

W. F. HELMOND.
TYPE WRITING MACHINE.
APPLICATION FILED JULY 17, 1911.

1,066,275.

Patented July 1, 1913.

FIG. 1

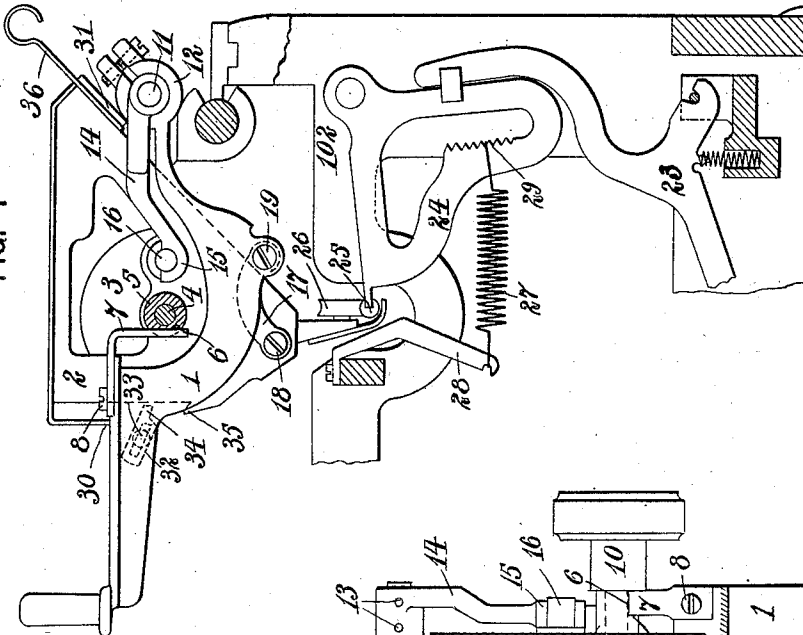


FIG. 2.

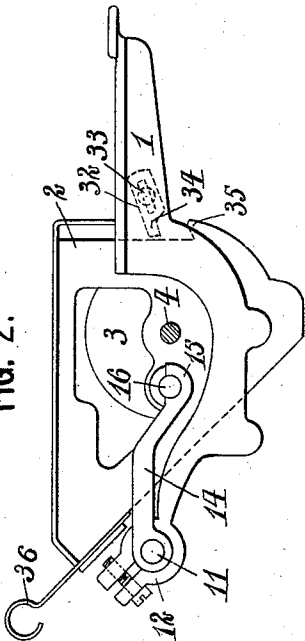
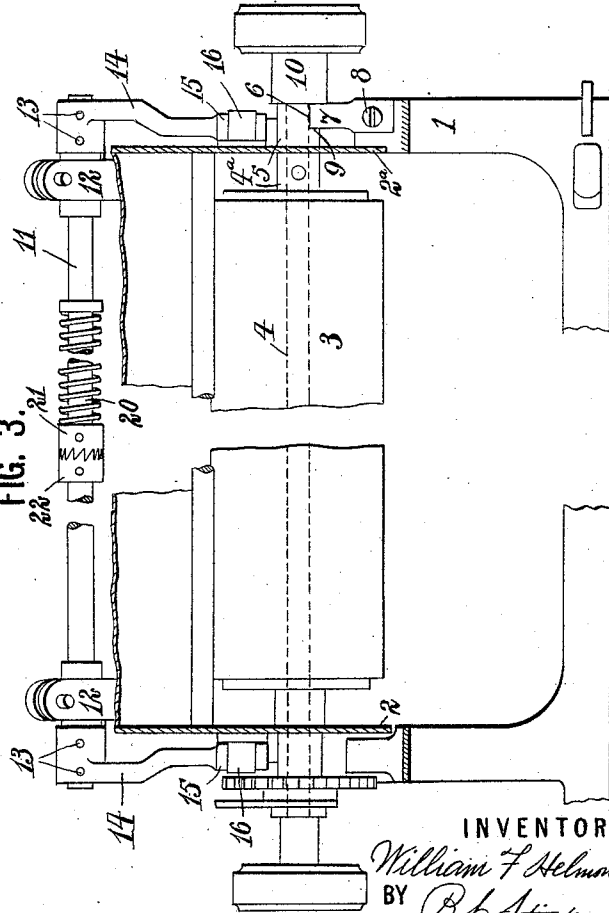


FIG. 3.



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TYPE-WRITING MACHINE.

1,066,275.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed July 17, 1911. Serial No. 638,806.

To all whom it may concern:

Be it known that I, WILLIAM F. HELMOND, a citizen of the United States, residing in Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to platen shifting mechanism of typewriting machines, and especially to those of the Underwood front-strike type of machine, in which the platen frame is mounted upon a letter-feeding carriage, and is capable of shifting up and down upon said carriage.

