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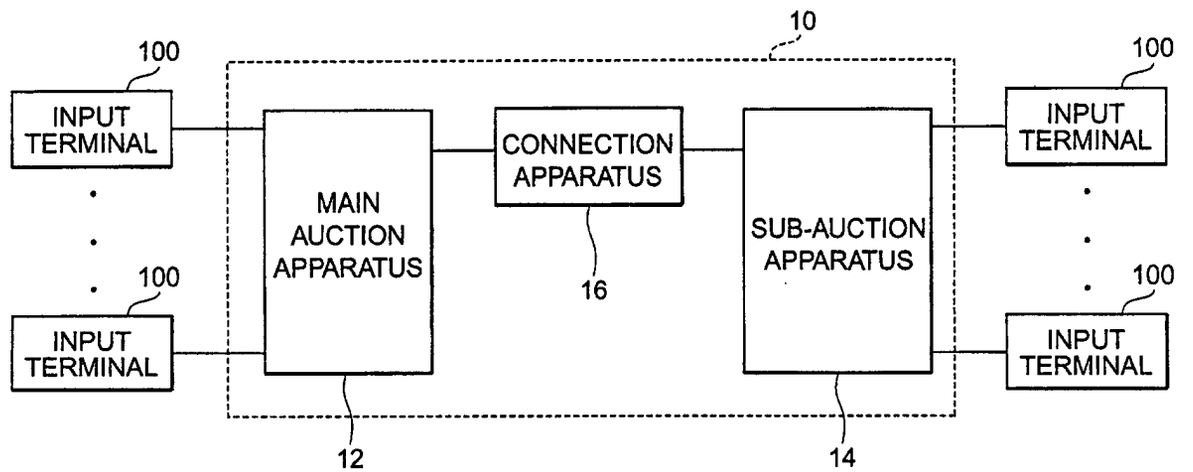
(54) **AUCTION BIDDING SYSTEM, AUCTION BIDDING DEVICE, CONNECTOR, AND AUCTION BIDDING METHOD**

(57) An auction system 10 has an arrangement in which a main auction apparatus 12 and sub-auction apparatus 14 are connected through a connection apparatus 16. The connection apparatus 16 determines the bidding price in the main auction apparatus 12 on the basis of the bidding price of a bidder who is overbidding in the sub-auction apparatus 14 and, submits the bidding price to the main auction apparatus 12. The connection apparatus 16 also determines the presentation price to be presented to the participants in the sub-auction apparatus 14, on the basis of the bidding price of a bidder who is overbidding in the main auction apparatus 12, as the bidding price of the bidder who is overbidding in the main auction apparatus 12, and notifies the sub-auction apparatus 14 of the presentation price.

Fig.1



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Description

Technical Field

[0001] The present invention relates to a competitive bidding system, competitive bidding apparatus, connection apparatus for connecting a plurality of competitive bidding apparatuses to each other or a competitive bidding apparatus to an input terminal, and competitive bidding method.

Background Art

[0002] Methods of selling merchandise by competitive bids have been known for a long time, and competitive bidding systems for causing a plurality of participants to input bidding prices and holding competitive bids on the basis of the bidding prices have also been known. For example, Japanese Patent Laid-Open No. 11-328271 discloses an auction system which connects an auction apparatus installed in an auction room to input terminals provided outside the auction room via communication lines to allow persons outside the auction room to participate in the auction.

Disclosure of Invention

[0003] However, the conventional auction system has a number of disadvantages: since bids from participants outside the auction room in the auction are processed by one auction apparatus provided in the auction room, the processing load of the auction apparatus extremely increases as the number of participants increases; and when the highest bidding price is instantaneously determined by speedy reply bid as in a used car auction, bidders who participate in the auction from remote places stand at a disadvantage because of the influence of the delay time of signal transmission. It is therefore an object of the present invention to provide a competitive bidding system, competitive bidding apparatus, and connection apparatus for connecting a plurality of competitive bidding apparatuses to each other or a competitive bidding apparatus to an input terminal, which reduces the above problems and are easy to use.

[0004] In order to solve the above problem, a connection apparatus of the present invention is a connection apparatus for connecting first and second competitive bidding apparatuses which receive bids from a plurality of participants and hold a competitive bid, characterized in that a bidding price in the first competitive bidding apparatus is determined on the basis of a bidding price of a bidder who is overbidding in the second competitive bidding apparatus, and the determined bidding price is submitted to the first competitive bidding apparatus, and a presentation price to be presented to participants in the second competitive bidding apparatus is determined, on the basis of a bidding price of a bidder who is overbidding in the first competitive bidding apparatus, as the bidding price of the bidder who is overbidding in the first competitive bidding apparatus, and the second competitive bidding apparatus is notified of the presentation price.

[0005] Instead of causing all bidders in the second competitive bidding apparatus to directly bid in the first competitive bidding apparatus, only the bidder who is overbidding in the second competitive bidding apparatus is allowed to bid in the first competitive bidding apparatus. With this arrangement, bids from a number of bidders can be received in a competitive bid held by the first competitive bidding apparatus without largely increasing the processing load of the first competitive bidding apparatus. As a result, a competitive bidding system that can be easily used by a number of participants can be constructed.

[0006] The connection apparatus of the present invention may be characterized in that the bidding price in the first competitive bidding apparatus is determined on the basis of a delay time of signal transmission from the second competitive bidding apparatus to the first competitive bidding apparatus, and the presentation price is determined on the basis of a delay time of signal transmission from the first competitive bidding apparatus to the second competitive bidding apparatus.

[0007] When the bidding price in the first competitive bidding apparatus is determined on the basis of the delay time of signal transmission, and the presentation price is determined on the basis of the delay time of signal transmission, the influence of the delay time of signal transmission can be reduced. As a result, a competitive bidding system that can be easily used by a number of participants from remote places can be constructed.

[0008] A competitive bidding system of the present invention is characterized by comprising a first competitive bidding apparatus for receiving bids from a plurality of participants and holding a competitive bid, a second competitive bidding apparatus for receiving bids from a plurality of participants and holding a competitive bid, and a connection apparatus for connecting the first competitive bidding apparatus and the second competitive bidding apparatus, wherein the connection apparatus comprises any one of the above-described connection apparatuses, the first competitive bidding apparatus determines, from bidders including the connection apparatus, a bidder who has overbid in the first competitive bidding apparatus as a successful bidder, and when the connection apparatus is determined by the first competitive bidding apparatus as a successful bidder, the second competitive bidding apparatus determines a bidder who has overbid in the second competitive bidding apparatus as a successful bidder.

