US 20040044610A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2004/0044610 A1**

Fraser et al. (43) **Pub. Date: Mar. 4, 2004**

(54) **AUTOMATED AUCTION PROTOCOL PROCESSOR**

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(21) Appl. No.: **10/382,527**

(22) Filed: **Mar. 7, 2003**

Related U.S. Application Data

(60) Continuation of application No. 09/294,526, filed on Apr. 20, 1999, now Pat. No. 6,560,580, which is a division of application No. 08/766,733, filed on Dec. 13, 1996, now Pat. No. 5,905,974.

Publication Classification

(51) **Int. Cl.**[7] **G06F 17/60**

(52) **U.S. Cl.** **705/37**

(57) **ABSTRACT**

A data processing system for implementing transaction management of auction-based trading for specialized items such as fixed income instruments. The data processing system provides a highly structured trading protocol implemented through a sequence of trading paradigms. The system employs a distributed computer processing network linking together a plurality of commonly programmed controlled workstations. The protocol and its programmed controlling logic enhances trading efficiency, rewards market makers and fairly distributes market opportunity to system users.

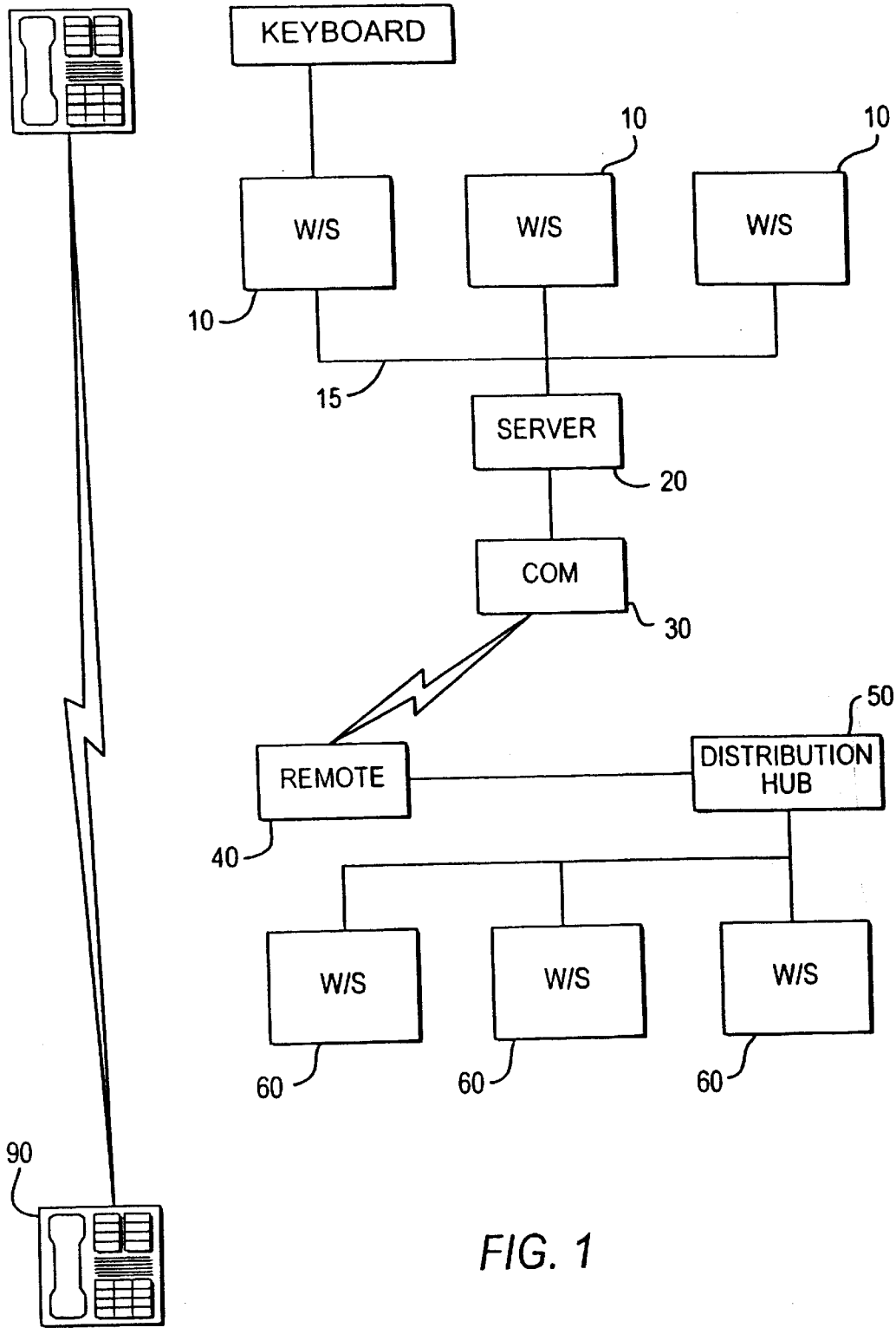

KEYBOARD
10
10
W/S
W/S
W/S
10
15
SERVER
20
COM
30
50
REMOTE
DISTRIBUTION HUB
40
W/S
W/S
W/S
60
60
60
90

FIG. 1

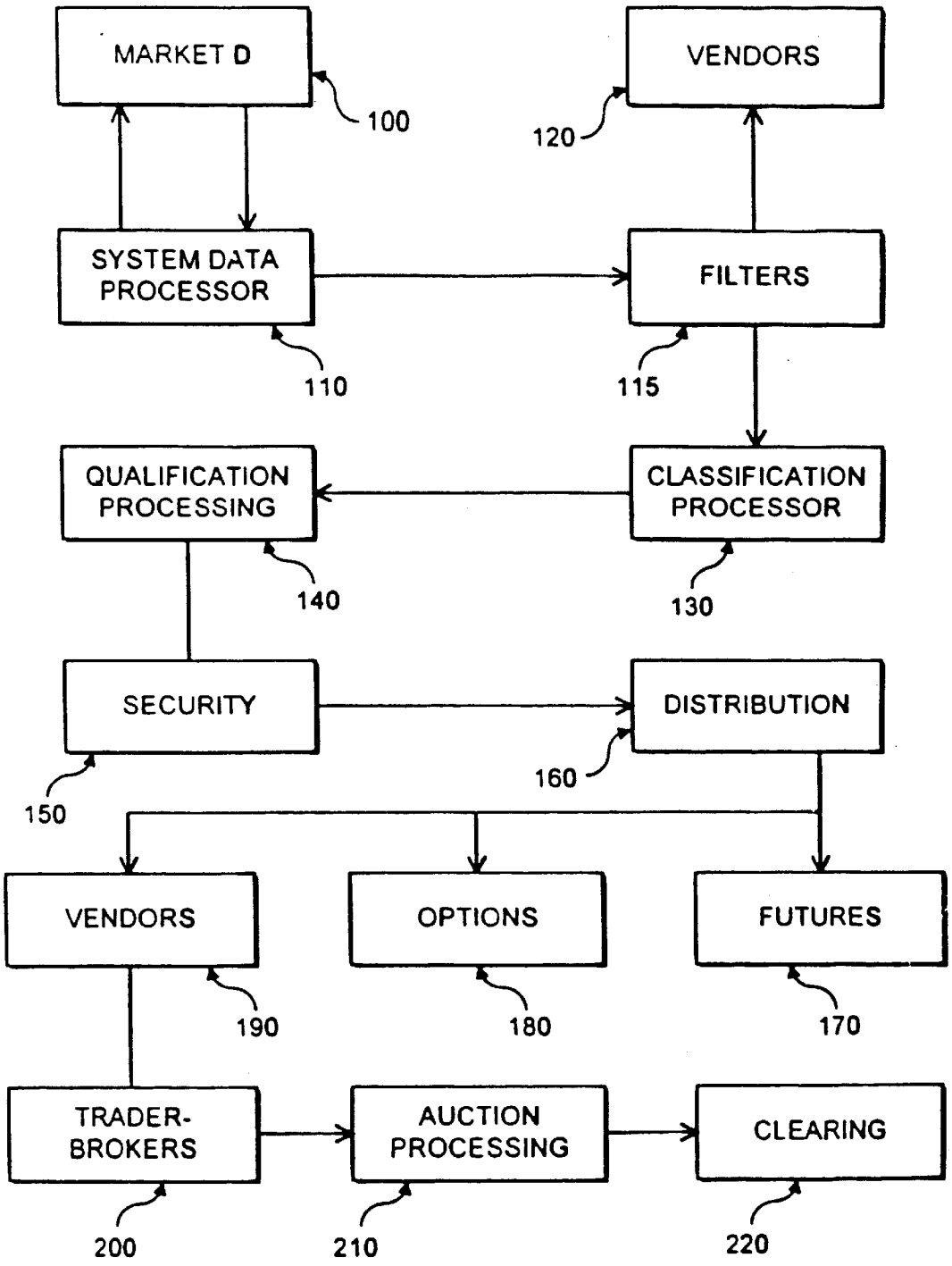

MARKET D
100
VENDORS
120
SYSTEM DATA PROCESSOR
110
FILTERS
115
QUALIFICATION PROCESSING
140
CLASSIFICATION PROCESSOR
130
SECURITY
150
DISTRIBUTION
160
VENDORS
190
OPTIONS
180
FUTURES
170
TRADER-BROKERS
200
AUCTION PROCESSING
210
CLEARING
220

