

Feb. 14, 1939.

L. W. FRANKLIN

2,147,249

TELEGRAPH TRANSMITTING APPARATUS

Filed May 15, 1937

5 Sheets-Sheet 1

FIG. 1

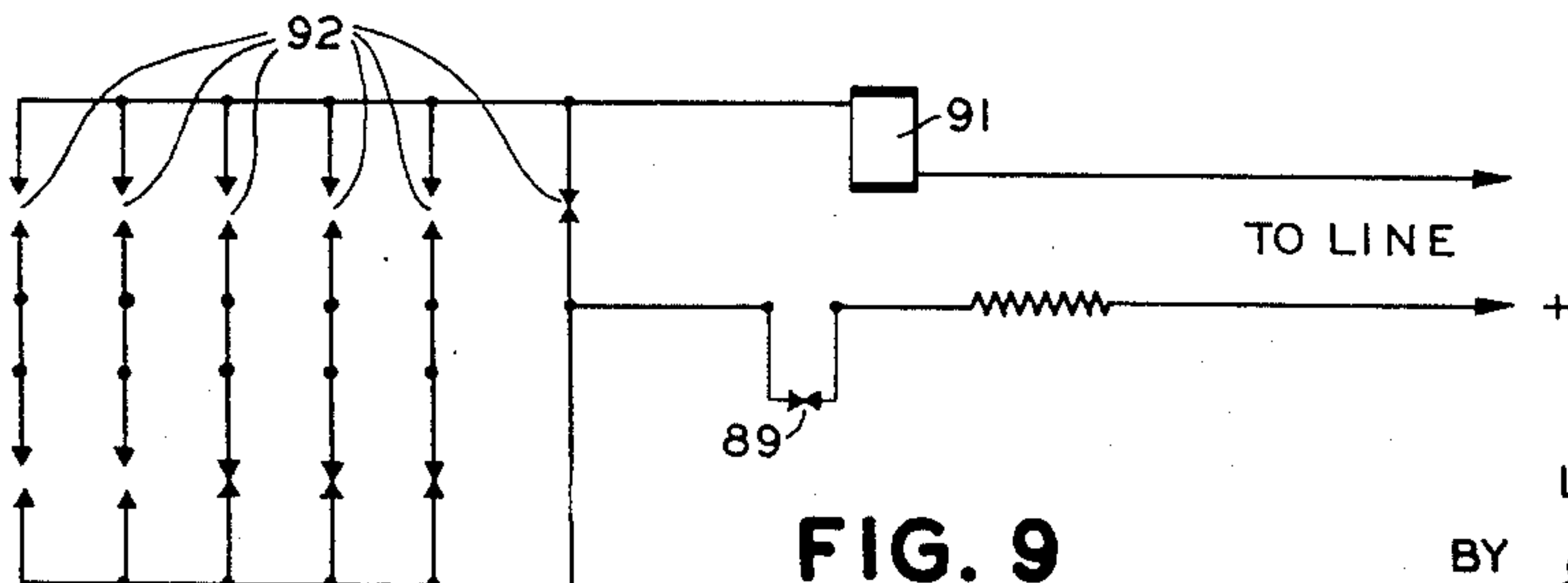
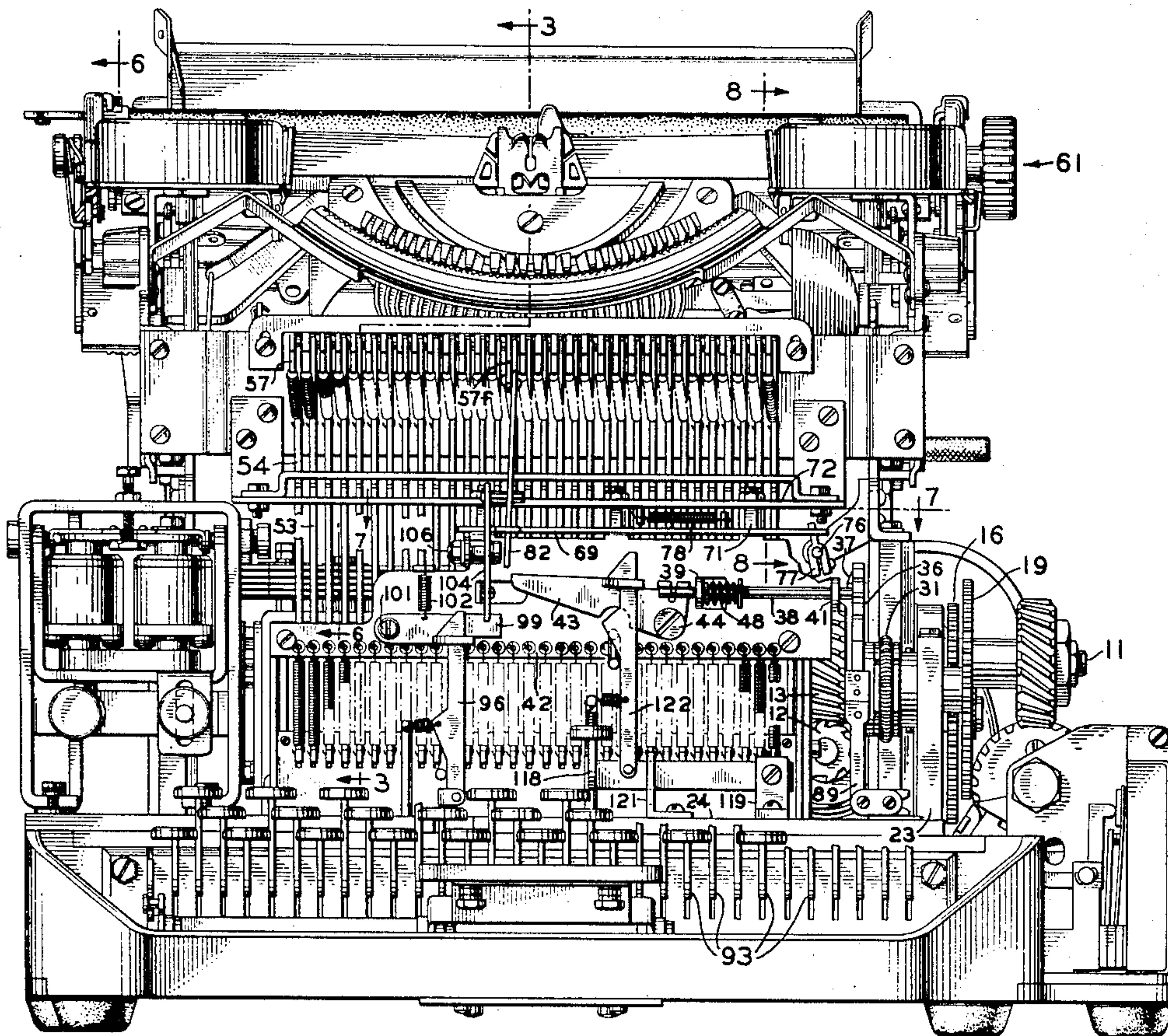


