

April 16, 1946.

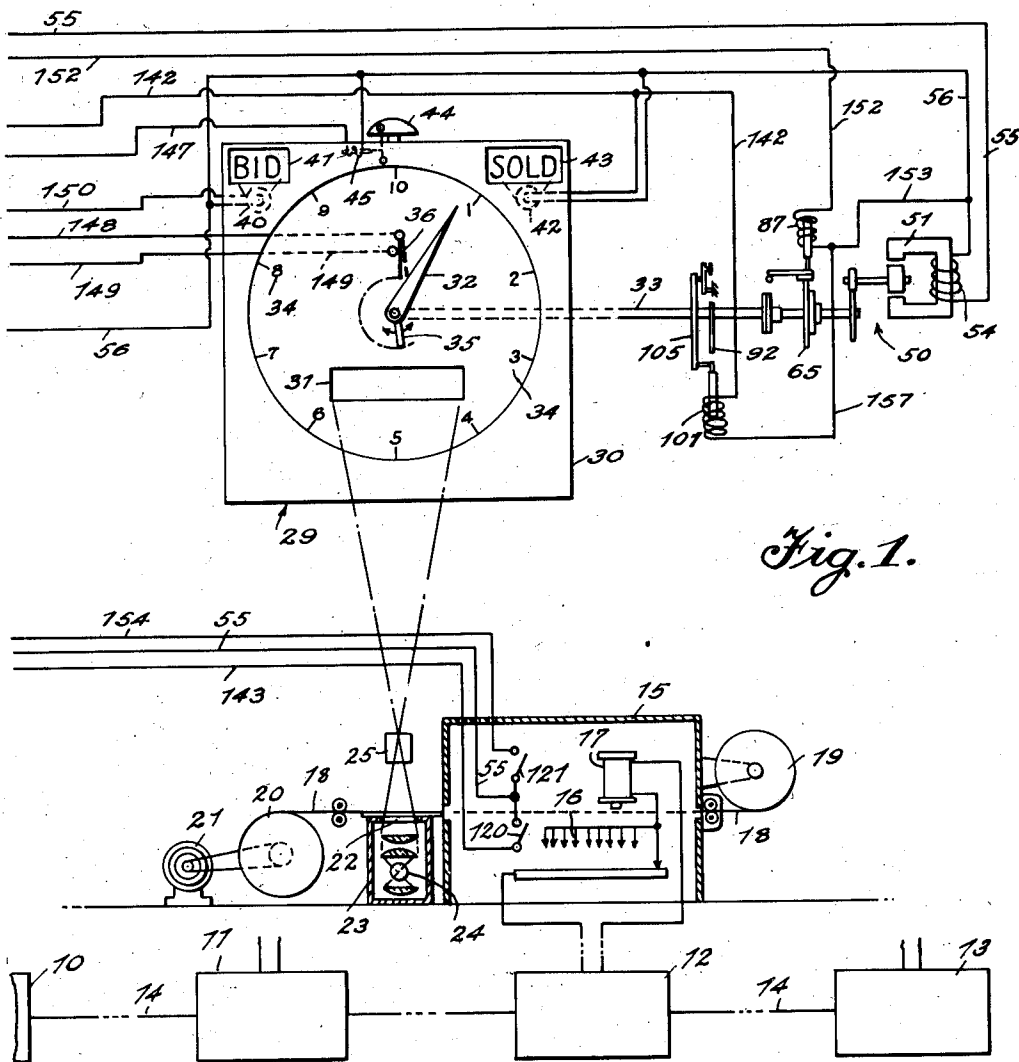
H. H. STOCKFELD

2,398,677

SELLING CONTROL SYSTEM AND MACHINE THEREFOR

Filed May 6, 1940

3 Sheets-Sheet 1



Inventor

Harry H. Stockfeld

By *Walter A. Hill*

Attorney

April 16, 1946.

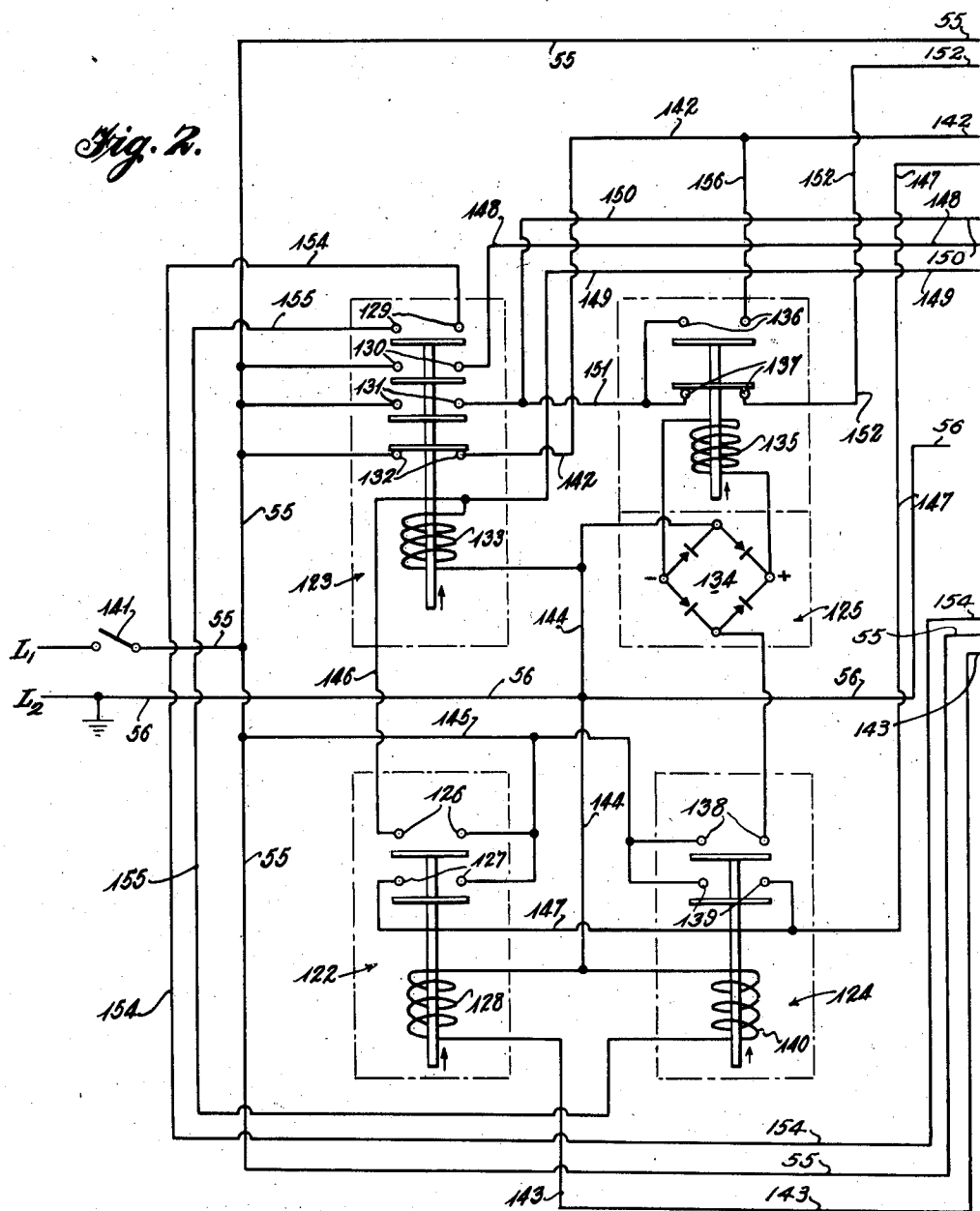
H. H. STOCKFELD

2,398,677

SELLING CONTROL SYSTEM AND MACHINE THEREFOR

Filed May 6, 1940

3 Sheets-Sheet 2



Inventor

Harry H. Stockfeld

By *Miles D. Filler*  
Attorney

April 16, 1946.

