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D. E. BRANSON

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KEYBOARD MECHANISM FOR TELETYPEWRITERS

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FIG. 1

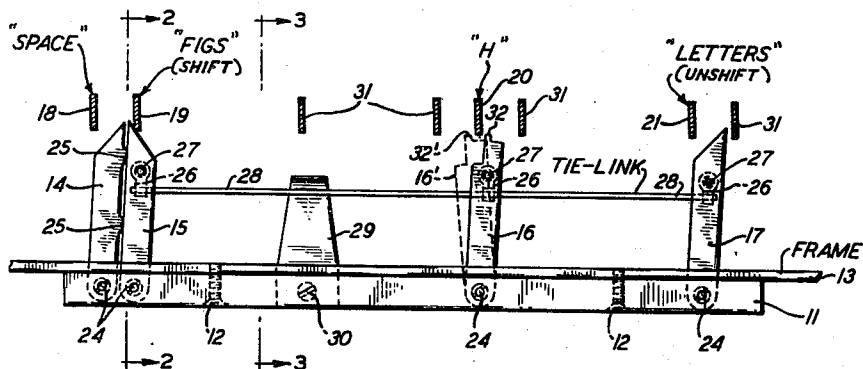


FIG. 2

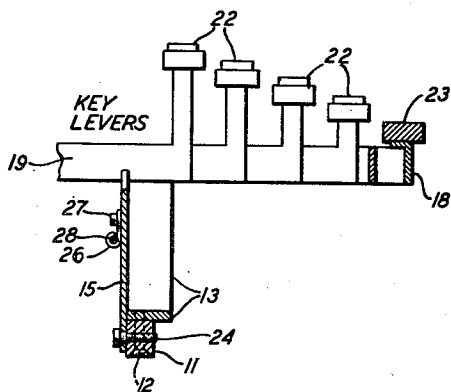
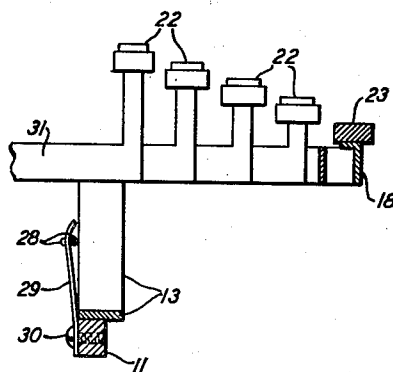


FIG. 3



INVENTOR
D. E. BRANSON
BY
R. C. Terry
ATTORNEY

UNITED STATES PATENT OFFICE

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KEYBOARD MECHANISM FOR
TELETYPEWRITERS

David E. Branson, Morristown, N. J., assignor to
Bell Telephone Laboratories, Incorporated, New
York, N. Y., a corporation of New York

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1 Claim. (Cl. 178-79)

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This invention relates to printing telegraph apparatus and more particularly to a keyboard mechanism in which a plurality of keys are arranged to position a set of permutation elements in different combinations. Such keyboards are employed principally in telegraph systems for transmitting signals to a receiving printer or in a perforator unit wherein tape is perforated in accordance with a code made up of permutations of different numbers of two different conditions.

The keyboard mechanism of the present invention is particularly adapted for use in a teletypewriter at a station in a system wherein the transmission of a message from the station to one or more receiving printers at a remotely located station or stations involves the automatic transmission of certain codes, such address code signals, end-of-address signals and end-of-message signals, and the like. The end-of-message signal, which consists of a combination of "figures," "H" and "letters" signals, requires a distinction to be made between transmitting the character signal for the letter "H" in combination with the "figures" signal and transmitting the letter "H" alone, such as when transmitted as part of the message.

An object of the present invention is to prevent sending a signal consisting of the "figures" and "H" permutation code combinations from a teletypewriter keyboard in a teletypewriter system equipped with arrangements for automatically transmitting "figures H" signal code combinations.

According to the present invention, the teletypewriter keyboard is modified to prevent the operation of the "H" character key lever while the teletypewriter is in its shift or upper case condition, to which it is operated in response to the operation of the "figures" key lever. The modification consists in attaching a bar of metal or other suitably rigid material to the underside of the teletypewriter framework and immediately to the rear of the key lever guide, or comb, and having pivotally mounted thereon three bars with camming surfaces respectively arranged in engageable relation with the underside of three key levers, namely, those of "space," "figures" (shift), and "letters" (unshift) keys, and a blocking bar in engageable relation with the "H" key lever. Two of the camming bars, the "space" camming bar excluded, and the blocking bar for the "H" key lever are pivotally connected to a link rod of suitable material so that the movement of any one of the three bars in either a clockwise or a counter-clockwise direction causes the other two

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bars to simultaneously move in the same direction. Should the teletypewriter be in its unshift position at the time the "figures" key lever is operated, the "figures" camming bar would move in a counter-clockwise direction and should it be in its shift position at the time the "letters" key lever is operated the "letters" camming bar would move in a clockwise direction. The "H" blocking bar depends for its movement upon the operation of either the "figures" or "letters" camming bar. The "H" blocking bar upon moving in a counter-clockwise direction in response to the operation of the "figures" key lever through the medium of the link rod, prevents the operation of the "H" key lever, and upon moving in a clockwise direction in response to the operation of either the "letters" or the "space" camming bar permits the operation of the "H" key lever, the "space" camming bar being detachably juxtaposed to the "figures" camming bar so that the "space" camming bar upon being moved in a clockwise direction will move the other camming bars in the same direction if it is in engagement at the time with the "figures" camming bar.

In view of the fact that many teletypewriters are so constructed that an automatic unshift of the platen is had in response to a "space" signal as well as the unshift in response to a "letters" signal, the keyboard mechanism disclosed herein is arranged to be restored to its unshift condition, as regards the "H" key lever, in response to either of these signals.

