

March 20, 1934.

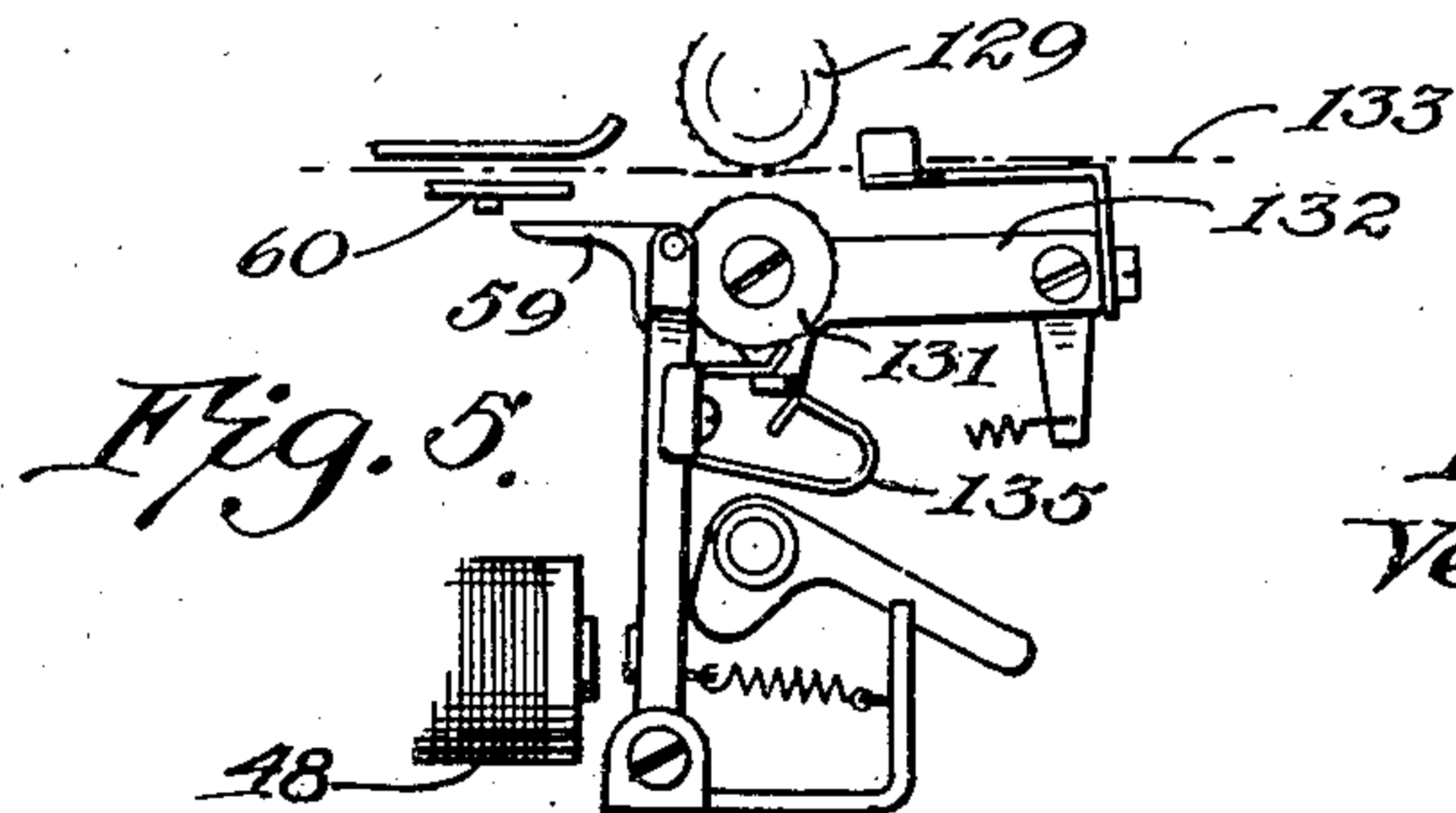
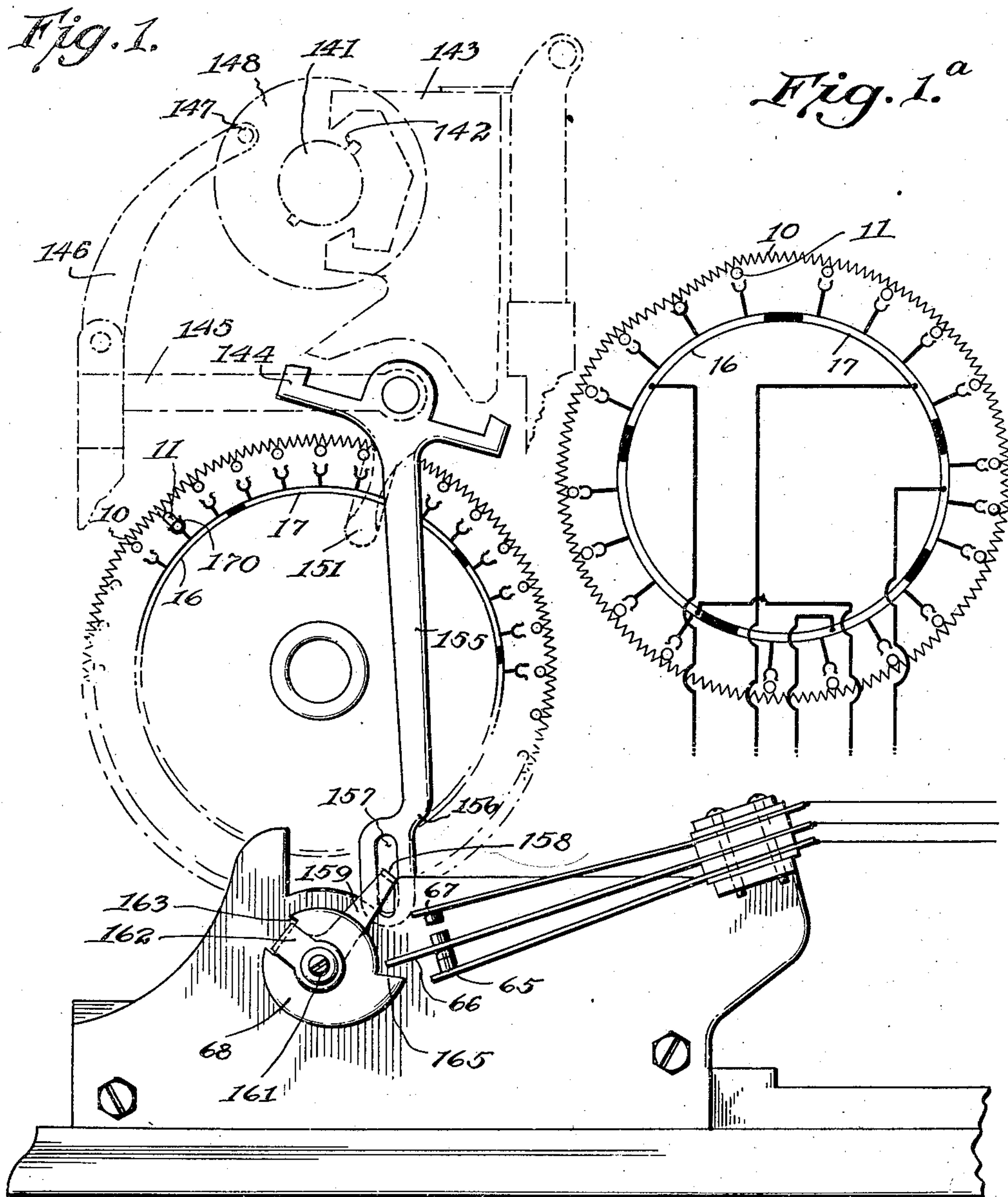
R. F. DIRKES ET AL