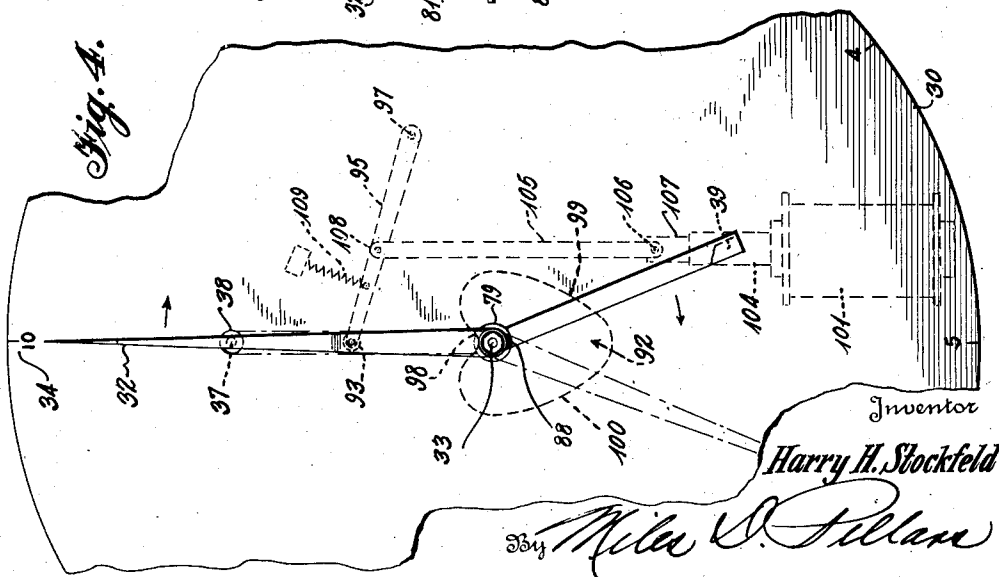
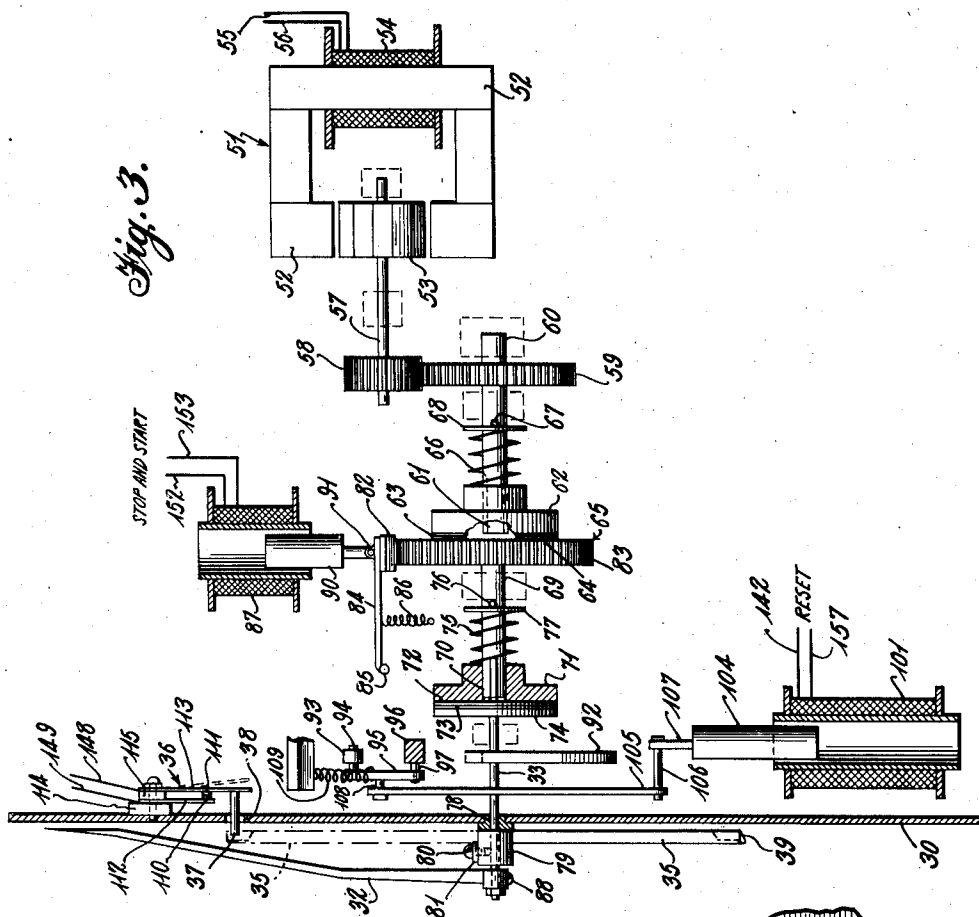
H. H. STOCKFELD

2,398,677

SELLING CONTROL SYSTEM AND MACHINE THEREFOR

Filed May 6, 1940

3 Sheets-Sheet 3



Inventor

Harry H. Stockfeld

By

Miles D. Pillars

Attorney

## UNITED STATES PATENT OFFICE

2,398,677

SELLING CONTROL SYSTEM AND  
MACHINE THEREFOR

Harry H. Stockfeld, New York, N. Y.

Application May 6, 1940, Serial No. 333,668

14 Claims. (Cl. 177—353)

This invention relates to improved selling control systems and more particularly to improved electrically operated and controlled selling devices or machines for simultaneously carrying on selling activities of vendibles at an unlimited number of selling stations separated by various geographical distances and to provide facilities for producers, manufacturers and shippers to sell their products and for buyers to buy them in a competitive system of selling. The selling control system is adapted to facilitate the selling of goods, commodities and products of the land generally marketed in commerce and owing to the expeditious manner with which sales can be consummated, the system is especially adapted to facilitate the sale of foodstuffs and particularly foodstuffs of a perishable nature such as fresh fruit and vegetables.

More particularly, the invention relates to a selling control system comprising an electrical network provided with a plurality of receiving and transmitting stations which may be located at remote distances. The improved selling control system further relates to a selling device or machine operated in conjunction with a plurality of similar selling machines, all of which are connected to an electrical network for simultaneous operation. Each of said selling machines is provided with mechanical means whereby characters can be transmitted, received and recorded for the purpose of communicating information between the selling machines connected to the electrical network.

