Feb. 7, 1928. 1,658,516

R. L. DAINE

METHOD AND APPARATUS FOR INDICATING QUOTATIONS OR OTHER ITEMS

Filed Sept. 17, 1927 4 Sheets-Sheet 1

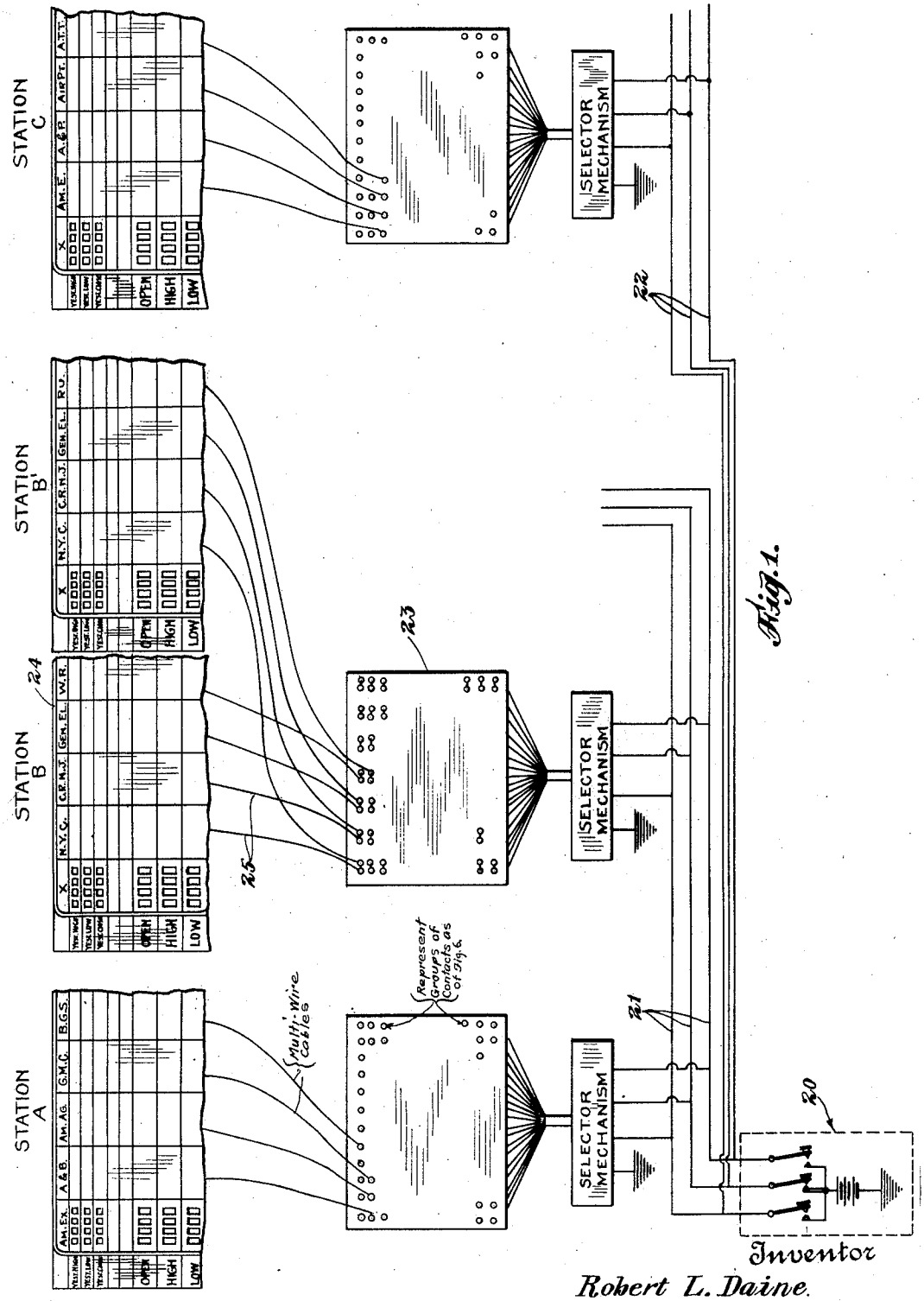


Fig. 1.

Robert L. Daine.