FIG. 9

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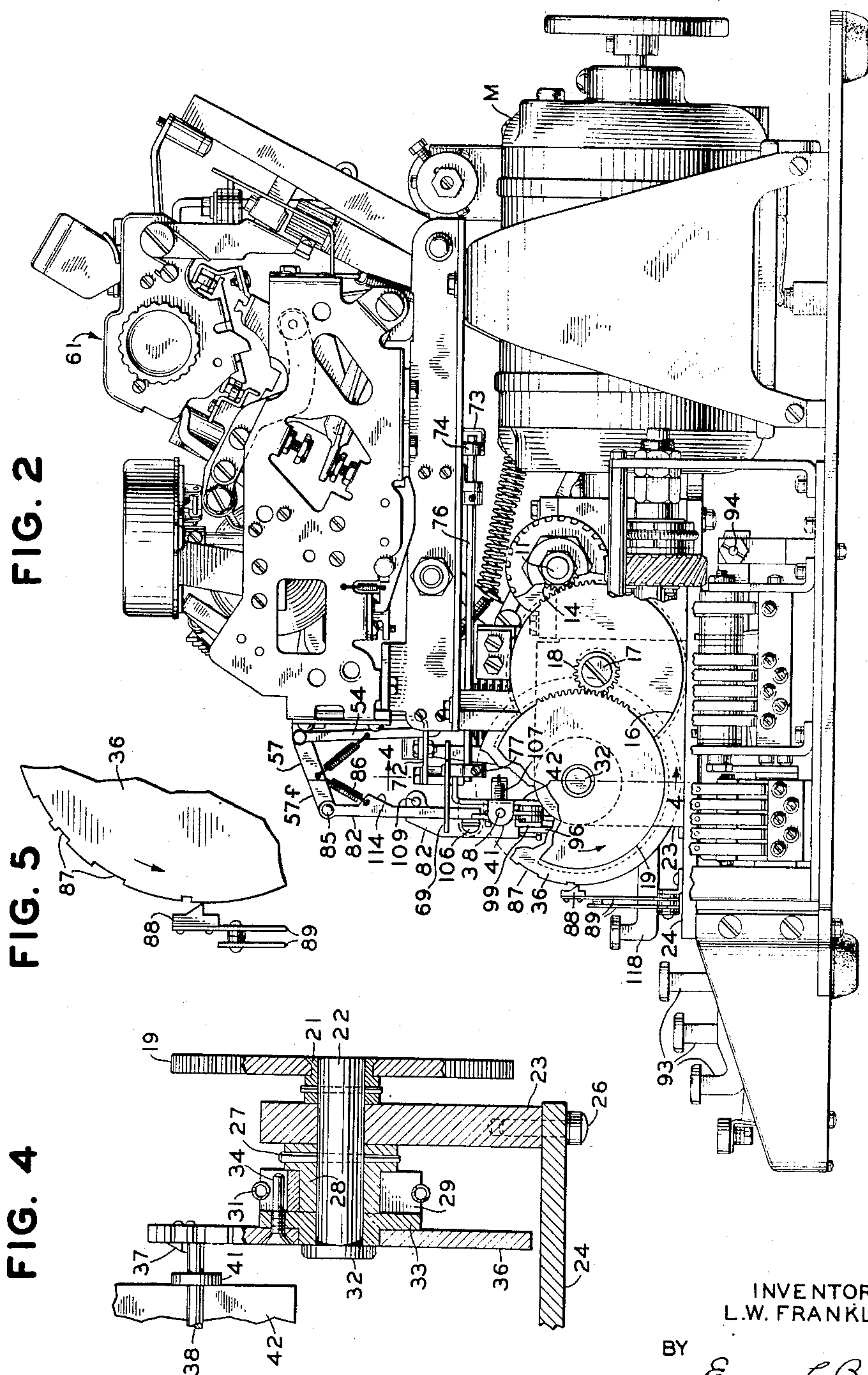
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5 Sheets-Sheet 2



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TELEGRAPH TRANSMITTING APPARATUS

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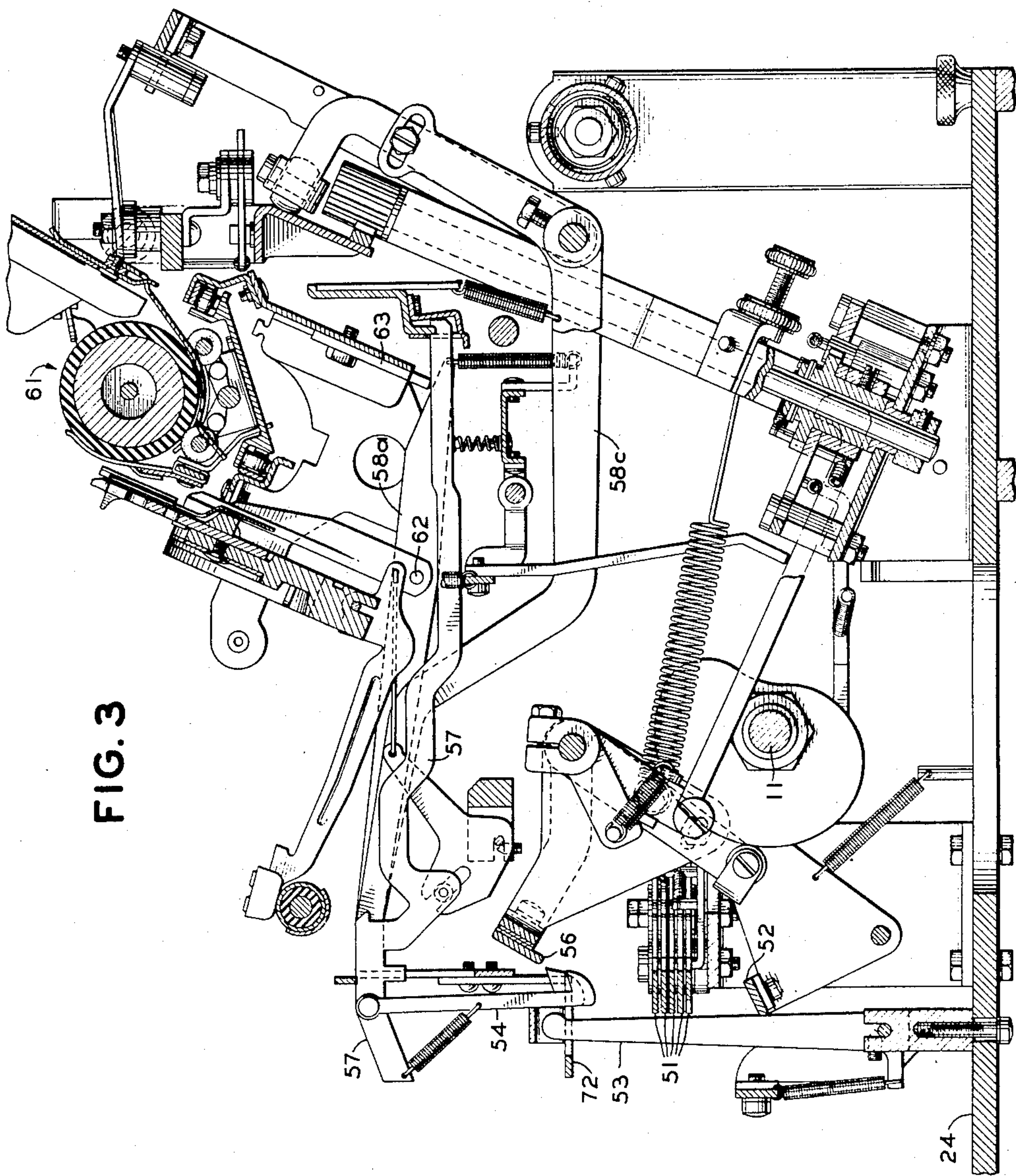


