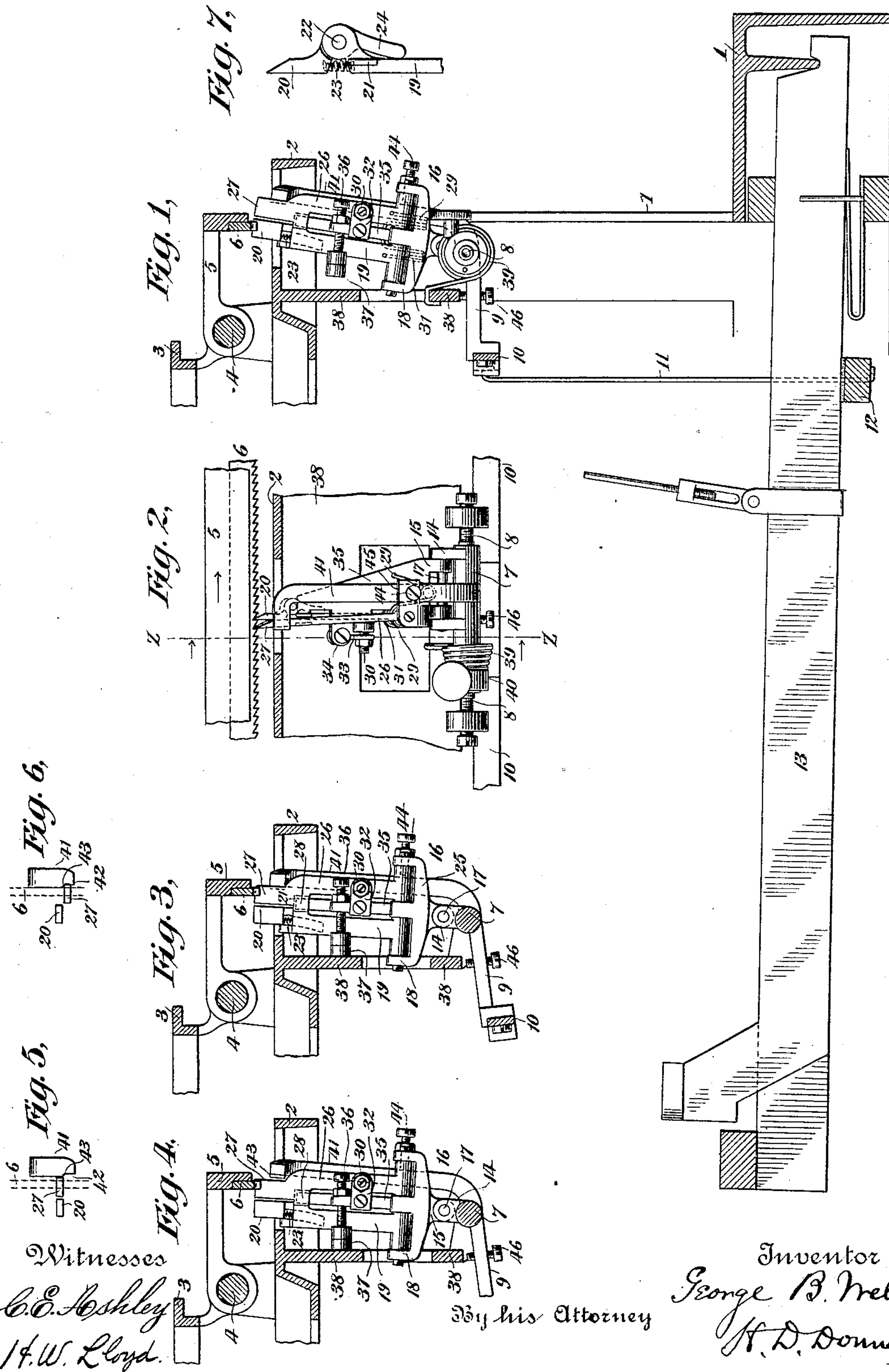


(No Model.)

G. B. WEBB.
TYPE WRITING MACHINE.

No. 480,305.

Patented Aug. 9, 1892.



Witnesses
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By his Attorney

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UNITED STATES PATENT OFFICE.

GEORGE B. WEBB, OF NEW YORK, N. Y., ASSIGNOR TO THE REMINGTON STANDARD TYPE WRITER MANUFACTURING COMPANY, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 480,305, dated August 9, 1892.

