(No Model.) 3 Sheets—Sheet 1.

G. H. LASAR.

TYPE WRITING MACHINE.

No. 415,530. Patented Nov. 19, 1889.

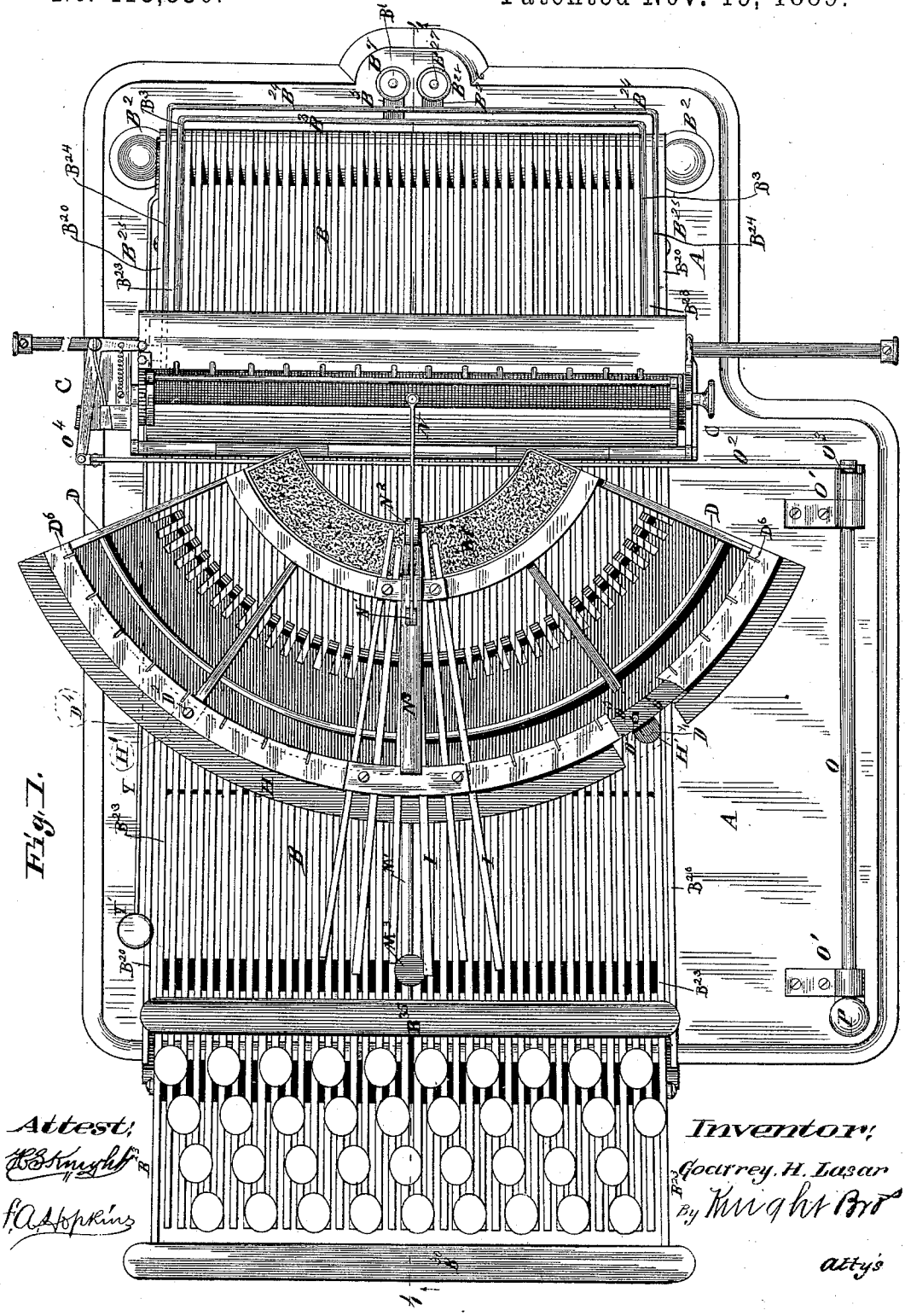


Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

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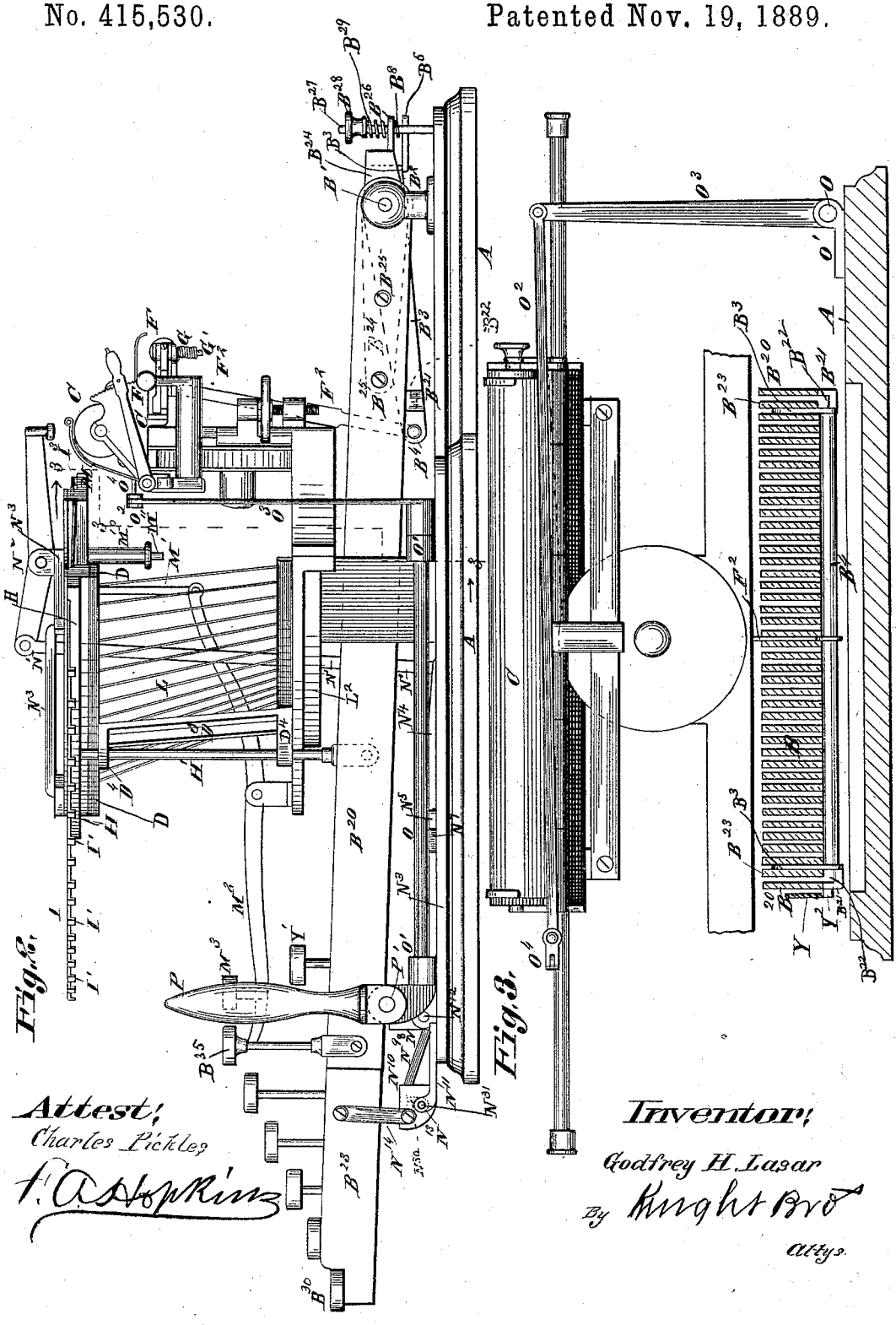


Fig. 2.