By his Attorney

Ward, Crosby & Smith

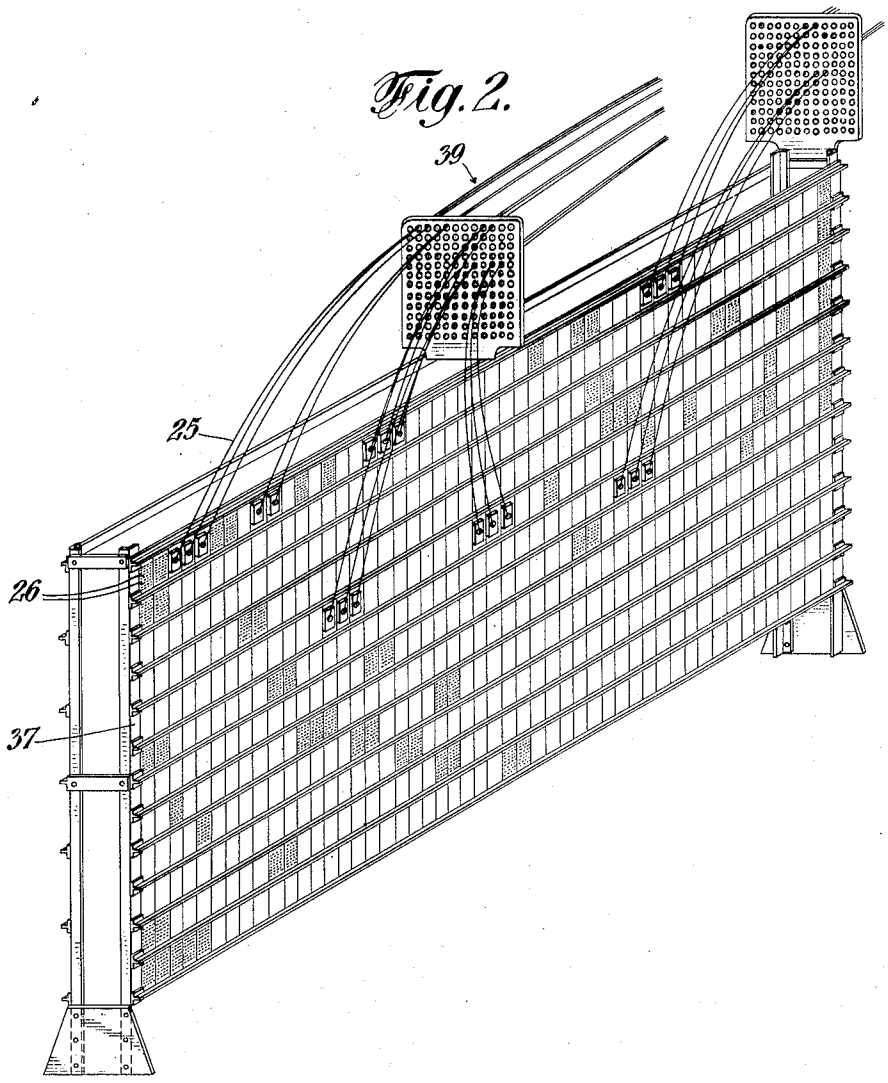
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R. L. DAINE

METHOD AND APPARATUS FOR INDICATING QUOTATIONS OR OTHER ITEMS

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Fig. 2.



Inventor
Robert L. Daine.

By his Attorneys
Ward, Crosby & Smith

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R. L. DAINE

METHOD AND APPARATUS FOR INDICATING QUOTATIONS OR OTHER ITEMS

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Fig. 3.

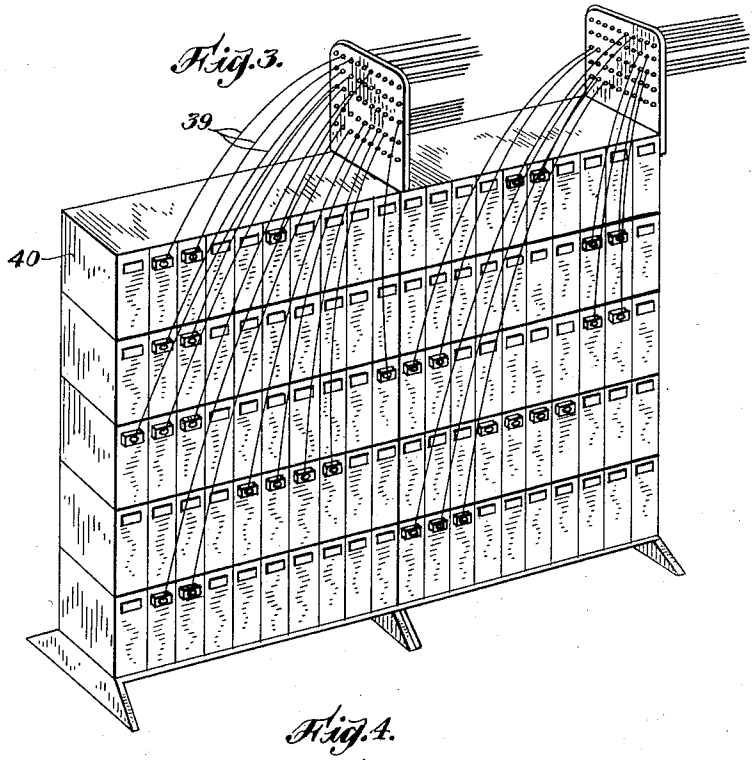


Fig. 4.

