CLAIMS

1. A method of marking manufactured items, comprising:

providing a cryptographic key in an inactive state to a point in a supply chain for the manufactured items;

providing the cryptographic key in an active state and an activation code for activating the cryptographic key in the inactive state to form the cryptographic key in the active state, to a verification centre;

providing the activation code to the point in the supply chain in response to the point in the supply chain transmitting information relating to the received cryptographic key, the activation code allowing the cryptographic key in the inactive state at the point in the supply chain to be activated to form the cryptographic key in the active state;

generating, at the point in the supply chain, an identification (ID) code for each manufactured item, the ID code being derived from the cryptographic key in the active state and a dynamic key generated for each batch of manufactured items;

providing the dynamic key for each batch of manufactured items to the verification centre;

marking each manufactured item with the ID code; and

counting the number of ID codes marked on the manufactured items.

2. A method according to claim 1, wherein the cryptographic key is generated in a key generator separate from the point in the supply chain.

3. A method according to claim 1 or claim 2, wherein the step of providing the activation code to the point in the supply chain comprises sending the activation code from the verification centre to the point in the supply chain.

4. A method according to any preceding claim, wherein the step of the point in the supply chain transmitting information relating to the received cryptographic key comprises sending information relating to the received cryptographic key from the point in the supply chain to the verification centre.

5. A method according to any preceding claim, wherein the generated ID codes are not stored.

6. A method according to any preceding claim, wherein the method is used for tax verification, the method further comprising:

reporting to a government authority the number of ID codes marked on the manufactured items; and

the verification centre storing information connecting the ID codes marked on the manufactured items to information specific to those manufactured items such that tax paid or owed can be verified against the actual number of items manufactured.

7. A method according to claim 6, wherein the reporting is performed per shipment and per excise warehouse such that tax paid or owed can be verified or calculated per shipment and per excise warehouse.

8. A method according to any preceding claim, wherein the method is used for tax verification, the method further comprising, before the step of generating an ID code for each manufactured item, the step of a government authority authorizing the point in the supply chain to generate a defined number of ID codes.

9. A method according to claim 8, further comprising, before the step of the government authority authorizing the point in the supply chain to generate a defined number of ID codes, the step of requesting the authorization from the government authority.

10. A method according to claim 8 or claim 9, further comprising reporting to the government authority the number of ID codes marked on the manufactured items.

11. A method according to any preceding claim, wherein the method is used for production volume verification, the method further comprising reporting to a third party the number of ID codes marked on the manufactured items.

12. A method according to any preceding claim, wherein the method is used for authenticating a selected manufactured item, the method further comprising:

a user transmitting the ID code marked on the selected manufactured item to the verification centre;

the verification centre deriving from the ID code, the cryptographic key and the dynamic key used to generate the ID code;

the verification centre deriving from the cryptographic key and the dynamic key information relating to the selected manufactured item; and

the verification centre transmitting at least some of the information relating to the selected manufactured item to the user.

13. Apparatus for marking manufactured items, comprising:

a key generator for generating a cryptographic key, the cryptographic key having an active state and an inactive state;

at least one point in a supply chain for the manufactured items, the key generator being arranged to send the cryptographic key, in the inactive state, to the point in the supply chain, wherein the point in the supply chain is arranged to receive, in response to the point in the supply chain transmitting information relating to the received cryptographic key, an activation code for activating the cryptographic key, the activation code allowing the cryptographic key in the inactive state to be activated to form the cryptographic key in the active state;

a verification centre for verifying properties of the manufactured items, the key generator being arranged to provide the cryptographic key in the active state and the activation code to the verification centre;

a code generator, at the point in the supply chain, for generating an identification (ID) code for each manufactured item, the ID code being derived from the cryptographic key in the active state and a dynamic key generated for each batch of manufactured items, wherein the dynamic key for each batch of manufactured items is provided to the verification centre;

a marker at the point in the supply chain for marking each manufactured item with the ID code; and

a counter for counting the number of ID codes marked on the manufactured items.

14. A method suitable for tax verification and comprising:

generating a plurality of identification (ID) codes for the manufactured items;

marking each manufactured item with an ID code of the plurality of ID codes;

counting the actual number of ID codes of the plurality of ID codes marked on the manufactured items, wherein the actual number of ID codes is the same as or less than the plurality of ID codes;

reporting to a government authority the actual number of ID codes marked on the manufactured items; and

storing information connecting the ID codes marked on the manufactured items to information specific to those manufactured items, such that tax paid or owed can be verified against the actual number of items marked.

15. A method according to claim 14, further comprising, before the step of generating a plurality of ID codes for the manufactured items:

requesting authorization from a government authority to generate ID codes for the manufactured items; and

receiving authorization from the government authority to generate a defined number of ID codes for the manufactured items.

