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3,358,805

EXPRESS MARGIN SETTING DEVICE FOR TYPEWRITERS

Filed July 26, 1965

3 Sheets-Sheet 2

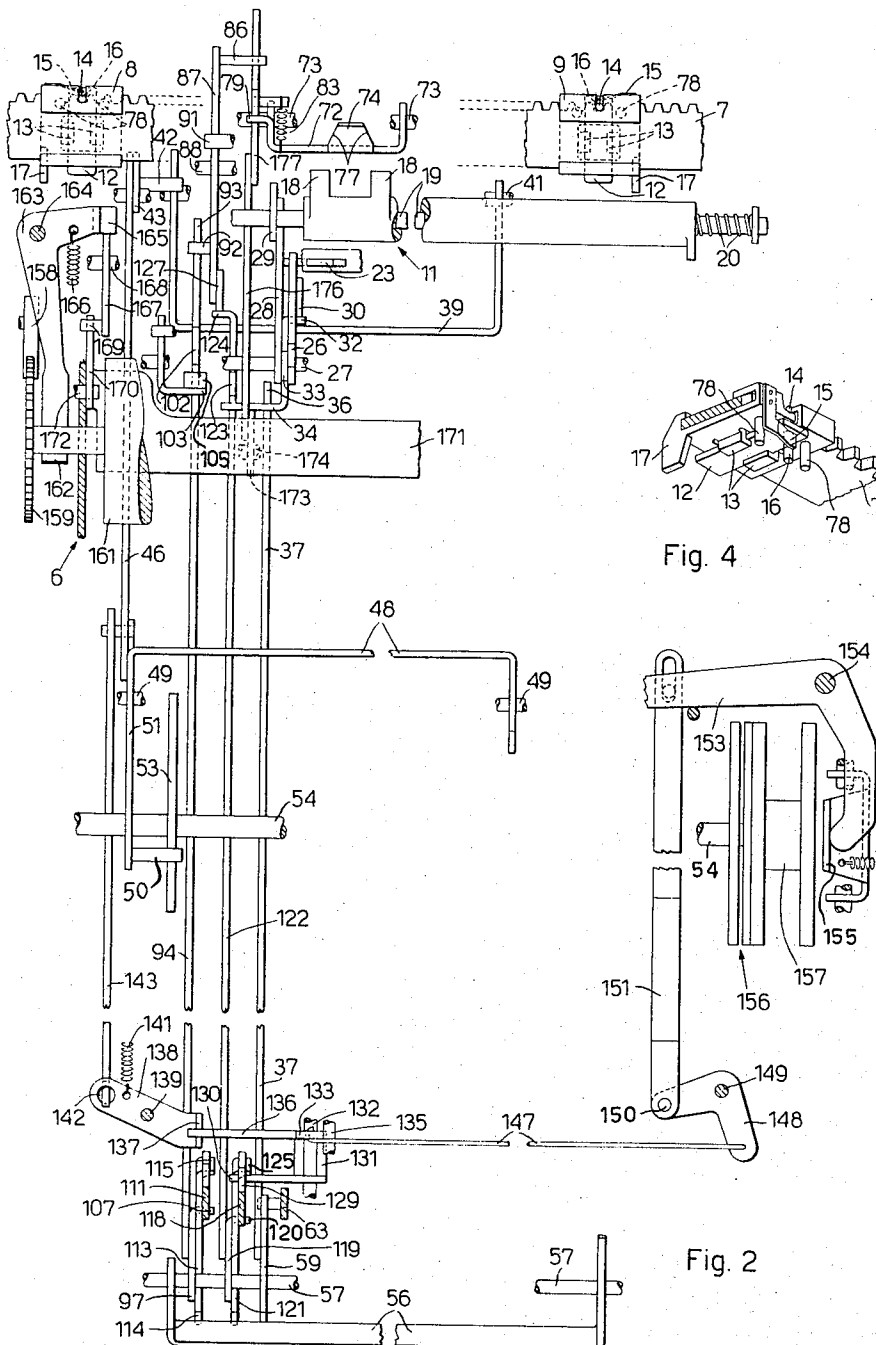


Fig. 4

Fig. 2

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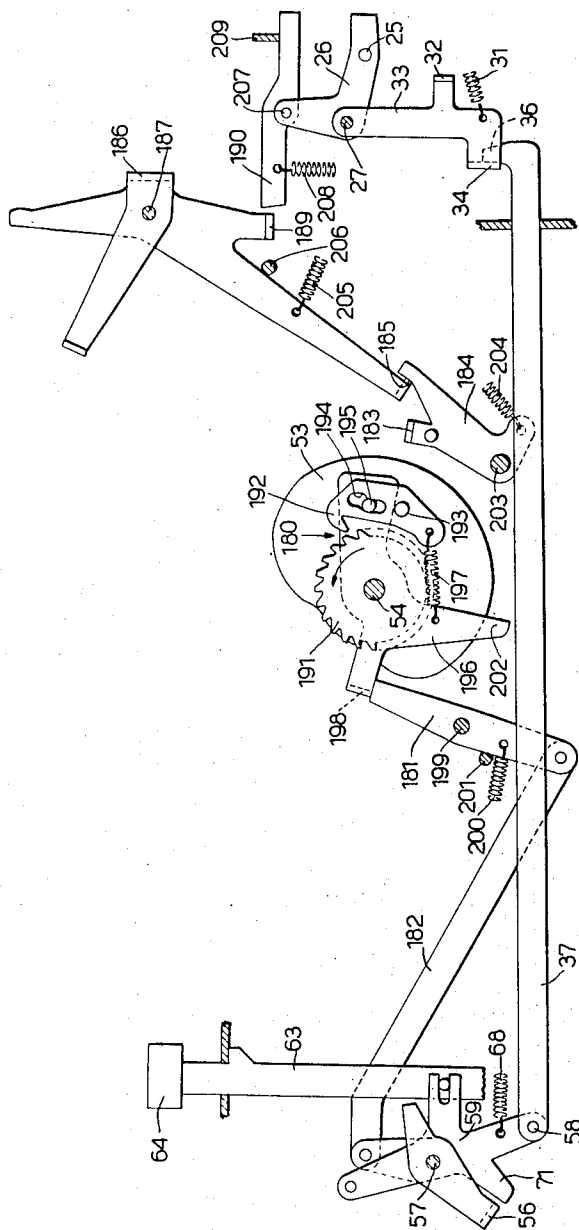


Fig. 3

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EXPRESS MARGIN SETTING DEVICE
FOR TYPEWRITERS

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Claims priority, application Italy, Aug. 1, 1964, 17,130/64
9 Claims. (Cl. 197-63)

ABSTRACT OF THE DISCLOSURE

An electric typewriter is provided with a margin setting device, comprising control means operable for transversely locking a margin stop and for disengaging same from a carriage rack, and a single key depressible for simultaneously operating said control means and a tabulating mechanism to expressly set the margin stop in the next following columnar position. The key may also be depressed through a longer stroke for additionally operating a carriage return mechanism and temporarily disabling the tabulating mechanism to set the margin stop in a preceding columnar position.

This invention relates to an express margin setting device for a typewriter having a transversely traveling carriage, at least a margin stop settable in different transverse positions on a carriage rack, and a tabulating mechanism operable for cooperating with a plurality of settable tabulating stops, said device comprising control means operable for transversely locking said margin stop and for disengaging same from said rack.

Various known typewriters are provided with a margin setting device mounted either on the machine or on the carriage. In a known margin setting device a first key is adapted to lock the margin stop transversely and to disengage same from the carriage. The margin stop is then displaced along the rack by displacing the carriage, for example through the spacing key or the back space key, whereby the operation is intricate and time consuming.

In another known margin setting device each margin stop is spring urged toward a central margin counterstop, whereby at the depression of the margin set key, the margin stop suddenly contacts the counterstop. Therefore, to avoid an additional operation, the carriage must be previously located in the position to be reached by the margin stop, whereby its operation is intricate and time consuming too.

These disadvantages are obviated by the express margin setting device according to the invention, which is characterized by a manually operable member for conditioning said control means and said tabulating mechanism to be simultaneously operated, whereby said margin stop is expressly set in the columnar position of the next following set tabulating stop in the advancing direction of said carriage.