[0009] When the first competitive bidding apparatus and second competitive bidding apparatus are connected using any one of the above-described connection apparatuses, a competitive bidding system that can be easily used by a number of participants or a number of participants from remote places is realized.

[0010] A connection apparatus of the present invention is a connection apparatus for connecting a competitive bidding apparatus which receives bids from a plurality of participants and holds a competitive bid to an input terminal of each of the participants, characterized in that a bidding price in the competitive bidding apparatus is determined on the basis of a bidding price input to the input terminal and a delay time of signal transmission from the input terminal to the competitive bidding apparatus, and the determined bidding price is submitted to the competitive bidding apparatus, and a presentation price to be presented to the participant who is using the input terminal is determined, on the basis of a bidding price of a bidder who is overbidding in the competitive bidding apparatus and a delay time of signal transmission from the competitive bidding apparatus to the input terminal, as the bidding price of the bidder who is overbidding in the competitive bidding apparatus, and the input terminal is notified of the presentation price.

[0011] When the bidding price in the competitive bidding apparatus is determined on the basis of the bidding price input to the input terminal and the delay time of signal transmission, and the presentation price is determined on the basis of the bidding price of the bidder who is overbidding in the competitive bidding apparatus and the delay time of signal transmission from the competitive bidding apparatus to the input terminal, the influence of the delay time of signal transmission can be reduced. As a consequence, a competitive bidding system that can be easily used by a number of participants from remote places can be constructed.

[0012] A competitive bidding system of the present invention is characterized by comprising a competitive bidding apparatus for receiving bids from a plurality of participants and holding a competitive bid, and a connection apparatus for connecting the competitive bidding apparatus and an input terminal of each of the participants, wherein the connection apparatus comprises the above-described connection apparatus.

[0013] When the competitive bidding apparatus and input terminal are connected using the above-described connection apparatus, a competitive bidding system that can be easily used by participants from remote places can be constructed.

[0014] A competitive bidding method of the present invention is characterized by comprising the first competitive bidding step of receiving bids from a plurality of participants and holding a first competitive bid, the second competitive bidding step of receiving bids from a plurality of participants and holding a second competitive bid, the bidding step of determining a bidding price in the first competitive bid on the basis of a bidding price of a bidder who is overbidding in the second competitive bid, and causing the bidder who is overbidding in the second competitive bid to bid in the first competitive bid, the presentation step of determining a presentation price to be presented to the participants in the second competitive bid, on the basis of a bidding price of a bidder who is overbidding in the first competitive bid, as the bidding price of the bidder who is overbidding in the first competitive bid, and presenting the presentation price to the participants in the second competitive bid, and the successful bidder determination step of determining, from bidders including the bidder who has overbid in the second competitive bid and bid in the first competitive bid, a bidder who has overbid in the first competitive bid as a successful bidder.

[0015] Instead of causing all bidders in the second competitive bid to directly bid in the first competitive bid, only the bidder who is overbidding in the second competitive bid is allowed to bid in the first competitive bid. With this arrangement, bids from a number of bidders can be received in the first competitive bid without largely increasing the processing load of the competitive bidding apparatus for managing the first competitive bid. As a result, a competitive bidding method that can be easily used by a number of participants is realized.

[0016] The competitive bidding method of the present invention may be characterized in that the bidding step comprises determining the bidding price in the first competitive bid on the basis of a delay time of signal transmission from a second competitive bidding apparatus for managing the second competitive bid to a first competitive bidding apparatus for managing the first competitive bid, and the presentation step comprises determining the presentation price on the basis of a delay time of signal transmission from the first competitive bidding apparatus to the second competitive bidding apparatus.

[0017] When the bidding price in the first competitive bid is determined on the basis of the delay time of signal transmission, and the presentation price is determined on the basis of the delay time of signal transmission, the influence of the delay time of signal transmission can be reduced. As a result, a competitive bidding method that can be easily used by a number of participants from remote places is realized.

[0018] A competitive bidding method of the present invention is characterized by comprising the competitive bidding step of receiving bids from a plurality of participants and holding a competitive bid, the bidding step of determining a bidding price in the competitive bid on the basis of a bidding price input to an input terminal of a participant and a delay time of signal transmission from the input terminal to a competitive bidding apparatus for managing the competitive bid and bidding the determined bidding price in the competitive bid, and the presentation step of determining a presentation price to be presented to the participant who is using the input terminal, on the basis of a bidding price of a bidder who is overbidding in the competitive bid and a delay time of signal transmission from the competitive bidding apparatus to the input terminal, as the bidding price of the bidder who is overbidding in the competitive bid, and presenting the presentation price to the participant.

[0019] When the bidding price in the competitive bid

is determined on the basis of the bidding price input to the input terminal and the delay time of signal transmission, and the presentation price is determined on the basis of the bidding price of the bidder who is overbidding in the competitive bid and the delay time of signal transmission from the competitive bidding apparatus to the input terminal, the influence of the delay time of signal transmission can be reduced. As a consequence, a competitive bidding method that can be easily used by a number of participants from remote places is realized.

Brief Description of Drawings

[0020]

Fig. 1 is a block diagram showing the system configuration of an auction system according to the first embodiment of the present invention;
Fig. 2 is a view showing the processing flow and data flow in the auction system;
Fig. 3 is a view of a bidding apparatus; and
Fig. 4 is a block diagram showing the system configuration of an auction system according to the second embodiment of the present invention.

Best Mode for Carrying Out the Invention

[0021] Embodiments of a competitive bidding system of the present invention will be described with reference to the accompanying drawings. A connection apparatus and competitive bidding apparatus of the present invention are included in the competitive bidding system. A competitive bidding method of the present invention will be described together. In a plurality of embodiments to be described below, the same reference numerals denote the same constituent elements throughout the drawings, and a detailed description thereof will be omitted.

(1) First Embodiment

[0022] The first embodiment of a competitive bidding system of the present invention will be described with reference to the accompanying drawings. This embodiment is an auction system in which a plurality of bidders submit bidding prices for a presented merchandise, and a person who has submitted the highest bidding price makes a successful bid and purchases the merchandise. The arrangement of the auction system according to this embodiment will be described first.

