

WHAT IS CLAIMED IS:

1. An ink container for use in an inkjet printing apparatus including (i) a plurality of mounting portions to which the ink container is detachably mountable, (ii) a plurality of apparatus electric contacts corresponding to the plurality of mounting portions, respectively, (iii) a common electrical line commonly electrically connected with the apparatus electric contacts to send a command code and color information to the apparatus electric contacts, (iv) a light receiving portion, and (v) discriminating means for discriminating whether the ink container is mounted in correct one of the mounting portions, on the basis of light reception information of the light receiving portion provided by light emitted from the ink container, the ink container comprising:
 - an information storing portion storing container discrimination information that indicates a color of an ink in the ink container;
 - an electrical contact electrically connectable to the apparatus electric contacts;
 - a light emitting portion capable of emitting the light toward the light receiving portion; and
 - a controller configured to receive the command code and the color information from the common electrical line via the electrical contact and one of the apparatus electric contacts, wherein the controller is configured:
 - (a) to turn on the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-on command code for turning on the light emitting portion, and
 - (b) to turn off the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-off command code for turning off the light emitting portion.
2. An ink container according to Claim 1, wherein the controller is configured to turn on the light emitting portion so that the discriminating means can discriminate whether the ink container is mounted in the correct mounting portion based on the light reception information provided by the light emitted in a state that the correct mounting portion faces the light receiving portion, from the light emitting portion.

3. An ink container for use in an inkjet printing apparatus including (i) a carriage to which a plurality of ink containers corresponding to inks of different colors, respectively, are detachably mountable, (ii) apparatus electric contacts corresponding to the ink containers, respectively, (iii) a common electrical line commonly electrically connected with the apparatus electric contacts to send a command code and color information to the apparatus electric contacts, (iv) a light receiving portion, and (v) discriminating means for discriminating whether the ink container is mounted at a correct position in the carriage, on the basis of light reception information of the light receiving portion provided by light emitted from the ink container, the ink container comprising:

an information storing portion storing container discrimination information that indicates a color of the ink in the ink container;

an electrical contact electrically connectable to the apparatus electric contacts;

a light emitting portion capable of emitting the light toward the light receiving portion; and

a controller configured to receive the command code and the color information from the common electrical line via the electrical contact and one of the apparatus electric contacts,

wherein the controller is configured:

(a) to turn on the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-on command code for turning on the light emitting portion, and

(b) to turn off the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-off command code for turning off the light emitting portion.

4. An ink container according to Claim 1, wherein the controller is configured to turn on the light emitting portion so that the discriminating means can discriminate whether the ink container is mounted at the correct position based on the light reception information provided by the light emitted in a state that the correct position faces the light receiving portion, from the light emitting portion.

5. An ink container for use in an inkjet printing apparatus including (i) a carriage which is movable in a moving direction and to which a plurality of ink containers corresponding to inks of different colors,

respectively, are detachably mountable, (ii) apparatus electric contacts corresponding to the ink containers, respectively, (iii) a common electrical line commonly electrically connected with the apparatus electric contacts to send a command code and color information to the apparatus electric contacts, (iv) a light receiving portion, and (v) discriminating means for discriminating whether the ink containers are mounted at correct positions in the carriage, on the basis of light reception information of the light receiving portion provided by light emitted from the ink containers predetermined correspondingly to positions of the carriage with respect to the moving direction, the ink container comprising:

an information storing portion storing container discrimination information that indicates a color of the ink in the ink container;

an electrical contact electrically connectable to the apparatus electric contacts;

a light emitting portion capable of emitting the light toward the light receiving portion; and

a controller configured to receive the command code and the color information from the common electrical line via the electrical contact and one of the apparatus electric contacts,

wherein the controller is configured:

(a) to turn on the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-on command code for turning on the light emitting portion, and

(b) to turn off the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-off command code for turning off the light emitting portion.

6. An ink container for use in an inkjet printing apparatus including (i) a light receiving portion and (ii) discriminating means for discriminating whether the ink container is mounted at a correct position, on the basis of light reception information of the light receiving portion provided by light emitted from the ink container, the ink container comprising:

an information storing portion storing container discrimination information that indicates a color of an ink in the ink container;

an electrical contact;

a light emitting portion capable of emitting the light toward the light receiving portion; and

a controller configured to receive the command code and the color information via the electrical contact,

wherein the controller is configured:

(a) to turn on the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-on command code for turning on the light emitting portion, and

(b) to turn off the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-off command code for turning off the light emitting portion.