FIG. 2

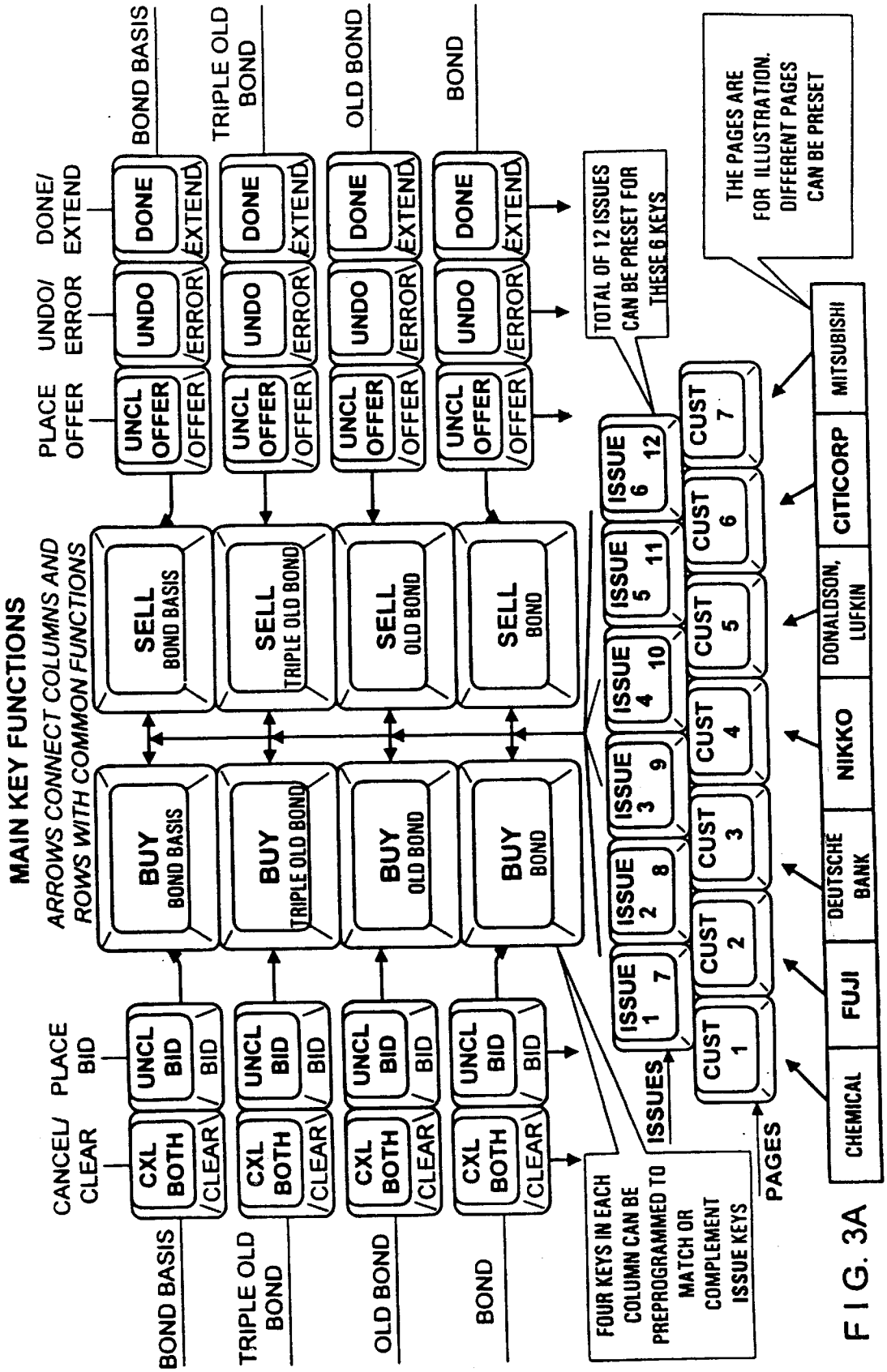

MAIN KEY FUNCTIONS
ARROWS CONNECT COLUMNS AND ROWS WITH COMMON FUNCTIONS
BOND BASIS
TRIPLE OLD BOND
OLD BOND
BOND
CANCEL/ CLEAR
PLACE BID
CXL BOTH /CLEAR
UNCL BID /BID
BUY BOND BASIS
BUY TRIPLE OLD BOND
BUY OLD BOND
BUY BOND
SELL BOND BASIS
SELL TRIPLE OLD BOND
SELL OLD BOND
SELL BOND
PLACE OFFER
UNDO/ ERROR
DONE/ EXTEND
UNCL OFFER /OFFER
UNDO /ERROR
DONE /EXTEND
FOUR KEYS IN EACH COLUMN CAN BE PREPROGRAMMED TO MATCH OR COMPLEMENT ISSUE KEYS
ISSUES
PAGES
ISSUE 1 7
ISSUE 2 8
ISSUE 3 9
ISSUE 4 10
ISSUE 5 11
ISSUE 6 12
CUST 1
CUST 2
CUST 3
CUST 4
CUST 5
CUST 6
CUST 7
TOTAL OF 12 ISSUES CAN BE PRESET FOR THESE 6 KEYS
THE PAGES ARE FOR ILLUSTRATION. DIFFERENT PAGES CAN BE PRESET
CHEMICAL
FUJI
DEUTSCHE BANK
NIKKO
DONALDSON, LUFKIN
CITICORP
MITSUBISHI

FIG. 3A

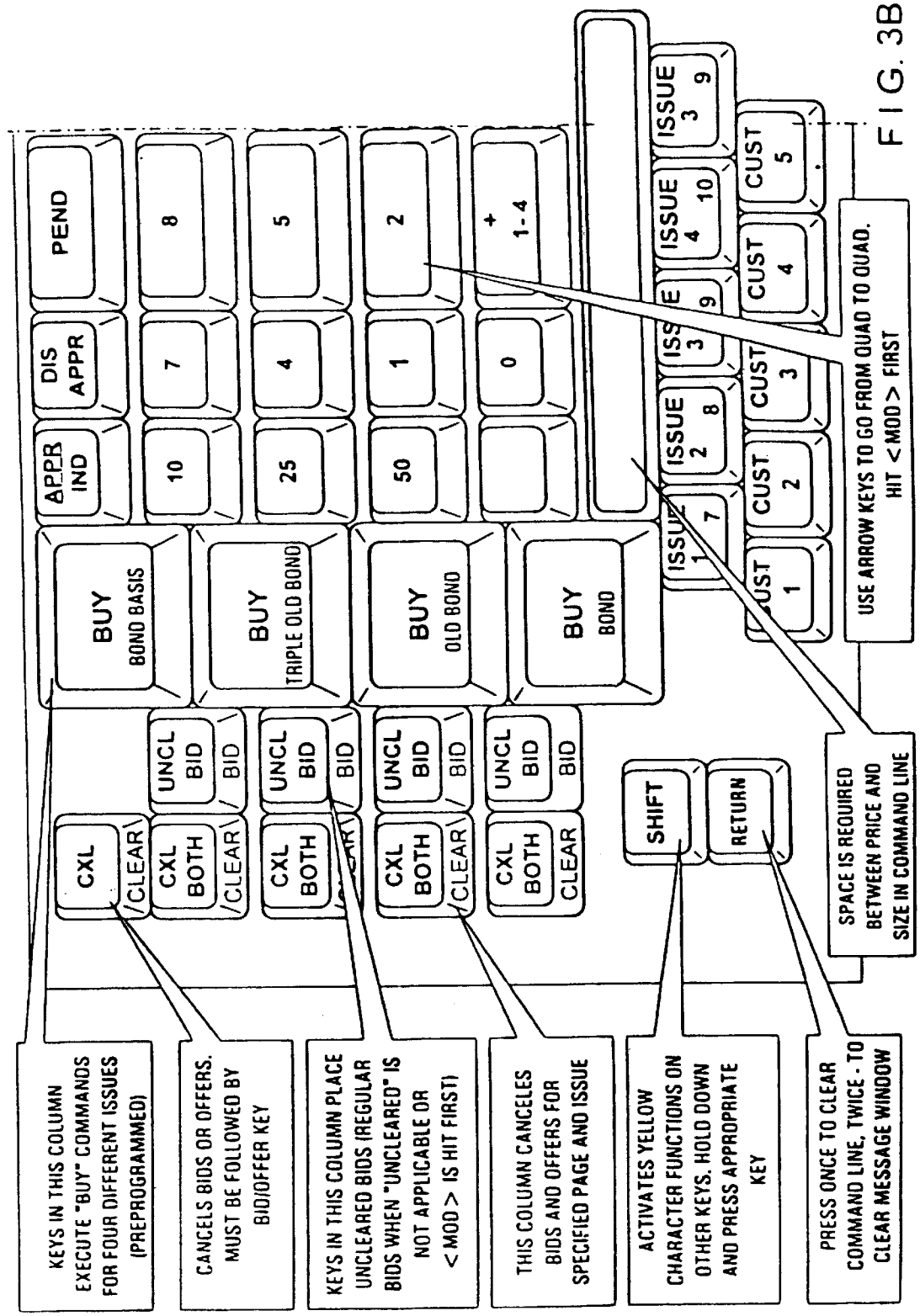

PEND
DIS APPR
APPR IND
BUY BOND BASIS
BUY TRIPLE OLD BOND
BUY OLD BOND
BUY BOND
8
7
10
5
4
25
2
1
50
+ 1-4
0
ISSUE 3 9
ISSUE 4 10
CUST 5
CUST 4
CUST 3
CUST 2
CUST 1
ISSUE 2 8
ISSUE 1 7
CXL /CLEAR
CXL BOTH /CLEAR
UNCL BID / BID
CXL BOTH CLEAR
SHIFT
RETURN
USE ARROW KEYS TO GO FROM QUAD TO QUAD. HIT < MOD > FIRST
SPACE IS REQUIRED BETWEEN PRICE AND SIZE IN COMMAND LINE
KEYS IN THIS COLUMN EXECUTE "BUY" COMMANDS FOR FOUR DIFFERENT ISSUES (PREPROGRAMMED)
CANCELS BIDS OR OFFERS. MUST BE FOLLOWED BY BID/OFFER KEY
KEYS IN THIS COLUMN PLACE UNCLEARED BIDS (REGULAR BIDS WHEN "UNCLEARED" IS NOT APPLICABLE OR < MOD > IS HIT FIRST)
THIS COLUMN CANCELES BIDS AND OFFERS FOR SPECIFIED PAGE AND ISSUE
ACTIVATES YELLOW CHARACTER FUNCTIONS ON OTHER KEYS. HOLD DOWN AND PRESS APPROPRIATE KEY
PRESS ONCE TO CLEAR COMMAND LINE, TWICE - TO CLEAR MESSAGE WINDOW

