

BLOCKCHAIN SYSTEM–BASED REMITTANCE METHOD AND APPARATUS

TECHNICAL FIELD

[0001] One or more embodiments of this specification relate to the field of blockchain
5 technologies, and in particular, to a blockchain system–based remittance method and apparatus.

BACKGROUND

[0002] The blockchain technology (also referred to as a distributed ledger technology) is a
decentralized distributed database technology. Due to its characteristics of decentralization,
openness and transparency, tamper-resistance, trustworthiness, etc., the blockchain technology is
10 applicable to various application scenarios that require high data reliability. In view of the above-
mentioned advantages, a related technology applies the blockchain technology to a remittance
scenario, so as to implement remittance between remittance institutions through on-chain asset
transfer, thereby ensuring reliability of a remittance process.

[0003] However, in the related technology, remittance between remittance institutions is
15 usually implemented through prepayment. In such a method, a remittance institution needs to send
a specific amount of off-chain assets to an asset issuer in advance as prepayment assets, so that the
asset issuer can issue a corresponding amount of on-chain assets in a blockchain system based on
an amount of the prepayment assets for the remittance institution to use for remittance. It is not
difficult to understand that, in the above-mentioned method, there exists a problem of
20 reconciliation between an on-chain asset and an off-chain asset. In addition, because the funds of
the remittance institution are highly liquid, the remittance institution does not have sufficient off-
chain assets to make prepayment, causing a failure to perform a remittance operation.

SUMMARY

[0004] In view of the foregoing description, one or more embodiments of this specification
25 provide a blockchain system–based remittance method and apparatus.

[0005] To achieve the above-mentioned objective, one or more embodiments of this specification provide the following technical solutions: According to a first aspect of one or more embodiments of this specification, a blockchain system-based remittance method is provided, including: an asset issuer issues a to-be-allocated balance asset and a to-be-allocated liability asset
5 in a blockchain system, where an amount of the to-be-allocated balance asset is equal to an amount of the to-be-allocated liability asset; the asset issuer allocates a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of a first remittance institution to a first blockchain account corresponding to the first remittance institution, so as to be used as an available balance asset and an available liability asset that correspond to the first remittance
10 institution, where an amount of the available balance asset is equal to an amount of the available liability asset; and the first remittance institution sends, to the blockchain system, a remittance transaction used to instruct to make remittance to a second remittance institution, so that the blockchain system transfers an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain
15 account corresponding to the second remittance institution.

[0006] According to a second aspect of one or more embodiments of this specification, a blockchain system-based remittance method is provided, including: an asset issuer issues a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system based on a prepayment asset of a first remittance institution at the asset issuer and an accredited limit of the
20 first remittance institution, where the to-be-allocated balance asset is equal to a sum of the prepayment asset and the accredited limit, and the to-be-allocated liability asset is equal to the accredited limit; the asset issuer allocates a first amount of the to-be-allocated balance asset and a second amount of the to-be-allocated liability asset to a first blockchain account corresponding to the first remittance institution, so as to be respectively used as an available balance asset and an
25 available liability asset that correspond to the first remittance institution, where the first amount is not greater than the sum, and the second amount is not greater than the accredited limit; and the first remittance institution sends, to the blockchain system, a remittance transaction used to instruct to make remittance to a second remittance institution, so that the blockchain system transfers an available balance asset with an amount equal to an amount indicated in the remittance transaction
30 in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

[0007] According to a third aspect of one or more embodiments of this specification, a blockchain system-based remittance method is provided, where the method is applied to a blockchain node, and includes: issuing, when receiving an asset issuance transaction initiated by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs, where an amount of the to-be-allocated balance asset is equal to an amount of the to-be-allocated liability asset; allocating, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by a first remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of the first remittance institution to a first blockchain account corresponding to the first remittance institution, so as to be used as an available balance asset and an available liability asset that correspond to the first remittance institution, where an amount of the available balance asset is equal to an amount of the available liability asset; and when receiving a remittance transaction that is initiated by the first remittance institution and that is used to instruct to make remittance to a second remittance institution, transferring an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

[0008] According to a fourth aspect of one or more embodiments of this specification, a blockchain system-based remittance method is provided, where the method is applied to a blockchain node, and includes: when receiving an asset issuance transaction initiated by an asset issuer, issuing a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs based on a prepayment asset amount of a first remittance institution at the asset issuer and an accredited limit of the first remittance institution that are included in the asset issuance transaction, where the to-be-allocated balance asset is equal to a sum of the prepayment asset amount and the accredited limit, and the to-be-allocated liability asset is equal to the accredited limit; allocating, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by the first remittance institution, a first amount of the to-be-allocated balance asset and a second amount of the to-be-allocated liability asset to a first blockchain account corresponding to the first remittance institution, so as to be respectively used as an available balance asset and an available liability asset that correspond to the first remittance institution, where the first amount is not greater than

the sum, and the second amount is not greater than the accredited limit; and when receiving a remittance transaction that is initiated by the first remittance institution and that is used to instruct to make remittance to a second remittance institution, transferring an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

[0009] According to a fifth aspect of one or more embodiments of this specification, a blockchain system-based remittance apparatus is provided, where the apparatus is applied to a blockchain node, and includes: an issuance unit, configured to issue, when receiving an asset issuance transaction initiated by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs, where an amount of the to-be-allocated balance asset is equal to an amount of the to-be-allocated liability asset; an accreditation unit, configured to allocate, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by a first remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of the first remittance institution to a first blockchain account corresponding to the first remittance institution, so as to be used as an available balance asset and an available liability asset that correspond to the first remittance institution, where an amount of the available balance asset is equal to an amount of the available liability asset; and a remittance unit, configured to: when receiving a remittance transaction that is initiated by the first remittance institution and that is used to instruct to make remittance to a second remittance institution, transfer an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

[0010] According to a sixth aspect of one or more embodiments of this specification, a blockchain system-based remittance apparatus is provided, where the apparatus is applied to a blockchain node, and includes: an issuance unit, configured to: when receiving an asset issuance transaction initiated by an asset issuer, issue a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs based on a prepayment asset amount of a first remittance institution at the asset issuer and an accredited limit of the first remittance institution that are included in the asset issuance transaction, where the to-be-allocated balance asset is equal to a sum of the prepayment asset amount and the accredited limit, and the

to-be-allocated liability asset is equal to the accredited limit; an accreditation unit, configured to allocate, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by the first remittance institution, a first amount of the to-be-allocated balance asset and a second amount of the to-be-allocated liability asset to a first
5 blockchain account corresponding to the first remittance institution, so as to be respectively used as an available balance asset and an available liability asset that correspond to the first remittance institution, where the first amount is not greater than the sum, and the second amount is not greater than the accredited limit; and a remittance unit, configured to: when receiving a remittance transaction that is initiated by the first remittance institution and that is used to instruct to make
10 remittance to a second remittance institution, transfer an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

[0011] According to a seventh aspect of one or more embodiments of this specification, an electronic device is provided, including: a processor; and a memory configured to store a
15 processor-executable instruction, where the processor runs the executable instruction to implement the method according to any one of the third aspect and the fourth aspect.

[0012] According to an eighth aspect of one or more embodiments of this specification, a computer-readable storage medium is provided, where the computer-readable storage medium stores a computer instruction, and the instruction is executed by a processor to implement steps of
20 the method according to any one of the third aspect and the fourth aspect.

BRIEF DESCRIPTION OF DRAWINGS

[0013] FIG. 1 is a schematic diagram of a prepayment-based remittance method according to some example embodiments;

[0014] FIG. 2 is a flowchart of a blockchain system-based remittance method according to
25 some example embodiments;

[0015] FIG. 3 is a flowchart of a remittance method applied to a blockchain node according to some example embodiments;

[0016] FIG. 4 is an interaction diagram of a blockchain system-based remittance method according to some example embodiments;

30 [0017] FIG. 5 is a flowchart of another blockchain system-based remittance method according

to some example embodiments;

[0018] FIG. 6 is a flowchart of another remittance method applied to a blockchain node according to some example embodiments;

[0019] FIG. 7 is an interaction diagram of another blockchain system-based remittance method according to some example embodiments;

[0020] FIG. 8 is a schematic structural diagram of a device according to some example embodiments;

[0021] FIG. 9 is a block diagram of a blockchain system-based remittance apparatus according to some example embodiments; and

[0022] FIG. 10 is a block diagram of another blockchain system-based remittance apparatus according to some example embodiments.

DESCRIPTION OF EMBODIMENTS

[0023] Remittance is also referred to as "payment by remittance". It is one of payment methods for international settlement, and refers to a service handling method in which a payer actively transfers payment to a payee through a third party (such as a bank) by using various settlement instruments. Such a service handling method involves interests of all parties, and therefore requires high reliability of a handling process.

[0024] The blockchain technology (also referred to as a distributed ledger technology) is a decentralized distributed database technology. Due to its characteristics of decentralization, openness and transparency, tamper-resistance, trustworthiness, etc., the blockchain technology is applicable to various application scenarios that require high data reliability.

[0025] Therefore, a related technology applies the blockchain technology to a remittance scenario, so as to implement remittance between remittance institutions through on-chain asset transfer, thereby ensuring reliability of a remittance process. However, in the related technology, asset transfer between remittance institutions is usually implemented through prepayment. For a specific process, references can be made to FIG. 1. As shown in FIG. 1, a first remittance institution A needs to preferentially send a specific amount of off-chain assets to an asset issuer C such as a bank, so that the asset issuer A can issue a corresponding amount of on-chain assets in a blockchain system X based on the off-chain assets. The on-chain assets are recorded in a first blockchain account a corresponding to the first remittance institution A. The process corresponds to steps ①

and ② in FIG. 1, that is, the steps of prepayment and asset issuance. On this basis, when a user 1 needs to make remittance to a user 2 by using the first remittance institution A, the user 1 can send a remittance request to the first remittance institution A, so that the first remittance institution A sends a corresponding remittance transaction to the blockchain system X. After receiving the remittance transaction, the blockchain system X can transfer the corresponding on-chain assets in the first blockchain account a to a second blockchain account b of a second remittance institution B corresponding to the user 2. The process can correspond to steps ③ and ④ in FIG. 1. The second remittance institution can further redeem the on-chain assets in the second blockchain account b for off-chain assets, and then hand over the off-chain assets obtained through cash withdrawing to the user 2. The process can correspond to steps ⑤ and ⑥ in FIG. 1.

[0026] It can be learned from the foregoing description that remittance between the first remittance institution A and the second remittance institution B can be implemented through prepayment.

[0027] However, it is not difficult to see that, the process of implementing remittance through prepayment has a plurality of disadvantages, which are specifically as follows: (1) Transfer of an off-chain asset needs to be preferentially performed, leading to a large amount of preparatory work in an earlier period of remittance (for example, identity authentication and handling of off-chain asset formalities). As a result, remittance efficiency is reduced.

[0028] (2) Remittance needs to be supported by corresponding off-chain assets. However, the off-chain assets of the remittance institution are highly liquid and often cannot be sufficiently reserved for issuing on-chain assets. As a result, remittance cannot be made.