[0023] Fig. 1 is a block diagram showing the system configuration of the auction system according to this embodiment. Fig. 2 is a view showing the processing flow and data flow in the auction system according to this embodiment. Referring to Fig. 2, auction processing continuously performed is time-divisionally illustrated for easier understanding. Fig. 2 shows an example in which the distance between a sub-auction apparatus 14 and a connection apparatus 16 is relatively short (e.g., about several km), and the distance between the connection apparatus 16 and a main auction apparatus 12 is very long (e.g., about several ten thousand km).

[0024] An auction system 10 according to this embodiment comprises the main auction apparatus 12 (first competitive bidding apparatus), sub-auction apparatus 14 (second competitive bidding apparatus), and connection apparatus 16. These constituent elements will be described below in detail.

[0025] The main auction apparatus 12 presents a merchandize to be auctioned to auction participants and holds an auction (competitive bid) by receiving bids from a plurality of participants. More specifically, the main auction apparatus 12 is connected to input terminals 100 provided for the plurality of participants, respectively, via leased lines. Each of the plurality of participants can bid in the main auction apparatus 12 using the input terminal 100.

[0026] The input terminal 100 has a keyboard 102, display 104, and POS switch 106, as shown in Fig. 3. Before auction starts, the main auction apparatus 12 distributes information (including an image) of a piece of merchandise to be auctioned to the input terminals 100 using a satellite channel. The merchandise information is displayed on the display 104 of each input terminal 100. That is, before the start of auction, each participant can cause the display 104 to display the merchandise to be auctioned by operating the keyboard 102, and preview the merchandise.

[0027] After the start of auction, each participant can bid in the main auction apparatus 12 by pressing a reply bid button 106a provided on the POS switch 106. More specifically, after auction starts, the bidding price (to be referred to as an overbidding price hereinafter) of a bidder who is currently overbidding in the main auction apparatus 12 is transmitted from the main auction apparatus 12 to the input terminals 100 through the leased lines and displayed on the displays 104. Each participant can submit a bidding price that adds a reply bidding unit price to the overbidding price displayed on the display 104 by pressing the reply bid button 106a. For example, assume that the overbidding price is 1,000,000 yen, and the reply bidding unit price is 3,000 yen. Every time a participant presses the reply bid button 106a, the overbidding price in the main auction apparatus 12 bids up by 3,000 yen. Since the main auction apparatus 12 detects bids from the input terminals 100 at a very short period (e.g., 100 ms), the overbidding price rapidly bids up immediately after the start of auction. In addition, when a state wherein no participants has bid has continued for a predetermined time, or when the bidding price has bid up to the requested price of the exhibitor, the main auction apparatus 12 determines the bidder who has bid the final overbidding price as a successful bidder. With this mechanism, for, e.g., a used car auction, the time required from the start of auction to determination of the successful bidder may be only several

ten sec.

[0028] The main auction apparatus 12 receives bids from a bidder who is overbidding in the sub-auction apparatus 14 through the connection apparatus 16. This will be described later in detail.

[0029] Like the main auction apparatus 12, the sub-auction apparatus 14 also presents the merchandize to be auctioned to auction participants and holds an auction by receiving bids from a plurality of participants. More specifically, the sub-auction apparatus 14 is connected to the input terminals 100 provided for the plurality of participants, respectively, via leased lines. Each of the plurality of participants can bid in the sub-auction apparatus 14 using the input terminal 100.

[0030] The sub-auction apparatus 12 allows a bidder who is overbidding in the sub-auction apparatus 12 to participate in the main auction apparatus 14 as a bidder through the connection apparatus 16. This will be described later in detail.

[0031] The connection apparatus 16 connects the main auction apparatus 12 and sub-auction apparatus 14. More specifically, the connection apparatus 16 determines the bidding price in the main auction apparatus 12 on the basis of the bidding price of the bidder who is overbidding in the sub-auction apparatus 14, and submits the bidding price to the main auction apparatus 12. Especially, the connection apparatus 16 adds, to the bidding price of the bidder who is overbidding in the sub-auction apparatus 14, a predetermined amount determined on the basis of the delay time of signal transmission from the sub-auction apparatus 14 to the main auction apparatus 12, thereby determining the bidding price in the main auction apparatus 12. More specifically, assume that the period at which the main auction apparatus 12 detects bids from the plurality of input terminals 100 (press of the reply bid buttons 106a and the POS switches 106) is 100 ms, the delay time of bidirectional signal transmission from the sub-auction apparatus 14 to the main auction apparatus 12 is 300 ms, and the reply bidding unit price in the main auction apparatus 12 is 3,000 yen. In this case, after a bidder in the sub-auction apparatus 14 bids in the sub-auction apparatus 14 until he/she overbids in the sub-auction apparatus 14 and bids in the main auction apparatus 12, the overbidding price may bid up by 3,000 yen $\times$ 3 times, i.e., 9,000 yen at maximum in the main auction apparatus 12. When the reply bid is done at a high frequency, it is difficult for the participants in the sub-auction apparatus 14 to compete on an equal basis with the participants in the main auction apparatus 12. The connection apparatus 16 adds 9,000 yen as the maximum increase amount of the overbidding price in the main auction apparatus 12 within the delay time of signal transmission to the bidding price of the bidder who is overbidding in the sub-auction apparatus 14 to determine the bidding price in the main auction apparatus 12, and submits the bidding price to the main auction apparatus 12.