FIG. 3B

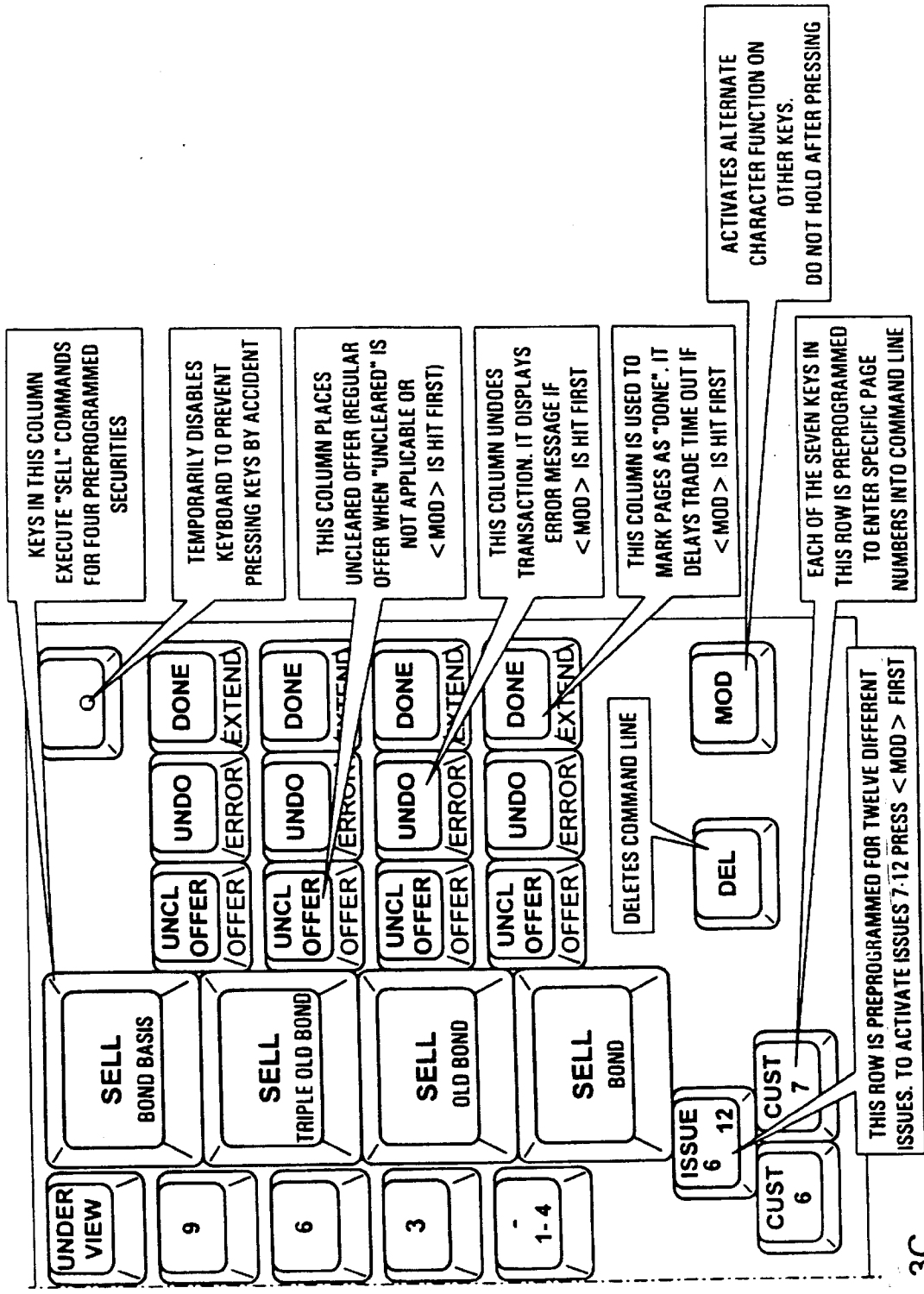

KEYS IN THIS COLUMN EXECUTE "SELL" COMMANDS FOR FOUR PREPROGRAMMED SECURITIES
TEMPORARILY DISABLES KEYBOARD TO PREVENT PRESSING KEYS BY ACCIDENT
THIS COLUMN PLACES UNCLEARED OFFER (REGULAR OFFER WHEN "UNCLEARED" IS NOT APPLICABLE OR < MOD > IS HIT FIRST)
THIS COLUMN UNDOES TRANSACTION. IT DISPLAYS ERROR MESSAGE IF < MOD > IS HIT FIRST
THIS COLUMN IS USED TO MARK PAGES AS "DONE". IT DELAYS TRADE TIME OUT IF < MOD > IS HIT FIRST
ACTIVATES ALTERNATE CHARACTER FUNCTION ON OTHER KEYS. DO NOT HOLD AFTER PRESSING
EACH OF THE SEVEN KEYS IN THIS ROW IS PREPROGRAMMED TO ENTER SPECIFIC PAGE NUMBERS INTO COMMAND LINE
DELETES COMMAND LINE
THIS ROW IS PREPROGRAMMED FOR TWELVE DIFFERENT ISSUES. TO ACTIVATE ISSUES 7-12 PRESS < MOD > FIRST
UNDER VIEW
9
6
3
. 1-4
SELL BOND BASIS
SELL TRIPLE OLD BOND
SELL OLD BOND
SELL BOND
UNCL OFFER /OFFER
UNDO /ERROR
DONE /EXTEND
DEL
MOD
ISSUE 6 12
CUST 7
CUST 6

FIG. 3C

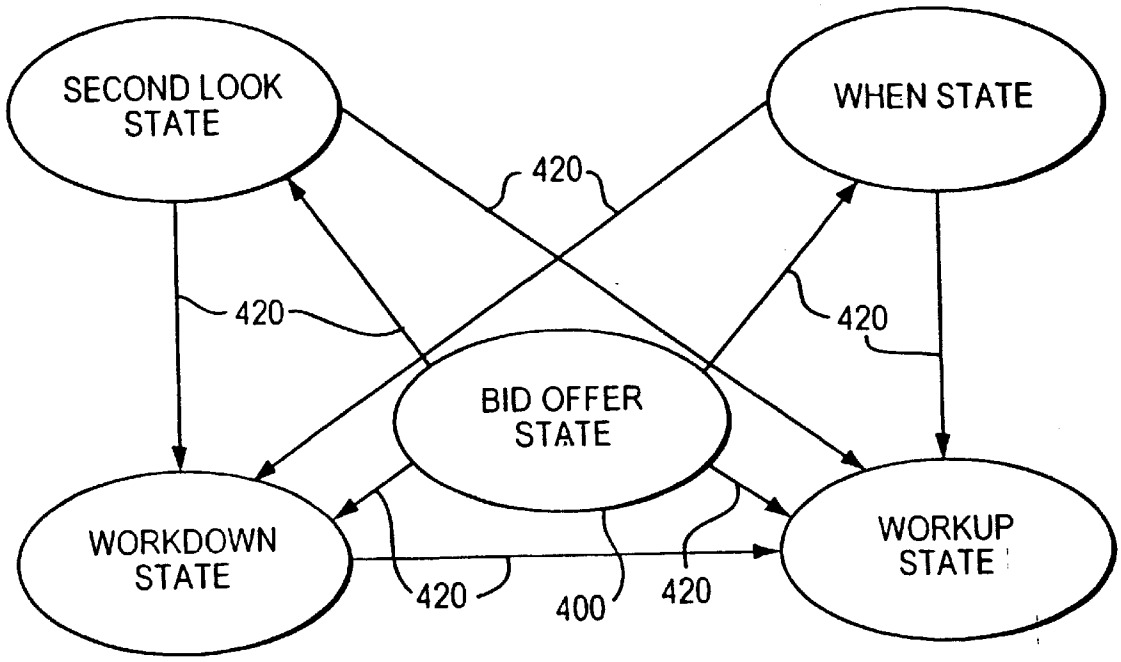

SECOND LOOK STATE
WHEN STATE
420
420
420
BID OFFER STATE
WORKDOWN STATE
WORKUP STATE
420
400
420

FIG. 4

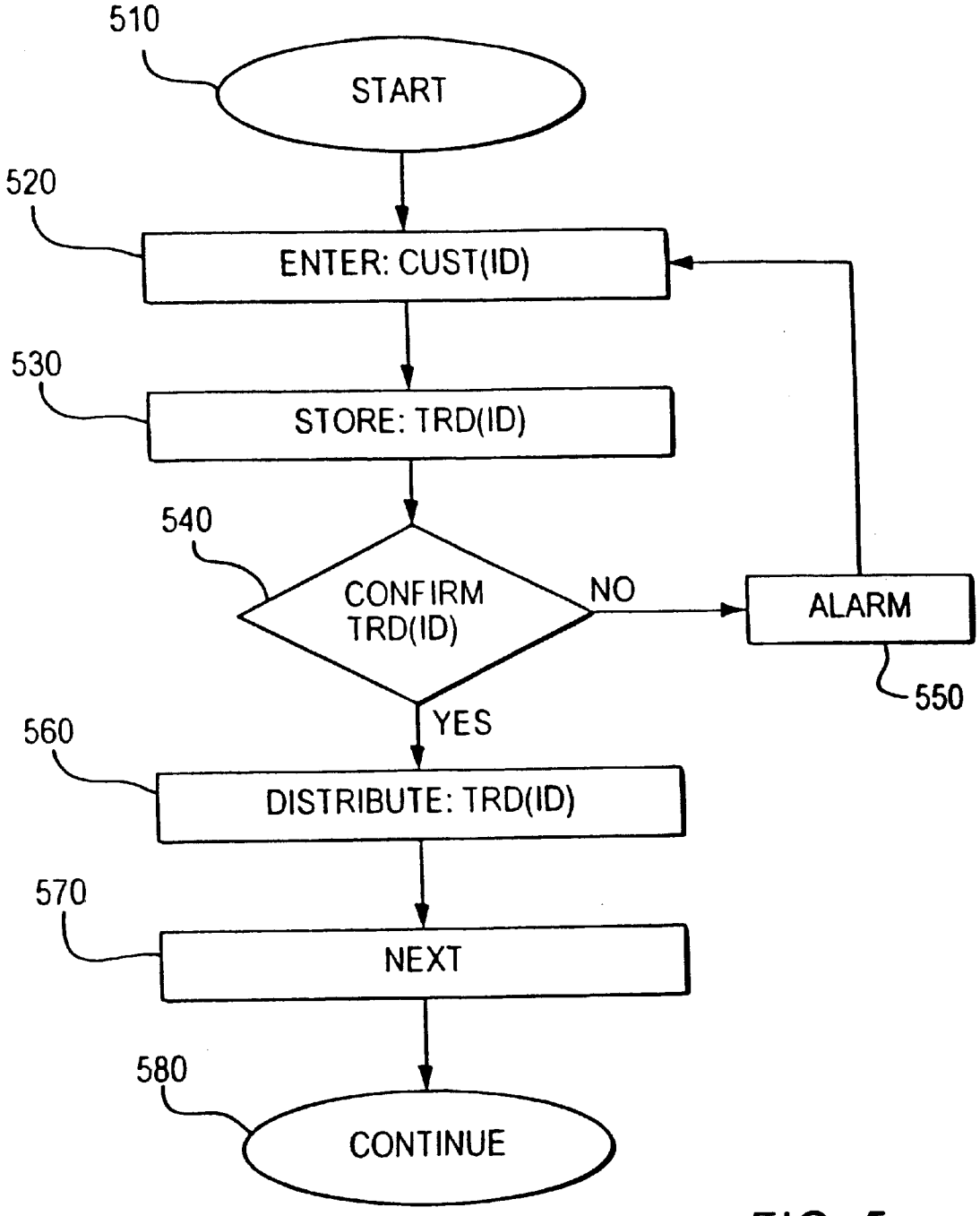
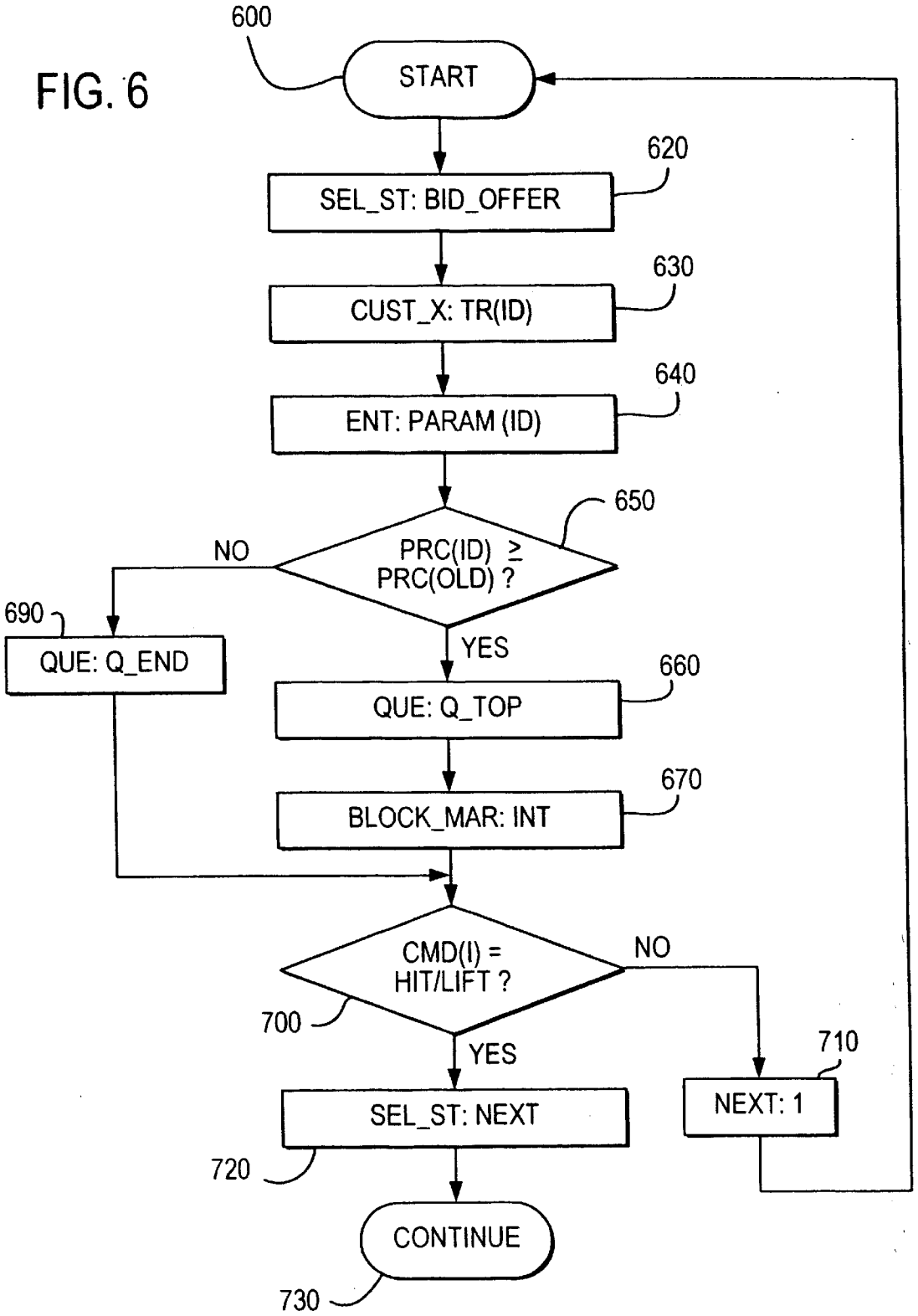

