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(54) **Identification system for pigeon sport**

(57) An identification system (200) for pigeon sport includes an identification device (20) mounted to a pigeon and pre-storing therein identification data that includes identification code and unique code (UID), and a reading device (30) storing the identification data corresponding to the pigeon. Upon checking-in for a pigeon race, the host device (40) reads the identification data from the

identification device (20), obtains the identification data from the reading device (30), verifies whether the identification data read thereby matches the identification data obtained from the reading device (30), and transmits random code to the identification device (20) and to the reading device (30) upon verifying that the identification data read thereby matches the identification data obtained from the reading device (30).

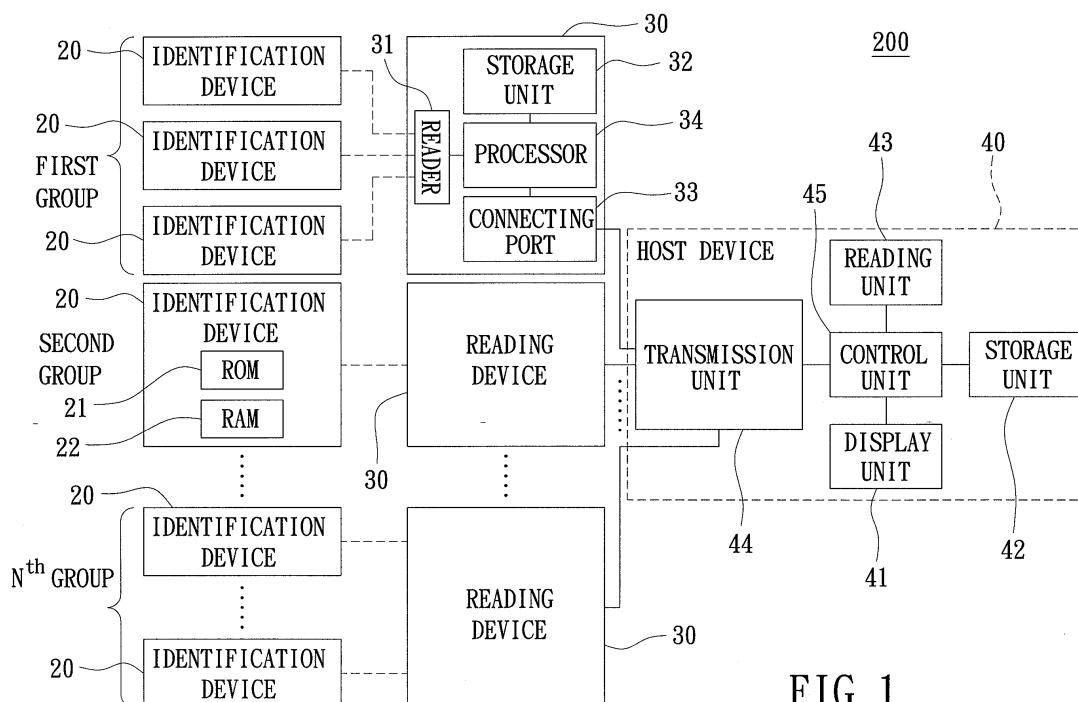


FIG. 1

Description

[0001] The invention relates to an identification system, more particularly to an identification system for pigeon sport.

[0002] In a conventional identification system for pigeon sport, an identification device, such as a transponder, is mounted to a ring that is sleeved on a foot of a pigeon, and stores identification code associated with the pigeon therein. A reading device reads the identification code from the identification device through RFID techniques so as to identify the identity of the pigeon. In actual use, the reading device is installed in a pigeon loft.

[0003] Upon registration for a pigeon race, a host device reads and registers the identification code from the identification device mounted to the pigeon that is to participate in the pigeon race. Upon checking-in for the pigeon race, the host device grants and transmits random code to the identification device and to the reading device upon identification of the identity of the pigeon. Thereafter, when the pigeon goes back into the pigeon loft, the reading device reads the identification code and the random code from the identification device, and records result data indicating date and time of receipt of the identification information upon verifying that the identification code and the random code read thereby match the identification code and the random code therein.

