

March 8, 1927.

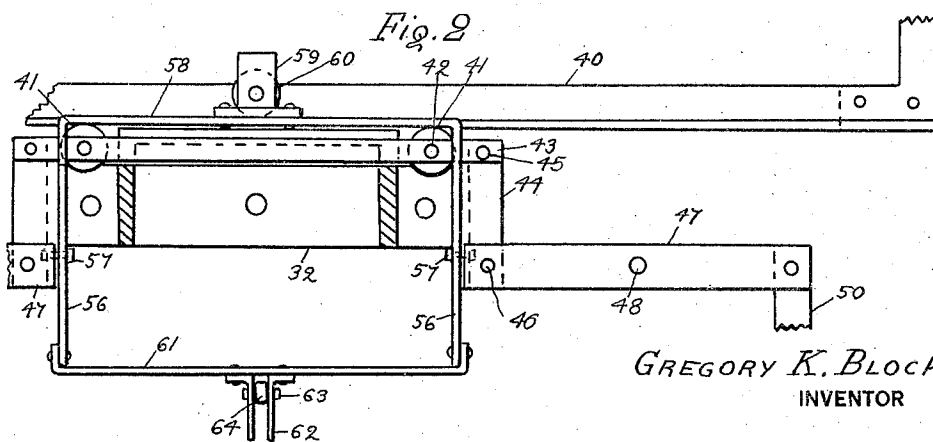
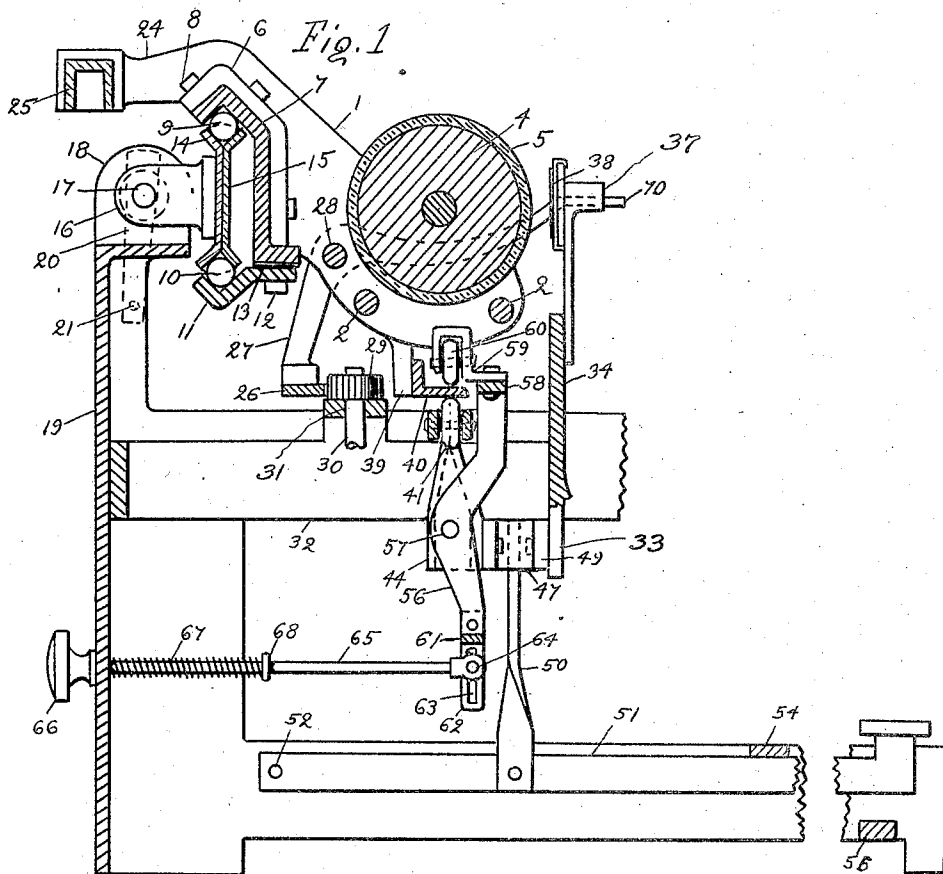
1,620,004

