Claims:

1. Apparatus comprising:

a can body conveying mechanism for conveying can bodies to a printing zone;

a blanket wheel comprising a plurality of blanket segments and, affixed to each blanket segment, a blanket having a printing surface, the blanket wheel being configured to bring blanket printing surfaces into contact with can bodies within said printing zone; and

a plurality of ink stations each comprising a printing plate configured to contact the printing surfaces of passing blankets in order to impart a primary ink image to the printing surfaces, such that a composite ink image is formed on each blanket printing surface and is printed onto a can body upon contact of the blanket printing surface and the can body within the printing zone,

wherein, each blanket comprises a secondary image within a surrounding area of lower or reduced height allowing the secondary image to be printed on a can body as a positive image, and wherein the printing plate is configured such that said surrounding area lies wholly within a region of the primary ink image that is unprinted onto the blanket.

2. An apparatus according to claim 1, wherein:

at least one of the blankets has a surface height variation across its printing surface representing a secondary image to be transferred to can bodies with which the blanket comes into contact;

said blankets or at least a layer of said blankets presenting the printing surface are removably attached to respective blanket segments and each blanket and or blanket segment is provided with alignment features in order to allow the blankets and blanket segments to be correctly aligned such that, for each blanket printing surface, a composite ink image is correctly aligned with a secondary image; and

said alignment features comprising printed or scored features on the printing surface of a blanket.

3. An apparatus according to claim 2 further comprising an alignment device, the alignment device being removably attachable to a blanket segment of the plurality of blanket segments, the alignment device further comprising an alignment

surface against which a blanket can be positioned in order to allow the blankets and blanket segments to be correctly aligned such that, for each blanket printing surface, a composite ink image is correctly aligned with a secondary image.

4. An apparatus according to claim 3, wherein said alignment surface is single edged such that the blanket is supported at its trailing edge and a machine side of the blanket segment, flush fit to the trailing edge and with its lateral position determined by a profiled bar of the alignment device.

5. An apparatus according to claim 3, wherein said alignment surface is double edged such that the blanket is supported at its trailing edge and the machine side of the segment, flush fit to both edges.

6. An apparatus according to claim 3, wherein said alignment device is "zero edge" and the blanket is supported away from its trailing edge and the machine side of the segment, with both timing and lateral position of the blanket being determined by profiled “bars/stops” of the alignment device.

7. An apparatus according to claim 3, wherein said alignment device comprises scribe lines provided on both the blanket and the blanket segment so as to indicate the correct position.

8. An apparatus according to claim 3, wherein said alignment device comprises location pins in low relief, with corresponding punch holes in an adhesive and webbing layer of the blanket.

9. An apparatus according to claim 3, wherein said alignment device comprises a non-contact alignment device.

10. An apparatus according to claim 1, wherein the blankets each comprise a section of a continuous blanket belt that is secured around the periphery of the blanket wheel, on top of the blanket segments.

AMENDED CLAIMS
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Claims:

1. Apparatus comprising:
a can body conveying mechanism for conveying can bodies to a printing zone;
a blanket wheel comprising a plurality of blanket segments and, affixed to each blanket segment, a blanket having a printing surface, the blanket wheel being configured to bring blanket printing surfaces into contact with can bodies within said printing zone;
and a plurality of ink stations each comprising a printing plate configured to contact the printing surfaces of passing blankets in order to impart a primary ink image to the printing surfaces, such that a composite ink image is formed on each blanket printing surface and is printed onto a can body upon contact of the blanket printing surface and the can body within the printing zone,
wherein, each blanket comprises a secondary image within a surrounding area of lower or reduced height allowing the secondary image to be printed on a can body as a positive image, and wherein the printing plate is configured such that said surrounding area lies wholly within a region of the primary ink image that is unprinted onto the blanket.

2. Apparatus for decorating a can body and comprising:
a can body conveying mechanism for conveying can bodies to a printing zone;
a blanket wheel comprising a plurality of blanket segments and, affixed to each blanket segment, a blanket having a printing surface, the blanket wheel being configured to bring blanket printing surfaces into contact with can bodies within said printing zone; and
a plurality of ink stations each comprising a printing plate configured to contact the printing surfaces of passing blankets in order to impart an ink image to the printing surfaces, such that a composite ink image is formed on each blanket printing surface and is printed onto a can body upon contact of the blanket printing surface and the can body within the printing zone,
wherein at least one of said ink stations comprises a plurality of printing plates configured such that different printing plates contact printing surfaces of successive different blankets,
the apparatus further comprising a drive mechanism for causing the printing plates

to rotate and a drive mechanism controller for varying the rotational speed of the printing plates to synchronise the positions of the printing plates with blankets onto which ink images are to be transferred.