While it is contemplated that various means of conveying information may be utilized as an integral part of the selling control system, it has been found that printing telegraph systems are particularly suitable. In systems of this character it is usual to employ at the transmitting station a keyboard transmitter which when a definite character key is depressed sends out a combination of electrical impulses which are transmitted to the receiving stations where the selecting mechanism of a printing unit selects the particular type bar on which the desired printing character is mounted. The selected type bar is then moved to form an impression on the tape and the tape is then fed forward to allow another character to be operated and impressed in the same manner until the desired information is recorded. A plurality of printing units located at remote points may be simultaneously operated on the selling system including a printer at the transmitting station which makes a record for the transmitting station. The keyboard trans-

mitter and printing unit at each station may constitute separate units although they are usually combined into a single machine operated by a common motor. Each of the transmitting and receiving stations connected in the selling control system has an improved selling device or machine which comprises an indicating means and a timing device, said machine being associated with the printing device and is actuated in accordance with the operation of the printing unit.

Heretofore the lack of timely knowledge on the part of buyers and shippers concerning the amount, type and condition of perishable produce available for marketing and the points of origin from which such produce is available and the lack of timely knowledge on the part of producers concerning the condition of geographically remote markets have resulted in high distribution costs due to the wasteful glutting of individual selling markets which in turn militates against fair values of the perishable produce to the detriment of both the producer and the consumers located in other areas. Furthermore, in an attempt to reduce the amount of loss resulting from glutted markets, the perishable foodstuff is oftentimes reshipped to other points of consumption which results in increased shipping and handling charges, commissions and delays which serve to depreciate the quality and value of the perishable products.

With the foregoing in mind, it is an object of this invention to provide a selling control system comprising a plurality of selling machines for eliminating losses and facilitating widespread and rapid sale and distribution which is suitable for transmitting and receiving timely information between producing and selling points such as would be necessary to enable sales to be negotiated by competitive bidding between a plurality of buyers who may be located at points remote from each other.

Another object of this invention is to provide a selling control system comprising a plurality of selling machines for simultaneously reproducing data at a plurality of geographically remote stations concerning the amount, kind, size, standard grade, brand, method of packing and condition of perishable foodstuffs at the point of origin or packaging of the perishable produce and concerning the progress of competitive bidding for these goods among groups of buyers located at the different geographically remote stations.

Another object of this invention is to provide a selling control system comprising an electrical network having a plurality of stations located re-

motely from each other, each of which is equipped with a transmitting and receiving unit and an interrelated selling device or machine comprising an indicating means and a timing device for facilitating competitive purchasing of merchandise.

Another object of this invention is to provide an improved selling machine for indicating the amount and sequence of bids received during an auction and also for indicating the duration of bidding and the termination of the competitive bidding.

Another object of this invention is to provide an improved circuit arrangement for a selling machine wherein indicating means and a timing device located at each of a plurality of selling control stations in an electrical network having a transmitting and receiving unit at each station are controlled by the operation of the transmitting and receiving unit located at any one of the stations.

A further object of this invention is to provide an improved control circuit for the indicating means and a timing device whereby they are operated in response to a sequence of relay operations initiated by a printing or recording unit connected to an electrical network.

A further object of this invention is to provide an improved timing device which may be automatically started, stopped and reset to starting position by operation of an electrical circuit.

This invention relates to the improved system, apparatus, novel features of construction and combination of parts which are hereafter shown and described by way of example in the preferred form but other objects, features and advantages will become apparent from the following description, reference being made to the drawings wherein:

Figure 1 is a wiring diagram of the selling control system disclosing a plurality of stations and the operating units of a single station and selling machine;

Figure 2 is a wiring diagram of the control circuit for the indicating means and timing device of a selling machine;

Figure 3 is a detailed side elevation of the timing device; and

Figure 4 is a front view of a detailed section of the timing device.

As shown in Figure 1, the selling control system comprises a plurality of stations each of which is provided with a selling machine. The stations are designated by reference numerals 10, 11, 12 and 13 and are shown interconnected by an electrical network indicated by reference numeral 14. As has previously been indicated, the electrical network is preferably of the printing telegraph type although other types of systems may be employed. Each of the stations 10, 11, 12 and 13 have associated therewith a transmitting and receiving device and a selling machine comprising means for visually reproducing information received over the network. The station units are shown schematically in Figure 1 in conjunction with station 12 although it will be understood that all of the stations associated with the network are similarly equipped. In this figure the reference numeral 15 designates the transmitting and receiving device in which transmitting contacts 16 and the magnet 17 represent in the usual form a teletypewriter installation. The printing unit of device 15 is adapted to translate the impulses received over the network

14 and by operation of the conventional selecting mechanism, a series of characters is recorded in ink or other opaque medium upon a tape 18. The tape which is of transparent or semi-transparent character is fed in a known manner from the supply roll 19 beneath the printing characters and is wound upon a take-up roll 20 which is rotated by a motor 21 of any suitable type.

Intermediate the printing position where the characters are recorded in the printer and the take-up roll, the transparent tape passes across the aperture 22 of a projection device 23. The rays of a light source 24 are reflected through a condenser lens system and then pass through the aperture and exposed section of the transparent tape 18 which overlies the aperture. The opaque images on the tape through which the light passes are focussed upon a screen 31 located in panel 30 by a focussing objective 25. It will be understood that the images from the tape are projected in known manner and preferably the light rays impinge upon the rear of the screen 31 which may be formed of ground glass. In order to obtain the rear projection, the projector may be located behind the screen so that the light rays will normally impinge upon the screen, or turning devices such as reflectors and prisms may be used when the projection is not located normal with the screen. It is contemplated that any projecting system may be employed which will project the tape characters onto the screen 31 so that they may be read in erected manner from left to right when the panel 30 is viewed from the front.

An indicating means is denoted by reference numeral 29 and includes the panel 30 in which the screen 31 is positioned as shown in Figure 1. A hand or pointer 32 is mounted upon a timer shaft 33 for movement across the face of panel 30 and is adapted to rotate in a clockwise direction over a dial which is provided with indicia 34. In the present instance the dial has been divided into ten divisions representing seconds of time although other indicia and time quantities may be employed. A limit switch actuating bar 35 is adjustably mounted on the timer shaft 33 and rotates with the pointer 32. As shown in Figure 3, the limit switch actuating bar 35 is mounted in front of the panel 30 although it is contemplated that the bar may be mounted on timer shaft 33 behind the panel if it is found desirable. A limit switch 36 is mounted behind the panel 30 and, as shown in Figure 3, an actuating stud 37 passing through an opening 38 in the panel 30 is operated by a cam surface 39 positioned on the limit switch actuating bar 35 when the hand is rotated into a predetermined position to operate the limit switch as will be hereinafter more fully explained.

As indicated in Figure 1, a lamp 40 is positioned behind the panel 30 so that when the lamp is energized the rays will pass through a transparent or translucent member 41 set in an opening in the panel. The word "Bid" is placed in letters upon the member 41 to be clearly readable when the lamp 40 is lighted. Similarly, a lamp 42 is placed behind a transparent or translucent member 43 bearing the term "Sold" and mounted in another portion of the panel 30. A single stroke bell or gong 44 is also associated with the indicating means 29 and is adapted to be operated by an energizing coil 45 shown in Figure 1.