Fig. 3.

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(No Model.) 3 Sheets—Sheet 3.

G. H. LASAR.

TYPE WRITING MACHINE.

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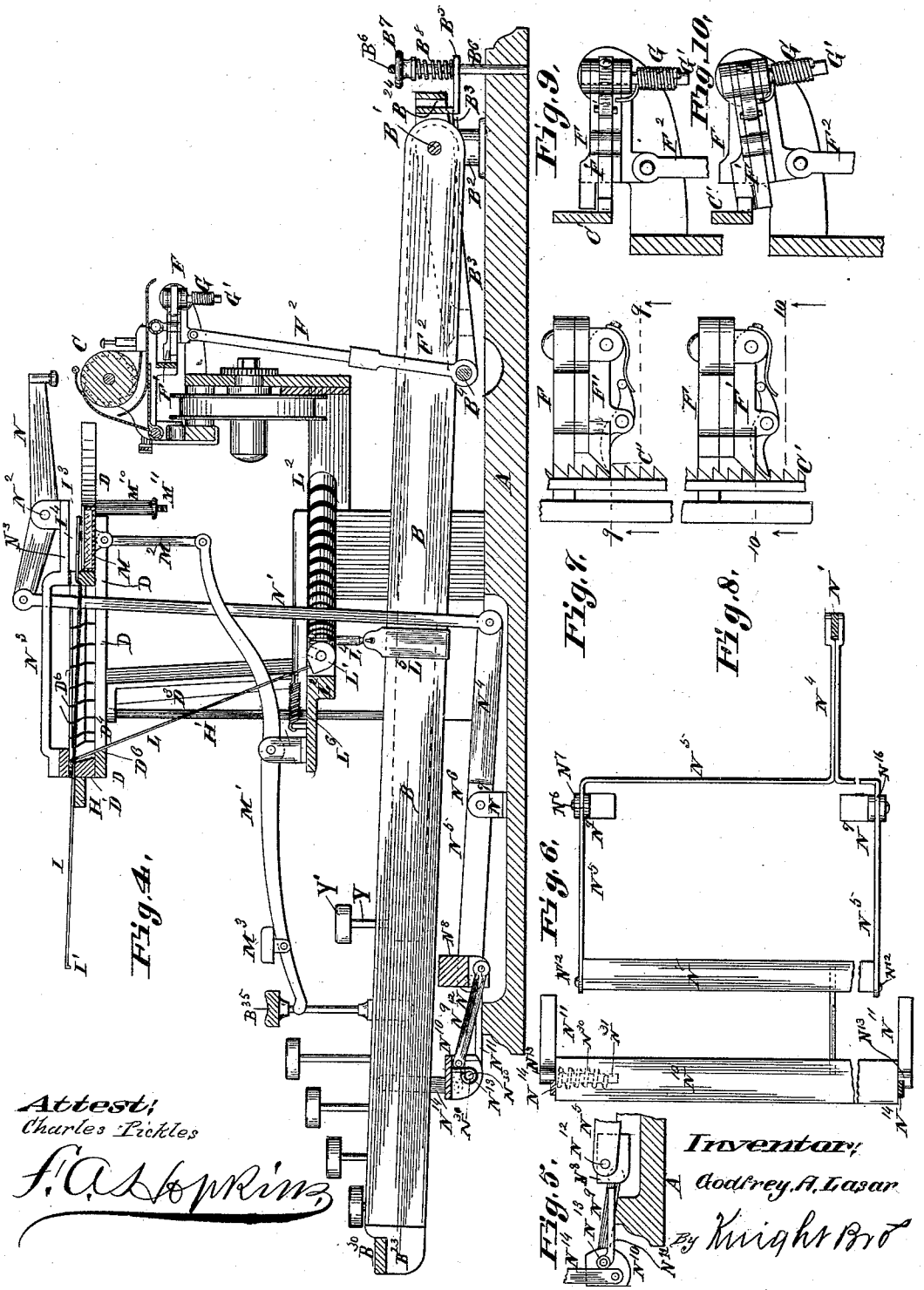


Fig. 4.

