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(54) Ensuring print quality for postage meter systems
Sicherstellung der Druckqualität für Frankierungssysteme
Garantie de la qualité d'impression pour des systèmes de machines à affranchir

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Description

[0001] The invention disclosed herein relates generally to print quality and more particularly to methods and systems for helping to ensure postage meter system print quality.

[0002] Postage meter systems print indicia and other information on mailpieces such as envelopes. The indicia represents evidence of postage payment for the mailpiece. Different countries have different systems of payment for printed indicia. The payment may be made prior to when the imprint is made, with the prepaid postage value being deducted from the value stored in the postage meter system. Alternatively, payment may be made subsequent to when the imprint is made, based on the various indicia that had been printed. Postal processing equipment scans the face of mail pieces and decodes the data (e.g., barcodes) printed on the mail piece. The data in an indicium provides proof that a specific postage amount was paid. The quality of the print of a postal indicium is the primary factor that determines whether or not postal equipment which scans and images the mail piece can decode the data in the indicium. Therefore, achieving high print quality is critical to ensuring the security of postal funds. Postal services have established quality standards for the indicia image printed on mailpieces. Accordingly, standards have been promulgated by postal services for the quality of the indicia imprint An example of such standard is set forth International Standard ISO/IEC 18050: Print Quality Attributes for MachineReadable Digital Postage Marks.

[0003] US 2002/0030714 A1 describes a marking engine for use in a marking machine. The marking engine is responsive to control signals for selectively depositing marking material on media. The marking engine includes a housing associated with the marking engine. The housing is configured for docking with the printing system. The housing has an undocked position and a docked position wherein the housing is secured to a receiving station associated with the marking machine. Also included is a radio frequency linking device mounted to the housing so that there is substantially no relative movement between the radio frequency linking device and a corresponding radio frequency linking device associated with the receiving station when the marking engine is in the docked position with the marking machine. The radio frequency linking device provides a radio frequency link for transferring information between the marking engine and the marking machine.

[0004] US 6 978 255 B1 describes a method and apparatus for protecting a device against operation with unallowed consumables whose authenticity is checked in a remote data center. At least one code word is generated, an allocation to a specific consumable is stored in the form of a dataset with a reference code word, and the consumable is aggregated with the generated code word, which has a predetermined relationship to the reference code word or to a group of reference code words that are stored in the data center. An operation for the replacement of a consumable in a device remote from the data center is detected and a communication connection is set up between the device and the remote data center and the code word aggregated with the consumable is communicated to the data center. The communicated code word is received in the data center and the authenticity of the consumable on the basis of a stored reference code word is checked at the data center, which transmits a message to the device after checking the code.

[0005] US 2004/0066435 A1 describes a method and means for configuring a printer. A label included with a printer cartridge is detected to determine if the label is recognized. When the label is not recognized, a printer engine is configured with default printing properties. If the label is recognized, then the label printing properties included on the label are read and used to configure the printer engine.

[0006] In processing mail, when indicia or another imprint on a mailpiece fails to meet the required standard, the mail may be processed in other than the standard manner. When inferior quality inks or ink cartridges are used in postage meter systems, the consequence can be significant and can be more than merely poor images and the failure of proper processing in the post office. It can also involve the loss of funds, the undeliverability of mail and damage to the equipment (e.g., a postage meter) itself. The inferior quality ink may damage the print head of a meter system by permanently clogging or pitting the print head nozzles that are employed to print indicia and other information. This may require that the print head be replaced. Moreover, the mail itself may be returned by the postal service to the sender, causing additional expense and delay in processing the mail. Since postage meter systems are used frequently in high-volume production of mail, the failure to make proper imprints can impact large amounts of mailpieces and have significant commercial consequence to the mailer.

[0007] To help avoid printing problems, postage meter manufacturers carefully develop and formulate ink used in postage meter systems. This is to ensure that the inks and ink systems meet the requirements of the specific countries where the postage meter systems are employed. Postage meter manufacturers implement extensive testing, specific formulation and quality assurance programs in the manufacture and storage of postage meter inks. It is, thus, desirable to ensure the proper performance of postage meter systems under various operating conditions, including where improper or inferior quality ink may be employed.