[0004] However, in such a configuration, since the identification code and the random code stored in a programmable read/write memory of the identification device can be read by a reader so as to copy the same, a fair race cannot be ensured.

[0005] Therefore, the object of the present invention is to provide an identification system for pigeon sport that can prevent fraudulent competition.

[0006] According to the present invention, an identification system for pigeon sport includes an identification device mounted to a pigeon and pre-storing therein identification data that includes identification code and unique code (UID), and a reading device storing the identification data. Upon checking-in for a pigeon race, the host device reads the identification data from the identification device, obtains the identification data from the reading device, verifies whether the identification data read thereby matches the identification data obtained from the reading device, and transmits random code to the identification device and to the reading device upon verifying that the identification data read thereby matches the identification data obtained from the reading device.

[0007] Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiment with reference to the accompanying drawings, of which:

Figure 1 is a schematic circuit block diagram illustrating the preferred embodiment of an identification system for pigeon sport according to the present invention;

Figure 2 is a schematic view illustrating operation of the preferred embodiment upon registration of a pigeon race; and

Figure 3 is a schematic view illustrating operation of the preferred embodiment upon checking-in for the pigeon race.

[0008] Referring to Figure 1, the preferred embodiment of an identification system 200 for pigeon sport according to the present invention is shown to include a number (N) of groups of identification devices 20, a number (N) of reading devices 30, and a host device 40.

[0009] Each group of the identification devices 20 corresponds to a respective breeder that has at least one pigeon (not shown) which is to participate in a pigeon race. Each identification device 20, such as a radio frequency identification (RFID) device, is implemented in a ring that is adapted to be sleeved on a foot of a respective pigeon in this embodiment, and pre-stores therein identification data that includes identification code associated with the respective pigeon, and unique code (UID) corresponding to the identification code. In this embodiment, each identification device 20 includes a read only memory (ROM) 21 for storing the unique code (UID) therein, and a random access memory (RAM) 22 for storing the identification code therein. In other embodiments, each identification device 20 can include a programmable read/write memory for storing the identification data therein. Furthermore, in this embodiment, the unique code (UID) is a serial number. In other embodiments, the unique code (UID) can be a serial of alphabets or a serial of a combination of numerals and alphabets.

[0010] Each reading device 30 corresponds to a respective group of the identification devices 20. In this embodiment, each reading device 30 includes a reader 31, a storage unit 32, a connecting port 33, and a processor 34 coupled to the reader 31, the storage unit 32 and the connecting port 33. The reader 31 of each reading device 30 is capable of communicating with each identification device 20 of the respective group through wireless RFID techniques. The storage unit 32 of each reading device 30 stores the identification data corresponding to each identification device 20 of the respective group.

[0011] The host device 40 includes a storage unit 42, a reading unit 43, a transmission unit 44, a display unit 41, and a control unit 45 coupled to the storage unit 42, the reading unit 43, the transmission unit 44 and the display unit 41. The reading unit 43 is capable of communicating with each identification device 20 through wireless RFID techniques. The transmission unit 44 is operable to connect electrically the connecting port 33 of each reading device 30 through a wire. The storage unit 42 stores a verification program.

[0012] Referring to Figure 2, upon registration for the pigeon race, the reading unit 43 of the host device 40 reads the identification data pre-stored in each identification device 20 mounted to a corresponding pigeon,

and the control unit 45 of the host device 40 obtains the identification data stored in the storage unit 32 of each reading device 30 via the transmission unit 44, and verifies whether the identification data read from each identification device 20 of each group matches the identification data obtained from a corresponding reading device 30, thereby confirming the pigeons registered in the pigeon race. However, in actual operation for the pigeon race, the registration stage can be omitted.