1,951,570

AUTOMATIC EDITING SYSTEM FOR CONTROLLING PRINTING TELEGRAPH MACHINES

Filed Oct. 21, 1930

3 Sheets-Sheet 1



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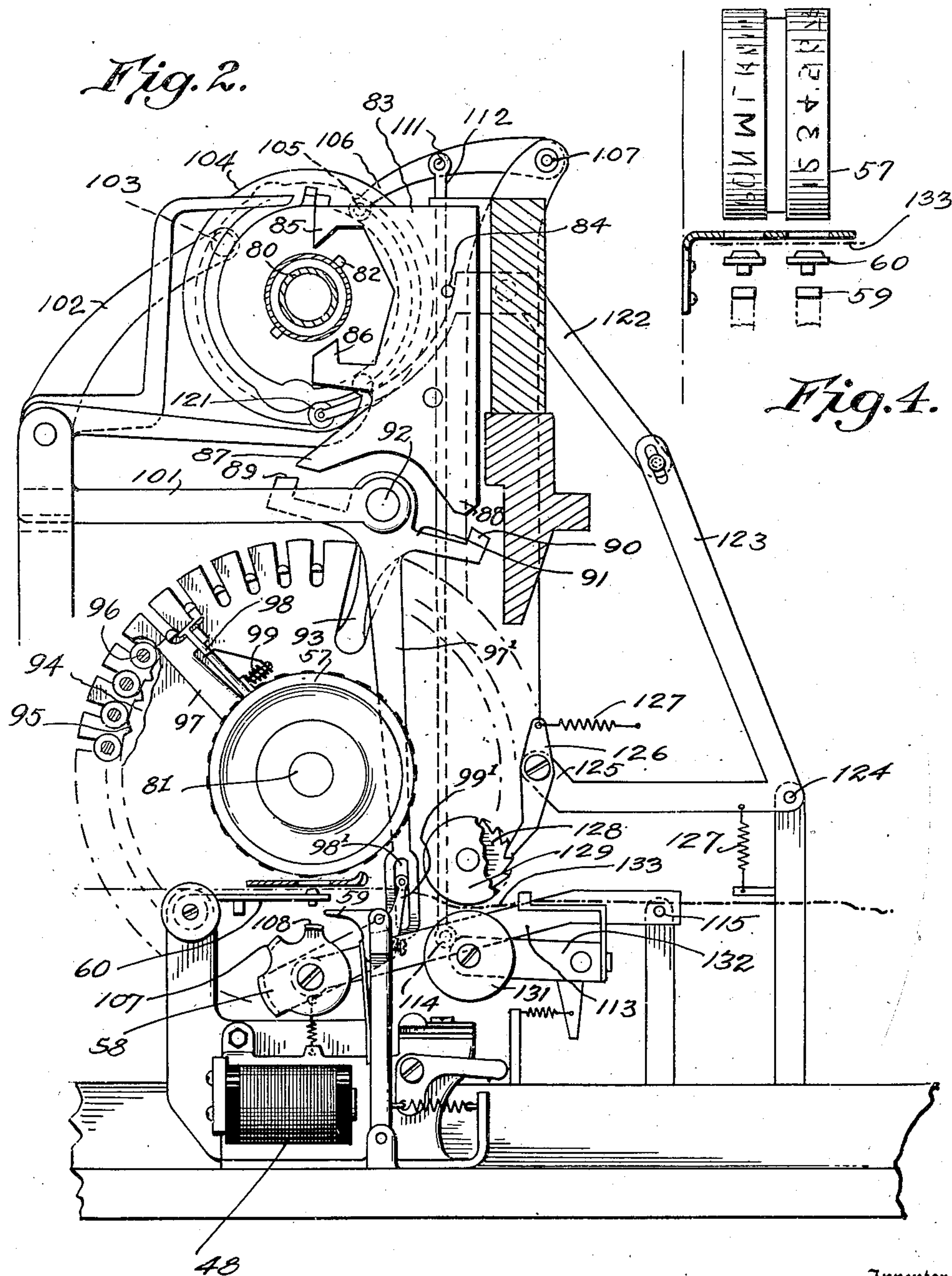
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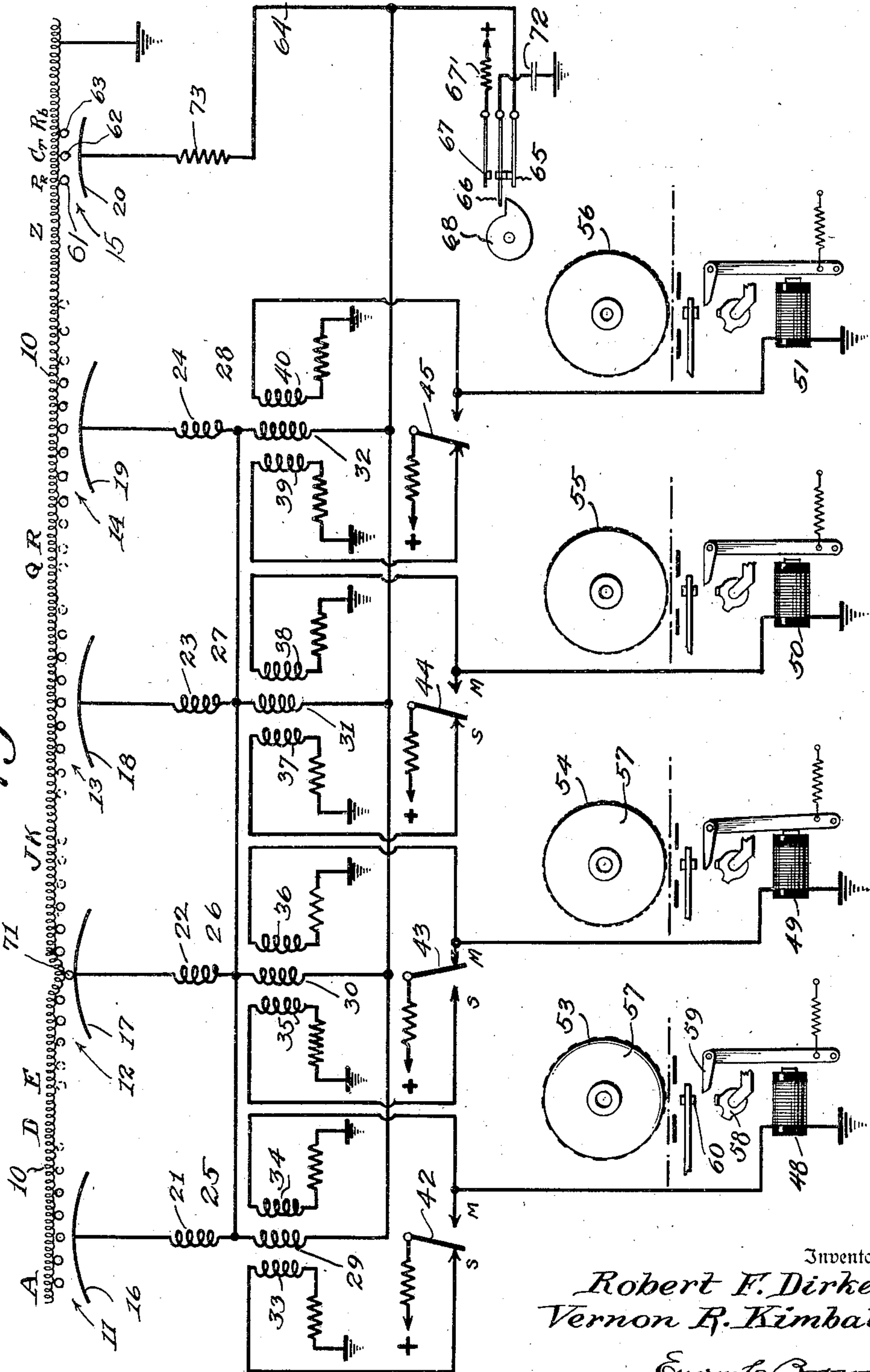
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3 Sheets-Sheet 3

Fig. 3.



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UNITED STATES PATENT OFFICE

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AUTOMATIC EDITING SYSTEM FOR CONTROLLING PRINTING TELEGRAPH MACHINES

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Application October 21, 1930, Serial No. 490,274

25 Claims. (Cl. 178—4)

This invention relates to systems for and methods of dividing received telegraphic intelligence into groups to be recorded upon separate tickers and more particularly to high speed stock quotation systems.

In the operation of automatic brokerage quotation boards, it has become the practice, due to the high speed of transmission needed, to divide the transmission of quotations into a plurality of parts, each to be controlled by a separate operator and each transmitting unit transmitting quotations in which the first letter of a stock designation begins with a particular portion of the alphabet allotted to that transmitting unit. In other words, where, for example, four tickers are used, all quotations beginning with letters A to D may be assigned to the first operator, quotations beginning with the letters E to J may be assigned to the second operator, quotations beginning with the letters K to Q may be assigned to the third operator, and quotations beginning with the letters R to Z may be assigned to the fourth operator. This assignment of quotations to several transmitting units is not limited to the above example but is changeable at will to any desirable assignment of quotations to the various transmitting units.

Heretofore it has been the practice to have a secondary operator, called an editor, at each operating position who crosses out the stocks which are not to be sent by his particular operator. This method of operation is unsatisfactory due to the fact first, that it requires an operator to cross out the quotations not needed, and second, due to the speed of the received quotations, errors are likely to creep in, such as the editor improperly assigning quotations for transmission as is the case if he fails to cross out a quotation which should have been crossed out. This causes confusion among the operators and slows up transmission.

