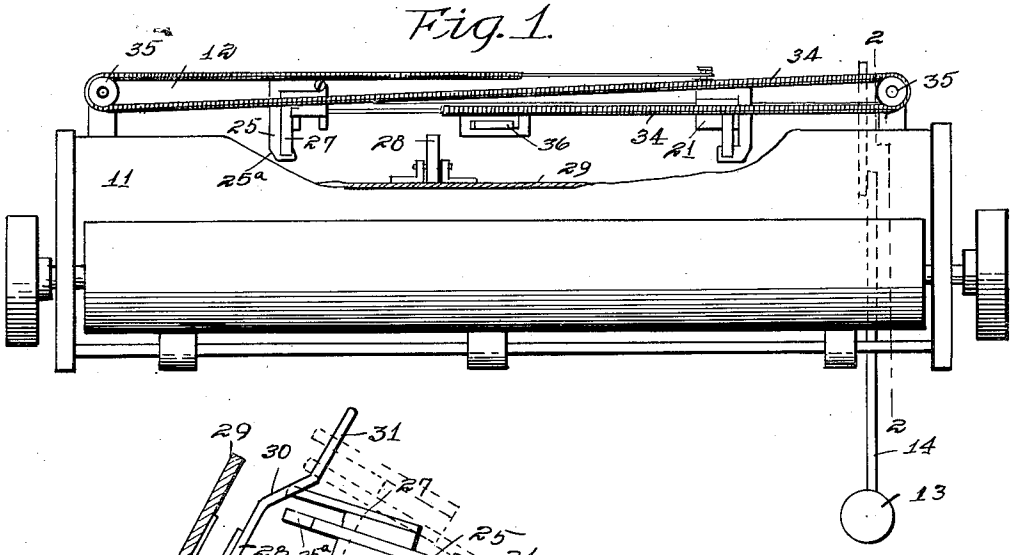
April 13, 1943. R. L. BREDIMUS 2,316,666

TYPEWRITING MACHINE

Filed Nov. 8, 1941 2 Sheets-Sheet 1

Fig. 1.



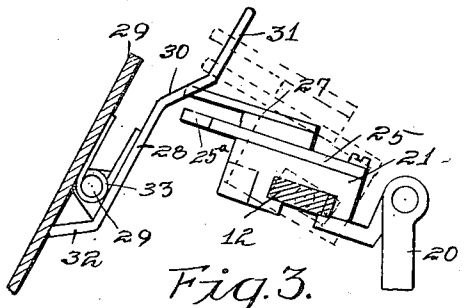


Fig. 3.

Fig. 5.

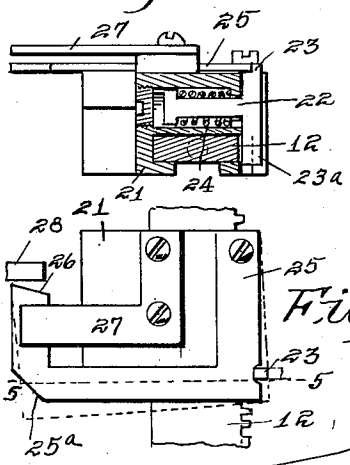


Fig. 4

Fig. 2.

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by Owig & Hague

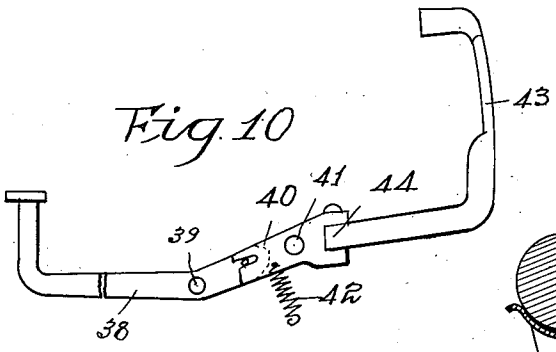
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TYPEWRITING MACHINE

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Fig. 10



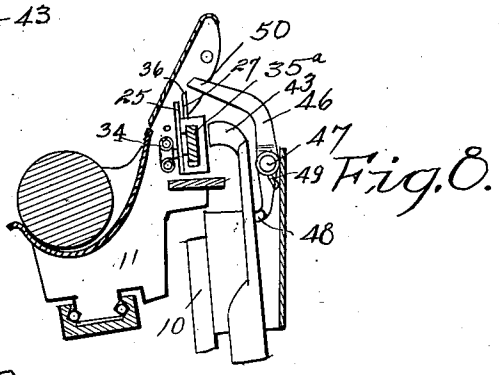


Fig. 8.