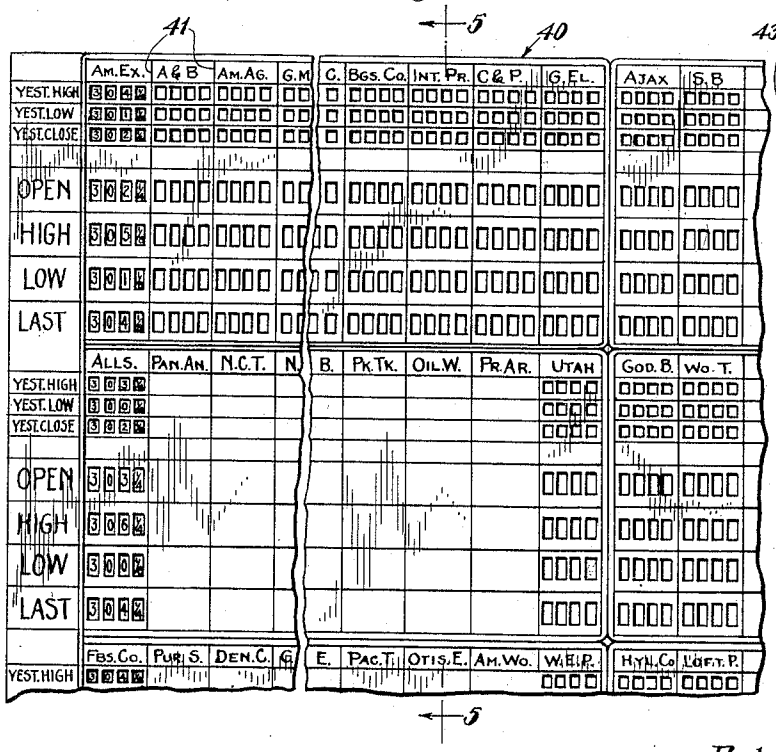
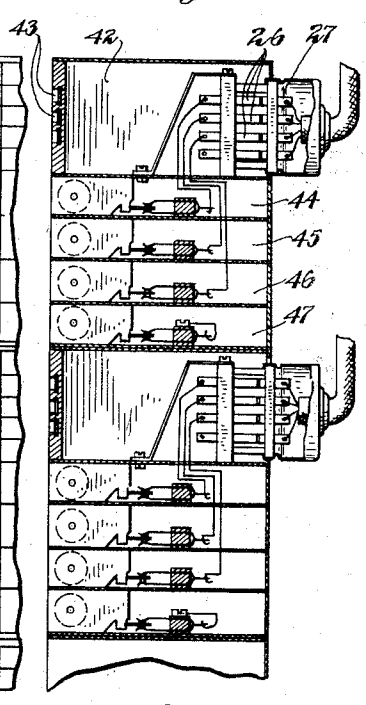


Fig. 5.



Inventor

Robert L. Daine

By his Attorney

Ward, Crosby & Smith

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R. L. DAINE

METHOD AND APPARATUS FOR INDICATING QUOTATIONS OR OTHER ITEMS

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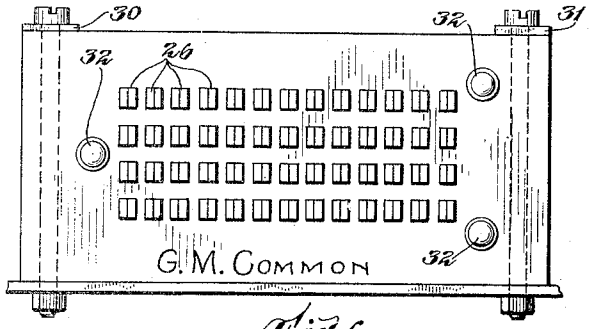


Fig. 6.

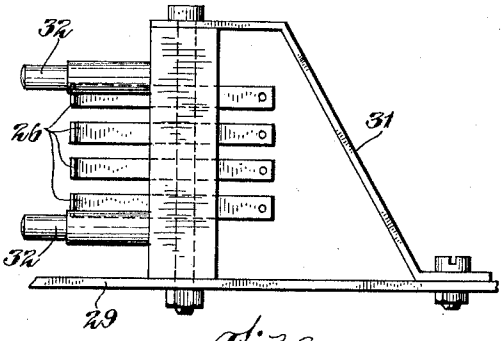


Fig. 8.

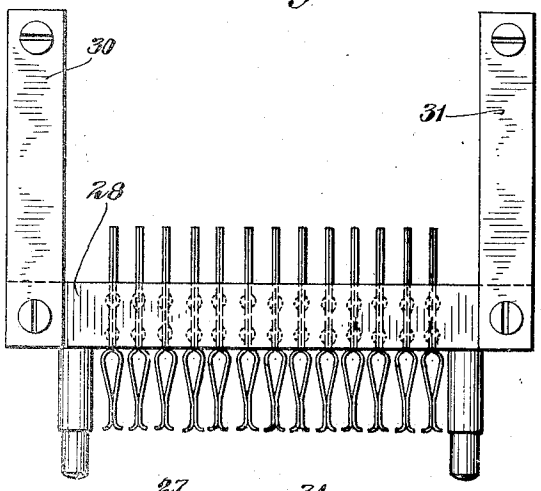


Fig. 7.

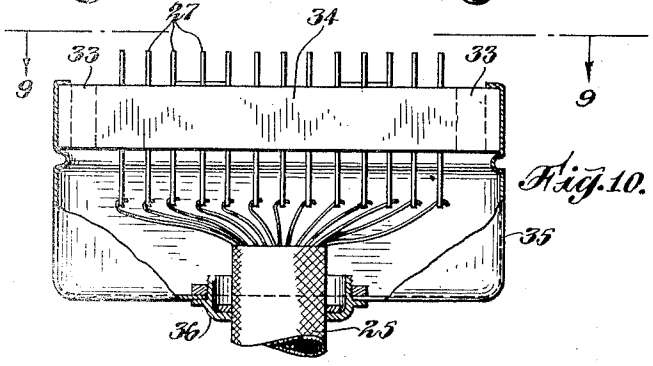


Fig. 10.

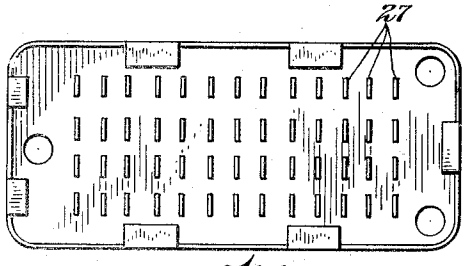


Fig. 9.

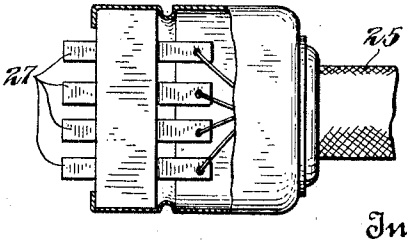


Fig. 11.