Accordingly, an object of our invention is to provide novel means for automatically assigning quotations to different tickers in accordance with the first letter of each quotation.

A further object of our invention is to provide a novel master switching mechanism which automatically assigns quotations to different reading printers.

In the normal printing of stock quotations, it

is the custom, when quoting the price of a preferred stock following the quotation of the price of a common stock of the same stock, merely to print the character P and the class of preferred stocks to which it belongs, such as A, B, or C without printing again the designation letters of the stock itself. Thus, for example, should stock ABC selling for 123 be succeeded by stock ABC "preferred A", selling at 234, the quotation on the tape would merely appear as ABC₁₂₃ P A₂₃₄.

It is obviously necessary to keep the preferred stock in the same general group as the common stock of this particular issue. Since, however, the first letter of the preferred stock may not be grouped with the first letter of the common stock, it is necessary to arrange a different combination of circuits than those normally used for the segregating of stocks into the different groups.

Accordingly, a further object of our invention is to provide novel means for printing preferred stock, the quotation of which follows the quotation of the same common stock, on the same tape.

Still a further object of our invention is to provide novel means for preventing a switching operation of the reading tickers when a quotation for a preferred stock follows a quotation of the same common stock.

Still other objects and features of our invention will be more fully understood upon reference to the following detailed description taken in connection with the accompanying drawings, while the scope of the invention will be particularly pointed out in the appended claims.

In the drawings Figure 1, is a diagrammatic illustration of a master ticker showing a portion of the circuits.

Figure 1a is a diagrammatic illustration of one of the detailed portions of the master ticker.

Figures 2 and 4 are diagrammatic views of one of the tickers employed in carrying out our invention.

Figure 3 is a circuit diagram embodying the switching operations employed in our invention.

Figure 5 is a fragmentary detail view showing a modified arrangement of the tape feed and intermediate member which cooperates with the printing hammer.

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In Figure 3, a conductor 10 of a master ticker is shown in developed form. Cooperating therewith are a plurality of groups of pins 11, 12, 13, 14 and 15, each pin being individual to a letter in the alphabet and selectively operated, on receipt of a code combination of impulse conditions corresponding to its associated letter, as will appear hereinafter. Each of the pin groups has associated therewith individual sectors 16 to 20, which the pins engage when selectively operated. These sectors, 16 to 20 are, in actual practice, combined to form a circular disk, as will appear more fully in connection with the detailed description of the master ticker which is to follow. Sectors 16 to 19 are electrically connected to individual windings 21 to 24 of polar relays 25 to 28, the opposite terminals of the windings 21 to 24 being strapped together, as shown.

Each of the polar relays 25 to 28 is provided with additional windings 29, 30, 31 and 32 which are connected in series with the other individual windings 21 to 24, as shown, and are strapped together. The relays 25 to 28 are also provided with individual pairs of locking windings 33 to 40, one of each pair of windings functioning to lock the associated armature of the relay in its marking position, and the other of the pair functioning to lock the same armature in its spacing position.

The relays 25 to 28 are provided with the individual armatures 42 to 45, each of which operates between a spacing and a marking contact. The spacing contacts are connected to the spacing locking windings of the associated relays and the marking contacts are connected to the marking locking windings of the associated relays, and in multiple to printing cut-out magnets 48 to 51. Each of the printing cut-out magnets 48 to 51 is associated with an individual ticker 53 to 56, the details of which will be described in connection with Figures 2 and 4.

Generally however, these tickers comprise a type wheel 57, a printing hammer 58, an intermediate member 59, and individual striker member 60 which is operated by the printing hammer 58 to bring the tape against the typewheel when the member 59 is moved intermediate the hammer 58 and the striker 60 upon energization of the magnet 48.

In addition to the groups of pins 11 to 14, each of which are individual to a letter of the alphabet, three pins 15 are provided, one of which 61, is selectively operated when the received code combinations of impulse conditions is in accordance with preferred stock to be quoted, the second of which 62 is operated when the received code combinations of impulse conditions is in accordance with certified stock to be quoted and the third of which 63 is operated in accordance with a rub-out received code combination of impulse conditions.

These pins 61 to 63 cooperate with the sector 20 and are connected over the conductor 64 to the lower contact 65 cooperating with the middle spring contactor 66. Spring contactor 66 is moved between contact 65 and contact 67 under the control of a cam 68 which is operated by a master ticker, to be described hereinafter, to the position shown, while letter code combinations of impulse conditions are being received and is operated counter clockwise to the position at which member 66 engages contact 67 when figure code combinations are received, all of which will be described in detail hereinafter.

The pins in groups 11 to 15 are selectively actuated in accordance with received code combinations of impulse conditions to engage their associated sectors, as illustrated in connection with the pin 71 of group 12.

In order to illustrate the invention, it will be assumed that a code combination of impulse conditions individual to one of the letters appearing between letters E to J, as for example the letter G, is received and that the pin 71 is arranged to respond to this code combination of impulse conditions to move to the position shown where it engages the sector 17.

As is well known, each stock quotation comprises a plurality of letter code combinations of impulse conditions which indicate the stock to be quoted, followed by a group of numeral code combinations which indicate the quotation of that particular stock.

During the period while numeral code combinations are being received, the cam 68, as will be described hereinafter, is in its alternate or counter clockwise position at which the contactor 66 engages the contact 67. Current from the positive side of battery then flows through the resistance 67' and charges the condenser 72.