G. K. BLOCK

TYPEWRITING MACHINE

Filed July 26, 1926

3 Sheets-Sheet 1



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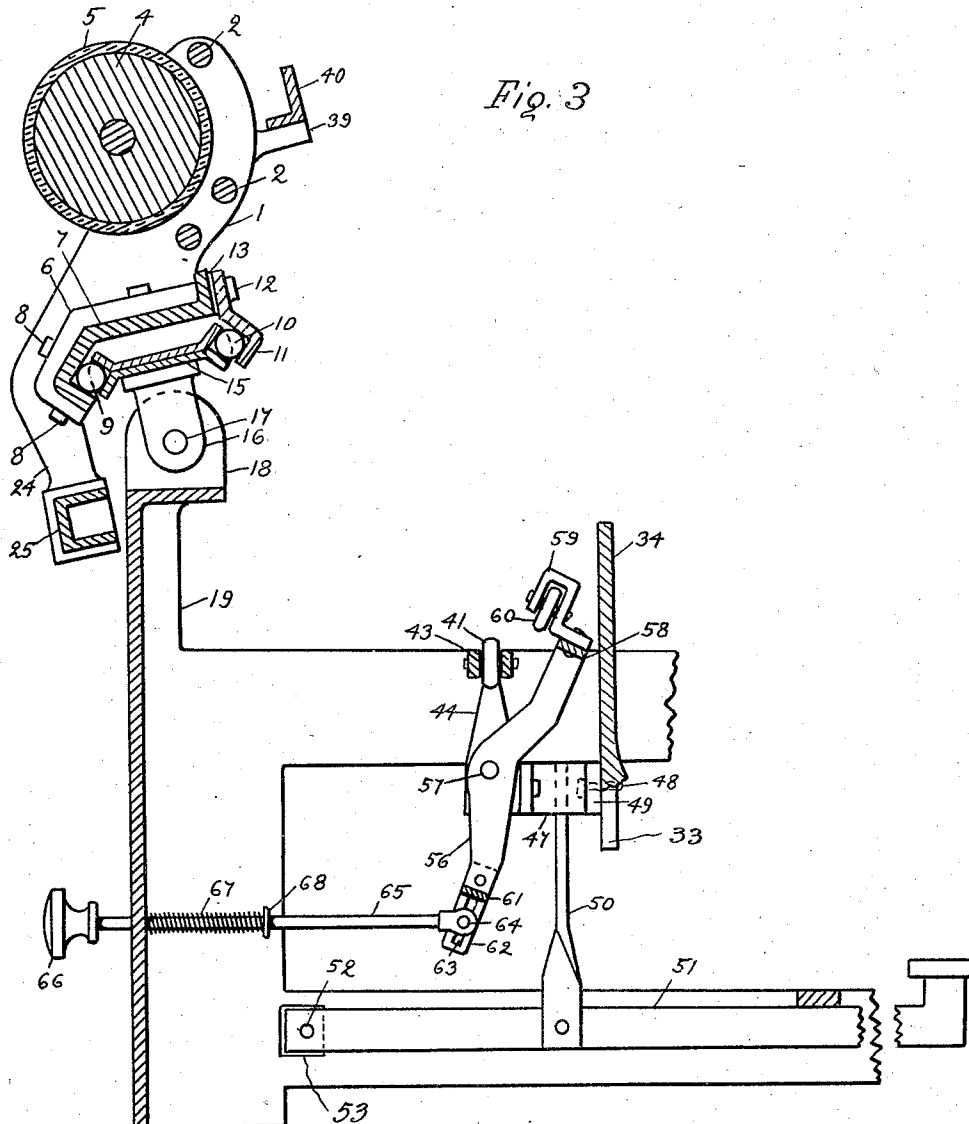
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TYPEWRITING MACHINE