[0032] On the basis of the bidding price of the bidder who is overbidding in the main auction apparatus 12, the connection apparatus 16 determines a presentation price to be presented to the participants in the sub-auction apparatus 14 as the bidding price of the bidder who is overbidding in the main auction apparatus 12, and notifies the sub-auction apparatus 14 of the presentation price. Especially, the connection apparatus 16 adds a predetermined amount determined on the basis of the delay time of signal transmission from the main auction apparatus 12 to the sub-auction apparatus 14 to the bidding price of the bidder who is overbidding in the main auction apparatus 12, thereby determining the presentation price. More specifically, assume that the period at which the main auction apparatus 12 detects bids from the plurality of input terminals 100 is 100 ms, the delay time of bidirectional signal transmission from the main auction apparatus 14 to the sub-auction apparatus 14 is 300 ms, and the reply bidding unit price in the main auction apparatus 12 is 3,000 yen. When the overbidding price in the main auction apparatus 12 is presented on the displays 104 of the input terminals 100 of the participants in the sub-auction apparatus 14, the overbidding price in the main auction apparatus 12 may bid up by 3,000 yen $\times$ 3 times, i.e., 9,000 yen at maximum in the main auction apparatus 12. In this case, even at the same time, the participants in the sub-auction apparatus 14 are presented by an overbidding price lower than that for the participants in the main auction apparatus 12 by 9,000 yen. If reply bid is done at a high frequency, it is difficult for the participants in the sub-auction apparatus 14 to compete on an equal basis with the participants in the main auction apparatus 12. The connection apparatus 16 adds, to the bidding price of the bidder who is overbidding in the main auction apparatus 12, 9,000 yen as the maximum increase amount of the overbidding price in the main auction apparatus 12 within the delay time of signal transmission to determine the presentation price to be presented to the participants in the sub-auction apparatus 14 and notifies the sub-auction apparatus 14 of the presentation price.

[0033] The main auction apparatus 12 that receives the bid from the sub-auction apparatus 14 holds an auction between the bidders who directly bid from the input terminals 100 in the main auction apparatus 12 and the connection apparatus 16 functioning as a bidder, and determines, from the bidders including the connection apparatus 16, a bidder who has overbid in the main auction apparatus 12 as a successful bidder.

[0034] When the main auction apparatus 12 determines the connection apparatus 16 as a successful bidder, the main auction apparatus 12 notifies the sub-auction apparatus 14 of it through the connection apparatus 16. Upon receiving this notification, the sub-auction apparatus 14 determines the bidder who has overbid in the sub-auction apparatus 14 as a successful bidder.

[0035] The function and effect of the auction system according to this embodiment will be described next. In the auction system 10 according to this embodiment, in-

stead of making all bidders in the sub-auction apparatus 14 directly bid in the main auction apparatus 12, only the bidder who is overbidding in the sub-auction apparatus is allowed to bid in the main auction apparatus 12. Hence, for an auction held by the main auction apparatus 12, bids from a number of participants can be received without largely increasing the processing load of the main auction apparatus 12. As a result, an auction system that can be easily used by a number of participants is realized. For example, assume that the auction system 10 is constructed by connecting the main auction apparatus 12 which has an ability of processing bids from 1,000 participants and the sub-auction apparatus 14 which also has an ability of processing bids from 1,000 participants. In this case, the main auction apparatus 12 having the ability of processing bids from only 1,000 participants can hold an auction where 999 direct participants and 1,000 participants from the sub-auction apparatus 14, i.e., a total of 1,999 persons participate. In addition, when the number of sub-auction apparatuses 14 connected to the main auction apparatus 12 is increased, or the sub-auction apparatuses 14 are hierarchically connected, theoretically the number of participants in the auction held by the main auction apparatus 12 can be infinitely increased.

[0036] In the auction system 10 according to this embodiment, a predetermined amount determined on the basis of the delay time of signal transmission from the sub-auction apparatus 14 to the main auction apparatus 12 is added to the bidding price of the bidder who is overbidding in the sub-auction apparatus 14, thereby determining the bidding price in the main auction apparatus 12. Additionally, a predetermined amount determined on the basis of the delay time of signal transmission from the main auction apparatus 12 to the sub-auction apparatus 14 is added to the bidding price of the bidder who is overbidding in the main auction apparatus 12, thereby determining the presentation price to be presented to the participants in the sub-auction apparatus 14. This reduces the influence of the delay time of signal transmission on the auction. As a consequence, an auction system which can be easily used by participants who participate from remote places is realized. Most auctions held among general consumers through the Internet have a holding period of several days to several weeks, and the delay time of signal transmission rarely poses a problem. However, in a so-called business-to-business auction such as a used car auction that targets used car dealers, the successful bidder is often determined in several sec to several ten sec. In such case, the delay of bids due to the delay of transmission signals is fatal. Hence, the auction system 10 according to this embodiment can be effectively applied to a so-called business-to-business auction such as a used car auction.

(2) Second Embodiment

[0037] The second embodiment of the competitive bidding system of the present invention will be described with reference to the accompanying drawings. This embodiment is also an auction system in which a plurality of bidders submit bidding prices for a presented merchandise, and a person who has submitted the highest bidding price makes a successful bid and purchases the merchandise, as in the first embodiment.

[0038] Fig. 4 is a block diagram showing the system configuration of an auction system according to this embodiment. An auction system 20 according to this embodiment comprises an auction apparatus 22 and connection apparatus 24. The constituent elements will be described below in detail.

[0039] The auction apparatus 22 presents a merchandize to be auctioned to auction participants and holds an auction by receiving bids from a plurality of participants. More specifically, the auction apparatus 22 is connected to a plurality of input terminals 100 through leased lines and one or a plurality of input terminals 104 through the connection apparatus 24 and a network 102. Each of the plurality of participants can bid in the auction apparatus 22 using the input terminal 100 or input terminal 104. Note that the input terminal 104 has the same arrangement and function as those of the input terminal 100.

[0040] The connection apparatus 24 connects the auction apparatus 22 and input terminal 104. More specifically, the connection apparatus 24 determines the bidding price in the auction apparatus 22 on the basis of the successful bidder input to the input terminal 104 and the delay time of signal transmission from the input terminal 104 to the auction apparatus 22, and submits the bidding price to the auction apparatus 22. The connection apparatus 24 adds a predetermined amount determined on the basis of the delay time of signal transmission from the input terminal 104 to the auction apparatus 22 to the bidding price input to the input terminal 104, thereby determining the bidding price in the auction apparatus 22. A specific method of determining the bidding price is the same as that described in the first embodiment.

[0041] In addition, on the basis of the bidding price of a bidder who is overbidding in the auction apparatus 22 and the delay time of signal transmission from the auction apparatus 22 to the input terminal 104, the connection apparatus 24 determines a presentation price to be presented to the participant who is using the input terminal 104 as the bidding price of the bidder who is overbidding in the auction apparatus 22, and notifies the input terminal 104 of the presentation price. Especially, the connection apparatus 24 adds a predetermined amount determined on the basis of the delay time of signal transmission from the auction apparatus 22 to the input terminal 104 to the bidding price of the bidder who is overbidding in the auction apparatus 22, thereby de-

termining the presentation price. A specific method of determining the presentation price is the same as that described in the first embodiment.