As heretofore constructed, the platen frame has been connected to the carriage by means of a linkage, so that the platen frame is given a substantially vertical movement. Owing to the necessity of making the parts light, it has been found impracticable to make the platen frame of great strength, and owing partly to the weakness of the platen frame, and partly to the liability of wear of the shifting parts, it has heretofore been found necessary to provide both front and rear stops at the ends of the platen frame, upon which stops the platen frame settles when returned from capital to lower case position. In said machine, the types strike on the front of the platen, and the weight of the platen frame and its appurtenances is largely back of the platen. It has been the usual practice in constructing said machine, to provide a linkage comprising rock arms which extend forwardly from a rock shaft mounted upon the carriage frame, said rock arms at their forward ends being pivoted directly to the platen axle. A suitable guide link or links coöperated with said rock arms to carry the platen frame up and down; but nevertheless owing to the aforementioned weakness and liability of wear, it is found important to have both front and rear stops for the platen in its normal position. Considerable difficulty having been experienced in aligning the types on these machines, particularly after they were somewhat worn, I have sought to overcome this difficulty by supporting the platen frame in a different manner. I have discovered that the platen frame when dropping to normal position, does not always settle properly on its front stops, and I have

found that even a slight variation in the position of the platen at the front thereof, would effect a serious disturbance of the alinement of the written characters. This was particularly true where the machine had been subjected to considerable use.

I have devised means for causing the platen frame to settle promptly upon its front stops, regardless of the rear stops, and have therefore overcome the aforementioned difficulty with the alinement of the types. In accomplishing this object, I have arranged gudgeons or bearings on the platen frame at a point at or in rear of the center of gravity of the shifting mass, with the result that the platen frame, being overbalanced at its front portion, tends to sag down in front, and hence the front stops are sure to strike the carriage; and since these stops are practically in the same vertical plane as the writing line of the platen, the alinement is substantially improved, even though the platen frame does not settle fully on its rear stops, which may, in some cases, be omitted. The difficulty is noticeable in wide carriage machines having very long platens and having proportionally weaker platen frames. I have found, upon applying the invention to such wide carriage machines, that the difficulty of alinement has been practically avoided.

Other objects and advantages will herein-after appear.

In the accompanying drawings, Figure 1 is a fragmentary side view in elevation, partly broken away, to show the underlying structure. Fig. 2 is a fragmentary view, in elevation, taken from the opposite direction to that of Fig. 1. Fig. 3 is a fragmentary top plan view, partly broken away to show the underlying structure.

The letter-feeding carriage 1 is mounted upon a typewriter frame 102. A frame 2, shiftably mounted on said carriage, carries a platen 3, the latter having an axle 4 journaled in the platen frame ends. At one end the platen axle 4 may revolve in a bushing 5 which may be used to prevent the endwise shake of the platen; said bushing having at one side a rabbet or slot 6 in which engages a fixed guide 7 fastened by a screw 8 to an end of the platen frame. The guide 7 may bear at one end against the hub 10 of the usual line-space wheel, and at the other end

against the end 9 of slot 6. The hub 10 is fixed upon the axle 4 and the bushing 5 is between the hub and the wall 2^a forming one of the platen frame ends; and the hub 4^a of the platen is also fixed to the axle and bears against the other side of said wall 2^a.

Owing to the use of separate gudgeons for supporting the platen frame, an opportunity is given for using a bushing 5 of sufficient diameter to permit a deep slot 9 to be cut therein, so that ample bearing is secured for the guide 7, and the liability of wear is reduced. The opposite end of the platen frame is indicated at 2, Fig. 3. The guide 7, which is fixed on the carriage, permits the platen to shift up and down, but not to move endwise.

The platen frame is connected to the carriage 1 by a pair of rock arms 14, secured by means of pins 13 upon a horizontal rock shaft 11 mounted in bearings 12 on the carriage; said arms having open bearings 15 in which rest gudgeons 16 projecting from the platen frame ends. These gudgeons are preferably just a little back of the center of gravity of the mass of the shifting mass, including the platen frame, the platen, paper shelf 36, pressure rolls, paper guides, etc.; and are arranged between the platen axle and the rock shaft 11. In consequence of this placing of the gudgeons 16, it follows that when the platen frame is dropping to the Fig. 1 position after having been shifted up, the front part of the platen frame will tend to sag, particularly when the pivots of the guide links 17 are a little worn; and hence it is insured that when the platen frame comes to rest, the front stops 30 thereof will strike the carriage, even if the rear of the carriage does not settle properly; and hence the alinement will not be faulty, even though the rear part of the platen frame remains a trifle elevated above its true normal position, since the front stops 30 are about in the same vertical line as the printing line on the platen, which is usually on the same horizontal plane as the axle 4. Said links 17, of which there is usually one at each end of the platen frame, are pivoted at 18 to the platen frame end, and at 19 to the carriage.

There is illustrated the usual spring 20 and spring-adjusting clutch 21, 22. There is also shown the usual shift key lever 23 bearing upon a bell crank 24 provided with a lifting rail 25, upon which runs a roller 26 of the platen frame, and whereby the platen frame is lifted. There is also shown the usual counter balancing spring 27 connected to a bracket 28 and a rack 29.

