

Jan 6, 1931.

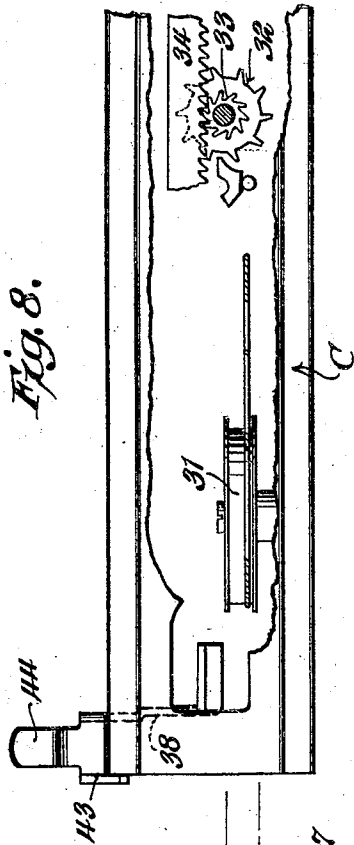
G. F. HANDLEY

1,787,679

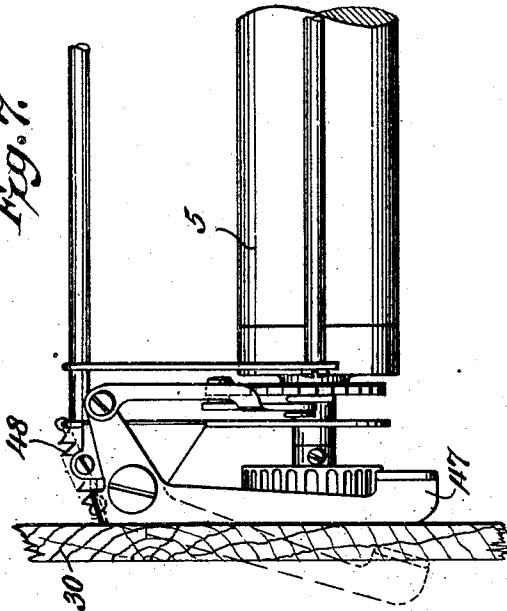
TYPEWRITING MACHINE

Filed Nov. 1, 1929

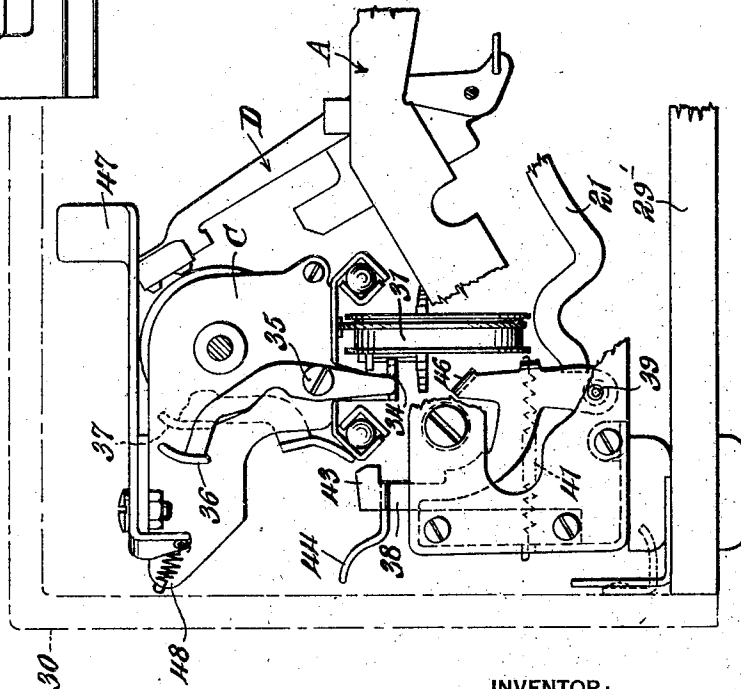
3 Sheets-Sheet 1



*Fig. 7.*



*Fig. 1.*



INVENTOR,  
*George F. Handley,*  
BY *Baldwin & Night*  
ATTORNEYS.