Inventor
Robert L. Daine

By his Attorney
Ward, Cosby & Smith

Patented Feb. 7, 1928. 1,658,516

UNITED STATES PATENT OFFICE.

ROBERT L. DAINE, OF NEW YORK, N. Y.

METHOD AND APPARATUS FOR INDICATING QUOTATIONS OR OTHER ITEMS.

Application filed September 17, 1927. Serial No. 220,244.

This invention relates to signaling or indicating apparatus and equipment and also to methods of indicating or posting numerous quotations, as of stocks and commodities or other items.

The objects of this invention include the provision of equipment and methods of the above indicated class, which are dependable, relatively simple and efficient, and adapted to a wide variety of operating conditions.

Various further and more specific objects, features and advantages will clearly appear from the detailed description given below taken in connection with the accompanying drawings which form a part of this specification and illustrate, merely by way of example, one embodiment of the invention.

The invention consists in such novel features, arrangements and combinations as may be shown and described in connection with the apparatus herein disclosed by way of example only and as illustrative of a preferred arrangement, together with the novel methods and steps of the processes described herein.

In the drawings, Fig. 1 is a schematic view illustrating one arrangement embodying the invention;

Fig. 2 is a perspective view of a receiving station distributing panel;

Fig. 3 is a perspective view showing the rear of a receiving station indicating board;

Fig. 4 is a front elevational view showing in part the board of Fig. 3;

Fig. 5 is a typical sectional view taken, for example, substantially along the line 5—5 of Fig. 4;

Figs. 6, 7 and 8, respectively, are elevational, plan and end views showing the details of a typical plug jack as used upon the board of Fig. 3 and the distributor panel as of Fig. 2; and

Figs. 9, 10 and 11, respectively, are views partly in section corresponding to Figs. 6, 7 and 8, but showing a typical portable interchangeable plug member for use in making interchangeable connections between the jacks of distributor boards as of Fig. 2 and the indicating boards as of Fig. 3.

Referring to Fig. 1, the arrangement there shown somewhat schematically may comprise a central transmitting station, as at 20, which may be common to a number of receiving stations, such as are designated "A", "B", "B'" and "C".

The invention, according to one of its phases, is particularly adapted to the transmission of stock and commodity quotations or the like items from a stock exchange or other centralized source of information to a plurality of brokers' offices or other stations at which it is desired to indicate or post the fluctuating quotations of at least a certain relatively small group or part of the large number of items dealt in at an exchange or at various exchanges.

The various stations at which the indications are to be posted may be located either in the neighborhood of the central station or at widely separated or distant points. In the diagram shown a small group of line wires, as at 21, is provided in common for a plurality of receiving stations, such as stations "A", "B" and "B'", and if desired, certain of the stations, such as station "C", may be provided with an independent group of line wires, as at 22, running directly to the transmitter 20.

Although a multitude of items may be dealt in on each stock or commodity exchange, it is, of course, desirable that quotations from all such items should if possible be transmitted over a relatively small number of wires, yet with provision being made for transmitting all or substantially all the prevailing quotations in order to make available to each broker a wide range of quotations to choose from.

Also, if desired, according to certain aspects of the invention, more than one transmitting station may be used with a single group or separate groups of line wires to provide, for example, for the sending of quotations from the various commodity exchanges as well as from the various stock exchanges of the country.

The transmitter 20 is here represented diagrammatically in the form of a number of manually operable circuit-closing keys, one for each of the small number of line wires. However, it will be appreciated that various forms of automatic or semi-automatic or other transmitters of impulses may be provided at 20, according to general principles already known to the art. Under some circumstances arrangements such as shown in the patent to Haight No. 473,174, April 19, 1892, and the other patents referred to therein, may be adapted to such purposes, or, if desired, suitable adaptations or groups of transmitting means such as disclosed in the British patent to Favarger

& Cie. No. 192.055, of April 3, 1924, may be utilized. Such transmitters will serve to transmit over a relatively small number of wires, distinctive groups of impulses of current variations representative of the quotations of the numerous listed stocks or commodities, such impulses causing proper operation of the selector mechanism as well as the indicator units as is already understood. Quotation service in respect to all or substantially all of the listed items is thus made available at the various receiving stations or brokers' offices, although as hereinafter explained it will not ordinarily be the practice to utilize at each station the entire service for all quotations at one time.

The general features of a typical receiving and indicating equipment, for example that of stations "B" and "B'" will now be described. The distinctive groups of impulses are conducted by the line wires 21 to suitable selector mechanism, as indicated, whereby the impulses representative of the different stocks are separated and identified and may be applied respectively to corresponding circuit terminals, as here somewhat diagrammatically indicated on a distributor board 23. The distributor board preferably includes a great number of terminals, for example in the form of jacks, one terminal or jack or group thereof being provided for each of the numerous listed items for which provision is made at the transmitter and in the selector mechanism. Provision is made in the selector mechanism for separating the various groups of impulses whereby the same are identified by way of being conducted to the proper terminal or jack on the distributor board. Such selector mechanism may be constructed in various ways, according to principles known in the art, or, if desired, may comprise an adaptation of the systems shown in the patent to Haight above referred to, or the mechanism and systems described in the British patent above mentioned. If desired, the apparatus disclosed in said British patent may more readily be used in the quotation of a multitude of stocks, etc., by incorporating therewith various features shown in other patents as follows:

British patent to Favarger & Cie, No. 224,872, April 9, 1925.