7. An ink container comprising:

an information storing portion storing container discrimination information that indicates a color of an ink in the ink container,

an electrical contact:

a light emitting portion; and

a controller configured to receive a command code and color information via the electrical contact,

wherein the controller is configured:

(a) to turn on the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-on command code for turning on the light emitting portion,

(b) to turn off the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-off command code for turning off the light emitting portion,

(c) to write information into the information storing portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a write command code for writing the information into the information storing portion, and

(d) to read information from the information storing portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a read command code for reading the information from the information storing portion.

8. An ink container according to any one of Claims 1 to 7,

wherein the controller is configured:

- (a) to turn on the light emitting portion, if the color information is the same as the container discrimination information and if the command code is the turn-on command code, and
- (b) to turn off the light emitting portion, if the color information is the same as the container discrimination information and if the command code is the turn-off command code.

9. An ink container according to any one of Claims 1 to 8, wherein the information storing portion, the electrical contact, the light emitting portion and the controller are positioned outside of an ink chamber in the ink container.

10. An ink container according to any one of Claims 1 to 8, further comprising a substrate provided with the information storing portion, the electrical contact, the light emitting portion and the controller, wherein the substrate is positioned outside of an ink chamber in the ink container.

11. An ink container according to Claim 10, wherein substrate has a first surface that faces toward an inside of the ink container and a second surface that is opposite the first surface, wherein the light emitting portion is disposed on the first surface, and wherein the electrical contact is disposed on the second surface.

12. An inkjet printing apparatus, comprising:
 an ink container;
 a plurality of mounting portions to which the ink container is detachably mountable;
 a plurality of apparatus electric contacts corresponding to the plurality of mounting portions, respectively;
 a common electrical line commonly electrically connected with the apparatus electric contacts to send a command code and color information to the apparatus electric contacts; and
 a light receiving portion,
 wherein the ink container includes
 (i) an information storing portion storing container discrimination information that indicates a color of an ink in the ink container;
 (ii) an electrical contact electrically connectable to the apparatus

electric contacts;

(iii) a light emitting portion capable of emitting the light toward the light receiving portion; and

(iv) a controller configured (a) to receive the command code and the color information from the common electrical line via the electrical contact and one of the apparatus electric contacts, (b) to turn on the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-on command code for turning on the light emitting portion, and (c) to turn off the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-off command code for turning off the light emitting portion, and

wherein the inkjet printing apparatus further comprises discriminating means for discriminating whether the ink container is mounted in correct one of the mounting portions, on the basis of light reception information of the light receiving portion provided by light emitted in a state that the correct mounting portion faces the light receiving portion, from the light emitting portion.

13. An inkjet printing apparatus, comprising:

a plurality of ink containers corresponding to inks of different colors, respectively;

a carriage which is movable in a moving direction and to which the ink containers are detachably mountable;

apparatus electric contacts in the carriage;

a common electrical line commonly electrically connected with the apparatus electric contacts to send a command code and color information to the apparatus electric contacts; and

a light receiving portion,

wherein each of the ink containers includes:

(i) an information storing portion storing container discrimination information that indicates a color of an ink in the ink container;

(ii) an electrical contact electrically connectable to the apparatus electric contacts;

(iii) a light emitting portion capable of emitting the light toward the light receiving portion; and

(iv) a controller configured (a) to receive the command code and the color information from the common electrical line via the electrical

contact and one of the apparatus electric contacts, (b) to turn on the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-on command code for turning on the light emitting portion, and (c) to turn off the light emitting portion, if the received color information corresponds to the container discrimination information stored in the information storing portion and if the received command code is a turn-off command code for turning off the light emitting portion, and

wherein the inkjet printing apparatus further comprises discriminating means for discriminating whether the ink containers are mounted at correct positions in the carriage, on the basis of the light reception information provided by light emitted from the light emitting portions of the ink containers predetermined correspondingly to positions of the carriage with respect to the moving direction.

14. An inkjet printing apparatus according to Claim 13, wherein the ink containers includes a particular ink container, and wherein the discriminating means discriminates whether the particular ink container is mounted at the correct position in the carriage, on the basis of the light reception information provided by light emitted from the light emitting portion of the particular ink container when the correct position for the particular ink container faces the light receiving portion.

15. An ink container according to any one of Claims 12 to 14, wherein the controller is configured:

(a) to turn on the light emitting portion, if the color information is the same as the container discrimination information and if the command code is the turn-on command code, and

(b) to turn off the light emitting portion, if the color information is the same as the container discrimination information and if the command code is the turn-off command code.

