CLAIMS

~~What is claimed is:~~

1. A method for generating a blockchain warehouse receipt, comprising:

obtaining item registration information provided~~filled in~~ by a first user;

generating, by invoking a first smart contract, a blockchain warehouse receipt comprising basic type fields according to the item registration information ~~by invoking a first smart contract~~, the basic type fields comprising ~~at least~~ a warehouse receipt type field, a warehouse receipt ID field, a generation time field, a state field, a category field, a property owner field, a quantity field, and a weight field; ~~and~~

storing the blockchain warehouse receipt in a blockchain network;

obtaining a transfer application for the blockchain warehouse receipt; and

invoking a second smart contract according to the transfer application to perform:

determining a transfer warehouse receipt ID, information of the first user, and information of a second user;

querying the blockchain network for property owner information corresponding to the transfer warehouse receipt ID;

electronically sending the transfer application to the second user when the property owner information is consistent with the information of the first user;

changing property owner information corresponding to the property owner field on the blockchain warehouse receipt to the information of the second user after confirmation information from the second user is received; and

storing an updated blockchain warehouse receipt in the blockchain network.

2. The method according to claim 1, wherein the basic type fields further comprise at least one of an inventory party field and a warehousing party field.

3. The method according to claim 1, wherein the blockchain warehouse receipt further comprises at least one ~~type~~ of a logistics type field, a contract type field, a warehouse location field, and a warehouse replenishment field.

4. The method according to claim 3, wherein the contract type field comprises at least one of a purchase contract field, a purchase invoice field, and a commodity inspection report field.

5. The method according to claim 3, wherein the logistics type field comprises at least one of a transport mode field, a vehicle and vessel number field, a driver name field, a driver ID field, an ID number field, and an arrival time field.

6. The method according to claim 1, wherein the item registration information comprises warehouse receipt type information, a warehouse receipt ID, state information, category information, property owner information, quantity information, and weight information.

7. The method according to claim 1, wherein before the generating thea blockchain warehouse receipt according to the item registration information, the method further comprises:

performing authenticity verification on the item registration information; and

the generating thea blockchain warehouse receipt according to the item registration information specifically comprises:

generating the blockchain warehouse receipt according to the item registration information after the authenticity verification succeeds.

8. The method according to claim 7, wherein the performing authenticity verification on the item registration information specifically comprises:

obtaining inventory proof information uploaded by the first user;

determining inventory party information according to the inventory proof information;

determining basic inventory information according to the inventory proof information; and

determining whether the basic inventory information is consistent with basic item information, and whether the inventory party information is consistent with the property owner information, the basic item information comprising the category information, the weight information, and the quantity information, and the basic inventory information comprising inventory category information, inventory weight information, and inventory quantity information.

9. The method according to claim 8, wherein the determining basic inventory information according to the inventory proof information specifically comprises:

identifying inventory location information comprised in the inventory proof information;

determining a video surveillance device corresponding to the inventory location

information;

retrieving video information acquired by the video surveillance device; and

determining the basic inventory information according to the video information.

10. The method according to claim 1, wherein the blockchain warehouse receipt further comprises traceability information~~, the traceability information is used~~ for recording use process information of the blockchain warehouse receipt, and the use process information comprises at least one of generation, cancellation, pledge, and transfer.

11. The method according to claim 10, further comprising displaying ~~wherein a display form of~~ the traceability information in~~is~~ a barcode.

~~12. A method for updating a blockchain warehouse receipt, the blockchain warehouse receipt being generated by using the method according to claim 1, the method comprising:~~

~~obtaining a transfer application for the blockchain warehouse receipt; and~~

~~invoking a second smart contract according to the transfer application to perform the following operations:~~

~~determining a transfer warehouse receipt ID, transferor information, and transferee information;~~

~~querying a blockchain network for property owner information corresponding to the transfer warehouse receipt ID;~~

~~sending the transfer application to a transferee corresponding to the transferee information when the property owner information is consistent with the transferor information;~~

~~changing property owner information corresponding to a property owner field on the blockchain warehouse receipt to the transferee information after confirmation information from the transferee is received; and~~

~~storing an updated blockchain warehouse receipt in the blockchain network.~~

12~~3~~. The method according to claim 1~~2~~, wherein before the sending the transfer application to ~~a transferee corresponding to the transferee information~~the second user, the method further comprises:

querying the blockchain network for warehousing party information corresponding to the transfer warehouse receipt ID; and

sending the transfer application to a warehousing party corresponding to the warehousing party information; and

the changing property owner information corresponding to thea property owner field on the blockchain warehouse receipt to the transferee information of the second user specifically comprises:

changing the property owner information corresponding to the property owner field on the blockchain warehouse receipt to the transferee information of the second user after confirmation information from the warehousing party is received, the confirmation information being confirmation information of a storage location of an item corresponding to the transfer warehouse receipt ID.

