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SMAHN PUNYARTBAND ET AL

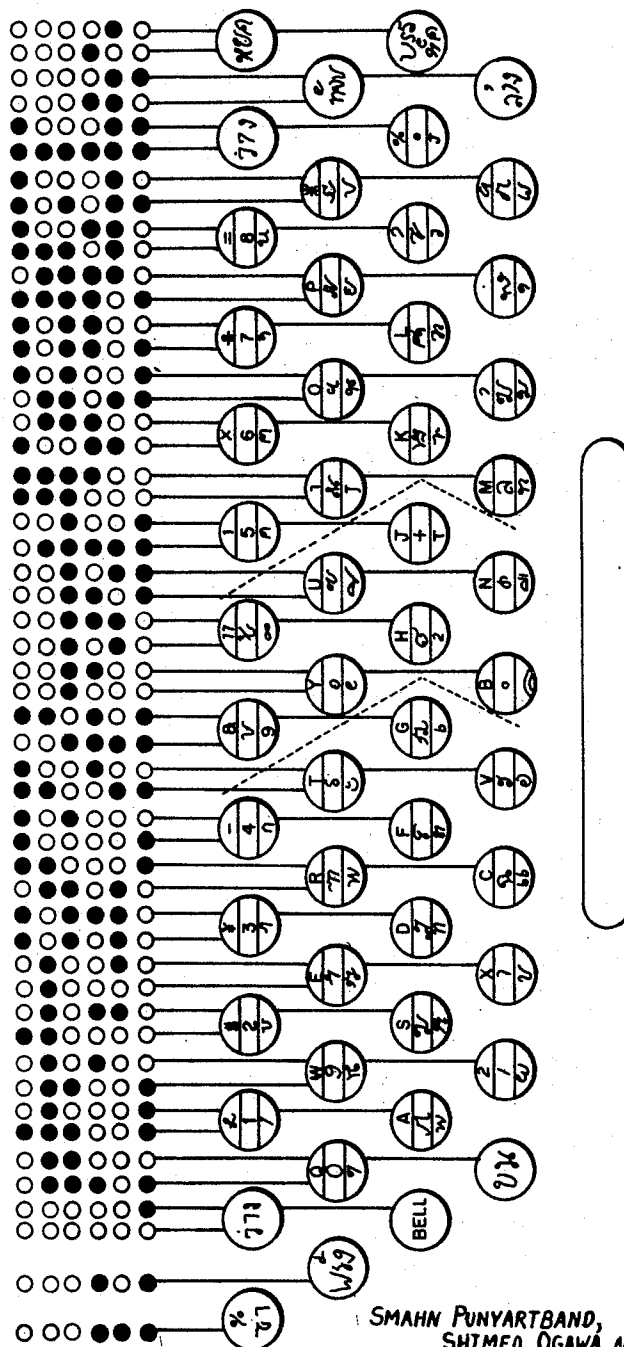
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TELEPRINTER RECEIVING APPARATUS