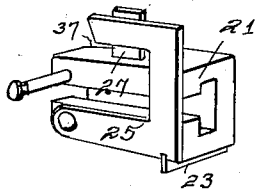
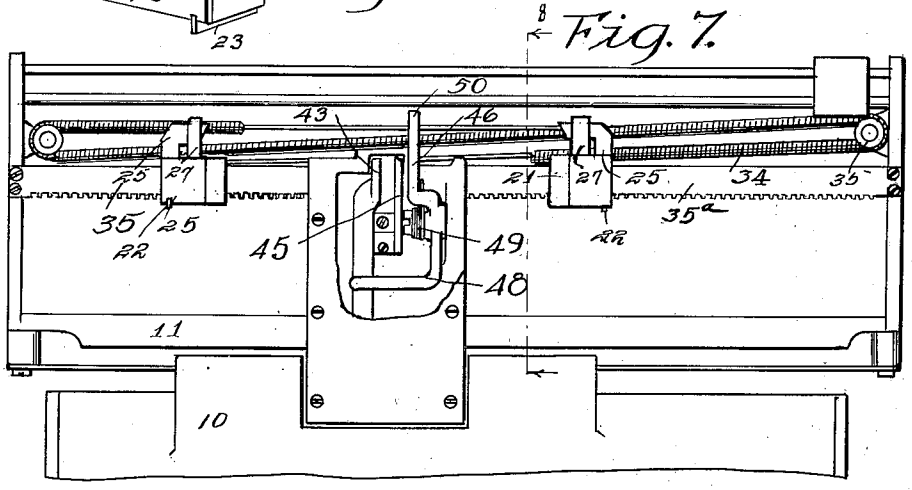


Fig. 9.

Fig. 7.



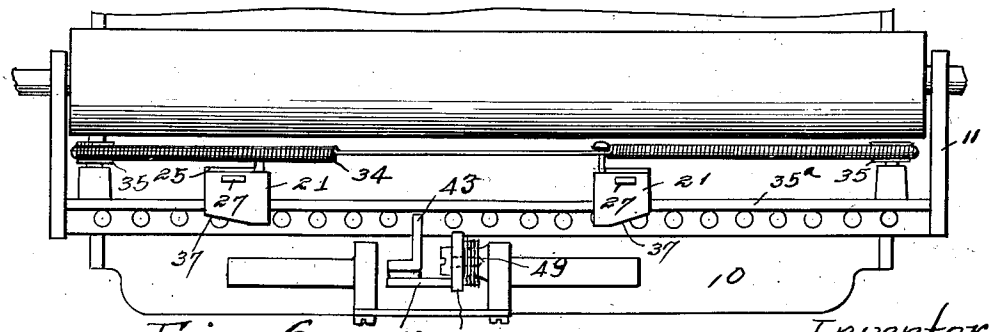


Fig. 6.

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2,316,666

TYPEWRITING MACHINE

Robert L. Bredimus, Des Moines, Iowa

Application November 8, 1941, Serial No. 418,362

8 Claims. (Cl. 197—63)

My invention relates to that class of typewriting machines which are provided with adjustable margin stops for limiting the movement of the carriage in both directions.

My object is to provide a margin stop device in which the adjustable margin stop members may be released and moved to any desired position and locked in such position with a minimum of effort on the part of the operator.

A further object is to provide a device of this character in which the entire operation of releasing and locking both of the margin stop members may be performed by use of a single margin key conveniently located adjacent the keyboard, whereby the time and effort necessary to adjust the margin stop member is reduced to a minimum.