[0013] Referring to Figure 3, upon checking-in for the pigeon race, the reading unit 43 of the host device 40 reads the identification data, i.e., the identification code and the unique code (UID), from each identification device 20 mounted to the corresponding pigeon. The control unit 45 of the host device 40 obtains the identification data stored in each reading device 30 via the transmission unit 44, verifies whether the identification data from each identification device 20 of each group read by the reading unit 43 matches the identification data obtained from the corresponding reading device 30 through execution of the verification program, and grants and transmits random code that is secretly generated thereby to the connecting port 33 of the corresponding reading device 30 via the transmission unit 44, and to a corresponding identification device 20 via the reading unit 43 upon verifying that the identification data from each identification device 20 of each group read by the reading unit 43 matches the identification data obtained from the corresponding reading device 30. In this embodiment, the random code for each identification device 20 is stored in the RAM 22 of the same. In other embodiments, the random code for each identification device 20 can be stored in the programmable read/write memory. Each reading device 30 stores the random codes transmitted from the host device 40 in the storage unit 32. It is noted that, in actual use, the control unit 45 of the host device 40 generates a message indicating mismatch and displayed on the display unit 41 upon verifying that the identification data from each identification device 20 of each group read by the reading unit 43 mismatches the identification data obtained from the corresponding reading device 30.

[0014] For each reading device 30, when a pigeon goes back into its pigeon loft, the reader 31 reads the identification data and the random code from the identification device 20 mounted to the pigeon. The processor 34 compares the identification data, i.e., the identification code and the unique code (UID), and the random code read by the reader 31 with those stored in the storage unit 32, generates result data indicating date and time of receipt of the identification data and the random code when the identification data and the random code read by the reader 31 matches those stored in the storage unit 32, and records the result data corresponding to the identification data and the random code in the storage unit 32. Finally, the host device 40 can obtain the result data corresponding to the identification data and the random code of each identification device 20 from each reading device 30.

[0015] It is noted that, in other embodiments, the storage unit 42 of the host device 40 further stores an encryption program such that the control unit 45 generates encrypted code through execution of the encryption program stored in the storage unit 42, and transmits the encrypted code to each identification device 20 via the reading unit 43 upon sale, registration or/and check-in. In this case, the identification data stored in each identification device 20 further includes the encrypted code transmitted from the host device 40, wherein the encrypted code and the unique code (UID) are arranged adjacent to each other when the identification data stored in each identification device 20 is read by the corresponding reading device 30, and is displayed on a display (not shown) of the corresponding reading device 30. For example, when the identification data is displayed on the display of each reading device 30, the encrypted code is disposed in front or back of the unique code (UID). Alternatively, the encrypted code has first and second code portions such that the unique code (UID) is disposed between the first and second code portions when displaying the identification data. Furthermore, in this case, when a pigeon goes back into its pigeon loft, the corresponding reading device 30 reads the identification data and the random code from the identification device 20 mounted to the pigeon, and compares the identification code of the identification data and the random code read thereby with the identification code stored therein and the random code transmitted from the host device 30. As a result, since the encrypted code of the identification data stored in each identification device 20 can be updated in any one of registration and check-in stages, the identification data for the same identification device 20 read and displayed by the corresponding reading device 30 in the registration stage is different from that in the check-in stage, thereby preventing copy of the unique code (UID).

[0016] In such a configuration, since the unique code (UID) in each identification device 20 cannot be changed or deleted, copy of the unique code (UID) can be prevented such that each pigeon can be effectively identified. Therefore, the identification system 200 of the present invention can ensure that pigeons actually flying in a pigeon race are the same as those registered in the pigeon race, thereby ensuring a fair race.