Jan 6, 1931.

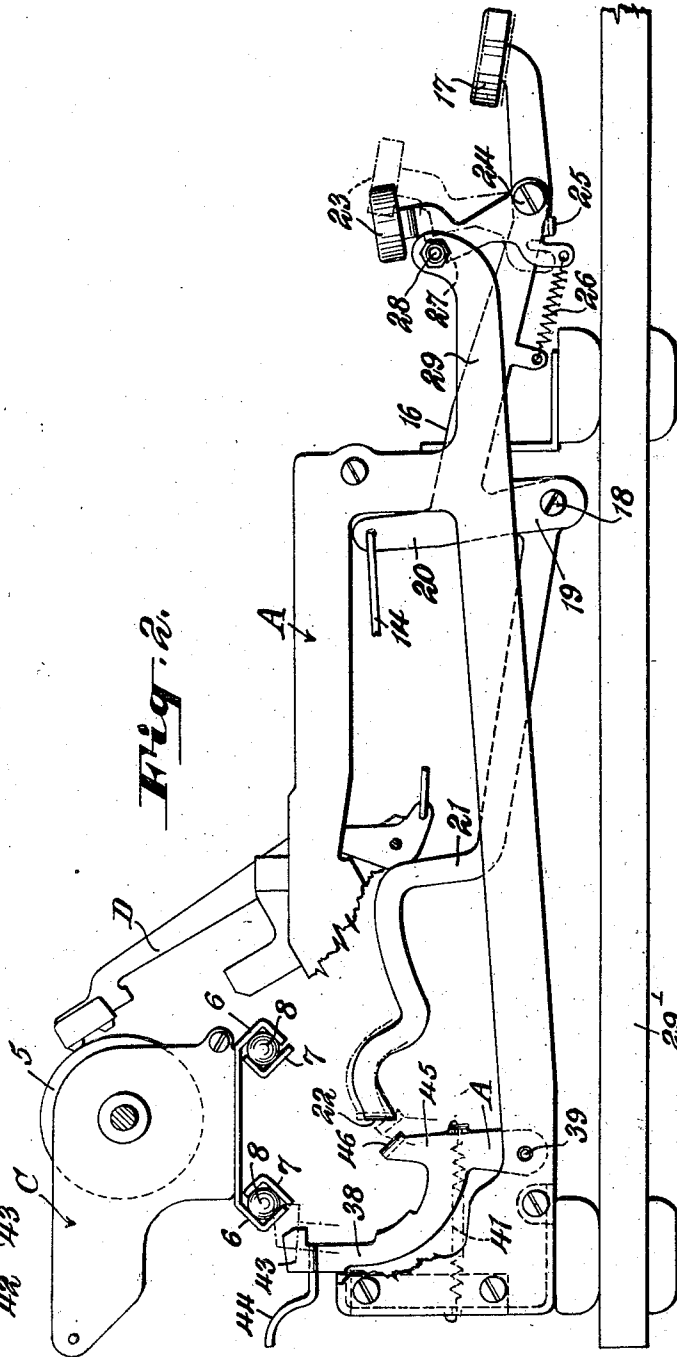
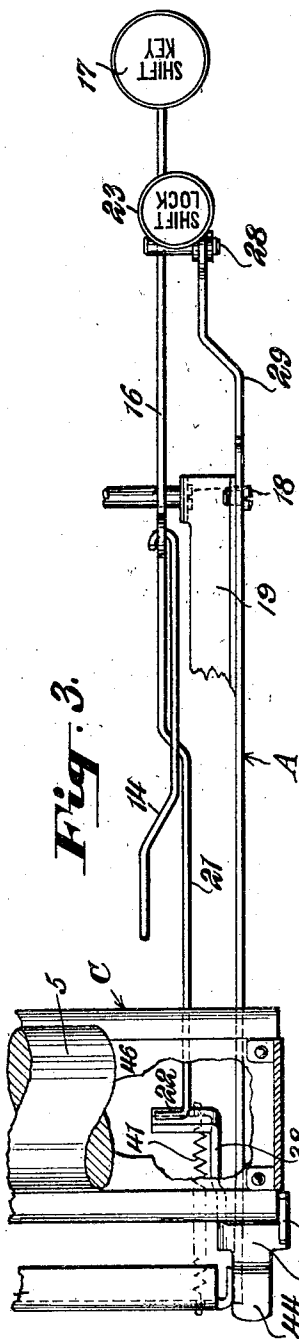
G. F. HANDLEY