A timing device for controlling operation of the indicating means 29 is represented by reference numeral 50 in Figure 1 and is shown in

greater detail in Figures 3 and 4. The timing device comprises a self-starting synchronous motor 51 having a stator 52 and a rotor 53 mounted on a shaft 57. The coil 54 which is mounted upon the stator is energized through conductors 55 and 56. A pinion 58 is securely mounted upon shaft 57 to engage and serve as a driving element for gear wheel 59 which is securely mounted adjacent one end of shaft 60. The opposite end of shaft 60 is splined as represented by 61 into a driving clutch member 62. Driving clutch member 62 is provided with a clutch face 63 which is adapted to have frictional contact with a clutch face 64 of a driven clutch member 65. Driving clutch member 62 is thus axially slidable within limits on shaft 60 by virtue of its splined connection with the shaft and is maintained in frictional contact with the driven clutch member 65 by action of a spring 66 which is maintained under compression by pin 67 and washer 68.

Driven clutch member 65 is securely mounted adjacent the end of shaft 69 which rotates with member 65. The opposite end of shaft 69 is splined as represented by 70 into a driving clutch member 71 having a clutch face 72 which is adapted to have frictional contact with a clutch face 73 of a driven clutch member 74. Due to the spline connection the driving clutch member 71 is also axially slidable within limits on the shaft 69 and is maintained in frictional contact with the driven clutch member 74 by the bias of a spring 75 which is maintained under compression by a pin 76 and washer 77. The driven clutch member 74 is securely mounted on one end of timer shaft 33 which is journaled at 78 in an aperture in the panel 30. The portion of timer shaft 33 which extends through panel 30 carries the pointer 32 and the limit switch actuating bar 35 as has previously been described. The limit switch actuating bar 35 is secured to a collar 79 which is adjustably mounted on the timer shaft 33 and then tightened in adjusted position by set screw 80 and locked into the adjusted position by locking nut 81. The pointer 32 may also be adjustably mounted on the shaft 33 to effect zero or initial setting of the pointer with respect to the dial and then locked in the adjusted position by a set screw 88.

The controls for the timing device comprise an electrically actuated stop and start mechanism and an electrically controlled resetting mechanism for returning the pointer 32 to its initial or starting position which for purposes of illustration may be considered as the point corresponding to the dial numeral 10. The stopping and starting mechanism comprises a brake member 82 which may be moved in and out of contact with the periphery of driven clutch member 65 as shown in Figure 3. The periphery of member 65 may be knurled or otherwise roughened as indicated by 83 to insure instantaneous action of the brake 82 in stopping the rotation of driven clutch member 65 when it is brought in contact therewith. The brake 82 is mounted upon a lever arm 84 which is mounted for pivotal movement about a pin 85 located on a suitably fixed support (not shown). The lever arm 84 and brake 82 move as an integral unit and a tension spring 86 is provided to bias the brake 82 into its braking condition in contact with the knurling 83 on the periphery of driven clutch member 65. Movement of the brake is electrically controlled by an electromagnetic device comprising a solenoid 87 which is energized through conductors 152 and 153 as will be later explained.

A plunger 90 is positioned within the solenoid 87 and is mechanically connected to the lever arm 84 through a pivotal connection 91. Upon energization of the solenoid 87, the plunger 90 is pulled upwardly by virtue of the flux set up in the solenoid and causes the lever 84 and brake 82 to be moved upwardly against the action of spring 86, thus releasing the driven clutch member 65 so that it may be rotated by the synchronous motor 51 through the driving clutch member 62 and effect rotation of the pointer 32. Upon deenergizing the solenoid 87, however, spring 86 causes the brake 82 to engage the periphery of the driven clutch member 65 thus resulting in stopping the driven clutch member 65 and preventing further rotation of the pointer 32 by the motor 51.

The resetting mechanism for the hand 32 comprises a heart shaped cam 92 securely mounted on the timer shaft 33. A cam contacting roller 93 is mounted for rotation upon a pin 94 which is secured to one end of a lever arm 95. The opposite end of the lever arm is pivotally connected by a pin 97 to a fixed support 96. The cam contacting roller 93 is aligned so that it may be rotated about the pivot 97 of lever arm 95 to make contact with the periphery of cam 92. Movement of the roller 93 towards timer shaft 33 will cause the heart shaped cam 92 to be rotated together with shaft 33 and pointer 32 until the minimum radius point 98 of the cam 92 is in contact with the roller 93. The timer shaft 33 and the heart shaped cam 92 can be rotated by the resetting mechanism due to the slippage between the driving clutch member 71 and the driven clutch member 74. The relatively angular positioning of the pointer 32 and cam 92 on the timer shaft 32 is such that when roller 93 engages the minimum radius point 98 of the cam 92, the hand 32 will be at the desired initial or starting position relative to the indicating dial on the panel 30 as shown in Figure 4. Thus after each operation of the resetting mechanism the pointer 32 has been returned to a predetermined starting position with respect to the indicating dial.

It will be understood that engagement of the cam contacting roller 93 with the periphery of the cam 92 causes the hand 32 to be returned to its starting position by either clockwise or counterclockwise rotation depending upon the section of the cam which is first engaged by the roller. For example, if roller 93 first engages section 99 of the cam, the pointer will be returned to its starting position by clockwise rotation and if section 100 is first engaged, the pointer will be returned by rotation in a counterclockwise direction.

It is likewise clear that the operations of the two clutches are independent of each other and thus the pointer 32 may be started and stopped with or without concurrent or subsequent functioning of the resetting device. Also, if found desirable, the resetting device may be operated without deenergizing the solenoid 87, in which case the pointer 32 will be returned to the starting point but will immediately resume its travel as soon as the solenoid 101 is deenergized.

The motive power for rotating lever arm 95 about its pivotal connection 97 to effect resetting of the pointer 32 is supplied by a solenoid 101 which is energized through conductors 142 and 157. A plunger 104 is positioned within the solenoid and is connected to the lever arm 95 by a

mechanical linkage comprising pivotally connected lever arms 105 and 106. Lever arm 105 is connected to stud 107 which is secured to one end of the plunger 104. Lever arm 105 is pivotally connected to one end of a pin 108 which has the other end secured to lever arm 95 intermediate the pivotal connection 97 and the pin 94. A tension spring 109 serves to maintain the resetting mechanism in the position shown in Figure 4 when the solenoid is deenergized. When the solenoid is energized, plunger 104 is drawn into the coil and by virtue of the mechanical linkage, the lever arm 95 is rotated about pin 97 to cause the roller 93 to make contact with the periphery of the cam 92 regardless of its position. Continued movement of the resetting levers will cause the cam and timer shaft 33 to rotate as explained above until the roller 93 is positioned at the minimum radius part of the cam which will result in the cam and the pointer 32 being positioned as shown in Figure 4.