FIG. 3

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FIG. 6

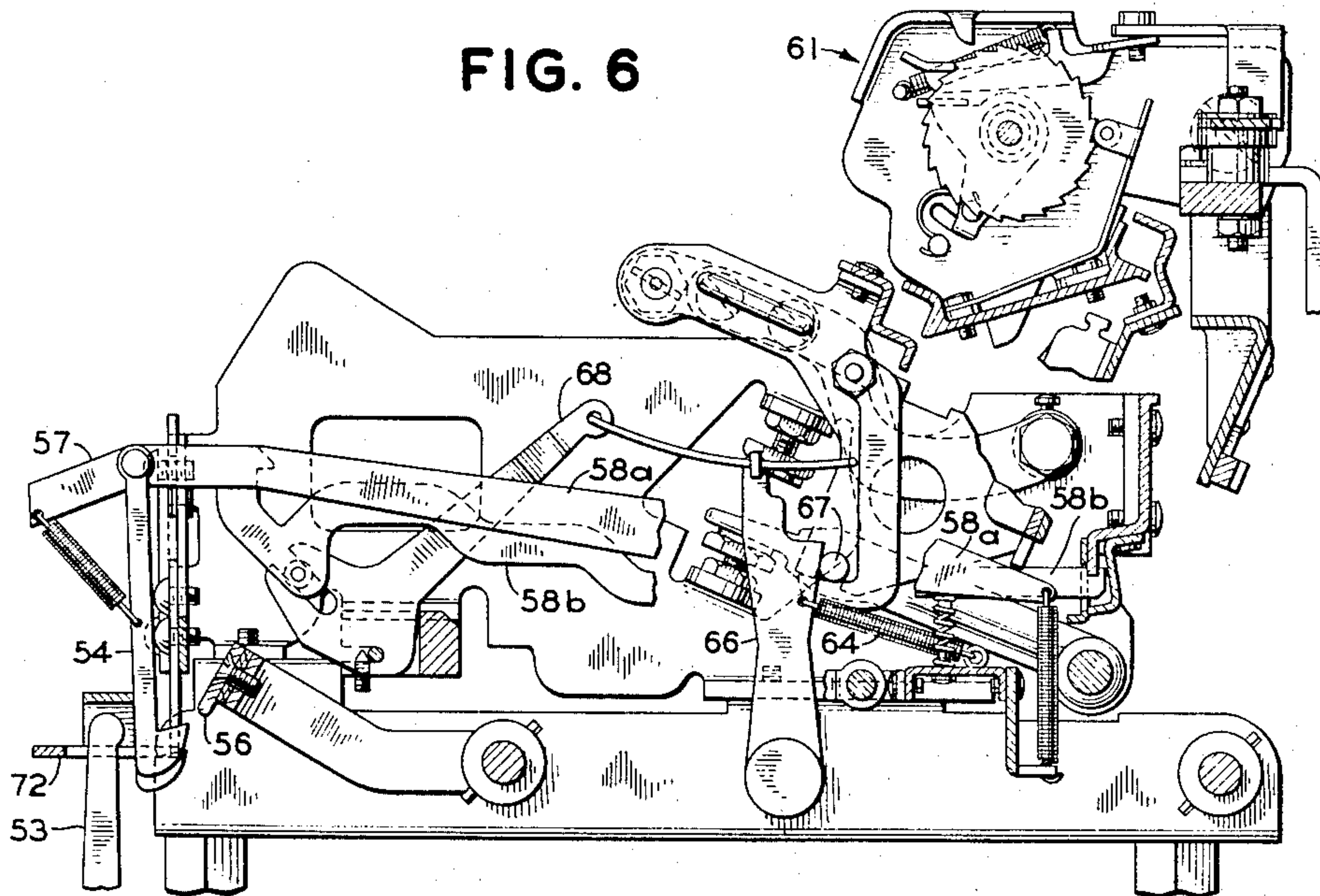


FIG. 7

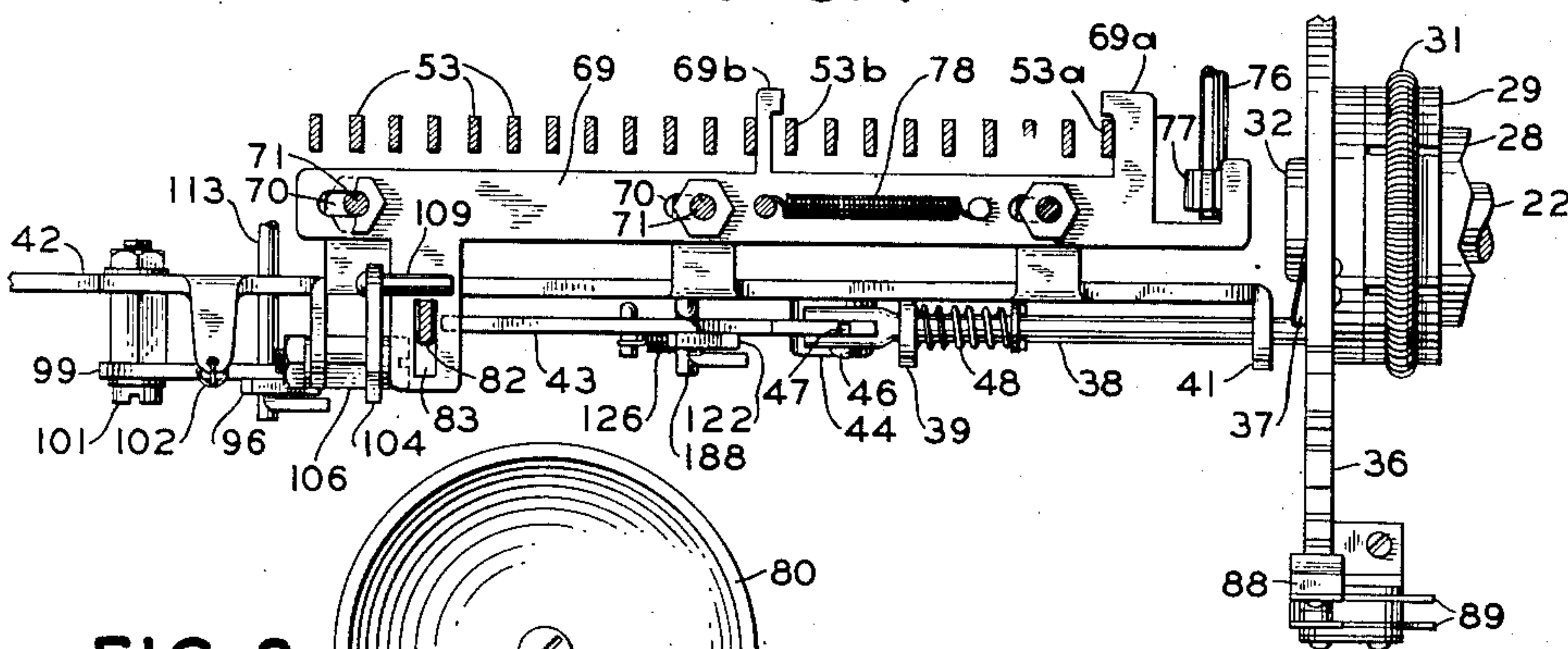
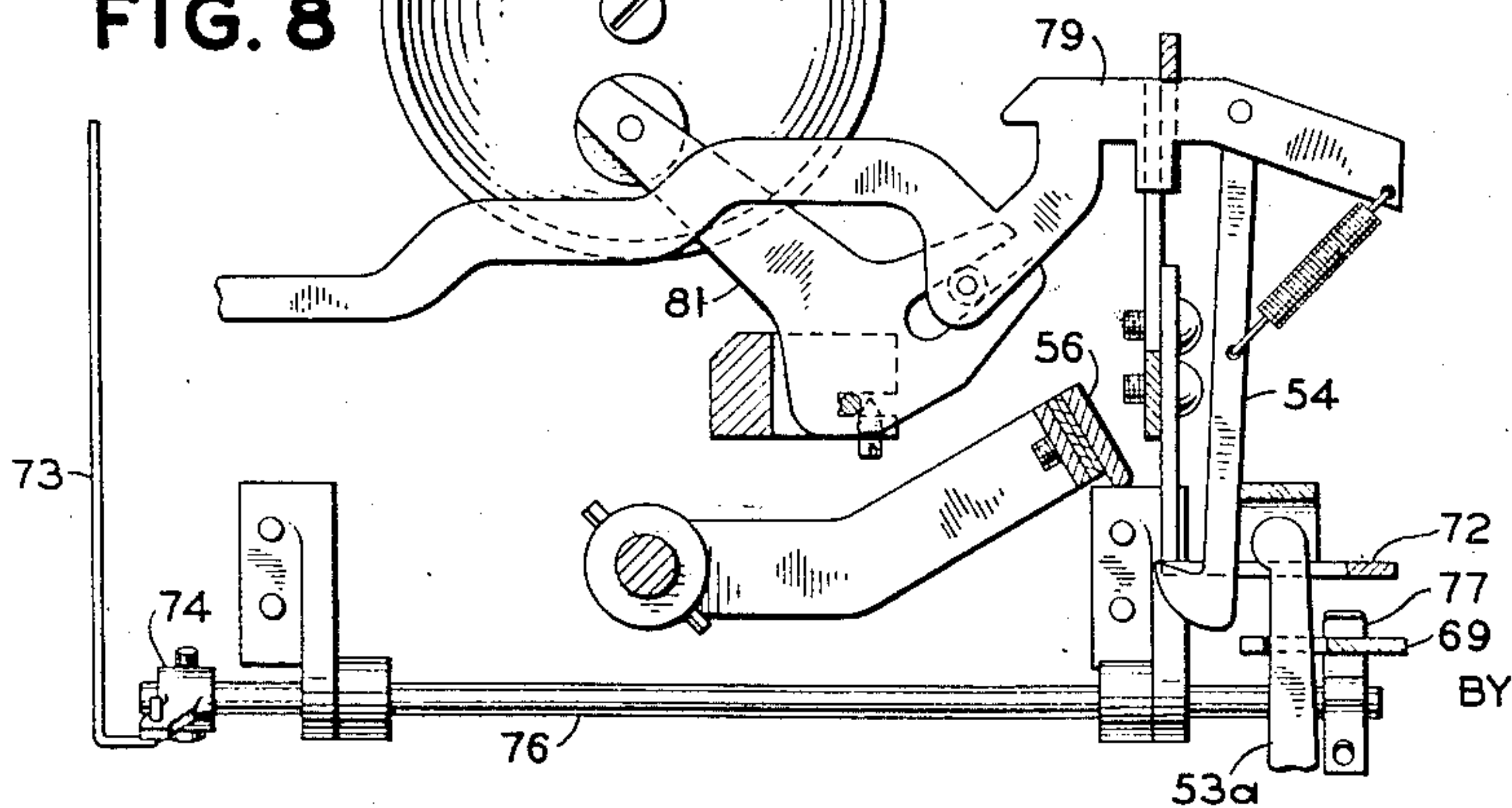