The platen frame's front stops are designated as 30 and are provided one at each end of the platen frame. The platen frame in the Underwood machine has usually been provided also with rear stops to engage some

part of the carriage. For the sake of illustration, it will be noted that the bar 31 extending along the back of the platen frame may constitute the rear stops, and may rest upon the hub portion of the bearings 12, as at Fig. 1; but it will be noted that my invention renders these rear stops of comparatively little importance, and in fact in the process of manufacturing the Underwood machine, the platen frame may be so constructed that the rear stops do not quite touch, while the platen frame rests solely upon the front stops 30. The platen frame is lifted by the rail 25, and if, at the subsequent dropping of said rail, the platen frame should not drop upon its guide links in exactly the manner intended, it will nevertheless be the case that the front stops 30 will reach the carriage, thus insuring the correct alinement of the types, even though the rear portion of the platen frame may remain a little tilted upwardly.

The upward motion of the platen frame may be limited by shoulders 35 striking stops 34 adjustably secured upon the ends of the carriage by means of screws 33 which pass through slotted portions 32 of the stops.

If there is any lost motion whatsoever, it will be shown in the erratic movement of the rear of the platen frame 2, rather than the front of the same. In view of this fact the front of the platen cylinder 3 will always move the same distance between the stops, so that there will be an accurate alinement of the characters when impressed on the sheet of paper on the platen cylinder, and this will not be disturbed even by the striking of the type bar itself.

When the platen shift rail is allowed to fall, the platen frame will drop down with its front hanging a trifle lower than the back, since the center of gravity is in front of the lugs 16, and since there will be a little play in the pivotal supports of the arms 14 and 17. In so dropping, it will bring its stops 30 against the main carriage, and since said stops are fairly close to the printing line on the platen, the type will strike the platen just about where the printing line ought to be, even if the stops 31 at the rear of the carriage have not come down to their normal positions. This is true particularly in typewriting machines having long carriages. Where there is relatively great length and weight of the platen, the center of gravity may be even farther forward than it is in machines having the ordinary short carriage. It results from this that the supplementary carriage or platen frame normally rests on the stops 30, and, owing to the fact that said stops are near the printing line, irregularities of other adjustments of the platen frame will be relatively unimportant.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. The combination with a carriage, of a platen frame on said carriage, a vertically movable platen, a front stop for limiting the return movement of said platen frame, and counter-balancing mechanism normally tending to lift said platen frame, connected to the latter at a point slightly to the rear of the center of gravity of said platen frame and behind the axis of said platen.

2. The combination with a carriage, of a platen frame movable relatively to said carriage, a hub on said platen frame having a rabbet therein, and a guide on said carriage depending into said rabbet and engaging the side thereof, to prevent endwise movement of the platen frame and to permit vertical movement of said platen frame.

3. The combination with a carriage, of a liftable platen frame thereon, a platen on said frame, two pivoted guide-supports for said platen frame, said supports engaging the platen frame behind its center of gravity, coöperating guides for said platen frame, and stops at the front of said platen frame whereby it is normally supported; said platen being mounted so that its front or impression-receiving surface is adjacent to said stops.

4. The combination with a main carriage, of a platen frame thereon and liftable relatively thereto, a platen on said platen frame and journaled between the front and the rear thereof, rock-arms pivotally connecting said carriage to said platen frame, said arms pivoted to said platen frame at a point behind its center of gravity, and stops on said main carriage adjacent to the front of the platen.

5. In a typewriting machine, the combination with a traveling carriage, of a platen frame shiftable therein, a platen having an axle journaled in said platen frame, a bushing loose on said axle and arranged to bear against a wall on said platen frame, a collar on the opposite side of said wall fast on said shaft, a guide on the main carriage arranged to engage said bushing to prevent endwise shake of the platen frame in one

direction, and a hub fixed on said axle to engage said guide to prevent endwise shake in the opposite direction.

6. In a typewriting machine, the combination with a carriage, of a platen frame shiftable thereon, a platen having an axle journaled in said platen frame, a collar fixed on said shaft and arranged to bear against a wall on said platen frame, a hub on the opposite side of said wall fast on said axle, a bushing fitting between said wall and said second collar, the axle being loose in the bushing, and a guide fast on the main carriage arranged to bear against a shoulder or rabbet of said bushing and against said hub, to prevent endwise shake of the platen frame.

7. In a front-strike typewriting machine, the combination with a traveling carriage, of a platen frame shiftable thereon, a platen and a paper table on said platen frame, supports on said platen frame intermediate the axle of said platen and said paper table, and guiding links tending to raise said platen frame and extending from the rear of said traveling carriage to said supports.

8. In a front-strike typewriting machine, the combination with a traveling carriage, of a platen frame shiftable thereon, a platen on said platen frame, supports on said platen frame in rear of the axle of said platen, links supporting part of the weight of said platen extending from the rear of said traveling carriage to said supports, and a coöperating guide for the platen frame.

9. The combination with a carriage and a platen frame, of a platen having an axle journaled in the platen frame, rock arms mounted upon the carriage and connected to the platen frame in rear of the platen axle, a guide fixed upon the carriage, and means upon or surrounding the platen axle to engage said guide to prevent endwise shake of the platen; the platen frame and platen being shiftable up and down while the platen is controlled by said guide.

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Witnesses:

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