As above described, a limit switch 36 is mounted on the indicator 29 and as shown in Figure 3 comprises a contact 110 mounted on the end of a contact arm 112 which is fixed to a support 114 of insulating material located on the rear side of the panel 30. A contact 111 is mounted upon a flexible contact arm 113 which is spaced from contact arm 112 by insulating spacer 115. Normally the contacts 110 and 111 are in contact to close a circuit between conductors 148 and 149. The contacts 110-111 are opened by the actuating stud 37 which is mounted on the end of contact arm 113 and, as described above, passes through an opening 38 in the panel 30 into the path of movement of the limit switch actuating bar 35 mounted on the timer shaft 33. Thus when the limit switch actuating bar 35 is rotated through a predetermined angle by the timer shaft 33 the cam surface 39 of the bar 35 engages the end of the actuating stud 37 and causes it to move rearwardly to effect separation of the contacts 110 and 111 and open the circuit between conductors 148 and 149. It will be understood that the limit switch actuating bar 35 is adjustable on shaft 33 so that the limit switch will be set to open when the pointer 32 reaches any predetermined point in its rotation. Such an adjustment is shown in Figure 4 in which the full lines show one position of the limit switch actuating bar 35 when the pointer 32 is at its starting position and the dotted lines show the position of the pointer 32 when the cam surface 39 of the bar 35 has reached the position to open the contacts 110 and 111.

The indicating means 29 and the timing device 50 are actuated in response to the operation of the subscriber's teletypewriter printer by means of a control circuit energized from a local source of alternating current represented by  $L_1$ - $L_2$  of Figure 2. The control circuit comprises contactors 120 and 121 and relays 122, 123, 124 and 125.

The contactors 120 and 121 are associated with the mechanism of the teletypewriter device 15 as diagrammatically shown in Figure 1 and are positioned in a manner well known in the art to be momentarily closed when predetermined type bars of the teletypewriter printer are operated by the selecting mechanism to print a character upon the tape. As exemplary of the association it may be considered that the contactor 120 is arranged so that the switch will be momentarily closed when the type bar is operated on which the printing character comma (,) is mounted.

In a similar manner the contactor 121 may be considered as arranged so that it will be momentarily closed when the type bar is operated upon which the printing character period (.) is mounted. However, it will be understood that the contactors 120 and 121 may be arranged to be operated in response to the actuation of any of the other type bars on the teletypewriter printer.

Relay 122 is provided with two banks of contacts 126 and 127 which are bridged upon energizing of an electromagnetic device 128. Relay 123 is provided with three banks of contacts 129, 130 and 131 which are normally open and a contact bank 132 which is normally bridged when an electromagnetic device 133 is deenergized. Relay 125 comprises a rectifier 134 and an adjustable electromagnetic device 135 provided with a normally open contact bank 136 and a normally closed bank of contacts 137. The electromagnetic device 135 operates instantly upon energization but upon deenergization a predetermined time interval elapses before operation of the device. The time interval elapsing between deenergization and the operation of the device is of the order of 0.25 to 1 second depending upon the adjustment of the electromagnetic device 135. Relay 124 is provided with two banks of contacts 138 and 139 which are closed by a bridging member upon energizing of an electromagnetic device 140.

Closure of a station switch 141 serves to connect the control circuit of the indicating means and timing device to the local source of alternating current  $L_1$ - $L_2$ . Closing of the station switch 141 also results in the energization of coil 54 of the self-starting synchronous motor 51, lighting of lamp 42 which illuminates the member 43 bearing the word "Sold" and energizing solenoid 101 which operates the resetting mechanism to reset the pointer to its starting position. The circuit for energizing coil 54 comprises  $L_1$ , station switch 141, conductor 55, coil 54, conductor 56 and  $L_2$ . The circuit for energizing lamp 42 comprises  $L_1$ , station switch 141, conductor 55, contact bank 132 of relay 123, conductor 142, lamp 42, conductor 56 and  $L_2$ . The circuit for energizing solenoid 101 comprises  $L_1$ , station switch 141, conductor 55, contact bank 132 of relay 123, conductor 142, solenoid 101, conductors 157, 153 and 56 and  $L_2$ . When coil 54 is energized the synchronous motor starts rotating but due to the fact that the brake 82 is in contact with the driven clutch member 65, this latter member together with timer shaft 33 and pointer 32 remain stationary resulting in slippage between the driving clutch member 62 and the driven clutch member 65. With the control system conditioned in the above described manner including the pointer positioned at its starting position 10 (shown in Figure 4) the system is in condition for operation by an impulse received over the electrical network 14.

When the character key corresponding to the comma (,) is depressed in one of the subscriber stations, the type bar having mounted thereon the comma (,) character in each of the printers in the various stations connected to the network, including the printer in the transmitting station, will be selected and moved to form a character impression on the recording tape. As a result of the selection and movement of the type bar, contactor 120 will be momentarily closed which will close a circuit to energize electromagnetic device 128 of relay 122 through a circuit comprising  $L_1$ , switch 141, conductor 55, contactor 120, conductor 143, electromagnetic device 128, conductors 144 and 56 and  $L_2$ . Closure of this circuit

causes operation of electromagnetic device 128 to bridge momentarily the contact banks 126 and 127. When contact bank 126 is bridged, electromagnetic device 133 of relay 123 is energized by a circuit comprising L<sub>1</sub>, station switch 141, conductors 55 and 145, contact bank 126, conductor 146, electromagnetic device 133, conductors 144 and 56 and L<sub>2</sub>. Bridging of contact bank 127 causes the single stroke gong 44 to be sounded by completion of the circuit L<sub>1</sub>, station switch 141, conductors 55 and 145, contact bank 127, conductor 147, coil 45, conductor 56 and L<sub>2</sub>.

Energization of electromagnetic device 133 serves to close contact banks 129, 130 and 131 and to open contact bank 132. Closing of contact bank 130 serves to energize a holding circuit for electromagnetic device 133 which comprises L<sub>1</sub>, station switch 141, conductor 55, contact bank 130, conductor 148, limit switch 36, conductor 149, electromagnetic device 133, conductors 144 and 56 and L<sub>2</sub>. Due to the closure of this circuit the electromagnetic device 133 is maintained in operated position after electromagnetic device 128 has been deenergized due to the termination of the momentary closing of switch 120 and until the holding circuit is subsequently interrupted by opening of contacts 110 and 111 of the limit switch 36. Closure of contact bank 131 energizes the solenoid 87 which serves to remove the brake 82 from the driven clutch member 65 so that the synchronous motor 51 which is rotating as described above will rotate pointer 32 in a clockwise direction as viewed from the front of panel 30. The circuit for energizing solenoid 87 comprises L<sub>1</sub>, station switch 141, conductor 55, contact bank 131, conductor 151, contact bank 137 of relay 125, conductor 152, solenoid 87, conductors 153 and 56 and L<sub>2</sub>. Closing of the contact bank 131 of relay 123 also energizes the lamp 40 to effect illumination of the word "Bid" on the member 41 of the indicating panel 30. The circuit for energizing lamp 40 comprises L<sub>1</sub>, station switch 141, conductor 55, contact bank 131, conductor 150, lamp 40, conductor 56 and L<sub>2</sub>. Opening of contact bank 132 serves to deenergize the lamp 42 which illuminates member 43 upon which the term "Sold" appears and in addition serves to deenergize solenoid 101 of the resetting mechanism so that spring 109 raises cam contacting roller 93 to the position shown in Figure 4. Closure of contact bank 129 serves to place a source of potential across the energizing circuit of the electromagnetic device 140 of relay 124.