Claims

1. An identification system (200) for pigeon sport, characterized by:

an identification device (20) adapted to be mounted to a pigeon which is to participate in a pigeon race and pre-storing therein identification data that includes identification code associated with the pigeon, and unique code (UID) corresponding to the identification code;
a reading device (30) storing the identification

- data corresponding to the pigeon; and
 a host device (40) including a reading unit (43),
 a transmission unit (44), and a control unit (45)
 coupled to said reading unit (43) and said trans-
 mission unit (44);
 wherein, upon checking-in for the pigeon race,
 said reading unit (43) of said host device (40)
 reads the identification data from said identifica-
 tion device (20) mounted to the pigeon, and said
 control unit (45) of said host device (40) obtains
 the identification data from said reading device
 (30) through said transmission unit (44), verifies
 whether the identification data read by said read-
 ing unit (43) matches the identification data ob-
 tained from said reading device (30), and trans-
 mits random code to said identification device
 (20) via said reading unit (43) and to said reading
 device (30) via said transmission unit (44) upon
 verifying that the identification data read by said
 reading unit (43) matches the identification data
 obtained from said reading device (30).
2. The identification system (200) as claimed in Claim
 1, **characterized in that** said host device (40) further
 includes a display unit (41) coupled to said control
 unit (45) for displaying thereon a message generated
 by said control unit (45) and indicating mismatch up-
 on verifying that the identification data read by said
 reading unit (43) mismatches the identification data
 obtained from said reading device (30).
 3. The identification system (200) as claimed in Claim
 1, **characterized in that**, when the pigeon mounted
 with said identification device (20) goes back into its
 pigeon loft during the pigeon race, said reading de-
 vice (30) reads the identification data and the random
 code from said identification device (20), compares
 the identification code and the unique code (UID) of
 the identification data, and the random code read
 thereby with the identification data stored therein,
 and the random code transmitted from said host de-
 vice (40), and records therein result data indicating
 date and time of receipt of the identification data and
 the random code when the identification code and
 the unique code (UID) of the identification data and
 the random code read thereby matches respectively
 the identification data stored therein, and the random
 code transmitted from said host device (40) such that
 said reading device (30) sets up a reading record
 that contains the result data, the identification data
 and the random code and that is capable of being
 acquired by said host device (40).
 4. The identification system (200) as claimed in Claim
 1, **characterized in that** said identification device
 (20) is a radio frequency identification device, said
 reading device (30) and said reading unit (43) com-
 municating with said identification device (20)
 through wireless radio frequency identification tech-
 niques.
 5. The identification system (200) as claimed in Claim
 1, **characterized in that** said identification device
 (20) includes a read only memory for storing the
 unique code (UID) of said identification data therein,
 and a random access memory for storing the iden-
 tification code of the identification data and the ran-
 dom code therein.
 6. The identification system (200) as claimed in Claim
 1, **characterized in that** said identification device
 (20) includes a programmable read/write memory for
 storing the identification data and the random code
 therein.
 7. The identification system (200) as claimed in Claim
 1, **characterized in that** the unique code (UID) of
 the identification data is one of a serial number, a
 series of alphabets, and a series of a combination
 of numerals and alphabets.
 8. The identification system (200) as claimed in Claim
 1, **characterized in that:**
 said host device (40) further includes a storage
 unit (42) coupled to said control unit (45) and
 storing an encryption program, said control unit
 (45) generating encrypted code through execu-
 tion of the encryption program stored in said
 storage unit (42), and transmitting the encrypted
 code to said identification device (20) via said
 reading unit (43); and
 said identification data stored in said identifica-
 tion device (20) further includes the encrypted
 code transmitted from said host device (40),
 wherein the encrypted code and the unique code
 (UID) are arranged adjacent to each other when
 the identification data stored in said identifica-
 tion device (20) is read and displayed by said
 reading device (30).
 9. The identification system (200) as claimed in Claim
 8, further **characterized in that** the encrypted code
 is disposed in front of the unique code (UID) when
 displaying the identification data.
 10. The identification system (200) as claimed in Claim
 8, further **characterized in that** the encrypted code
 is disposed in back of the unique code (UID) when
 displaying the identification data.
 11. The identification system (200) as claimed in Claim 8,
 further **characterized in that** the encrypted code has
 first and second code portions such that the unique
 code (UID) is disposed between the first and second
 code portions when displaying the identification data.