FIG. 8



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This technical drawing shows an exploded perspective view of a mechanical assembly. The components are labeled with reference numerals. At the top left, a long arm (57) is connected to a vertical support (54) via a spring (86) and a pivot (85). A bracket (82) is attached to the arm. Below this, a horizontal bar (69) is shown with various adjustment points (70, 71, 78, 69a, 69b). To the right, a large circular component (16) is shown with a central shaft (38) and a gear (19). A bracket (23) is attached to the side of the circular component. At the bottom, a base (118) supports a vertical post (122) with a spring (126) and a bracket (121). A long, thin strip (93) is shown at the bottom left, connected to a bracket (96) and a spring (97). The drawing illustrates the assembly of these components into a single unit.

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UNITED STATES PATENT OFFICE

2,147,249

TELEGRAPH TRANSMITTING APPARATUS

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 York

Application May 15, 1937, Serial No. 142,923

18 Claims. (Cl. 178—23)

This invention relates primarily to telegraph transmitting apparatus and more particularly to an auxiliary telegraph transmitting apparatus especially adapted for operation in conjunction with telegraph printers whereby a called station may automatically transmit to the calling station a group of signal code combinations representative of the called station. While this invention is particularly adapted for use in conjunction with the telegraph printer disclosed in a copending application of Noxon et al. Ser. No. 66,906, filed March 3, 1936, and is shown and will be hereinafter described as operating therewith, it is not limited to this one particular application but with minor modifications and changes it can easily be adapted to operate in conjunction with other printers or telegraph machines, and other applications of the invention are contemplated.

In a printing telegraph exchange system where- in any one of a plurality of transmitting and receiving stations may be manually and/or automatically interconnected with any one of the others, through one or more switchboards or central offices, it is often very desirable that the calling party know he is connected to the desired receiving station and that the printer set thereat is in condition to receive a message. Such an arrangement is particularly advantageous where the called station may be unattended at the particular time it is called. This condition is more likely to occur where the calling and called stations are separated by considerable distance and the difference in times thereat must be considered, such as for example where one station is in New York and the other in another time zone such as San Francisco, and the normal opening and closing times of these stations are different.

It is, therefore, one of the principal objects of this invention to provide an auxiliary transmitting mechanism which is attachable to telegraph sending-receiving machines whereby a called machine may automatically transmit to a calling station a group of predetermined signals representative of and individual to the called station.

Another object of this invention is to provide a control for the auxiliary transmitting mechanism at the called station whereby its operation may be initiated by the calling station at any time the connection exists thereto and as often as desired. This feature enables the calling station to assure itself that it is connected to the desired called station at the end of a message and/or at any other time and as often as desired during the transmission of the message.

Another object of the invention is to provide a means whereby the operator at the called station, when in attendance, may initiate the operation of the auxiliary transmitting mechanism at the calling station to transmit its representative group of predetermined signals.

Another object of the invention is to provide a mechanism whereby an operator at either the called or calling station may cause the automatic transmission of a group of signals from either the called or calling station representative thereof and as often as desired.

Other objects of this invention reside in the small amount of equipment required to accomplish the desired results, the ease with which it is attached to existing telegraph machines and the ease of changing the predetermined signals assigned to a particular machine.

These and other objects and features of the invention will be apparent in the following detailed description taken in conjunction with the accompanying drawings.

The preferred form of the invention is adapted primarily for use in conjunction with the printer disclosed in the copending Noxon et al. application, supra, and only the cooperating parts of this printer necessary for a complete understanding of the invention are shown. In general, the invention comprises a normally closed contact, hereinafter called the answer-back-contact, in series with the line circuit and a disc with a notched periphery for opening and closing the contact in a predetermined time relationship. The disc, normally at rest, tends to rotate through the action of a slip friction clutch and the notches therein are so arranged that when it does rotate, it operates the contact to transmit a predetermined series of groups of signals corresponding to the printer upon which it is mounted. The release of the disc is normally controlled by the receipt of a certain signal combination after a case shift signal combination and in this embodiment, the upper case F-signal combination is adapted to automatically release the disc at the station remote from that where this signal originated. Any signal combination could be adapted to cause the release of the disc, this particular one being chosen as it is a normally unused combination. Another key is adapted to manually cause the release of the disc on its associated machine when the operator thereat desires to automatically transmit his representative series of groups of signals. The manner in which the disc is automatically released for rotation comprises a series of links and levers operated by the oper-

ating lever of the F typebar. A mechanism controlled by the movement of the platen carriage in response to shift and unshift signals prevents the release of the disc when an F-signal combination is received and is not preceded by an upper case shift signal.