[0008] It is an objective of the present invention to help ensure that print quality is maintained in printing systems employing various inks.

[0009] It is also an objective of the present invention to help ensure that print quality is maintained in postage meter systems employing various postage meter inks.

[0010] It is a further objective of the present invention
to detect the use of non-qualified and/or non-approved inks in postage meter systems to help avoid improper printing.

According to a first aspect of the invention, there is provided a method for helping to ensure quality in a postage meter system employing an ink system and having settable modes of printing operation, comprising the steps of: detecting whether the type of ink system employed in said postage meter system is a first type that is recognized or a second type that is unrecognized; setting a first mode of printing operation using normal ink density printing on mailpieces for said postage meter system when said detected ink system is of the first type; and, setting a second mode of printing operation using higher than normal ink density printing on mailpieces for said postage meter system when said detected ink system is of the second type, wherein said second mode of printing operation with said second type ink system is a special printing mode using slower than normal print throughput to enhance the quality of printing resulting when employing said ink system of said second type.

According to a second aspect of the invention, there is provided a postage meter system adapted to employ an ink cartridge in printing postal indicia, comprising: a processor said processor comprising: printing means for operating said ink cartridge to print, said printing means being settable to a normal mode of printing operation and a second mode of printing operation, said normal mode using normal ink density printing and said second mode using higher than normal ink density printing; means for detecting whether said ink cartridge is a first type that is recognized or a second type that is unrecognized; means coupled to said detection means and said printing means for changing said mode of operation of said printing means based on the ink cartridge type detected by said means for detecting so that the normal mode is set for ink cartridges of the first type and the second mode is set for ink cartridges of the second type; and communication means coupled to said detection means for communicating detected ink cartridge type to a remote data center, wherein said second mode of printing operation with said second ink cartridge type is a special printing mode using slower than normal print throughput to enhance the quality of printing resulting when employing said second ink cartridge type.

The following further describes a postage meter system adapted to employ an ink cartridge in printing postal indicia which includes printing means for operating the ink cartridge to print, the printing means settable to a normal mode of printing operation and a special mode of printing operation. Means for detecting the ink cartridge type are provided and means are coupled to the detection means and the printing means for changing the mode of operation of the printing means based on the
ink cartridge type detected by the detecting means.  

[0020] In still another variant, a method for helping to ensure quality in a consumable item system having set- 

table modes of operation includes the steps of receiving at a data center information from the consumable item 

system identifying the consumable item system and a consumable item type employed in the consumable item 

system. Information is retrieved from a database concerning consumable item types adapted to be used in the 

consumable item system and it is determined if the identified consumable item type employed in the identified 

consumable item system is of a first type for use in the consumable item system. Corrective action is performed if the identified consumable item is other than the first type for use in the consumable item system.  

[0021] Reference is now made to Figs. 1 and 4. A postage meter system 10 includes an ink cartridge 12. The ink cartridge 12 contains the supply of ink that is employed by the postage meter system 10 to print indicia and other information. The ink cartridge 12 includes an integrated circuit 14 having a non-volatile memory 16 in which is stored ink cartridge identification information 18 and a cryptographic key 20.  

[0022] The integrated circuit 14 further includes a processor 22 having a crypto algorithm 24 stored therein and a communications port 26. A print head 28 is connected to the ink cartridge 12 and is adapted to print the indicia 29 and may also be employed to print other information on an envelope 30 using the ink in the ink cartridge 12. The indicia 29 as shown in Fig. 4 can include a two-di- 

mensional bar code as is employed in indicia printed in accordance with the requirements of the United States Postal Service for Information Based Indicia. The ink cartridge communications port 26 is coupled to a postage meter system controller 32 which includes a processor 34 coupled to a communications port 36. The processor 34 comprises printing means for operating said ink cartridge 12 to print, the printing means being settable to a normal mode of printing operation and a special mode of printing operation; means for detecting said ink cartridge type; and means coupled to the detection means and the printing means for changing said mode of operation of the printing means based on the ink cartridge type detected by the means for detecting. The communications port 36 is coupled to communicate with a remote data center 38 and is also coupled to a scanner 40 within the postage meter system 10.  