[0042] The auction apparatus 22 that receives the bid from the connection apparatus 24 holds an auction among the bidders who directly bid from the input terminals 100 in the auction apparatus 22 and the connection apparatus 24 functioning as a bidder, and determines, from the bidders including the connection apparatus 24, a bidder who has overbid in the auction apparatus 22 as a successful bidder.

[0043] When the auction apparatus 22 determines the connection apparatus 24 as a successful bidder, the input terminal 104 is notified of it, and the bidder who is using the input terminal 104 becomes the successful bidder.

[0044] The function and effect of the auction system according to this embodiment will be described next. In the auction system 20 according to this embodiment, a predetermined amount determined on the basis of the delay time of signal transmission from the input terminal 104 to the auction apparatus 22 is added to the bidding price input to the input terminal 104, thereby determining the bidding price in the auction apparatus 22. In addition, a predetermined amount determined on the basis of the delay time of signal transmission from the auction apparatus 22 to the input terminal 104 is added to the bidding price of the bidder who is overbidding in the auction apparatus 22, thereby determining the presentation price. This reduces the influence of the delay time of signal transmission on the auction. As a consequence, an auction system which can be easily used by participants who participate from remote places is realized.

(3) Other Embodiments

[0045] The competitive bidding systems of the above embodiments are auction systems in which a plurality of participants submit bidding prices for a presented merchandise, and a person who has submitted the highest bidding price makes a successful bid and purchases the merchandise. The competitive bidding system of the present invention can also be applied to a so-called reverse auction system in which a plurality of participants submit bidding prices for a specific merchandise presented by a purchase requestor, and a seller who has submitted the lowest bidding price acquire the right for selling the merchandise.

[0046] In this case, an auction system 10 according to the first embodiment subtracts a predetermined amount determined on the basis of the delay time of signal transmission from a sub-auction apparatus 14 to a main auction apparatus 12 from the bidding price of a bidder who is overbidding in the sub-auction apparatus 14 to determine the bidding price in the main auction apparatus 12, and also subtracts a predetermined amount determined on the basis of the delay time of signal transmission from the main auction apparatus 12 to the sub-auction apparatus 14 from the bidding price of a bidder who is overbidding in the main auction apparatus 12 to determine the presentation price to be presented to the participants in the sub-auction apparatus 14.

[0047] Similarly, an auction system 20 according to the second embodiment subtracts a predetermined amount determined on the basis of the delay time of signal transmission from an input terminal 104 to an auction apparatus 22 from the bidding price input to the input terminal 104 to determine the bidding price in the auction apparatus 22, and also subtracts a predetermined amount determined on the basis of the delay time of signal transmission from the auction apparatus 22 to the input terminal 104 from the bidding price of a bidder who is overbidding in the auction apparatus 22 to determine the presentation price.

Industrial Applicability

[0048] The present invention can be used for a competitive bid such as auction or reverse auction.

Claims

1. A connection apparatus for connecting first and second competitive bidding apparatuses which receive bids from a plurality of participants and hold a competitive bid, **characterized in that**

   a bidding price in said first competitive bidding apparatus is determined on the basis of a bidding price of a bidder who is overbidding in said second competitive bidding apparatus, and the determined bidding price is submitted to said first competitive bidding apparatus, and

   a presentation price to be presented to participants in said second competitive bidding apparatus is determined, on the basis of a bidding price of a bidder who is overbidding in said first competitive bidding apparatus, as the bidding price of the bidder who is overbidding in said first competitive bidding apparatus, and said second competitive bidding apparatus is notified of the presentation price.

2. A connection apparatus according to claim 1, **characterized in that** the bidding price in said first competitive bidding apparatus is determined on the basis of a delay time of signal transmission from said second competitive bidding apparatus to said first competitive bidding apparatus, and

   the presentation price is determined on the basis of a delay time of signal transmission from said first competitive bidding apparatus to said second competitive bidding apparatus.

3. A connection apparatus according to claim 2, **characterized in that** a predetermined amount determined on the basis of the delay time of signal trans-

mission from said second competitive bidding apparatus to said first competitive bidding apparatus is added to or subtracted from the bidding price of the bidder who is overbidding in said second competitive bidding apparatus to determine the bidding price in said first competitive bidding apparatus, and

a predetermined amount determined on the basis of the delay time of signal transmission from said first competitive bidding apparatus to said second competitive bidding apparatus is added to or subtracted from the bidding price of the bidder who is overbidding in said first competitive bidding apparatus to determine the presentation price.

4. A competitive bidding system **characterized by** comprising:

a first competitive bidding apparatus for receiving bids from a plurality of participants and holding a competitive bid;
a second competitive bidding apparatus for receiving bids from a plurality of participants and holding a competitive bid; and
a connection apparatus for connecting said first competitive bidding apparatus and said second competitive bidding apparatus,

wherein said connection apparatus comprises a connection apparatus of claim 1,

said first competitive bidding apparatus determines, from bidders including said connection apparatus, a bidder who has overbid in said first competitive bidding apparatus as a successful bidder, and

when said connection apparatus is determined by said first competitive bidding apparatus as a successful bidder, said second competitive bidding apparatus determines a bidder who has overbid in said second competitive bidding apparatus as a successful bidder.

5. A competitive bidding system **characterized by** comprising:

a first competitive bidding apparatus for receiving bids from a plurality of participants and holding a competitive bid;
a second competitive bidding apparatus for receiving bids from a plurality of participants and holding a competitive bid; and
a connection apparatus for connecting said first competitive bidding apparatus and said second competitive bidding apparatus,
wherein said connection apparatus comprises a connection apparatus of claim 2,
said first competitive bidding apparatus determines, from bidders including said connection apparatus, a bidder who has overbid in said first competitive bidding apparatus as a successful bidder, and
when said connection apparatus is determined by said first competitive bidding apparatus as a successful bidder, said second competitive bidding apparatus determines a bidder who has overbid in said second competitive bidding apparatus as a successful bidder.