510
START
520
ENTER: CUST(ID)
530
STORE: TRD(ID)
540
CONFIRM TRD(ID)
NO
ALARM
550
YES
560
DISTRIBUTE: TRD(ID)
570
NEXT
580
CONTINUE

FIG. 5

FIG. 6


600
START
620
SEL_ST: BID_OFFER
630
CUST_X: TR(ID)
640
ENT: PARAM (ID)
650
PRC(ID) ≥ PRC(OLD) ?
NO
YES
690
QUE: Q_END
660
QUE: Q_TOP
670
BLOCK_MAR: INT
CMD(I) = HIT/LIFT ?
NO
700
YES
710
NEXT: 1
SEL_ST: NEXT
720
CONTINUE
730

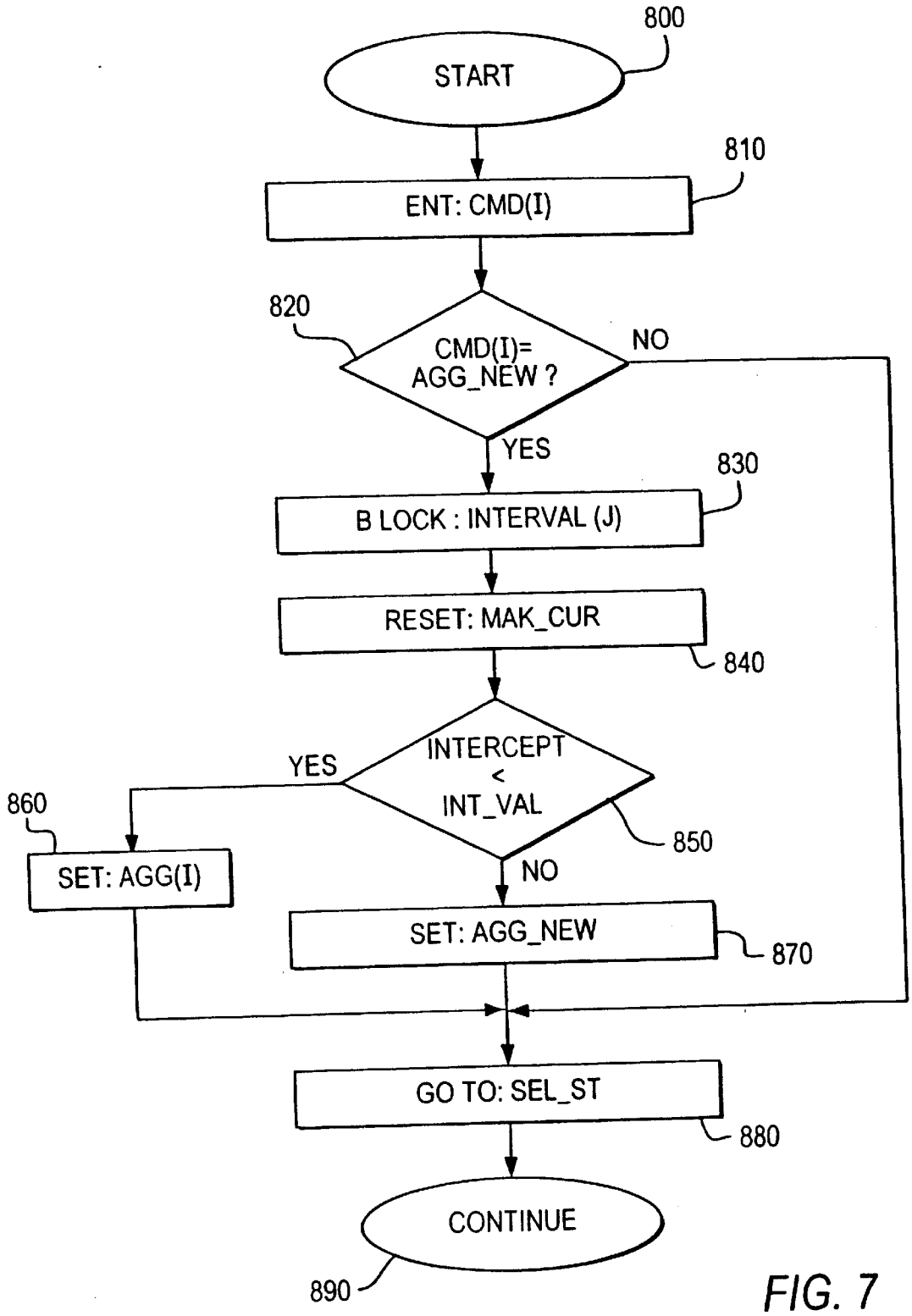
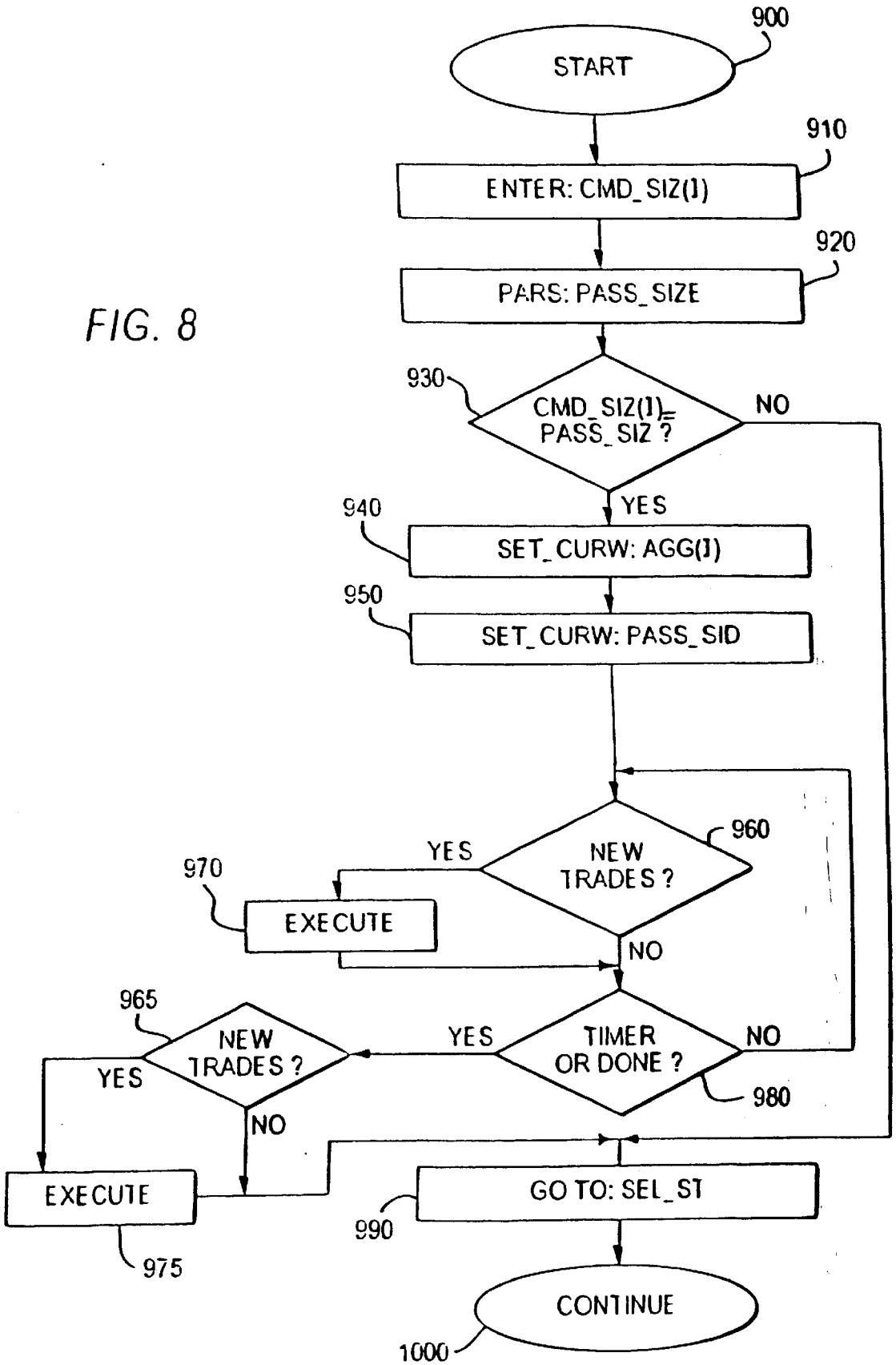

800
START
810
ENT: CMD(I)
820
CMD(I)= AGG_NEW ?
NO
YES
830
B LOCK : INTERVAL (J)
RESET: MAK_CUR
840
INTERCEPT < INT_VAL
YES
860
850
SET: AGG(I)
NO
SET: AGG_NEW
870
GO TO: SEL_ST
880
CONTINUE
890

FIG. 7

FIG. 8


900
START
910
ENTER: CMD_SIZ(I)
920
PARS: PASS_SIZE
930
CMD_SIZ(I) = PASS_SIZ ?
NO
YES
940
SET_CURW: AGG(I)
950
SET_CURW: PASS_SID
960
NEW TRADES ?
YES
970
EXECUTE
NO
965
NEW TRADES ?
YES
TIMER OR DONE ?
NO
980
YES
NO
EXECUTE
975
GO TO: SEL_ST
990
CONTINUE
1000