Fig. 9.

Fig. 10.

Fig. 7.

Fig. 8.

Fig. 6.

Fig. 5.

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UNITED STATES PATENT OFFICE.

GODFREY H. LASAR, OF ST. LOUIS, MISSOURI.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 415,530, dated November 19, 1889.

Application filed October 11, 1886. Serial No. 215,911. (No model.)

To all whom it may concern:

Be it known that I, GODFREY H. LASAR, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Type-Writing Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a top view of my improved machine. Fig. 2 is a side elevation. Fig. 3 is a vertical transverse section taken on line 3 3, Fig. 2, looking in the direction of the arrows. Fig. 4 is a vertical longitudinal section taken on line 4 4, Fig. 1, looking in the direction of the arrows. Fig. 5 is a detail view showing the tumbler-bars which limit or regulate the movement of the key-levers. Fig. 6 is a top view of same. Figs. 7 and 8 are enlarged detail views illustrating the escapement and part of the rack. Fig. 9 is a section taken on line 9 9, Fig. 7, looking in the direction of the arrows, the dogs of the rack being in their upper position. Fig. 10 is a similar view taken on line 10 10, Fig. 8, looking in the direction of the arrows, showing the dogs in their lower position.

This invention relates to certain improvements in type-writers; and it consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents the base; B, the key-levers; C, the carriage, and D the type-bar frame of the machine. The key-levers are pivoted to the base at one end by a rod or bar B' passing therethrough and supported by standards B^2, secured to the base.

B^3 is the escapement-frame, pivoted on the rod B' and having a rod or bar B^4 at its front end that passes under all the key-levers. The rear end of the frame has a lug B^5, through which passes a pin B^6, extending upwardly from the base A. The pin has a head B^7 on its upper end, and between the head and the frame is placed a spring B^8, that acts to sustain the frame in its upper position.

The escapement-frame is provided at the sides with lugs B^{21}, having recesses B^{22}. Extending over the lugs and adapted to bear thereon is the spacer-frame B^{20}, having a finger piece or key B^{35}, by which it is depressed. The spacer-frame is supported by a frame B^{24}, (to which it is rigidly secured,) pivoted on the rod B' outside the escapement-frame, and connected by means of a lug B^{26} with a pin B^{27}, secured to the base A, having a head B^{28} and a spring B^{29} between the lug and its head. The spacer-frame may be secured to its supporting-frame by means of screws or rivets B^{25}. The finger-piece of the spacer-frame is located at the rear of the bank of keys, so as to be in a more convenient position, and extends entirely across the type-key levers.

The carriage in this machine is preferably constructed and supported as in my applications Serial No. 215,904 and Serial No. 318,042, and reference is made to those applications for a description of the carriage shown in this application.

The escapement F in this application is made similar to that shown and described in my application Serial No. 318,042, and to that application reference is made for an understanding of this part of the machine; but in this application the fixed dog, that moves in a vertical line when the escapement is operated, is held from lateral movement in its normal position by a spring G, surrounding the pintle G' of the dog. The purpose of this spring is to hold the dog from horizontal movement when in use for spacing and the carriage is advancing, but at the same time permit of its yielding or being moved horizontally out of engagement with the rack to allow the carriage to be moved back for a fresh line, or for other object.