This and other characteristics of the invention will become apparent from the following description of a preferred embodiment thereof, and from the following drawings, wherein:

FIG. 1 is a right hand longitudinal partial sectional view of a typewriter incorporating an express margin setting device according to the invention;

FIG. 2 is a plan view of the machine of FIG. 1;

FIG. 3 is another right hand longitudinal sectional view of the machine of FIG. 1;

FIG. 4 is a perspective view from the bottom of a margin stop of the machine; and

FIG. 5 is a front view of another detail of the machine.

With reference to FIG. 1, the numeral 6 generally in-

dicates a conventional transversely traveling paper carriage of an electric typewriter. The carriage 6 is urged in the advancing direction, namely leftwards, by a conventional carriage spring, and is controlled by an escapement device known per se and not shown in the drawings.

Secured to the carriage 6 is a rack 7. A left margin stop 8 (FIG. 2) and a right margin stop 9 are individually settable on the rack 7 in different transverse positions. The margin stops 8 and 9 are adapted to cooperate with a normally effective margin counterstop, generally indicated by the numeral 11, for defining the beginning and the end, respectively, of a printing line. More particularly, each margin stop 8, 9 is provided with a slide 12 longitudinally slidable along two bent lugs 13 thereof and having a pin 14 normally entering the gap between two teeth of the rack 7 under the urge of a leaf spring 15 (FIG. 4) engaging a second pin 16 of the slide 12.

Furthermore, each margin stop 8, 9 is provided with a projection 17 (FIG. 2) adapted to cooperate with a corresponding projection 18 of the counterstop 11. This latter is slidable on a square shaft 19 and is normally urged leftwards by a compression spring 20. The shaft 19 (FIG. 1) is also adapted to be rocked clockwise on the machine frame for disabling the counterstop 11 by placing the projections 18 out of the path of the projections 17.

The typewriter is provided with a tabulating mechanism comprising a tabulating counterstop 23 adapted to cooperate with a plurality of tabulating stops 21 mounted on a bar 22 secured to the carriage 6 and individually settable to the position shown by broken lines. The counterstop 23 is urged upwards by a spring not shown in the drawings to contact an arm 24 of a lever 26 pivoted on a shaft 27. The lever 26 is connected through a link 28 to an arm 29 secured to the square shaft 19.