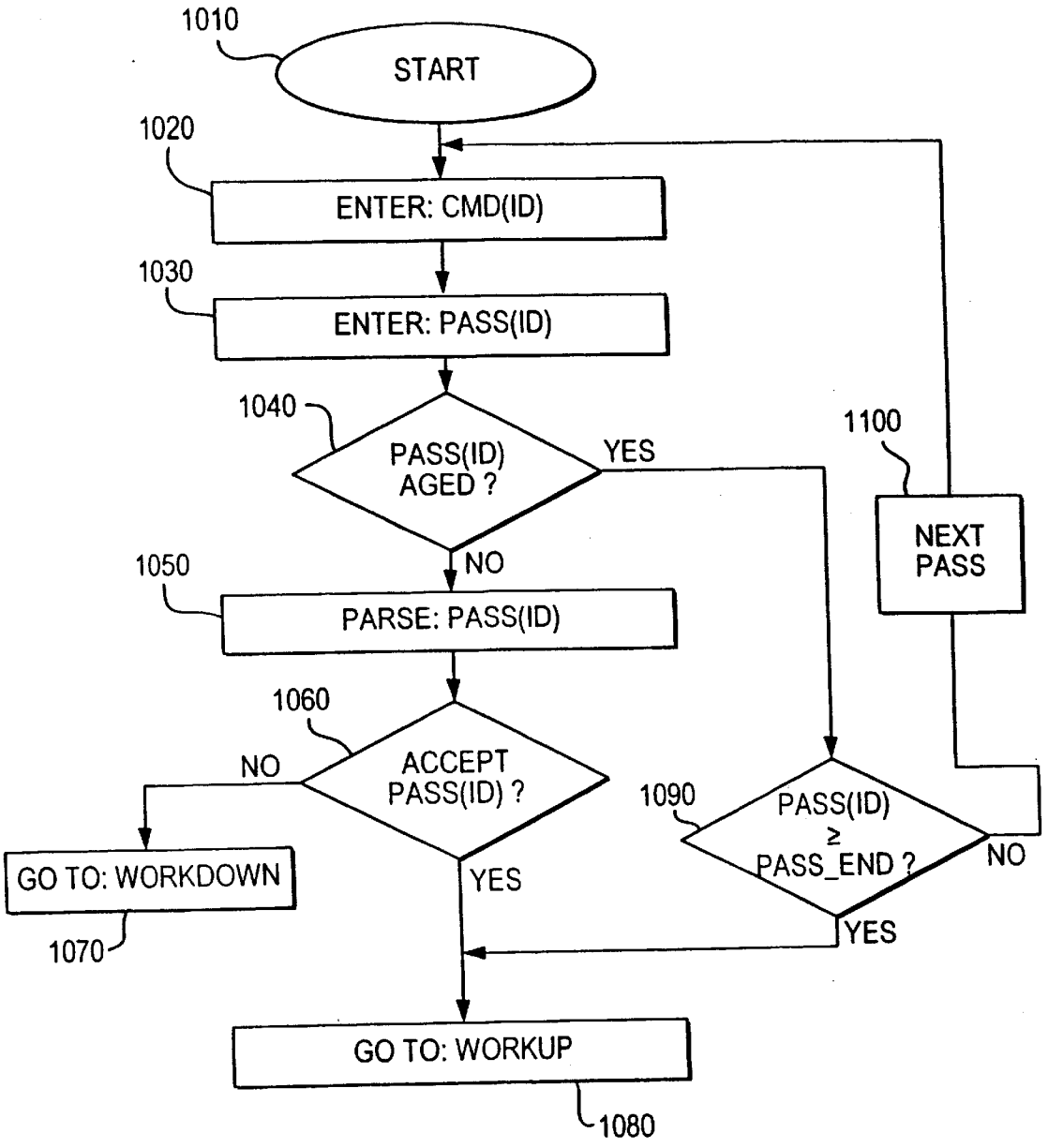

1010
START
1020
ENTER: CMD(ID)
1030
ENTER: PASS(ID)
1040
PASS(ID) AGED ?
YES
NO
1100
NEXT PASS
1050
PARSE: PASS(ID)
1060
ACCEPT PASS(ID) ?
NO
YES
1090
PASS(ID) ≥ PASS_END ?
NO
YES
GO TO: WORKDOWN
1070
GO TO: WORKUP
1080

FIG. 9

FIG. 10

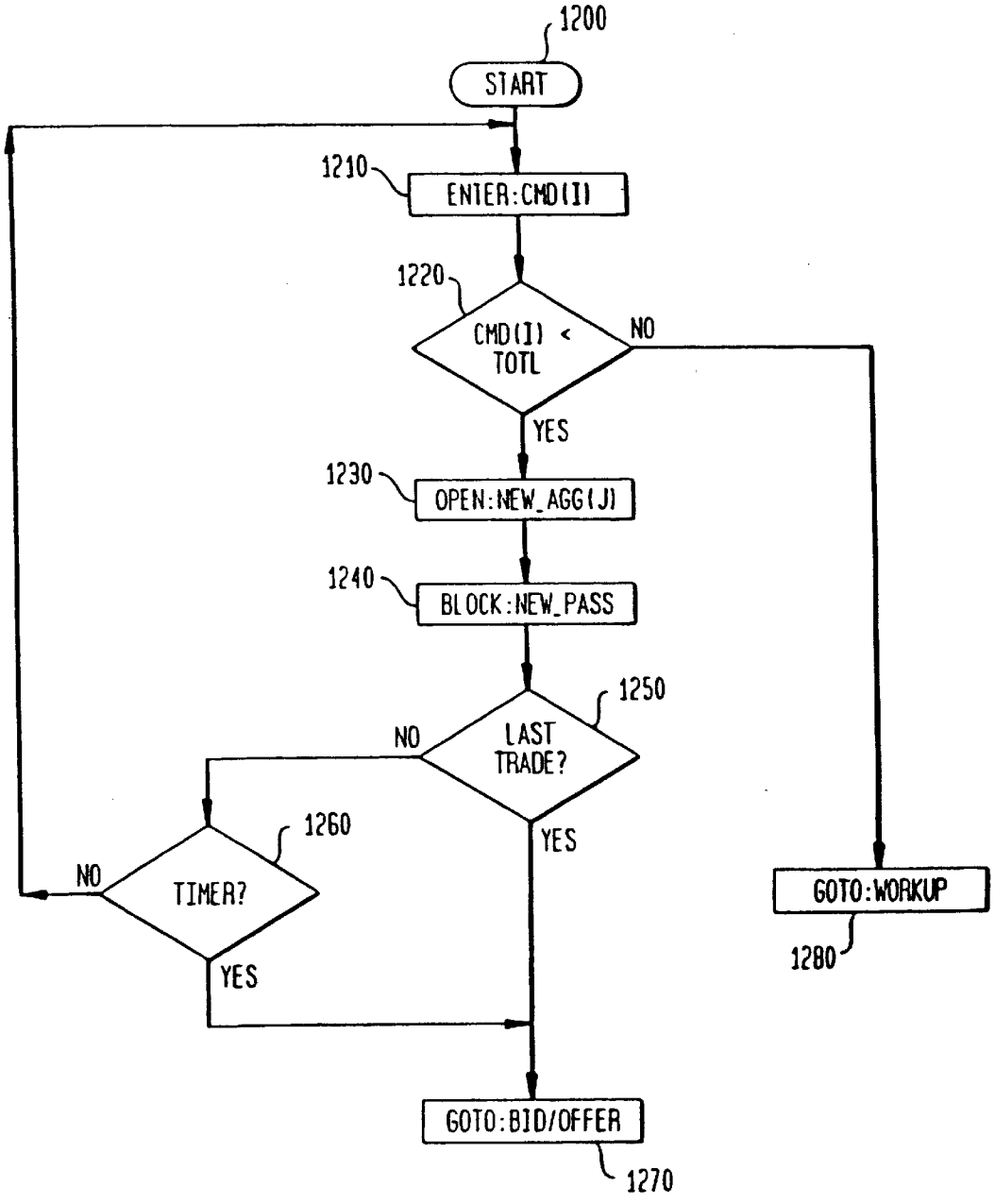
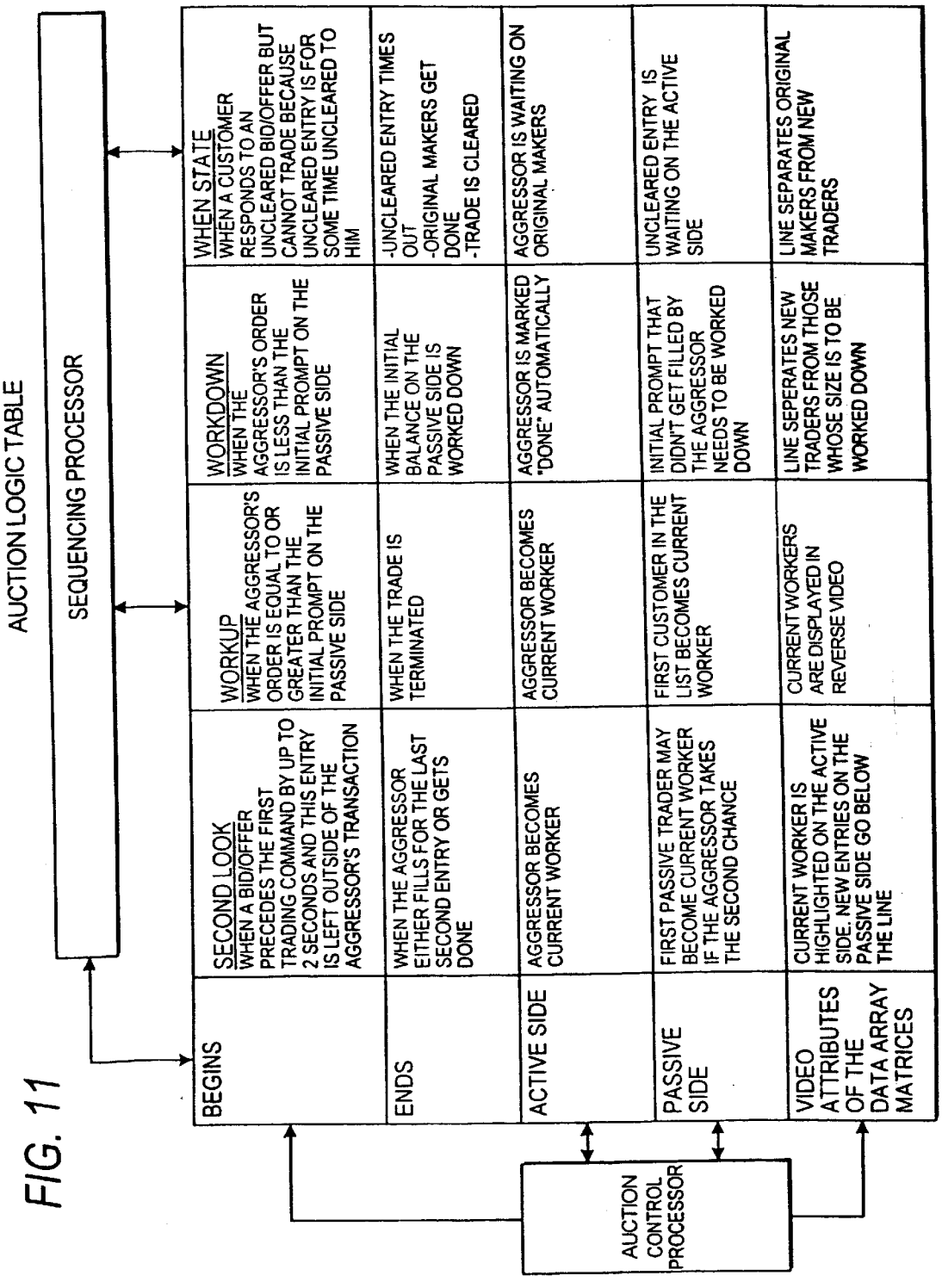