[0029] (3) Because the asset issuer stores prepayment assets corresponding to on-chain assets, reconciliation between an on-chain asset and an off-chain asset is performed to avoid a case in which the on-chain assets are unequal to the off-chain assets.

[0030] In view of the above-mentioned disadvantages in the prepayment method, this specification provides a remittance method that is based on asset accreditation, so as to resolve the above-mentioned problems in the prepayment method.

[0031] FIG. 2 is a flowchart of a blockchain system-based remittance method according to some example embodiments of this specification. The method may include the following steps:
Step 202: An asset issuer issues a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system, where an amount of the to-be-allocated balance asset is equal to an amount

of the to-be-allocated liability asset.

[0032] It can be learned from the above-mentioned content that, in a related technology, remittance based on a blockchain system is implemented through prepayment. In the prepayment method, prepayment needs to be made in advance to issue on-chain assets, causing problems such as low remittance efficiency and failure to perform a remittance operation. In addition, in the prepayment method, the asset issuer stores prepayment assets, and the on-chain assets issued on the chain based on the prepayment assets are all balance assets. Therefore, to avoid a case in which the on-chain assets are unequal to the off-chain assets, the related technology further includes reconciliation between an on-chain asset and an off-chain asset.

[0033] In view of the foregoing description, this specification implements blockchain system-based remittance by using an accreditation method instead of the prepayment method. Specifically, the asset issuer can issue a to-be-allocated balance asset and a to-be-allocated liability asset that are equal in amount in the blockchain system, and the issued to-be-allocated balance asset and the issued to-be-allocated liability asset can be allocated to a blockchain account corresponding to the remittance institution based on an accreditation status of the remittance institution, so as to be used as an available balance asset and an available liability asset that correspond to the remittance institution. The available balance asset is used to complete the remittance operation when the remittance needs to be made, and the available liability asset is used to record an off-chain asset that the remittance institution needs to repay.

[0034] It should be understood that, the on-chain assets issued in the blockchain system in this specification include the to-be-allocated liability asset and the to-be-allocated balance asset that are equal in amount, so that a total amount of the on-chain assets issued in the blockchain system in this specification is 0. Therefore, it is unnecessary for the remittance institution to make prepayment at the asset issuer, thereby avoiding problems such as low remittance efficiency and failure to make remittance that are caused by prepayment needed in the related technology. Correspondingly, because the total amount of the issued on-chain assets is 0, and the asset issuer has no off-chain assets corresponding to the on-chain assets, reconciliation between the on-chain asset and the off-chain asset is not performed.

[0035] Further, the asset issuer in this specification allocates the to-be-allocated balance asset and the to-be-allocated liability asset to the blockchain account corresponding to the remittance institution based on the accreditation status of the remittance institution. Such a process is

equivalent to that a corresponding amount of on-chain assets is handed over in advance to the remittance institution for remittance based on a degree of trustfulness of the asset issuer to the remittance institution, and then in a subsequent process (for example, when the remittance institution has sufficient funds), is repaid by the remittance institution based on the available liability asset recorded in the blockchain account of the remittance institution. In practice, the asset issuer can predetermine the accredited limit of the remittance institution, and when allocating the to-be-allocated balance asset and the to-be-allocated liability asset to the account corresponding to the remittance institution, ensure that the amount of the allocated assets does not exceed the accredited limit. As such, this specification can ensure that the on-chain assets allocated to the remittance institution do not exceed the repayment ability of the remittance institution, thereby avoiding the problem that the remittance institution cannot repay the remittance because the amount of the remittance made by the remittance institution is excessively large.

[0036] Step 204: The asset issuer allocates a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of a first remittance institution to a first blockchain account corresponding to the first remittance institution, so as to be used as an available balance asset and an available liability asset that correspond to the first remittance institution, where an amount of the available balance asset is equal to an amount of the available liability asset.

[0037] Before the technical solutions of this specification are described, the naming scheme used in this specification is first explained as follows: In this specification, a remittance institution initiating remittance is referred to as a first remittance institution; a remittance institution receiving remittance is referred to as a second remittance institution; an object responsible for issuing an on-chain asset for remittance is referred to as an asset issuer, and the object may be any type of institution that can issue an on-chain asset, for example, may be a bank.

[0038] In this specification, the asset issuer can issue the on-chain asset by using different methods based on actual needs.

[0039] In one embodiment, the asset issuer can issue, in the blockchain system based on the accredited limit of the first remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that are equal to the accredited limit, and the issued to-be-allocated balance asset and the issued to-be-allocated liability asset can be allocated only to the first blockchain account corresponding to the first remittance institution. In practice, the asset issuer can perform risk assessment on the first remittance institution in advance, so as to determine an accredited limit

corresponding to the first remittance institution based on an assessment result. It is not difficult to understand that this embodiment is equivalent to that the asset issuer issues an "on-chain asset exclusive to the first remittance institution" for the first remittance institution, so as to be used by the first remittance institution to make remittance to another remittance institution.

5 **[0040]** In a case of this embodiment, the above-mentioned on-chain asset exclusive to the first remittance institution can be recorded in the first blockchain account corresponding to the first remittance institution when the issuance of the on-chain asset is completed. It is not difficult to understand that such case is equivalent to that after the issuance of "the to-be-allocated balance asset" and "the to-be-allocated liability asset" is completed, "the to-be-allocated balance asset" and
10 "the to-be-allocated liability asset" are all directly allocated to the first remittance institution.

[0041] In another case of this embodiment, after the issuance of the above-mentioned on-chain asset exclusive to the first remittance institution is completed, the on-chain asset may not be recorded in the first blockchain account, for example, may be first recorded in a third blockchain account corresponding to the asset issuer or in another predetermined blockchain account. Then,
15 when receiving an asset accreditation request sent by the first remittance institution, the asset issuer transfers, based on an asset amount specified in the request, a to-be-allocated balance asset and a to-be-allocated liability asset that are equal to the asset amount to the first blockchain account. In such case, the issued to-be-allocated balance asset and the issued to-be-allocated liability asset described above may be considered as a total amount of on-chain assets that the first remittance
20 institution can use for remittance; the to-be-allocated balance asset and the to-be-allocated liability asset that are allocated to the first blockchain account based on the asset accreditation request may be considered as on-chain assets needed by the first remittance institution for remittance in a specific period. For example, it is assumed that the amount of the on-chain asset issued by the asset issuer in the blockchain system based on the accredited limit of the first remittance institution
25 is 2,000. In such case, the first remittance institution can send an asset accreditation request to the asset issuer based on an asset amount of 500 every day, so that the asset issuer initiates an accreditation transaction to the blockchain system to instruct the blockchain system to transfer the to-be-allocated balance asset and the to-be-allocated liability asset with the amount of 500 to the first blockchain account. Certainly, in practice, the asset accreditation process can alternatively be
30 actively initiated by the asset issuer rather than being passively performed under an instruction of the first remittance institution. For example, the asset issuer can actively send an asset accreditation

transaction to the blockchain system based on a predetermined time period, so as to instruct the blockchain system to transfer a corresponding amount of to-be-allocated balance assets and to-be-allocated liability assets to the first blockchain account.

[0042] In another embodiment, the on-chain assets issued by the asset issuer may not belong to any remittance institution. In other words, the to-be-allocated balance asset and the to-be-allocated liability asset issued by the asset issuer in the blockchain system can be allocated to a blockchain account corresponding to any remittance institution.

[0043] Similar to the above-mentioned embodiment, when receiving an asset accreditation request sent by the first remittance institution, the asset issuer in this embodiment can transfer, based on an asset amount specified in the request, a to-be-allocated balance asset and a to-be-allocated liability asset that are equal to the asset amount to the first blockchain account. Specifically, the asset issuer can send an asset accreditation transaction to the blockchain system, to instruct the blockchain system to transfer a corresponding amount of to-be-allocated balance assets and to-be-allocated liability assets to the first blockchain account. Certainly, the asset issuer can alternatively actively initiate an asset accreditation process. A specific operation method is similar to that in the previous embodiment, and details are not described herein again.

[0044] It should be understood that the two asset issuance methods described in the above-mentioned two embodiments have respective advantages. The asset issuer in the former method can independently issue an on-chain asset for each remittance institution, so as to implement use of funds as ear-marked and facilitate subsequent tracing. The asset issuer in the latter method issues on-chain assets for all remittance institutions in a unified manner. The on-chain asset issued at one single time can be simultaneously used by a plurality of remittance institutions, thereby reducing issuance times and avoiding the problem that the on-chain assets are hard to be managed in an overall way because the on-chain asset is independently issued for each remittance institution in the former method.

[0045] Step 206: The first remittance institution sends, to the blockchain system, a remittance transaction used to instruct to make remittance to a second remittance institution, so that the blockchain system transfers an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

[0046] In this specification, after the above-mentioned process of asset issuance and asset

accreditation (that is, transferring the on-chain assets to the first blockchain account under the instruction of the asset issuer) is completed, the first remittance institution can make remittance based on the on-chain assets in the first blockchain account.

[0047] In practice, the first remittance institution can, under the instruction of the user, initiate a remittance transaction to the blockchain system, so that the blockchain system transfers, based on a remittance amount included in the remittance transaction, an available balance asset equal to the remittance amount in the first blockchain account to the second blockchain account corresponding to the second remittance institution.

[0048] It should be understood that, after the operation of transferring the on-chain asset is completed, neither the off-chain asset of the first remittance institution nor the off-chain asset of the second remittance institution changes, but the total on-chain assets of the first remittance institution in the blockchain system are "available liability assets equal to the remittance amount", and the total on-chain assets of the second remittance institution in the blockchain system are "available balance assets equal to the remittance amount". In other words, the total assets of the first remittance institution (including the on-chain assets and the off-chain assets) decrease by the "amount equal to the remittance amount", and the total assets of the second remittance institution (including the on-chain assets and the off-chain assets) increase by the "amount equal to the remittance amount". It can be learned that, after the above-mentioned asset transfer operation is completed, the remittance from the first remittance institution to the second remittance institution is completed.

[0049] In this specification, the above-mentioned asset accreditation process is equivalent to that the first remittance institution obtains the on-chain asset based on the credit of the first remittance institution, and the available liability asset recorded in the first blockchain account is used to record the off-chain asset that the first remittance institution needs to repay after obtaining the on-chain asset. Therefore, this specification may further include an operation of repaying the asset issuer by the first remittance institution.

[0050] In practice, the first remittance institution can send the off-chain asset used for repayment to the asset issuer. After receiving the off-chain asset, the asset issuer can generate a corresponding repayment transaction, and send the repayment transaction to the blockchain system, so as to instruct the blockchain system to deduct an available liability asset equal to the above-mentioned off-chain asset from the first blockchain account. It is not difficult to understand that,

in such a method, the first remittance institution can repay the asset issuer in due time based on a fund flow status of the first remittance institution, so as to ensure a reputation of the first remittance institution at the asset issuer, and maintain long-term cooperation between the first remittance institution and the asset issuer.