In the accompanying drawings—

Figure 1 shows a top view of my improved margin stop adjusting device, the single margin key for releasing and locking the margin stop members, and a portion of a typewriter carriage;

Figure 2 shows a vertical sectional view on the line 2—2 of Figure 1;

Figure 3 shows an enlarged detail end view of one of the margin stop members, the dotted lines showing it tilted to position to be engaged by the trip arm on the carriage, the rack bar and a portion of the carriage being shown in section;

Figure 4 shows a top view of one of the margin stop members and a portion of a rack bar. The dotted lines show the position of the pivoted pawl release arm and pawl when out of engagement with the rack bar;

Figure 5 shows a sectional view on the line 5—5 of Fig. 4;

Figure 6 shows a top view of the parts shown in Figure 1 and illustrating a modified form of my invention;

Figure 7 shows a rear elevation of the mechanism shown in Fig. 6, parts being broken away;

Figure 8 shows a sectional view taken on the line 8—8 of Figure 7;

Figure 9 shows an enlarged perspective view of the margin stop member of the modified form; and

Figure 10 shows a detail side view of the margin key lever of the modified form.

That portion of the typewriter frame shown is indicated by the numeral 10 and the movable carriage by the numeral 11. A rack bar 12 is supported by the frame 10 and is pivoted at its ends so that it may be rocked, as shown by dotted lines in Fig. 3.

The single margin release and lock key 13 is positioned adjacent the keyboard and carried by a lever 14 fulcrumed at 15. A lever 16 is fulcrumed to the frame at 17 and has a projecting lug 18 in engagement with the lever 14. A spring 19 yieldingly holds the lever 16 with its lug 18 against the lever 14. Pivoted to the rear of the lever 16 is a link 20 which is pivoted to the rack bar 12. By this means when the key 13 is depressed the rack bar is tilted to the position shown in Fig. 3 by dotted lines, and when the key is released the spring 19 returns the rack bar to its normal position, as shown in Fig. 5.

Slidingly mounted upon the rack bar are two margin stop devices. Each comprises a body 21 having a slot to receive the rack bar. Slidingly mounted in the body 21 is a pawl 22 having an upwardly extended portion 23 and a downwardly extended portion 23a to enter between the teeth of the rack bar, and a spring 24 yieldingly holds the pawl forwardly.

Pivoted to the body 21 is a pawl-actuating arm 25, which extends from the pivot point in a direction parallel with the rack bar, then forwardly over and beyond the body 21, and then in a direction toward the central portion of the rack bar, and its end is bevelled at 26. When the end 26 is moved toward the adjacent end of the rack bar, the pawl 22 is moved out of engagement with the rack bar, as shown by dotted lines in Fig. 4, and the margin stop device is free to slide on the rack bar. Fixed to the top of the body 21 is an arm 27 extended forwardly beyond the body 21 and spaced above the lever 25, as shown in Figure 5.

For the purpose of first releasing the pawl 22 and then moving the body 21 along the rack bar I have provided a trip arm 28 fulcrumed to the paper guide plate 29 which is carried by the carriage. This arm has a rearwardly and upwardly inclined portion at 30 and beyond it a part 31 parallel with the body of the arm. At the opposite end of the arm is an extension 32 to engage the paper guide plate. A spring 33 yieldingly holds the upper end of the arm 28 rearwardly but leaves it free to swing forwardly. This is desirable in the event that if the trip arm 28 were being moved from one end of its path of travel toward the center of the typewriter, and the pawl arm 25 were in position to be engaged by the trip arm, the spring 33 would permit the arm 28 to move forwardly and thereby past the pawl arm 25, which is bevelled at 25a to depress the trip arm 28 by engagement with said bevelled portion. Also this is desirable in writing beyond the marginal stop positions. When the carriage has been moved the full distance to the right or to the left,

as determined by the marginal stops, it is sometimes necessary to move the carriage beyond the marginal stops. For this purpose the key 13 is depressed, causing marginal stop 21 to tilt upwards; the arm 25, being directly beneath the trip arm 28, causes the trip arm to swing forwardly. At the same time the marginal stop 21 will be clear of stop 36 and may be moved past it, without changing the position of the marginal stop.