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3 Sheets-Sheet 2



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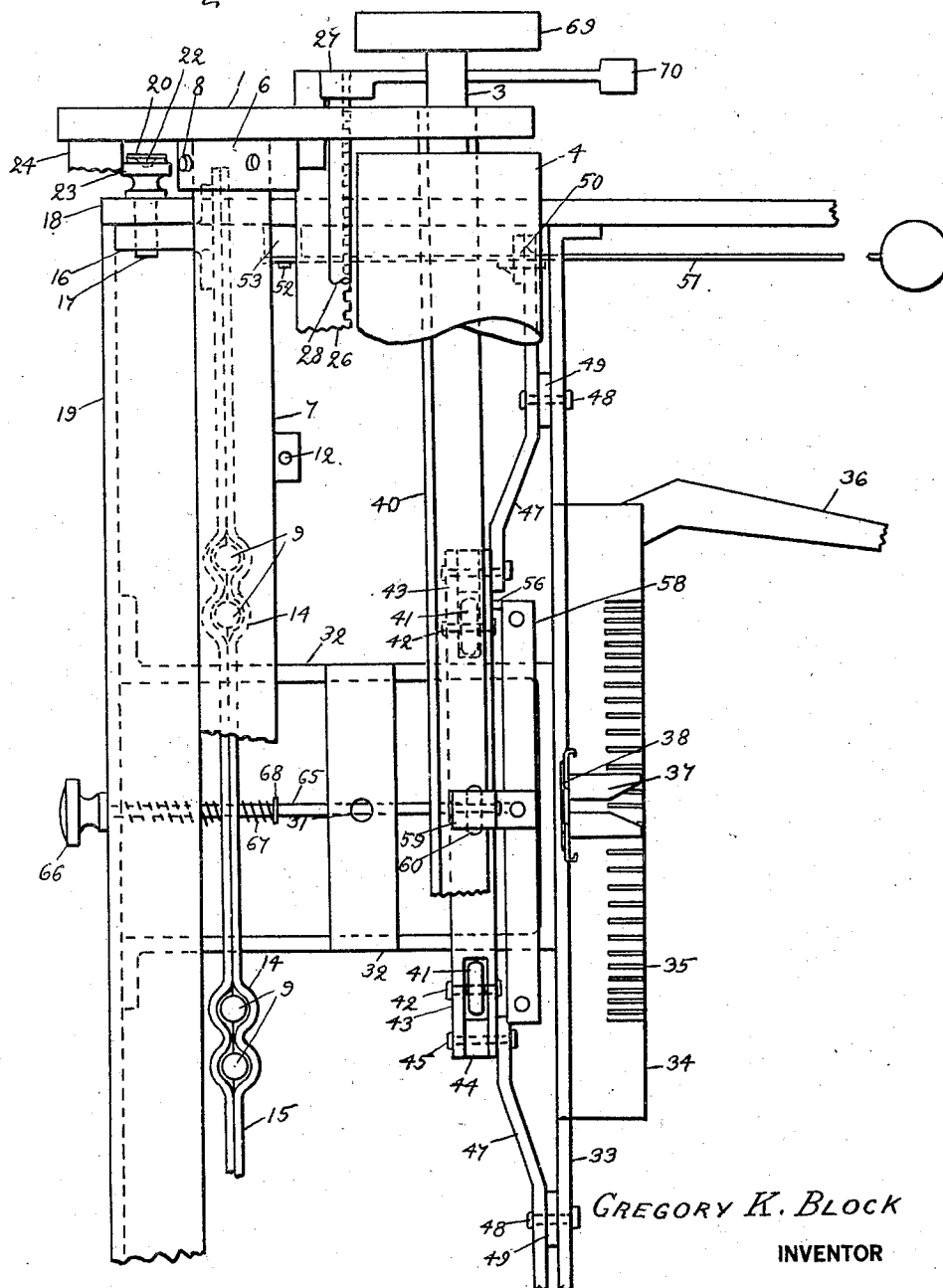
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3 Sheets-Sheet 3

Fig. 4



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UNITED STATES PATENT OFFICE.

GREGORY K. BLOCK, OF NEW YORK, N. Y.

TYPEWRITING MACHINE.

Application filed July 26, 1926. Serial No. 124,972.

My invention relates to typewriting machines and has a particular reference to carriage arrangement and mechanism.

The object of my invention is to provide a simple carriage for typewriting machines with new and improved attachments and of an improved design, which could be easily removed from the machine to be replaced with another carriage of a different length, when necessary.

Another object of my invention is to provide a carriage which could be easily turned over on its hinges so as to provide an easy access to the inside mechanism of the machine.

I also provide ball bearings throughout for the carriage mounting in order to reduce the friction in its longitudinal movements and the wear of parts.

This invention represents an improvement over my carriage as disclosed in my Patent No. 1,594,768 of Aug. 3, 1926. The improvement consists chiefly in dividing the carriage into two parts: one removably hinged on the frame of the typewriting machine and forming a carriage support, and the other, main support of the carriage, slidably mounted on the above hinged part.

With this arrangement the replacement of the carriages for different length of the work is simplified, as only sliding portion determines the total length of the machine, and it can be easily removed by removing two pins on which the supporting part is pivoted.

With a short carriage the whole machine is also short, not requiring an extra length to accommodate longer carriages. I have also improved the mechanism for raising the carriage and the locking device.

My invention is more fully explained in the accompanying specification and drawings in which—

Fig. 1 is a sectional elevation of my typewriting machine, Fig. 2 is a partial front view, Fig. 3 is a sectional elevation showing the carriage turned over on its hinges, and Fig. 4 is a plan view.

My carriage consists of two end brackets 1 joined together with rods 2 which also serve as paper guides forming a carriage frame. The brackets are provided with bearings for journals 3 (Fig. 4) of a drum 4 for the writing paper (not shown). The drum is covered with rubber 5 or similar elastic material.