Fulcrumed on a pivot 25 of the lever 26 is a pawl 30 normally urged by a spring 31 to contact a lug 32 of a lever 33 fulcrumed on the shaft 27 as well. The lever 33 is also provided with a second lug 34 urged by the spring 31 to contact a projection 36 (FIG. 3) of a horizontal slide 37 linked at 58 with a lever 59 fulcrumed on a shaft 57. The lever 59 is pin and slot connected with a stem 63 of a tabulating key 64, which is normally urged upwards by a spring 68 connected to the lever 59. This latter is provided with a projection 71 adapted to cooperate with a bail 56 fulcrumed on the shaft 57.

The pawl 30 (FIG. 1) is provided with a shoulder 38 adapted to cooperate with a bail 39 fulcrumed on a shaft 41, but it is normally located out of the path of the bail 39. A spring 44 normally urges the bail 39 to contact a pin 42 of a lever 43 fulcrumed at 45 and connected through a link 46 to an arm 47 of a member movable from a first to a second position. More particularly, said movable member is formed of a bail 48 pivoted on a shaft 49. Another arm 51 of the bail 48 is provided with a cam follower 50 urged by a spring 52 to contact a two-step cyclic cam 53 rotatably mounted on a shaft 54.

The shaft 54 is continuously rotated counterclockwise by an electric motor not shown in the drawings and is adapted to cyclically drive the cam 53 through a clutch 180 (FIG. 3) comprising a ratchet wheel 191 secured to the shaft 54 and a pawl 192 fulcrumed on a pivot 193 secured to the cam 53. The pawl 192 is provided with a cam slot 194 cooperating with a pin 195 of a lever 196 rotatably mounted on the shaft 54 and connected through a spring 197 to the pawl 192.

The lever 196 is provided with a lug 198 normally abutting an end of a lever 181 fulcrumed on a stationary shaft 199 and normally urged by a spring 200 to contact a stationary member 201. The lever 181 is also connected through a link 182 to the bail 56. Normally the lever 181 arrests the lug 198 of the lever 196, whereas the cam 53

is arrested by the lever 196 through the pivot 193, and the pin 195 of the lever 196 holds the pawl 192 disengaged from the wheel 191 as shown in FIG. 3.

The lever 196 is also provided with a projection 202 adapted to cooperate with a lug 183 of a lever 184 fulcrumed on a stationary pivot 203. The lever 184 is urged by a spring 204 to contact a lug 185 of a bail 186 fulcrumed on a stationary shaft 187. The bail 186 is normally urged by a spring 205, prevailing over the spring 204, to contact a stationary member 206, thus normally holding the lever 184 in an ineffective position with the lug 183 out of the path of the projection 202. The bail 186 is also provided with a lug 189 adapted to be engaged by a pawl 190 fulcrumed at 207 on the lever 26 and normally urged by a spring 208 to contact a member 209 known per se. The bail 186 when rocked clockwise is adapted to disengage an escapement device not shown in the drawings from the carriage 6, in the manner described in the applicant's copending application Ser. No. 474,678, dated July 26, 1966, now Patent No. 3,338,368 issued Aug. 29, 1967, entitled "Function Operating Device for an Electric Typewriter." The tabulating counterstop 23 through the member 209, upon termination of the tabulating stroke, is adapted to disengage the pawl 190 from the lug 189, in the manner described in the cited application.

At the depression of the tabulating key 64 (FIG. 3), the stem 63 rocks the lever 59 clockwise, thus displacing the slide 37 forwards. The projection 36 of the slide 37 rocks the lever 33 clockwise, whereby the spring 31 causes the pawl 30 (FIG. 1) to locate the shoulder 38 in the path of the bail 39. Simultaneously the projection 71 (FIG. 3) of the lever 59 rocks the bail 56, which through the link 182 and the lever 181 releases the lever 196. Then the pin 195 causes the pawl 192 to engage the wheel 191, whereby the clutch 180 is engaged and causes the cam 53 (FIG. 1) to effect a first step counterclockwise.

During this first step the cam 53 rocks the bail 48 clockwise. The bail 48, through the link 46 and the lever 43, rocks the bail 39 clockwise, thus pushing the pawl 30 upwards. The lever 26 is now rocked counterclockwise and on one hand causes the tabulating counterstop 23 to be raised into the path of set tabulating stops 21, on the other hand through the pawl 190 (FIG. 3) rocks the bail 186 clockwise. The bail 186 thus releases the lever 184, which is rocked counterclockwise by the spring 204 and locates the lug 183 on the path of the projection 202 of the lever 196. This lever is thus arrested together with the cam 53 upon being rotated counterclockwise a first step, whereby the clutch 180 is temporarily disengaged. Furthermore, the bail 186 so rocked disengages the escapement device from the carriage 6, which begins a tabulating stroke to the left. When a set stop 21 encounters the counterstop 23, the tabulating stroke terminates and the pawl 190 is disengaged from the lug 189. The bail 186 is restored counterclockwise by the spring 205, thus returning the lever 184 to the ineffective position shown in FIG. 3. The lug 183 of the lever 184 releases thus the projection 202 of the lever 196, whereby the clutch 180 is reengaged and causes the cam 53 to effect a second step thus restoring the bail 48.