When now the next quotation is received for the first letter thereof, it operates the pin 71 to engage the sector 17, as described above. This occurs at the completion of the code combinations for the letter and the sixth pulse for letters shift. The cam 68 is at about the same time rocked clockwise to the position shown which it assumes when the first letter of the stock quotation is being received, and the condenser 72 will thereupon discharge itself over the contact 65 and through the windings 29 to 32 of relays 25 to 28 in multiple. This circuit is completed through the winding 22 of relay 26, sector 17, pin 71, and conductor 10, to ground.

The current flowing through the windings 29 to 32 in the above described circuit is in such a direction that it operates the armatures 42 to 45 to engage their left hand or spacing contacts, and armatures 42, 44, and 45 will accordingly move to their left hand contacts.

The current through the winding 22, however, of relay 26 which, it will be noted, is connected in series with the four multiplied windings 29 to 32 in the above described circuit and the winding thereof, is so arranged that the current flow therethrough, as a result of the above circuit, tends to throw the armature 43 to engage its right hand contact. Inasmuch as the current through the winding 22 is four times as great as the current through winding 30, it is sufficient to overcome the effect of the current in winding 30 and the armature 43 is accordingly moved to its right hand or marking contact, as shown.

The same electrical proportions and windings are provided for the windings 21, 23, and 24 with respect to their associated series windings 29, 31, and 32 when the circuits therefor are closed.

As a result of the armature 42 of relay 25 engaging its left hand or spacing contact, a locking circuit is completed through the locking winding 33 to maintain the armature 42 on its spacing contact. Similar effects occur at the armatures 44 and 45 of relays 27 and 28.

As a result of the armature 43 engaging its right hand or marking contact, a locking circuit is completed through the winding 36 to maintain its armature 43 locked on its right hand contact. A multiple circuit is also completed over the armature 43 to the winding of the cut-out magnet

49 of ticker 54. Magnet 49, upon energization, operates its interposed member 59 to the position shown between the printing hammer 58 and the striker 60, and the ticker 54 accordingly becomes operative while tickers 53, 55, and 56 are in a non-operating condition. Accordingly, the code combinations for that particular stock will be recorded on the ticker 54 only.

Although the second and third letters of the quotation for that particular stock may operate pins in any of the other groups than group 12 preparing the circuits for relays 25, 27 or 28, this will have no effect during the receipt of this particular stock quotation because of the fact that the condenser 72 has already discharged itself and has not received a new charge at this time.

When now the figures for the stock being quoted are received, and the cam 68 again moves to operate the contactor 66 to engage contact 67, condenser 72 is again charged in preparation for the next stock.

Upon the receipt of the first letter of the next stock, a pin in the group to which the first letter of the stock belongs will be operated to engage its associated sector, while at the same time contactor 66 will be moved to engage contact 65 and the above described operations, whereby one particular ticker will be conditioned for receiving the quotations of that particular stock, will be repeated. In this manner, each quotation is automatically allotted to a particular ticker in accordance with the first letter of the stock.

It happens occasionally that a quotation of the preferred stock of a particular stock follows immediately after the quotation of the particular stock, in which event it would be desirable that the quotation be printed by the same ticker which printed the common stock. This is of particular importance inasmuch as the code combinations of impulse conditions for the letters of the stock are not repeated but instead the letter Pr, indicating preferred stock only, is printed.

In order that the same ticker may operate in such an event, a special pin 61 is provided which is selectively operated when a code combination of impulse conditions indicating a preferred stock is received. When the pin 61 operates and engages the sector 20, the condenser 72 instead of discharging through a winding of one of the relays 25 to 28, discharges over the conductor 64 and the resistance 73, sector 20, pin 61, and conductor 10, to ground. Accordingly, no change in the condition of the tickers will be effected at this time and the particular ticker which was previously operative to print the common stock quotation will also print the preferred stock quotation. Similar operations occur when the received code combinations of impulse conditions indicates a quotation of a certified stock in which case pin 62 operates to engage sector 20 and also when the received code combinations of impulse conditions for a rubout is received, in which case pin 63 engages sector 20. In each instance it will be noted that the particular condition of the tickers is not alternated.

The details of the reading and master ticker employed in carrying out the invention described hereinbefore, will now be described in detail in connection with Figures 1, 1a, 2 and 4.

The stock ticker machine which we have selected for the purpose of illustration is of the same general type as that described in co-pending application Ser. No. 424,966, filed Jan. 31, 1930. Although a specific ticker is here illustrated it will be obvious to those skilled in the art, that the

invention is not dependent upon any particular type of stock ticker as any other of the various types of tickers may be employed.

As described in that case, this type of ticker is a motor driven typewheel tape ticker, the operation of which is selectively controlled in accordance with received code combinations of marking and spacing impulse conditions. All the operations of the ticker are determined by the movement of the armature of a polarized magnet (not shown) actuated by line impulses. The mechanism of the tape ticker is operated by a motor (not shown), which drives a selector cam drum 80 and typewheel shaft 81. The cam drum 80 consists of a hollow cylinder with 6 pairs of cam lugs or fingers 82, projecting from its outer surface, and equally spaced angularly and longitudinally about and along said shaft. Each pair of cam lugs comprises a marking and a spacing cam.

The selector cam drum 80, as described in the application hereintofo referred to, is slidably mounted on a sleeve on the main shaft and moves between two stops in accordance with the operation of the polar magnet hereinbefore mentioned which, in turn, is operated in accordance with received code combinations of impulse conditions. Associated with each pair of lugs 82 is a selector 83 pivotally mounted as at 84 and provided with a pair of jaws 85 and 86 longitudinally displaced from each other. One of the jaws, as for example 85, is arranged to be engaged by its associated marking lug 82 when the cam drum 80 has rotated its associated lug to the selector and a marking impulse is at that time received. The other jaw 86 is arranged to be engaged by its associated space lug if, at the instant its associated lug is opposite jaw 86, a spacing impulse condition is received.