The brackets 1 are provided with lugs 6 to which a rear sliding or connecting member 7 is attached by means of screws 8. This member is finished smoothly on the inside forming an upper race for the balls 9. The lower race for the balls 10 is formed in the lower plate 11, attached to the member 7 with screws 12. The exact position of the lower plate is adjusted by means of removable liners or shims 13.

The balls 10 are placed in cups or races 14 formed between plates 15. These plates are provided with brackets or lugs 16 forming a carriage support rotatively mounted on pins 17. These pins are inserted into the brackets 17 through stationary lugs 18 on the frame 19 of the typewriting machine. They are held in place by springs 20 attached to the frame 19 with screws 21 (Fig. 1). They are provided with notches 22 (Fig. 4) fitting into depressions in the ends of the thumb heads 23 (Fig. 4) of the pins. In order to remove the pin the spring 20 is bent out and turned sideways thereby releasing the thumb head which can be then pulled out with the pin.

Lugs 24 are also provided on the end brackets and support the ends of the bar 25. This bar supports adjustable sliding blocks which are used to stop the carriage at the end of the line and to ring the bell (as explained in my Patent No. 1,594,768).

A rack bar 26 is supported on arms 27 rotating on the rod 28. This bar is ordinarily in an engagement with a pinion 29 on a shaft 30. The shaft is journaled in a bearing 31 in a bracket 32 attached with one side to the rear wall of the frame 19. The front end of this bracket is attached to a cross bar 33 joining the sides of the frame 19 and supporting at the front a type bar segment 34. This segment is provided with slots 35 (Fig. 4) for type bars 36 (Fig. 4). A guide 37 directs the type bars at the right spot on the paper and against an ink ribbon 38.

The front ends of brackets 1 are provided with lugs 39 supporting front bar 40. This bar rests on rollers 41 on pins 42 set in a frame 43. This frame or bar has ends slotted for these rollers and also for the ends of vertical members 44 held with pins 45 (Fig. 4). The lower ends of members 44 are pivoted with pins 46 to levers 47 rotatively mounted on pins or bolts 48 and supported on the cross

bar 33 with spacing washers 49. The other ends of levers 47 are pivoted to vertical links 50 the lower ends of which are in turn pivoted to middle portions of shift bars 51.

5 These shift bars are mounted on pivots 52 in the frame lugs 53. Their movements are limited by the upper bar 54 and lower bar 55.

Arms 56 are pivoted to the inner sides of the members 44 on pins 57. The upper ends 10 of these arms are joined together with a bar 58 which supports in the middle a bracket 59 with an upper or retaining roller 60. This roller keeps the front bar 40 in an engagement with the lower rollers 41.

15 The lower ends of arms are joined together with a bar 61 which supports brackets 62 with slots 63. A pin 64 is fitted in these slots and is mounted on the end of a rod 65 slidably fitted in the rear wall of the frame 20 19. The outer end of this rod is provided with a thumb head 66. A spring 67 pressing against a collar 68 on the rod tends to keep the rod in its extreme inside position with the thumb head resting against the 25 frame.

The paper drum 4 is provided with a handle 69 (Fig. 4).

The arm 27 has a handle 70.

Operation of my typewriting machine is 30 as follows.

In a normal operating position (Figs. 1 and 2 and plan view 4) the carriage rests with its front bar 40 on the rollers 41 which are maintained in a fixed position on a system of bars and links 43, 44, 47, 50 and the 35 key bars 51, one at each end of the typewriter frame, these key bars resting against the upper retaining lugs 54.

40 The carriage support 16 is rotatively mounted on pins 17, the carriage frame with brackets 1 and the members 15 and 16 being joined together by means of balls 9 and 10.

In order to raise the carriage for typing capital letters the key bar 51 is depressed 45 until it strikes the lower rest 56. It is immaterial which of the key bars is depressed, one at the right or at the left of the machine, because if one is depressed, it raises the corresponding roller 41, thereby raising the 50 front bar 40. The latter in turn will raise the other roller 41. The amount of lift is controlled by the distance between the rests 54 and 56 and the design of the transmitting links and arms, and is usually about $\frac{3}{16}$ ".

55 The upper roller 60 will be moved together with the lower rollers and the supporting members 44, the pin 64 sliding in the slots 63.

In the operating position the carriage is 60 moved along with each letter typed under action of a spring mechanism (not shown) as explained in my Patent No. 1,594,768. The pinion 29 is acted upon by this spring and transmits the lateral pressure to the carriage 65 through the rack 26. The carriage move-

ment is practically frictionless, its front end sliding on the rollers 41 and the rear portion on the balls 9 and 10.