The equipment at both calling and called stations comprises the above mentioned answer-back-contact, the keyboard controlled transmitting contacts and the magnet of the printer selector mechanism, all connected in series, and thus the ordinary transmitted signals are recorded at both stations. As the same signal combination is used to release the discs at both stations, it is necessary to prevent the release of the disc at the station where the answer-back request is originating. If both discs were released simultaneously, each would break up the transmission of the other with the result that neither receiver would operate correctly. Thus another system of levers and links is embodied in the invention and operated by the F keylever to prevent the release of the disc at the station requesting the answer-back signals.

A more complete and comprehensive understanding of the invention may be had from the following detailed description when taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a front elevational view of the above mentioned telegraph printer embodying the present invention;

Fig. 2 is a right side elevational view thereof;

Fig. 3 is a sectional view taken substantially on the line 3—3 of Fig. 1 through the center of the printer;

Fig. 4 is an enlarged fragmentary sectional view taken substantially on the line 4—4 of Fig. 2 and showing primarily the friction drive for the notched disc;

Fig. 5 is an enlarged sector of the disc showing the manner in which the answer-back-contact cooperates therewith;

Fig. 6 is a fragmentary sectional view taken substantially on the line 6—6 of Fig. 1 showing the mechanisms for shifting the platen carriage from one shift position to the other;

Fig. 7 is a fragmentary sectional view taken on the line 7—7 of Fig. 1;

Fig. 8 is a fragmentary sectional view taken substantially on the line 8—8 of Fig. 1;

Fig. 9 is a circuit diagram showing the arrangement of the selector magnet, the keyboard transmitting contacts, the line circuit and the answer-back-contact; and

Fig. 10 is a fragmentary perspective view showing two keylevers and the manner in which a typebar operating lever cooperates therewith to operate the disc releasing mechanism.

Referring first to Figs. 1 and 2, the main operating shaft 11 of the printer is adapted to be constantly rotated at a predetermined speed from the motor M through appropriate helical gears 12 and 13. Adjacent the right hand end of the shaft 11 and adapted to rotate therewith is a comparatively small spur gear 14. The gear 14 meshes with a larger idler gear 16 which is pivotally supported on a shoulder screw 17. Also pivotally mounted on the shoulder screw 17 and adapted to rotate with the gear 16 is a small idler gear 18. The gear 18 meshes with a larger gear 19 which is secured by means of a hub 21, Fig. 4, to a shaft 22 for rotation therewith. The shaft 22 is pivotally supported in a block 23 which is secured to the base plate 24 of the printer by

screws 26. The block 23 also supports the shoulder screw 17. Pinned to the shaft 22 by a pin 27, for rotation therewith, is a flanged collar 28. The collar 28 has disposed around the circumference thereof three segmented friction elements 29, such as Bakelite, which are frictionally held in engagement with the collar 28 by a circular coiled radially contractible spring 31 encircling the friction elements. Loosely mounted on the shaft 22 and disposed between the flange 32 on the left hand end thereof and the collar 28 is another flanged collar 33. A disc 36 is secured to the collar 33 for rotation therewith, by pilot screws such as 34. The ends of the pilot screws 34 are engaged in slots in associated friction elements 29. Thus the disc 36 tends to rotate with the shaft 22 through the action of the friction elements 29 frictionally engaged with the circumference of the collar 28. Normally a lug 37, riveted to the disc 36, is in engagement with the right hand end of a trip rod 38 and the disc 36 is thereby held from rotating with the shaft 22. The shaft 22 is constantly rotated from the constantly rotating shaft 11 through the described gear train comprising gears 14, 16, 18 and 19. The trip rod 38 is supported in two projections 39 and 41, Figs. 1 and 7 extending from a plate 42 secured to the front section of the printer. The left hand end of the trip rod 38 is bifurcated as shown in Figs. 7 and 10, and straddles the upper right hand corner of a triangular shaped bell-crank 43. The bell crank 43 is pivoted on a shoulder screw 44 mounted in the plate 42 and a pin 46 in the trip rod extends through a slot 47 in the bell crank to operatively connect the two members together. A spring 48 coiled about a section of the trip rod 38 normally keeps the rod in its right hand position with the right hand end thereof against the left hand side of the disc 36 and engaged with the lug 37 or in the path of rotation thereof. The manner in which the trip rod is actuated to cause the release of the disc 36 will hereinafter be described.

Referring to Figs. 3 and 6, a brief description of the operation of the elements of the printer cooperating with the invention and those that are thought to be necessary for a complete understanding of the invention will now be given.

The selecting mechanism comprises a group of notched permutation bars 51 which are selectively positioned in accordance with received code combinations. After the positioning of the permutation bars 51 a drop-in-bar bail 52 is caused to pivot and allows a series of drop-in-bars 53 to approach the permutation bars 51. As the bars 51 are selectively positioned, one of these drop-in-bars 53 entering an aligned row of notches will travel farther than the rest. This extra travel of one of the drop-in-bars 53 causes it to engage the back of an associated hook 54 and pivot the hook beneath an operating bail 56. The hooks 54 are associated with type bar operating levers, such as 57, and printer function levers such as 58a, 58b and 58c, and as the operating bail is subsequently operated, it engages the selected hook and causes a character to be printed or a printer function to be performed.

The type bars have both upper and lower case characters thereon and to effect the printing of each, the platen carriage is raised and lowered in response to case shift signals. The platen carriage indicated in general at 61 in Figs. 1, 2, 3 and 6, is supported in a cradle and is adapted to move in a horizontal direction to effect letter spacing and in a substantially vertical direction

to effect the printing of upper and lower case characters. With the carriage in its lower position, the selection of the drop-in-bar 53 associated with the hook 54 on the operating lever 58a causes the lever to pivot on the pin 62 adjacent its center. As the lever 58a pivots the rear end thereof or the right hand end as shown in Fig. 3 engages a plate 63 of the carriage cradle and raises the cradle. When the carriage cradle is raised a spring 64, Fig. 6, pivots a latch 66 so that a shoulder 65 thereof engages a pin 67 in the cradle and thereby holds the carriage in its raised position. To lower the carriage cradle the hook 54 associated with the operating lever 58b is selected which causes the bell-crank 68 to pivot and pull the latch 66 out of engagement with the pin 67. The weight of the carriage then causes it to move to its lower position.

A plate 69, Figs. 1, 2, 7 and 10, is supported on studs 71, extending between a comb plate 72 guiding the upper ends of the drop-in-bars 53 and the above mentioned plate 42. The plate 69 has a plurality of slots 70 therein and is adapted to slide back and forth on the studs 71 as the carriage moves up and down as hereinafter described. A link 73, Fig. 8, attached to a vertical moving section of the carriage cradle and an arm 74 on a rod 76 causes the rod to rock as the carriage moves up and down. Another arm 77 on the front end of the rod 76, Figs. 7 and 8, engages the plate 69 and as the carriage rises, the rod by means of the arm 77 causes the plate 69 to move to the right as shown in Figs. 1 and 7. When the carriage is subsequently lowered, as hereinbefore described, a spring 78 secured to the plate 69, is allowed to move it to the left. Thus the plate 69 moves from left to right and vice versa as the carriage moves up and down respectively in response to case shift signals.