If the jaw 85 is engaged by its associated lug 82, the selector 83 is rocked in a clockwise direction about its pivot 84 and vice versa, if the jaw 86 is engaged by its associated spacing lug, the selector 83 is rocked in a counter clockwise direction. The selectors 83 are each provided with springs (not shown) for holding the selectors in operative position.

Each of the selectors is provided with extensions 87 and 88 opposite which are positioned the lugs 89 and 90 of transfer levers 91. A transfer lever 91 is provided for each of the selectors 83 and is pivotally carried on a pin 92. Each of the transfer levers 91 has a projecting portion 93 which extends into a slot in an individual selector disk 94. The selector disks 94 have slots arranged about their circumferential edges opposite to which there lie a series of pins 96. The pins are normally held out of the slots 95 by reason of the normal non-alignment of the slots beneath the pins 96.

When, however, the selectors 83 have been positioned in accordance with the received code combination of impulse conditions, as described above, the transfer levers 91 are operated towards the selectors 83 in a manner to be described hereinafter and the lugs 89 or 90 depending upon the position of the associated selector 83 will engage extensions 87 or 88, respectively. If the lug 90 engages the extension 88, the associated transfer lever 91 will be rocked in a clockwise direction about the pin 92 as the transfer lever continues to move towards the selector 83.

If the lug 89 engages the extension 87, on the other hand, the transfer lever 91 is rocked in a counter clockwise direction as the transfer lever

continues to move. The rocking movement of the transfer lever 91, that is clockwise or counter clockwise, will in turn, through projection 93, rock the selector disks 94. In this manner the selector disks are set in accordance with the received code combination of impulse conditions and an alignment of the slots 95 is thus obtained.

The stop pin 96, which happens to be opposite the aligned notches, will thereupon drop into the notch space under spring pressure and will move into the path of rotation of a stop arm 97 which is mounted on the typewheel shaft 81 and rotates with the typewheel 57. The typewheel is thus brought to a stop at a predetermined position in accordance with the received code combinations of impulse conditions. A second member 98 rotating with the stop arm 97 is spring pressed by means of spring 99 and functions to prevent a jar due to the abrupt stopping of the stop arm 97 which engages a stop pin 96.

Although six selector levers 83 are provided, there are only five transfer levers 91. The sixth selector lever 83, operating in response to the shift impulse conditions, cooperates with depending arm 97' having a slot 98' in which lever 99' plays and operates the printing hammers 58.

The manner of operating the transfer levers 91 will now be described. The pin 92 is mounted upon a transfer lever 101 which is in turn mechanically connected to a transfer bail lever 102 carrying on the end of it a cam roller 103. The cam roller 103 rides on the inner track of a cam disk 104 which is driven by the motor, in the manner described in the application hereinbefore referred to. The cam 104 is a combined internal and external cam, the transfer lever 102 being controlled by the internal surface through the roller 103.

A second roller 105 also rides on the internal surface and controls the printing bail lever 106 which is pivotally mounted at 107 to the printing frame, and carries depending therefrom at 111 a printing bail depending lever 112. At the lower end of the depending lever 112 the printing lever 113 is connected, as at 114, and printing bail lever 113 is pivotally mounted on the frame work at 115 and at its opposite end carries the printing hammer 58. Printing hammer 58 has two lugs 107 and 108 extending horizontally and in opposite directions from each other, one for printing letters and the other for printing numerals.

The cam 104 also controls an external roller 121 which through the feed bail lever 122 is mechanically secured to the lever 123 which is pivoted at 124 and carries at the extension 125 a feed pawl 126 normally held by spring 127 in engagement with the tooth of a ratchet wheel 128. The ratchet wheel 128 drives a roller 129 between which, and a pressure roller 131 pivotally mounted on the arm 132, a tape 133 is fed through the typewheel printing mechanism as the ratchet wheel 128 is rotated.

In operation, shortly after the start of the rotation of operating cam 104, the roller 105 on the end of the printing bail lever 106 rides to the peak of the internal cam, thus lifting the depending rod 112 and rocking the printing bail lever 113 carrying the printing hammer 58 and causing the hammer striker 60 to press the tape 133 against the typewheel 57, thereby printing a character.

As the printing bail lever rides down the cam, the roller 103 on the end of the transfer bail lever 102 is riding up on the cam and as it reaches the peak, the transfer bail 101 is rocked upwardly to

force the transfer levers 91 against the selectors 83, whereby the character selection previously set up on the selector levers is transferred to the code disks 94, in the manner described in detail hereinafter.

While the transfer bail roller 103 is riding to the peak of the internal cam, the roller 121 on the end of the feed bail lever 122 is riding up on the external cam. The motion transmitted through the lever 122 rocks the feed bail 125 to move the feed pawl 126 upwardly and to engage the next tooth of the feed ratchet 128. Then as the roller on the lever 122 rides down the cam, the feed bail spring 127 causes the feed pawl 126 to move downwardly, thus stepping the feed ratchet 128 one tooth, and through the medium of the feed wheel 129 and the pressure roller 131, moves the tape 133 forward one other space.

It will be noted that the printing hammer 58 normally does not move through a distance sufficient to move the striker 60 against the tape 133, but when the member 59 is operated by energization of its associated magnet 48 to a position intermediate the hammer 58 and the striker 60, the hammer 58 will then act against the extension 59 to move the striker 60 against the tape 133. In this manner, the ticker is normally maintained in a non-operative condition and is rendered operative upon the selective operation of magnet 48 in a manner described in detail in connection with Figure 3.

The details of the master switching mechanism will now be described in connection with Figures 1 and 1a.

The selector cam drum 141 provided with the marking and spacing lugs 142 is of the same construction as in the case of reading ticker described in connection with Figure 2. These lugs cooperate, as in that case, with pivoted selectors 143 which in turn operate transfer levers 144, the movement of which is controlled through transfer lever 145 and transfer bail 146 carrying a roller 147 in operating relationship with an operating cam 148, all as in the case of Figure 2.