The lever 26 when rocked counterclockwise during the tabulating stroke, through the link 28 and the arm 29, rocks the square shaft 19 clockwise, whereby the projections 18 of the margin counterstop 11 are located out of the path of the projections 17 of the margin stops 8, 9. The right margin stop 9 is thus unable to arrest the carriage 6, and does not affect the counterstop 23. Therefore the carriage 6 may be tabulated to reach the stops 21 set at right of the right margin stop 9.

The typewriter is also provided with control means operable for transversely locking the margin stops 8, 9. More particularly, said control means comprise a bail 72 pivoted on a stationary shaft 73 and provided with a lug 74 adapted to engage the pin 16 of the slide 12 of

each margin stop 8, 9. The lug 74 is provided with two tapered edges 77 (FIG. 2) adapted to cooperate with a pair of pins 78 (FIG. 4) secured to each margin stop 8, 9 and directed downwards. The pins 78 thus prevent the lug 74 (FIG. 2) from engaging the pin 16 when the margin stop 8, 9 is slightly displaced with respect to the printing point.

The bail 72 (FIG. 1) is yieldably operable clockwise by means of a spring 83 normally urging a lug 79 thereof to contact a lever 82 pivoted on the shaft 73. The lever 82 is urged by another spring 84 to contact a pin 86 of a lever 87 pivoted at 88 and urged by a third spring 89 to contact a stationary pin 91.

The lever 87 is provided with a pin 92 adapted to cooperate with a projection 93 of a slide 94 linked through a pivot 96 with a lever 97 fulcrumed on the shaft 57. The slide 94 is normally urged by a spring 98 to contact a stationary pin 99 and is provided with a shoulder 101 adapted to cooperate with the bail 38, but normally located out of its path. The slide 94 is also provided with a projection 102 adapted to cooperate with a lug 105 of a latch 103 pivoted on the shaft 27 and urged by a spring 104 to contact a stationary pin 106.

The lever 97 is provided with a lug 107 normally urged by a spring 108 to contact a shoulder 109 of a stem 111 secured to a depressible key 112. Fulcrumed on the pivot 96 of the lever 97 is also a pawl 113 provided with a projection 114 adapted to cooperate with the bail 56, a bent lug 115 of the pawl 113 being urged by the spring 108 to contact a tapered edge 116 of the stem 111.

By depressing the key 112, the lever 97 is rocked clockwise and displaces the slide 94 forwards. The shoulder 101 of the slide 94 is thus placed into the path of the bail 39, while its projection 102 engages the lug 105 of the latch 103, which is thus rocked clockwise. Furthermore, the lever 97 displaces the pawl 113 forwards, whereby its projection 114 rocks the bail 56 clockwise, thus causing the clutch 180 (FIG. 3) to be engaged and to rotate the cam 53 counterclockwise. When the pawl 113 is displaced forwards, the tapered edge 116 of the stem 111 rocks the pawl 113, and at the end of the downward key stroke the projection 114 disengages the bail 56. Therefore, since the bail 186 has not been rocked, the clutch will be disengaged upon rotating the cam 53 one revolution, even if the key 112 is still depressed.

The cam 53 when rotated counterclockwise rocks the bail 39 clockwise, thus engaging the shoulder 101 of the slide 94. Now the slide 94 is displaced upwards and its projection 93 engages the pin 92 of the lever 87. This lever is thus rocked clockwise and through its pin 86 rocks the lever 82 clockwise. Simultaneously the projection 102 of the slide 94 is brought above the lug 105, whereby the latch 103 returns counterclockwise and locks the slide 94 in the upper position as long as the key 112 is held depressed. Thereafter the cam 53 causes the bail 48 to be restored together with the bail 39.

In the case the margin stop 8, 9 (FIG. 2) to be displaced is out of the path of the lug 74, the lever 82 (FIG. 1) when rocked clockwise causes the spring 83 to rock the bail 72. Now, by displacing the carriage 6, the required margin stop 8, 9 (FIG. 2) is brought toward the lug 74, and when one of the pins 78 engages one of the tapered edges 77 the lug 74 is temporarily displaced forwards. The lug 74 returns in the rear position when it is centered with respect to the two pins 78 of the required margin stop, whereby it engages the pin 16 and displaces the slide 12 rearwards thus disengaging the pin 14 and therefore the margin stop 8, 9 from the rack 7. Furthermore the lug 74, through the pins 78 locks said margin stop 8, 9 transversely on the machine against any movement. Of course the carriage 6 may be transversely displaced to bring the required margin stop 7, 8 in contact with the counterstop 11 before depressing the key 112.

Upon having disengaged the margin stop 8, 9 from the rack 7, while the key 112 is still held depressed, the

carriage 6 is transversely displaced to reach the position wherein the margin stop is to be set. Thereafter the key 112 is released and the spring 108 (FIG. 1) restores the lever 97, whereby the slide 94 is returned rearwards and disengages its projection 102 from the lug 105. Finally the spring 98 returns the slide 94 to contact the pin 99 as shown in FIG. 1, whereby the margin stop 8, 9 reengages the rack 7 in the reached position.