Two rows of notches in the permutation bars 51, Fig. 3, are in alignment for a certain code combination of signals and one function of the sliding plate 69 is to control which one of two drop-in-bars such as 53a and 53b will be selected for this certain signal combination. With the carriage in its lower position, a rearwardly extending projection 69a, Fig. 7, of the plate 69 prevents the drop-in-bar 53a from entering a row of notches in the permutation bars 51 and allows the selection of the drop-in-bar 53b. With the carriage in its upper position, a rearwardly extending projection 69b of the plate 69 prevents the selection of the drop-in-bar 53b while the projection 69a allows the selection of the drop-in-bar 53a. The drop-in-bar 53b controls a type bar while 53a controls the operation of bell signal levers 79 and 81, Fig. 8, to ring the bell 80.

The manner in which the receipt of predetermined code combinations causes the release of the disc 36 will now be described. The operating lever 57f, Figs. 1, 2 and 10, of the F type bar extends to the front a substantial amount further than the others and has loosely pivoted to the end thereof by a pivot pin 85 a depending push lever 82. The push lever 82 is loosely pivoted to the operating lever 57f so as to allow in addition to a pivoting movement about the pin 85 a slight pivoting movement of the lever 82 in a direction at right angles to the axis of the pivot pin 85 for the reasons hereinafter apparent. The lower section of the push lever 82 extends through a hole 83, Figs. 7 and 10, in a frontwardly extending projection 84 at the left hand end of the sliding plate 69 and is guided thereby. A spring 86 attached to the operating lever 57f and the

push lever 82 normally holds the push lever to the rear of the slot 83 in the plate 69. With the sliding plate 69 in its left hand position as shown in Fig. 1, the lower end of the push rod 82 is held to the left out of operative alignment with the left hand end of the bell-crank 43. With the sliding plate 69 in its right hand position, the bottom end of the push rod 82 is held to the right and normally in operative alignment with the left hand end of the bell-crank 43.

When the operator at the calling station desires an automatic answer-back signal from the printer at the receiving station, he first transmits a figures shift signal. This signal causes the platen carriages of both the receiving and transmitting printers to be moved to their raised positions. This in turn causes the sliding plate 69 of both printers to move to the right and bring the lower ends of the push rod 82 into operative alignment with the left hand ends of their associated bell-cranks 43. The operator then transmits a signal combination associated with the letter F. The letter F signal causes the selection and operation of the operating levers 57b of both printers. As the operating lever 57b of the printer at the called station moves downward, the lower end of the attached push lever 82 engages the bell-crank 43 and causes it to rock about the shoulder screw 44 upon which it is mounted. The bell-crank 43 in rocking causes the trip rod 38 to slide to the left and withdraw the right hand end thereof from engagement with the lug 37 on the disc 36. The disc 36 thereupon is free to rotate with the gear 19 through the action of the slip friction clutch heretofore described. As the disc 36 rotates the notches 87, Fig. 3, in the periphery thereof move past an insulating member 88 in contact with the periphery of the disc. The insulating member 88 is riveted to one spring of the answer-back contact 89. The answer-back contact 89 is in series with the selector magnet 91, Fig. 9, the keyboard transmitting contacts 92 and the line, and as the disc 36 rotates the contact 89 is opened and closed in a predetermined time relation thereby transmitting a series of groups of signals to the line. The notches 87 in the disc are so arranged in conjunction with the speed of rotation thereof that the signals transmitted by the answer-back contact 89 represent the printer at the called station.

The main shaft 11, Figs. 1 and 2, of the printer is adapted to make one revolution during the transmission of one complete character signal and in the preferred embodiment of the invention the disc 36 is adapted to rotate at a speed reduction of more than seventeen to one with respect to the shaft 11. Thus it is possible to transmit at least seventeen character signals through the answer-back contact 89 for each revolution of the disc 36. Obviously, with a greater speed reduction more character signals could be transmitted during an answer-back operation, seventeen being found more than sufficient to meet most operating conditions. Thus an answer-back signal comprising signals representative of the printer at the called station is transmitted to the line and will be received on the printer at the calling station.

The type bar operating levers such as 57f are immediately returned to normal after being operated and therefore the spring 48 is allowed to return the bell-crank 43 and the trip rod 38 to normal with the end of the trip rod against the side of the disc 36 and in the path of the lug 37

thereon. Thus after one complete revolution of the disc 36 it will be stopped in its normal rest position with the answer-back contacts closed.

Obviously, where two stations are connected by a normal type telegraph circuit, it is necessary to prevent the release of the disc 36 at the calling station when the F type bar operating lever 57f thereat is operated following the transmission of a figures shift signal, otherwise the discs at both stations would be released and the answer-back contacts 89 at the called and calling station would attempt to transmit simultaneously, resulting in neither receiver operating correctly. The preferred manner in which the release of the disc 36 is prevented at the station originating the answer-back request will now be described.

The keylevers 93 of the printer are pivotally mounted at their rear ends on a rod 94, Fig. 2, extending horizontally and transversely in the keyboard. When the front end of a keylever 93 is depressed, it causes a signal representative of this particular keylever to be transmitted in a manner fully described in the copending application, supra. This signal is usually received on the selector magnets of the printers at both the calling and called stations, causing the printers to operate in accordance therewith. Loosely attached to the F-keylever 93 of the printers at both the called and calling stations is a link 96, Fig. 10, the upper end of which is normally held by a spring 97 against a projection 98 on a substantially horizontal trip lever 99. The trip lever 99 is pivotally mounted on a shoulder screw 101 in the plate 42 and has an attached spring 102 which normally holds the right hand top edge of the trip lever in engagement with a horizontal shoulder 103 on the lower end of a push lever lock-out-lever 104. The lock-out-lever 104 is pivoted adjacent its center on a shoulder screw 106 in the plate 42 and has a spring 107 attached thereto which normally holds a vertical shoulder 108 at the lower end thereof against the front side of the trip lever 99. The upper end of the lock-out-lever 104 has a rightwardly extending projection 109 which extends in the rear of the push lever 82. As the F keylever 93 is depressed, the hook 111 at the upper end of the link 96 engages the projection 98 and causes the trip lever 99 to pivot downward, which results in the disengagement thereof with the lock-out-lever 104. The spring 107 thereupon rocks the lock-out-lever 104 about its mounting screw 106 and causes the projection 109 to engage the rear edge of the push lever 82, pivoting it to the front of the slot 83, in the sliding plate 69. This movement of the push lever 82 places the lower end thereof out of operative alignment with the left hand end of the bell-crank 43 and as the F type bar operating lever 57f is subsequently operated, the push rod 82 will pass in front of the bell-crank 43. Thus the disc 36 will not be released on the operation of the F typebar operating lever 57f on the printer associated with the actuated F keylever and this printer's answer-back contacts will therefore remain closed. As the F keylever 93 is being depressed, a beveled projection 112 adjacent the center left hand side of the link 96 engages a stationary stud 113 extending horizontally from the base plate 24 and causes the link to rock toward the right and disengage the hook 111 thereon and the projection 98 on the trip lever 99. This disengagement of the hook 111 and the projection 98 occurs some time after the trip lever 99 has pivoted a sufficient amount to cause the disengagement of the vertical shoulder 108 on the lower

end of the lock-out-lever 104 and the front side of the trip lever. Thus when the hook 111 and the projection 98 are disengaged, the spring 102 pivots the trip lever 99 to bring the top edge thereof into engagement with the bottom of the lock-out-lever 104. The top edge of the trip lever 99 reengages the shoulder 103 on the lock-out-lever 104 when the F type-bar operating lever 57f subsequently operates to bring a beveled projection 114 on the rear of the push lever 82 into engagement with the projection 109 of the lock-out-lever 104 and pivots the lever back into its normal position. Thus the lock-out-lever 104 holds the push lever 82 out of operative alignment with the end of the bell-crank 43 whenever the F key lever is depressed and the push lever 82 is returned to its normal position at the rear of the slot 83 near the end of the downward movement of the F type-bar operating lever. The push lever 82 will be thus held out of operative alignment with the bell-crank 43 only for one operation of the operating lever 57f when the operation of the operating lever 57f is initiated by the F keylever of the associated printer. When the F keylever 93 is released and is returning to its normal position, the top beveled surface 116 of the hook 111 engages with the bottom of the projection 98 and rocks the link 96 to the right so that the hook 111 clears the projection 98, and the spring 97 thereupon pulls the link to the left with the hook over in operative alignment with the projection 98. Thus the keylever 93 may be returned to normal any time after being depressed and not interfere with the operation of or the reset of the lock-out-lever 104.