Filed Oct. 17, 1956

2 Sheets-Sheet 1

FIG. 1



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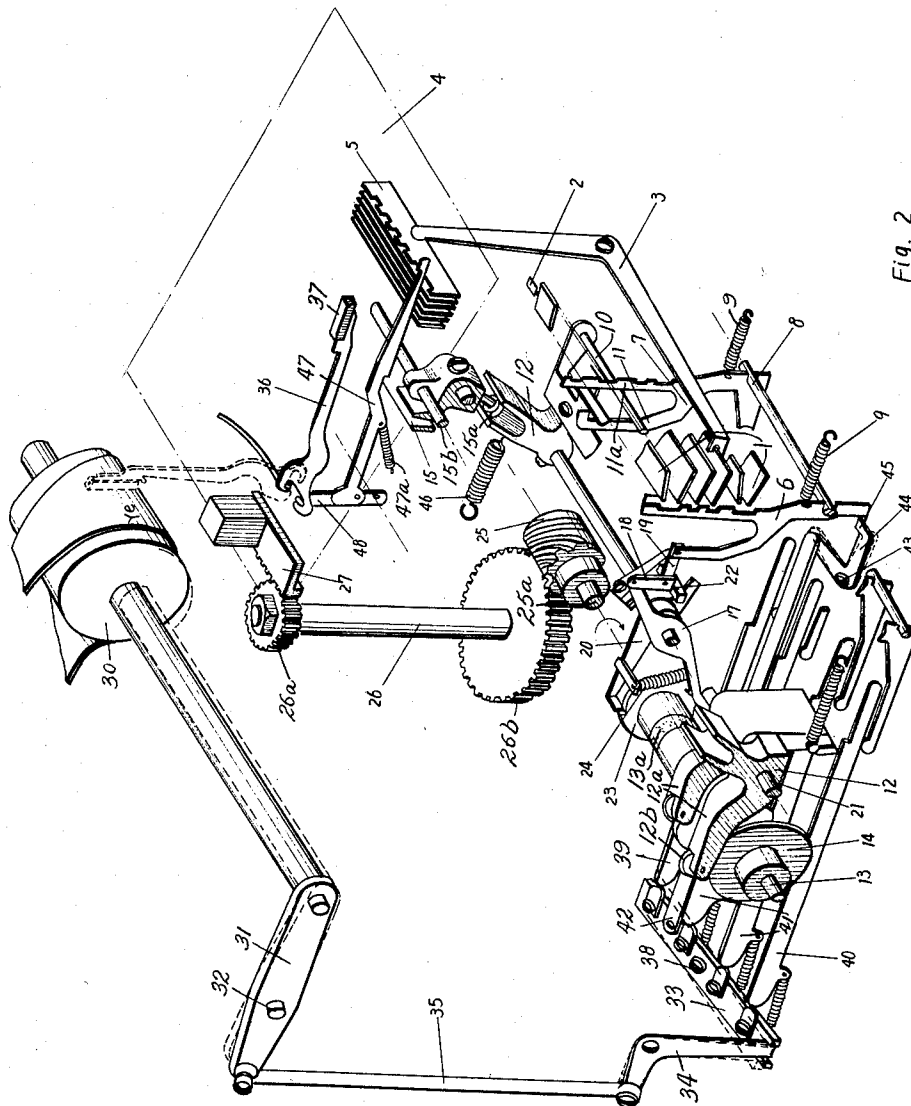


Fig. 2

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TELEPRINTER RECEIVING APPARATUS

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5 Claims. (Cl. 178—23)

This invention relates to a teleprinter receiving apparatus, and more particularly to an apparatus in which the spacing function is eliminated at certain times in the operation of the apparatus.

An object of this invention is to provide a Teletype apparatus adaptable for use with either the English language or a language such as Thai, Burmese or Indian.

A teleprinter keyboard which is standard for the Thai language has 42 keys, each having two characters thereon. The operation of the device on which the keyboard may be placed is similar to a device with a keyboard for use with the English language, in that to obtain the second character on the key, a shift key is utilized which adjusts the position of the carriage of the device, or alternatively the position of the type carrying bars, so that the second character strikes the platen of the machine rather than the first. In the Thai language, however, the second set of characters are not capitals, but are separate and different characters. The 42 keys have 16 Thai vowels, 54 Thai consonants, 10 numerals, parentheses and two punctuation marks.

In the Thai language as in Burmese, Indian and Japanese, certain vowels and certain consonants are combined in one character to produce a complete letter. On the typewriters and Teletype machines for use exclusively with these languages, certain of the keys using the combinable vowels are disconnected from the spacing mechanism so that a second key may be struck and a second character produced in the same space as the vowel to produce the complete letter.