[0023] The postage meter system 10 can be any of a large number of different types of postage meter sys- 

tems. The mechanical, electronic, computing, software, 

printing and ink, organization and implementation of post- 

age meter systems can vary widely from manufacturer to manufacturer and from country to country. The post- 

age meter system can be a stand-alone, integrated sys- 

tem that both meters postage and processes mailpieces or it can be a separate metering system designed to op- 

erate in conjunction with a separate mailing machine. The postage metering system can be a closed metering 

system where printing and accounting for postage are 

physically connected or an open metering system where printing and accounting are not physically connected. Ac- 

cordingly, not all postage metering systems 10 include 

all of the elements in Fig. 1 (e.g., some systems do not include a scanner 40, some ink cartridges 12 may not include a cryptographic algorithm 24 and cryptographic 

key 20). These and other postage metering systems are 

known and are widely employed in the United States and 

other countries.  

[0024] Remote data center 38 may contain servers and 

databases. The databases may be used to store informa- 

tion related to individual meter systems 10 and/or ink 

cartridges 12 and/or information related to types of me- 

ters and ink cartridges. The data may include: whether 
or not specific types of ink cartridges are suitable for use in specific postage meter systems or types of systems.  

[0025] Reference is now made to Fig. 2. A print is ini- 

tiated at block 50 in the postage meter system 10. A de- 
termination is made at decision block 52 if the cartridge in the postage meter system 10 is a recognized cartridge. Methods for recognizing inks and ink cartridges are de- 
scribed below. Where the cartridge is recognized, the process continues at block 54, where the postage meter system 10 sets a normal print mode and an indicia is printed at block 56.  

[0026] Where the cartridge is not recognized at deci- 
sion block 52, a further determination is made at decision 

block 58 whether the postage meter system 10 includes a scanner 40. Where the postage meter system 10 in- 

cludes a scanner 40, a test image is printed and scanned at block 60 and the process continues at decision block 62. The process can also print an actual indicia at block 56, which is then scanned. The information obtained from 

scanning the indicia would be used for subsequent indicia that are printed. Where the postage meter system 10 does not include a scanner 40, the process also continues at decision block 62.  

[0027] At decision block 62, a determination is made if the user notification has been enabled. Where the user notification has been enabled, the user is advised at block 64 of the potential print quality problems. User notification can be in any suitable manner. Where the postage meter system 10 includes an image scanner and the image has been scanned, this additional information may be em- 

bedded into the user advice as to any quality problems encountered. At decision block 66, the user then deter- 

mines whether to select a special print mode.  

[0028] Where the user determines not select a special print mode, the processing continues at block 54 with the normal print mode being set and the indicia printed at block 56. However, where the user determines to select a special print mode, the special print mode is set at block 68 and the indicia is printed with the special print mode at block 56. Where the user has determined at decision block 62 not to enable user notification, the process may be automated based on this decision of the user. The special print mode is set at block 68 and the indicia is
printed with the special print mode at block 56.

[0029] The process of determining the ink or the ink cartridge type employed can be enabled when the ink supply is refilled or a new ink cartridge is installed, depending on the type of postage meter system, rather than at the initiation of each print cycle. The process can also be conducted by running a test mailpiece or media through the system to determine the nature of the ink or ink cartridge and whether it is a recognized ink or ink cartridge.

