508,083, filed on Jul. 27, 1995, now Pat. No. 5,841,978.

(60) Provisional application No. 60/198,138, filed on Apr. 17, 2000. Provisional application No. 60/198,849, filed on Apr. 21, 2000. Provisional application No. 60/109,259, filed on Nov. 19, 1998. Provisional application No. 60/112,955, filed on Dec. 18, 1998. Provisional application No. 60/178,028, filed on Jan. 26, 2000. Provisional application No. 60/134,782, filed on May 19, 1999.
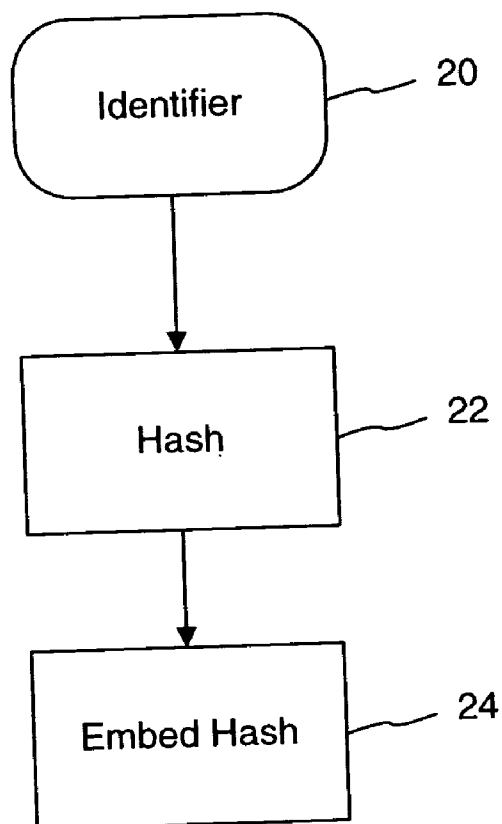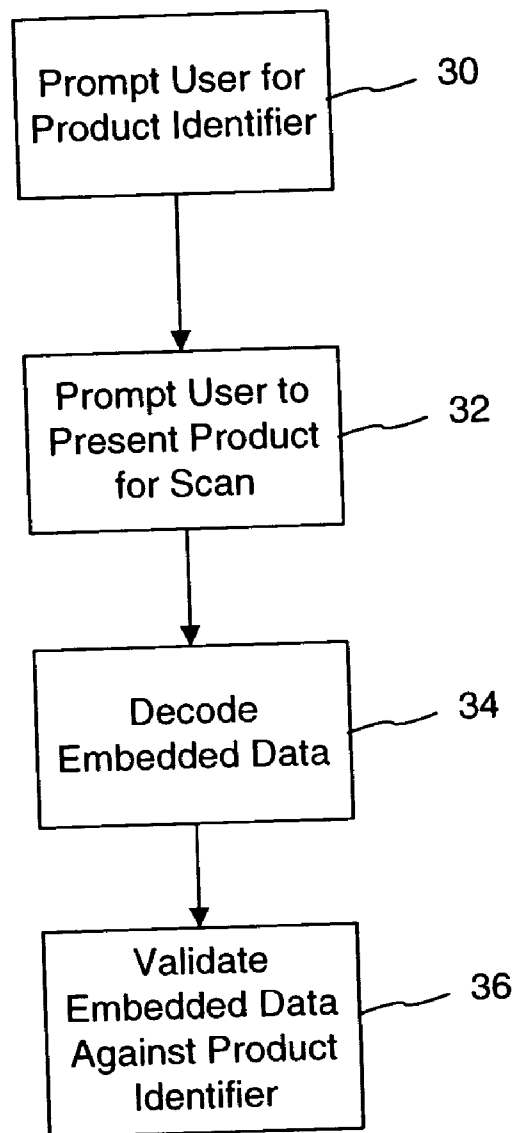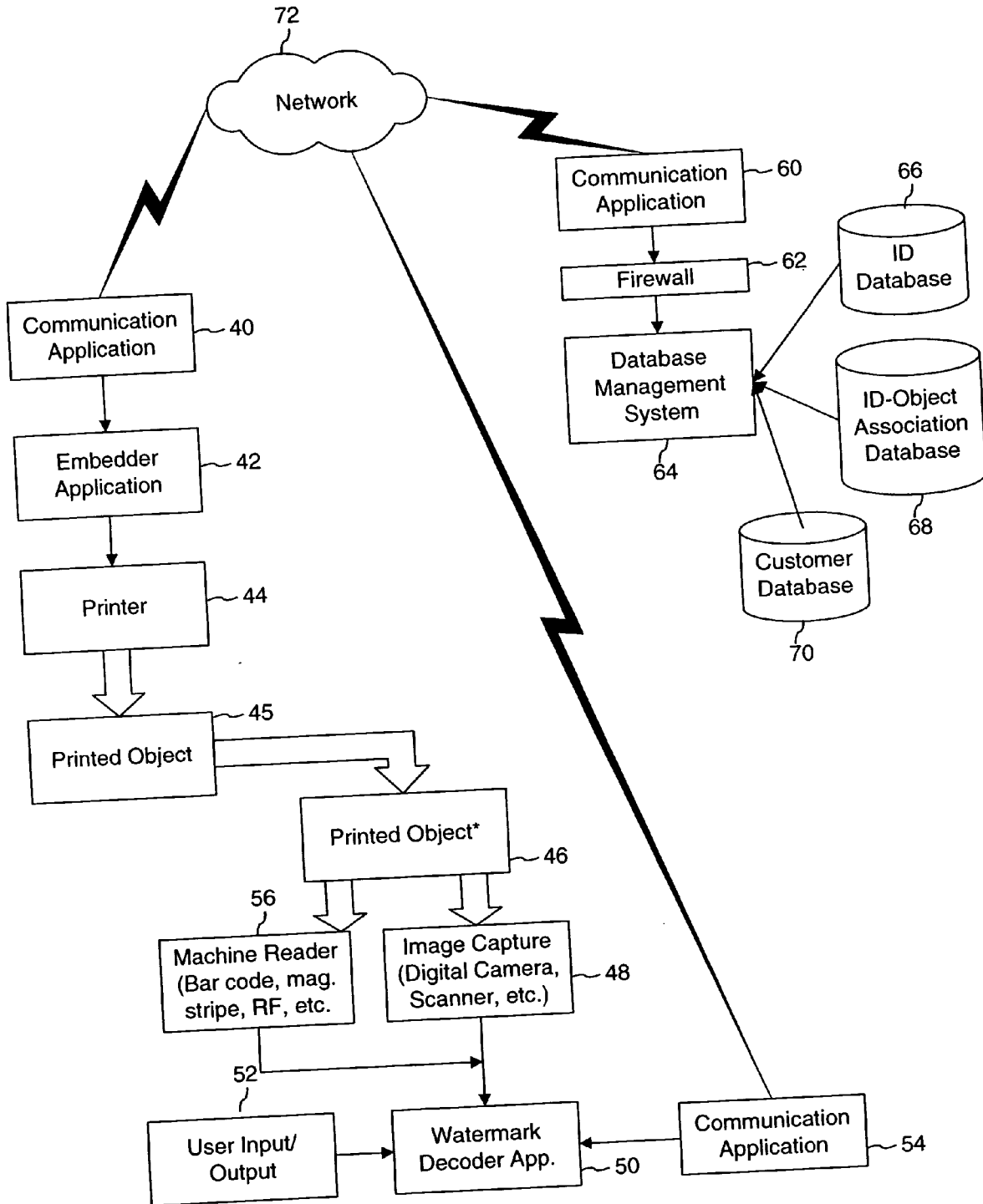
FIG. 1