However, when a device for use with both English and one of the above languages is constructed, the keys with the combinable vowels for the Thai or like language cannot be completely disconnected from the spacing mechanism because the English letters on the same keys occur only one to a space. Therefore it is necessary that when the Thai vowel is to be reproduced on the platen, the machine must not space, whereas when the English letter is to be reproduced on the platen, the machine must space.

It is therefore an object of the present invention to provide a teleprinter receiving apparatus for use with both English letters and letters in Thai or a like language, in which, when certain Thai letters are reproduced, the spacing function of the machine is eliminated, whereas when the English letter on the same key is to be reproduced, the machine will space normally.

The preferred embodiments of a device according to the invention are described in the following specification and are shown in the accompanying drawings, in which:

Fig. 1 shows a keyboard for use with a combined English-Thai teleprinter machine;

Fig. 2 shows a perspective view of the essential parts of a form of the device according to the invention, in which some of the parts are shown partially in section.

There is shown in Fig. 1 a keyboard which will be helpful in understanding the operation of the device ac-

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cording to the invention. The upper characters on the keys correspond generally to the characters on a teleprinter or typewriter for use in the English language, while the characters in the middle and on the bottom of the keys are standard for a Teletype or typewriter for the Thai language. The eight keys outlined by the dotted lines at approximately the center of the keyboard contain the Thai vowels which occur in the same space as a consonant and combine with that consonant to form a complete letter. When striking one such key to reproduce either of the Thai vowels, it is desirable that the spacing function of the machine be eliminated, but when striking the key to reproduce the English letter thereon it is desirable that the machine space normally.

Fig. 2 shows a fully mechanical mechanism for incorporation in a teleprinter receiver for accomplishing this unusual spacing operation. A platen 30 is rotatably mounted on a rocker arm 31 pivoted at 32 to the frame of the machine. A type basket 4 comprised of a plurality of type bars 36 each having type 37 on the free end thereof is slidable in the apparatus parallel to the platen 30 by means of a rack 27 actuated by a shaft 26 having a small gear 26a on one end thereof meshed with the rack and a large gear 26b on the other end meshed with a worm gear 25. The worm gear is turned by a mechanism to be described and rotates the gears 26b and 26a to move the rack 27 thus spacing the type basket 4 with respect to the platen 30. The type bars 36, of which only one is shown, are mounted to pivot upwardly so that the type can strike the platen 30 in the usual manner, and are actuated by type bar levers 48 pivotally connected to one end of the type bars 36, and which in turn are actuated by pull bars 47 pivoted at one end to the type bar levers 48. An operating bail 15, shown partially in section for purposes of clarity, engages a lug on the lower side of the single pull bar 47 shown in the figure to move it in the direction of its length against the action of a spring 47a attached to the apparatus. A series of six code bars 5 is positioned in the type basket in the path of the movement of the pull bars 47, the machine being for six unit codes. A selector vane 1 is provided for each unit code and is connected with a selector part (not shown) to rotate about a shaft 2. Each selector vane 1 is connected with a code bar 5 by a bell crank 3 (only one of which is shown).

A spacer control lever 6 is pivoted at its lower end around a shaft 8 on the apparatus, and a similar lever 7 is likewise pivoted around the shaft 8. These two levers have one arm 11a thereon with a series of notches therein adjacent the selector vanes 1 and a second arm 11 spaced from and generally parallel to the said one arms to define a space between the arms. Each of the spacer control levers 6 and 7 are urged toward the selector vanes by springs 9 connected between the levers and the apparatus.

Extending through the space defined between the arms of the spacer control levers 6 and 7 is a lever control arm 10. A pair of operating arms 12 are mounted on an operating shaft 21 which is generally parallel to the lever control arm 10, and the control arm is connected to one of these operating arms. The operating arms 12 have a forked free end, and fitted in this forked end is a roller 15a of the bail 15. The bail 15 is mounted on a shaft 15b and engages the pull bars 47, as above described. A strong spring 46 urges the operating arms to rotate with operating shaft 21 in the direction that will cause the pull levers 47 to pivot the type bars 36.