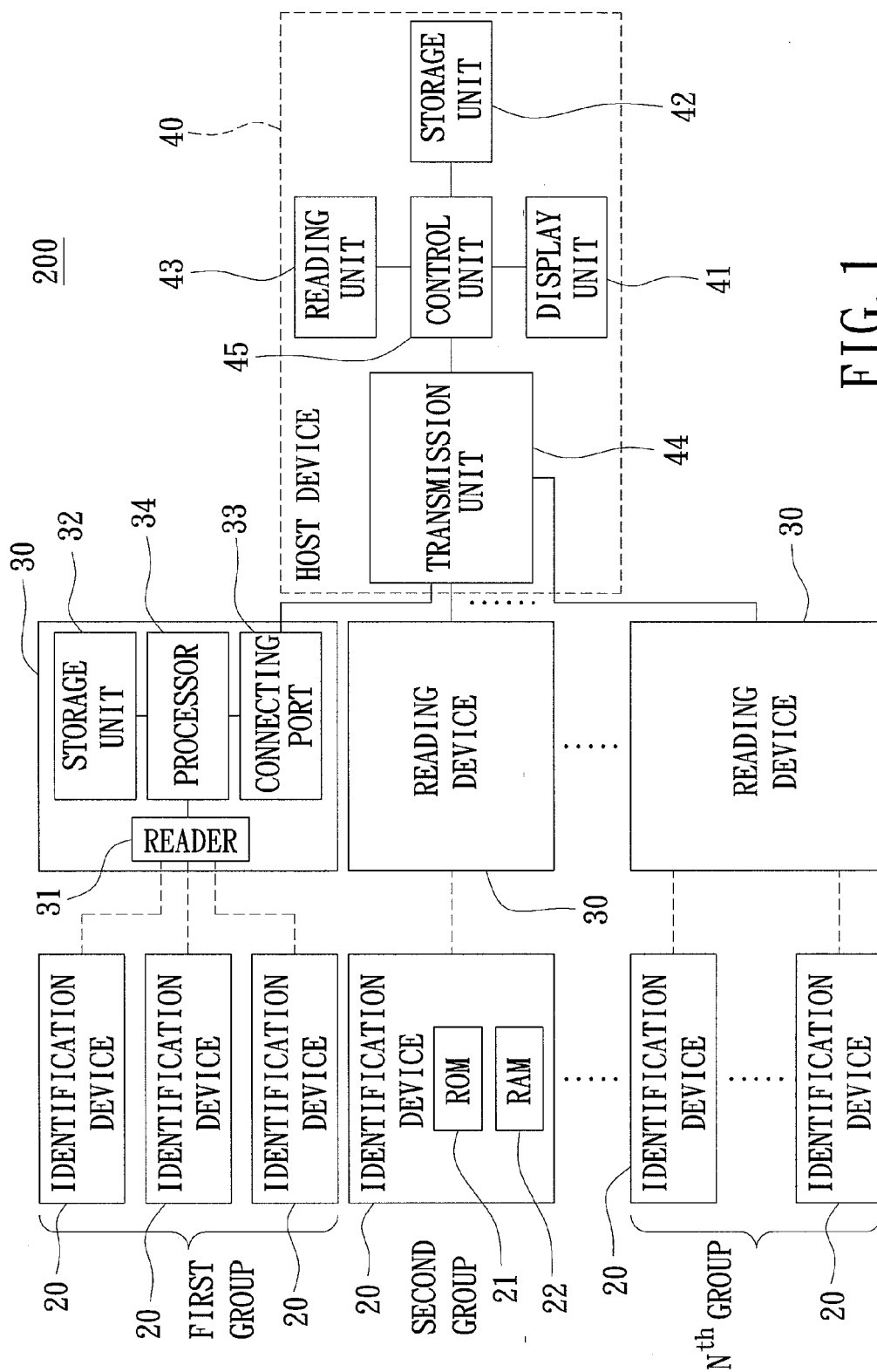


FIG. 1

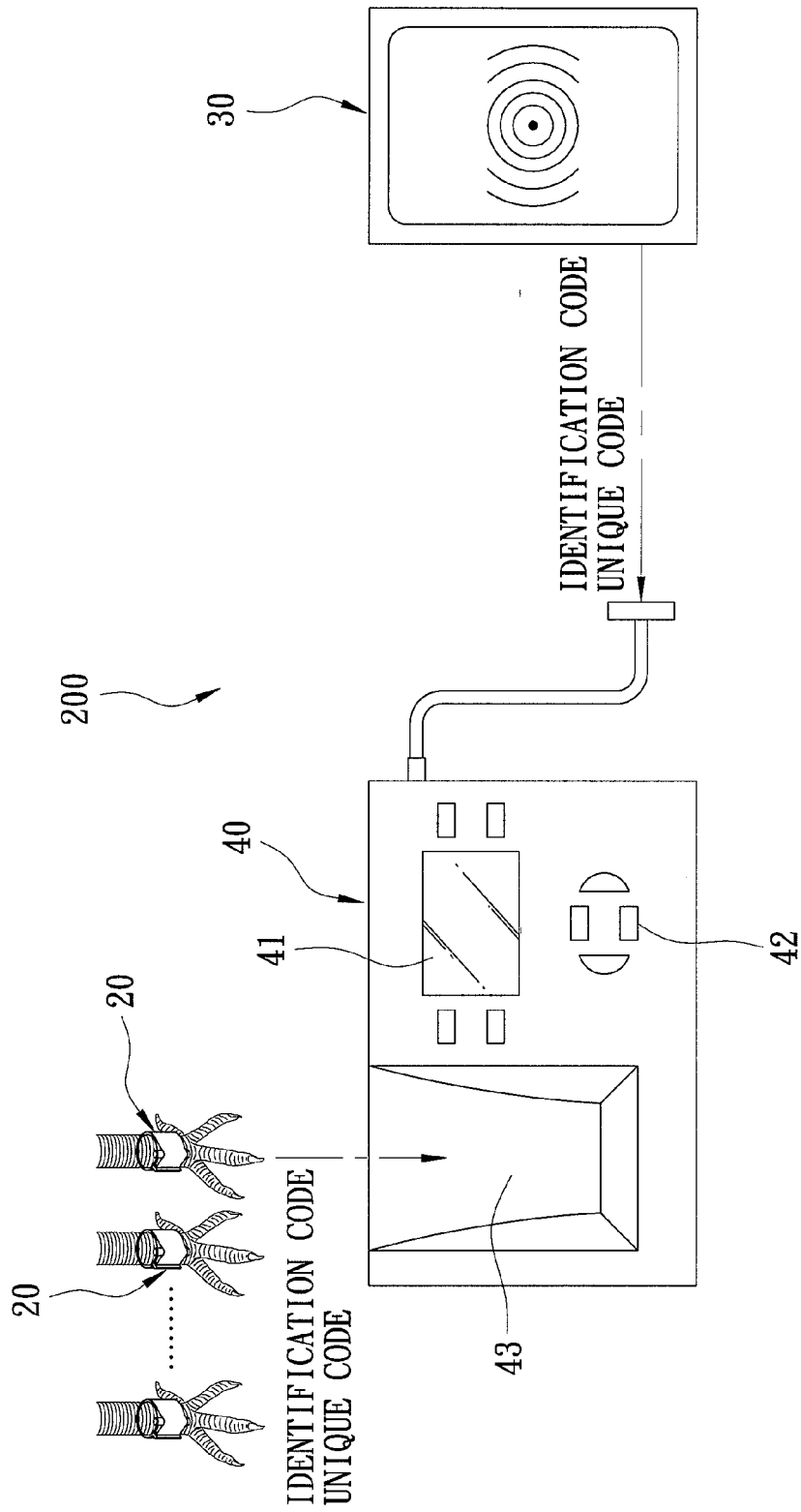


FIG. 2

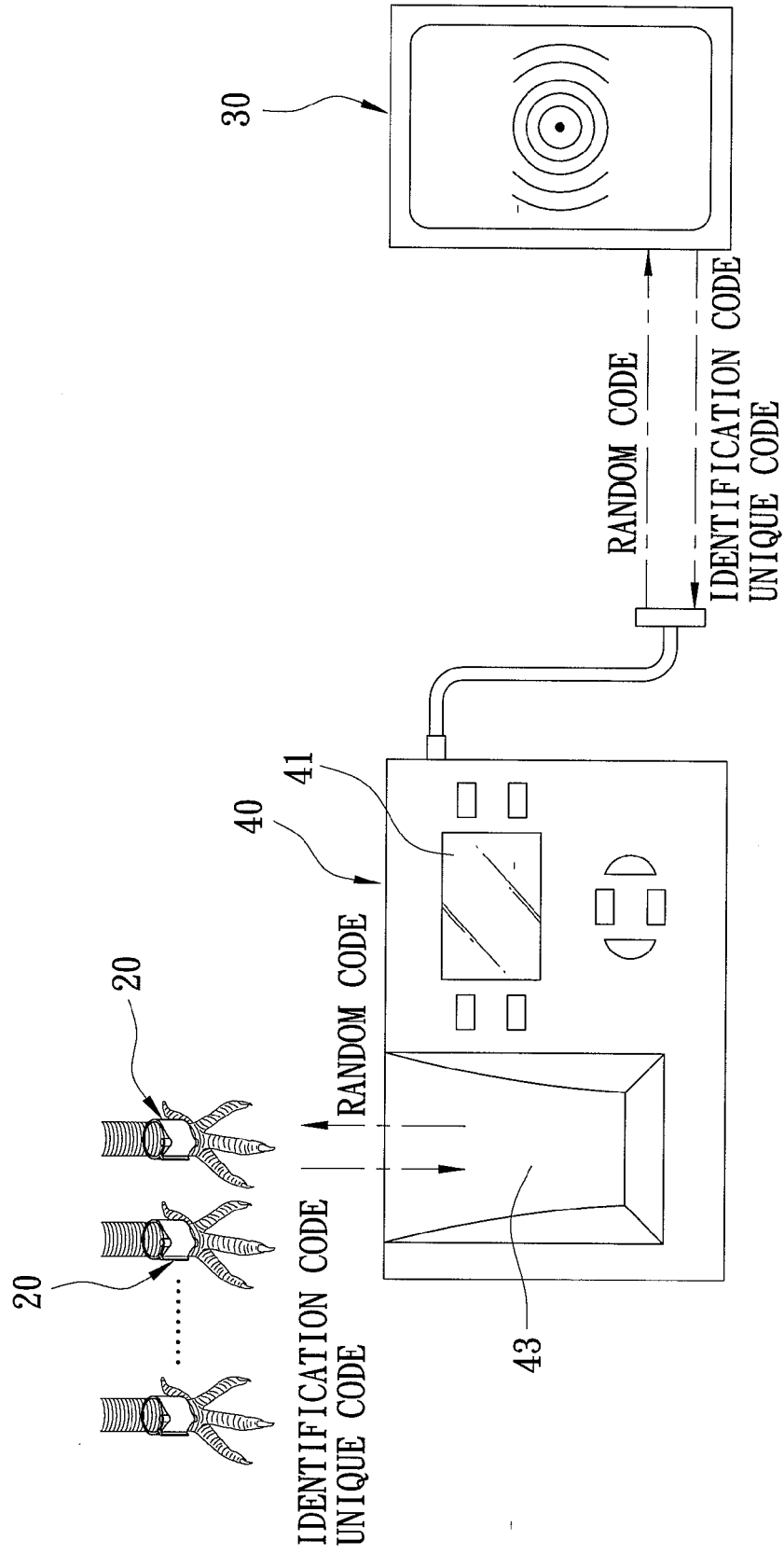


FIG. 3



EUROPEAN SEARCH REPORT

Application Number
EP 09 18 0812

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 12 April 2010	Examiner Paraf, Edouard
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 09 18 0812

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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12-04-2010

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