1,787,679

TYPEWRITING MACHINE

Filed Nov. 1, 1929

3 Sheets-Sheet. 2



INVENTOR,  
*George F. Handley,*  
BY *Baldwin & Hight*  
ATTORNEYS.

Jan 6, 1931.

G. F. HANDLEY

1,787,679

TYPEWRITING MACHINE

Filed Nov. 1, 1929

3 Sheets-Sheet. 3

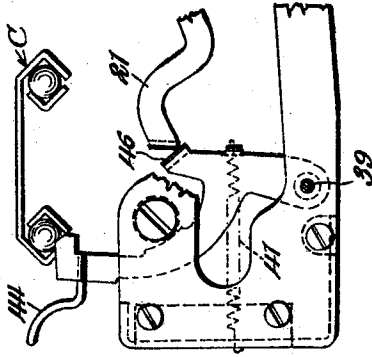


Fig. 5.

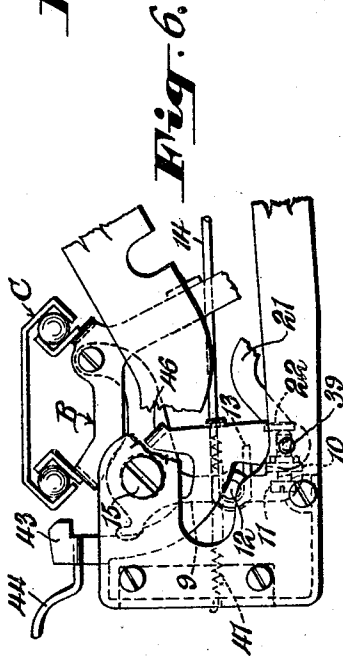


Fig. 6.