5 **[0051]** In this specification, the asset issuer assists the first remittance institution in implementing a blockchain system-based remittance operation. Therefore, the asset issuer can further collect a specific interest from the first remittance institution. Specifically, after allocating the to-be-allocated balance asset and the to-be-allocated liability asset to the first blockchain system, the blockchain system can calculate liability interests corresponding to the available
10 liability asset at different moments based on the amount of the available liability asset recorded in the first blockchain account and duration of recording the available liability asset. The liability interest is positively correlated with both the above-mentioned duration and the amount of the above-mentioned available liability asset. For example, after the first blockchain account receives the available balance asset and the available liability asset, the blockchain system can calculate, at
15 a specific time of each day, a liability interest corresponding to the current day based on the amount of the available liability asset and a quantity of days from the day the first blockchain account receives the available liability asset to the current day.

[0052] Correspondingly, when receiving the repayment transaction, the blockchain system can calculate, based on a time at which the first blockchain account receives the available liability asset
20 and a repayment time at which the blockchain system receives the repayment transaction, a liability interest corresponding to the available liability asset at the repayment time, and record the liability interest in the first blockchain account, so as to indicate that the first remittance institution needs to pay, in addition to repayment to the asset issuer based on the amount of the available liability asset, an off-chain asset equal to the amount of the liability interest to be used as the interest paid
25 to the asset issuer.

[0053] It should be understood that, if the liability interest is recorded only in the first blockchain account, the total assets recorded in the blockchain system are certainly no longer 0, but the off-chain assets of the asset issuer are still 0. This certainly violates the issuance rule of the on-chain asset (the rule that the amount of the on-chain asset should be equal to the amount of the
30 off-chain asset). Therefore, in this specification, the asset issuer further needs to issue the interest asset equal to the amount of the liability interest in the blockchain system. Because the asset type

of the liability interest is a liability asset, and the asset type of the interest asset is a balance asset, after the interest asset is issued, it is ensured that the total on-chain assets are still 0, which complies with the issuance rule of the on-chain asset. It should be noted that the interest asset may be considered as a reward for the asset issuer to maintain the on-chain asset and assist the first remittance institution in making remittance. Therefore, the issued interest asset belongs to the asset issuer and is recorded in a third blockchain account corresponding to the asset issuer. It should be noted that the asset interest can be issued after the instruction of the asset issuer is received, or can be issued actively by the blockchain system after calculating the liability interest.

[0054] In this specification, after the balance asset equal to the asset amount in the remittance transaction is transferred to the second blockchain account, a corresponding amount of the balance asset is recorded in the second blockchain account. In other words, after the asset transfer operation is completed, the on-chain asset of the second remittance institution increases. On this basis, this specification may further include a process of redeeming the on-chain asset for the off-chain asset.

[0055] In some embodiments, the asset issuer can actively transfer, after completing the transfer of the on-chain asset, the off-chain asset equal to the asset amount included in the remittance transaction to the second remittance institution, and at the same time, initiate an asset redemption transaction to the blockchain system, so as to instruct the blockchain system to deduct a corresponding amount of the available balance asset from the second blockchain account.

[0056] In these embodiments, it is equivalent to that the on-chain asset in the second blockchain account is redeemed for the off-chain asset by default. Because the asset issuer sends a corresponding amount of the off-chain asset to the second remittance institution, the total off-chain assets of the asset issuer may also be considered as a liability status, and the amount is equal to the liability amount of the total on-chain assets. It can be learned that, after asset redemption is completed, the amount of the total on-chain assets is still equal to the amount of the total off-chain assets, which complies with the issuance rule of the on-chain asset.

[0057] In some other embodiments, whether the on-chain asset is redeemed for the off-chain asset can be determined by the second remittance institution. When the second remittance institution needs to redeem the on-chain asset for the off-chain asset, the second remittance institution can initiate an asset redemption transaction to the blockchain system. After receiving the asset redemption transaction, the blockchain system can deduct an available balance asset with a redemption amount equal to a redemption amount indicated in the asset redemption transaction

from the second blockchain system. Further, the second remittance institution can further send a redemption instruction to the asset issuer, so that the asset issuer remits a corresponding amount of the off-chain asset to the second remittance institution.

5 [0058] Certainly, in these embodiments, the asset issuer can alternatively initiate the asset redemption transaction. Specifically, when the second remittance institution needs to redeem the on-chain asset for the off-chain asset, the second remittance institution can send an asset redemption request to the asset issuer. After receiving the asset redemption request, the asset issuer can generate a corresponding asset redemption transaction, and send the asset redemption transaction to the blockchain system, so as to instruct the blockchain system to deduct an available
10 balance asset with a redemption amount equal to a redemption amount indicated in the asset redemption transaction from the second blockchain account. Correspondingly, after receiving the asset redemption request, the asset issuer can further send the off-chain asset equal to the redemption amount to the second remittance institution, so as to complete the entire asset redemption procedure.

15 [0059] It should be noted that the blockchain system in this specification may include only one blockchain network, or may include a plurality of blockchain networks. The blockchain system can use a conventional blockchain architecture, that is, all nodes in the blockchain system are formed by deploying blockchain code on corresponding physical devices. In most cases, each node corresponds to one physical device. The blockchain system can alternatively use a blockchain as
20 a service (BaaS) architecture in the blockchain technology, that is, all nodes in the blockchain network are formed by deploying blockchain code on a cloud-implemented virtual machine by using a cloud service, and the blockchain nodes do not need to correspond to corresponding physical devices one by one.

[0060] In addition, it should be further emphasized that the remittance institution in this
25 specification may be any type of money transfer operator (MTO), that is, an enterprise or organization that is approved by a related organization and that can provide an asset transfer service. Certainly, a specific form of the remittance institution is not restricted in this specification, and can be determined by a person skilled in the art based on an actual situation.

[0061] It can be learned from the above-mentioned technical solutions that, in this
30 specification, the asset issuer simultaneously issues two types of on-chain assets, namely, the to-be-allocated balance asset and the to-be-allocated liability asset in the blockchain system, so that

the amount of the total on-chain assets issued by the asset issuer is 0, thereby avoiding a case in which when a blockchain asset is issued in the related technology, the remittance institution needs to make prepayment at the asset issuer, and further avoiding low remittance efficiency and failure to make remittance that are caused by prepayment. In addition, because the asset issuer does not store any prepayment asset and the total amount of on-chain assets is 0, the technical solutions of this specification do not include reconciliation of blockchain assets.

[0062] Further, in this specification, the issued on-chain asset is allocated to the blockchain account corresponding to the remittance institution based on the accreditation status of the remittance institution, so as to ensure that neither the amount of the to-be-allocated balance asset nor the amount of the to-be-allocated liability asset that are allocated to the blockchain account corresponding to the remittance institution exceeds the accredited limit of the remittance institution. It should be understood that, the accredited limit is equivalent to an assessment performed by the asset issuer on the repayment ability of the remittance institution. Because neither the amount of the to-be-allocated balance asset nor the amount of the to-be-allocated liability asset that are allocated to the blockchain account corresponding to the remittance institution exceeds the accredited limit, it can be certainly ensured that the remittance institution has an ability to repay the off-chain asset needed for issuing the on-chain asset that is obtained through allocation, thereby ensuring that the interests of the asset issuer are not damaged.

[0063] Still further, after the first remittance institution obtains the on-chain asset through allocation, the blockchain system can further calculate liability interests corresponding to the first remittance institution at different times, and record the liability interests in the first blockchain account corresponding to the first remittance institution. Correspondingly, an interest asset with an amount equal to the liability interests can be further issued in the blockchain system, and the interest asset is recorded in a third blockchain account corresponding to the asset issuer. It is not difficult to understand that, because the asset type of the interest asset is a balance asset, and the asset type of the liability interest is a liability asset, and amounts of the balance asset and the liability asset are equal, the total on-chain assets in the blockchain system are still 0, which is equal to the amount of the off-chain assets at the asset issuer. It can be learned that, by generating the liability interest and issuing the interest asset, the asset sender can obtain a deserved reward for maintaining the on-chain asset and assisting the first remittance institution in implementing remittance while ensuring that the issuance rule of the on-chain asset is followed.

[0064] In addition to describing an accreditation-based on-chain remittance method from the perspective of the entire interaction procedure, this specification further discloses an on-chain remittance method applied to a blockchain node. Technical solutions in some embodiments described below are consistent with the technical solution shown in FIG. 2. However, the technical solutions of this specification are described from the perspective of a blockchain node. Therefore, similar content is no longer described in detail in the following embodiments. For a specific operation method, references can be made to the description for FIG. 2.

[0065] FIG. 3 is a flowchart of a remittance method applied to a blockchain node according to some example embodiments of this specification. The method may include the following steps:

Step 302: Issue, when receiving an asset issuance transaction initiated by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs, where an amount of the to-be-allocated balance asset is equal to an amount of the to-be-allocated liability asset.

[0066] As described above, the asset issuer can issue the on-chain asset by using different methods based on actual needs. In some embodiments, when receiving the asset issuance transaction initiated by the asset issuer, the blockchain node can issue, in the blockchain system to which the blockchain node belongs based on the accredited limit of the first remittance institution included in the asset issuance transaction, a to-be-allocated balance asset and a to-be-allocated liability asset that are respectively equal to the accredited limit, where the to-be-allocated balance asset and the to-be-allocated liability asset can be allocated only to the first blockchain account corresponding to the first remittance institution. In some other embodiments, when receiving the asset issuance transaction initiated by the asset issuer, the blockchain node can issue, in the blockchain system to which the blockchain node belongs based on an issuance amount included in the asset issuance transaction, a to-be-allocated balance asset and a to-be-allocated liability asset that are respectively equal to the issuance amount, where the to-be-allocated balance asset and the to-be-allocated liability asset can be allocated to a blockchain account corresponding to any remittance institution.

[0067] Step 304: Allocate, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by a first remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of the first remittance institution to a first blockchain account corresponding to the first remittance

institution, so as to be used as an available balance asset and an available liability asset that correspond to the first remittance institution, where an amount of the available balance asset is equal to an amount of the available liability asset.

5 **[0068]** As described above, after the issuance of the on-chain assets is completed, a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of a first remittance institution can be allocated to a first blockchain account corresponding to the first remittance institution. Specifically, the allocated amount can be determined by the first remittance institution. For example, the first remittance institution can send the asset accreditation request to the asset issuer, so that the asset issuer generates a corresponding asset accreditation transaction, and sends the asset accreditation transaction to the blockchain node. When receiving
10 the asset accreditation transaction, the blockchain node can transfer the to-be-allocated balance asset and the to-be-allocated liability asset that are equal to an asset amount included in the asset accreditation transaction to the first blockchain account. The asset amount does not exceed the accredited limit of the first remittance institution.

15 **[0069]** Step 306: When receiving a remittance transaction that is initiated by the first remittance institution and that is used to instruct to make remittance to a second remittance institution, transfer an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

20 **[0070]** As described above, after asset issuance and asset accreditation are completed, remittance can be made based on the available balance asset recorded in the first blockchain account. Specifically, the first remittance institution can, under the instruction of the user, initiate a remittance transaction to the blockchain node, so that the blockchain node transfers, based on a remittance amount included in the remittance transaction, an available balance asset equal to the
25 remittance amount in the first blockchain account to the second blockchain account corresponding to the second remittance institution.