From the above description, it is apparent that momentary closure of contactor 120 by operation of the teletypewriter printing device results in (1) sounding of the gong 44, (2) energizing of relay 123 which in turn causes (3) lamp 42 to be extinguished, (4) causes lamp 40 to be energized, (5) deenergizing solenoid 101 of the resetting mechanism, (6) completes holding circuit of relay 123, (7) causes operation of brake 82 to permit rotation of pointer 32 and (8) conditions the energizing circuit of relay 124 in which contactor 121 is positioned.

Unless solenoid 101 of the pointer resetting mechanism is energized, the pointer will continue to rotate until the cam surface 39 on the limit switch actuating bar 35 engages actuating stud 37 which serves to open the contacts of limit switch 36. Opening of contacts 110 and 111 of the limit switch serves to break the holding circuit for the electromagnetic device 133 which operates to open contact banks 129, 130 and 131 and to close contact bank 132. Opening of contact

bank 131 serves to deenergize solenoid 87 thus permitting the brake 82 to be applied to driven clutch member 65 which stops the rotation of the pointer 32. Closure of contact bank 132 energizes the circuit of lamp 42 which causes the word "Sold" to be illuminated and energizes solenoid 101 which causes the resetting mechanism to operate to return the pointer 32 to its starting position. Opening of contact bank 131 serves also to deenergize lamp 40. With the system in this condition, contactor 120 can be operated to initiate another cycle of operation.

If, prior to the time the limit switch actuating bar 35 opens the limit switch, a character key corresponding to the period (.) is depressed in one of the selling stations, the type bar having mounted thereon the period (.) character in each of the printers in the various stations connected to the network including the printer in the transmitting station, will be selected and moved to record a character impression on the tape and contactor 121 will be momentarily closed. Upon the closing of contactor 121 a circuit is completed to energize electromagnetic device 140 of relay 124 which comprises L<sub>1</sub>, station switch 141, conductor 55, contactor 121, conductor 154, contact bank 129, conductor 155, electromagnetic device 140, conductors 144 and 56 and L<sub>2</sub>. Upon energization of electromagnetic device 140, contact banks 138 and 139 are bridged which establish circuits for energizing gong 44 and relay 125. The circuit for energizing the gong 44 thus completed comprises L<sub>1</sub>, station switch 141, conductors 55 and 145, contact bank 139, conductor 147, coil 45, conductor 56 and L<sub>2</sub>. When contact bank 138 is closed electromagnetic device 135 of relay 125 is energized by a circuit comprising L<sub>1</sub>, station switch 141, conductors 55 and 145, contact bank 138, rectifier 134, conductors 144 and 56 and L<sub>2</sub>. The electromagnetic device 135 is connected across the direct current output terminals of the rectifier as shown in Figure 2. Energization of electromagnetic device 135 in this manner serves to close contact bank 136 and open contact bank 137 and this condition will exist for a short duration of time after the momentary energization of relay 124 due to the time delay characteristic of the electromagnetic device 135 as has previously been described. Opening of contact bank 137 serves to deenergize solenoid 87 thus permitting the driven clutch member 65 to be stopped by application of the brake 82. Closure of contact bank 136 serves to energize the solenoid 101 of the resetting mechanism which operates to return the pointer 32 to the starting position. The circuit for energizing solenoid 101 comprises L<sub>1</sub>, station switch 141, conductor 55, contact bank 131 of relay 123, contact bank 136 of relay 125, conductors 156 and 142, solenoid 101, conductors 157, 153 and 56 and L<sub>2</sub>. It will be understood that relay 125 remains in its operated position for a time interval sufficient to permit the brake to stop the rotation of the pointer and the resetting mechanism to return the pointer to starting position. At the termination of a predetermined time interval the deenergized electromagnetic device 135 permits the bridging members to drop to the positions indicated in Figure 2 which re-establishes the circuit to the solenoid 87 which serves to release the brake 82 and permit the pointer to be rotated from its starting position by the synchronous motor and, in addition, the opening of contact bank 136 serves to deenergize solenoid 101 of the resetting mechanism. This cycle of operation



will take place in all of the stations each time the type bar bearing the period (.) character is actuated, assuming, of course, that it is actuated prior to the time the limit switch 36 is opened by limit switch actuating bar 35.

As above described, the selling control system and selling machine of the present invention is particularly adapted for use in the auction selling of perishable foodstuffs such as fruits or vegetables where the sellers and the competitive buyers are located at a plurality of geographically remote points. In this use of the selling control system the operation is as follows:

At the time of packing the fruit or vegetables, prior to their offer for sale, a United States Government Inspector executes a United States Government inspection certificate which sets forth the quantity, kind, size, brand, standard grade, condition, method of packing and any other required information. In addition, the certificate sets forth the number of the railroad car in which the fruit or vegetables have been loaded ready for despatch when sold, thus providing full identification of the packed fruit or vegetables. In this specification a railroad carload is used as a unit of sale but other units may be used where identification is possible such as a truck with a legal registration number attached.

The information set forth on the United States Government inspection certificate is as soon as possible transmitted from the packing house, where the inspection has taken place and where the railroad car is still standing, to the nearest selling station on the electrical circuit where the selling machine is installed. As the certificate information is recorded on the teletypewriter machine in any selling station it is automatically and simultaneously recorded on a similar teletypewriter machine in every selling station on the electrical circuit as all such teletypewriter machines are linked together for simultaneous printing in the usual manner. When the certificate information is so recorded in every selling station it is immediately reproduced on a duplicating machine in every selling station to provide a copy for each of the wholesale buyers in the vicinity of each selling station. At the end of each day, or during the day as required, the wholesale buyers who are invited to attend the sale are provided with a complete set of copies of the certificate information and which are to be the subject of the sale the next business day. Each certificate copy has been given a lot number and a summarized catalog of the whole is attached showing the lot numbers and carload numbers to be sold. The information so supplied enables the wholesale buyers to correctly estimate the value of each separate lot. The sale of each lot is completed on an F. O. B. basis.

At a given time the wholesale buyers assemble at the various selling stations and the sale opens under the control of a sales controller at the headquarters of the selling stations with a sales controller at each separate selling station.

The sales controller at headquarters causes to be sent out a signal on the teletypewriter machine, which may be LLL, which signal is recorded on all the teletypewriter machines on the electrical circuit, and the operators upon receipt of the signal close the station switch 141 and so energize the motor 51, light sources 24 and motor 21 (circuits for these latter two elements not shown). Closure of switch 141 in each of the selling stations on the electrical network serves to illuminate the word "Sold" and start the syn-

chronous motor 51 and operate the resetting mechanism to reset the pointer to its starting position. Each of the selling machines is then conditioned for undertaking and facilitating the selling of the fruit or vegetables identified by the lot number and by the respective United States Government inspection certificate.