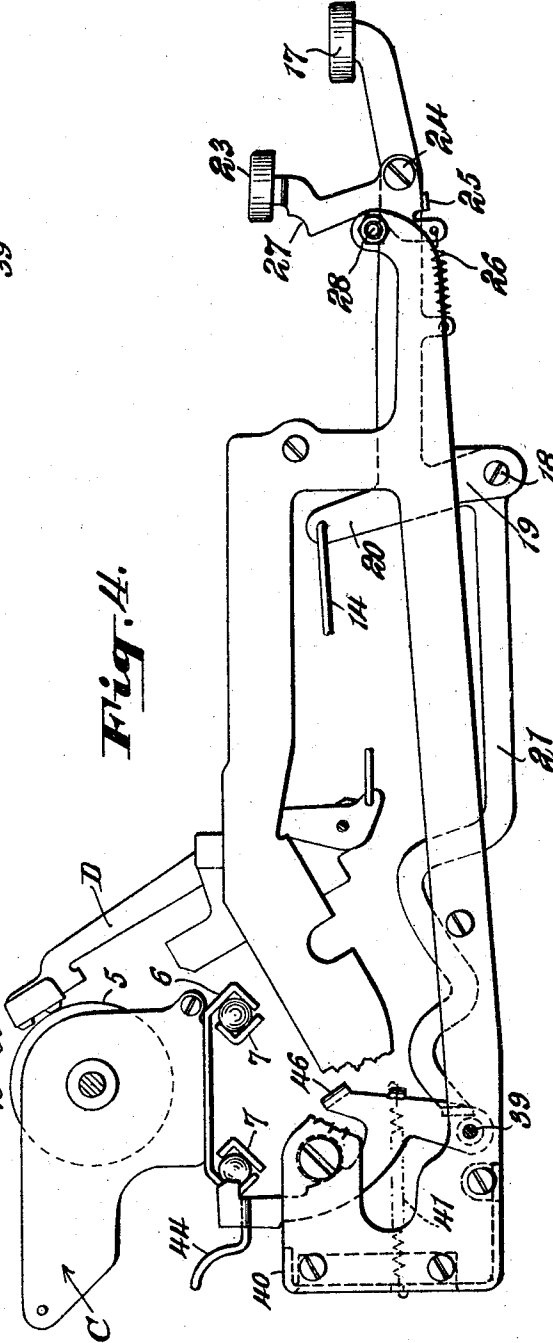


Fig. 4.

INVENTOR  
George F. Handley,  
BY Baldwin & Night  
ATTORNEYS.

## UNITED STATES PATENT OFFICE

GEORGE F. HANDLEY, OF GLENDALE, NEW YORK, ASSIGNOR TO ROYAL TYPEWRITER COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

## TYPEWRITING MACHINE

Application filed November 1, 1929. Serial No. 404,124.

This invention relates to new and useful improvements in typewriting machines generally, although more particularly to a carriage centralizing device therefor.

typewriting machine embodying my invention, the view showing the machine positioned within the carrying case.

Portable typewriting machines are generally mounted in carrying cases or cabinets which include a base to which the machine is attached, and a removable cover. These cases are built as small as possible and therefore the width of the case is just sufficient to accommodate the length of the carriage, and the height of the case is just sufficient to accommodate the machine when the carriage is in its lower position. When it is desired to apply the cover, it is necessary to centralize the carriage relative to the main frame, and, if the carriage is in upper case position, it is necessary to lower the same by operating the shift lock release key, thereby positioning the carriage in proper position to permit the ready application of the cover. In the centralizing operation, if the carriage is positioned too far to the right or left relative to the main frame, to the extent of several letter spaces, it is practically impossible to apply the cover, and it then becomes necessary for the operator to move the carriage until its exact center position is obtained. Oftentimes the operator, after centralizing the carriage and placing the cover over the machine, finds that the cover will not engage the base owing to the carriage being in its upper position. It is then necessary for the operator to remove the cover, lower the carriage, and then reposition the cover.

Figure 2 is a side elevation, showing the carriage locked in its upper position, and the centralizing stop located in its normal or inoperative position.

Figure 3 is a top plan view thereof with the centralizing stop located in its operative position.

Figure 4 is a view similar to Figure 2 but showing the centralizing lever in its effective or operating position, and the carriage in its lower position.

Figure 5 is a detail side elevation showing the carriage in upper position as it is about to be released, the centralizing stop being in operative position and in cooperative relation with the shift lever.

Figure 6 is a detail side elevation showing the shift frame and carriage in lower position and the centralizing stop in its normal position.

Figure 7 is a detail top plan view showing the relation between the left wall of the cover and the line-spacing lever, and

Figure 8 is a fragmentary top plan view showing the relation between the carriage, spring motor and escapement mechanism.

In the accompanying drawings I have illustrated my invention as being applied to a Royal portable machine, such as is shown and described in the patent to Myers, 1,559,123, Oct. 27, 1925, and therefore only such parts of said machine are shown in the accompanying drawings as will be necessary to sufficiently illustrate the application of my invention.

Among the several objects of my invention are to provide a device which may be readily positioned in the path of movement of the carriage to effect a stoppage of the carriage in an exact centralizing position; to provide such a device which will permit immediate operation of the machine after the cover has been removed; and to provide such a device which when moved to effective stopping position, will release automatically the shift lock release key to permit the carriage to move to its lower position.

In the said drawings I have shown a main frame A in which is mounted for vertical movements a shift frame B on which is mounted for letter space movements a carriage C having a platen 5. Type bars D are mounted on a segment on the main frame in the usual manner for cooperation with the platen 5. The carriage C is supported on the shift frame B through the medium of upper and lower pairs of rails 6—6 and 7—7, the former being fixed to the carriage and the latter being fixed to the shift frame. Anti-

In the accompanying drawings:

Figure 1 is a fragmentary elevation of the rear portion of the left hand side of a portable

friction balls 8 are disposed between associated upper and lower rails.