30 **[0071]** As described above, the first remittance institution can send the off-chain asset to the asset issuer for repayment when the first remittance institution has sufficient off-chain assets. After receiving the off-chain asset, the asset issuer can generate a corresponding repayment transaction and send the repayment transaction to the blockchain node. The blockchain node can deduct an available liability asset equal to the off-chain asset from the first blockchain account based on the

received repayment transaction.

[0072] As described above, the blockchain node can further calculate, based on a time at which the first blockchain account receives the available liability asset and a repayment time at which the blockchain system receives the repayment transaction, a liability interest corresponding to the available liability asset at the repayment time, and record the liability interest in the first blockchain account; and correspondingly, the blockchain node can further issue, in the blockchain system to which the blockchain node belongs, an interest asset belonging to the asset issuer, where an amount of the interest asset is equal to the liability interest, and is recorded in a third blockchain account corresponding to the asset issuer.

[0073] As described above, after the remittance is completed, the assets in the second blockchain account can be further redeemed for off-chain assets. In some embodiments, the available balance asset in the second blockchain account can be redeemed for the off-chain asset by default. For example, after remitting the off-chain asset equal to the amount indicated in the remittance transaction to the second remittance institution, the asset issuer can send the asset redemption transaction to the blockchain node. The blockchain node can deduct a corresponding amount of the available balance asset from the second blockchain account based on the asset redemption transaction. In some other embodiments, whether the on-chain asset is redeemed for the off-chain asset can be determined by the second remittance institution. For example, the second remittance institution can initiate an asset redemption transaction to the blockchain node, and when receiving the asset redemption transaction, the blockchain node can deduct a balance asset with a redemption amount equal to a redemption amount indicated in the asset redemption transaction from the second blockchain account, and send a redemption instruction to the asset issuer, so that the asset issuer remits a corresponding amount of an off-chain asset to the second remittance institution. For another example, the second remittance institution can send an asset redemption request to the asset issuer, so that the asset issuer initiates a corresponding asset redemption transaction to the blockchain node. On this basis, the blockchain node can deduct an available balance asset with a redemption amount equal to a redemption amount indicated in the asset redemption transaction from the second blockchain account. It should be noted that the asset redemption request sent to the asset issuer is further used to instruct the asset issuer to remit an off-chain asset equal to the redemption amount to the second remittance institution.

[0074] It can be learned from the above-mentioned technical solutions that, in this

specification, the asset issuer simultaneously issues two types of on-chain assets, namely, the to-be-allocated balance asset and the to-be-allocated liability asset in the blockchain system, so that the amount of the total on-chain assets issued by the asset issuer is 0, thereby avoiding a case in which when a blockchain asset is issued in the related technology, the remittance institution needs to make prepayment at the asset issuer, and further avoiding low remittance efficiency and failure to make remittance that are caused by prepayment.

[0075] By using an example in which a remittance institution A makes remittance to a remittance institution B, the following describes a procedure for implementing remittance only by using an accreditation method.

10 [0076] FIG. 4 is an interaction diagram of a blockchain system-based remittance method according to some example embodiments of this specification. The method may include the following steps: Step 401: An asset issuer C performs risk assessment on the remittance institution A.

[0077] In these embodiments, the asset issuer C can perform risk assessment on the remittance institution A in advance to obtain an accredited limit of the remittance institution A. In practice, the asset issuer C can perform risk assessment based on data provided by the remittance institution A. Certainly, to avoid a case in which the remittance institution A falsifies data to increase the accredited limit of the remittance institution A, the asset issuer C can alternatively obtain related data of the remittance institution A from a third-party data provider. The related data may include data of a plurality of dimensions related to the remittance institution A, for example, may include reputation data, historical remittance records, and the like.

[0078] Step 402: The asset issuer C generates an asset issuance transaction based on the accredited limit obtained through assessment.

25 [0079] In these embodiments, after completing the risk assessment, the asset issuer C can generate a corresponding asset issuance transaction, so as to issue an on-chain asset in the blockchain system X.

[0080] Step 403: The asset issuer C sends the generated asset issuance transaction to the blockchain system X.

[0081] Step 404: The blockchain system X issues a to-be-allocated balance asset and a to-be-allocated liability asset that are equal in amount based on the accredited limit in the asset issuance transaction.

[0082] For example, assuming that the accredited limit obtained in step 401 through risk assessment is 2,000, the blockchain system X can issue a to-be-allocated balance asset with an amount of 2,000 and a to-be-allocated liability asset with an amount of 2,000.

[0083] In these embodiments, both the issued to-be-allocated balance asset and the issued to-be-allocated liability asset can be allocated only to the blockchain account a corresponding to the remittance institution A, but an asset allocation operation is performed only when an asset accreditation transaction is received. Before the asset accreditation transaction is received, the issued blockchain transaction can be recorded in a blockchain account c corresponding to the asset issuer C. In such case, assets recorded in various blockchain accounts are shown in Table 1:

Object	Blockchain account	Balance asset	Liability asset
Remittance institution A	Account a	0	0
Remittance institution B	Account b	0	0
Asset issuer C	Account c	2,000	2,000

Table 1

[0084] Step 405: The remittance institution A sends an asset accreditation request to the asset issuer C.

[0085] In these embodiments, the remittance institution A can send an asset accreditation request to the asset issuer C, so that the asset issuer C generates a corresponding asset accreditation transaction, and sends the asset accreditation transaction to the blockchain system X. On this basis, the blockchain system X can allocate an asset based on an accredited amount indicated in the asset accreditation transaction.

[0086] Step 406: The asset issuer C generates an asset accreditation transaction based on the accredited amount included in the asset accreditation request.

[0087] Step 407: The asset issuer C sends the generated asset accreditation transaction to the blockchain system X.

[0088] Step 408: The blockchain system X allocates a corresponding amount of the to-be-allocated balance asset and the to-be-allocated liability asset to the blockchain account a corresponding to the remittance institution A based on the accredited amount included in the asset accreditation transaction, so as to be used as an available balance asset and an available liability asset of the remittance institution A.

[0089] In these embodiments, the accredited amount included in the asset accreditation

transaction is not greater than the accredited limit of the remittance institution A. In other words, in the above-mentioned examples, the accredited amount should not be greater than 2,000.

[0090] Still referring to the above-mentioned examples, it is assumed that the accredited amount is 500, and then in this step, the blockchain system X can transfer the liability asset with an amount of 500 and the balance asset with an amount of 500 to the blockchain account a corresponding to the remittance institution A, so that the remittance institution A has sufficient on-chain assets for remittance. After the asset transfer is completed, assets recorded in various blockchain accounts are shown in Table 2:

Object	Blockchain account	Balance asset	Liability asset
Remittance institution A	Account a	500	500
Remittance institution B	Account b	0	0
Asset issuer C	Account c	1,500	1,500

Table 2

[0091] It should be noted that in these embodiments, "performing asset accreditation based on an asset accreditation request initiated by a remittance institution" is used only as an example for description. In practice, the asset issuer C can actively perform asset accreditation for the remittance institution A. For example, the asset issuer C can send an asset accreditation transaction to the blockchain system based on a predetermined time period (for example, daily), so as to complete allocation of the on-chain assets.

[0092] Step 409: The remittance institution A sends a remittance transaction to the blockchain system X.

[0093] It is not difficult to understand that step 401 to step 408 do not belong to the remittance phase, but are preparatory work before the remittance. After the above-mentioned preparatory work is completed, a remittance operation can be performed as needed. In practice, an operation that needs to be performed by the remittance institution A is usually performed under the instruction of the user. For example, when the user 1 needs to make remittance to the user 2, the user 1 can send a remittance request to the remittance institution A, so that the remittance institution A generates a corresponding remittance transaction and sends the remittance transaction to the blockchain system X, so as to instruct the blockchain system X to make remittance.

[0094] Step 410: The blockchain system X transfers an available balance asset with an amount equal to an amount indicated in the remittance transaction in the blockchain account a to the

blockchain account b.

[0095] In these embodiments, after receiving the above-mentioned remittance transaction, the blockchain system X can perform asset transfer based on the information in the remittance transaction. For example, the remittance transaction includes information such as a remittance amount and a remittance object.

[0096] Still referring to the above-mentioned examples, it is assumed that the remittance object is the remittance institution B corresponding to the user 2, and the remittance amount is 200. In such case, the blockchain system X can transfer the balance asset with an amount of 200 in the blockchain account a to the blockchain account b corresponding to the remittance institution B.

After the transfer is completed, assets recorded in various blockchain accounts are shown in Table 3:

Object	Blockchain account	Balance asset	Liability asset
Remittance institution A	Account a	300	500
Remittance institution B	Account b	200	0
Asset issuer C	Account c	1,500	1,500

Table 3

[0097] Step 411: The blockchain system X calculates a liability interest of the remittance institution A based on the repayment time.

[0098] In these embodiments, the liability interest of the remittance institution A can be further calculated and recorded in the blockchain account a. It is assumed that the interest rate is 1%/day, and the current day is the third day after asset accreditation (in other words, liability duration is 2 days). In such case, the calculated liability interest is $500 \times 2 \times 1\% = 10$. In such case, assets recorded in various blockchain accounts are shown in Table 4:

Object	Blockchain account	Balance asset	Liability asset	Liability interest
Remittance institution A	Account a	300	500	10
Remittance institution B	Account b	200	0	0
Asset issuer C	Account c	1,500	1,500	0

Table 4

[0099] Certainly, Table 4 shows the asset records by using "separate recording of the liability interest" as an example only. In practice, because the asset type of the liability interest is a liability

asset, the liability interest can also be recorded as a liability asset. In such case, asset records of various blockchain accounts may be shown in Table 5:

Object	Blockchain account	Balance asset	Liability asset
Remittance institution A	Account a	300	510
Remittance institution B	Account b	200	0
Asset issuer C	Account c	1,500	1,500

Table 5

[0100] Step 412: The blockchain system issues the interest asset equal to the liability interest, and records the interest asset in the third blockchain account corresponding to the asset issuer.

[0101] It should be understood that, whether the total on-chain assets recorded in either Table 4 or Table 5 are not 0, but the total off-chain assets are still 0, which certainly does not comply with the issuance rule of the on-chain asset. In these embodiments, a balance asset that belongs to the asset issuer C and that is equal to the liability interest in amount needs to be further issued, so as to ensure that the total on-chain assets are equal to the total off-chain assets, and both are 0. In such case, assets recorded in various blockchain accounts are shown in Table 6 or Table 7:

Object	Blockchain account	Balance asset	Liability asset	Liability interest	Interest asset
Remittance institution A	Account a	300	500	10	0
Remittance institution B	Account b	200	0	0	0
Asset issuer C	Account c	1,500	1,500	0	10

Table 6

Object	Blockchain account	Balance asset	Liability asset
Remittance institution A	Account a	300	510
Remittance institution B	Account b	200	0
Asset issuer C	Account c	1,510	1,500

Table 7

[0102] Certainly, in these embodiments, the method may further include a step of repaying the asset issuer C by the remittance institution A, and a step of redeeming the on-chain asset for the off-chain asset by the remittance institution B. These two steps have been described above in detail, and details are not described herein again.