The lot number corresponding to the United States Government inspection certificate relating to a particular unit of fruit or vegetables to be sold is transmitted on the instruction of the sales controller at headquarters by the operator at headquarters printing the lot number on the tape 18 from which tape the lot number is projected on the screen 31 of each selling machine at each of the selling stations on the electrical network and in full view of the assembled wholesale buyers.

The lot number appears on the screen, for example, as "Lot 1" which indicates to each of the prospective buyers watching the selling machines in each of the selling stations that the fruit or vegetables described on the United States Government inspection certificate bearing the notification "Lot 1" is being offered for sale. The operator at the headquarters selling station then transmits a comma (,) character which causes the contactors 120 in each of the selling machines in each of the selling stations on the electrical circuit to momentarily close resulting in the sounding of the gong, extinguishing of the light 42 resulting in the disappearance of the word "Sold" and the illumination of the word "Bid" and the starting of the pointer 32 from its initial position. During the rotation of the pointer 32 the selling machine is in readiness to receive bids at any selling station in respect to "Lot 1." The selling station 11, for example, may be in Chicago and if a buyer located at that station makes a bid of \$2.00 per box for the fruit described in the United States Government inspection certificate corresponding to "Lot 1," the bid is transmitted by the operator of the teletypewriter machine in the Chicago selling station by striking the characters "C 2.00" which indicates that a Chicago buyer has bid \$2.00 per box for the contents of the carload. In addition, the characters "C 2.00" are projected from the tape on to the screen in the manner previously described and the characters appear on the screen of every selling machine on the electrical circuit so that the buyers assembled in all the selling stations are aware of the existence of the bid. As the bid is recorded on each of the selling machines and as the teletypewriter is printing the period (.) in each of the selling stations including the transmitting station, as previously set forth, the closure of the switch 121 causes the pointer 32 to be reset to its starting point from which it immediately starts to rotate clockwise around the dial. If a buyer at any one of the selling stations desires to make a higher bid he must do so before the pointer reaches a predetermined point on the dial, for example the Figure 8 representing a period of eight seconds after the previous bid has been made. Therefore, if a buyer at, for example, Washington, desires to make a bid of \$2.10 and it is accepted by the controller, the operator at the Washington Selling Station transmits the characters "W 2.10" which are in turn recorded simultaneously at all the selling stations on the electrical circuit as was the previous bid. Again the switch 121 at each of the selling stations is operated automatically to reset the pointer 32 of the time indicator and another period is initiated for the receiving of a

higher bid. Consecutively higher bids are invited and may be made at any one of the selling stations on the electrical circuit and are in turn simultaneously transmitted to all of the selling stations as described.

The dial pointer 32 of the indicator which is driven at a constant speed by the synchronous motor of the timing device shows the time that has elapsed since the last bid shown on the screen 31 has been received. If no new bid is received at any selling station within a predetermined time, as for example eight seconds after which the pointer 32 reaches the numeral 8 on the dial 34, the limit switch actuating bar 35 will operate to open the limit switch 36 at each of the selling stations. The relay 123 will then be deenergized which in turn causes the word "Sold" to be illuminated by light 42, the lamp 40 will be extinguished and so the word "Bid" will disappear and the pointer 32 will return to its starting point by the resetting mechanism in readiness for the next selling operation and the offering of Lot 2.

As a result of the above operation, the highest bidder recorded on the selling machine in the manner described becomes the owner of Lot 1.

All lots represented by the United States Government inspection certificates and the catalog are offered for sale in the same manner as Lot 1, in numerical order of lot numbers, and when all sales have been completed the selling station switches 141 will be opened at the request of the headquarters sales controller until the time arrives for the holding of another sale.

While the United States Government inspection certificate has been mentioned as the basis of the material description of the fruits and vegetables offered for sale, it is contemplated that a reliable certificate acceptable to the producers, shippers and buyers will be used if desired.

All the limit switch actuating arms in the various selling machines are adjusted to open the limit switches at the same point of angular rotation of the pointer 32 and the coil 54 of the synchronous motor in each of the selling machines is energized from an alternating current source of the same frequency. In addition, the time delay in the operation of relay 125 is adjusted to be the same in each of the selling machines. Thus the limit switches in all of the selling machines will operate at the same time to indicate that the lot up for sale has been sold to the last bidder whose bid and station designation appears on the screen 31 and to terminate the sale for the particular lot.

The operation of a transmitter at one of the selling stations on the electrical network will be apparent by the projected images upon the screen and by the operation of the printer and the movement of the tape at each of the selling stations. If a more positive control of the transmitting devices is desired in order to prevent the operation of two transmitters at one time, it is contemplated that any suitable means may be employed to lock the keyboards in all but one station when that selling station is transmitting, or signal lights or the like may be used to indicate that the transmitting device of one of the selling stations on the electrical network is in use. Such means are known to persons skilled in the art and are not described in detail herein. The attendance of sales controllers in all the selling stations will also supervise the bidding and if there should be two or more bids at any one selling station during the offering of a lot and at approximately the same time, it will be the duty

of the sales controller to decide which bid is to be accepted in accordance with the usual rules of selling by auction. Furthermore, it is contemplated that other visual indicating means, such for example as a "teleregister" mechanism wherein rotating elements having characters thereon are moved behind an aperture in a panel to correspond with the characters operated on the printer, could be employed in place of the projection device described above and other forms of tape moving mechanism could be used in place of the mechanism disclosed without exceeding the scope of this invention.

This application is directed to improvements of the communication and signal system disclosed in my prior application Serial No. 223,761, filed August 8, 1938, which issued as U. S. Letters Patent 2,266,826 on December 23, 1941.

Having thus described the invention with particularity with regard to its preferred forms, it will be obvious to those skilled in the art, after understanding the invention, that various other changes and modifications may be made therein without departing from the spirit and scope of the invention, and it is desired in the appended claims to cover all such changes and modifications as are within the scope of the invention.

I claim:

1. In a selling control system of the character described for facilitating the sale of produce or the like by competitive bidding from a plurality of remotely located stations, an electrical network having connected thereto a plurality of stations each of which is provided with a transmitting unit and a receiving unit, said receiving units operable to receive simultaneously bids transmitted over said network and originating from a transmitting unit located at any of said stations, means at each station for indicating the successive bids transmitted over said network and received by said receiving unit at said each station, means at each station actuated in response to the operation of said receiving unit to indicate the time interval between successive bid transmissions and means at each station actuated in response to the operation of said receiving unit for operating visual indicating means after a predetermined time following the transmission of a bid if other bids are not received within said predetermined time to indicate termination of bidding.

2. In a selling control system of the character described for facilitating the sale of produce or the like by competitive bidding from a plurality of remotely located stations, an electrical network to which are connected a plurality of stations each of which is provided with a transmitting unit, a receiving unit and an indicating means comprising a rotatable element, means for rotating said rotatable element and resetting means for returning said rotatable element to a predetermined position, means for simultaneously initiating rotation of said rotatable element at each of said stations in response to reception of a preselected group of one or more impulses, and means for simultaneously actuating the resetting means at each of said stations in response to reception of a different preselected group of one or more impulses.