The shift frame B has at one side a downwardly extending arm 9 having at its lower end an offset ear 10 provided with an adjustable stop screw 11. Intermediate its ends the arm 9 is provided with a headed stud 12 which is engaged by the hooked end 13 of a link 14 which is shown as extending forwardly and upwardly. The shift frame B is fulcrumed on a rod which is journaled at its ends in bearings secured to the side plates of the main frame by screws 15, one of said screws only being shown. A left hand shift key lever 16 is provided at its front end with a key 17. This shift key lever is pivoted as at 18 to a bracket 19 secured to the main frame. The shift key lever 16 is provided with an extension 20 which projects upwardly above the pivot 18 and is connected at its upper end to the link 14. The shift key lever 16 is also provided with an arm 21 which extends rearwardly from the pivot 18 and is provided with an offset rear end 22 which is adapted to contact with the stop screw 11 when the parts are in normal position and thereby lock the shift frame in its lower case or normal position. When the shift key lever 16 is depressed the rear end 22 thereof moves up quickly out of the path of the stop screw 11. This movement is permitted prior to the beginning of the movement of the shift frame by a slight lost motion between the hook 13 and the stud 12.

Continuation of the depression of the shift key will move the shift frame to upper case position.

A shift lock key 23 has a stem provided with a short forward extension pivoted at 24 to the front portion of the shift key lever 16. The key stem 23 is provided with a lip 25 which is adapted to engage the under side of the shift lever 16. A spring 26 is connected at one end to the shift lock key and at its other end to the shift lever 16 and functions to normally urge the shift lock key 23 in a forward direction. The shift lock key is provided with a dwell or seat 27 which is adapted to engage a pin 28 fixed to an arm 29 which extends forwardly from the main frame A. Thus when it is desired to raise the shift frame to its upper position and retain it in said position, the operator urges the shift lock key 23 downwardly and rearwardly. This movement first releases the rear end 22 of the shift lever from engagement with the stop 11 and upon continued downward movement of the shift lever the link 14 will effect an elevating movement of the shift frame.

When the shift frame reaches its upper position the rear pressure exerted on the shift key lock 23 will cause the dwell or seat 27 to be positioned under the pin 28, and upon release of said key 23 by the operator the shift frame will be locked in its upper position.

It will be understood that the friction between the seat 27 and the pin 28 is greater than the tension of the spring 26 and consequently the shift lock key 23 will remain in its locked position until released. It will also be apparent that if downward pressure is exerted on the key 17 the front end of the shift key lever 16 will be slightly lowered and the spring 26 will then function to return the shift lock key 23 to its normal position as shown in dotted lines in Figure 2 or as shown in full lines in Figure 4. It therefore follows that the shift lock 23 may be released upon upward pressure being exerted against the rear end of the shift key lever 16.

As previously stated, my invention is particularly adapted for use in connection with portable machines and usually these machines are mounted in carrying cases, each case including a base 29' and a cover 30. The machine is fixedly secured to the base 29' by any suitable means and the cover 30 is adapted to be positioned over the machine and detachably and removably connected to said base. Inasmuch as the case is of a size sufficient only to receive the machine, it is necessary to centralize the carriage C with respect to the side walls of the main frame, and also necessary to have the shift frame in its lower position.

The machine includes the usual spring motor 31 and an escapement mechanism which includes the usual pinion 33 and feed rack 34. The feed rack 34 is pivotally mounted at its ends as at 35 to the carriage ends and rigidly connected with the opposite ends of the feed rack 34 are carriage release arms or levers 36 and 37, the former being located at the left hand end of the carriage and the latter being located at the right hand end thereof. It will be understood that the feed rack 34 is normally held in co-operative engagement with the escapement pinions 33 through the medium of a spring (not shown).