6. A competitive bidding apparatus for receiving bids from a plurality of participants and holding a competitive bid, **characterized in that**

a bid from a bidder who is overbidding in another competitive bidding apparatus is received.

7. A competitive bidding apparatus for receiving bids from a plurality of participants and holding a competitive bid, **characterized in that**

a bidder who is overbidding in said competitive bidding apparatus is caused to participate in another competitive bidding apparatus.

8. A connection apparatus for connecting a competitive bidding apparatus which receives bids from a plurality of participants and holds a competitive bid to an input terminal of each of the participants, **characterized in that**

a bidding price in said competitive bidding apparatus is determined on the basis of a bidding price input to said input terminal and a delay time of signal transmission from said input terminal to said competitive bidding apparatus, and the determined bidding price is submitted to said competitive bidding apparatus, and

a presentation price to be presented to the participant who is using said input terminal is determined, on the basis of a bidding price of a bidder who is overbidding in said competitive bidding apparatus and a delay time of signal transmission from said competitive bidding apparatus to said input terminal, as the bidding price of the bidder who is overbidding in said competitive bidding apparatus, and said input terminal is notified of the presentation price.

9. A connection apparatus according to claim 8, **characterized in that** a predetermined amount determined on the basis of the delay time of signal transmission from said input terminal to said competitive bidding apparatus is added to or subtracted from the bidding price input to said input terminal to determine the bidding price in said competitive bidding apparatus, and

a predetermined amount determined on the basis of the delay time of signal transmission from said competitive bidding apparatus to said input terminal is added to or subtracted from the bidding price of the bidder who is overbidding in said com-

petitive bidding apparatus to determine the presentation price.

10. A competitive bidding system **characterized by** comprising:

a competitive bidding apparatus for receiving bids from a plurality of participants and holding a competitive bid; and
a connection apparatus for connecting said competitive bidding apparatus and an input terminal of each of the participants,

wherein said connection apparatus comprises a connection apparatus of claim 8.

11. A competitive bidding method **characterized by** comprising:

the first competitive bidding step of receiving bids from a plurality of participants and holding a first competitive bid;
the second competitive bidding step of receiving bids from a plurality of participants and holding a second competitive bid;
the bidding step of determining a bidding price in the first competitive bid on the basis of a bidding price of a bidder who is overbidding in the second competitive bid, and causing the bidder who is overbidding in the second competitive bid to bid in the first competitive bid;
the presentation step of determining a presentation price to be presented to the participants in the second competitive bid, on the basis of a bidding price of a bidder who is overbidding in the first competitive bid, as the bidding price of the bidder who is overbidding in the first competitive bid, and presenting the presentation price to the participants in the second competitive bid; and
the successful bidder determination step of determining, from bidders including the bidder who has overbid in the second competitive bid and bid in the first competitive bid, a bidder who has overbid in the first competitive bid as a successful bidder.

12. A competitive bidding method according to claim 11, **characterized in that** the bidding step comprises determining the bidding price in the first competitive bid on the basis of a delay time of signal transmission from a second competitive bidding apparatus for managing the second competitive bid to a first competitive bidding apparatus for managing the first competitive bid, and

the presentation step comprises determining the presentation price on the basis of a delay time of signal transmission from said first competitive bidding apparatus to said second competitive bidding apparatus.

13. A competitive bidding method according to claim 12, **characterized in that** the bidding step comprises adding or subtracting a predetermined amount determined on the basis of the delay time of signal transmission from said second competitive bidding apparatus to said first competitive bidding apparatus to or from the bidding price of the bidder who is overbidding in said second competitive bidding apparatus to determine the bidding price in said first competitive bidding apparatus, and

the presentation step comprises adding or subtracting a predetermined amount determined on the basis of the delay time of signal transmission from said first competitive bidding apparatus to said second competitive bidding apparatus to or from the bidding price of the bidder who is overbidding in said first competitive bidding apparatus to determine the presentation price.

14. A competitive bidding method **characterized by** comprising:

the competitive bidding step of receiving bids from a plurality of participants and holding a competitive bid;
the bidding step of determining a bidding price in the competitive bid on the basis of a bidding price input to an input terminal of a participant and a delay time of signal transmission from said input terminal to a competitive bidding apparatus for managing the competitive bid and bidding the determined bidding price in the competitive bid; and
the presentation step of determining a presentation price to be presented to the participant who is using said input terminal, on the basis of a bidding price of a bidder who is overbidding in the competitive bid and a delay time of signal transmission from said competitive bidding apparatus to said input terminal, as the bidding price of the bidder who is overbidding in the competitive bid, and presenting the presentation price to the participant.

15. A competitive bidding method according to claim 14, **characterized in that** the bidding step comprises adding or subtracting a predetermined amount determined on the basis of the delay time of signal transmission from said input terminal to said competitive bidding apparatus to or from the bidding price input to said input terminal to determine the bidding price in said competitive bidding apparatus, and

the presentation step comprises adding or subtracting a predetermined amount determined on

the basis of the delay time of signal transmission from said competitive bidding apparatus to said input terminal to or from the bidding price of the bidder who is overbidding in said competitive bidding apparatus to determine the presentation price.