On the other of the operating arms 12 is an arm 12a having a roller 12b on the end thereof. Beneath the roller 12b and contacted thereby is an operating cam 14. Cam 14 is mounted on a shaft 13 which is rotated when the machine receives a signal to type a letter on the platen.

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Worm gear 25 is mounted on a shaft 25a frictionally engaged with shaft 12 by a frictional connection 13a.

On the part of the shaft 13 between cam 14 and worm shaft 25a is a ratchet mechanism for spacing the type basket 4. It consists of a ratchet wheel 23 with three teeth thereon and it is fixed to the worm shaft 25a. The ratchet wheel 23 is rotated by the turning of shaft 13 through the frictional connection 13a. Two escapement pawls 17 and 20 are pivotally mounted on operating shaft 21 and have bent over end portions engaging two of the teeth on the ratchet wheel 23. The escapement pawls 17 and 20 are connected by a spring 24. Pivoted to the end of the escapement pawl 17 is a spacer control link 18, and the free end of the spacer control link 18 is pivotally linked to the spacer control lever 6 by connecting link 19. A spacer bail 22 is connected to the operating shaft 21 for rotation therewith, and the end of the bail extends into the space between the ends of the pawls 17 and 20 on the opposite side of the operating shaft 21 from the ratchet wheel 23.

On the end of the rocker arm 31 opposite the platen 30 is pivoted a connecting rod 35 which is pivoted at its lower end to a bell crank 34. Bell crank 34 is pivoted on the apparatus so that the free end thereof reciprocates in a horizontal plane. A shift lever 33 having a notch in the end thereof is engaged by means of the notch with the free end of the bell crank 34, and is pivoted for horizontal movement around the pivot 38. Engaged with the shift lever 33 are a series of push bars which are adapted to pivot the shift lever about the pivot 38. Push bar 40 is adapted to pivot lever 33 sufficiently to lower the platen 30 an amount which enables the type 37 to strike the platen at the lowest point on the type (the position shown in dotted lines in the figure), while push bars 41 move the shift lever 33 sufficiently to enable the middle portion of the type 37 to strike the platen 30. The push bar 38 pivots the shift lever 33 in the opposite direction to lift the platen 30 so that the upper portion of the type 37 strikes the platen. Pivoted to the shift lever 33 between the pivot point 38 and the push bar 39 is a link 42 which is pivoted to a blocking bell crank 44 pivoted to the apparatus at 43. The blocking bell crank 44 has a blocking arm 45 thereon which extends adjacent to the lower end of the spacer control lever 6. In the normal position of the shift lever 33 or in the position in which the push bar 39 has shifted the shift lever 33, the blocking arm blocks pivotal movement of the spacer control lever 6 around the shaft 8.

In operation, when a signal is received by the device, the code bars 5 and the selector vanes 1 already having been set, the shaft 13 is turned thus turning the cam 14. The operating arms 12 are turned counter-clockwise under the effect of spring 46 thus turning the operating shaft 21 counter-clockwise. The bail 15 is thus pivoted around shaft 15b moving pull bar 47 and pulling the type bar 36 into the position where the type 37 strikes the platen 30 (as shown in the dotted lines). When the letter on the type is an English letter and the machine is to space normally, the signal will also move push bar 39 to pivot shift lever 33 around the pivot point 38. This will cause the blocking bell crank 44 to be positioned such that blocking arm 45 thereon blocks pivotal movement of the spacer control lever 6 about shaft 8. The platen 30 will be shifted through the bell crank 34, the connecting rod 35 and the rocker arm 31 to the position where the upper letter on the type 37 will strike it. The counter-clockwise rotation of the operating shaft 21 will rotate the spacer bail 22, and since the spacer control lever 6 cannot move because it is blocked by the blocking arm 45, the spacer control link 18 will be engaged by the bail 22 and urged upwardly. This movement of the spacer control link 18 will pivot the pawl 17 about the shaft 21 and free it from the tooth on the ratchet wheel 23. Up to this point the pawls have held the ratchet wheel 23 from turning under the effect of the