The typewriter is also provided with an express margin setting device comprising a manually operable member formed of an express margin setting key 117 for conditioning the bail 72 and the tabulating mechanism to be simultaneously operated. The key 117 is secured to a stem 118 cooperating with a lug 120 of a lever 119 pivoted on the shaft 57 and with a lug 125 of a pawl 121 similar to the pawl 113. Linked with the lever 119 is a slide 122 having a projection 123 adapted to cooperate with the lug 34 of a lever 33. Pivoted at 128 on the lever 87 is a pawl 127 normally urged by a spring 126 to contact a lug 124 of the slide 122. The pawl 127 is provided with a shoulder adapted to cooperate with the bail 39, but normally out of the path thereof.

The key 117 is adapted to be depressed through either a shorter stroke or a longer stroke. In this order the stem 118 is provided with a projection 129 adapted to engage an arm 130 (FIG. 5) of a bail 131 after being depressed through said shorter stroke. The bail 131 is pivoted on a longitudinal shaft 132 and is provided with a second arm 133 normally urged by a spring 134 to contact a stationary pin 135. An element formed of a lug 137 of a horizontal lever 138 is normally located on the path of a third arm 136 of the bail 131 for preventing the key 117 from being depressed through the longer stroke. The lever 138 is pivoted at 139 (FIG. 2) and is normally urged clockwise by a spring 141, whereby the lug 137 frontally contacts the arm 136. A hole 142 of the lever 138 is entered by one end of a longitudinal slide 143, which is also provided with a slot 144 (FIG. 1) engaging a pin 146 of the bail 48.

The arm 133 of the bail 131 (FIG. 5) is connected through a link 147 with a lever 148 (FIG. 2) pivoted at 149. A link 151 fulcrumed at 150 on the lever 148 is pin and slot connected with a lever 153 fulcrumed on a vertical pivot 154, and adapted to operate through a vertical bail 155 a carriage return mechanism comprising a conventional friction clutch 156. This clutch when engaged causes a pulley 157 to be rotated by the shaft 54 and to wind a conventional carriage draw band not shown in the drawings. This band at first operates a line spacing mechanism and then returns the carriage 6 rightwards in a manner known per se. The line spacing mechanism comprises a pawl 158 (FIG. 1) adapted to be operated by said carriage draw band and to cooperate with a ratchet wheel 159 normally connected with a conventional paper platen 161 mounted on the carriage 6.

The line spacing pawl 158 may be rendered ineffective by an arcuate lug 162 of a lever 163 (FIG. 2) fulcrumed on a pivot 164. The lug 162 is adapted to be interposed between the pawl 158 and the wheel 159, but it is normally located at right thereof. The lever 163 is provided with another lug 165 normally urged by a spring 166 to contact a lever 167 (FIG. 1) fulcrumed on a pivot 168 secured to the carriage 6. The lever 167 is provided with a pin 169 in turn contacting a projection 170 of a universal bar 171. This latter is fulcrumed on two pivots 172 secured to the carriage and it is adapted to cooperate with a lever 173 fulcrumed on a pivot 174 secured to the machine frame. The lever 173 is connected through a link 176 to an arm 177 of the lever 82.

The express margin setting device is adapted to expressly set each margin stop 8, 9 (FIG. 2) in the column positions defined by the set tabulating stops 21. The device operates as follows.

Assuming that one of the margin stops 8, 9 is to be set in the columnar position of the first set tabulating

stop 21 at right thereof, at first the carriage 6 is brought with the margin stop to be displaced in contact with the counterstop 11, or close at right thereof. Now the express margin setting key 117 (FIG. 1) is depressed through its shorter stroke, namely until its projection 129 encounters the arm 130 of the bail 131. Then the key stem 118 rocks the lever 119 clockwise, thus displacing the slide 122 forwards. Now the projection 123 of the slide 122 rocks the lever 33 clockwise, whereby the pawl 30 of the tabulating mechanism locates its shoulder 38 on the path of the bail 39.

Simultaneously the lug 124 of the slide 122 causes the spring 126 to rock the pawl 127 clockwise, thus locating its shoulder on the path of the bail 39. Furthermore the lever 119 through the pawl 121 rocks the bail 56 clockwise, thus causing the clutch 180 to be engaged. Now the cam 53 is rotated counterclockwise and, through the bail 48, the link 46 and the lever 43, rocks the bail 39 clockwise, whereby both the pawls 30 and 127 are displaced upwards.

As it has been before described, the pawl 30 so displaced on one hand causes the tabulating counterstop 23 to be raised and the carriage 6 to begin the tabulating stroke, on the other hand it causes the lever 184 to disengage the clutch 180 after having rotated the cam 53 through its first step. In turn the pawl 127 so displaced rocks the lever 87 in a manner similar to the depression of the key 112, whereby the margin stop 8, 9 is disengaged from the rack 7 and is transversely locked by the lug 74. Therefore, during the tabulating stroke the carriage 6 is displaced with respect to the margin stop so locked.

When the first set tabulating stop 21 at right of the margin stop so locked encounters the counterstop 23, the tabulating stroke terminates while the lever 184 causes the cam 53 to rotate through its second step to complete its cycle. The bail 39 is now restored together with the tabulating mechanism, while the pawl 127 is restored together with the levers 87, 82 and the bail 72. The lug 74 causes thus the previously locked margin stop to reengage the rack 7 in the columnar position of the stop 21 which encountered the counterstop 23.