A feature of the invention is the provision of means to avoid unintentional transmission of an end-of-message signal when sending a message in a teletypewriter private line intercommunicating system equipped with automatic transmission arrangements for sending end-of-message, address, end-of-address, end-of-transmission and the like.

Other objects and features will be noted from the following description taken in conjunction with the accompanying drawings wherein:

Fig. 1 is a front elevation of a cross-sectional view of the key levers of a page type teletypewriter provided with camming bars in engageable relation with their respectively associated key levers;

Fig. 2 shows a side elevation of Fig. 1 taken along line 2-2; and

Fig. 3 shows another side elevation of the arrangement shown in Fig. 1, taken along line 3-3.

Referring to Fig. 1, bar 11 of metal or some other suitably rigid material is fastened by means of machine screws 12 to the underside of the framework 13 of the keyboard mechanism of the page type teletypewriter such as described in de-

tail in United States Patent 1,904,164, granted to Morton-Krum-Kleinschmidt on April 18, 1933. The disclosure of this patent is hereby made a part of this disclosure as if fully included herein. Bar 11 is located immediate to the rear of the key lever guide, or comb (not shown), but provided with slots through which the key levers extend to be in engageable relation with the code bars (not shown). Pivotaly affixed to the rear of bar 11 are three camming bars, and a blocking bar, namely, "space" camming bar 14, "figures" camming bar 15, "H" blocking bar 16, and "letters" camming bar 17. The camming bars are so spaced that their top camming surfaces are in engageable relation with the underside of "space" key lever 18, "figures" key lever 19, and "letters" key lever 20, respectively. These key levers are engaged at their rear ends by a pivot rod and each is upheld in a normal position by a spring, the pivot rod and spring corresponding to those respectively shown in Patent 1,904,164. The forward upturned end of the key levers are provided with key tops 22 except the "space" key lever 18 which may be provided with a relatively long space bar 23 which is shown in front of key tops 22 in Figs. 2 and 3.

Each of the camming bars 14, 15 and 17 and also the blocking bar 16 is pivotally mounted by means of a machine screw 24 on metallic bar 11. Formed integrally on the right-hand edge of camming bar 14 are two tangs 25. These tangs are in engageable relation with the left-hand edge of camming bar 15 and serve to move camming bar 15 in a clockwise direction when camming bar 14 is moved in a clockwise direction by the operation of "space" key lever 18, and serve to move camming bar 14 in a counter-clockwise direction should camming bar 14 be in its clockwise position at a time when camming bar 15 is moved counter-clockwise by the operation of "figures" key lever 19. Pivotaly mounted on each of camming bars 15 and 17 as well as on blocking bar 16 by means of a machine screw 27 is a clamp 26, the clamps 26 serving to securely support link rod 28. To reduce the lateral vibration of link rod 28 a supporting member 29 is fixedly attached to bar 11 by means of machine screw 30, as shown in Fig. 3, there being sufficient spring-like characteristic to member 29 to permit link rod 28 to move freely with the movement of camming bars 15 and 17.

The "H" blocking bar 16 is shown in its normal or "unshift" position wherein the "H" key lever 20 is free to operate to cause the "H" character signal to be transmitted from the keyboard. When the "figures" key lever is operated its associated camming bar 15 is moved in a counter-clockwise direction to its "shift" position thereby moving blocking bar 16 and camming bar 17 also in a counter-clockwise direction to their "shift" positions, the "shift" position of blocking bar 16 being represented by bar 16' shown in dotted outline. It will be noted that the top surface of blocking bar 16 has integrally formed therewith a tang 32 which prevents key lever 20 from slipping off the top surface of camming bar 16 should an attempt be made to operate key lever 20 at a time when blocking bar 16 is in its "shift" position.

In certain types of intercommunicating tele-

typewriter systems wherein code transmission arrangements are provided for automatically transmitting end-of-message signals and the like, independently of keyboard operations, it is highly desirable that means also be provided for preventing corresponding signals being inadvertently sent from the keyboard. In the particular case, at hand, the end-of-message signal which comprises the "figures" and "H" combination usually followed by some other code combination such as "letters," is automatically transmitted at the end of a message by means not disclosed herein.

In order to avoid confusion with the automatic transmission of "figures H" code combinations the teletypewriter, used in a system wherein such signals are automatically transmitted, is modified in accordance with the present invention to provide mechanical locking means on its keyboard so that the operator cannot send, by means of the keyboard, "figures" and "H" code combinations in succession.

It is understood that the scope of the present invention is not limited to the specific arrangement shown in the drawing but that the principle may be employed wherever it is desirable to prevent the transmission of certain signal combinations directly from the keyboard.

What is claimed is:

In a keyboard controlled telegraph transmitter, a plurality of individually depressible key levers including one assigned to control the generation of an upper case shift signal, one to control the generation of a lower case shift signal, one to control the generation of a character spacing signal, and a plurality to control the generation of character signals, an arm pivotally mounted below said upper case shift key lever and having a camming surface presented in the path of that key lever to cause pivotal movement of said arm in one direction by that key lever, a similar arm associated with said lower case shift key lever and having its camming surface arranged to cause pivotal movement of the arm in the opposite direction, a link member interconnecting said arms for longitudinal movement by either of them and of such length that either arm upon being pivotally operated by its associated key lever, restores the other arm, a key lever blocking element associated with said link member for blocking and alternately unblocking one of said character signal key levers according to the movement of said link member by the respective arms, and another pivotally mounted arm presenting a camming surface in the path of said spacing key lever and operable to move said link member in the same direction as the arm associated with said lower case shift key lever.

DAVID E. BRANSON.

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