Claims

1. An ink container (1) for an inkjet printing apparatus, comprising:

an electrical contact (102);
a light emitting portion (101);
an information storing portion (103B) capable of storing at least container discriminating information that indicates a color of ink in the ink container and ink amount information relating to an amount of the ink in the ink container; and
a controller (103) (i) adapted to receive a command and color information via the electrical contact, and (ii) adapted to control execution of the received command based on the received color information and the container discrimination information stored in the information storing portion,
wherein the controller is adapted:

- (A) to control, if the received command is a write command for writing the ink amount information into the information storing portion, execution of the write command based on the received color information and the container discrimination information,
- (B) to control, if the received command is a read command for reading the ink amount information from the information storing portion, execution of the read command based on the received color information and the container discrimination information,
- (C) to control, if the received command is a turn-on command for turning on the light emitting portion, execution of the turn-on command based on the received color information and the container discrimination information, and
- (D) to control, if the received command is a turn-off command for turning off the light emitting portion, execution of the turn-off command based on the received color information and the container discrimination information.

2. An ink container according to Claim 1, the controller is adapted:
 - (A) to write the ink amount information into the information storing portion, if (i) the received command is the write command and if (ii) the received color information is the same as the container discrimination information,
 - (B) to read the ink amount information from the information storing portion, if (i) the received command is the read command and if (ii) the received color information is the same as the container discrimination information,
 - (C) to turn on the light emitting portion, if (i) the received command is the turn-on command and if (ii) the received color information is the same as the container discrimination information, and
 - (D) to turn off the light emitting portion, if (i) the received command is the turn-off command and if (ii) the received color information is the same as the container discrimination information.
3. An ink container according to claim 2, wherein the controller is capable of continuously maintaining an on-state of the light emitting portion from the time when the controller turns on the light emitting portion based on the turn-on command until the controller turns off the light emitting portion based on the turn-off command.
4. An ink container according to any one of Claims 1 to 3, wherein the light emitted from said light emitting portion (101) includes visible light, and wherein said controller (103) is adapted to cause the light emitting portion to flicker based on the turn-on command and the turn-off command, to notify an user of states of the ink container with the visible light.

5. An ink container according to any one of Claims 1 to 4, further comprising a base member (100) provided with the electrical contact (102), the light emitting portion (101), the information storing portion (103B) and the controller (103).
6. An ink container according to Claim 5, wherein the light emitting portion (101) is disposed on a first surface of the base member (100) that faces toward an inside of the ink container, and wherein the electrical contact (102) is disposed on a second surface of the base member (100) that is opposite said first surface.
7. An ink container according to any one of claims 1 to 6, further comprising:
 - a casing including an ink chamber (11, 12) for containing the ink and having an ink supply port (7) for supplying an inkjet head (105) in the inkjet printing apparatus with the ink in the ink chamber, the casing having a top, a bottom having the ink supply port and a plurality of sides including a first side and second side opposed to the first side, the top, the bottom and the plurality of sides being defined by orientation when the ink container is orientated with the ink supply port facing downward; and
 - an elastically deformable supporting member (3) supporting an engaging portion (6) engageable with a locking portion (156) of a mounting unit (150, 205, 405, 415) of the inkjet printing

apparatus, the engaging portion (6) being spaced from the first side and being closer to the first side than to the second side, wherein the electrical contact (102) is disposed at a position which is between the engaging portion and the ink supply port when the ink container is viewed from below.

8. An ink container according to claim 7, wherein the electrical contact is disposed at a position which is lower than the engaging portion and is higher than the bottom.
9. An ink container according to claim 7 or 8, wherein the electrical contact is inclined relative to the first side and the bottom.
10. An ink container according to claim 5 or 6, further comprising:

a casing including an ink chamber (11, 12) for containing the ink and having an ink supply port (7) for supplying an inkjet head (105') in the inkjet printing apparatus with the ink in the ink chamber, the casing having a top, a bottom having the ink supply port and a plurality of sides including a first side and second side opposed to the first side, the top, the bottom and the plurality of sides being defined by orientation when the ink container is orientated with the ink supply port facing downward; and

an elastically deformable supporting member (3) provided on the first side and supporting an engaging portion (6) engageable with a locking portion (156) of a mounting unit (150, 205, 405, 415) of the inkjet printing apparatus, wherein the base member is disposed on an inclined portion between the first side and the bottom so that the electrical contact provided on the base member is inclined relative to the first side and the bottom.

11. An ink container according to any one of claims 7 to 10, wherein the electrical contact (102) is configured to electrically connect with an apparatus electric contact (152) provided in the mounting unit by a rotational movement of the ink container caused by downwardly pushing the ink container when it is placed in the mounting unit, and wherein the engaging portion (6) is configured to engage with the locking portion (156) of the mounting unit by the rotational movement.
12. An ink container according to Claim 11, further comprising an engaging projection (5) provided on the second side and engageable with a projection locking portion (155) of the mounting unit, wherein the engaging projection is configured to provide a rotational center of the ink container during the rotational movement, wherein the ink supply port (7) is disposed at a position which is closer to the engaging projection (5) than to the engaging portion (6), and wherein the electrical contact (102) is disposed at a position which is closer to the first side than to the second side.