[0030] Where the ink or ink cartridge is a recognized ink or ink cartridge, the ink or ink cartridge can either be of a type qualified to operate properly with the postage meter system 10 or it can be of a type not qualified to operate properly with the postage meter system 10 and possibly even recognized to cause various printing problems. In the situation where the ink or ink cartridge is not a recognized ink or ink cartridge, it may or may not operate properly with the postage meter system 10. However, in this case the user may desire to implement a precautionary mode of operation of the postage meter system to help insure a high quality indicia imprint or may desire to not use the unrecognized ink or ink cartridge. Based on data obtained from the data center 38, the postage meter system 10 can cause the print head to print or to display the various options that may be available to the user. The display of such options can be via a display associated with the postage meter system 10 or other suitable display. The options can include, for example, depending on how the user wishes to proceed, a list of approved inks and ink cartridges where a non-recognized ink or ink cartridge is employed or where a scanner, such as scanner 40, detects a low quality imprint as well as options concerning various modes of printing.

[0031] Reference is now made to Fig. 3. A list of inks and ink cartridges from various postage meter systems such as postage meter system 10 is received at the data center at block 80. This information can be sent at the time of a communication between the postage meter system 10 and the data center 38, for example, for refilling of funds into the postage meter system, the sending of reports concerning the postage meter system operation and usage or during any other normal connections. The communications between the postage meter system 10 and the data center 38 can also be established when the ink supply is replenished or when an ink cartridge 12 is installed into the postage meter system. The list of inks or cartridges and the date received from postage meter system 10 is entered into a global database at block 82.

[0032] The database can be a database of all inks and ink cartridges available that are qualified for use in the particular postage meter system, all inks and ink cartridges that have been used in any postage meter system that have created known problems, and other relevant information concerning the various types of cartridges, as well as the various types of corrective actions that can be implemented with respect to the specific types of inks and ink cartridges. The database may also contain information related to the date that an ink cartridge was installed, any print anomalies that may have been detected by a postage meter system 10 analyzing images from scanner 40, and/or the number of prints made by a particular cartridge as reported by a postage meter system 10.

[0033] A determination is made at decision block 84 if the cartridge type is recognized, for example, as a high quality ink cartridge. That is, an ink cartridge type that is suitable for use in the particular postage meter system where the ink cartridge is being employed so that a high quality indicia imprint should occur using the particular ink cartridge. Where the cartridge is not recognized or is not suitable for use corrective action is taken at step 96. Possible corrective actions are described below. Where the cartridge is recognized and qualified as being of a high quality, a check is made block 86 whether information about that specific ink cartridge has been previously communicated to the data center 38 and stored in the database. Information about a specific ink cartridge may include: whether the ink cartridge was previously used in a different meter system, the date the cartridge was initially installed, the number of total imprints produced by the cartridge by other postage meter systems, etc. In certain cases it is possible to determine that the ink cartridge is a re-used ink cartridge that has been refilled with ink (e.g., if the ink cartridge has created more imprints than the capacity of the cartridge should allow). The ink used to refill the ink cartridge may not be suitable for use with the particular postage meter system or the cartridge itself could be worn or damaged.

[0034] A determination is made at decision block 88 if the cartridge is being re-used. Where the cartridge is being re-used, a corrective action is performed at block 96. Where the cartridge has not been re-used, a determination is made at decision block 90 if the cartridge is from another vendor. If the cartridge is not from another vendor, no action is taken at block 92. If the cartridge is from another vendor, action can be implemented at block 94 to, for example, win the customer back or determine why the customer is not utilizing the vendor's cartridge.

[0035] Various corrective actions that can be implemented at block 96 include controlling the postage meter system via the communications from the data center 38 via the postage meter system processor 34 as to the appropriate special print mode for the particular cartridge being employed. This may help ensure the highest possible quality image is printed for the particular ink cartridge being used in the postage meter system 10. Additionally, the customer can be notified via the postage meter display, computer display, e-mail, letter mail, phone or other means that the print quality may suffer if lower quality inks are used and the potential consequences of such issues. Further, the communications to the customer can include known problems with the specific ink cartridge being employed in the postage meter system 10. That is, a history of destroyed print heads and the like. The customer can be offered various alternative, high
postage meter system 10 and even be sent samples of quality cartridges that would be suitable for use in the postage meter system 10 and even be sent samples of such ink cartridges.