134. The method according to claim 12, wherein before the changing property owner information corresponding to thea property owner field on the blockchain warehouse receipt to the transferee information of the second user, the method further comprises:

querying the blockchain network for state information corresponding to the transfer warehouse receipt ID; and

determining whether the state information is indicative of a tradable state, to obtain a first determination result; and

the changing property owner information corresponding to thea property owner field on the blockchain warehouse receipt to the transferee information of the second user specifically comprises:

changing the property owner information corresponding to the property owner field on the blockchain warehouse receipt to the transferee information of the second user when the first determination result indicates that the state information is indicative of the tradable state.

145. The method according to claim 12, wherein after the changing property owner information corresponding to thea property owner field on the blockchain warehouse receipt to the transferee information of the second user, the method further comprises:

adding property owner update information to the blockchain warehouse receipt, the property owner update information comprising an update time, the property owner information before updating, and the property owner information after the updating.

156. The method according to claim 12, wherein after receiving the confirmation information from the second userfrom the transferee, the method further comprises:

obtaining an updated contract attachment for the blockchain warehouse receipt by using a link address corresponding to a contract field in the blockchain warehouse receipt;

identifying a contract number of the contract attachment from the contract attachment by invoking a third smart contract; and

adding the contract number to the blockchain warehouse receipt.

167. The method according to claim 156, further comprising:

identifying subject matter information and contract party information from the contract attachment; and

uploading the contract number, the subject matter information, and the contract party information to the blockchain network for consensus processing and storage.

178. The method according to claim 12, further comprising:

obtaining warehouse transfer operation information submitted by a warehousing party for the blockchain warehouse receipt ~~and submitted by a warehousing party~~;

determining updated warehouse site information of an item corresponding to the blockchain warehouse receipt based on the warehouse transfer operation information by invoking a fourth smart contract; and

updating a corresponding field on the blockchain warehouse receipt to the warehouse site information.

189. The method according to claim 178, wherein the warehousing party is an off-chain node; and

the obtaining warehouse transfer operation information for the blockchain warehouse receipt ~~and submitted by a warehousing party specifically~~ comprises:

obtaining, by using an oracle mechanism, the warehouse transfer operation information for the blockchain warehouse receipt ~~and submitted by the warehousing party~~, the warehouse transfer operation information being encrypted by using the fourth smart contract or a public key of the warehousing party.

1920. The method according to claim 178, further comprising:

obtaining video information corresponding to ~~the~~ encrypted warehouse transfer operation information by invoking a fifth smart contract;

obtaining a digital signature of the video information;

verifying whether the digital signature is a digital signature of a designated video surveillance device, the designated video surveillance device being ~~a video surveillance device~~

installed at a warehouse site corresponding to the warehouse transfer operation information; and

storing the video information in the blockchain network after verification succeeds.

201. The method according to claim 1920, further comprising:

generating risk prompt information for the video information if the verification on the digital signature of the video information fails, the risk prompt information being used forconfigured to prompt ing security checking on the designated video surveillance device.

22. An apparatus for generating a blockchain warehouse receipt, comprising:

an item registration information obtaining module, configured to obtain item registration information filled in by a first user;

a blockchain warehouse receipt generation module, configured to generate a blockchain warehouse receipt comprising basic type fields according to the item registration information by invoking a first smart contract, the basic type fields comprising at least a warehouse receipt type field, a warehouse receipt ID field, a generation time field, a state field, a category field, a property owner field, a quantity field, and a weight field; and

a blockchain warehouse receipt storage module, configured to store the blockchain warehouse receipt in a blockchain network.

23. The apparatus according to claim 22, wherein the basic type fields further comprise at least one of an inventory party field and a warehousing party field.

24. The apparatus according to claim 22, wherein the blockchain warehouse receipt further comprises at least one type of a logistics type field, a contract type field, a warehouse location field, and a warehouse replenishment field.

25. The apparatus according to claim 24, wherein the contract type field comprises at least one of a purchase contract field, a purchase invoice field, and a commodity inspection report field.