By pulling the thumb head 66 the arms 56 are turned on their pivots 57 until the roller 70 60 slides off from the bar 40 taking the position shown in Fig. 3. This releases the carriage, and the latter with its supports may be turned over on the pins 17 and outwards as shown, exposing the inside mechanism of 75 the machine for cleaning, repairing, etc.

In this position the carriage may be completely removed by turning springs 20 and removing the pins 17. A new carriage with new supports may be then substituted of a 80 different length if desired, as the same machine may be used with carriages of different length. The carriage movement is limited by the devices on the carriage itself which makes possible the use of different car- 85 riages with one machine.

The use of ball bearings between the sliding portion of the carriage and the rotating bar with lugs simplifies the construction so that the machine needs not be longer than 90 the carriage used with it.

I claim as my invention:

1. In a typewriting machine, the combination with carriage brackets of longitudinally extended front and rear frame members connected at their ends with said brackets, a supporting member rotatively mounted on the frame of said typewriting machine, ball bearings on the upper and lower surfaces of said supporting member, said rear longitudinal member being slidably supported on 100 said ball bearings, a drum rotatively mounted on said brackets, a plurality of rollers slidably supporting said front longitudinal member, means to support said rollers, an upper roller adapted to retain said front longitudinal member in an operating engagement with said supporting rollers, means to 105 raise said supporting rollers with said upper roller, and means to release said upper roller from the engagement with said front longitudinal member.

2. In a typewriting machine, the combination with carriage brackets of longitudinally extended front and rear frame members connected at their ends with said brackets, a supporting member pivotally mounted on the frame of said typewriting machine, removable pivots for said supporting member, means to lock said pivots in their operating 120 positions, ball bearing longitudinal races on the upper and lower surfaces of said supporting member, said rear longitudinal member being slidably supported on said ball bearing races, a drum rotatively mounted on said 125 brackets, a plurality of rollers slidably supporting said front longitudinal member, a longitudinal bar supporting said rollers, key-bars supporting said longitudinal bar and rotatively mounted near the ends of the 130

frame of said typewriting machine, said longitudinal bar with said rollers being adapted to be raised when said key-bars are depressed, means to limit said movement of the key-bars, an upper roller adapted to retain said front longitudinal member in an operating engagement with said supporting rollers, a rotatively mounted bracket for said upper roller and pivoted to said longitudinal bar with the rollers, and means to rotate said roller supporting bracket thereby releasing said front longitudinal member from said upper roller, said carriage brackets with said supporting member being adapted to be rotated away from said front supporting means.

3. In a typewriting machine, the combination with carriage brackets of longitudinally extending front and rear frame members connected at their ends with said brackets, the rear member being pivotally connected with the frame of said typewriting machine, rollers slidably supporting said front member, a longitudinal bar supporting said rollers, levers on each side of the machine pivoted to the frame, links connecting ends of said bar with said levers, key bars pivotally mounted at the sides of the frame, and links connecting said key bars with said links.

4. In a typewriting machine, the combination with carriage brackets of longitudinally extended front and rear frame members connected at their ends with said brackets, a supporting member, said rear longitudinal member being slidably mounted on said supporting member, said supporting member being rotatively mounted on the frame of said typewriting machine, a paper drum rotatively mounted on said brackets, means to slidably support said front longitudinal member in an operating position, and means

to raise said front slidable support for typing capital letters, thereby rotating said rear supporting means on its pivots.

5. In a typewriting machine, the combination with carriage brackets, of longitudinally extending front and rear frame members connected at their ends with said brackets, a supporting member, said rear longitudinal member being slidably mounted on said supporting member, said supporting member being rotatively mounted on the frame of said typewriting machine, a paper drum rotatively mounted on said brackets, means to slidably support said front longitudinal member in an operating position, means to retain said front longitudinal member in an operative engagement with said support, and means to raise said support with said retaining means thereby raising said paper drum.

6. In a typewriting machine, the combination with carriage brackets of longitudinally extended front and rear frame members connected with said brackets and forming a carriage, a supporting member pivotally mounted on the frame of said typewriting machine, said rear longitudinal member being slidably mounted on said supporting member, a paper drum rotatively mounted on said brackets, means to slidably support said front longitudinal member in an operating position, means to retain said front supporting member in an engagement with said supporting means, and means to remove said retaining means from said front supporting member.

Signed at New York in the county of New York and State of New York July A. D., 1926.

GREGORY K. BLOCK.