Swiss patent to Favarger & Cie, No. 113,-067, January 2, 1926.

Swiss patent to Favarger & Cie, No. 113,-465, January 16, 1926.

Although it is desirable to provide quotation or indicating service at the numerous receiving stations or brokers' offices which makes provision for substantially all of a multitude of listed items, yet many of such items will not be of sufficient interest at most of these stations to justify the space and expense necessary for a corresponding number of posting devices or indicators. In fact, each broker will ordinarily choose to post quotations of only a relatively small number of stocks or commodities. For example, with the New York Stock Exchange, taking into consideration reasonable growth in future years, provision should now be made at the transmitting mechanism for transmitting the quotations of a number of stocks or items in the neighborhood of 1200. It is the custom to post the "opening", "high", "low" and "closing" quotations of each stock, and each figure quoted may comprise as many as three digits and a fraction value, so that the equivalent of sixteen digit or unit indicators must be provided for each of 1200 items. This would make necessary a quite prohibitive number of indicating units at each of the broker's offices if an attempt were made to post all listed stock quotations at all offices. The expense as well as the space necessary in the broker's office for such a number of indicators, when made with dial figures of appropriate size, would be greater than is commercially feasible. In view of this difficulty, the provision of brokers' stock indicating boards giving the necessary range of flexibility of service and automatically actuated either from a central point or otherwise, has not heretofore been possible of accomplishment.

Yet each broker and his group of customers are generally particularly interested in only a relatively limited number of stocks or items. For example, a typical manually attended broker's board has provision for posting the quotations for a maximum of approximately 100 stocks, and although some of the particular stocks or items chosen for posting are varied from time to time, the maximum number chosen generally remains below a predetermined limit. Also, various stocks or other items are generally arranged differently upon the broker's boards of various different offices, either according to groups such as "Industrials", "Rails" and "Public Utilities", or according to the desired prominence of certain stocks of particular interest to the broker. It is therefore also desirable to make provision for rearrangements of the various groups or separate stocks or items on the board from time to time, and in fact changes in stock market listings may render such rearrangements substantially necessary for practical installations, and this has, therefore, added a further difficulty to the automatic operation of brokers' boards, since the necessarily complex wiring or operating means does not lend itself to such flexibility, in the absence of some special provision to that end.

According to my invention, I have obviated the above difficulties by providing a number of like or similar indicating devices at each broker's office, capable of indicating interchangeably numerous of the

items and substantially corresponding in number to the desired chosen number of stocks to be indicated at that office, and have made provision whereby each of such indicator units may be interchangeably connected with the terminal jacks of the circuits corresponding to the various groups of quotation impulses identified on the receiving station terminal board. Such arrangement provides substantially universal flexibility as to which stocks are chosen for posting and as to the arrangement of the quotations for the various stocks on the broker's board. Different lists of stocks or other items may thus be independently chosen at the different stations to suit varying requirements. According to the diagram shown in Fig. 1, station "B", for example, is provided with an indicating board 24 (shown only in part) having a relatively limited number of indicating devices providing for, say 100 stocks, any of which may be connected by interchangeable flexible lead wires, as at 25, with any one of the jacks on the distributor board 23, quick-detachable plugs being provided at each end of the flexible lead wires, as will be hereafter further described in detail. If two or more receiving stations or brokers' offices are located within the same or adjacent buildings, the necessity for duplicating certain parts of the apparatus such as the selector mechanism and distributor board may be obviated, as for example is the case with stations "B" and "B'", as indicated. In that event two or more offices, such as stations "B" and "B'", may be provided with service from a single terminal board 23, and double or multiple jacks may be used as indicated, providing for the insertion of plugs from each receiving station into the jacks corresponding to all items provided for on the terminal board.

With the arrangement as above described, the proprietor of each station may, on a moment's notice, change either the arrangement of his indicating board or the particular stocks shown thereon, and he may choose and indicate any of the stocks for which permanent or semi-permanent provision is made at the transmitter and selecting mechanism. The necessary flexibility of service and arrangements for a practical automatic broker's indicating board is thus provided in a relatively simple manner.

The particular forms of plugs and jacks illustrated in Figs. 6 to 11 inclusive which may be utilized with the distributor boards 23, and indicating boards will now be described in further detail. In the schematic diagram of Fig. 1, each of such jacks which may comprise a total of 52 separate contacts is indicated for simplicity merely as a single small circle. In the distributor board for stations "B" and "B'", small pairs of circles are used to indicate pairs of such plug jacks providing for the two stations. The 52 contacts on each jack provide the necessary circuit terminals for indicating devices of one stock or other item, since, as above indicated, 16 indicator units are provided for each stock, and it is also desirable to provide two circuit wires and a return wire to each indicator, or a total of three terminals per indicator unit. With such provision, one circuit to the indicator may be used for the normal operation thereof, while the other circuit may be used to restore the indicator to a certain predetermined or zero position. Thus, 16 indicating units multiplied by 3 terminals per unit makes necessary 48 terminals per stock, and 4 extra terminals are provided as spares, making a total of 52 terminals for the plug and jack of each stock.

The jack terminals are indicated in the figures by the numeral 26, and may comprise cooperating pairs of resilient spring contacts adapted to embrace plug blade contacts, as at 27, provided on the plug members (see Figs. 9, 10 and 11). The contacts 26 may be embedded or otherwise retained within a suitable block of insulating material, as at 28, supported for example upon a member 29 forming a part of the framework of the broker's board. The upper edge of the block of insulation 28, if desired, may be secured by brace members, as at 30 and 31. In order that the terminals may be brought into proper alignment with the plug terminals and retained in such alignment, a number of spaced plug members or dowel pins (for example, 3 in number), as at 32, may be fixed within the block of insulation 28 and adapted to be received within correspondingly spaced apertures 33 formed in the plug member.