Fig.1

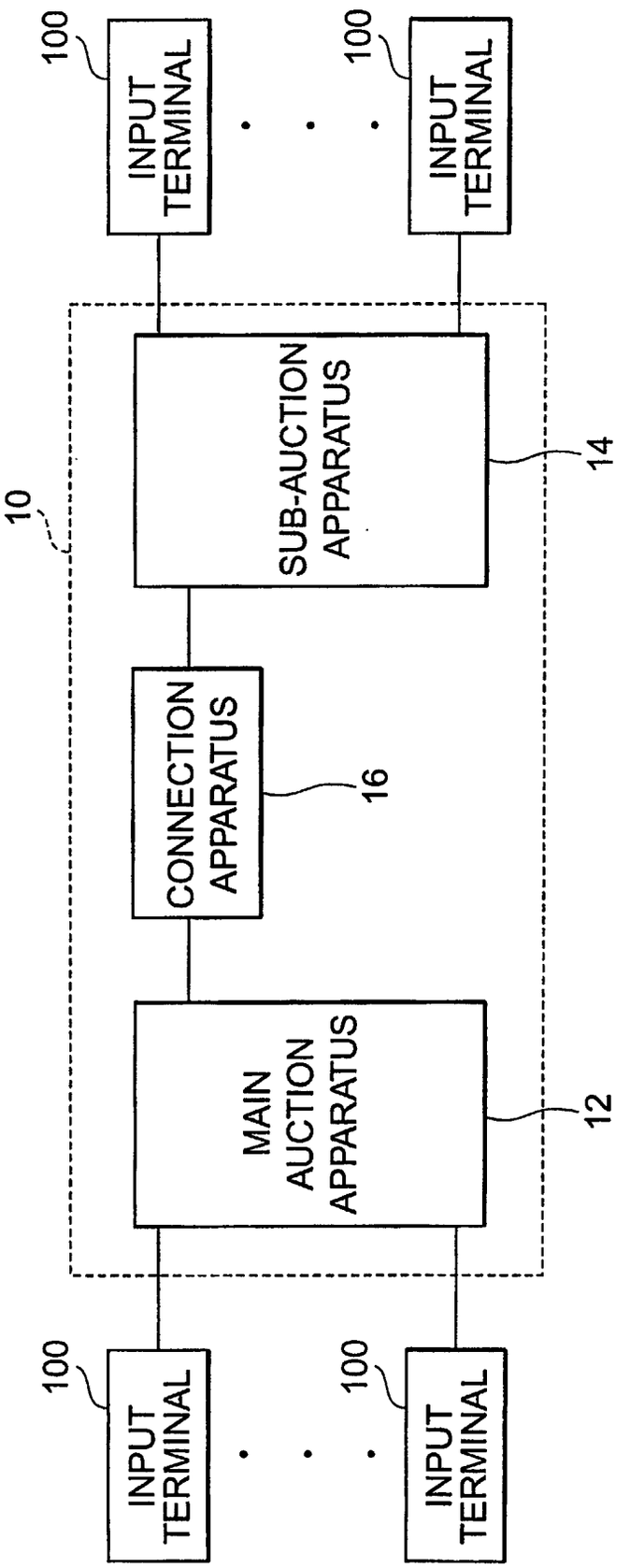
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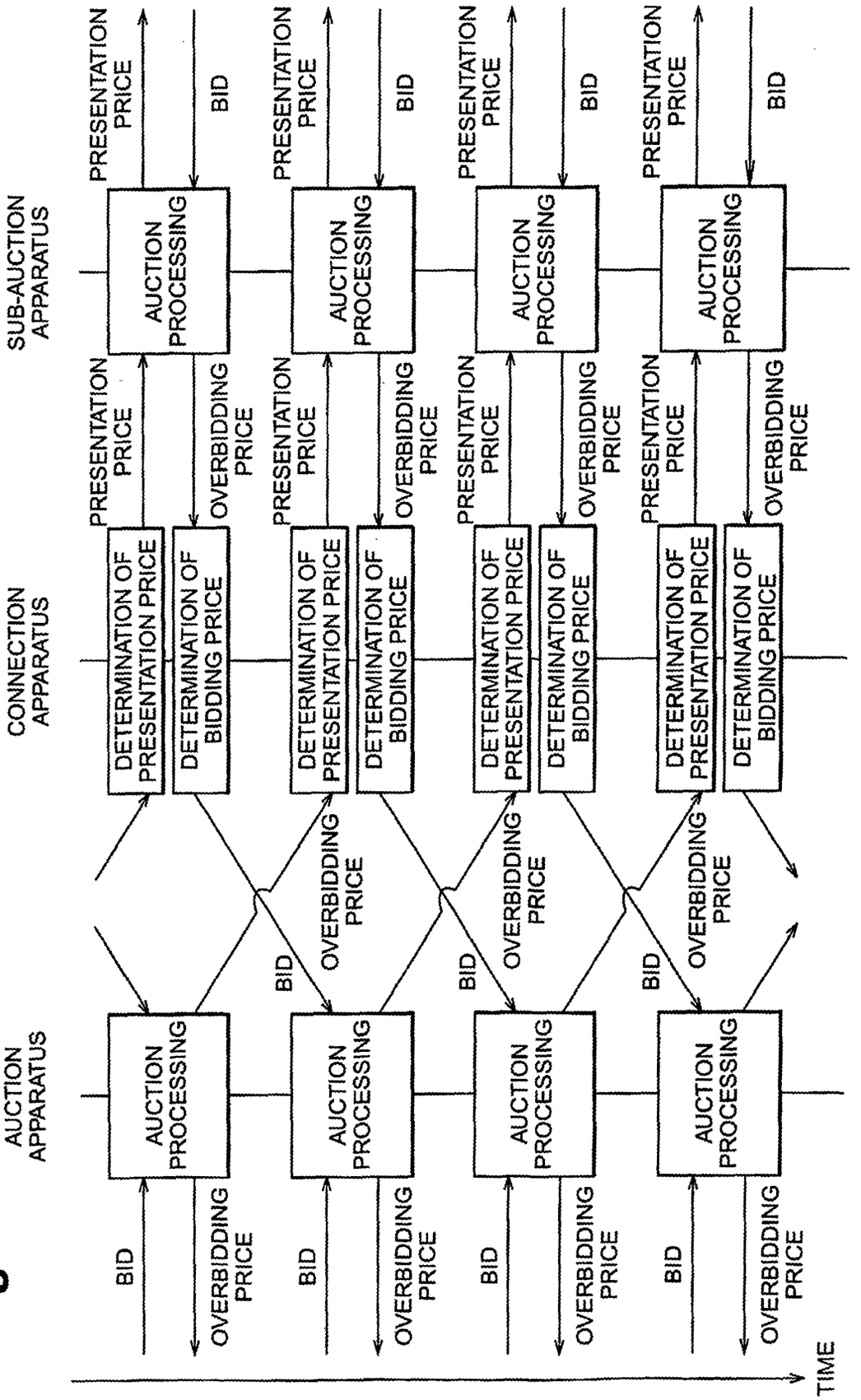
Fig.2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PRESENTATION PRICE
BID
OVERBIDDING PRICE
TIME