CLAIMS

1. A method of marking manufactured items, comprising:

- providing a cryptographic key in an inactive state to a point in a supply chain for the manufactured items;

- providing the cryptographic key in an active state and an activation code for activating the cryptographic key in the inactive state to form the cryptographic key in the active state, to a verification centre;

- providing the activation code to the point in the supply chain in response to the point in the supply chain transmitting information relating to the received cryptographic key, the activation code allowing the cryptographic key in the inactive state at the point in the supply chain to be activated to form the cryptographic key in the active state,

wherein the step of providing the activation code to the point in the supply chain comprises sending the activation code from the verification centre to the point in the supply chain;

- generating, at the point in the supply chain, an identification (ID) code for each manufactured item, the ID code being derived from the cryptographic key in the active state and a dynamic key generated for each batch of manufactured items;

- providing the dynamic key for each batch of manufactured items to the verification centre;

- marking each manufactured item with the ID code; and

- counting the number of ID codes marked on the manufactured items,

characterized in that the verification centre encrypts the activation code with a public key of an asymmetric key pair associated with a certificate of the cryptographic key such that the activation code can be decrypted by the point in the supply chain using a private key of the asymmetric key pair associated with the certificate of the cryptographic key.

2. The method according to claim 1, wherein the cryptographic key is generated in a key generator separate from the point in the supply chain.

3. The method according to claim 1 or claim 2, wherein the verification centre encrypts the activation code with a public key of an

asymmetric key pair associated with a certificate of the cryptographic key such that the activation code can be decrypted by a code generator at the point in the supply chain using the private key of the asymmetric key pair associated with the certificate of the cryptographic key..

4. The method according to any preceding claim, wherein the step of the point in the supply chain transmitting information relating to the received cryptographic key comprises sending information relating to the received cryptographic key from the point in the supply chain to the verification centre.

5. The method according to any preceding claim, wherein the generated ID codes are not stored.

6. The method according to any preceding claim, wherein the method is used for tax verification, the method further comprising:

- reporting to a government authority the number of ID code marked on the manufactured items; and
- the verification centre storing information connecting the ID codes marked on the manufactured items to information specific to those manufactured items such that tax paid or owed can be verified against the actual number of items manufactured.

7. The method according to claim 6 wherein the reporting is performed per shipment and per excise warehouse such that tax paid or owed can be verified or calculated per shipment and per excise warehouse.8. The method according to any preceding claim, wherein the method is used for tax verification, the method further comprising, before the step of generating an ID code for each manufactured item, the step of

- a government authority authorizing the point in the supply chain to generate a defined number of ID codes.

9. The method according to claim 8, further comprising, before the step of the government authority authorizing the point in the supply chain to generate a defined number of ID codes, the step of

- requesting the authorization from the government authority.

10. The method according to claim 8 or claim 9, further comprising

- reporting to the government authority the number of ID codes marked on the manufactured items.

11. The method according to any preceding claim, wherein the method is used for production volume verification, the method further comprising

- reporting to a third party the number of ID codes marked on the manufactured items.

12. The method according to any preceding claim, wherein the method is used for authenticating a selected manufactured item, the method further comprising:

- a user transmitting the ID code marked on the selected manufactured item to the verification centre;

- the verification centre deriving from the ID code the cryptographic key and the dynamic key used to generate the ID code;

- the verification centre deriving from the cryptographic key and the dynamic key information relating to the selected manufactured item; and

- the verification centre transmitting at least some of the information relating to the selected manufactured item to the user.

13. An apparatus for marking manufactured items, comprising:

- a key generator for generating a cryptographic key, the cryptographic key having an active state and an inactive state;

- at least one point in a supply chain for the manufactured items, the key generator being arranged to send the cryptographic key, in the inactive state, to the point in the supply chain, wherein the point in the supply chain is arranged to receive, in response to the point in the supply chain transmitting information relating to the received cryptographic key, an activation code for activating the cryptographic key, the activation code allowing the cryptographic key in the inactive state to be activated to form the cryptographic key in the active state;

- a verification centre for verifying properties of the manufactured items, the key generator being arranged to provide the cryptographic key in the active state and the activation code to the verification centre,

wherein the verification centre is structured to provide the activation code to the point in the supply chain by sending the activation code from the verification centre to the point in the supply chain;

- a code generator, at the point in the supply chain, for generating an identification (ID) code for each manufactured item, the ID code being derived from the cryptographic key in the active state and a dynamic key generated for each batch of manufactured items, wherein the dynamic key for each batch of manufactured items is provided to the verification centre;

- a marker at the point in the supply chain for marking each manufactured item with the ID code; and

- a counter for counting the number of ID codes marked on the manufactured items,

characterized in that the verification centre is structured to encrypt the activation code with a public key of an asymmetric key pair associated with a certificate of the cryptographic key such that the activation code can be decrypted by the code generator using a private key of the asymmetric key pair associated with the certificate of the cryptographic key.

14. A method suitable for tax verification and comprising:

- generating a plurality of identification (ID) codes for the manufactured items;

- by means of an apparatus of claim 13 marking each manufactured item with an ID code of the plurality of ID codes;

- counting the actual number of ID codes of the plurality of ID codes marked on the manufactured items, wherein the actual number of ID codes is the same as or less than the plurality of ID codes;

- reporting to a government authority the actual number of ID codes marked on the manufactured items; and

- storing information connecting the ID codes marked on the manufactured items to information specific to those manufactured items, such that tax paid or owed can be verified against the actual number of items marked.

15. The method according to claim 14, further comprising, before the step of generating a plurality of ID codes for the manufactured items:

- requesting authorization from a government authority to generate ID codes for the manufactured items; and

- receiving authorization from the government authority to generate a defined number of ID codes for the manufactured items.