3. In a selling control system of the character described for facilitating the sale of produce or the like by competitive bidding from a plurality of remotely located stations, an electrical network to which are connected a plurality of stations each of which is provided with a transmit-

ting unit, a receiving unit and an indicating means comprising a rotatable element, means for rotating said element and a resetting mechanism for returning said rotatable element to a predetermined position, means associated with the receiving unit at each of the stations for simultaneously initiating operation of said rotatable element by said element rotating means at each station in response to reception of a preselected group of one or more impulses, and means operable during a predetermined time of travel of the rotating element and controlled by a second means associated with the receiving unit at each of the stations actuated in response to reception of a different preselected group of one or more impulses for simultaneously actuating said resetting mechanism at each of the stations to return said rotatable element to a predetermined position.

4. In a selling control system of the character described for facilitating the sale of produce or the like by competitive bidding from a plurality of remotely located stations, an electrical network to which are connected a plurality of stations each of which is provided with a transmitting unit, a receiving unit and an indicating means comprising a rotatable element, means for rotating said element and a resetting mechanism for returning said rotatable element to a predetermined position, means associated with the receiving unit at each of the stations for simultaneously initiating operation of said rotatable element by said element rotating means at each station in response to reception of a preselected group of one or more impulses, means operable during a predetermined time of travel of the rotating element and controlled by a second means associated with the receiving unit at each of the stations actuated in response to reception of a different preselected group of one or more impulses for simultaneously actuating said resetting mechanism at each of the stations to return said rotatable element to a predetermined position and control means at each station operated by said element rotating means for effecting actuation of said resetting mechanism after the rotatable element has been rotated for a predetermined period of time.

5. In a selling control system of the character described in which a plurality of subscriber stations are interconnected by an electrical network and in which a transmitting device and a receiving device having at least two movable elements operable in response to predetermined impulses received over the network are provided at each station, the combination of an indicating means comprising a rotatable element, means controlled by one of said movable elements for initiating rotation of said rotatable element, means for resetting the rotatable element to a predetermined position and means controlled by another of said movable elements for actuating said resetting means to reset the rotatable element to said predetermined position.

6. In a selling control system of the character described in which a plurality of subscriber stations are interconnected by an electrical network and in which a transmitting device and a receiving device having at least two movable elements operable in response to predetermined impulses received over the network are provided at each station, the combination of an indicating means comprising a rotatable element, means for rotating said rotatable element, braking

means for controlling the rotation of said rotatable element, means for resetting the rotatable element to a predetermined position, means controlled by one of the movable elements of said receiving device for actuating the braking means to permit the rotatable element to be rotated by said rotating means and means controlled by another of said movable elements of the receiving device for actuating the brake means to stop rotation of said rotatable element and for actuating the resetting means to reset said rotatable element to said predetermined position.

7. In a selling control system of the character described in which a plurality of subscriber stations are interconnected by an electrical network and in which a transmitting device and a receiving device having at least two movable elements operable in response to predetermined impulses received over the network are provided at each station, the combination of an indicating means comprising a rotatable element, means for rotating said element, a resetting mechanism for returning said rotatable element to a predetermined position, means controlled by one of the movable elements of said receiving device for initiating rotation of said element, means operable during a predetermined distance of travel of said rotatable element and controlled by another of said movable elements of the receiving device for actuating said resetting mechanism and control means operated by said element rotating means for effecting actuation of said resetting mechanism after the rotatable element has been rotated to a predetermined position.

8. In a selling control system of the character described in which a plurality of subscriber stations are interconnected by an electrical network and in which a transmitting device and a receiving device having at least two movable elements operable in response to predetermined impulses received over the network are provided at each station, the combination of an indicating means comprising a rotatable element, means for rotating said element, a light source, a sound device, means controlled by one of said movable elements of said receiving device for initiating rotation of said rotatable element and for energizing said light source and momentarily energizing said sound device, a resetting mechanism for returning said rotatable element to a predetermined position, means operable during a predetermined distance of travel of said rotatable element actuated by another of said movable elements of the receiving device for energizing said sound device and actuating the resetting mechanism to return the rotatable element to said predetermined position.

9. In a selling control system of the character described in which a plurality of subscriber stations are interconnected by an electrical network and in which a transmitting device and a receiving device having at least two movable elements operable in response to predetermined impulses received over the network are provided at each station, the combination of an indicating means comprising a rotatable element, means for rotating said element, a light source, a sound device, means controlled by one of said movable elements of said receiving device for initiating rotation of said element and for energizing said light source and for momentarily energizing said sound device, a resetting mechanism for returning said rotatable element to a predetermined position, a second light source, means operable during a predetermined distance of travel of said rotatable element

actuated by another of said movable elements of the receiving device for energizing said sound device and effecting actuation of the resetting mechanism to return the rotatable element to said predetermined position and means operable upon said rotatable element reaching said predetermined distance of travel for deenergizing said first light source, energizing said second light source and said sound device and actuating said resetting mechanism.

10. A timing device comprising a first shaft, a pointer and cam mounted upon said shaft, a second shaft, a driving connection between said first and second shafts comprising a clutch, a third shaft, a driving connection between said second and third shafts comprising a driven clutch member mounted upon said second shaft, a driving motor for rotating said third shaft, releasable brake means for said driven clutch member and actuating means for moving said cam to rotate the pointer to a predetermined position.

11. In a selling machine of the character described, a printing device having at least two movable control elements, a time indicating device having a rotatable element, a resetting mechanism for returning said rotatable element to a starting position, means actuated by one of the movable control elements of said printing device for initiating rotation of said rotatable element, means controlled by another of said movable control elements of said printing device for operating said resetting mechanism and means operable by said time indicating device upon a predetermined rotation of said rotatable element for rendering said printing device ineffective to control said second means.

12. In a selling control system of the character described for facilitating the sale of produce or the like by competitive bidding from each of a plurality of remotely located stations, means for

transmitting a bid originating at any one station to each of the stations, means at each of the stations for receiving and indicating the receipt of a bid transmitted from any station, means at each station to indicate the time interval between successive bid transmissions and means at each station for operating indicating means after a predetermined time interval following the transmission of a bid if another bid is not received within the predetermined time interval.

13. A timer device comprising a shaft including a plurality of axially aligned sections, a pointer mounted upon one of said sections, a motor for driving said section upon which said pointer is mounted, friction means disposed intermediate the motor and said section upon which the pointer is mounted, and electromagnetically actuated means for independently controlling rotation of the shaft sections.

14. In a selling control system for facilitating the sale of produce or the like by competitive bidding from a plurality of remotely located stations, the combination of a plurality of stations each of which is provided with a transmitting unit, a receiving unit and an indicating means comprising a rotatable element, means for operating the receiving unit at all of said stations in response to the operation of the transmission unit at any one of said stations, means for rotating said rotatable element and resetting means for returning said rotatable element to a predetermined position, means for simultaneously initiating the rotation of said rotatable element at each of said stations in response to the reception of an impulse of a predetermined character, and means for simultaneously actuating the resetting means at each of said stations in response to the reception of an impulse of a different predetermined character.

HARRY H. STOCKFELD.