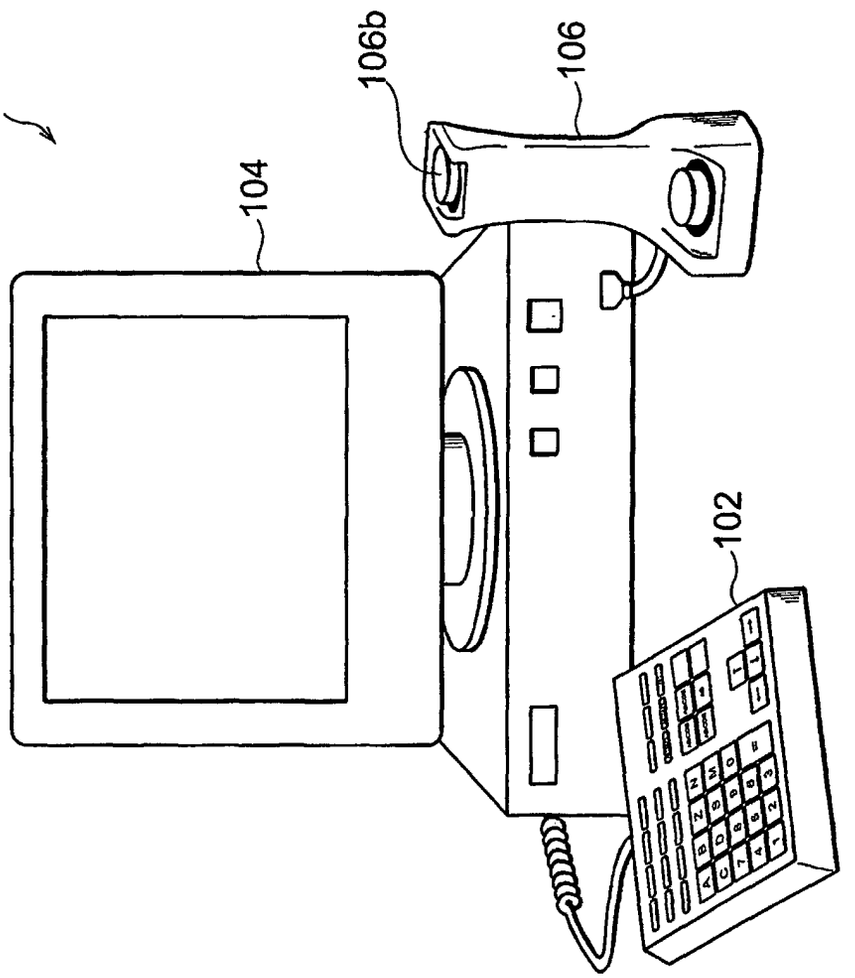
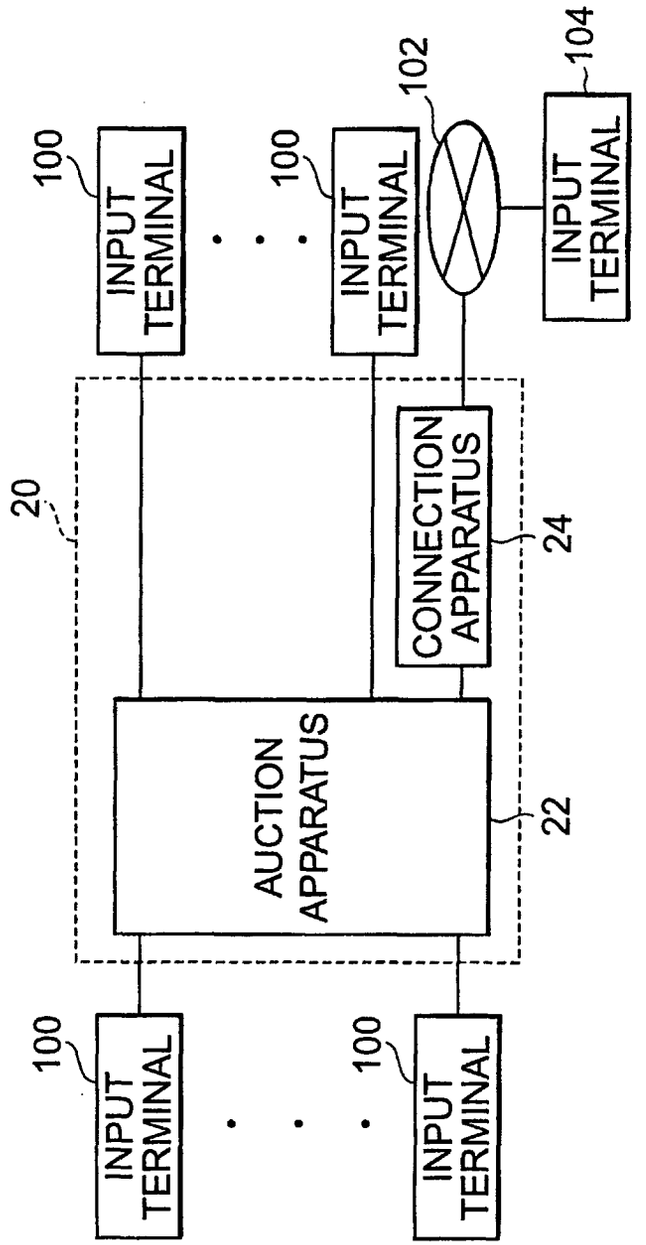


Fig.3

Fig.4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INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP99/07352

A. CLASSIFICATION OF SUBJECT MATTER
Int.Cl[7] G06F19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
Int.Cl[7] G06F19/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
Jitsuyo Shinan Koho 1926-1996 Jitsuyo Shinan Toroku Koho 1996-2000
Kokai Jitsuyo Shinan Koho 1971-2000 Toroku Jitsuyo Shinan Koho 1994-2000

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
JICST FILE on Science and Technology (auction, tender, delay, price)
(in Japanese)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP, 11-328271, A (Toyota Chuko Jidosha Hanbai K.K.), 30 November, 1999 (30.11.99), Full text; Figs. 1 to 3 (Family: none)	1-15
A	JP, 4-342065, A (Toyota Chuko Jidosha Hanbai K.K.), 27 November, 1992 (27.11.92), Full text; Figs. 1 to 3 (Family: none)	1-15

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
28 January, 1999 (28.01.99)	15 February, 2000 (18.02.00)
Name and mailing address of the ISA/ Japanese Patent Office	Authorized officer
Facsimile No.	Telephone No.

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