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friction engagement with the shaft 13. The ratchet wheel thus freed, turns a little bit until another tooth comes against the pawl 20. When the cam 14 starts the second part of its revolution which urges the operating arm in a clockwise direction and thus turning operating shaft 21 against the action of spring 46, the bail 22 moves clockwise striking the end of pawl 20, thus freeing the ratchet wheel 23 again. The ratchet wheel thereupon rotates one-third of a revolution until another tooth thereon contacts the pawl 17. This rotary motion rotates the worm 25 which in turn rotates the gears 26a and 26b, which in turn drives the rack 27 to move the type basket 4 a space.

When the letter on the type is a Thai letter with which another Thai letter is to be combined, and no spacing is desired, the signal for the letter moves either the push bar 40 or one of the push bars 41, thus pivoting shift lever 33 about pivot 38, which in turn properly positions the platen 30. At the same time the blocking bell crank 44 is pivoted, thus removing the blocking arm 45 from behind the lower end of the spacer control lever 6 and the spacer control lever is pivoted under the effect of the springs 9. The selector vanes 1 are positioned to let the spacer control lever shift. Pivoting of the spacer control lever 6 moves the spacer control link 18 out of the path of the bail 22, and thus when the bail 22 moves upwardly when the operating shaft 21 pivots counter-clockwise, the spacer control link will not be engaged and the pawl 17 will not be disengaged from ratchet wheel 23. The spacing mechanism will therefore not function.

It is thought that the invention and its advantages will be understood from the foregoing description and it is apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention or sacrificing its material advantages, the forms hereinbefore described and illustrated in the drawings being merely preferred embodiments thereof.

Having thus disclosed the invention, what is claimed is:

1. In a teleprinter receiving apparatus having a shiftable platen, a plurality of type bars forming a type basket, means for actuating the type bars for striking the platen, code bars for selecting which of the type bars are to be actuated, operating means operable in response to a received signal for operating the actuating means, means having a ratchet and pawls therein for spacing the type basket along an axis parallel to the platen each time the operating means actuates the actuating means, a bail driven by the actuating means and acting on the pawls, and type mounted on the type bars having a plurality of characters thereon, at least one character of which is such as to require that the spacing means not space the type basket when said one character is struck on the platen, the combination of shift means operable in response to the received signal for shifting the platen into one of three positions for being struck by one of the characters on said type, and a spacer control member pivoted to one of the pawls, and means pivotally connected to said spacer control member and actuated by the shift means for pivoting said spacer control member out of the path of the bail, thereby preventing the operation of said ratchet and pawls when the shift means has shifted the platen to a position to be struck by said one character.

2. An improvement as claimed in claim 1 and selector means actuated by the means for actuating said type bars and by the shift means for controlling the operation of said means for pivoting said spacer control member.

3. In a teleprinter receiving apparatus having a platen mounted on a rocker arm for shifting movement to a plurality of shift positions, a plurality of type bars forming a type basket, means for actuating the type bars for striking the platen comprising an operating shaft with an operating bail thereon and pull levers actuated by the operating bail, code bars for selecting which of the type bars are to be actuated, operating means operable in re-

sponse to a received signal for operating the operating shaft, means having a ratchet and pawls therein for spacing the type basket along an axis parallel to the platen each time the operating means actuates the operating shaft, a bail driven by the operating shaft and acting on the pawls, and type mounted on the type bars having a character thereon for each of the plurality of shift positions, at least one character of which is such as to require that the spacing means not space the type basket when said one character is struck on the platen, the combination of shift means operable in response to the received signal for pivoting the rocker arm on which the platen is mounted into one of the plurality of positions for being struck by one of the characters on said type, a spacer control link pivoted to one of the pawls, a spring loaded spacer control lever pivoted to the apparatus one free end of which is linked to said spacer control lever with the spring loading tending to rotate said spacer control lever to a position in which it moves the spacer control link out of the path of the bail, the other free end of said spacer control lever being actuated by said shift means to prevent rotation of said spacer control lever under the action of the spring loading in the position of the shift means in which the platen is shifted to be struck by the characters which require the spacing function, and said shift means freeing said spacer control lever for rotation when said shift means is in the position in which said platen is shifted to be struck by said one character.