[0103] It can be learned from the above-mentioned technical solutions that, in these embodiments, a liability asset and a balance asset that are equal to the accredited limit of the remittance institution can be issued in the blockchain system based on an accreditation status of the remittance institution. After receiving the asset accreditation transaction, the blockchain system
5 can transfer a corresponding amount of the balance asset and the liability asset to the blockchain account corresponding to the remittance institution for remittance. Because a total amount of the balance asset and the liability asset is 0, unlike the related technology, in these embodiments, the remittance institution does not need to make prepayment to issue an asset, thereby avoiding low remittance efficiency and failure to make remittance that are caused by poor asset liquidity of the
10 remittance institution in the related technology.

[0104] The above-mentioned content describes the procedure for implementing remittance only by using an accreditation method. However, in practice, even if the remittance institution does not have sufficient off-chain assets to make remittance due to poor asset liquidity, the remittance institution still has few off-chain assets available for remittance in most cases. Therefore, this
15 specification further provides a remittance method combining prepayment and accreditation.

[0105] Before the remittance method is described, it should be first noted that, most operation steps in the method are consistent with the procedure for implementing remittance only by using an accreditation method, for example, how to make remittance, how to make repayment, and how to calculate a liability interest. For details, references can be made to the descriptions of some
20 above-mentioned embodiments.

[0106] FIG. 5 is a flowchart of another blockchain system-based remittance method according to some example embodiments of this specification. The method may include the following steps: Step 502: An asset issuer issues a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system based on a prepayment asset of a first remittance institution at the asset
25 issuer and an accredited limit of the first remittance institution, where the to-be-allocated balance asset is equal to a sum of the prepayment asset and the accredited limit, and the to-be-allocated liability asset is equal to the accredited limit.

[0107] As described above, for most operations in these embodiments, references can be made to the descriptions of some above-mentioned embodiments, and details are not described again in
30 these embodiments. It should be understood that a difference between these embodiments and some above-mentioned embodiments lies in that, in these embodiments, when a blockchain asset

is issued, a to-be-allocated balance asset is issued based on a prepayment asset of a first remittance institution at an asset issuer and an accredited limit of the first remittance institution. However, a to-be-allocated liability asset is still issued based on the accredited limit. Correspondingly, when the issued to-be-allocated balance asset and the issued to-be-allocated liability asset are allocated to the first blockchain account corresponding to the first remittance institution, an available balance asset obtained through allocation is also changed to be not greater than a sum of the prepayment asset and the accredited limit, but an available liability asset obtained through allocation is still not greater than the accredited limit.

[0108] Step 504: The asset issuer allocates a first amount of the to-be-allocated balance asset and a second amount of the to-be-allocated liability asset to a first blockchain account corresponding to the first remittance institution, so as to be respectively used as an available balance asset and an available liability asset that correspond to the first remittance institution, where the first amount is not greater than the sum, and the second amount is not greater than the accredited limit.

[0109] It should be understood that, in these embodiments, after the asset issuance is completed, the amount of the total on-chain assets is exactly equal to the amount of the prepayment asset. It can be learned that the asset issuance method used in these embodiments does not violate the issuance rule of the on-chain asset (that is, it is ensured that an amount of the issued on-chain assets is equal to an amount of the off-chain assets held by the asset issuer). It can be learned from the foregoing description that, unlike some embodiments described above, these embodiments can resolve the problem of a failure to make remittance that is caused by insufficient prepayment assets in the related technology, and can further increase an upper limit of the remittance amount. The upper limit of the remittance amount in some embodiments described above is the accredited limit. However, the upper limit of the remittance amount in these embodiments is the sum of the accredited limit and the prepayment asset.

[0110] Step 506: The first remittance institution sends, to the blockchain system, a remittance transaction used to instruct to make remittance to a second remittance institution, so that the blockchain system transfers an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

[0111] As described above, after asset issuance and asset accreditation are completed, the first

remittance institution can perform a remittance operation based on the on-chain assets in the first blockchain account. Specifically, the first remittance institution can, under the instruction of the user, initiate a remittance transaction to the blockchain system, so that the blockchain system transfers, based on a remittance amount included in the remittance transaction, an available
5 balance asset equal to the remittance amount in the first blockchain account to the second blockchain account corresponding to the second remittance institution.

[0112] As described above, the first remittance institution can further send an off-chain asset to the asset issuer, so that the asset issuer sends a corresponding repayment transaction to the blockchain system, where the repayment transaction is used to instruct the blockchain system to
10 deduct an available liability asset equal to the off-chain asset from the first blockchain account.

[0113] As described above, the asset issuer helps the first remittance institution implement a remittance operation. Therefore, the asset issuer can further collect a specific interest from the first remittance institution. Specifically, the blockchain system can calculate, based on a time at which the first blockchain account receives the available liability asset and a repayment time at which
15 the blockchain system receives the repayment transaction, a liability interest corresponding to the available liability asset at the repayment time, and record the calculated liability interest in the first blockchain account. Correspondingly, the asset issuer further needs to issue, in the blockchain system, an interest asset belonging to the asset issuer, where an amount of the interest asset is equal to a liability interest recorded in the first blockchain account, and is recorded in a third blockchain
20 account corresponding to the asset issuer.

[0114] It can be learned from the above-mentioned technical solutions that, the technical solutions in these embodiments can be used to resolve the problem of a failure to make remittance that is caused by using a prepayment method in the related technology, and further increase an upper limit of the remittance amount. Specifically, the amount of the to-be-allocated balance asset
25 issued in these embodiments is equal to "the sum of the accredited limit of the first remittance institution and the prepayment asset of the first remittance institution at the asset issuer". Correspondingly, the upper limit of the available balance asset that can be obtained by the first blockchain account through allocation also increases to "the sum of the accredited limit of the first remittance institution and the prepayment asset of the first remittance institution at the asset issuer".
30 The available balance asset obtained through allocation in the first blockchain account is an on-chain asset that can be used for remittance. Clearly, the upper limit of the remittance amount is

increased compared with some embodiments described above.

[0115] Like some embodiments described above, this specification further provides a remittance method that corresponds to FIG. 5 and that is applied to a blockchain node. In some embodiments below, most operation methods are similar to those in some embodiments described above. For a specific operation method, references can be made to the descriptions of some
5 embodiments described above, and details are not described again in the following description.

[0116] FIG. 6 is a flowchart of another remittance method applied to a blockchain node according to some example embodiments of this specification. The method may include the following steps: Step 602: When receiving an asset issuance transaction initiated by an asset issuer,
10 issue a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs based on a prepayment asset amount of a first remittance institution at the asset issuer and an accredited limit of the first remittance institution that are included in the asset issuance transaction, where the to-be-allocated balance asset is equal to a sum of the prepayment asset amount and the accredited limit, and the to-be-allocated liability asset is
15 equal to the accredited limit.

[0117] In these embodiments, when a blockchain asset is issued, a to-be-allocated balance asset is issued based on a prepayment asset of a first remittance institution at an asset issuer and an accredited limit of the first remittance institution. However, a to-be-allocated liability asset is still issued based on the accredited limit. Correspondingly, when the issued to-be-allocated balance
20 asset and the issued to-be-allocated liability asset are allocated to the first blockchain account corresponding to the first remittance institution, an available balance asset obtained through allocation is also changed to be not greater than a sum of the prepayment asset and the accredited limit, but an available liability asset obtained through allocation is still not greater than the accredited limit.

[0118] Step 604: Allocate, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by the first remittance institution, a first amount of the to-be-allocated balance asset and a second amount of the to-be-allocated liability
25 asset to a first blockchain account corresponding to the first remittance institution, so as to be respectively used as an available balance asset and an available liability asset that correspond to the first remittance institution, where the first amount is not greater than the sum, and the second
30 amount is not greater than the accredited limit.

[0119] It should be understood that, in these embodiments, after the asset issuance is completed, the amount of the total on-chain assets is exactly equal to the amount of the prepayment asset. It can be learned that the asset issuance method used in these embodiments does not violate the issuance rule of the on-chain asset (that is, it is ensured that an amount of the issued on-chain assets is equal to an amount of the off-chain assets held by the asset issuer). It can be learned from the foregoing description that, these embodiments can resolve the problem of a failure to make remittance that is caused by insufficient prepayment assets, and can further increase an upper limit of the remittance amount. The upper limit of the remittance amount when the on-chain asset is issued only by using the accredited limit is the accredited limit. However, the upper limit of the remittance amount in these embodiments is the sum of the accredited limit and the prepayment asset.

[0120] Step 606: When receiving a remittance transaction that is initiated by the first remittance institution and that is used to instruct to make remittance to a second remittance institution, transfer an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

[0121] As described above, after asset issuance and asset accreditation are completed, the first remittance institution can perform a remittance operation based on the on-chain assets in the first blockchain account. Specifically, the first remittance institution can, under the instruction of the user, initiate a remittance transaction to the blockchain node, so that the blockchain node transfers, based on a remittance amount included in the remittance transaction, an available balance asset equal to the remittance amount in the first blockchain account to the second blockchain account corresponding to the second remittance institution.

[0122] As described above, the first remittance institution can further send an off-chain asset to the asset issuer, so that the asset issuer sends a corresponding repayment transaction to the blockchain node. After receiving the repayment transaction, the blockchain node deducts an available liability asset equal to the off-chain asset from the first blockchain account.

[0123] As described above, the asset issuer helps the first remittance institution implement a remittance operation. Therefore, the asset issuer can further collect a specific interest from the first remittance institution. Specifically, the blockchain node can calculate, based on a time at which the first blockchain account receives the available liability asset and a repayment time at which

the blockchain system receives the repayment transaction, a liability interest corresponding to the available liability asset at the repayment time, and record the calculated liability interest in the first blockchain account. Correspondingly, the asset issuer further needs to issue, in the blockchain system, an interest asset belonging to the asset issuer, where an amount of the interest asset is equal to a liability interest recorded in the first blockchain account, and is recorded in a third blockchain account corresponding to the asset issuer.

[0124] It can be learned from the above-mentioned technical solutions that, the amount of the to-be-allocated balance asset issued in these embodiments is equal to "the sum of the accredited limit of the first remittance institution and the prepayment asset of the first remittance institution at the asset issuer". Correspondingly, the upper limit of the available balance asset that can be obtained by the first blockchain account through allocation also increases to "the sum of the accredited limit of the first remittance institution and the prepayment asset of the first remittance institution at the asset issuer". The available balance asset obtained through allocation in the first blockchain account is an on-chain asset that can be used for remittance. It can be learned that, compared with the method for issuing an on-chain asset only by using the accredited limit, in these embodiments, an upper limit of the remittance amount is increased.

[0125] Still by using an example in which a remittance institution A makes remittance to a remittance institution B, the following describes a procedure for implementing remittance by combining prepayment and accreditation.