Identifier — 20
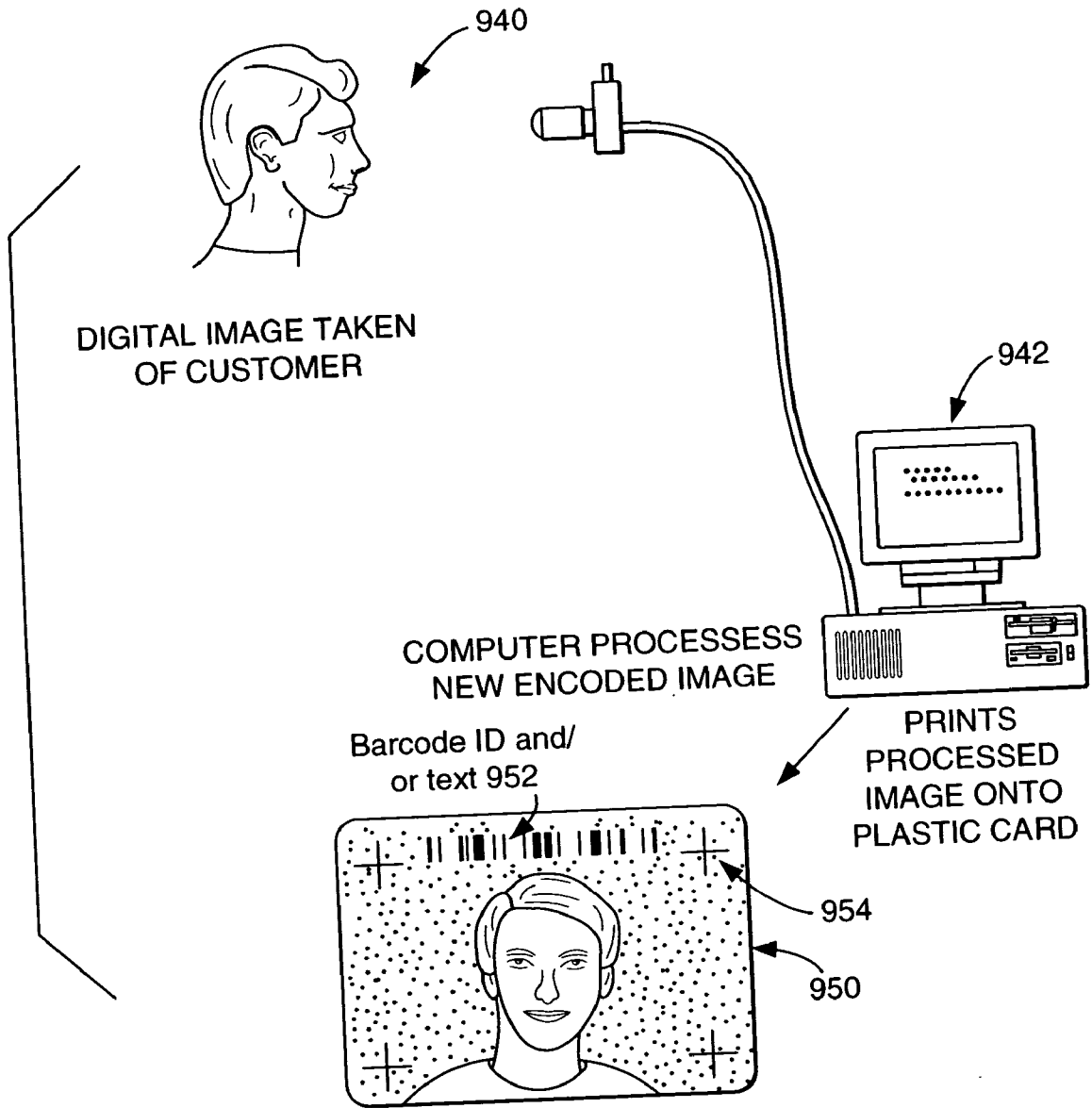
Hash — 22

Embed Hash — 24

FIG. 2

Prompt User for Product Identifier — 30

Prompt User to Present Product for Scan — 32

Decode Embedded Data — 34

Validate Embedded Data Against Product Identifier — 36

FIG. 3

940

DIGITAL IMAGE TAKEN
OF CUSTOMER

942

COMPUTER PROCESSESS
NEW ENCODED IMAGE

Barcode ID and/
or text 952

PRINTS
PROCESSED
IMAGE ONTO
PLASTIC CARD

954

950

FIG. 4

Explore Litigation Insights

DOCKET ALARM

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