

CLAIMS

1. A computer-implemented method for tracing blockchain-based merchandise, the computer-implemented method comprising:

collecting appearance data of target merchandise;

5 registering the appearance data of the target merchandise in a distributed database of a blockchain as an identity of the target merchandise;

retrieving, from the distributed database of the blockchain, a merchandise record that is stored and that is associated with the identity indicated by the appearance data of the target merchandise; and

10 performing merchandise tracing on the merchandise record to complete a merchandise tracing for the target merchandise.

2. The computer-implemented method of claim 1, wherein registering the appearance data of the target merchandise in the distributed database comprises:

15 performing, in the distributed database of the blockchain, storage on the appearance data of the target merchandise that is associated with the identity of the target merchandise that has been registered in the blockchain.

3. The computer-implemented method of claim 1, further comprising:

20 obtaining a merchandise record that is generated by an operator of the target merchandise and that corresponds to the target merchandise; and

publishing the merchandise record and the appearance data of the target merchandise to the blockchain, to perform, in the distributed database of the blockchain, storage on the merchandise record that is associated with the identity indicated by the appearance data of the target
25 merchandise.

4. The computer-implemented method of claim 1, wherein performing merchandise tracing on the merchandise record comprises:

invoking a smart contract that corresponds to the target merchandise;

executing merchandise tracing logic stated in the smart contract; and
performing merchandise tracing processing on the merchandise record.

5 5. The computer-implemented method of claim 1, wherein the merchandise record comprises
a merchandise production record signed by a producer of the target merchandise based on a private
key, and wherein the merchandise tracing comprises merchandise anti-counterfeiting tracing.

6. The computer-implemented method of claim 5, wherein performing merchandise tracing
on the merchandise record comprises:
10 performing verification on a signature of the merchandise production record based on a public
key of the producer of the target merchandise; and
determining that merchandise anti-counterfeiting tracing for the target merchandise succeeds
in response to determining that the verification succeeds.

15 7. The computer-implemented method of claim 1, wherein the merchandise record comprises
a merchandise circulation record signed by a plurality of merchandise circulation parties on a
circulation channel of the target merchandise based on a private key, and wherein the merchandise
tracing comprises merchandise circulation channel tracing.

20 8. The computer-implemented method of claim 7, wherein performing merchandise tracing
on the merchandise record comprises:
performing verification on a signature of the merchandise circulation record based on a public
key of the plurality of merchandise circulation parties on the circulation channel of the target
merchandise;
25 determining whether the verification succeeds;
in response to determining that the verification succeeds, generating a merchandise
circulation sequence of the target merchandise in the plurality of merchandise circulation parties;
determining whether the merchandise circulation sequence matches a predetermined legal
circulation sequence; and
30 in response to determining that the merchandise circulation sequence matches the
predetermined legal circulation sequence, determining that merchandise circulation channel

tracing for the target merchandise succeeds.

9. The computer-implemented method of claim 8, wherein a timestamp used to indicate a circulation sequence of the target merchandise is recorded in the merchandise circulation record.

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10. The computer-implemented method of claim 9, wherein generating the merchandise circulation sequence of the target merchandise in the plurality of merchandise circulation parties comprises:

obtaining the timestamp recorded in the merchandise circulation record; and

10 generating the merchandise circulation sequence of the target merchandise based on the obtained timestamp.

11. The computer-implemented method of claim 1, wherein an outer surface of the target merchandise is sprayed with an optical medium used to solidify the appearance data of the target merchandise.

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12. The computer-implemented method of claim 11, wherein collecting the appearance data of the target merchandise comprises:

collecting, by using a mounted optical sensor, the appearance data of the target merchandise solidified by using the optical medium.

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13. The computer-implemented method of claim 11, wherein the optical medium is a nano-optical film.

14. The computer-implemented method of claim 1, wherein the blockchain is a consortium chain.

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15. An apparatus for tracing blockchain-based merchandise, the apparatus comprising a plurality of modules configured to perform the computer-implemented method of any one of claims 1 to 14.

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