For the purpose of moving the margin stop devices inwardly I have provided a coil spring 34 having one end attached to one of the margin stop devices, then extended to the opposite side of the machine, then passed around a pulley 35, then extended to the opposite side of the machine, then passed around the other pulley 35 and having its opposite end attached to the other margin stop member.

For the purpose of limiting the inward movement of the margin stop devices I have provided a stop 36 fixed to a part of the movable carriage about midway of its length and in the path of movement of the margin stop members along the rack bar.

In practice, and assuming that the arm 28 were in the position shown in Figure 1 and that it was desired to move the margin stop member at the left further toward the left, the operator depresses the key 13. This tilts the rack and causes the pawl 22 to be withdrawn from the rack bar when the inclined end of the arm 25 is engaged by the trip arm 28, and the margin stop member is free to slide on the rack bar. When in this position the margin stop device is moved to the left by the trip device, which is moved by the carriage. In this same position the spring 34 causes the margin stop device to move with the carriage in the opposite direction. Immediately thereafter as the carriage continues to move to the left, the trip arm 28 engages the fixed arm 27 and forces the margin stop device to the desired position, whereupon, upon release of the margin key the arms 25 and 27 move to position where they do not engage the trip arm 28 as shown in Fig. 2, and the pawl 22 engages the rack 12 and thus locks the margin stop device. The key 13 is again depressed, the carriage is moved to the right, and the other margin stop device is released, moved and locked in the same manner. During the movement of the pawl 22 to locking position it is desirable that the margin stop member be held against movement toward the central portion of the typewriter by the spring 34. This is accomplished as follows:

When the carriage has been moved to position with the trip arm 28 engaging the arm 27, the pawl 22 has been released and the margin stop member is moved with the trip arm 28 until the carriage is moved to the position where it is desired to place the margin stop member. During this movement the margin key 13 is held in its fully depressed position. When the key 13 is released, the rack bar returns to its normal position. Before this movement begins, both the arm 27 and the pawl arm 25 are in engagement with the trip arm 28, as shown by dotted lines in Fig. 3. Then during the initial part of this movement the trip arm 28 moves below the inclined part 30 of the trip arm 28, but the fixed arm 27 remains in contact with the arm 28, as shown by solid lines in Fig. 3. Instantly, when the pawl arm 25 moves out of contact with the trip arm 28, the spring 24 moves the pawl 22 toward the rack bar 12 and the pawl moves the pawl lever 25 from the position shown by solid lines in said figure. Thereby the margin stop member is held in position upon the release of the margin key until the pawl 22 engages the rack bar.

Some of the typewriting machines now on the market are equipped with a rack bar that is fixed to the carriage. For adapting my improved margin stop device for use upon this form of typewriting machine, I have made the modifications illustrated in Figs. 6 to 10, inclusive.

In order to adapt my invention to the form of typewriter having its rack bar fixed to the carriage, it is necessary that an element corresponding in function to the trip arm 28 be mounted upon the frame so that there is a movement of the rack relative to the trip arm.

In this modified form the rack is indicated by the reference numeral 35a. It is fixed in position on the carriage.

Slidingly mounted on the rack bar are two margin stop members similar to those heretofore described. Also the fixed arm 27 extends upwardly beyond the upper portion of the pawl arm 25, as shown at 36 in Fig. 8, and the forward surfaces of the margin stop members are bevelled at 37.

In machines of this modified class there is a margin key lever 38 fulcrumed at 39. Its inner end is slidingly connected to a lever 40 fulcrumed at 41. A spring 42 normally holds the margin key upwardly. At the rear end of the lever 40 is a margin stop engaging arm 43 pivoted at 44 to the lever 40 to swing laterally, its movement being limited by the stop 45 shown in Fig. 7. The upper end of the arm 43 is extended forwardly toward the rack bar. When the margin key is in normal position the member 43 is in the path of the stop members and limits the movement of the carriage, and when the key is depressed, the member 43 is moved rearwardly out of the path of the margin stop members and the marginal stop members may pass the arm 43, permitting typing beyond margins.