[0126] FIG. 7 is an interaction diagram of another blockchain system-based remittance method according to some example embodiments of this specification. The method may include the following steps: Step 701: A remittance institution A sends an off-chain asset to an asset issuer C as a prepayment asset.

[0127] In these embodiments, the remittance institution A can send a specific amount of the off-chain asset to the asset issuer C, so as to be used as a prepayment asset for issuing an on-chain asset.

[0128] Step 702: The asset issuer C performs risk assessment on the remittance institution A.

[0129] In these embodiments, after receiving the prepayment asset sent by the remittance institution A, the asset issuer C can start to perform risk assessment on the remittance institution A. For a specific assessment method, references can be made to the description for FIG. 4, and details are not described herein again.

[0130] Step 703: The asset issuer C generates an asset issuance transaction based on the accredited limit obtained through assessment and an amount of the prepayment asset.

[0131] In these embodiments, after completing the risk assessment, the asset issuer C can generate a corresponding asset issuance transaction based on the amount of the prepayment asset and the accredited limit, so as to issue an on-chain asset in the blockchain system X.

[0132] Step 704: The asset issuer C sends the generated asset issuance transaction to the blockchain system X.

[0133] Step 705: The blockchain system X issues a to-be-allocated balance asset and a to-be-allocated liability asset based on the accredited limit and the amount of the prepayment asset in the asset issuance transaction.

[0134] For example, it is assumed that in step 701, the amount of the prepayment asset sent by the remittance institution A to the asset issuer C is 700, and the accredited limit obtained in step 702 through risk assessment is 2,000. In such case, in this step, the blockchain system X can issue a to-be-allocated balance asset with an amount of 2,700 and a to-be-allocated liability asset with an amount of 2,000.

[0135] In these embodiments, both the issued to-be-allocated balance asset and the issued to-be-allocated liability asset can be allocated only to the blockchain account a corresponding to the remittance institution A, but an asset allocation operation is performed only when an asset accreditation transaction is received. Before the asset accreditation transaction is received, the issued blockchain transaction can be recorded in a blockchain account c corresponding to the asset issuer C. In such case, assets recorded in various blockchain accounts are shown in Table 8:

Object	Blockchain account	Balance asset	Liability asset
Remittance institution A	Account a	0	0
Remittance institution B	Account b	0	0
Asset issuer C	Account c	2,700	2,000

Table 8

[0136] Step 706: The remittance institution A sends an asset accreditation request to the asset issuer C.

[0137] In these embodiments, the remittance institution A can send an asset accreditation request to the asset issuer C, so that the asset issuer C generates a corresponding asset accreditation transaction, and sends the asset accreditation transaction to the blockchain system X. On this basis,

the blockchain system X can allocate an asset based on an accredited amount indicated in the asset accreditation transaction.

[0138] Step 707: The asset issuer C generates an asset accreditation transaction based on the accredited amount included in the asset accreditation request.

5 **[0139]** Step 708: The asset issuer C sends the generated asset accreditation transaction to the blockchain system X.

[0140] Step 709: The blockchain system X allocates a corresponding amount of the to-be-allocated balance asset and the to-be-allocated liability asset to the blockchain account a corresponding to the remittance institution A based on the accredited amount included in the asset accreditation transaction, so as to be used as an available balance asset and an available liability asset of the remittance institution A.

[0141] In these embodiments, the accredited amount included in the asset accreditation transaction is not greater than the sum of the accredited limit of the remittance institution A and the above-mentioned prepayment asset. In other words, in the above-mentioned examples, the accredited amount should not be greater than 2,700.

[0142] It should be noted that, because the to-be-allocated balance asset issued in these embodiments is greater than the amount of the to-be-allocated liability asset, in the asset accreditation process, it can be preferentially determined whether the accredited amount is greater than the amount of the prepayment asset. If the accredited amount is not greater than the amount of the prepayment asset, it is unnecessary to transfer the to-be-allocated liability asset to the blockchain account a corresponding to the remittance institution A. If the accredited amount is greater than the amount of the prepayment asset, it is necessary to transfer a specific amount of the to-be-allocated liability asset to the blockchain account a.

25 **[0143]** Still referring to the above-mentioned examples, it is assumed that the accredited amount is 500, and then in this step, the blockchain system X only needs to transfer the balance asset with an amount of 500 to the blockchain account a corresponding to the remittance institution A. In such case, after the asset transfer is completed, assets recorded in various blockchain accounts are shown in Table 9:

Object	Blockchain account	Balance asset	Liability asset
Remittance institution A	Account a	500	0
Remittance institution B	Account b	0	0

Asset issuer C	Account c	2,200	2,000
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Table 9

[0144] It is assumed that the accredited amount is 900, and then in this step, the blockchain system X not only needs to transfer the balance asset with an amount of 900 to the blockchain account a corresponding to the remittance institution A, but also needs to transfer the liability asset with an amount of 200 to the blockchain account a corresponding to the remittance institution A. In such case, after the asset transfer is completed, assets recorded in various blockchain accounts are shown in Table 10:

Object	Blockchain account	Balance asset	Liability asset
Remittance institution A	Account a	900	200
Remittance institution B	Account b	0	0
Asset issuer C	Account c	1,800	1,800

Table 10

[0145] Step 710: The remittance institution A sends a remittance transaction to the blockchain system X.

[0146] It is not difficult to understand that step 401 to step 408 do not belong to the remittance phase, but are preparatory work before the remittance. After the above-mentioned preparatory work is completed, a remittance operation can be performed as needed.

[0147] In practice, an operation that needs to be performed by the remittance institution A is usually performed under the instruction of the user. For example, when the user 1 needs to make remittance to the user 2, the user 1 can send a remittance request to the remittance institution A, so that the remittance institution A generates a corresponding remittance transaction and sends the remittance transaction to the blockchain system X, so as to instruct the blockchain system X to make remittance.

[0148] Step 711: The blockchain system X transfers an available balance asset with an amount equal to an amount indicated in the remittance transaction in the blockchain account a to the blockchain account b.

[0149] In these embodiments, after receiving the above-mentioned remittance transaction, the blockchain system X can perform asset transfer based on the information in the remittance transaction. For example, the remittance transaction includes information such as a remittance amount and a remittance object.

[0150] Still referring to the above-mentioned examples (the accreditation status in Table 10 is used as an example), it is assumed that the remittance object is the remittance institution B corresponding to the user 2, and the remittance amount is 200. In such case, the blockchain system X can transfer the balance asset with an amount of 200 in the blockchain account a to the blockchain account b corresponding to the remittance institution B. After the transfer is completed, assets recorded in various blockchain accounts are shown in Table 11:

Object	Blockchain account	Balance asset	Liability asset
Remittance institution A	Account a	700	200
Remittance institution B	Account b	200	0
Asset issuer C	Account c	1,800	1,800

Table 11

[0151] Step 712: The blockchain system X calculates a liability interest of the remittance institution A based on the repayment time.

[0152] In these embodiments, the liability interest of the remittance institution A can be further calculated and recorded in the blockchain account a. It is assumed that the interest rate is 1%/day, and the current day is the third day after asset accreditation (in other words, liability duration is 2 days). In such case, the calculated liability interest is $200 \times 2 \times 1\% = 10$. In such case (all subsequent examples are described on the basis of Table 11), assets recorded in various blockchain accounts are shown in Table 12:

Object	Blockchain account	Balance asset	Liability asset	Liability interest
Remittance institution A	Account a	700	200	4
Remittance institution B	Account b	200	0	0
Asset issuer C	Account c	1,800	1,800	0

Table 12

[0153] Certainly, Table 12 shows the asset records by using "separate recording of the liability interest" as an example only. In practice, because the asset type of the liability interest is a liability asset, the liability interest can also be recorded as a liability asset. In such case, asset records of various blockchain accounts may be shown in Table 13:

Object	Blockchain account	Balance asset	Liability asset
Remittance institution A	Account a	700	204

Remittance institution B	Account b	200	0
Asset issuer C	Account c	1,800	1,800

Table 13

[0154] Step 713: The blockchain system issues the interest asset equal to the liability interest, and records the interest asset in the third blockchain account corresponding to the asset issuer.

[0155] It should be understood that, whether the total on-chain assets recorded in either Table 12 or Table 13 are not 0, but the total off-chain assets are still 0, which certainly does not comply with the issuance rule of the on-chain asset. In these embodiments, a balance asset that belongs to the asset issuer C and that is equal to the liability interest in amount needs to be further issued, so as to ensure that the total on-chain assets are equal to the total off-chain assets, and both are 0. In such case, assets recorded in various blockchain accounts are shown in Table 14 or Table 15:

Object	Blockchain account	Balance asset	Liability asset	Liability interest	Interest asset
Remittance institution A	Account a	700	200	4	0
Remittance institution B	Account b	200	0	0	0
Asset issuer C	Account c	1,800	1,800	0	4

Table 14

Object	Blockchain account	Balance asset	Liability asset
Remittance institution A	Account a	700	204
Remittance institution B	Account b	200	0
Asset issuer C	Account c	1,804	1,800

Table 15

[0156] Certainly, in these embodiments, the method may further include a step of repaying the asset issuer C by the remittance institution A, and a step of redeeming the on-chain asset for the off-chain asset by the remittance institution B. These two steps have been described above in detail, and details are not described herein again.

[0157] It can be learned from the above-mentioned technical solutions that, in these embodiments, accreditation and prepayment are combined so that a to-be-allocated balance asset equal to "the sum of the amount of the prepayment asset and the accredited limit" can be issued in the blockchain system based on an accredited limit of a remittance institution and a prepayment

asset of the remittance institution at an asset issuer, thereby increasing an upper limit of a remittance amount to "the sum of the amount of the prepayment asset and the accredited limit". It can be learned that, the technical solutions in these embodiments can be used to resolve the problem of a failure to make remittance that is caused by insufficient prepayment assets in the related technology, and further increase an upper limit of the remittance amount.

[0158] FIG. 8 is a schematic structural diagram of a device according to some example embodiments. References are made to FIG. 8. At the hardware level, the device includes a processor 802, an internal bus 804, a network interface 806, a memory 808, and a non-volatile memory 810, and certainly may further include other hardware needed by a service. One or more embodiments of this specification can be implemented based on software. For example, the processor 802 reads a corresponding computer program from the non-volatile memory 810 to the memory 808 and then runs the computer program. Certainly, in addition to software implementations, one or more embodiments of this specification do not preclude other implementations, such as a logic device or a combination of software and hardware. In other words, an execution body of the following processing procedure is not limited to each logical unit, and may be hardware or a logic device.