In order to positively center the carriage relative to the main frame preparatory to positioning the cover 30 on the base 29', I have provided a manually operable centralizing device or stop which consists of an arm 38. This arm 38 is pivoted at its lower end as at 39 to the left hand side plate of the main frame and the upper end of this arm projects above the upper edge of said side plate and is normally disposed in rear of the path of movement of the carriage C. Normally the upper end of the arm 38 rests against an inwardly extending flange 40 on the rear plate or wall of the main frame, and is yieldingly held in said normal position by means of a spring 41, one end of the spring being fixed to the rear wall of the main frame and the other end of the spring being fixed to the arm 38. The upper end of the arm 38 is provided with a portion 42 which overhangs

the left hand wall of the main frame and terminates at its side in an upwardly extending stop finger 43. Extending rearwardly from the upper end of the arm 38 is a finger piece 44 by means of which the stop arm 38 may be swung forwardly against the tension of the spring 41 into the position where the stop or head 43 will be located in the path of movement of the carriage, such position being shown in full lines in Figures 3, 4 and 5 and in dotted lines in Figure 2. In this position of the arm 38 the stop finger 43 is adapted to be engaged by the left hand end of the adjacent rail 6 of the carriage and thereby stop further movement of the carriage in latter space direction.

When it is desired to centralize the carriage, the operator first moves the carriage to the right and then swings the centralizing lever 38 forwardly with his left hand to operative position, and simultaneously operates the right hand carriage release lever 37. The operator holds the centralizing lever 38 in its operative position while the carriage is being released and while the carriage is moved towards the left and until it engages the stop finger 43 of said centralizing lever. The operator then removes his hand from the centralizing lever 38, and the pressure of the carriage exerted against the stop finger 43, due to the pull of the spring motor 31 being greater than the pull of the spring 41, will create sufficient friction between the carriage and the stop finger 43 to retain the centralizing lever 38 in its operative position until the carriage has been slightly moved toward the right. The forward movement of the centralizing lever 38 is limited by reason of the lever engaging the shift frame bearing which is secured to the main frame by the screw 15.

If the shift frame is locked in its upper position as previously described the rear end 22 of the shift key lever 16 will be locked in an elevated position as shown in full lines in Figure 2. The centralizing lever 38 is provided with an extension 45 having an inclined upper end 46 which is adapted when the lever 38 is moved forwardly to operative position, to engage and cam the rear end 22 of the shift lever and thereby elevate said end as shown in dotted lines in Figure 2. The elevation of the rear end of this shift frame lever 16 results in the forward end thereof being lowered and consequently the shift lock key 23 will be immediately released from its locking engagement with the pin 28. While the centralizing lever 38 is moved to its operative position and the shift lock key 23 released thereby, the operator moves the carriage release lever 37 and the carriage then moves toward the left or in letter space direction until the carriage frictionally engages the stop finger 43 of said centralizing lever. As above stated, the centralizing lever is held

by frictional engagement with the carriage in its operative position, and consequently the cam 46 will prevent the shift lever 16 returning to its normal position. Thus the shift frame will be retained in its upper position until the centralizing lever 38 has returned to its normal position.

Associated with the platen 5 is the usual line spacing lever 47. This lever has its free end normally extended and held in such extended position by a spring 48 as shown in Figure 7. The width of the cover 30 is insufficient to receive the machine with the line spacing lever located in its normal or extended position as shown in dotted line in Figure 7. When the cover is applied the left hand wall thereof is engaged with the free end of the line spacing lever 47 so as to swing the latter inwardly to the full line position shown in Figure 7. This movement is towards the right and a slight increased pressure in the same direction will cause the carriage to be moved a trifle towards the right so as to release the centralizing lever 38 and permit the latter to be returned to its normal position by the spring 41. When the centralizing lever 38 is thus returned to its normal position the cam 46 of said lever is moved out of the path of the rear end 22 of the shift lever 16 and consequently the shift frame B will gravitate to its lower position, the rear end 22 of the shift lever returning to its initial or normal position in front of the stop screw 11 to retain the shift frame in its lower position.