As in the case of the reading ticker shown in Figure 1, the transfer levers 144, operating through their extensions 151, operate code disks which in accordance with their setting permit one of the series of pins 11 positioned about their circumferential surfaces to drop into the notches which are aligned. The pins 11 are connected to a spring-like conductor 10 which stretches sufficiently to permit any one of the pins 11 to drop into the aligned notches. The pins 11, however, instead of functioning to stop a typewheel at a predetermined position, are arranged to drop into cup-like receivers or socket members 170, arranged in groups 11, 12, 13, 14, and 15, as shown in Fig. 3. As illustrated in Figure 3, each group is connected to an individual sector 16, 17, etc. The connection of these sectors has already been described in connection with Figure 3.

A further difference in the master ticker is the arrangement of the depending arm 155 which takes the place of the sixth transfer lever. As shown, the depending arm has a hooked end 156 at its bottom and provided with a slot 157 in which the horizontal extension 158 of arm 159 rides. The arm 159 pivotally mounted on the pin 161 has a U shaped extension 162 which fits over the slot 163 of the cam 68, whereby the movement of arm 159 is transferred to the cam 68. Cam 68, pivotally mounted on pin 161, has a cam projection 165 which engages the spring lever 66 operating between the upper contact 67 and lower

contact 65 for the purposes described in detail in connection with Figure 3.

As will now be clear, in operation the receiver magnets of the master and all reading tickers respond to all received code combinations of impulse conditions. In response to the code combination for the first letter of a stock, one of the pins 11 will be operated to engage its associated socket and a circuit is completed for one of the magnets 48 to 51 of the reading ticket which is to be rendered operative. This circuit is completed at contact 65 when the cam projection 165 operates lever 66 to engage contact 65.

Although we have described our invention in connection with a stock quotation system, it will be obvious that it has adaptations to other systems. Furthermore, although a specific form of switching mechanism which requires adapting a standard ticker to the switching is here described, it will be obvious that other forms of switching mechanism may be substituted therefor. It will also be evident to those skilled in this art that the means for rendering the printing mechanism effectual or ineffectual to print the characters may be readily applied to other forms of telegraph printers such as the well-known type-bar printer and hence our claims are intended to include such equivalent adaptations. Again in Fig. 5 we have shown how the tape feed mechanism may be rendered inoperative when the intermediate member 59 is retracted to render the printing hammer ineffectual. A spring member 135 carried by the swinging support which carries the member 59, engages a lug 136 on the arm 132 when the member 59 is retracted and withdraws the presser roller 131 from engagement with the tape, thereby rendering the tape feed wheel 129 ineffective.

What we wish to claim as our invention is this:

1. In a printing telegraph system, a receiving instrument having selecting mechanism responsive to received code combinations of impulse conditions, a plurality of circuit controllers having means actuated by said selecting mechanism and recording instruments governed by said circuit controllers, said circuit controlling means being individual to each recording instrument.

2. In a printing telegraph system, a receiving instrument having selecting mechanism responsive to received code combinations of impulse conditions, a plurality of recording instruments, a circuit controller individual to each recording instrument and selectively operated by said selecting mechanism, and means individual to each instrument and controlled by the associated circuit controller when operated, for associating its instrument for operation in response to the received code combinations of impulse conditions.

3. In a printing telegraph system, a receiving instrument having selecting mechanism responsive to received code combinations of impulse conditions, a plurality of recording instruments, a plurality of circuit controllers including a polarized electromagnet individual to each recording instrument and selectively operated by said selecting mechanism, and means individual to each instrument and controlled by the associated electromagnet when operated, for associating its instrument for operation in response to the received code combinations of impulse conditions.

4. In a unit message system in which each message comprises letter and figure characters, a plurality of reading printers, means for normally maintaining said printers non-operative,

switching mechanism, means responsive to the first letter character of a message for operating said switching mechanism, and means responsive to the operation of such switching mechanism for rendering a printer operative to receive said message.

5. In a unit message system in which each message comprises characters from different groups, a plurality of normally non-operative reading printers, one reading printer being allotted to receive all the messages beginning with predetermined characters, switching mechanism, means responsive to the first character of a message for operating such switching mechanism, and means controlled by such switching mechanism for rendering the printer allotted to that particular message operative.

6. In a telegraph system wherein the received intelligence is arranged in groups of characters and the reading printers are normally non-operative, the method of classifying said groups which consists in receiving all of said intelligence upon a plurality of reading printers and causing the initial character of a group to render an associated printer operative for recording the intelligence and maintaining the other recorders non-operative for recording.

7. In a telegraph system in which the transmitted intelligence is constituted of groups of characters, a plurality of normally non-operative receiving recording instruments and means actuated by the received intelligence to maintain certain of said receiving instruments ineffective to record certain of said groups and rendering other of said instruments operative to record the same.

8. In a telegraph system in which the transmitted intelligence is composed of groups of characters, a plurality of receiving instruments, each connected to receive all of the transmitted intelligence, each of said instruments having individual polarized electromagnetic means adapted when actuated to render the printing functions operative, and means for controlling the operation of one of said electromagnetic means determined by the initial character of each group of characters.

9. In a telegraph system in which the transmitted intelligence is composed of groups of characters, a plurality of receiving instruments, each connected to receive all of the transmitted intelligence, each of said instruments having individual polarized electromagnetic means adapted when actuated to render the printing functions operative and non-operative, and means for controlling the operation of all of said electromagnetic means determined by the initial character of each group of characters.

10. In a telegraph system, a plurality of receiving recording instruments and an editing instrument each connected to receive all of the transmitted intelligence, said editing instrument having polarized electromagnetic means connected to each of said recording instruments and responsive to the initial character of each received word or group of characters, to cause the operation of one of said recording instruments and preventing the other recording instruments from functioning.