In the case one of the margin stops 8, 9 is to be set in the columnar position of a set tabulating stop 21 at left thereof, for example for returning a margin stop in the position occupied before having been displaced rightwards as above described, at first the carriage 6 is displaced until the required margin stop encounters the margin counterstop 11. Then the express margin setting key 117 is depressed to overcome the action of the spring 134 (FIG. 5) of the bail 131. This latter is thus rocked counterclockwise, but it is temporarily arrested by the lug 137 of the lever 138. Now the cam 53 rocks the bail 48 clockwise in the above described manner.

Near the end of the clockwise rotation of the bail 48, the pin 146 displaces the slide 143 forwards thus rocking the lever 138 (FIG. 2) counterclockwise. Now the lug 137 releases the arm 136, and the key 117 (FIG. 1) may be fully depressed through its longer stroke, thus rocking the bail 131 (FIG. 5) counterclockwise. It is to be pointed out that the lever 138 is so rocked each time the bail 48 (FIG. 1) is rocked clockwise, but when the key 117 is not depressed the lever 138 does not affect the bail 131. This bail (FIG. 5) when rocked counterclockwise, through the link 147, the lever 148 (FIG. 2) and the link 151, rocks the lever 153 counterclockwise thus engaging the carriage return friction clutch 156. Now the pulley 157 at first operates the line spacing pawl 158 (FIG. 1) and then draws the carriage 6 rightwards.

However, since the lever 82 has been rocked clockwise, through the link 176 and the lever 137, the universal bar 171 is rocked clockwise. Then the projection 170 is removed from the pin 169 of the lever 167, thus causing the spring 166 to rock the lever 163 (FIG. 2) clockwise. The lug 162 is thus placed between the wheel 159

(FIG. 1) and the pawl 158, whereby the line spacing mechanism is rendered ineffective.

The key 117 must be held depressed through its longer stroke until the required set tabulating stop 21 has passed the counterstop 23. Then the key 117 may be released thus causing the spring 134 (FIG. 5) to restore the bail 131, whereby the carriage return friction clutch 156 (FIG. 2) is disengaged. However, since the cam 53 (FIG. 3) is still rotated through its first step, the tabulating mechanism is now effective, and the carriage 6 is moved leftwards by its spring until a tabulating stop 21 (FIG. 1) encounters the counterstop 23. The margin stop 8, 9 is thus set in the columnar position of a stop 21 located at left thereof.

In the case one of the margin stops 8, 9 is to be displaced toward the other margin stop and no tabulating stop 21 is set between them, upon depressing the key 117 the margin stop to be set will be arrested by the other margin stop. Since the counterstop 11 is rendered ineffective by the rocked lever 26, the other margin stop does not arrest the carriage. The lug 74 (FIG. 2) is thus forced by the pin 78 of the locked margin stop to be retracted and on one hand it releases the said margin stop, which reengages the rack 7. On the other hand the carriage 6 brings in front of the lug 74 the other margin stop, whereby the spring 83 (FIG. 1) causes the lug 74 to disengage said other margin stop from the rack 7 and to lock same transversely. The first margin stop is thus set in correspondence with the position previously occupied by the other margin stop, while this latter is set in the columnar position of a set tabulating stop 21.

It is intended that various modifications, improvements and additions of parts may be made to the described express margin setting device without departing from the scope of the invention. For example the longer stroke of the key 117 may be arrested by an adjustable stop member for the counterclockwise rotation of the bail 131 (FIG. 5). This stop member causes thus the bail 131 to rock the lever 153 (FIG. 2) counterclockwise so as to press the friction clutch with a force minor than in the case of the depression of the conventional carriage return key. The pulley 157 is now rocked at a minor speed and the carriage 6 is returned slowly thus enabling the operator for releasing the key 117 (FIG. 1) at the required instant. Furthermore, the operator by sensitively depressing the key 117 after having engaged the arm 130 (FIG. 5) of the bail 131 may regulate at will the speed of the carriage return, within the maximum speed allowed by said adjustable stop member.

What I claim is:

1. In a typewriter having a transversely traveling carriage, a rack secured to said carriage, at least a margin stop settable on said rack in different transverse positions, a tabulating mechanism operable for cooperating with a plurality of settable tabulating stops, and a tabulating key depressible for operating said tabulating mechanism, an express margin setting device comprising in combination:

- (a) control means operable for transversely locking said margin stop and for disengaging same from said rack,
- (b) and a manually operable member for simultaneously operating said control means and said tabulating mechanism without affecting said tabulating key, whereby said margin stop is expressly set in the columnar position of the next following set tabulating stop in the advancing direction of the carriage.