In addition to the above, the corrective action may also be downloaded into the postage meter 10 from the data center 38, e.g., modes of operation which will help insure a quality imprint for the specific ink cartridge involved. These can include slower print speeds or more frequent maintenance cycles for the ink cartridge print head. These modes of operation may be automatically implemented or implemented by user activation. They may be activated individually or in combination to enhance printing quality.

The user can also be requested to provide a print sample to the postage meter system vendor or third party for analysis to determine the level of acceptability and level of quality of the particular cartridge where the cartridge type is not recognized or in other appropriate circumstances. This sample can be a physical sample sent for analysis or can be a sample from the scanner 40 communicated from the postage meter system 10 communications port 36 to data center 38. Data from the database can also be employed in various marketing activities, such as advertising, promotional sales and the like, based on the information gathered from a large number of postage meter systems in a given geographical area.

Different types of detection systems can be employed in detecting the specific type of ink or ink cartridge in the postage meter system 10. When manufactured, inks and also ink cartridges can be marked in various different ways to operate in conjunction with the detection system employed in the postage meter system or systems where the ink or ink cartridge is intended to be used. These detection systems can be an optical system, for example, a laser scanner barcode detection system. The detection system can be a chemical system which, for example, where a chemical marker or a level of fluorescence in an ink or a stripe or other mark on an ink cartridge is sensed. The detection system can be a mechanical system, where a particular-shaped fitting or structure on the cartridge is detected. The detection system can be electronic, where, for example, it can be a challenge response detection system. Other detection systems and other forms and combinations of the optical, chemical, mechanical and electrical detection systems can be implemented.

The detection system employed in postage meter system 10 is an electronic challenge response detection system. The postage meter system processor 14, via the communications port 36, may query the cartridge integrated circuit 14 to ascertain the identity of the cartridge. The challenge response detection system is implemented in a known manner employing the cryptographic key 20 and the cryptographic algorithm 24.

The postage meter processor 34 may send a challenge (e.g., a random number) via communication port 36 to the ink cartridge integrated circuit 14. The integrated circuit 14 then performs a cryptographic operation on the challenge and the identification data 18 and returns the results via the communication port 36 to the processor 34. This information may be stored in the postage meter systems controller 32 and also subsequently transmitted to the data center 38. The processor 34 may use a corresponding verification algorithm to ensure that the integrated circuit 14 is a valid integrated circuit and not an attempt by a third party to substitute an inferior ink supply as a high quality ink supply. Other forms of electronic detection systems may employ encryption, digital signature creation, message authentication code creation, simple identification of a serial number, reading of a Radio Frequency Identification (RFID) tag, etc.

Regardless of the detection system, if the ink or ink cartridge is recognized as a qualified ink or ink cartridge meeting the print quality requirements, the meter can print using the normal print mode for printing the postal indicia and any other information. If the ink or ink cartridge cannot be identified as one meeting the quality requirements, the postage meter system 10 can enter the special print mode. This provides a quality assurance mode either automatically or with user intervention, depending on how the postage meter system is implemented and set up for operation. The special print mode helps to ensure the quality of printing and may be a mode where there is an increase in the ink density, a scheduling change in the maintenance cycle operation (e.g., more frequent cleaning and purging of the print heads), and/or a slower print throughput. Increasing the ink density employed in printing is an increase of the density or concentration of the ink on the on the envelope 30 used to print the indicia 29 or other information.

The manner in which the print quality is maintained as described herein can be used with various types of ink systems. Ink systems include ink systems with a refillable ink supply and ink cartridge systems where the ink cartridge is replaced when the ink supply is exhausted. The ink systems with refillable ink supply may employ a permanent or a semi-permanent print head.