[0159] Referring to FIG. 9, a blockchain system-based remittance apparatus can be applied to the device shown in FIG. 8, so as to implement the technical solutions of this specification. The blockchain system-based remittance apparatus may include:

[0160] an issuance unit 901, configured to issue, when receiving an asset issuance transaction initiated by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs, where an amount of the to-be-allocated balance asset is equal to an amount of the to-be-allocated liability asset;

[0161] an accreditation unit 902, configured to allocate, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by a first remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of the first remittance institution to a first blockchain account corresponding to the first remittance institution, so as to be used as an available balance asset and an available liability asset that correspond to the first remittance institution, where an amount of the available balance asset is equal to an amount of the available liability asset; and

[0162] a remittance unit 903, configured to: when receiving a remittance transaction that is

initiated by the first remittance institution and that is used to instruct to make remittance to a second remittance institution, transfer an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

5 **[0163]** Optionally, the issuance unit 901 is further configured to: when receiving the asset issuance transaction initiated by the asset issuer, issue, in the blockchain system to which the blockchain node belongs based on the accredited limit of the first remittance institution included in the asset issuance transaction, a to-be-allocated balance asset and a to-be-allocated liability asset that are respectively equal to the accredited limit, where the to-be-allocated balance asset and the
10 to-be-allocated liability asset can be allocated only to the first blockchain account corresponding to the first remittance institution.

[0164] Optionally, the issuance unit 901 is further configured to: when receiving the asset issuance transaction initiated by the asset issuer, issue, in the blockchain system to which the blockchain node belongs based on an issuance amount included in the asset issuance transaction,
15 a to-be-allocated balance asset and a to-be-allocated liability asset that are respectively equal to the issuance amount, where the to-be-allocated balance asset and the to-be-allocated liability asset can be allocated to a blockchain account corresponding to any remittance institution.

[0165] Optionally, the accreditation unit 902 is further configured to transfer, based on the asset accreditation transaction initiated by the asset issuer when receiving the asset accreditation
20 request sent by the first remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that are equal to an asset amount included in the asset accreditation transaction to the first blockchain account, where the asset amount does not exceed the accredited limit of the first remittance institution.

[0166] Optionally, the apparatus further includes: a repayment unit 904, configured to deduct,
25 based on a repayment transaction initiated by the asset issuer when receiving an off-chain asset sent by the first remittance institution, an available liability asset equal to the off-chain asset from the first blockchain account.

[0167] Optionally, the apparatus further includes: a calculation unit 905, configured to:
calculate, based on a time at which the first blockchain account receives the available liability asset
30 and a repayment time at which the blockchain node receives the repayment transaction, a liability interest corresponding to the available liability asset at the repayment time, and record the liability

interest in the first blockchain account; and issue, in the blockchain system to which the blockchain node belongs, an interest asset belonging to the asset issuer, where an amount of the interest asset is equal to the liability interest, and is recorded in a third blockchain account corresponding to the asset issuer.

5 **[0168]** Optionally, the apparatus further includes: a redemption unit 906, configured to: deduct a corresponding amount of an available balance asset from the second blockchain account based on an asset redemption transaction that is initiated by the asset issuer when remitting an off-chain asset equal to an amount indicated in the remittance transaction to the second remittance institution; or when receiving an asset redemption transaction initiated by the second remittance institution,
10 deduct a balance asset with a redemption amount equal to a redemption amount indicated in the asset redemption transaction from the second blockchain account, and send a redemption instruction to the asset issuer, so that the asset issuer remits a corresponding amount of an off-chain asset to the second remittance institution; or deduct, based on an asset redemption transaction initiated by the asset issuer when receiving an asset redemption request sent by the second
15 remittance institution, an available balance asset with a redemption amount equal to a redemption amount indicated in the asset redemption transaction from the second blockchain account, where the asset redemption request is further used to instruct the asset issuer to remit an off-chain asset equal to the redemption amount to the second remittance institution.

[0169] Referring to FIG. 10, a blockchain system-based remittance apparatus can be applied
20 to the device shown in FIG. 8, so as to implement the technical solution of this specification. The blockchain system-based remittance apparatus may include: an issuance unit 1001, configured to issue, when receiving an asset issuance transaction initiated by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs, where an amount of the to-be-allocated balance asset is equal to an amount of the
25 to-be-allocated liability asset; an accreditation unit 1002, configured to allocate, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by a first remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of the first remittance institution to a first blockchain account corresponding to the first remittance institution, so as to be used as an available balance
30 asset and an available liability asset that correspond to the first remittance institution, where an amount of the available balance asset is equal to an amount of the available liability asset; and a

remittance unit 1003, configured to: when receiving a remittance transaction that is initiated by the first remittance institution and that is used to instruct to make remittance to a second remittance institution, transfer an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account
5 corresponding to the second remittance institution.

[0170] Optionally, the apparatus further includes: a repayment unit 1004, configured to deduct, based on a repayment transaction initiated by the asset issuer when receiving an off-chain asset sent by the first remittance institution, an available liability asset equal to the off-chain asset from the first blockchain account.

10 **[0171]** Optionally, the apparatus further includes: a calculation unit 1005, configured to: calculate, based on a time at which the first blockchain account receives the available liability asset and a repayment time at which the blockchain system receives the repayment transaction, a liability interest corresponding to the available liability asset at the repayment time, and record the liability interest in the first blockchain account; and issue, in the blockchain system to which the blockchain
15 node belongs, an interest asset belonging to the asset issuer, where an amount of the interest asset is equal to the liability interest, and is recorded in a third blockchain account corresponding to the asset issuer.

[0172] The system, apparatus, module, or unit illustrated in the above-mentioned embodiments can be specifically implemented by using a computer chip or an entity, or can be
20 implemented by using a product having a specific function. A typical implementation device is a computer, and a specific form of the computer may be a personal computer, a laptop computer, a cellular phone, a camera phone, a smartphone, a personal digital assistant, a media player, a navigation device, an email receiving and sending device, a game console, a tablet computer, a wearable device, or any combination of these devices.

25 **[0173]** In a typical configuration, a computer includes one or more processors (CPU), one or more input/output interfaces, one or more network interfaces, and one or more memories. The memory may include a non-persistent memory, a random access memory (RAM), a non-volatile memory, and/or another form that are in a computer-readable medium, for example, a read-only memory (ROM) or a flash memory (flash RAM). The memory is an example of the computer-
30 readable medium.

[0174] The computer-readable medium includes a persistent and a non-persistent, a removable

and a non-removable medium, which implement information storage by using any method or technology. Information may be a computer-readable instruction, a data structure, a program module, or other data. Examples of a computer storage medium include but are not limited to a phase change random access memory (PRAM), a static RAM (SRAM), a dynamic RAM (DRAM),
5 a RAM of another type, a read-only memory (ROM), an electrically erasable programmable ROM (EEPROM), a flash memory or another memory technology, a compact disc ROM (CD-ROM), a digital versatile disc (DVD) or another optical storage, a cassette tape, a magnetic disk storage, a quantum memory, a storage medium based on graphene, another magnetic storage device, or any other non-transmission medium. The computer storage medium can be configured to store
10 information that can be accessed by the computing device. Based on the definition in this specification, the computer-readable medium does not include transitory media such as a modulated data signal and carrier.

[0175] It is worthwhile to further note that, the terms "include", "comprise", or any other variant thereof are intended to cover a non-exclusive inclusion, so that a process, a method, a
15 product or a device that includes a list of elements not only includes those elements but also includes other elements which are not expressly listed, or further includes elements inherent to such process, method, product or device. Without more constraints, an element preceded by "includes a ..." does not preclude the existence of additional identical elements in the process, method, product or device that includes the element.

[0176] Some specific embodiments of this specification are described above. Other embodiments fall within the scope of the appended claims. In some cases, actions or steps described in the claims can be performed in a sequence different from that in some embodiments and desired results can still be achieved. In addition, processes described in the accompanying drawings do not necessarily need a specific order or a sequential order shown to achieve the desired
25 results. In some implementations, multi-tasking and parallel processing are also possible or may be advantageous.

[0177] Terms used in one or more embodiments of this specification are merely used to describe specific embodiments, and are not intended to limit the one or more embodiments of this specification. The terms "a" and "the" of singular forms used in one or more embodiments of this
30 specification and the appended claims are also intended to include plural forms, unless otherwise specified in the context clearly. It should be further understood that the term "and/or" used in this

specification indicates and includes any or all possible combinations of one or more associated listed items.

[0178] It should be understood that although terms "first", "second", "third", etc. may be used in one or more embodiments of this specification to describe various types of information, the information should not be limited to these terms. These terms are used merely to differentiate information of the same type. For example, without departing from the scope of one or more embodiments of this specification, first information can also be referred to as second information, and similarly, the second information can also be referred to as the first information. Depending on the context, the word "if" used here can be interpreted as "when" or "while" or "in response to determining".

[0179] The foregoing descriptions are merely example embodiments of one or more embodiments of this specification, but are not intended to limit the one or more embodiments of this specification. Any modification, equivalent replacement, improvement, etc. made without departing from the spirit and principle of the one or more embodiments of this specification shall fall within the protection scope of the one or more embodiments of this specification.

CLAIMS

What is claimed is:

1. A blockchain system-based remittance method, comprising:

issuing, by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset
5 in a blockchain system, wherein an amount of the to-be-allocated balance asset is equal to an amount of the to-be-allocated liability asset;

allocating, by the asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of a first remittance institution to a first blockchain account corresponding to the first remittance institution, so as to be used as an available balance
10 asset and an available liability asset that correspond to the first remittance institution, wherein an amount of the available balance asset is equal to an amount of the available liability asset; and

sending, by the first remittance institution to the blockchain system, a remittance transaction used to instruct to make remittance to a second remittance institution, so that the blockchain system transfers an available balance asset with an amount equal to an amount indicated in the remittance
15 transaction in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

2. The method according to claim 1, wherein the issuing, by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system comprises:

issuing, by the asset issuer in the blockchain system based on the accredited limit of the first
20 remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that are equal to the accredited limit, wherein the to-be-allocated balance asset and the to-be-allocated liability asset can be allocated only to the first blockchain account corresponding to the first remittance institution.

3. The method according to claim 1, wherein the issuing, by an asset issuer, a to-be-allocated
25 balance asset and a to-be-allocated liability asset in a blockchain system comprises:

issuing, by the asset issuer in the blockchain system, a to-be-allocated balance asset and a to-be-allocated liability asset, wherein the to-be-allocated balance asset and the to-be-allocated liability asset can be allocated to a blockchain account corresponding to any remittance institution.

4. The method according to claim 2 or 3, wherein the allocating, by the asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit
30

of a first remittance institution to a first blockchain account corresponding to the first remittance institution comprises:

when receiving an asset accreditation request sent by the first remittance institution, transferring, by the asset issuer based on an asset amount specified in the asset accreditation request, a to-be-allocated balance asset and a to-be-allocated liability asset that are equal to the asset amount to the first blockchain account.

5. The method according to claim 1, further comprising:

sending, by the first remittance institution, an off-chain asset to the asset issuer, so that the asset issuer sends a repayment transaction to the blockchain system, wherein the repayment transaction is used to instruct the blockchain system to deduct an available liability asset equal to the off-chain asset from the first blockchain account.

6. The method according to claim 5, further comprising:

calculating, by the blockchain system based on a time at which the first blockchain account receives the available liability asset and a repayment time at which the blockchain system receives the repayment transaction, a liability interest corresponding to the available liability asset at the repayment time, and recording the liability interest in the first blockchain account; and

issuing, by the asset issuer in the blockchain system, an interest asset belonging to the asset issuer, wherein an amount of the interest asset is equal to the liability interest, and is recorded in a third blockchain account corresponding to the asset issuer.