26. The apparatus according to claim 25, wherein the logistics type field comprises at least one of a transport mode field, a vehicle and vessel number field, a driver name field, a driver ID field, an ID number field, and an arrival time field.

~~27. The apparatus according to claim 22, wherein the item registration information comprises warehouse receipt type information, a warehouse receipt ID, state information, category information, property owner information, quantity information, and weight information.~~

~~28. The apparatus according to claim 22, further comprising:~~

~~an authenticity verification module, configured to perform authenticity verification on the item registration information; and~~

~~the blockchain warehouse receipt generation module being specifically configured to generate the blockchain warehouse receipt according to the item registration information after the authenticity verification succeeds.~~

~~29. The apparatus according to claim 28, wherein the authenticity verification module specifically comprises:~~

~~an inventory proof information obtaining unit, configured to obtain inventory proof information uploaded by the first user;~~

~~an inventory party information determining unit, configured to determine inventory party information according to the inventory proof information;~~

~~a basic inventory information determining unit, configured to determine basic inventory information according to the inventory proof information; and~~

~~a judging unit, configured to determine whether the basic inventory information is consistent with basic item information, and whether the inventory party information is consistent with the property owner information, the basic item information comprising the category information, the weight information, and the quantity information, and the basic inventory information comprising inventory category information, inventory weight information, and inventory quantity information.~~

~~30. The apparatus according to claim 29, wherein the basic inventory information determining unit is specifically configured to:~~

~~identify inventory location information comprised in the inventory proof information;~~

~~determine a video surveillance device corresponding to the inventory location information;~~

~~retrieve video information acquired by the video surveillance device; and~~

~~determine the basic inventory information according to the video information.~~

31. The apparatus according to claim 22, wherein the blockchain warehouse receipt further comprises traceability information, the traceability information is used for recording use process information of the blockchain warehouse receipt, and the use process information comprises at least one of generation, cancellation, pledge, and transfer.

32. The apparatus according to claim 31, wherein a display form of the traceability information is a barcode.

33. An apparatus for updating a blockchain warehouse receipt, the blockchain warehouse receipt being generated by using the method according to claim 1, the apparatus comprising:

a transfer application obtaining module, configured to obtain a transfer application for the blockchain warehouse receipt;

a second smart contract invoking module, configured to invoke a second smart contract according to the transfer application;

an information determining module, configured to determine a transfer warehouse receipt ID, transferor information, and transferee information;

a property owner information query module, configured to query a blockchain network for property owner information corresponding to the transfer warehouse receipt ID;

a first transfer application sending module, configured to send the transfer application to a transferee corresponding to the transferee information when the property owner information is consistent with the transferor information;

a property owner information change module, configured to change property owner information corresponding to a property owner field on the blockchain warehouse receipt to the transferee information after confirmation information from the transferee is received; and

a blockchain warehouse receipt storage module, configured to store updated blockchain warehouse receipt in the blockchain network.

34. The apparatus according to claim 33, further comprising:

a warehousing party information query module, configured to query the blockchain network for warehousing party information corresponding to the transfer warehouse receipt ID;

a second transfer application sending module, configured to send the transfer application to a warehousing party corresponding to the warehousing party information; and

the property owner information change module being specifically configured to change

the property owner information corresponding to the property owner field on the blockchain warehouse receipt to the transferee information after confirmation information from the warehousing party is received, the confirmation information being confirmation information of a storage location of an item corresponding to the transfer warehouse receipt ID.

35. The apparatus according to claim 33, wherein before the changing property owner information corresponding to a property owner field on the blockchain warehouse receipt to the transferee information, the apparatus further comprises:

a state information query module, configured to query the blockchain network for state information corresponding to the transfer warehouse receipt ID;

a first result judging module, configured to determine whether the state information is indicative of a tradable state, to obtain a first determination result; and

the property owner information change module being specifically configured to change the property owner information corresponding to the property owner field on the blockchain warehouse receipt to the transferee information when the first determination result indicates that the state information is indicative of the tradable state.

36. The apparatus according to claim 33, further comprising:

a property owner update information adding module, configured to add property owner update information to the blockchain warehouse receipt, the property owner update information comprising an update time, the property owner information before updating, and the property owner information after the updating.

37. The apparatus according to claim 33, further comprising:

a contract attachment obtaining module, configured to obtain an updated contract attachment for the blockchain warehouse receipt by using a link address corresponding to a contract field in the blockchain warehouse receipt;

a contract number identification module, configured to identify a contract number of the contract attachment from the contract attachment by invoking a third smart contract; and

a contract number storage module, configured to add the contract number to the blockchain warehouse receipt.