It should be recognized that the present system has, independently of the invention, applications beyond printing systems such as postage meter systems. The present system can be employed in applications where consumable devices are employed in systems that are networked to a data center or the consumable device itself is networked to a data center. For example, a networked refrigerator might detect the type of water filters employed in the refrigerator. In such a situation, the water filter would be a consumable. A networked water cooler might detect the type of the bottled water used in the water cooler. For example, the water bottle is the consumable container and it identifies the water manufacturer used in the consumable. A vacuum cleaner might detect the type of the vacuum-cleaning bag employed in the vacuum cleaner. The vacuum could then communicate the manufacturer of the bag to a data center. The communications can be through hard-wired or wireless
communications systems or through a consumer home network and the like.

[0044] While the present invention has been disclosed and described with reference to a single embodiment thereof, it will be apparent, as noted above, that variations and modifications may be made therein. It is, thus, intended in the following claims to cover each variation and modification that falls within the true scope of the present invention.

Claims

1. A method for helping to ensure quality in a postage meter system employing an ink system and having settable modes of printing operation, comprising the steps of:
   - detecting (52) whether the type of ink system employed in said postage meter system is a first type that is recognized or a second type that is unrecognized;
   - setting a first mode (54) of printing operation using normal ink density printing on mailpieces for said postage meter system when said detected ink system is of the first type; and,
   - setting a second mode (68) of printing operation using higher than normal ink density printing on mailpieces for said postage meter system when said detected ink system is of the second type, wherein said second mode of printing operation with said second type ink system is a special printing mode using slower than normal print throughput to enhance the quality of printing resulting when employing said ink system of said second type.

2. The method for helping to ensure quality in a postage meter system employing an ink system and having settable modes of printing operation as defined in Claim 1 wherein said second mode of printing operation increases the frequency of maintenance cycles for said ink system.

3. The method for helping to ensure quality in a postage meter system employing an ink system and having settable modes of printing operation as defined in Claim 1 wherein said ink system is an ink cartridge type ink system.

4. The method for helping to ensure quality in a postage meter system employing an ink system and having settable modes of printing operation as defined in Claim 1 wherein said ink system is a refillable ink supply type ink system.

5. A postage meter system adapted to employ an ink cartridge in printing postal indicia, comprising:
   - a processor (34) said processor comprising:
     - printing means for operating said ink cartridge (12) to print, said printing means being settable to a normal mode of printing operation and a second mode of printing operation, said normal mode using normal ink density printing and said second mode using higher than normal ink density printing;
     - means for detecting whether said ink cartridge is a first type that is recognized or a second type that is unrecognized;
     - communication means (36) coupled to said processor for communicating detected ink cartridge type to a remote data center (38), wherein said second mode of printing operation with said second ink cartridge type is a special printing mode using slower than normal print throughput to enhance the quality of printing resulting when employing said second ink cartridge type.

6. The postage meter system adapted to employ an ink cartridge in printing postal indicia as defined in Claim 5 further comprising scanner means (40) for scanning indicia imprinted by said printing means, said scanning means being coupled to said means for communicating (36) whereby scanned indicia data can be communicated to said data center (38).

Patentansprüche

1. Verfahren zum Helfen, eine Qualität in einem Frankiermaschinenystem sicherzustellen, das ein Tintensystem verwendet und einstellbare Modi eines Druckvorganges hat, umfassend die folgenden Schritte:
   - Detektieren (52), ob der Typ des Tintensystems, das im Frankiermaschinenystem verwendet wird, ein erster Typ ist, der erkannt ist, oder ein zweiter Typ ist, der unerkannt ist;
   - Einstellen eines ersten Modus (54) des Druckvorganges unter Verwendung eines normalen Tintendichte-Druckens auf Poststücke für das Frankiermaschinenystem, wenn das detektierte Tintensystem vom ersten Typ ist; und
   - Einstellen eines zweiten Modus (68) des Druck-
vorganges unter Verwendung eines höher als normalen Tintendichte-Druckens auf Poststücke für das Frankiermaschinensystem, wenn das detektierte Tintensystem vom zweiten Typ ist,

wobei der zweite Modus des Druckvorganges mit dem Tintensystem vom zweiten Typ ein Spezial-Druckmodus ist, der einen Durchsatz verwendet, der langsamer als üblich ist, um die Qualität des Drucks zu verbessern, die sich ergibt, wenn das Tintensystem vom zweiten Typ verwendet wird.