7. The method according to claim 1, further comprising:

remitting, by the asset issuer, an off-chain asset equal to the amount indicated in the remittance transaction to the second remittance institution, and sending an asset redemption transaction to the blockchain system to instruct the blockchain system to deduct a corresponding amount of an available balance asset from the second blockchain account; or

receiving, by the blockchain system, an asset redemption transaction sent by the second remittance institution, so as to deduct an available balance asset with a redemption amount equal to a redemption amount indicated in the asset redemption transaction from the second blockchain account, and sending a redemption instruction to the asset issuer, so that the asset issuer remits a corresponding amount of an off-chain asset to the second remittance institution; or

when receiving an asset redemption request sent by the second remittance transaction, initiating, by the asset issuer, an asset redemption transaction to the blockchain system, so as to

instruct the blockchain system to deduct the available balance asset with the redemption amount equal to the redemption amount indicated in the asset redemption transaction from the second blockchain account, and sending the off-chain asset equal to the redemption amount to the second remittance institution.

5 8. A blockchain system-based remittance method, comprising:

 issuing, by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system based on a prepayment asset of a first remittance institution at the asset issuer and an accredited limit of the first remittance institution, wherein the to-be-allocated balance asset is equal to a sum of the prepayment asset and the accredited limit, and the to-be-allocated
10 liability asset is equal to the accredited limit;

 allocating, by the asset issuer, a first amount of the to-be-allocated balance asset and a second amount of the to-be-allocated liability asset to a first blockchain account corresponding to the first remittance institution, so as to be respectively used as an available balance asset and an available liability asset that correspond to the first remittance institution, wherein the first amount is not
15 greater than the sum, and the second amount is not greater than the accredited limit; and

 sending, by the first remittance institution to the blockchain system, a remittance transaction used to instruct to make remittance to a second remittance institution, so that the blockchain system transfers an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account corresponding to the
20 second remittance institution.

 9. The method according to claim 8, further comprising:

 sending, by the first remittance institution, an off-chain asset to the asset issuer, so that the asset issuer sends a repayment transaction to the blockchain system, wherein the repayment transaction is used to instruct the blockchain system to deduct an available liability asset equal to
25 the off-chain asset from the first blockchain account.

 10. The method according to claim 9, further comprising:

 calculating, by the blockchain system based on a time at which the first blockchain account receives the available liability asset and a repayment time at which the blockchain system receives the repayment transaction, a liability interest corresponding to the available liability asset at the
30 repayment time, and recording the liability interest in the first blockchain account; and

 issuing, by the asset issuer in the blockchain system, an interest asset belonging to the asset

issuer, wherein an amount of the interest asset is equal to the liability interest, and is recorded in a third blockchain account corresponding to the asset issuer.

11. A blockchain system-based remittance method, applied to a blockchain node, comprising:

issuing, when receiving an asset issuance transaction initiated by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs, wherein an amount of the to-be-allocated balance asset is equal to an amount of the to-be-allocated liability asset;

allocating, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by a first remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of the first remittance institution to a first blockchain account corresponding to the first remittance institution, so as to be used as an available balance asset and an available liability asset that correspond to the first remittance institution, wherein an amount of the available balance asset is equal to an amount of the available liability asset; and

when receiving a remittance transaction that is initiated by the first remittance institution and that is used to instruct to make remittance to a second remittance institution, transferring an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

12. The method according to claim 11, wherein the issuing, when receiving an asset issuance transaction initiated by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs comprises:

when receiving the asset issuance transaction initiated by the asset issuer, issuing, in the blockchain system to which the blockchain node belongs based on the accredited limit of the first remittance institution comprised in the asset issuance transaction, a to-be-allocated balance asset and a to-be-allocated liability asset that are respectively equal to the accredited limit, wherein the to-be-allocated balance asset and the to-be-allocated liability asset can be allocated only to the first blockchain account corresponding to the first remittance institution.

13. The method according to claim 11, wherein the issuing, when receiving an asset issuance transaction initiated by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs comprises:

when receiving the asset issuance transaction initiated by the asset issuer, issuing, in the blockchain system to which the blockchain node belongs based on an issuance amount comprised in the asset issuance transaction, a to-be-allocated balance asset and a to-be-allocated liability asset that are respectively equal to the issuance amount, wherein the to-be-allocated balance asset and the to-be-allocated liability asset can be allocated to a blockchain account corresponding to any remittance institution.

14. The method according to claim 12 or 13, wherein the allocating, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by a first remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of the first remittance institution to a first blockchain account corresponding to the first remittance institution comprises:

transferring, based on the asset accreditation transaction initiated by the asset issuer when receiving the asset accreditation request sent by the first remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that are equal to an asset amount comprised in the asset accreditation transaction to the first blockchain account, wherein the asset amount does not exceed the accredited limit of the first remittance institution.

15. The method according to claim 11, further comprising:

deducting, based on a repayment transaction initiated by the asset issuer when receiving an off-chain asset sent by the first remittance institution, an available liability asset equal to the off-chain asset from the first blockchain account.

16. The method according to claim 15, further comprising:

calculating, based on a time at which the first blockchain account receives the available liability asset and a repayment time at which the blockchain node receives the repayment transaction, a liability interest corresponding to the available liability asset at the repayment time, and recording the liability interest in the first blockchain account; and

issuing, in the blockchain system to which the blockchain node belongs, an interest asset belonging to the asset issuer, wherein an amount of the interest asset is equal to the liability interest, and is recorded in a third blockchain account corresponding to the asset issuer.

17. The method according to claim 11, further comprising:

deducting a corresponding amount of an available balance asset from the second blockchain account based on an asset redemption transaction that is initiated by the asset issuer when remitting

an off-chain asset equal to an amount indicated in the remittance transaction to the second remittance institution; or

when receiving an asset redemption transaction initiated by the second remittance institution, deducting a balance asset with a redemption amount equal to a redemption amount indicated in the asset redemption transaction from the second blockchain account, and sending a redemption instruction to the asset issuer, so that the asset issuer remits a corresponding amount of an off-chain asset to the second remittance institution; or

deducting, based on an asset redemption transaction initiated by the asset issuer when receiving an asset redemption request sent by the second remittance institution, an available balance asset with a redemption amount equal to a redemption amount indicated in the asset redemption transaction from the second blockchain account, wherein the asset redemption request is further used to instruct the asset issuer to remit an off-chain asset equal to the redemption amount to the second remittance institution.

18. A blockchain system-based remittance method, applied to a blockchain node, comprising:

when receiving an asset issuance transaction initiated by an asset issuer, issuing a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs based on a prepayment asset amount of a first remittance institution at the asset issuer and an accredited limit of the first remittance institution that are comprised in the asset issuance transaction, wherein the to-be-allocated balance asset is equal to a sum of the prepayment asset amount and the accredited limit, and the to-be-allocated liability asset is equal to the accredited limit;

allocating, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by the first remittance institution, a first amount of the to-be-allocated balance asset and a second amount of the to-be-allocated liability asset to a first blockchain account corresponding to the first remittance institution, so as to be respectively used as an available balance asset and an available liability asset that correspond to the first remittance institution, wherein the first amount is not greater than the sum, and the second amount is not greater than the accredited limit; and

when receiving a remittance transaction that is initiated by the first remittance institution and that is used to instruct to make remittance to a second remittance institution, transferring an available balance asset with an amount equal to an amount indicated in the remittance transaction

in the first blockchain account to a second blockchain account corresponding to the second remittance institution.

19. The method according to claim 18, further comprising:

deducting, based on a repayment transaction initiated by the asset issuer when receiving an off-chain asset sent by the first remittance institution, an available liability asset equal to the off-chain asset from the first blockchain account.

20. The method according to claim 19, further comprising:

calculating, based on a time at which the first blockchain account receives the available liability asset and a repayment time at which the blockchain system receives the repayment transaction, a liability interest corresponding to the available liability asset at the repayment time, and recording the liability interest in the first blockchain account; and

issuing, in the blockchain system to which the blockchain node belongs, an interest asset belonging to the asset issuer, wherein an amount of the interest asset is equal to the liability interest, and is recorded in a third blockchain account corresponding to the asset issuer.

21. A blockchain system-based remittance apparatus, applied to a blockchain node, comprising:

an issuance unit, configured to issue, when receiving an asset issuance transaction initiated by an asset issuer, a to-be-allocated balance asset and a to-be-allocated liability asset in a blockchain system to which the blockchain node belongs, wherein an amount of the to-be-allocated balance asset is equal to an amount of the to-be-allocated liability asset;

an accreditation unit, configured to allocate, based on an asset accreditation transaction initiated by the asset issuer when receiving an asset accreditation request sent by a first remittance institution, a to-be-allocated balance asset and a to-be-allocated liability asset that do not exceed an accredited limit of the first remittance institution to a first blockchain account corresponding to the first remittance institution, so as to be used as an available balance asset and an available liability asset that correspond to the first remittance institution, wherein an amount of the available balance asset is equal to an amount of the available liability asset; and

a remittance unit, configured to: when receiving a remittance transaction that is initiated by the first remittance institution and that is used to instruct to make remittance to a second remittance institution, transfer an available balance asset with an amount equal to an amount indicated in the remittance transaction in the first blockchain account to a second blockchain account

corresponding to the second remittance institution.

22. A blockchain system-based remittance apparatus, applied to a blockchain node, comprising:

an issuance unit, configured to: when receiving an asset issuance transaction initiated by an
5 asset issuer, issue a to-be-allocated balance asset and a to-be-allocated liability asset in a
blockchain system to which the blockchain node belongs based on a prepayment asset amount of
a first remittance institution at the asset issuer and an accredited limit of the first remittance
institution that are comprised in the asset issuance transaction, wherein the to-be-allocated balance
asset is equal to a sum of the prepayment asset amount and the accredited limit, and the to-be-
10 allocated liability asset is equal to the accredited limit;

an accreditation unit, configured to allocate, based on an asset accreditation transaction
initiated by the asset issuer when receiving an asset accreditation request sent by the first
remittance institution, a first amount of the to-be-allocated balance asset and a second amount of
the to-be-allocated liability asset to a first blockchain account corresponding to the first remittance
15 institution, so as to be respectively used as an available balance asset and an available liability
asset that correspond to the first remittance institution, wherein the first amount is not greater than
the sum, and the second amount is not greater than the accredited limit; and

a remittance unit, configured to: when receiving a remittance transaction that is initiated by
the first remittance institution and that is used to instruct to make remittance to a second remittance
20 institution, transfer an available balance asset with an amount equal to an amount indicated in the
remittance transaction in the first blockchain account to a second blockchain account
corresponding to the second remittance institution.

23. An electronic device, comprising:

a processor; and

25 a memory, configured to store a processor-executable instruction, wherein

the processor runs the executable instruction to implement the method according to any one
of claims 11 to 20.

24. A computer-readable storage medium, wherein the computer-readable storage medium
stores a computer instruction, and the instruction is executed by a processor to implement steps of
30 the method according to any one of claims 11 to 20.