The escapement-dogs F' in this case are connected by a rod or bar F^2 to the rod B^4 of the frame B^3, so that they are operated each time a key-lever B or the spacer-frame B^{20} is operated. And when it is desired to throw the dogs entirely out of engagement with the rack of the carriage to allow the carriage to be moved either back or forth without printing, the dogs are both moved vertically out of engagement with the rack by a key-lever Y, having a key Y', the key-lever when depressed coming against a projection Y^2 on one of the lugs B^{21}, and by depressing the frame B^3 lowers the dogs, as stated.

I represents the type-bars, each bar having an upper and a lower case type secured thereto. When a lower-case letter is to be printed, projections I′ on the rear ends of the bars come against a plate H and stop the movement of the bars just as the lower-case type I^3 reach the roller of the carriage. If an upper-case letter is to be printed, the plate H is pulled down, so as not to be struck by the projections I′, and then the upper-case type I^4 will be brought over the roller of the carriage. The plate H is pulled down by being connected to the key-levers B^{23} by rods H′. The key-levers B^{23} are pivoted to the bar or rod B′, pass into the recesses B^{22} when depressed, and are provided with a finger-piece B^{30} in front of the bank of keys.

The type-bars are thrown forward by rods L, connected thereto at their upper ends and to blocks L′ at their lower ends, the block being pivoted in openings in a segment L^2 in the same manner, preferably, as the type-bars are pivoted to the segment in my application Serial No. 215,907, and the blocks are connected to the key-levers B in this application by nuts L^4 and straps L^5, as the type-bars are in my other application just mentioned. After the type-bars are thrown forward and pressure is removed from the key-levers the bars are drawn back and the key-levers lifted by springs L^6, connecting the rods L to the segment L^2, (see Fig. 4,) assisted by the frame B^3.

To allow all the type-bars to come back to their normal position without their inner ends coming in contact with and interfering with each other, (owing to the small space allotted to them,) I provide a novel means by which half of the bars are allowed to recede farther than the others, as shown in Fig. 1. This means consists of a ring D′, resting upon the frame D and held in place by screws D^2, connecting it to posts D^3, extending upward from the segment L^2, the posts also serving to hold and guide the rods H′ by having lugs D^4, through which the rods pass. (See Figs. 1 and 2.) The screws D^2 pass through slots D^5 in the ring D′. The ring D′ has notches D^6 opposite each alternate rod L of the type-bars, and the rods that enter these notches carry their type-bars back farther than the other type-bars, the rods of all of the alternate type-bars coming against the frame D, beyond which the notches D^6 extend. Thus, all the alternate rods coming against the same support D, some of the notches D^6 may be deeper than others without any effect on the movement of the type-bars being caused thereby, thus avoiding the necessity of being careful to get all of the notches D^6 the same depth.

When a machine is first put together, care should be taken that the frame D be adjusted far enough forward for all of the rods L that enter the notches to come against it; or, in other words, the frame must be placed far enough forward to be in line with the notch or notches of the least depth, and no attention need be paid to the other notches. The adjustment of the frame is allowed by the slots D^5, through which the screws D^2 pass, as stated. Only one of the rods L is shown in Fig. 4.

The type are inked by a movable pad M, located under them when in their normal position, (see Fig. 4,) and the pad may be moved up against the type by a key-lever M′, on which it is supported by a link M^2, the key-lever being provided with a key M^3, by depressing which the pad is moved up against the type. The pad is guided by sleeves M^{10} thereon, fitting over rods or pins M^{11} on the frame D. (See Figs. 2 and 4.)

