Summary of the Invention

~~The goal of this~~Embodiments of the invention ~~is~~ seek to provide an electronic monetary system supporting electronic mutual settlements between its participants in real-time mode with the use of electronic analogues of bank checks, providing its participants with a high level of security and the possibility of obtaining a full, legally-valid documentary database on all transactions executed by the participants in the system.

The technical result seek to be achieved by embodiments of the invention involves the creation of a multifunctional electronic check circulation system as well as the security enhancement of mutual settlements with the use of electronic checks ensured by both engineering means and methods of electronic check record-keeping, verification of the authenticity of electronic checks and the authentication of system participants, and by ensuring a full cycle of electronic check circulation including methods of the issue and payment of electronic checks and the execution of electronic check transfers.

According to a first aspect, there is provided an electronic system of settlement by means of electronic checks containing at least one server computer device for data processing and storage, a server application and client computer devices for data processing comprising it, including the firmware client modules ensuring interaction of the client computer devices with the server device, with provision of the possibility of connection between the client computer devices and the server computer device over communication channels of the Internet network and the possibility of protection of the communication channels by means of the hardware and software facilities of the server and client modules with the use of encryption and electronic digital signature, wherein the client and server applications contain at least an interconnected unit for user authorization in the system, a unit for the updating and synchronization of client and server application data as well as a unit for the input of parameters of the execution of transfers and storage of information on payments of the client application, which is connected by hardware and software facilities with the units for verification of the parameters of electronic check transfers connected with the unit for the authorization and certification of user parameters and a unit for the registration and execution of electronic check transfers of the server application, which are connected by feedback channels with the units for electronic check management, for placing the commission check in an account and sending notices to the

user in real-time mode, connected to the unit for the updating and synchronization of client and server application data as well as inclusion of the electronic signature unit in the composition of the client application, which is connected by hardware and software facilities with the unit for the generation and storage of digital documentation of the server application, connected to the unit for the registration and execution of electronic check transfers; in doing so, the electronic check management unit of the server application is rendered as connected, by means of hardware and software facilities over feedback channels, with the interconnected units for the registration of transactions with electronic checks in the register and issue of electronic checks, as connected to the unit for electronic check signature.

According to a second aspect, there is provided a method for implementing electronic check transfers in the electronic check settlement system containing a server computer device for data processing and storage, an information display device and the server application comprising it, and a client computer processing device containing a device for information display and client applications connected over channels of wireless and/or Internet communication, comprising the sequentially implemented stages of the participant authorization in the system; the accounts data reception; input of electronic check transfer parameters; verification of electronic check parameters; registration of a request for execution of the electronic check transfer; execution of the transaction of the sender's check exchange into several checks including the transfer check, commission check, balance check; submission of checks for payment, payment and issue of new checks; placing the electronic commission check in the system operator's account and/or in the Dealer's (Broker's) account upon the transfer of electronic checks of the standard user category as well as in the bank account via a dealer (broker); placing the electronic check in the participant's account; finalization of the transfer accompanied by the creation and signature of electronic documents, notifying participants of execution of the transfer.

According to a third aspect, there is provided a method for issuing electronic checks in the electronic check settlement system containing a server computer device for data processing and storage, an information display device and the server application device comprising it, and client computer processing devices containing an information display device and client applications connected over wireless and/or Internet communication channels, comprising at least the obligatory stages of a request by the issuer for issuing a

check, the bank's verification of the receipt of monetary funds in the issuer's account, which serve as security for the given check, for conformity with the request parameters and the bank's confirmation of the electronic check issue, with provision of the possibility of the generation of legally-valid documents and the reflection of transactions in the check register to be generated and stored on the system server.