11. In a printing telegraph system for recording intelligence characters, a plurality of receiving instruments each having selecting mechanism responsive to permutation code combinations of selecting impulses, one of said instruments having circuit controlling means actuated by said select-

ing mechanism, the other instruments having printing mechanism positioned by said selecting mechanism and circuit controlling means individual to each of said other instruments actuated
5 by said circuit controlling means to render one or another of said printing mechanisms ineffectual determined by the initial code combination in any word or group of received characters.

12. In a printing telegraph receiver for recording groups of characters, selector mechanism responsive to received code combinations of impulse conditions, a typewheel positioned by said selector mechanism, a printing hammer adapted to press a tape against said typewheel, a normally
15 non-operative striking hammer operating to actuate said printing hammer, and means controlled by the initial code combination of predetermined groups of characters to render said striking hammer operative.

20 13. In a printing telegraph receiver for recording groups of characters, selector mechanism responsive to received code combinations of impulse conditions, a typewheel positioned by said selector mechanism, a printing hammer adapted to press a tape against said typewheel, a normally
25 non-operative striking hammer operating to actuate said printing hammer, and polarized electromagnetic means controlled by the initial code combination of predetermined groups of characters to render said striking hammer operative.

30 14. In a printing telegraph receiver for recording groups of characters, selector mechanism responsive to received code combinations of impulses, a typewheel positioned by said selector mechanism, a normally ineffectual printing hammer adapted to press a tape against said typewheel, an auxiliary member normally out of alignment with said hammer, and means controlled by the initial code combination of pre-
40 determined groups of characters to move said auxiliary member into alignment with the printing hammer to render the hammer effectual.

45 15. In a printing telegraph receiver for recording groups of intelligence, selector mechanism responsive to permutation code combinations of impulses, a typewheel positioned by said selector mechanism, actuating mechanism normally ineffectual to force a tape against said typewheel, tape feed mechanism, and means responsive to only certain code combinations for
50 rendering said actuating and tape feed mechanisms effectual.

55 16. In a printing telegraph system, a plurality of receiving printers responsive to received code combinations of impulses, an editing or directing receiving instrument having selectors responsive to code combinations of impulses, circuit controllers operated by said selectors, and means governed by said controllers to render one or
60 another of said receiving printers effectual determined by the initial code combination of the groups of received intelligence.

65 17. In a printing telegraph receiver for recording groups of characters, selector mechanism responsive to received code combinations of impulse conditions, a typewheel positioned by said selector mechanism, a printing hammer adapted to press a tape against said typewheel, a normally
70 non-operative striking hammer operating to actuate said printing hammer, polarized electromagnetic means controlled by the initial code combination of predetermined groups of characters to render said striking hammer operative,
75 and means whereby the initial code combinations

of predetermined groups are ineffectual on said printers.

80 18. In a printing telegraph system, a receiving instrument having selecting mechanism responsive to received code combinations of impulse conditions, a plurality of circumferentially arranged circuit controllers including polarized electro-magnetic means actuated by said selecting mechanism and printers governed by said circuit controllers, said polarized electro-magnetic means being individual to each controller.

85 19. In a printing telegraph system, a receiving instrument having selecting mechanism responsive to received code combinations of impulse conditions, a plurality of circumferentially arranged circuit controllers including polarized electro-magnetic means actuated by said selecting mechanism and printers governed by said circuit controllers, said polarized electro-magnetic means being individual to each controller, each
90 of said polarized electro-magnetic means being actuated in response to the operation of the selecting mechanism responsive to an initiated group of characters.

95 20. In a unit message system in which each message comprises letter and number characters, a plurality of reading printers, means for normally maintaining said printers non-operative, switching mechanism, means responsive to the first letter character of a message for operating
100 such switching mechanism, means responsive to the operation of such switching mechanism for rendering a printer operative to receive the associated message, and means whereby said switching mechanism does not respond to the
105 first letter character of certain messages.

110 21. In a unit message system in which each message comprises characters from different groups, a plurality of normally non-operative reading printers, one reading printer being allotted to receive all the messages beginning with
115 predetermined characters, switching mechanism, means responsive to the first character of a message for operating such switching mechanism, means controlled by such switching mechanism
120 for rendering the printer allotted to that particular message operative, and means whereby said switching mechanism does not respond to the first letter character of certain messages.

125 22. In a printing telegraph receiver for recording groups of characters, selector mechanism responsive to received code combinations of impulse conditions, printing mechanism positioned by said selector mechanism, actuating means normally ineffectual to bring a tape and the printing
130 mechanism into engagement, and means controlled by the initial code combination of predetermined groups of characters to effect said engagement to thereby print the characters.

135 23. In a printing telegraph receiver for recording groups of characters, selector mechanism responsive to received code combinations of impulse conditions, printing mechanism positioned by said selector mechanism, actuating means normally ineffectual to bring a tape and the printing
140 mechanism into engagement, an auxiliary member normally out of alignment with said printing mechanism, and means controlled by the initial code combination of predetermined groups of characters to move said auxiliary member into
145 alignment with the printing mechanism to thereby cause the printing of the characters.

150 24. In a printing telegraph receiver for recording groups of characters, selector mechanism responsive to received code combinations of im-

pulse conditions, printing mechanism positioned by said selector mechanism, actuating means normally ineffectual to bring a tape and the printing mechanism into engagement, tape feed mechanism, and means responsive only to certain code combinations for rendering said printing and tape feed mechanisms effectual.

25. In a telegraph system a receiving instru-

ment having selecting mechanism responsive to received code combinations of impulse conditions, a plurality of circuit controllers actuated by said mechanism, and recording instruments governed by said circuit controllers.

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