From the foregoing it will be seen that I have provided a device which is normally out of the path of the movement of the carriage and is movable into said path for cooperation with the carriage to center the latter, and that said device also cooperates with the shift key lever 16 when the shift frame is locked in its upper position, to release the shift lock key so as to permit the shift frame to be automatically lowered.

I claim:

1. In a typewriting machine, the combination with a shift frame, of a carriage mounted thereon for letter space movements, a shift lever, a shift lock cooperating with the lever to lock the frame in its upper position, and a device normally located out of the path of movement of the carriage and movable into said path for cooperation with the carriage to center the latter and to effect release of the shift lock.

2. In a typewriting machine, the combination with a shift frame, of a carriage mounted thereon for letter space movements, a shift lever, a shift lock cooperating with the lever to lock the frame in its upper position, and a device normally located out of the path of movement of the carriage and movable into said path for cooperation with the carriage

to center the latter and to directly engage said shift lever to release said shift lock.

3. In a typewriting machine, the combination with a main frame, of a shift frame mounted thereon for vertical movements, a carriage mounted on said shift frame for letter space movements, an escapement mechanism normally engaged with said carriage, means for releasing said escapement mechanism, a shift lever, a shift lock cooperating with the shift lever and main frame to lock said shift frame in its upper position, and a device normally located out of the path of movement of the carriage and movable into said path for cooperation with the carriage to center the latter and to directly engage said shift lever to release said shift lock.

4. In a typewriting machine, the combination with a shift frame, of a carriage mounted thereon for letter space movements, a shift lever normally having its rear end engageable with the shift frame for retaining the latter in its lower position, a shift lock cooperating with the lever to lock the frame in its upper position, and a device normally located out of the path of movement of the carriage and movable into said path for cooperation with the carriage to center the latter and to directly engage the rear end of the shift lever to release the shift lock.

5. In a typewriting machine, the combination with a shift frame including an arm, of a carriage mounted on said frame for letter space movements, a shift lever normally having its rear end engageable with the arm of the shift frame for retaining the latter in its lower position, a shift lock cooperating with the lever to lock the frame in its upper position, and a device normally located out of the path of movement of the carriage and movable into said path for cooperation with the carriage to center the latter and to directly engage the rear end of the shift lever to release the shift lock.

6. In a typewriting machine, the combination with a main frame, of a shift frame mounted thereon for vertical movements, a carriage mounted on said shift frame for letter space movements, a shift lever, a shift lock cooperating with the shift lever to lock said shift frame in its upper position, and a stop lever pivoted on the main frame and normally located out of the path of movement of the carriage and movable into said path for cooperation with the carriage to center the latter and to directly engage said shift lever to release said shift lock.

7. In a typewriting machine, the combination with a main frame, of a shift frame mounted thereon for vertical movements and including an arm, a carriage mounted on said shift frame for letter space movements, a shift lever normally having its rear end engageable with the arm of the shift frame for retaining the latter in its lower position,

a shift lock cooperating with the shift lever to lock said shift frame in its upper position, and a stop lever pivoted on the main frame and normally located out of the path of movement of the carriage and movable into said path for cooperation with the carriage to center the latter and to directly engage the rear end of said shift lever to release said shift lock.

8. In a typewriting machine, the combination with a main frame, of a shift frame mounted thereon for vertical movements, a carriage mounted on said shift frame for letter space movements, a shift lever, a shift lock cooperating with the shift lever to lock said shift frame in its upper position, a stop lever pivoted on the main frame and normally located out of the path of movement of the carriage and movable into said path for cooperation with the carriage to center the latter to directly engage said shift lever to release said shift lock, and a spring for normally holding said pivoted stop lever out of the path of movement of said carriage.

9. In a typewriting machine, the combination with a main frame, of a shift frame mounted thereon for vertical movements and including an arm, a carriage mounted on said shift frame for letter space movements, a shift lever normally having its rear end engageable with the arm of the shift frame for retaining the latter in its lower position, a shift lock cooperating with the shift lever to lock said shift frame in its upper position, a stop lever pivoted on the main frame and normally located out of the path of movement of the carriage and movable into said path for cooperation with the carriage to center the latter and to directly engage the rear end of said shift lever to release said shift lock, and a spring for normally holding said pivoted stop lever out of the path of movement of said carriage.