When the type-bars have been moved to bring the type into printing position, they are struck by a hammer N to produce the printing or impression. The hammer is pivoted at N^2 to a frame N^3, and is connected by a rod or bar N′ to the inner end N^4 of a lever-frame N^5, pivoted at N^6 to standards N^7, projecting upward from the base A of the machine. Secured to the outer ends of the frame N^5 is a rock-bar N^8, connected by links N^9 to a similar rock-bar N^{10}, secured to the base A by arms N^{11}, by which it is supported. The bar N^8 is pivoted to the frame N^5 at N^{12}, and the bar N^{10} is pivoted to the arms N^{11} at N^{13}. This pivoting of the bars allows them to be turned from the position shown in Fig. 4 to the position shown in Fig. 5, and as the upper surfaces or faces of the rock-bars are farther from the pivot-points N^{12} and N^{13} than the inner faces it will be seen that when the rock-bars are turned into the position shown in Fig. 5 (when the inner faces will be brought uppermost and the upper faces will be turned outward) there will be a greater distance between the key-levers and the rock-bars than there is when the rock-bars are in the position shown in Fig. 4. The object of this is to permit of a greater movement of the key-levers B when the upper-case type are to be brought into printing position. The rock-bar N^{10} acts to limit the downward movement of the key-levers B, and when in the position shown in Fig. 4 permits the keys to be moved just far enough to bring the lower-case type into printing position. Now, when an upper-case letter is to be printed the key-levers B^{23} are first operated to depress the plate H, (as already described,) and as these key-levers are operated the rock-bar N^{10} is turned from the position shown in Fig. 4 to the position shown in Fig. 5 through means of its being connected by links N^{14} to the key-levers B^{23}, thus allowing the key-levers B to be moved the necessary additional distance. As the rock-bar N^{10} is turned the rock-bar N^8 is also turned through means of the described connection, so that the key-levers B do not come against the rock-bar N^8 so soon as when in its other position, thus giving time for the type-bars to be moved to bring the upper-case type into printing posi-

tion before the hammer is operated. When the rock-bars have been thus moved from the position shown in Fig. 4 to the position shown in Fig. 5, they are returned to their normal position by a spring N^{30}, coiled around a pin N^{31} on one of the arms N^{11}, (see Figs. 4 and 6,) the pin entering the rock-bar N^{10}, and this turning of the rock-bars back elevates the key-levers B^{23} through means of the connecting-links N^{14}.

It will be seen that the key-levers B^{23} are sustained in normal position by the links N^{14}, blocks N^{10}, arms N^{11}, and springs N^{30}.

The carriage-roller is turned for a new line in this application by a lever arrangement, such as is shown in my application Serial No. 215,904, and the carriage is run back for a new line by means of a rock-shaft O, journaled in boxes O′, secured to the base A and connected by means of a rod or pitman O^2 and a crank or lever O^3 to the bell-crank lever O^4, that turns the rollers of the carriage, as described in my application Serial No. 215,904. The crank O^3 is secured to the shaft O, as shown in Figs. 2 and 3, and by rocking the shaft it will be seen that the carriage will be run back. The shaft is rocked or turned by means of a handle P, pivoted to the shaft at P′, and in moving the carriage back the handle P is moved in a vertical plane in the arc of a circle.

I disclaim any invention in the combination, with the type-bars, of key-levers and connections, substantially as described, between the key-levers and the bars for operating the bars, stop, block, and bars to which the stop is connected, provided with a key for operating the stop, as shown and described.

I also disclaim any invention, singly, in the combination of the upper-case levers, the stop, the rods, and the type-bars, substantially as described.

I claim as my invention—

1. In a type-writer, in combination with the type-bars carrying upper and lower case type, and a hammer, the key-levers connected to the bars, frame connected to the hammer, rock-bar pivoted to the hammer-frame, rock-bar located beneath the type-key levers, connection between said rock-bars, key-levers for operating the rock-bar, and connection between the key-levers and one of the rock-bars, substantially as and for the purpose set forth.

2. The combination of the base, the key-levers and the connections leading to the stop, the tilting stop having the faces and the slot, and the keys.

3. The combination, with the paper-carriage, of the rock-shaft journaled to the base of the machine alongside the key-levers, having a crank at its inner end and a handle at its outer end, and a rod extending lengthwise of the carriage and connected at one end to the latter and at the other end to the crank, substantially as described.