3. Apparatus according to claim 2, wherein said drive mechanism controller is configured to reduce the rotational speed of the printing plates following transfer of an ink image to a blanket and prior to arrival of the next blanket at a correct position in the ink station.

4. Apparatus according to claim 3, wherein said drive mechanism is further configured to selectively withdraw the printing plates from the blanket wheel, said drive mechanism controller being configured to cause said withdrawal following transfer of an ink image to a blanket, to increase the rotational speed, and to subsequently decrease the rotational speed and move the printing plates back into an image transfer position upon arrival of the next blanket at a correct position in the ink station.

5. An apparatus according to any one of claims 1 to 4, wherein:
at least one of the blankets has a surface height variation across its printing surface representing a secondary image to be transferred to can bodies with which the blanket comes into contact;
said blankets or at least a layer of said blankets presenting the printing surface are removably attached to respective blanket segments and each blanket and or blanket segment is provided with alignment features in order to allow the blankets and blanket segments to be correctly aligned such that, for each blanket printing surface, a composite ink image is correctly aligned with a secondary image; and
said alignment features comprising printed or scored features on the printing surface of a blanket.

6. An apparatus according to claim 5 further comprising an alignment device such as a jig, the jig being removably attachable to a blanket segment of the plurality of blanket segments, the jig further comprising an alignment surface against which a blanket can be positioned in order to allow the blankets and blanket segments to be correctly aligned such that, for each blanket printing surface, a composite ink image is correctly aligned with a secondary image.

7. An apparatus according to any one of the preceding claims, wherein the blankets each comprise a section of a continuous blanket belt that is secured around the periphery of the blanket wheel, on top of the blanket segments.

8. A method of decorating a can body and comprising:
conveying can bodies to a printing zone;
operating a blanket wheel comprising a plurality of blanket segments and, affixed to each blanket segment, a blanket having a printing surface, in order to bring blanket printing surfaces into contact with can bodies within said printing zone; and
operating a plurality of ink stations in order to bring respective printing plates into contact with the printing surfaces of passing blankets to impart an ink image to the printing surfaces, and in order to form a composite ink image on each blanket printing surface,
wherein said composite image is printed onto a can body upon contact of the blanket printing surface and the can body within the printing zone, at least one of the ink stations comprising a plurality of printing plates configured such that different printing plates contact printing surfaces of successive different blankets, the method further comprising driving the printing plates to rotate and controlling drive for varying the rotational speed of the printing plates to synchronise the positions of the printing plates with blankets onto which ink images are to be transferred.

9. Apparatus for decorating a can body and comprising:
a can body conveying mechanism for conveying can bodies to a printing zone;
a blanket wheel comprising a plurality of blanket segments and, affixed to each blanket segment, a blanket having a printing surface, the blanket wheel being configured to bring blanket printing surfaces into contact with can bodies within said printing zone;
a plurality of ink stations each comprising a printing plate configured to contact the printing surfaces of passing blankets in order to impart an ink image to the printing surfaces, such that a composite ink image is formed on each blanket printing surface and is printed onto a can body upon contact of the blanket printing surface and the can body within the printing zone,

wherein:

at least one of the blankets has a surface height variation across its printing surface representing a secondary image to be transferred to can bodies with which the blanket comes into contact;

said blankets or at least a layer of said blankets presenting the printing surface are removably attached to respective blanket segments and each blanket and or blanket segment is provided with alignment features in order to allow the blankets and blanket segments to be correctly aligned such that, for each blanket printing surface, a composite ink image is correctly aligned with a secondary image;

said alignment features comprising printed or scored features on the printing surface of a blanket; and

said apparatus further comprising an alignment device such as a jig, the jig being removably attachable to a blanket segment of the plurality of blanket segments, the jig further comprising an alignment surface against which a blanket can be positioned in order to allow the blankets and blanket segments to be correctly aligned such that, for each blanket printing surface, a composite ink image is correctly aligned with a secondary image.

10. Apparatus according to claim 9, wherein said surface height variation across a blanket printing surface comprises a height reduction in areas corresponding to the secondary image, such that a negative of the secondary image is printed onto corresponding can bodies.

11. Apparatus according to claim 9 or claim 10, wherein said surface height variation across a blanket printing surface comprises a height reduction in areas surrounding relative raised areas corresponding to the secondary image, such that a positive of the secondary image is printed onto corresponding can bodies.

12. Apparatus according to claim 11, wherein each printing plate is configured to contact only a portion of each blanket printing surface, said portion corresponding to the secondary image.

13. Apparatus according to any one of claims 9 to 12, wherein each blanket has a multi-layer construction and said surface height variation across a blanket printing surface

is provided by removal of an upper layer in certain areas.

14. Apparatus according to any one claims 9 to 13, wherein each ink station comprises two or more printing plates configured to impart different ink images to printing surfaces of successive different blankets.