The above described jack members may be mounted in side-by-side relationship upon the brokers' distributing boards as shown on the board section of Fig. 2 and, if desired, each may be marked with an appropriate legend indicating the stock or other item with which it is identified. One method of mounting the jacks on the indicator board is shown in Figs. 3 and 5.

Each of the flexible lead wires 25, as is indicated in Figs. 10 and 11 may comprise a 52 wire cable, the respective wires at each end of the cable being connected to jack terminal contacts 27. The contacts 27 may be embedded within a suitable block of insulating material, as at 34, in the manner corresponding to the mounting of the terminals 26. A suitable sheet metal housing 35 may be provided to receive the insulating member 34 as well as to enclose the connections within the plug. The cable may be embraced at its end by suitable retaining rings, as at 36, at the point where the cable passes into the housing 35. It is apparent that the

plugs and jacks might be interchanged, that is if desired, the jack terminals might be mounted in the casings 35, in which case the plug terminals 27 would be mounted in fixed position upon the distributor board and indicator. If desired, according to certain phases of the invention, permanent fixed connections to the flexible lead wires may be made at the indicator boards, detachable plugs being used only at the distributor boards. In either case, a durable, quick-detachable and interchangeable arrangement of indicators, plugs and jacks may be readily provided for the accomplishment of the above described purposes.

Referring again to Fig. 2, the distributor board terminal jacks may be conveniently arranged, as shown, in groups with 600 jacks in each group arranged along one side of framework as at 37.

The flexible lead wires or cables 25 may be assembled at a point near the distributor board into a group as at 39, this group of cables extending through suitable conduits if desired to another room in the building where the indicator board is to be located. With such arrangement, the selecting devices or mechanism may be conveniently located at a point where space is less valuable than in the broker's board room and whereby annoyance due to any noise or other disturbance arising from the selector mechanism may be eliminated.

Referring in further detail to Figs. 3, 4 and 5, the group of lead wires 39 are shown as brought to a position adjacent the indicator board such that the plug terminals upon the cables may be inserted in the jacks of any part of the board. As indicated in Fig. 4 (partly broken away), the board may be divided into sections as at 40, each having indicators for posting quotations of, say 10 stocks. To provide a board with capacity for 100 stocks, two tiers of such sections with 5 sections in each tier may be arranged, as indicated in Fig. 3. The manner in which the jacks may be mounted within such sections is indicated in Fig. 5. The sections may be divided by vertical partitions along the lines 41 separating the indicator mechanism for each stock. The compartments thus formed for each stock may be subdivided to form a compartment 42 for receiving the jack. The end wall or front of this compartment may provide space as at 43 for exhibiting number cards showing the market prices for the previous day in the usual manner and also including the legend showing which stock is being indicated by the mechanism of such compartment. The lower portion of the compartment for each stock may be subdivided into compartments as at 44, 45, 46 and 47, each containing the group of four indicator units or drums utilized in quoting either an opening, high, low or last quotation, as the case may be. One form of indicator unit with which this invention may be utilized is described in further detail in the above-mentioned British Patent No. 192,055.

At the initial installation of an automatic broker's board in accordance with this invention, the proprietor may apply to the groups of indicators in the more prominent locations on the board the various indicia or abbreviations for such stock quotations as he desires to have most prominently displayed. The flexible cables from such groups of indicators are, of course, then connected to circuit terminals or equivalent electrical devices on the distributor board bearing corresponding indicia. Indicators for stocks of lesser prominence may be placed at correspondingly less conspicuous sections of the board, but are preferably provided with similar indicia and connecting means. Then, from time to time, as certain stocks become inactive or perhaps other or new stocks assume greater prominence or greater interest to a particular broker's clientele, rearrangements of and changes to the board must be made. However, it is practically impossible to initially determine which stock indicators must later be subject to changes, and, therefore, to provide the desired flexibility, as is done according to the above arrangement, provision should be made, at least with many of the indicators, for interchanging the indicators and flexible connections of one stock with those of other stocks. Thereby each broker is enabled to not only alter from time to time, the arrangement of the stock quotations on his indicating board at will and independently of the other brokers who are supplied with the same service, but he may also discontinue the posting of certain stocks and quickly add others without disturbing the operation of other indicators or the system as a whole. To make such a change, the broker first decides which stock he is to discard from his chosen list, and then he need only remove the corresponding quick-detachable distributor board plug and place such plug in the distributor board jack corresponding to the new stock which he desires to indicate. Although each of the groups of indicators for a particular stock may be independently operative over numerous connection wires, the whole group may thus be quickly changed to indicate a new or different stock without possibility of improper connections or the confusion of the connections of one group with those of another. At times, in order to facilitate changes or rearrangements on the broker's board, the connections may be interchanged by changing the plugs and jacks at the indicator board instead of at the distributor board, although the invention in many of its aspects is not thus

limited. After changes have been made on the indicator board, the indicia of the group or groups of indicators changed, is of course altered to correspond to the new arrangement.

As above set forth, provision may be made at the central station to restore to a zero position each indicator before each new quotation is set up. Therefore, after changes are made in the indicator arrangement, no synchronizing difficulties will be encountered, since the interchanged indicators will be reset to zero upon reactuation.