1200
START
1210
ENTER:CMD(I)
1220
CMD(I) < TOTL
NO
YES
1230
OPEN:NEW_AGG(J)
1240
BLOCK:NEW_PASS
1250
LAST TRADE?
NO
YES
1260
TIMER?
NO
YES
GOTO:WORKUP
1280
GOTO:BID/OFFER
1270

FIG. 11


AUCTION LOGIC TABLE
SEQUENCING PROCESSOR
AUCTION CONTROL PROCESSOR
BEGINS
ENDS
ACTIVE SIDE
PASSIVE SIDE
VIDEO ATTRIBUTES OF THE DATA ARRAY MATRICES
SECOND LOOK
WHEN A BID/OFFER PRECEDES THE FIRST TRADING COMMAND BY UP TO 2 SECONDS AND THIS ENTRY IS LEFT OUTSIDE OF THE AGGRESSOR'S TRANSACTION
WHEN THE AGGRESSOR EITHER FILLS FOR THE LAST SECOND ENTRY OR GETS DONE
AGGRESSOR BECOMES CURRENT WORKER
FIRST PASSIVE TRADER MAY BECOME CURRENT WORKER IF THE AGGRESSOR TAKES THE SECOND CHANCE
CURRENT WORKER IS HIGHLIGHTED ON THE ACTIVE SIDE. NEW ENTRIES ON THE PASSIVE SIDE GO BELOW THE LINE
WORKUP
WHEN THE AGGRESSOR'S ORDER IS EQUAL TO OR GREATER THAN THE INITIAL PROMPT ON THE PASSIVE SIDE
WHEN THE TRADE IS TERMINATED
AGGRESSOR BECOMES CURRENT WORKER
FIRST CUSTOMER IN THE LIST BECOMES CURRENT WORKER
CURRENT WORKERS ARE DISPLAYED IN REVERSE VIDEO
WORKDOWN
WHEN THE AGGRESSOR'S ORDER IS LESS THAN THE INITIAL PROMPT ON THE PASSIVE SIDE
WHEN THE INITIAL BALANCE ON THE PASSIVE SIDE IS WORKED DOWN
AGGRESSOR IS MARKED "DONE" AUTOMATICALLY
INITIAL PROMPT THAT DIDN'T GET FILLED BY THE AGGRESSOR NEEDS TO BE WORKED DOWN
LINE SEPERATES NEW TRADERS FROM THOSE WHOSE SIZE IS TO BE WORKED DOWN
WHEN STATE
WHEN A CUSTOMER RESPONDS TO AN UNCLEARED BID/OFFER BUT CANNOT TRADE BECAUSE UNCLEARED ENTRY IS FOR SOME TIME UNCLEARED TO HIM
-UNCLEARED ENTRY TIMES OUT
-ORIGINAL MAKERS GET DONE
-TRADE IS CLEARED
AGGRESSOR IS WAITING ON ORIGINAL MAKERS
UNCLEARED ENTRY IS WAITING ON THE ACTIVE SIDE
LINE SEPARATES ORIGINAL MAKERS FROM NEW TRADERS

AUTOMATED AUCTION PROTOCOL PROCESSOR

FIELD OF THE INVENTION

[0001] The present invention relates to data processing systems for assisting in financial transactions. More particularly, the present invention relates to a data processing apparatus and method for the managed trading of select classes of securities or other commodities in accordance with specific protocols in an auction format with controlled sequence of auction events. The inventive system is presented in the context of selected fixed income auction protocols for fairly and quickly transacting offer-bid trading.

BACKGROUND OF THE INVENTION

[0002] Economic activity has at its centerpiece the buyer-seller transaction for all goods and services produced and consumed in a market economy. It is the fundamental mechanism to which resources are allocated to producers and output to consumers. The operation of the buyer-seller mechanism can and often is a critical determination of economic efficiency and when operated properly, will substantially enhance market performance.

[0003] Through history, there have been many different approaches adopted to fairly bring buyers and sellers together, each with the key objective of permitting transactions at or as close as possible to the "market" price of the goods. By definition, the market price is the price (in given currency terms) that a fully educated market, given full access will transact select goods. This can only be accomplished by permitting full access to the transaction by essentially all potential buyers and sellers. However, the buyer-seller transaction must be structured to operate at very low costs—or it will distort the market price of goods with the artificially high transactions costs. Thus, as can be seen, the two keys to effective buyer/seller transactions—full access and knowledge coupled with low costs—can be and are often conflicting, necessitating trade-offs between trading efficiency and market knowledge.

[0004] One well-known and particularly successful trading system is known as the "open outcry auction". This involves a process wherein buyers and sellers collect in one location and prices for select goods are presented to the group through a broker, via simple vocal offerings. This approach has been used for almost all kinds of goods, but is particularly useful where there are no established trading locations or markets for the selected items. It is the dominate trading forum for exotic items such as rare pieces of art and the like. Although successful in bringing interested parties to the transaction, the overall process can be very expensive, adding significantly to the market-distorting transaction costs.

[0005] Open outcry auction techniques, modified over time, have also found successful application in many commodity trading activities, including the buying and selling of farm produce and livestock, oil and commodities contracts, future contracts on a variety of items and—particularly germane to the present invention—fixed income securities. These trading activities focus on the buying and selling of essentially fungible items, that is, items that are without meaningful differentiation from like items on the market. For example, a bushel of wheat for February delivery is considered for sale and delivery at a price independent from its source. Similarly, a 30-year treasury bond paying a coupon rate of 8 percent and having a July 1996 issue date is indistinguishable from other 30-year treasuries having the same properties. Accordingly, the price buyers are willing to pay and sellers willing to accept defines the market price of all 30-year treasury bonds of that same vintage, allowing a source transparent application of open outcry auction trading.

[0006] The fixed income securities issued by the United States Government are known as U.S. treasuries. These instruments typically span maturity terms at issue of 13 to 52 weeks (T-bills), one to ten years (notes), and up to 30 years (bonds). The T-bills are pure discount securities having no coupons. Almost all other treasuries having longer terms are coupon notes or bonds, with a defined payment cycle of semi-annual payments to the holder.

[0007] Treasuries have characteristic properties that make them especially useful for the purpose of the present invention and, therefore, are used exclusively in the following discussions with the fundamental tenant that the principles may be applied to other types of fixed income securities without departing from the inventive concepts. One important attribute of treasuries, in the context of the present invention, is the minimal and uniform default risk; the issuance of U.S. government paper removes the default risk as a defining criteria in the relative pricing of treasuries in the market place when they are backed by the full faith and credit of the U.S. government.

[0008] New treasury securities are auctioned by the U.S. government at pre-established auction dates. The auction prices for the treasuries having a face value with a set coupon rate will define the issuance yields of the security. After the auction, the treasuries enter the secondary market and are traded typically "over the counter", i.e., without a defined exchange. As inflation expectations and supply and demand conditions change, the prices of the recently auctioned treasuries fluctuate on the secondary market. These new prices are reflected by competing bid and ask prices communicated among institutions, banks, brokers, and dealers in the secondary market. For example, the yield of a treasury note increases as its price drops in the market, typically reflecting an overall increase in the interest rates for that term of security.

[0009] The newly auctioned securities are traded with and in conjunction with the securities issued in earlier auctions. In this context, some securities are traded more often than others and are called the "actives"; the actives usually correspond to the recently issued securities as opposed to the older securities in the market. Indeed, some older securities are infrequently traded, creating an illiquid market that may or may not reflect the current market-determined interest rate for that maturity length security.

[0010] As can be realized by the foregoing description, the very size and diversity of the treasury market implicates an unprecedented level of sophistication by market participants in the bidding, offering, buying, and selling transactions involving these securities. The very complexity associated with the transactions and the scale of trading undertaken by banks, brokers, dealers and institutional participants necessitates a rigidly structured approach to trading.

[0011] In the past, open outcry auction bond brokering has served its customers well, providing highly efficient execu-

tions at near perfect market pricing. The open outcry auction applied to bond trading was implemented by a broker working with a collection of customers to create and manage a market. Typicalcustomer representatives—both buyers and sellers—at a common location (e.g., a single room) where the representatives of the customers would communicate with each other to develop pricing and confirm transactions. This process employed the expression by the representatives of various bid and offer prices for the fixed income security at select volumes (i.e., how many million dollars of bonds at a given maturity). This expression would involve the loud oral "cry" of a customer-proposed bid or offer and the coordination with the fellow representatives regarding the extraction of complimentary positions—until a transaction match is made and a deal is done. This "trade capture" process relies on after-the-fact reporting of what just transpired through the oral outcry trade.

[0012] Recently, the trade capture process was performed by having designated clerks input data into electronic input devices. An input clerk would attempt to interpret the open outcry of many individual brokers simultaneously who sequentially are making verbally known their trading instructions of their customers. The quality of the data capture was a function of the interpretative skill of the input clerk, and the volume and the volatility of customer orders. A significant drawback to this type of auction data capture process is the difficulty in discerning the distinct trading instructions verbalized in rapid succession during a quickly moving market, so that an accurate sequence of data can be captured by brokers and a set of inputters.

[0013] The many permutations of this process will be discussed in some detail below. At this juncture, suffice to say that at the volumes of business transactions existing at the time of its development, and the lack of suitable alternatives, left this process as the dominate trading mechanism for decades. However successful, this approach was not perfect. Indeed, in recent years, some of the problems in a open outcry auction forum have been amplified by the vastly increased level of trading now undertaken in the fixed income field. Without attempting to be comprehensive, difficulties would occur by the injection of trader personalities into the open outcry auction process. For example, an aggressive—highly vocal representative may in fact dominate trading—and transaction flow—even though he/she may only represent a smaller and less critical collection of customers. Although such aggressive actions at open outcry auction may be beneficial to those particular customers in the short run, overall, such dominance of the trading can and will distort pricing away from the actual market conditions.

[0014] Other problems exist in open outcry auction that deplete efficient trading. The speed at which trading flows and the oral nature of the auction process injects a potential for human error that often translates into many millions of dollars committed to trades unrelated to customer objectives. As such, the broker is left at the end of each trading day with a reconciliation process that may, under certain market conditions, wipe out all associated profit from that day's trading. Also, customers may quickly change direction regarding trading, based on new information available to the market. Shifting position or backing out of previously committed transactions on very short notice is often very difficult in the traditional open outcry auction process.

[0015] There have been many past efforts to incorporate computers into trading support for select applications and securities. Indeed, almost all trading today involves some computer support, from simple information delivery to sophisticated trading systems that automate transactions at select criteria. However, these systems have not significantly impacted the issues presented above as they relate to open outcry auction trading in the fixed income field. It was with this understanding of the problems with certain trading processes that formed the impetus for the present invention.

OBJECTS AND SUMMARY OF THE PRESENT INVENTION

[0016] It is, therefore, an object of the present invention to provide a data processing system to implement a trading system capable of high volume trading activity.

[0017] Its is another object of the present invention to provide a data processing method supporting a transaction enabling process for trading securities at accelerated levels with minimal errors and coats.