2. Verfahren zum Helfen, eine Qualität in einem Frankiermaschinensystem sicherzustellen, das ein Tintensystem verwendet und einstellbare Modi eines Druckvorganges hat, nach Anspruch 1, wobei der zweite Modus des Druckvorganges die Frequenz von Wartungszyklen für das Tintensystem erhöht.

3. Verfahren zum Helfen, eine Qualität in einem Frankiermaschinensystem sicherzustellen, das ein Tintensystem verwendet und einstellbare Modi eines Druckvorganges hat, nach Anspruch 1, wobei das Tintensystem ein Tintensystem vom Tintenpatrontyp ist.

4. Verfahren zum Helfen, eine Qualität in einem Frankiermaschinensystem sicherzustellen, das ein Tintensystem verwendet und einstellbare Modi eines Druckvorganges hat, nach Anspruch 1, wobei das Tintensystem ein Tintensystem vom nachfüllbaren Tintenzuführtyp ist.

5. Frankiermaschinensystem, das dazu angepasst ist, eine Tintenpatrone beim Drucken von postalischen Freimachungsvermerken zu verwenden, umfassend:

   einen Prozessor (34), wobei der Prozessor umfasst:

   Druckmittel zum Betreiben der Tintenpatrone (12) zum Drucken, wobei die Druckmittel in einem normalen Modus eines Druckvorganges und einem zweiten Modus des Druckvorganges einstellbar sind, wobei der normale Modus ein normales Tintendichte-Drucken und der zweite Modus ein höher als normales Tintendichte-Drucken verwendet;

   Mittel zum Detektieren, ob die Tintenpatrone ein erster Typ ist, der erkannt ist, oder ein zweiter Typ ist, der unerkannt ist;

   Mittel, die mit den Detektionsmitteln und den Druckmitteln gekoppelt sind, um den Betriebssmodus der Druckmittel auf Basis des Tintenpatrontyps, der von dem Mittel zum Detektieren detektiert wurde, zu verändern, so dass der normale Modus für Tintenpatronen vom ersten Typ eingestellt wird und der zweite Modus für Tintenpatronen vom zweiten Typ eingestellt wird; und

   Kommunikationsmittel (36), die mit den De-tek-tionsmitteln gekoppelt sind, zum Kommunizieren eines detektierten Tintenpatrontyp an ein entferntes Datenzentrum (38), wobei der zweite Modus des Druckvorganges mit dem zweiten Tintenpatrontyp ein Spezial-Druckmodus ist, der einen Durchsatz verwendet, der langsamer als üblich ist, um die Qualität des Drucks zu verbessern, die sich ergibt, wenn der zweite Tintenpatrontyp verwendet wird.

6. Frankiermaschinensystem, das dazu angepasst ist, eine Tintenpatrone beim Drucken von postalischen Freimachungsvermerken zu verwenden, nach An- spruch 5, weiter umfassend Abtastmittel (40) zum Abtasten von Freimachungsvermerken, die von den Druckmitteln aufgedruckt wurden, wobei die Abtastmittel mit den Mitteln (36) zum Kommunizieren gekoppelt sind, wodurch die abgetasteten Freimachungsvermerke-Daten an das Datenzentrum (38) kommuniziert werden können.

Revendications

1. Procédé pour aider à garantir la qualité d’un système de machine à affranchir utilisant un système d’encre et ayant plusieurs modes régulables d’opération d’impression, comprenant les étapes :

   de détection (52) si le type de système d’encre utilisé dans ledit système de machine à affran- chir est un premier type qui est reconnu ou un deuxième type qui n’est pas reconnu ;

   d’établissement d’un premier mode (54) d’opé- ration d’impression utilisant une impression à densité d’encre normale sur des articles de cour- rier pour ledit système de machine à affranchir lorsque ledit système d’encre détecté est du pre- mier type ; et

   d’établissement d’un deuxième mode (68) d’opération d’impression utilisant une impres- sion à densité d’encre plus élevée que la nor- male sur des articles de courrier pour ledit sys- tème de machine à affranchir lorsque ledit sys- tème d’encre détecté est du deuxième type, dans lequel ledit deuxième mode d’opération d’impression avec ledit système d’encre du deuxième type est un mode d’impression spé- cial utilisant un débit d’impression plus lent que la normale pour améliorer la qualité d’impres-
sion obtenue lors de l'utilisation dudit système d'encre dudit deuxième type.