For automatically releasing and locking the margin stop members to the rack by a manipulation of the single margin key I have provided a modified form of trip lever corresponding in function to the trip lever 28. This trip lever 46 is pivoted at 47 to the frame, at one side of the arm 43, as shown in Fig. 7. It has an arm 48 at its lower portion extended laterally to be engaged by the arm 43; a spring 49 yieldingly holds it in such engagement. Its upper end extends forwardly at 50 to a point adjacent the path of travel of the arms 25 and 27 of the margin stop members and is of such shape that when the arm 43 is moved rearwardly by a depression of the margin key, its upper end moves into the path of the pawl arm 25. When in this position, and when the carriage is moved, the pawl arm 25 first engages the trip arm 46 and the margin stop member is free to slide on the rack, whereupon a further movement of the carriage causes the fixed arm 27 to engage the trip arm 46 and move the margin stop member to the desired position on the rack. Upon release of the margin key the arm 46 moves above the pawl arm 25, thus permitting the pawl to lock on the rack bar, but the fixed arm 27 still engages the arm 46 and prevents movement of the margin stop member until the arm 46 passes above it, which is after the margin stop member is locked.

This modified form performs the same functions and has all of the advantages heretofore described in regard to the preferred form, and it will be understood that other modifications or variations may be resorted to for the purpose of adapting this mechanism, or parts thereof, to any particular typewriter without departing from the invention as defined in the claims.

I claim as my invention:

1. In a typewriting machine, the combination of a rack bar, a margin stop device movable on the rack bar, a pawl carried by the margin stop device for locking it to the rack bar, a device carried by the margin stop device for releasing the pawl from locking engagement with the rack bar, yielding means for forcing the pawl into locking engagement with the rack bar, a trip device for actuating said pawl releasing device, means supporting said rack bar and said trip device for longitudinal movement of one relative to the other, whereby during such movement the trip device and the pawl releasing device will engage each other and move said pawl to its released position, and a margin key lever device for moving one of said engageable devices into position to engage the other.

2. In a typewriting machine, a frame, a movable carriage, a rack bar, a margin stop device movable on the rack bar, a pawl on the margin stop device yieldingly held in engagement with the rack bar, a device for releasing it from such engagement, a trip device for actuating said pawl release device, means for supporting said rack bar and said trip device oppositely on the frame and carriage whereby during the longitudinal movement of the carriage the trip device and the pawl release device will be brought into engagement and the pawl release device will be actuated to release the pawl, said trip device and said pawl release device being normally in positions where they will not engage each other during the carriage movement, and one of them being movable into position for such engagement, and a margin key lever device for moving said pawl release device into said last mentioned engaging position and returning it to non-engaging position.

3. In a typewriting machine, a frame, a movable carriage, a rack bar, a margin stop device movable on the rack bar, a pawl on the margin stop device yieldingly held in engagement with the rack bar, a device for releasing it from such engagement, a trip device for actuating said pawl release device, means for supporting said rack bar and said trip device oppositely on the frame and carriage whereby during the longitudinal movement of the carriage the trip device and the pawl release device will be brought into engagement and the pawl release device will be actuated to release the pawl, said trip device and said pawl release device being normally in positions where they will not engage each other during the carriage movement, and one of them being movable into position for such engagement, a margin key lever device for moving said pawl release device into said last mentioned engaging position and returning it to non-engaging position, and yielding means for urging the margin stop device to move in one direction on the rack bar.