Obviously, when the selector magnets and the keyboards of the printers at the called and calling stations are electrically disassociated with one another, as when used in what is known as a "split-keyboard" arrangement, there is no necessity of the lock-out-lever 104, the trip lever 99 and the link 96, as the printers at the called and calling stations only record signals originating at the calling and called stations respectively. Neither are these necessary if the printer is equipped with a home-record cutout, as described in copending application of Franklin, Ser. No. 39,355, filed Sept. 5, 1935. Also, other ways than the mechanical arrangement described above may be employed to prevent the printer at the calling station from transmitting an answer-back signal when requesting the same from a distant station, such as for example, an electrical arrangement which shorts out the answer-back contacts at predetermined times.

Oftentimes it may be desirable for the calling station to be able to transmit its own representative group of signals without the necessity of manually operating the various keys of the keyboard to do so. This is accomplished by operating a special keylever 118 which causes the release of the disc 36 on the associated printer. The keylever 118 differs from the other keylevers 93 in that it has no function other than the release of the disc 36. The keylever 118 is pivoted at one end in a bracket 119 and guided by another bracket 121, the brackets 119 and 121 being supported from the base plate 24 of the printer. Pivotally attached to the keylever 118 is a vertical link 122 which has on the upper end thereof a hook 123 normally held in operative alignment with a projection 124 on the bell-crank 43, by a spring 126 attached to the link 122. As the keylever 118 is depressed the hook 123 engages the projection 124 and causes the bell-crank 43 to

pivot about its mounting screw 44 and pull the trip rod 38 to the left to release the disc 36 for rotation as hereinbefore described. As the link 122 is moving downward, a beveled projection 127 adjacent the center thereof engages a stationary stud 128 and rocks the link 122 to the right to cause the disengagement of the hook 123 and the projection 124. This occurs shortly after the bell-crank 43 has been pivoted sufficiently to cause the release of the disc 36. This bell-crank 43 and trip rod 38 thereupon return to their normal positions and stop the rotation of the disc 36 after one complete revolution thereof as hereinbefore described. When the keylever 118 is released and the attached spring 129 is returning it to its normal position, the top beveled surface 131 of the hook 123 engages the bottom of the projection 124 and cams the link to the right. When the hook 123 has risen sufficiently to clear the projection 124, the spring 126 pulls the link 122 to the left with the hook and the projection in operative alignment. Thus the time of the return of the keylever 118 to normal does not interfere with the operation of the bell-crank 43 and the disc 36 will not rotate for more than a single revolution should the keylever 118 be held depressed for a prolonged period.

It will be obvious to those skilled in the art that when the called and calling stations are connected by a normal type of telegraph circuit, the operator at the called station may break the transmission from the calling station, and transmit a request consisting of a figures shift followed by an F signal combination as hereinbefore described, for an automatic answer-back signal from the calling station. Thereupon the printer at the calling station automatically transmits its answer-back signal and thereby permits the operator at the called station to ascertain what station is calling, should the called station neglect to transmit or wish to withhold such information.

Although this invention has been described in its preferred form, it is to be understood that the present disclosure is illustrative rather than restrictive, and that various changes and modifications of the apparatus shown herein may be made without departing from the spirit or essential attributes of the invention, and it is desired, therefore, that only such limitations shall be placed thereon as are imposed by the prior art or are specifically set forth in the appended claims.

What is claimed is:

1. In a printing telegraph receiving mechanism comprising a platen carriage having a shift and an unshift position, a plurality of type bar operating levers and an answer-back device, means for releasing said answer-back device for operation and means jointly controlled by said platen carriage in a predetermined one of said positions and the operation of a predetermined one of said type bar operating levers for operating said answer-back device releasing means.

2. In a telegraph machine, a plurality of operating levers operated in response to received code combination, an answer-back device, means for conditioning said operating levers for operation one at a time and means operative by a first predetermined one of said operating levers for conditioning a second predetermined one of said operating levers on subsequent operation thereof, to release said answer-back device.

3. In a telegraph machine, a plurality of operating levers, an answer-back device, means for

conditioning said operating levers for operation, one at a time, means operative by a first predetermined one of said operating levers for conditioning a second predetermined one of said operating levers for subsequent operation to release said answer-back device, and means operative by a third predetermined one of said operating levers when operated prior to the operation of said second predetermined operating lever to render the operation of said second predetermined operating lever ineffective for releasing said answer-back device.

4. In a printing telegraph receiving and transmitting machine a keyboard mechanism, a selector mechanism and a printing mechanism, said keyboard mechanism comprising a plurality of key levers the operation of which causes representative code combinations of impulses to be transmitted, said selector mechanism being normally responsive to said transmitted impulses to control said printing mechanism, an answer-back device, a plurality of type bar operating levers in said printing mechanism, means comprising a predetermined one of said operating levers for initiating the operation of said answer-back device and mechanical means controlled by said keyboard for preventing the release of said answer-back mechanism when the operation of said predetermined operating lever is initiated by the operation of a predetermined key lever in the associated keyboard.

5. In a telegraph receiver responsive to signals received over a line, a normally closed contact in series with said line, a notched disc, means normally tending to rotate said disc, said contact being adapted to be opened and closed in a predetermined time relationship by said disc on the rotation thereof, a sliding member normally holding said disc from rotation, a pivotable member articulated to said sliding member for operating the same, a plurality of type bar operating levers, means for operating said operating levers and means operative on the operation of a first predetermined one of said operating levers subsequent to the operation of a second predetermined one of said operating levers for pivoting said pivotable member to cause the release of said disc.

6. In a telegraph receiver responsive to signals received over a line, a normally closed contact in series with said line, a notched disc, means normally tending to rotate said disc, said contact being adapted to be opened and closed in a predetermined time relationship by said disc on the rotation thereof, a sliding member normally holding said disc from rotation, a pivotable member articulated to said sliding member for operating the same, a plurality of type bar operating levers, means for operating said operating levers, means operative on the operation of a predetermined one of said operating levers for pivoting said pivotable member to cause the release of said disc and means employing said sliding member for stopping the rotation of said disc after one revolution thereof.

7. In a telegraph receiver responsive to signals received over a line, a normally closed contact in series with said line, a notched disc, means normally tending to rotate said disc, said contact being adapted to be opened and closed in a predetermined time relationship by said disc on the rotation thereof, a sliding member normally holding said disc from rotation, a pivotable member articulated to said sliding member for operating the same, a plurality of type bar operating levers, means for operating said operating levers, a push

lever attached to a predetermined one of said operating levers normally out of operative alignment with said pivotable member and means responsive to the receipt of a predetermined signal for positioning said push lever in operative alignment with said pivotable member whereby subsequent operations of said predetermined operating lever cause said push lever to engage said pivotable member and operate the same to release said disc.