[0018] It is yet another object of the present invention to provide a data processing system to support a formalized trading protocol governing the control of trading on a bid/offer market.

[0019] It is also an object of the present invention to provide a system for collecting, displaying and distributing in real time information on current market activity in fixed income securities and processing this information to quantify the extent of order and trading activity of customers in real time.

[0020] It is another object of the present invention to provide an apparatus for the select processing of several types of data wherein data is qualified prior to use and translating the qualified data into order and trading states for fixed income securities.

[0021] It is still another object of the present invention to provide a data processing system that provides controlled access to trading commands pursuant to pre-established trading criteria.

[0022] It is yet another object of the present invention to provide a computer system that includes multiple workstations linked by a high speed communication loop to permit rapid distribution and exchange of market data to participating customers and brokers.

[0023] It is still another object of the present invention to provide a system that rewards customers that create liquidity while insuring customer orders are satisfied in an orderly and equitable fashion.

[0024] It is yet another object of the present invention to provide a database system linked to the auction processor for collecting, filtering, and distributing select market data in near real time.

[0025] It is another object of the present invention to provide a computer system with a dedicated input system for a workstation, that is customized for the trading undertaken by that workstation and may be customized to the trading patterns and customers for a given broker at that workstation.

[0026] Yet another object of this invention is to provide timely order checkout.

[0027] Still another object of this invention is to provide customized trading tools particular to a given customer, such as stop limit orders, contingent orders, flags (warnings) to the broker that a particular customer has reached a trading limit (e.g., margin limit), and the like.

[0028] A further object of this invention is to utilize the present system for the trading of other financial products, such as futures, indices, and the like.

[0029] The above and other objects of the present invention are realized in a specifically delineated computer-based, data processing system having a governing program controlled logic for orchestrated management of select trading functionality. The data processing employs a plurality of trading workstations linked with a server for coordinated data flow and processing. Communication is provided by per se available network, via Ethernet, token ring, token bus, or other hierarchical LAN and/or WAN configuration. The system preferably includes a dedicated keypad for input from each workstation that facilitates providing individually programmed keystroke commands; other keyboards or keypads can be used and are often software configurable so as to be compliant with the present system. A central processing logic dictates the available trading options and screen displays for each workstation. As transactions are entered, various protocols effect the allocation of bid-offer control and trade management. As trades are completed, the system updates a linked database with the newly entered transactional data.

[0030] In accordance with the varying aspects of the present invention, the controlling logic provides for a particular sequence of trading states for each participant. The five states are:

TABLE I

(i)	Workup State
(ii)	Bid-Offer State
(iii)	Second Look State
(iv)	When State
(v)	Workdown State

[0031] As the various transactions are entered, the trading stations and their interrelationships exist in one of these five states. The workstation "state" will determine the options available to that trader—and thus enables controlling the flow of trades in a cost-efficient and error-free manner. As all participants implement trading on similarly configured workstations, the protocols are universal for all traders, thereby precluding aggressive control of transactions in the absence of true capital commitment.

[0032] The foregoing features of the present invention may be more fully appreciated by review of specific illustrative examples thereof, presented hereinbelow in conjunction with a descriptive set of figures.

BRIEF DESCRIPTION OF THE FIGURES

[0033] **FIG. 1** is a system block diagram depicting the salient hardware components of the present invention;

[0034] **FIG. 2** provides a flow diagram depicting the transmission of trading related information;

[0035] **FIG. 3** depicts the salient features of the dedicated keypad;

[0036] **FIG. 4** is a block diagram of the various system states and pathways therebetween;

[0037] **FIG. 5** is a logic diagram for trading data input;

[0038] **FIG. 6** is a logic diagram for the Bid/Offer State;

[0039] **FIG. 7** is a logic diagram for the When State;

[0040] **FIG. 8** is a logic diagram for the Workup State;

[0041] **FIG. 9** is a logic diagram for the Second Look State;

[0042] **FIG. 10** is a logic diagram for the Workdown State; and

[0043] **FIG. 11** is a trading logic summary table.

DETAILED DESCRIPTION OF THE INVENTION

[0044] First, in brief overview, the present invention is directed to a data processing system for implementing complex trading rules in support of select transactions. The first aspect of the invention relates to a particular hardware arrangement that provides a specifically tailored platform for processor enhanced and supported trading. This hardware arrangement encompasses a plurality of custom designed workstations linked together for communication. Each workstation is linked to a central server that orchestrates the trading processes in accordance with program controlled logic. The workstation includes a display for presentation of the particulars of trading activity. A customized keypad permits enhanced data/position entry by the broker.

[0045] The second aspect of the invention is the governing logic for controlling system dynamics. This logic is stored in system memory and provides the sequence of protocols and rules that allocate trading priority, and the system responses to operative commands entered by the brokers at the workstations. The system logic is critical on two levels. First, it is important as the guiding principles underlying the system and thus performance is tied directly thereto. On a second level, system logic must be known to all customers and traders as the rules dictating market access and response—to eliminate any confusion and to place participants on as close to an equal footing as possible. It is a fundamental precept of the present system provide fair and complete access to the trading process to all registered participants.

[0046] To better appreciate the following details, a review of the nomenclature employed is recommended. The illustrative examples herein all focus on fixed income instruments and trading of these instruments in large volumes—with the volume of a given transaction delineated in dollars (e.g., $25 million of 10-year treasuries).

[0047] The following terms are used with the associated definition:

TABLE 2

Bid	Dollar amount offered to buy a security - issue.
Offer	Dollar amount offered to sell a security - issue.
Spread	Difference between best bid(s) and offer(s) on market.
Issue	A common class of fixed rate treasuries.

TABLE 2-continued

Hit	Accepting a pending bid.
Lift	Accepting a pending offer.
Size	The volume in dollars of a particular Bid/Offer.
Makers	Customers with pending offers and bids - making a market.
Uncleared Entry	Current bids/offers that lack a counterparty, i.e., have not been lifted or hit.
Traders	After a trade is initiated, all customers involved in transactions (as buyer or seller).
Trade	A string of transactions at one price initiated by a hit or lift and continuing until timed out or done.
Aggressor	A customer who initializes a trade.
Active Side	Group of Makers on same side of market as the Aggressor
Passive Side	Group of customers on opposite side of market from the Aggressor.

[0048] The general context of system operation is based on the repetitive operation of several functions, and, in its preferred embodiment, implements these functions through a specially designed keypad. Generally, the process begins when customers contact the brokers and place bids and offers for a defined class of instruments. These various positions are displayed on the computer terminal in specific ways to reflect priority, etc. A customer can establish trading priority by placing a bid or offer at a select price and volume; bids at the same price are displayed on the screen in time order in which they enter the system (as are offers). As such a "queue" of bids and offers develops, with place in line set by time at the same price. This queue is displayed on screen at the broker's workstation. Typically, there is a small difference between the bid price and offer price—the "spread". If no difference exists, this is known as a "locked" market.

[0049] Importantly, a bid and offer are commitments—once placed, a bid can be "hit" and an offer can be "lifted" by a customer willing to trade the instrument at the set price.

[0050] To control trading between many participating customers, some level of hierarchy is set. A customer who hits on a bid or lifts an offer is promoted to a new level known as the "aggressor". By acting on a bid or offer, the aggressor defines (and thus establishes) the active side of the trade. For example, if the

25. (New) A method implemented by a programmed computer for trading a volume of an item between participants using workstations coupled over a computer network, the method comprising:

receiving a first bid or offer from a first participant for a first volume of the item;

distributing to the workstations bid or offer information corresponding to the first bid or offer;

receiving a second bid or offer for a second volume of the select item;

receiving a hit or lift entered by a second participant to sell or buy all volume of the item at a desired price;

determining that the hit or lift was entered within a given time period from entry of the second bid or offer, and responsively enabling the second participant to elect to avoid selling or buying at least a portion of the second volume of the item.

26. (New) The method of claim 25, further comprising executing a trade of the item in a volume excluding that portion of the second volume of the item that the second participant elects to avoid.

27. (New) The method of claim 25, wherein the second participant elects to avoid the entire second volume of the item.

28. (New) The method of claim 25, wherein the second participant elects to avoid none of the second volume of the item.

29. (New) The method of claim 25, wherein the second participant elects to avoid at least a portion of the second volume, said method further comprising:

enabling other participants to hit or lift that portion of the second volume of the item that the second participant elected to avoid, at a price defined by said desired price.

30. (New) A method implemented by a programmed computer for trading a volume of an item between participants using workstations coupled over a computer network, the method comprising:

distributing to the workstations a bid or offer for the item at a selected price and volume entered by a first participant;

receiving a hit or lift entered by a second participant in response to the bid or offer to trade a volume of the item; and

determining that the second participant may not have intended to hit or lift at least a portion of the volume of the item that was hit or lifted, and responsively providing the second participant an opportunity to refuse to trade the portion of the volume of the item that the second participant did not intend to hit or lift.

31. (New) The method of claim 30, wherein said determining step comprises detecting that the second participant hit or lifted an unaged bid or offer, and wherein the portion of the volume of item that the participant may not have intended to hit or lift includes the volume of the item associated with the unaged bid or offer.

32. (New) The method of claim 31, wherein a bid or offer is unaged if it was entered within a given time period prior to entry of the hit or lift.

33. (New) The method of claim 30, wherein the second participant is given an opportunity to refuse to sell or buy all of the portion of the volume of the item that the second participant did not intend to hit or lift.

34. (New) A method implemented by a programmed computer for trading a volume of an item between participants using workstations coupled over a computer network, said method comprising:

distributing to the workstations information reflecting pending market conditions, said information including bids or offers for the item at select prices and volumes;

receiving a hit or lift trade command entered at one of the workstations by a participant responding to the market conditions willing to trade a desired volume of the item at a desired price;

determining whether a hit or lifted bid or offer recently changed prior to receipt of the trade command and, if so, responsively enabling the participant to refuse the

sale or purchase of at least a portion of the volume of the item associated with the recently changed bid or offer.

35. (New) The method of claim 34, wherein the determining step determines that the recently changed bid or offer changed the total volume of the item as reflected by the pending market conditions.

36. (New) The method of claim 34, wherein the determining step comprises detecting that a bid or offer for the item was entered within a given time period prior to the hit or lift.

37. (New) The method of claim 34, wherein the participant is enabled to refuse to sell or buy all of the volume of the item associated with the recently changed bid or offer.

38. (New) The method of claim 34, wherein if a hit or lifted bid or offer did not recently change prior to receipt of the trade command, automatically executing a trade of the item at the desired price in the volume associated with the unchanged bid or offer.

39. (New) A method implemented by a programmed computer for trading a volume of an item between participants using workstations coupled over a computer network, said method comprising:

distributing to the workstations information reflecting pending market conditions with respect to the item, the information including bid/offer price and volume information;

receiving a hit or lift entered at one of the workstations by a participant responding to the pending market conditions willing to trade a desired volume of the item at a desired price;

determining whether a pending market condition for the item recently changed prior to entry of the hit or lift; and

if a pending market condition recently changed, responsively enabling the participant to refuse to sell or buy at least a portion of the volume of the item associated with the changed market condition.

40. (New) The method of claim 39, wherein the recently changed market condition is volume.

41. (New) The method of claim 39, wherein the determining step comprises detecting that a bid or offer for the item was entered within a given time period prior to entry of the hit or lift.