4. In a typewriting machine, a frame, a movable carriage, a rack bar, a margin stop device movable on the rack bar, a pawl on the margin stop device yieldingly held in engagement with the rack bar, a device for releasing it from such engagement, a trip device for actuating said pawl release device, means for supporting said rack bar and said trip device oppositely on the frame and carriage whereby during the longitudinal movement of the carriage the trip device and the pawl release device will be brought into engagement and the pawl release device will be actuated to release the pawl, said trip device and said pawl release device being normally in positions where they will not engage each other during the carriage movement, and one of them being movable into position for such engagement, a margin key lever device for moving said pawl release device into said last mentioned engaging position and returning it to non-engaging position, yielding means for urging the margin stop device to move in one direction on the rack bar, and means for holding the margin stop device against movement by said yielding means during the initial part of the return movement of the margin key lever device.

5. In a machine of the class described, a device for adjusting a margin stop device, comprising a rack bar, a margin stop device slidingly mounted thereon, a pawl carried by the margin stop device for engagement with the rack bar, yielding means for moving the pawl to locking position on the rack bar, a pawl actuating device movably connected with the margin stop device for releasing the pawl when moved in one direction, said margin stop device having a fixed member adjacent said movable pawl-actuating device, a trip device shaped to engage both the pawl-actuating device and the fixed member when either the trip device or the pawl-actuating device is moved into engaging position with respect to the other, to thereby release the pawl and at the same time prevent further relative movement of the margin stop device in one direction, and whereby when either said pawl-actuated device or said trip device is moved to non-engaging position with respect to the other, the trip device will first release the pawl-actuating device and permit the pawl to lock before said fixed member is released from said engagement, and a margin key lever device for moving said pawl-actuating device into said engaging position when depressed, and for permitting it to return to non-engaging position when released.

6. In a typewriting machine, a frame, a movable carriage, a rack bar pivotally supported by the frame, a margin stop device slidingly mounted on the rack bar, a spring-actuated pawl carried by the margin stop device for engagement with the rack bar, a pawl-actuating arm carried by the margin stop device to release the pawl when moved in one direction, a fixed arm on the margin stop device adjacent the pawl-actuating arm, a trip arm carried by the carriage and adapted, when the carriage is moved in one direction, to first engage the pawl-actuating arm and release the pawl, and then engage said fixed arm and move the margin stop device in one direction along the rack bar, means for yieldingly urging the margin stop device in the opposite direction, and means for tilting the rack bar to a position wherein the trip arm will engage said arms on the margin stop device, and when released, to permit the return of the rack bar to normal position.

7. In a typewriting machine, a frame, a movable carriage, a rack bar pivotally supported by the frame, a margin stop device slidingly mounted on the rack bar, a spring-actuated pawl carried by the margin stop device for engagement with the rack bar, a pawl-actuating arm carried by the margin stop device to release the pawl when moved in one direction, a fixed arm on the margin

stop device adjacent the pawl-actuating arm, a trip arm carried by the carriage and adapted, when the carriage is moved in one direction, to first engage the pawl-actuating device and release the pawl, and then engage said fixed arm and move the margin stop device in one direction along the rack bar, means for yieldingly urging the margin stop device in the opposite direction, and means for tilting the rack bar to a position wherein the trip arm will engage said arms on the margin stop device, and when released, to permit the return of the rack bar to normal position, said trip arm being so shaped that upon the initial return of the rack bar to normal position the said pawl-actuating arm will be disengaged from the trip arm while the said fixed arm is still engaged therewith.

8. In a typewriting machine, a frame, a movable carriage, a rack bar pivotally supported by the frame, two margin stop devices slidingly mounted on the rack bar, means for yieldingly urging them toward each other, means for limiting their movement toward each other, a spring-actuated pawl carried by each margin stop device for engagement with the rack bar, a pivoted pawl release arm carried by each stop device and which, when moved in one direction, will move the pawl away from the rack bar, a stationary arm on each margin stop device adjacent the pawl release arm, a trip arm carried by the carriage, having a lower portion positioned below said arms on the margin stop devices when the rack bar is in normal position, and having an upper portion shaped to engage both of said arms when the rack bar is tilted into position to raise said arms, and having an intermediate portion shaped to engage the said fixed arm only during the initial downward movement of said arms, and a spring-actuated margin key lever device for tilting the rack bar when depressed, and for returning it to normal position when released.

ROBERT L. BREDIMUS.