2. Procédé pour aider à garantir la qualité d'un système de machine à affranchir utilisant un système d'encre et ayant des modes réglables d'opération d'impression selon la revendication 1, dans lequel ledit deuxième mode d'opération d'impression augmente la fréquence des cycles de maintenance pour ledit système d'encre.

3. Procédé pour aider à garantir la qualité d'un système de machine à affranchir utilisant un système d'encre et ayant plusieurs modes réglables d'opération d'impression selon la revendication 1, dans lequel ledit système d'encre est un système d'encre du type à cartouche d'encre.

4. Procédé pour aider à garantir la qualité d'un système de machine à affranchir utilisant un système d'encre et ayant des modes réglables d'opération d'impression selon la revendication 1, dans lequel ledit système d'encre est un système d'encre du type à réserve d'encre rechargeable.

5. Système de machine à affranchir conçu pour utiliser une cartouche d'encre pour l'impression de vignette postale, comprenant :

   un processeur (34), ledit processeur comprenant :

   des moyens d'impression pour mettre en oeuvre ladite cartouche d'encre (12) pour imprimer, lesdits moyens d'impression pouvant être établis dans un mode normal d'opération d'impression et un deuxième mode d'opération d'impression, ledit mode normal utilisant une impression à densité d'encre normale et ledit deuxième mode utilisant une impression à densité d'encre plus élevée que la normale ;

   des moyens pour détecter si ladite cartouche d'encre est d'un premier type qui est reconnu ou d'un deuxième type qui n'est pas reconnu ;

   des moyens couplés auxdits moyens de détection et auxdits moyens d'impression pour changer ledit mode de fonctionnement desdits moyens d'impression sur la base du type de cartouche d'encre détecté par lesdits moyens pour détecter de sorte que le mode normal soit établi pour les cartouches d'encre du premier type et que le deuxième mode soit établi pour les cartouches d'encre du deuxième type ; et

   des moyens de communication (36) couplés auxdits moyens de détection pour communique le type de cartouche d'encre détecté à un centre de données à distance (38), dans lequel ledit deuxième mode d'opération d'impression avec ledit deuxième type de cartouche d'encre est un mode d'impression spécial utilisant un débit d'impression plus faible que la normale pour améliorer la qualité d'impression obtenue lors de l'utilisation dudit deuxième type de cartouche d'encre.

6. Système de machine à affranchir conçu pour utiliser une cartouche d'encre pour l'impression de vignette postale selon la revendication 5, comprenant en outre des moyens de balayage (40) pour balayer la vignette imprimée par lesdits moyens d'impression, lesdits moyens de balayage étant couplés auxdits moyens pour communiquer (36), moyennant quoi les données de la vignette balayée peuvent être communiquées au dit centre de données (38).
FIG. 3

1. RECEIVE LIST OF CARTRIDGES FROM PRINTER

2. ADD LIST OF CARTRIDGES AND DATE RECEIVED IN GLOBAL DATABASE

3. ARE CARTRIDGES HIGH QUALITY?
   - NO
   - YES

4. CHECK LIST AGAINST GLOBAL DATABASE FOR REUSE

5. IS CARTRIDGE BEING REUSED?
   - NO
   - YES

6. IS CARTRIDGE ANOTHER VENDOR'S?
   - NO
   - YES
    a. ATTEMPT TO WIN THE CUSTOMER BACK
    b. TAKE NO ACTION

7. PERFORM CORRECTIVE ACTION
REFERENCES CITED IN THE DESCRIPTION

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