2. In a typewriter having a transversely traveling carriage, a rack secured to said carriage, at least a margin stop settable on said rack in different transverse positions, a tabulating key, a tabulating counterstop, and a tabulating mechanism operable for causing said counterstop to cooperate with a plurality of settable tabulating stops, an express margin setting device comprising in combination:

- (a) a two-step cyclic cam drivable for effecting a first step,
- (b) means conditionable by said tabulating key for causing said cam to operate said tabulating mechanism,
- (c) means operated by said counterstop upon termination of the carriage tabulating stroke for causing said cam to effect a second step for restoring said tabulating mechanism,
- (d) control means conditionable for being operated by said cam to lock said margin stop transversely and to disengage same from said rack,
- (e) and a manually operable member for conditioning said control means and said tabulating mechanism to be simultaneously operated by said cam, whereby said margin stop is expressly set in the columnar position of the next following set tabulating stop in the advancing direction of the carriage.

3. In a typewriter having a transversely traveling carriage, a rack secured to said carriage, at least a margin stop settable on said rack in different transverse positions, a tabulating key, a tabulating counterstop, a tabulating mechanism operable for causing said counterstop to cooperate with a plurality of settable tabulating stops, and a power drivable carriage return mechanism, an express margin setting device comprising in combination:

- (a) a member movable from a first to a second position,
- (b) means conditionable by said tabulating key for causing said movable member to operate said tabulating mechanism,
- (c) means operated by said counterstop upon the termination of the carriage tabulating stroke for returning said movable member to said first position to restore said tabulating mechanism,
- (d) control means conditionable for being operated by said movable member to lock said margin stop transversely and to disengage same from said rack,
- (e) a member manually operable in two different manners,
- (f) means effective upon operation of said manually operable member in one of said manners for conditioning said control means and said tabulating mechanism to be simultaneously operated by said movable member, whereby said margin stop is expressly set in the columnar position of the next following set tabulating stop in the advancing direction of the carriage,
- (g) and means conditioned by said manually operable member when operated in the other of said two manners for additionally operating said return mechanism to be power driven and to disable temporarily said tabulating mechanism,
- (h) said movable member causing said tabulating mechanism to be effective when said manually operable member is restored, whereby said margin stop is expressly set in the columnar position of a set tabulating stop preceding said margin stop in said advancing direction.

4. In a typewriter having a transversely traveling carriage, a rack secured to said carriage, at least a margin stop settable on said rack in different transverse positions, a tabulating key, a tabulating counterstop, a tabulating mechanism operable for causing said counterstop to cooperate with a plurality of settable tabulating stops, and a power drivable carriage return mechanism, an express margin setting device comprising in combination:

- (a) a member movable from a first to a second position,
- (b) means conditionable by said tabulating key for causing said movable member to operate said tabulating mechanism,
- (c) means operated by said counterstop upon the termination of the carriage tabulating stroke for return-

- ing said movable member to said first position to restore said tabulating mechanism,
- (d) control means conditionable for being operated by said movable member to lock said margin stop transversely and to disengage same from said rack,
- (e) a margin key depressible through either a shorter or a longer stroke,
- (f) means effective upon depression of said express margin key through said shorter stroke for conditioning said control means and said tabulating mechanism to be simultaneously operated by said movable member, whereby said margin stop is expressly set in the columnar position of the next following set tabulating stop in the advancing direction of the carriage,
- (g) and means conditioned by said express margin key when depressed through said longer stroke for additionally operating said return mechanism to be power driven and to disable temporarily said tabulating mechanism,
- (h) said movable member causing said tabulating mechanism to be effective when said express margin key is released, whereby said margin stop is expressly set in the columnar position of a set tabulating stop preceding said margin stop in said advancing direction.
5. In a typewriter having a transversely traveling carriage, a rack secured to said carriage, at least a margin stop settable on said rack in different transverse positions, a tabulating key, a tabulating counterstop, a tabulating mechanism operable for causing said counterstop to cooperate with a plurality of settable tabulating stops, and a power drivable carriage return mechanism, an express margin setting device comprising in combination:
- (a) a member movable from a first to a second position,
- (b) means conditionable by said tabulating key for causing said movable member to operate said tabulating mechanism,
- (c) means operated by said counterstop upon the termination of the carriage tabulating stroke for returning said movable member to said first position to restore said tabulating mechanism,
- (d) control means conditionable for being operated by said movable member to lock said margin stop transversely and to disengage same from said rack,
- (e) a margin key depressible through either a shorter or a longer stroke,
- (f) an element normally effective for preventing said key from being depressed through said longer stroke,
- (g) means effective upon depression of said express margin through said shorter stroke for conditioning said control means and said tabulating mechanism to be simultaneously operated by said movable member, whereby said margin stop is expressly set in the columnar position of the next following set tabulating stop in the advancing direction of the carriage,
- (h) means conditionable by said control means when operated for disabling said element,
- (i) and means conditioned by said margin set key when depressed through said longer stroke for additionally operating said return mechanism to be power driven and to disable temporarily said tabulating mechanism,
- (j) said movable member causing said tabulating mechanism to be effective when said express margin key is released, whereby said margin stop is expressly set in the columnar position of a set tabulating stop preceding said margin stop in said advancing direction.
6. In a typewriter having a transversely traveling carriage, a rack secured to said carriage, at least a margin stop settable on said rack in different transverse positions, a tabulating key, a tabulating counterstop, a tabulating mechanism operable for causing said counterstop to cooperate with a plurality of settable tabulating stops, a line

spacing mechanism, and a power drivable carriage return mechanism adapted to operate said line spacing mechanism, an express margin setting device comprising in combination:

- (a) a member movable from a first to a second position,
- (b) means conditionable by said tabulating key for causing said movable member to operate said tabulating mechanism,
- (c) means operated by said counterstop upon the termination of the carriage tabulating stroke for returning said movable member to said first position to restore said tabulating mechanism,
- (d) control means conditionable for being operated by said movable member to lock said margin stop transversely and to disengage same from said rack,
- (e) a margin key depressible through either a shorter or a longer stroke,
- (f) means effective upon depression of said express margin key through said shorter stroke for conditioning said control means and said tabulating mechanism to be simultaneously operated by said movable member, whereby said margin stop is expressly set in the columnar position of the next following set tabulating stop in the advancing direction of the carriage,
- (g) means conditioned by said margin set key when depressed through said longer stroke for additionally operating said return mechanism to be power driven and to disable temporarily said tabulating mechanism,
- (h) said movable member causing said tabulating mechanism to be effective when said express margin key is released, whereby said margin stop is expressly set in the columnar position of a set tabulating stop preceding said margin stop in said advancing direction,
- (i) and means conditioned by said control means when operated for preventing said line spacing mechanism from being operated by said return mechanism.
7. In a typewriter having a transversely traveling carriage, a rack secured to said carriage, a pair of margin stops and individually settable on said rack in different transverse positions, a counterstop normally effective for cooperating with said margin stops to define the two ends of a printing line, a tabulating mechanism operable for cooperating with a plurality of settable tabulating stops, and a tabulating key depressible for operating said tabulating mechanism, an express margin setting device comprising:
- (a) control means operable for transversely locking one of said margin stops and for disengaging same from said rack,
- (b) a manually operable member for simultaneously operating said control means and said tabulating mechanism without affecting said tabulating key, whereby said margin stop is expressly set in the columnar position of the next following set tabulating stop in the advancing direction of the carriage,
- (c) and means conditioned by said tabulating mechanism when operated for disabling said counterstop.
8. In a typewriter having a transversely traveling carriage, a rack secured to said carriage, a pair of margin stops individually settable on said rack in different transverse positions, a counterstop normally effective for cooperating with said margin stops to define the two ends of a printing line, and a tabulating mechanism operable for cooperating with a plurality of settable tabulating stops, an express margin setting device comprising:
- (a) control means operable for transversely locking one of said margin stops and for disengaging same from said rack,
- (b) a manually operable member for conditioning said control means and said tabulating mechanism to be simultaneously operated, whereby said margin stop is expressly set in the columnar position of the next

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following set tabulating stop in the advancing direction of the carriage,

- (c) and means conditioned by said tabulating mechanism when operated for disabling said counterstop, 5
 (d) said control means comprising an engaging member and a yieldable member for yieldably operating said engaging member to engage said margin stops, said engaging member being so shaped that when it engages one of said margin stops and this latter is encountered by the other margin stop said engaging member releases said one margin stop and engages 10
 said other margin stop.

9. In a typewriter having a transversely traveling carriage, a rack secured to said carriage, a pair of margin stops individually settable on said rack in different transverse positions, a tabulating key, a tabulating counterstop, a tabulating mechanism operable for causing said counterstop to cooperate with a plurality of settable tabulating stops, and a power drivable carriage return mechanism, an express margin setting device comprising in 20
 combination:

- (a) a member movable from a first to a second position, 25
 (b) means conditionable by said tabulating key for causing said movable member to operate said tabulating mechanism,
 (c) means operated by said counterstop upon the termination of the carriage tabulating stroke for returning said movable member to said first position to restore said tabulating mechanism,
 (d) control means conditionable for being operated by 30
 said movable member to lock said margin stop transversely and to disengage same from said rack,
 (e) a member manually operable in two different manners,
 (f) means effective upon operation of said manually operable member in one of said manners for conditioning said control means and said tabulating mechanism to be simultaneously operated by said movable member, whereby said margin stop is expressly set in the

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columnar position of the next following set tabulating stops in the advancing direction of the carriage,

- (g) and means conditioned by said manually operable member when operated in the other of said two manners for operating also said return mechanism to be power driven and to disable temporarily said tabulating mechanism,
 (h) said movable member causing said tabulating mechanism to be effective when said manually operable member is restored, whereby said margin stop is expressly set in the columnar position of a set tabulating stop preceding said margin stop in said advancing direction,
 (i) said control means comprising an engaging member and a yieldable member for yieldably operating said engaging member to engage said margin stops, said engaging member being so shaped that when it engages one of said margin stops and this latter is encountered by the other margin stop said engaging member releases said one margin stop and engages 35
 said other margin stop.

References Cited

UNITED STATES PATENTS

1,609,943	12/1926	Hart	197—65
1,688,380	10/1928	Dorsey	197—17
1,723,240	8/1929	Huie	197—98 X
1,824,099	9/1931	Pitman	197—176
1,945,895	2/1934	Hart	197—17 X
1,973,314	9/1934	Hart	197—17 X
2,066,979	1/1937	Koca	197—176
2,478,630	8/1949	Hill	197—179 X
2,633,964	4/1953	Sagner	197—63
3,217,850	11/1965	Frechette et al.	197—17 X
3,268,049	8/1966	Krauss et al.	197—17

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