8. In a telegraph receiver responsive to signals received over a line, a normally closed contact in series with said line, a notched disc, means normally tending to rotate said disc, said contact being adapted to be opened and closed in a predetermined time relationship by said disc on the rotation thereof, a sliding member normally holding said disc from rotation, a pivotable member articulated to said sliding member for operating the same, manually operable means for pivoting said pivotable member to cause the release of said disc and means for disengaging said manually operated means with said pivotable member after a predetermined amount of operation thereof whereby said sliding member returns to normal to stop said disc after one revolution.

9. In combination, a line circuit, a printing telegraph machine comprising a keyboard, a plurality of key levers, a printing mechanism comprising a plurality of type bar operating levers, an electric selector mechanism dually controlled by said keyboard and signals received over said line circuit for selecting said operating levers for operation, operating means for said operating levers, an auxiliary transmitting mechanism having a definite cycle of operation, means controlled by the operation of a predetermined one of said operating levers when selected in response to a signal received over said line circuit for initiating the operation of said auxiliary transmitting mechanism for one cycle of operation, and means controlled by said keyboard for preventing the initiating of operation of said auxiliary transmitting mechanism when said predetermined operating lever is selected in response to operation of said keyboard.

10. The combination claimed in claim 9 in which said last mentioned keyboard controlled means is wholly mechanical.

11. In combination, a line circuit, a printing telegraph machine comprising a keyboard comprising a plurality of key levers, a printing mechanism comprising a plurality of type bar operating levers, an electric selector mechanism dually controlled by said keyboard and signals received over said line circuit for selecting said operating levers for operation, operating means for said operating levers, an auxiliary transmitting mechanism having a definite cycle of operation, a push lever articulated to a predetermined one of said operating levers, said push lever normally being adapted to release said auxiliary transmitting mechanism for operation on the operation of said operating lever and a latching means for latching said push lever in an off-normal position wherein the release of said auxiliary transmitting mechanism is prevented upon the operation of said predetermined operating lever.

12. In combination, a line circuit, a printing telegraph machine comprising a keyboard comprising a plurality of key levers, a printing mechanism comprising a plurality of typebar operating levers, an electric selector mechanism dually controlled by said keyboard and signals received

over said line circuit for selecting said operating levers for operation, operating means for said operating levers, an auxiliary transmitting mechanism having a definite cycle of operation, a push lever articulated to a predetermined one of said operating levers, said push lever normally being adapted to release said auxiliary transmitting mechanism for operation on the operation of said operating lever, a latching means for latching said push lever in an off-normal position wherein the release of said auxiliary transmitting mechanism is prevented upon the operation of said predetermined operating lever and means for returning said latching means to normal during the off-normal operation of said push lever.

13. In combination, a line circuit, a printing telegraph receiving and transmitting machine comprising a keyboard embodying a plurality of keylevers and means for transmitting code signals representative thereof, a printing mechanism comprising a plurality of typebar operating levers, an electric selector mechanism responsive to signals transmitted by said keyboard and signals received over said line circuit for controlling the selection of said operating levers, operating means for said operating levers, an auxiliary transmitting means adapted to transmit to said line circuit one or more signals indicative of its own identity, releasing means for said auxiliary transmitting means, a member actuated by a predetermined one of said operating levers and having a plurality of paths of movement, said member being adapted to operate said releasing means in one of said paths of movement and means controlled by signals received by said selector mechanism for determining some of the paths of movement of said member.

14. In combination, a line circuit, a printing telegraph receiving and transmitting machine comprising a keyboard embodying a plurality of keylevers and means for transmitting code signals representative thereof, a printing mechanism comprising a plurality of typebar operating levers, an electric selector mechanism responsive to signals transmitted by said keyboard and signals received over said line circuit for controlling the selection of said operating levers, operating means for said operating levers, an auxiliary transmitting means adapted to transmit to said line circuit one or more signals indicative of its own identity, releasing means for said auxiliary transmitting means, a member actuated by a predetermined one of said operating levers and having a plurality of paths of movement, said member being adapted to operate said releasing means in one of said paths of movement and means controlled by a predetermined one of said keylevers for determining some of the paths of movement of said member.

15. In combination, a line circuit, a printing telegraph receiving and transmitting machine comprising a keyboard embodying a plurality of keylevers and means for transmitting code signals representative thereof, a printing mechanism comprising a plurality of typebar operating levers, an electric selector mechanism responsive to signals transmitted by said keyboard and signals received over said line circuit for controlling the selection of said operating levers, operating means for said operating levers, an auxiliary transmitting means adapted to transmit to said line circuit one or more signals indicative of its own identity, releasing means for said auxiliary transmitting means, a member actu-

ated by a predetermined one of said operating levers and having a plurality of paths of movement, said member being adapted to operate said releasing means in one of said paths of movement and means controlled by the keylever causing the selection of said predetermined operating lever and signals received by said selector prior to the operation of said keylever for determining all of the paths of movement of said member.

- 10 16. In combination, a line circuit, a printing telegraph receiving and transmitting machine comprising a keyboard embodying a plurality of keylevers and means for transmitting code signals representative thereof, a printing mechanism comprising a plurality of typebar operating levers, an electric selector mechanism responsive to signals transmitted by said keyboard and signals received over said line circuit for controlling the selection of said operating levers, operating means for said operating levers, an auxiliary transmitting means adapted to transmit to said line circuit one or more signals indicative of its own identity, releasing means for said auxiliary transmitting means, a member actuated by a predetermined one of said operating levers and having a plurality of paths of movement, said member being adapted to operate said releasing means in one of said paths of movement, means controlled by the keylever causing the selection of said predetermined operating lever for latching said member to operate in predetermined of said paths of movement and means for returning said last mentioned means to normal regardless of the operation and continued depression of said keylever.

17. In combination, a line circuit, a printing telegraph receiving and transmitting machine comprising a keyboard embodying a plurality of keylevers and means for transmitting code signals representative thereof, a printing mechanism comprising a plurality of typebar operating levers, an electric selector mechanism responsive to signals transmitted by said keyboard and signals received over said line circuit for controlling the selection of said operating levers, operating means for said operating levers, an auxiliary transmitting means adapted to transmit to

said line circuit one or more signals indicative of its own identity, releasing means for said auxiliary transmitting means, a member actuated by a predetermined one of said operating levers and having a plurality of paths of movement, said member being adapted to operate said releasing means in one of said paths of movement, means controlled by the keylever causing the selection of said predetermined operating lever for latching said member to operate in predetermined of said paths of movement and means operated by said member whereby said latching means is effective during only one operation of said member for each operation of said keylever regardless of the operation and continued depression of said keylever.

18. In combination, a line circuit, a printing telegraph receiving and transmitting machine comprising a keyboard embodying a plurality of keylevers and means for transmitting code signals representative thereof, a printing mechanism comprising a plurality of typebar operating levers, an electric selector mechanism responsive to signals transmitted by said keyboard and signals received over said line circuit for controlling the selection of said operating levers, operating means for said operating levers, an auxiliary transmitting means adapted to transmit to said line circuit one or more signals indicative of its own identity, releasing means for said auxiliary transmitting means, a member actuated by a predetermined one of said operating levers and having four paths of movement, means controlled by signals received by said selector mechanism for determining a first and second paths of movement of said member, means controlled by the keylever causing the selection of said predetermined operating lever for normally determining said first and a third paths of movement of said member, means jointly controlled by said two last mentioned means for determining a fourth path of movement of said member and means whereby said member in said second path of movement operates said auxiliary transmitting mechanism releasing means.

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