

**COLOR IMAGE INPUT APPARATUS
HAVING COLOR IMAGE IDENTIFYING
FUNCTION**

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to an image input apparatus for inputting a color image on an original in a digital color copying machine, and more particularly to an image input apparatus having a function of automatically detecting the presence or absence of a specified original and controlling the output format or manner of the input image.

2. Description of the Related Art

Recently, as the digital color copying machine is more widely used and the image quality thereof is further enhanced, the possibility that crimes of forging bills, stocks or bonds are committed becomes higher.

Therefore, as a means for preventing the above crimes, a copying machine is developed which extracts a specified pattern based on an output of image input means such as a line sensor for inputting a color image on an original, detects the presence or absence of a bill or the like in the original by deriving the matching degree between the extracted specified pattern and a preset reference pattern and inhibits or interrupts the copying operation when the presence of the bill or the like is detected.

As a method for detecting a specified object from unspecified objects with high precision by use of a color image, for example, a method disclosed in U.S. patent application Ser. No. 275,441, filed on Jul. 15, 1994 is proposed. This method is to detect a bill or the like by forming a histogram or a frequency distribution pattern based on the color image and comparing the distribution pattern with a reference pattern.

However, in the conventional specified original identifying method, for example, the identifying method for comparing the frequency distribution of the color image with reference data, even a different pattern may sometimes have the same frequency distribution, and in this case, the identification operation will be erroneously effected. Further, storing means not only for the image pattern but also for frequency distribution data is necessary, causing the structure of the apparatus to be made larger.

SUMMARY OF THE INVENTION

An object of this invention is to provide an image input apparatus which can always precisely and adequately identify a specified original whose image input is to be inhibited and which can be made small.

The above object can be attained by an image input apparatus for inputting a color image, including: storage means for storing a plurality of items of reference color data respectively corresponding to a plurality of color images of a specific original; means for reading a plurality of color images of an original to be processed; means for segmenting a color image read by the reading means into a plurality of areas; means for extracting a plurality of items of color data included in each of the plurality of areas segmented by the segmenting means, each of the plurality of items of color data including a plurality of color components; means for transforming the items of color data extracted by the extracting means into a single color data to form transformed image data; means for comparing the transformed image data generated by the transforming means with the plurality of items of reference data stored in the storage means; means for identifying a kind of the color image on the original read

out by the reading means based on a comparison result by the comparing means; and means for inhibiting the output of a color image read by the reading means when the original read by the reading means is identified as the specific original in accordance with a result obtained by the identifying means.

Another image input apparatus for inputting a color image, including: storage means for storing a plurality of items of reference color data respectively corresponding to a plurality of color images of a specific original; means for reading a plurality of color images of an original to be processed; means for segmenting a color image read by the reading means into a plurality of areas; means for extracting a plurality of items of color data included in each of the plurality of areas segmented by the segmenting means, each of the plurality of items of color data including a plurality of color components; means for transforming the items of color data extracted by the extracting means into a single color data to form transformed image data; means for comparing the transformed image data generated by the transforming means with the plurality of items of reference data stored in the storage means; means for identifying a kind of the color image on the original read out by the reading means based on a comparison result by the comparing means; and means for outputting a color image different from a color image on the original read by the reading means when the original read by the reading means is identified as the specific original in accordance with a result obtained by the identifying means.

Still another image input apparatus of this invention includes reading means for reading a color image on an original containing color data; extracting means for extracting a specified area from the color image read by the reading means; converting means for converting an image of specified area extracted by the extracting means into color data items corresponding to the brightness, hue and chroma of the image; storing means for storing color data items indicating the reference brightness, hue and chroma; means for comparing the color data of the brightness, hue and chroma converted by the converting means with the color data of the reference brightness, hue and chroma stored in the storing means; identifying means for identifying the original read by the reading means based on the result of comparison by the comparing means; and inhibiting means for inhibiting output of an image read by the reading means when it is identified that the original is a specified type of original based on the result of identification by the identifying means.

Further, another image input apparatus of this invention includes reading means for reading a color image on an original containing color data; extracting means for extracting a specified area from the color image read by the reading means; converting means for converting an image of specified area extracted by the extracting means into color data items corresponding to the brightness, hue and chroma of the image; storing means for storing color data items indicating the reference brightness, hue and chroma; means for comparing the color data of the brightness, hue and chroma converted by the converting means with the color data of the reference brightness, hue and chroma stored in the storing means; identifying means for identifying the original read by the reading means based on the result of comparison by the comparing means; and output means for outputting an image different from the image on the original read by the reading means when it is identified that the original is a specified type of original based on the result of identification by the identifying means.