According to a fourth aspect, there is provided a method of payment of electronic checks in the electronic check settlement system containing a server computer device for data processing and storage, an information display device and the server application device comprising it, client computer processing devices containing an information display device and client applications connected over wireless and/or Internet communication channels, comprising the launch of the client application, in the course of which the K2 client unit for authorization in the system will be initialized, after whose execution the K3 unit will be launched for the updating and synchronization of client and server application data, in case of whose successful execution the initialization of the of the K8 unit for data input, the sending of an application for electronic check payment and input of the required initial data for generation of the application for payment of the electronic check will be performed; in doing so, the K8 unit will determine the bank acting as the payer for the Participant's electronic check on the basis of the input data, generate an application for payment of the electronic check in the form of an electronic document certified with the user's EHS and transfer the application to the S6 server unit for the registration of applications, requests, invoices for placing checks in an account, as carried out through the S2 unit, and perform the verification of data by comparing them with the data to be stored in the system DB, and in case of the positive result of verification, the application will be registered on the server, and the records will be introduced into the DB; at that, a message will be sent to the Recipient (paying bank) through the S10 unit for sending online notices on the availability of a new application; the Bank, by means of interaction with the S3 unit, will download the application from the server for payment of the electronic check; in doing so, the S3 server unit for data update, synchronization of client and server application DBs will perform verification of the fact that the request download has been carried out by the recipient with the "Bank" status specified in the request; after successful reception of the request, the triggering of the K14 unit of the Bank's client application will be performed for processing the applications received for payment of electronic checks, which will generate and output the data in the user interface on

the application for payment of the electronic check and provide the Bank with the option of declining or confirming the application; the Bank will verify the correctness of Application parameters, availability of the necessary amount of funds in the issuer's settlement account, and in case of successful verification, it will perform the generation, via the System, of the invoice for placing checks in an account by means of execution of the K6 unit of the client application for data input, sending invoices for placing checks in an account, which will generate the invoice for placing checks in an account in the form of an electronic document certified with the user's EHS and transfer the invoice to the S6 server unit for the registration of applications, requests, invoices for placing checks in an account; the S6 unit will execute the procedure for verification of the parameters of the invoice for placing checks in an account by means of the S2 server unit, perform registration of the invoice on the server in the system DB in case of the successful performance of verifications, and generate a message to the Recipient by means of the S10 unit for sending online notices about the availability of a new request; in cases where a system message is received, the K14 unit of the Bank's client application for the processing of applications received for the payment of electronic checks will perform updating of the state of application; the participant, having received the aforementioned invoice for placing checks in an account, will carry out transfer to the bank to the account in the System specified; in doing so, in cases where the transfer is received by means of the K9 unit for the processing of received electronic check transfers, the verification of payment details and other transfer parameters will be carried out, comparison with the parameters of the application confirmed for payment of the check to be stored in the DB and the procedure for verification of the received electronic check will be initiated; following receipt of the Notice of check verification from the Issuer and change in the state of Request for verification in the system to "confirmed," the bank will perform payment according to the check by remitting the respective monetary funds to the Participant's settlement account and carry out write-off of the check.

According to a fifth aspect, there is provided a method for verification of electronic checks in the electronic check settlement system containing a server computer device for data processing and storage, an information display device and the server application device comprising it, and client computer processing devices containing an information display device and client applications connected over wireless and/or Internet communication channels, distinct in that it will be launched in cases where the Bank has received the