4. In a teleprinter receiving apparatus having a platen mounted on a rocker arm for shifting movement to a plurality of shift positions, a plurality of type bars forming a type basket, means for actuating the type bars for striking the platen comprising an operating shaft with an operating bail thereon and pull levers actuated by the operating bail, code bars for selecting which of the type bars are to be actuated, operating means operable in response to a received signal for operating the operating shaft, means having a ratchet and pawls therein for spacing the type basket along an axis parallel to the platen each time the operating means actuates the operating shaft, a bail driven by the operating shaft and acting on the pawls, and type mounted on the type bars having a character thereon for each of the plurality of shift positions, at least one character of which is such as to require that the spacing means not space the type basket when said one character is struck on the platen, the combination of a shift lever linked to the rocker arm for the platen, a plurality of push bars engaged with said shift lever, one for each position to which the platen is to be shifted, said push bars operable in response to the received signal for shifting the platen to one of the shift positions, a blocking bell crank linked to said shift lever and having a blocking arm thereon, a spacer control link pivoted to one of the pawls, a spring loaded spacer control lever pivoted to the apparatus, one free end of which is linked to said spacer control lever with the spring loading tending to rotate said lever to the position in which it moves the spacer control link out of the path of the bail, the other free end of said spacer control lever being actuated by said blocking arm

to prevent rotation of the spacer control lever under the action of the spring loading in the position of the shift lever in which the platen is shifted to be struck by characters which require the spacing function, and said blocking arm freeing said spacer control lever for rotation when said shift means is in the position in which said platen is shifted to be struck by said one character.

5. In a teleprinter receiving apparatus having a platen mounted on a rocker arm for shifting movement to a plurality of shift positions, a plurality of type bars forming a type basket, means for actuating the type bars for striking the platen comprising an operating shaft with an operating bail thereon and pull levers actuated by the operating bail, code bars for selecting which of the type bars are to be actuated, operating means operable in response to a received signal for operating the operating shaft, means having a ratchet and pawls therein for spacing the type basket along an axis parallel to the platen each time the operating means actuates the operating shaft, a bail driven by the operating shaft and acting on the pawls, and type mounted on the type bars having a character thereon for each of the plurality of shift positions, at least one character of which is such as to require that the spacing means not space the type basket when said one character is struck on the platen, the combination of a shift lever linked to the rocker arm for the platen, a plurality of push bars engaged with said shift lever, one for each position to which the platen is to be shifted, said push bars operable in response to the received signal for shifting the platen to one of the shift positions, a blocking bell crank linked to said shift lever and having a blocking arm thereon, a spacer control link pivoted to one of the pawls, a spring loaded spacer control lever pivoted to the apparatus, one free end of which is linked to said spacer control lever with the spring loading tending to rotate said lever to the position in which it moves the spacer control link out of the path of the bail, the other free end of said spacer control lever being actuated by said blocking arm to prevent rotation of the spacer control lever under the action of the spring loading in the position of the shift lever in which the platen is shifted to be struck by characters which require the spacing function, and said blocking arm freeing said spacer control lever for rotation when said shift means is in the position in which said platen is shifted to be struck by said one character, and a plurality of selector vanes pivotally mounted on the apparatus adjacent said spacer control lever, one connected to and pivoted by each of the code bars, said spacer control lever having a plurality of notches in the edge thereof adjacent the selector vanes into which the edges of said selector vanes fit when the selector vanes are in the horizontal position to permit the spacer control lever to pivot under the action of the spring loading thereof.

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