It will be noted that a sufficient number of plug and jack contacts are provided to permit interchangeability of both branches or wires of each circuit to each indicator. Accordingly, complete interchangeability of indicators is made possible even where both branches of each operating circuit contain complementary selective means, as in the above-mentioned British patent and the patent to Haight No. 473,174, although of course, according to some aspects of the invention, such a number of contacts is not necessary.

While the invention has been described in detail with respect to a particular preferred example thereof which gives satisfactory results, it will be understood by those skilled in the art after understanding the invention, that various changes and modifications may be made without departing from the spirit and scope of the invention and it is intended therefore in the appended claims to cover all such changes and modifications.

What is claimed as new and desired to be secured by Letters Patent of the United States is:

1. Apparatus for transmitting and indicating fluctuating market prices comprising a distributor board having a multitude of electrical circuit terminals, said terminals being provided for each of a great plurality of items quoted in a market or markets, means at least in part common to all of said terminals for transmitting electrical impulses to circuits controlled through said terminals, said impulses being representative of the fluctuating prices of the items corresponding to said terminals, an indicator board separate from the said distributor board comprising a comparatively limited number of electrically operated indicators for showing the prices of particular desired items, and electrical connecting means between said boards whereby said indicators may be severally, operatively and interchangeably controlled at will through various terminals corresponding to such items as are of current interest.

2. Apparatus for transmitting and indicating at a plurality of brokers' offices fluctuating market prices comprising a multitude of electrical circuit terminals, said terminals being provided at each office for each of a great plurality of items quoted in a market or markets, means common to the plurality of offices for transmitting electrical impulses to circuits under the control of said terminals, said impulses being representative of the fluctuating prices of the items corresponding respectively to said terminals, a comparatively limited number of electrically operated indicators at each office for showing the prices of those particular items desired at each office, and connecting means at each office whereby the indicators may be severally, operatively and interchangeably controlled to exhibit such item quotations as are of current interest at each respective office and independently of whatever item quotations are being reproduced by the indicators of other offices.

3. In a system for transmitting and indicating fluctuating market prices of a large number of items comprising a transmitting station and a plurality of receiving stations; apparatus at each receiving station comprising a large number of electrical devices, one for each item, means at the transmitting station associated in common with said plurality of receiving stations for variably energizing said devices in accordance with the price of the corresponding items, a smaller number of electrically operated indicators for showing the prices of a limited number of items, and means whereby said indicators severally and interchangeably, may be made responsive to the energization of said devices.

4. In a system for transmitting and indicating fluctuating market prices of a large number of items comprising a transmitting station and a plurality of receiving stations; apparatus at each receiving station comprising a distributor having a large number of electrical devices, one for each item, said devices being severally energizable upon transmission of quotations of corresponding items, an indicator board comprising a smaller number of electrically operated indicators for showing the prices of a limited number of items, and quick-detachable connection members each alternately adapted to electrically control certain of said indicators through various of said devices whereby said indicators severally and interchangeably may be made responsive to the energization of said devices.

5. Apparatus for transmitting from a central point and indicating at a plurality of stations, varying quotations of a multitude of items, comprising transmitting means for initiating distinctive groups of impulses respectively representative of quotations of the items, a plurality of circuit connections being provided for each of said items and associated with said transmitting means, a relatively limited number of indicators ar-

ranged in a plurality of groups at each station, one indicator group being provided to give the prevailing quotation of each of a limited number of such items which are of special interest at each station, such indicator groups respectively having means adapted to be actuated in response to said impulse groups, and detachable means for controlling each of said limited number of indicator groups alternatively by said circuit connections of various different items and for maintaining such control while quotations are sent to the corresponding indicator groups, one of said detachable means being provided for each of said indicator groups, whereby the indicators may be readily associated in groups with the transmitting means so as to alternatively indicate quotations of any one of a plurality of items as desired.

6. Apparatus for transmitting varying quotations from a central point and indicating the same at a plurality of stations, comprising transmitting means common to said plurality of stations and having permanent provisions for transmitting distinctive impulse sequences representative of the quotations of a multitude of items, each station having means for receiving and identifying such distinctive impulses, indicators arranged in groups for a relatively limited number of chosen items at each station, similar groups being provided respectively for each chosen item, and manually operable means at each station for interchangeably connecting respectively said indicator groups to said receiving and identifying means whereby substantially any chosen limited number of items provided for by said identifying means may be included within the limited number of chosen items to be indicated at each station.

7. Apparatus for transmitting and posting at a plurality of brokers' offices fluctuating market prices of stocks or other items, comprising transmitting means common to said plurality of offices and having substantially permanent provisions for transmitting distinctive current variation sequences representative of the quotations of a multitude of items, each station having means for receiving and identifying such distinctive impulses, a plurality of groups of indicators for posting the quotations of a relatively limited number of chosen items at each station, each such group having provision for indicating a plurality of quotations pertaining to one item such as "open", "high", "low" or "last" prices, and a plurality of independently interchangeable connecting means at each station each individual to one of said groups for bringing and maintaining at one time various of said groups of indicators in operative relationship with said receiving and identifying means.

8. In a system for transmitting and indicating fluctuating market prices of a large number of items comprising a transmitting station and a plurality of receiving stations; apparatus at each receiving station comprising a large number of electrical devices, at least one for each item, means at the transmitting station associated in common with said plurality of receiving stations for energizing said devices respectively upon transmission of quotations of the corresponding items, a smaller number of electrically operated indicators for showing the prices of a limited number of chosen items, and means whereby said devices corresponding to each one of said items may be alternatively connected to control more than one indicator, whereby numerous arrangements of item quotations may be had and the items chosen for posting by the small number of indicators may be varied at any station without disturbing other stations.