38. The apparatus according to claim 37, further comprising:

a subject matter information and contract party information identification module,

configured to identify subject matter information and contract party information from the contract attachment; and

a contract number, subject matter information, and contract party information storage module, configured to upload the contract number, the subject matter information, and the contract party information to the blockchain network for consensus processing and storage.

39. The apparatus according to claim 33, further comprising:

a warehouse transfer operation information obtaining module, configured to obtain warehouse transfer operation information for the blockchain warehouse receipt and submitted by a warehousing party;

a warehouse site information determining module, configured to determine updated warehouse site information of an item corresponding to the blockchain warehouse receipt based on the warehouse transfer operation information by invoking a fourth smart contract; and

a warehouse site information update module, configured to update a corresponding field on the blockchain warehouse receipt to the warehouse site information.

40. The apparatus according to claim 39, wherein the warehousing party is an off-chain node; and

the warehouse transfer operation information obtaining module is specifically configured to obtain, by using an oracle mechanism, the warehouse transfer operation information for the blockchain warehouse receipt and submitted by the warehousing party, the warehouse transfer operation information being encrypted by using the fourth smart contract or a public key of the warehousing party.

41. The apparatus according to claim 39, further comprising:

a video information obtaining module, configured to obtain video information corresponding to the encrypted warehouse transfer operation information by invoking a fifth smart contract;

a digital signature obtaining module, configured to obtain a digital signature of the video information;

a digital signature verification module, configured to verify whether the digital signature is a digital signature of a designated video surveillance device, the designated video surveillance device being a video surveillance device installed at a warehouse site corresponding to the warehouse transfer operation information; and

~~a video information storage module, configured to store the video information in the blockchain network after verification succeeds.~~

~~42. The apparatus according to claim 41, further comprising:~~

~~a risk prompt information generation module, configured to generate risk prompt information for the video information if the verification on the digital signature of the video information fails, the risk prompt information being used for prompting security checking on the designated video surveillance device.~~

2143. A device ~~for generating a blockchain warehouse receipt~~, comprising:

~~at least one~~a processor; and

a memory ~~communicatively connected to the at least one processor, wherein~~

~~the memory~~ storinges instructions executable by the ~~at least one~~ processor,

wherein the processor is configured to~~and the instructions are executed by the at least one processor to cause the at least one processor to~~:

obtain item registration information ~~filled in~~provided by a first user;

generate, by invoking a first smart contract, a blockchain warehouse receipt comprising basic type fields according to the item registration information ~~by invoking a first smart contract~~, the basic type fields comprising ~~at least~~ a warehouse receipt type field, a warehouse receipt ID field, a generation time field, a state field, a category field, a property owner field, a quantity field, and a weight field; ~~and~~

store the blockchain warehouse receipt in a blockchain network;

obtain a transfer application for the blockchain warehouse receipt; and

invoke a second smart contract according to the transfer application to perform:

determining a transfer warehouse receipt ID, information of the first user, and information of a second user;

querying the blockchain network for property owner information corresponding to the transfer warehouse receipt ID;

electronically sending the transfer application to the second user when the property owner information is consistent with the information of the first user;

changing property owner information corresponding to the property owner field on the blockchain warehouse receipt to the information of the second user after confirmation information from the second user is received; and

storing an updated blockchain warehouse receipt in the blockchain network.

44. A device for updating a blockchain warehouse receipt, comprising:

at least one processor; and

a memory communicatively connected to the at least one processor, wherein

the memory stores instructions executable by the at least one processor, and the instructions are executed by the at least one processor to cause the at least one processor to:

obtain a transfer application for the blockchain warehouse receipt; and

invoke a second smart contract according to the transfer application to perform the following operations:

determining a transfer warehouse receipt ID, transferor information, and transferee information;

querying a blockchain network for property owner information corresponding to the transfer warehouse receipt ID;

sending the transfer application to a transferee corresponding to the transferee information when the property owner information is consistent with the transferor information;

changing property owner information corresponding to a property owner field on the blockchain warehouse receipt to the transferee information after confirmation information from the transferee is received; and

storing an updated blockchain warehouse receipt in the blockchain network.

45. A computer readable medium, storing computer readable instructions, the computer readable instructions being executable by a processor to implement the method according to any one of claims 1 to 21.