42. (New) The method of claim 39, wherein the participant may refuse to sell or buy all of the portion of the volume associated with the changed market condition.

43. (New) A method implemented on a distributed workstation computer system for trading an item between participants, said method comprising:

receiving from at least one passive participant at least one bid or offer entered for the item at a select price and volume;

receiving from an aggressor participant a hit or lift to trade, at a defined price, at least all of the volume represented by entered bids or offers;

executing a trade transaction between the aggressor participant and each passive participant whose bid or offer was hit or lifted;

enabling the aggressor participant and a designated passive participant whose bid or offer was hit or lifted to control trading by allowing them to transact additional volume with each other at the defined price to the exclusion of other participants desiring to participate in trading; and

upon the occurrence of a predefined event, automatically executing new transactions involving the other participants at the defined price without enabling the other participants to control trading.

44. (New) The method of claim 43, wherein said predefined event is the timing out of a timer.

45. (New) The method of claim 43, wherein said new transactions are executed after said predefined event based on trade commands entered by the other participants prior to said predefined event.

46. (New) A method implemented on a distributed workstation computer system for trading an item between participants, said method comprising:

receiving from one or more passive participants at least one bid or offer for the item;

receiving from an aggressor participant a hit or lift to trade, at a defined price, a desired volume of the item represented by the bids or offer;

allowing the aggressor participant and at least one of the passive participants a period of exclusivity to control trading by enabling them to transact with one another additional volume of the item at the defined price to the exclusion of another participant desiring to participate in trading; and

upon occurrence of a predefined event, allowing the other participant to trade at the defined price without allowing the other participant to control trading by excluding others from trading.

47. (New) The method of claim 46, wherein the desired volume comprises the entire volume represented by the pending bids or offers.

48. (New) The method of claim 46, wherein the passive participant allowed to control trading is the passive participant who first entered a bid or offer that was hit or lifted by the aggressor participant.

49. (New) A method implemented by a programmed computer system for trading an item between participants, the method comprising:

distributing to the participants information reflecting pending market conditions, said information including bids or offers for the item entered by passive participants at select prices and volumes;

receiving a hit or lift trade command entered by an aggressor participant responding to the market conditions to trade a desired volume of the item at a defined price;

determining whether a hit or lifted bid or offer had aged prior to receipt of the trade command, and responsively (i) executing a trade of the volume of the item associated with an aged bid or offer, and (ii) enabling the aggressor participant to refuse to trade at least a portion of the volume of the item associated with an unaged bid or offer;

allowing the aggressor participant and at least one of the passive participants whose bid or offer was hit or lifted a period of exclusivity to control trading by enabling them to transact with one another additional volume of the item at the defined price to the exclusion of another participant desiring to participate in trading; and

upon occurrence of a predefined event, allowing the other participant to participate in trading at the defined price without allowing the other participant to control trading by excluding others from trading.

50. (New) The method of claim 49, wherein the predefined event is the timing out of a timer.

51. (New) The method of claim 49, wherein said determining step determines that the bid or offer had not aged by detecting that it had been entered within a given period of time prior to entry of the hit or lift command.

52. (New) The method of claim 49, wherein the passive participant allowed a period of exclusivity is the participant who first entered a hit or lifted bid or offer.

53. (New) The method of claim 49, wherein the volume hit or lifted is at least the entire volume represented by the bids or offers.

54. (New) A system for transacting the purchase and sale of a select item between participants, the system comprising:

a plurality of workstations which present to broker and customer participants information reflecting pending market conditions for the item, and for receiving a hit or lift of one or more bids or offers to sell or purchase the item at a desired price and in a desired volume; and

a server, coupled to said workstations, that receives the one or more bids or offers and the hit or lift, and that determines whether a hit or lifted bid or offer recently changed prior to being hit or lifted, wherein:

if a bid or offer recently changed, the central server responsively enables the participant to refuse to sell or buy at least a portion of the volume of the item associated with the changed bid or offer; and

if a bid or offer did not recently change, the central server executes a trade of the volume of the item associated with the unchanged bid or offer.

55. (New) The system of claim 54, wherein said system enables the participant to refuse to sell or buy only if the hit or lift was to sell or buy "all" of the item.

56. (New) A system for trading an item between an aggressor participant and one or more passive participants, comprising:

a workstation which presents bids or offers for the item entered into the system by the passive participants at select prices and volumes, and which receives a trade command entered by the aggressor participant to hit or lift one or more of the bids or offers at a desired price and in a desired volume; and

a programmed computer, coupled to the workstation, that (1) receives the bids or offers and trade command, (2) executes a trade of the item at a defined price set by the trade command, (3) enables the aggressor participant and a designated one of the passive participants a period to control subsequent trading by executing additional trade transactions between one another of additional desired volumes of the item at the defined price to the exclusion of other participants desiring to participate in the trading, and (4) upon conclusion of the period automatically executes additional trades of additional volumes of the item at the defined price in response to trade commands entered by the other participants without enabling any of the other participants a period to control the trading.

57. (New) The system of claim 56, wherein the predefined event is the timing out of a timer.

58. (New) The system of claim 56, wherein the trade commands of the other participants may be entered during the period of exclusive trading but are not executed, if at all, until after the conclusion of the exclusive period.

59. (New) The system of claim 56, wherein bids and offers entered by the passive participants are prioritized in a queue by time of entry, and wherein the designated passive participant is the passive participant whose bid or offer was the first entered.

60. (New) A method implemented by a programmed computer system for creating an auction market for items, the system including a plurality of remotely located terminals in communication with one another, the terminals operated by different trading participants including different brokers and/or customers, the method comprising:

presenting to a first participant, in substantially real-time, market condition information for an item as established by transaction commands entered by one or more other participants engaged in the auction;

enabling the first participant to enter a transaction command committing the participant to buy or sell the item in a transaction having a total expected value;

determining whether market condition information for the item changed within a predetermined period of time prior to entry of the transaction command such that said entered transaction command would commit the first participant to a transaction having other than the total expected value and, if so, enabling the first participant to enter a transaction command to refuse at least a portion of such transaction.

61. (New) A method implemented by a programmed computer for conducting an auction for an item among trading participants using terminals remotely coupled over a computer network, said participants including different brokers and/or customers, said method comprising:

distributing to the remote terminals for presentation to the participants, in substantially real-time, information reflecting the pending market condition for the item as established by the participants, said information including at least a current price of the item;

receiving a first transaction command with respect to the item entered at one of the terminals by one of the participants responding to the presented market conditions; and

determining whether a market condition for the item recently changed prior to entry of the first transaction command, and responsively enabling the participant to enter a second transaction command to refuse the transaction.

62. (New) A method implemented by a programmed computer system for creating an auction market, the system including a plurality of remote terminals in communication with one another by which different customer and/or broker

participants may enter transaction commands to trade with one another, the method comprising:

presenting to a first participant via the participant's remote terminal market condition information for an item as established by transaction commands entered by one or more participants engaged in the auction;

enabling the first participant to enter into the system, via the first participant's remote terminal, a transaction command with respect to the item; and

determining whether the market condition information for the item had aged prior to entry of the transaction command and, if not, enabling the first participant to enter another transaction command to refuse, modify or proceed with at least a portion of the transaction.

63. (New) A method implemented by a programmed computer system for creating an auction, the system including a plurality of remote terminals in communication with one another with which different broker and/or customer participants may enter transaction commands, the method comprising:

presenting to a participant via the participant's remote terminal, in substantially real-time, market condition information for an item as established by transaction commands entered by other participants engaged in the auction;

enabling the participant to enter into the system, via the participant's remote terminal, a transaction command with respect to the item, said transaction command committing the participant to consummate a transaction for the item at a transaction value; and

in response to receipt of the transaction command, allowing the participant to modify, rescind or proceed with the transaction as a function of the age of the market condition existing at the time of receipt of the transaction command.

64. (New) A method implemented by a programmed computer system to conduct an auction for trading an item between participants coupled to the system over a computer network, said participants including different customers and/or brokers desirous of trading with one another, comprising:

presenting to a participant market condition information for an item, said market condition information established by transaction commands entered into the system by other participants engaged in the auction;

receiving from the participant a first transaction command with respect to the item, said command committing the first participant to trade the item in a transaction having a value determined by the market condition information;

upon receipt of the first transaction command, determining the age of the market condition information; and

responsive to the determined age, either (1) automatically executing a trade of the item in accordance with the item's market condition information extant when the first transaction command was received, or (2) providing the first participant an opportunity not to commit to trade the item.

65. (New) A networked computer system for transacting the purchase and/or sale of a select item between trading participants, said participants including different brokers and/or customers, the system comprising:

a plurality of remotely located terminals coupled to the network for presenting to said participants information reflecting market conditions for the item as established by transaction commands entered by said participants, the market condition information reflecting the value of an item in terms of a bid or offered price and an associated volume; and

a computer, coupled to the network, programmed to: (a) receive a participant-entered transaction command to buy or sell the item, and (b) detect that the market condition information for the item recently changed prior to receipt of the transaction command, and responsively enable the participant to enter another transaction command to refuse to buy or sell at least that portion of the volume of the item associated with the recently changed bid or offer.

66. (New) A method implemented by a programmed computer for trading an item between participant customers and/or brokers using remotely located terminals in substantial real-time communication with one another over a computer network, the method comprising:

receiving from a plurality of passive participants bids or offers for the item, the bids or offers entered via the passive participating customers' terminals;

receiving from an aggressor participant a hit or lift to trade, at a defined price, a desired volume of the item represented by the bids or offers, the hit or lift entered via the aggressor participant's terminal;

allowing the aggressor participant and at least one of the passive participants a period of exclusivity to control trading by enabling them to transact with one another additional volume of the item at the defined price to the exclusion of another participant desiring to participate in trading; and

upon occurrence of a predefined event, allowing the other participant to participate in trading at the defined price without allowing the other participant to control trading by excluding others from trading.

67. (New) A method implemented by a programmed computer to conduct an auction for trading an item between participant customers and/or brokers using remotely located terminals in substantial real-time communication with one another over a computer network, the method comprising:

receiving from one or more passive participants at least one bid or offer for the item;

receiving from an aggressor participant a command to commit to trade, at a defined price, a desired volume of the item represented by the bids or offer;

allowing the aggressor participating customer and at least one of the passive participant a period of exclusivity to control trading by enabling them to transact with one another additional volume of the item at the defined price to the exclusion of another participant desiring to participate in trading; and

upon occurrence of a predefined event, allowing the other participant to participate in trading at the defined price without allowing the other participant to control trading by excluding others from trading.

68. (New) A method implemented by a programmed computer to conduct an auction for trading an item between participating customers using remotely located terminals that are in substantial real-time communication with one another over a computer network, the method comprising:

receiving from at least a first participant a first transaction command entered via the first participant terminal, said transaction command committing the first participant to buy or sell the item at a defined price established by the first transaction command;

receiving from a second participating customer participant a second transaction command entered via the second participant's terminal, said second transaction command committing the second participant to sell or buy the item at a defined price established by the second transaction command;

allowing the first and second participant a period of exclusivity to control trading by enabling them to negotiate with each other for trading the item to the exclusion of a third participant desiring to participate in the trading; and

upon occurrence of a predefined event, allowing the third participant to participate in negotiations for trading the item without allowing the third participant to control trading by excluding others from trading.

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