4. The combination, with the paper-carriage, of the bell-crank, the shoulder, the bar, and the lever, substantially as described.

5. In a type-writer, the combination of the type-bars I, plate H, key-levers B, connection between the key-levers and type-bars, key-levers B^{23}, connection between the key-levers and the plate H, rock-bar N^{10}, and links N^{14}, connecting the rock-bar to the key-levers B^{23}, substantially as and for the purpose set forth.

6. In a type-writer, the combination of the type-bars, key-levers to which the type-bars are connected, plate H, key-levers B^{23}, to which the plate H is connected, rock-bar N^{10}, links connecting the rock-bar to the key-levers B^{23}, rock-bar N^8, links connecting said rock-bars, pivoted frame N^5, hammer N, and connection between the hammer and frame N^5, substantially as and for the purpose set forth.

7. In a type-writer, in combination with the carriage and lever O^4, the rock-shaft O, handle P, moving in a vertical plane, crank O^3, and connecting-rod O^2, substantially as set forth.

8. In a type-writer, in combination with the type-key levers B, spacer-frame B^{20}, and key-levers B^{23}, for moving the plate H, the frame B^3, provided with lugs or projections B^{21}, and the frame B^{24}, connected to the spacer-frame B^{20}, both of said frames B^3 and B^{24} being provided with projections on their rear ends and springs located over the projections, substantially as and for the purpose set forth.

9. In a type-writer, the combination of the fixed and pivoted dogs hinged to an arm on the main frame, the pivot-rod B′, the escapement-frame B^3, hinged to the pivot-rod, spring for supporting the frame, lug on the escapement-frame, key-lever Y, hinged to the pivot-rod and resting on the lug, and a bar F^2, by which the dogs are supported on the frame, the depressing of the key-lever pulling down the spring-frame to which the dogs are connected.

10. In a type-writer, the combination of the key-levers B, spring-frame B^3, dog to which the frame is connected, spacer-frame B^{20}, and spring-frame connected to the spacer-frame B^{20}, substantially as set forth.

11. In a type-writer, the combination of the type-bars, rods for operating the type-bars, adjustable frame D, and notched ring D′, substantially as and for the purpose set forth.

12. In a type-writer, the combination of the type-bars I, rods L, adjustable frame D, posts D^3, notched ring D′, having slots D^5, and set-screws D^2, substantially as and for the purpose set forth.

13. The combination of the key-levers, escapement-frame over which the key-levers extend, having side lugs, and the spacer-frame having supporting-frame and extending over the lugs, the key-levers, escapement-frame, and spacer-frame being hinged to a rod common to all.

14. The combination of the base having

short standards at the rear portion, a rod mounted on said standards, an escapement-frame hinged at its inner portion to the rod, formed with side projections and a lug projecting rearward, a post secured to the base passing through the lug, a spring surrounding the post and supported on the lug, a nut adjustable on the post bearing upon the spring and providing means by which the frame is sustained at the rear, and a space-bar frame hinged to the rod and bearing on the side projections.

15. The combination of the base having short standards at the rear portion, a rod mounted on said standards, an escapement-frame hinged at its inner portion to the rod formed with side projections and a lug projecting rearward, mechanism, substantially as described, for sustaining the escapement-frame at the rear, a space-bar frame hinged at its inner portion to the base-rod and bearing on the side projections, formed with a lug projecting rearward, a post secured to the base, passing through the lug of the space-bar frame, a spring surrounding the post and supported on the lug, a nut adjustable on the post, bearing upon the spring and providing means by which the space-bar frame is sustained at the rear.

16. The combination, with the base having short standards at the rear portion, a rod mounted on the standards, and the key-levers, escapement-frame, and space-bar frame hinged to said rod, of the main frame or casting straddling said levers and frames, having a segment formed with radial slots and annular groove.

GODFREY H. LASAR.

Witnesses:
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GEO. H. KNIGHT.