transfer of the electronic check to the specialized account with indication of the data, in the purpose of payment, on the application for payment of the check; in doing so, the Request for verification of the electronic check submitted for payment will be generated; at that, the execution of the K15 unit will be initiated for data input, sending requests for the verification of electronic checks; the K15 unit will provide the bank with the possibility of automatic completion of the request parameters on the basis of the received transfer; in doing so, the K15 unit will certify the request in the form of an electronic document with the bank's EHS and send it to the S6 server unit for the registration of applications, requests, invoices for placing checks in an account, which will execute the procedure for verification of the parameters of the request for verification of the electronic check, and in case of successful fulfilment of all verifications, it will determine the Issuer's registration number and save the request to the server in the system DB; at that, a message will be sent to the recipient (Issuer) by means of the S10 unit for sending online notices on the availability of a new request; the Issuer, by means of interaction with the S3 unit, will download the request for verification of the electronic check from the server; in doing so, the S3 server unit for data involving the updating, synchronization of client and server application DBs will perform verification of the fact that the request download is being performed by the recipient with the "Issuer" status indicated in the request, and after successful reception of the request, the triggering of the K12 unit of the Issuer's client application will be carried out for the processing of requests received for the verification of electronic checks, which will output the data in the user interface on the request for the verification of an electronic check and provide the Issuer with the option to decline or confirm the request; in cases where all verifications have been performed successfully, the Issuer shall confirm the Request for verification of the check; at that, the K12 unit for the processing of applications received for the payment of electronic checks will send the request to the S13 server unit for the processing and execution of applications, requests and trigger the procedure for confirmation of the request for verification of the check of the S13 unit, in the course of whose execution, the data on the request being confirmed will be retrieved from the DB, the necessary verifications will be carried out and the triggering of the S9 unit will be performed for the generation of digital documentation, with provision of the possibility of generation of the Notice of the verification of an electronic check; at that, the document, by means of execution of the K17 unit for the electronic signature of digital documentation, will be

signed with the Issuer's EHS. The S13 unit will notify the Bank about the change in the state of the application sent by the Issuer.

~~For achievement of the aforementioned technical result~~According to an embodiment, an electronic check settlement system is used containing at least one server computer device for data-handling and storage, including a server application, and at least one client computer device for data-handling, including firmware client modules ensuring the possibility of connection of the client computer device to the server device over Internet network communication channels and the protection of communication channels by firmware means of server and client modules with the use of encryption and electronic digital signature. In doing so, the electronic settlement system for electronic checks in question differs from the prototype in that the client and server applications contain at least interconnected units of user authorization in the system being interconnected, a unit for the updating and synchronization of client and server application data, as well as a parameter-input unit for the execution of transfers and storage of information about client-application payments related by firmware with units for verification of the parameters of electronic check transfers connected to the unit of authorization and verification of user parameters and a unit for the registration and execution of server-application electronic check transfers connected by feedback channels to units for electronic check management, check depositing, commissions, and the sending of notices to the user in real-time mode connected to a unit for the updating and synchronization of client-application data, as well

as the inclusion of an electronic-signature unit in the composition of the client application, which is connected by firmware to the unit for the generation and storage of digital documentation of the server application connected to the unit for the registration and execution of electronic check transfers; at that, the electronic check management unit of the server application is connected by firmware over the feedback channels to interconnected units for the registration of electronic check transactions connected to the electronic check signature unit.

In doing so, the client application units are grouped into modules by categories corresponding to the user status determined by the authorization unit of the client and server applications, with provision of the possibility for pre-setting a group of check circulation parameters for each category.

In particular, the system provides three categories of users – the initial category with a minimum set of check circulation parameters (in operating mode, when the transfer of electronic checks in the standard user category as well as those of the bank are performed via a dealer (broker) – the initial category is used exclusively for registration and the sending of an application for changing status (user category)); the standard category – requiring the presentation of additional data on the participant and enabling the participant to present checks for payment to the bank and select a paying bank for its checks; and the extended category – having the widest set of functional capabilities, intended for the operation of the Issuer, Partner-Banks and Dealers (Brokers) of the system, with provision of the possibility of generating an additional set of check circulation parameters for each category. In doing so, in order to take part in the system as a legal entity, the customer shall be assigned to the standard or extended category, which can only be obtained in the course of completing the corresponding status change procedure, which guarantees the execution of all of the organization's necessary checks.

~~The technical result is also achieved by the fact that~~According to further embodiments, methods are proposed for the payment, issue, transfer and verification of electronic checks with the use of the aforementioned payment system.

~~In doing so, t~~The method for implementing electronic check transfers, including the stage of user-data input and its authorization in the system as well as the input of transfer data differs in that it allows check transfer in real-time mode in accordance with the limitations presented in the electronic check record-keeping method and includes the