10. In a typewriting machine, the combination with a carriage and a motor for moving the carriage in one direction, of an escapement mechanism for the carriage, means for releasing said escapement mechanism, and a device normally out of the path of movement of the carriage and movable into said path for cooperation with the carriage to center the latter, said device being directly engaged by the carriage and held in its operative position by the carriage under the influence of said motor.

11. In a typewriting machine, the combination with a carriage and a motor for moving the carriage in one direction, of an escapement mechanism for the carriage, means for releasing said escapement mechanism, a device normally out of the path of movement of the carriage and movable into said path for cooperation with the carriage to center the latter, and a spring for normally holding said centering device out of the path

of movement of the carriage, said device being directly engaged by the carriage and held in its operative position by the carriage under the influence of said motor.

12. In a typewriting machine, the combination with a carriage element, a segment element, one of said elements being movable from lower position to upper position, means for shifting the movable element from the lower position to the upper position, means cooperating with the shift lever for locking the movable element in its upper position, and a carriage centralizing lever cooperable with the locking means to release the latter when the movable element is in upper position.

13. In a typewriting machine, the combination with a carriage element, a segment element, one of said elements being movable from lower position to upper position, means including a shift lever for moving the movable element from lower position to upper position, means cooperating with the shift lever for locking the movable element in its upper position, and a carriage centralizing lever cooperable with the locking means to release the latter when the movable element is in upper position.

14. In a typewriting machine, the combination with a carriage element, a segment element, one of said elements being movable from lower position to upper position, means for shifting the movable element from the lower position to the upper position, means cooperating with the shift lever for locking the movable element in its upper position, and a carriage centralizing lever cooperable with the locking means to release the latter when the movable element is in upper position and cooperable with the carriage in either position of the movable element.

15. In a typewriting machine, the combination with a carriage movable from lower position to upper position, means for shifting the carriage from its lower position to its upper position, means for locking the carriage in its upper position, and a carriage centralizing device cooperable with the locking means to release the latter when the carriage is in upper position.

16. In a typewriting machine, the combination with a carriage, means including a shift lever for moving the carriage from lower position to upper position, means cooperating with the shift lever for locking the carriage in its upper position, and a carriage centralizing device cooperable with the shift lever to release the locking means when the carriage is in its upper position.

17. In a typewriting machine, the combination with a carriage element, a segment element, one of said elements being movable from lower position to upper position, means including a centrally pivoted shift lever for moving the movable element from lower

position to upper position, means cooperating with one end of the shift lever for locking the movable element in its lower position, means cooperating with the other end of the shift lever for locking the movable element in its upper position, and independently operable means located at opposite ends of the lever for releasing the last mentioned locking means.

18. In a typewriting machine, the combination with a carriage element, a segment element, one of said elements being movable from lower position to upper position means including a centrally pivoted shift lever for moving the movable element from lower position to upper position, means cooperating with one end of the shift lever for locking the movable element in its lower position, means cooperating with the other end of the shift lever for locking the movable element in its upper position, and independently operable means located at opposite ends of the lever for releasing the last mentioned locking means, one of said independently operable means being a centralizing device for the carriage and normally disposed out of the path of the carriage travel and normally disposed out of cooperative relation with the shift lever.

19. In a typewriting machine, the combination with a carriage and a motor for moving the carriage in one direction, of an escapement mechanism for the carriage, means for releasing said escapement mechanism, a device normally out of the path of movement of the carriage and movable into said path for cooperation with the carriage to center the latter, said device being directly engaged by the carriage and held in its operative position by the carriage under the influence of said motor, and means for automatically returning said device to its normal position upon movement of the carriage in a direction opposite the direction of movement influenced by the motor.

In testimony whereof, I have hereunto subscribed my name.

GEORGE F. HANDLEY.