9. In a system for transmitting and indicating fluctuating market prices of a large number of items comprising a transmitting station and a plurality of receiving stations; apparatus at each receiving station comprising a large number of electrical devices, one for each item, means at the transmitting station associated in common with said plurality of receiving stations for energizing said devices respectively upon transmission of quotations of the corresponding items, a smaller number of electrically operated indicators for showing the prices of a limited number of items, and means including flexible multi-wire cables with detachable connections whereby said devices corresponding to each one of said items may be alternatively connected to control more than one indicator.

10. In a system for transmitting and indicating fluctuating market prices of a large number of items comprising a transmitting station and a plurality of receiving stations; apparatus at each receiving station comprising a large number of electrical devices, at least one for each item, means at the transmitting station associated in common with said plurality of receiving stations for energizing said devices respectively upon transmission of quotations of the corresponding items, a smaller number of electrically operated indicators for showing the prices of a limited number of items, said indicators being arranged to form an indicating board with a plurality of tiers of indicators in side-by-side arrangement, and manually interchangeable means whereby indicators at various parts of the board may be interchangeably controlled from said devices upon occurrence of changes of various different items, permitting quotations of items of greatest prevailing interest to be conspicuously posted and classified on the board as desired.

11. In a system for transmitting and indicating fluctuating market prices of a large number of items comprising a transmitting station and a plurality of receiving stations; apparatus at each receiving station comprising a distributor board having a large number of electrical devices, at least one for each item, means at the transmitting station associated in common with said plurality of receiving stations for energizing said devices respectively upon transmission of quotations of the corresponding items, an indicator board separate from said distributor board and comprising a smaller number of electrically operated indicators for showing the prices of a limited number of items, said indicating board being arranged with a plurality of tiers of indicators in side-by-side arrangement, and detachable means whereby said devices corresponding to each one of said items may be alternatively connected to control more than one of said indicators.

12. Apparatus for transmitting from a central point and indicating at a plurality of stations, varying quotations of a multitude of items, comprising transmitting means for initiating distinctive groups of impulses respectively representative of quotations of the items, a plurality of circuit connections being provided for each of said items and associated with said transmitting means, a relatively limited number of independently operative indicators arranged in a plurality of groups at each station, one indicator group being provided to give the prevailing quotation of each of a limited number of such items which are of special interest at each station, such indicator groups respectively having means to be actuated in response to said impulse groups, and detachable means for connecting each of said limited number of indicator groups alternatively to said circuit connections of various different items, one of said detachable means being provided for each of said indicator groups and each of said detachable means having a sufficient number of contacts to provide for the plurality of circuit connections necessary for one indicator group, whereby the indicators may be readily associated by groups with the transmitting means so as to alternatively indicate quotations of various pluralities of items as desired.

13. In a system for transmitting and indicating fluctuating market prices of a large number of stocks or like items comprising a transmitting station and a plurality of receiving stations; apparatus at each receiving station comprising a distributor having a large number of electrical devices, at least one for each item and bearing substantially permanent indicia representing such item, means at said transmitting station associated in common with said plurality of receiving stations for energizing said devices respectively upon transmission of quotations of the corresponding items, an indicator board comprising a smaller number of like or similar electrically operated indicators capable of showing interchangeably the prices of a limited number of items, and quick-detachable connection members each alternatively adapted for association with various different indicators and said devices whereby said indicators severally and interchangeably may be made responsive to the energization of said devices.

14. The method of posting or indicating market quotations at a plurality of offices which comprises transmitting distinctive current variations representative of quotations of a large number of stocks or like items over an electrical path which is at least in part common to the plurality of offices, identifying said current variations at the various offices according to the stocks represented thereby, and applying any of said identified current variations to a relatively smaller number of indicators interchangeably, the identified current variations being thus alternatively applicable to more than one indicator, whereby numerous arrangements of stock quotations may be had and the stocks chosen for posting by the small number of indicators may be varied.

15. Apparatus for transmitting a multitude of varying stock or other item quotations from a transmitting station and posting the same at a plurality of receiving stations, comprising transmitting means common to said plurality of receiving stations and having substantially permanent provisions for transmitting distinctive current variations representative of the quotations of the large number of stocks, each receiving station having means for receiving and identifying said distinctive current variations according to the stocks represented thereby, a relatively smaller number of like or similar electrically operated indicators capable of indicating interchangeably numerous items at each receiving station, said indicators being arranged to form an indicating board with a plurality of tiers of indicators in side by side arrangement, and a plurality of flexible cables capable of extending respectively from said receiving and identifying means alternately to various parts of the board for controlling the indicators, permitting the quotations of stocks of the greatest prevailing interest to be conspicuously posted in a relatively small space and classified on the board as desired.

In testimony whereof I have signed my name to this specification.

ROBERT L. DAINE.

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CERTIFICATE OF CORRECTION.

Patent No. 1,658,516. Granted February 7, 1928, to

ROBERT L. DAINE.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, line 4, for the word "of" second occurrence read "or", and line 43, for the word "patent" read "patents"; page 5, line 115, claim 4, for the word "alternately" read "alternatively"; page 6, line 126, claim 10, before the word "changes" insert the word "price; page 7, line 119, claim 15, for the word "alternately" read "alternatively"; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 6th day of March, A. D. 1928.

Seal.

M. J. Moore,
Acting Commissioner of Patents.

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