Application filed January 23, 1892. Serial No. 419,005. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. WEBB, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My present invention relates more especially to that kind of paper-carriage letter-spacing mechanism made the subject-matter of an application for Letters Patent of the United States, filed by me September 26, 1890, Serial No. 315,787, and now commonly designated as "reverse feed." It has been found in practice with such reverse feed that if the key-levers be operated slowly or be held down while the type are in contact with the paper the impressions produced will be blurred and objectionable, because in such reverse feed the paper-carriage is timed to be released the moment the type strikes the paper. It will thus be seen that if at this moment the depression of the key-lever be maintained the type will be held raised against the paper, and the latter being in motion the result will be that the paper will rub over the type or the interposed inking-ribbon. If, however, the key-lever be operated rapidly, or if it be released before the type strikes the paper, the above-referred to objectionable blurring will not take place, because if the key-lever be actuated sharply and the finger be removed at once the type-bar will ascend by momentum, make its impression at about the instant the carriage starts to move, and will at once fall back by gravity before any rubbing action can occur. For these reasons the said reverse feed has proven desirable and efficient only for very rapid operators.

My invention has for its main object to so construct the said reverse feed that if the machine be operated slowly it will be impossible for the type to blur or produce faulty impressions from this cause; and to this main end my invention consists in the features of construction and combinations of devices hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a central vertical section of so much of a

type-writing machine as is necessary to illustrate my improvements. Fig. 2 is a back view thereof, omitting the lower portion of the machine. Fig. 3 is a vertical section taken at the line *xx* of Fig. 2, showing the position of the parts when the feed-dogs are vibrated forwardly and the key-lever is held depressed by the finger of the operator. Fig. 4 is a similar view showing the position of the parts when the feed-dogs have been vibrated forwardly and the key-lever has been released. Fig. 5 is a diagrammatic view in plan to illustrate the feed of the carriage when the parts are in the position shown at Fig. 4. Fig. 6 is a similar view to illustrate the detention of the carriage when the parts are in the position represented at Fig. 3. Fig. 7 is a detail view, enlarged, of the upper portion of the front detaining-dog.

In the several views the same part will be found designated by the same numeral of reference.

1 designates the framework of the machine, and 2 the top plate or type-ring, around which the type bars or levers (not shown) are hung or pivoted in the usual manner.

3 designates the paper-carriage, 4 its guide-rail, and 5 a hinged frame connected thereto and provided with a vertically-arranged feed-rack 6.

7 designates a spacing-rocker pivoted at 8 and provided with a forwardly-extending arm 9, to which is attached a cross-bar 10, upon each end of which is hooked the upper end of a connecting-rod 11, whose lower end is attached to a transversely-arranged universal bar 12, which extends under all of the key-levers 13, as customary heretofore. The spacing-rocker is formed with two upwardly-extending lugs 14 at a suitable distance apart, and between these lugs are arranged two downwardly-projecting ears 15, formed integral with the dog-holder, designated in its entirety by the numeral 16. Passing through said lugs and ears is a pivot-pin 17, whereby the dog-holder is pivotally connected or jointed to the spacing-rocker.

In a fork or bifurcated support 18 is pivoted the lower end of the shank 19 of the forward detaining-dog 20, the upper end of which shank is provided with an offset or projection

21, for a purpose which will presently appear. The dog 20 may be made integral with its shank or support 19; but it is preferably pivoted or jointed thereto, as at 22, and provided with an intervening spring 23, in order that the carriage may be returned to the right easily, practically noiselessly, and without undue wear on the escapement devices. Where the dog 20 is pivoted to the shank 19, instead of it being made of a piece therewith it may be provided with a downward extension 24 to come into contact with the shank 19 to prevent the spring 23 from throwing the dog back out of its proper position.

In another fork or bracket 25, formed integral with the dog-holder, is pivoted the lower end of the shank 26 of a feeding or spacing dog 27, which is preferably made rigid or integral with its shank and which is provided with an offset or projection 28, adapted to overlap on the right-hand side that provided at the upper end of the shank 19, so that when the dog 27 vibrates toward the left it may carry with it the dog 20, so as to insure the proper entrance of the last-mentioned dog between the teeth of the rack at the cessation of the feed of the carriage and the return of the spacing-rocker and its appendages to their first position, as more fully set forth in another application filed by me September 28, 1891, Serial No. 406,997.

29 designates a wire spring, which is suitably arranged and connected to the shank 26 for the purpose of throwing and holding the dog 27 to the right or in the position shown at Fig. 2 of the drawings, in which position it rests against a stop formed by a screw 30, projecting toward the left-hand side of the machine, considered from the position occupied by the operator. A similar spring 31 is provided for the shank 19 of the dog 20, and the tension of this spring is such as to throw the dog 20 to the right and move its projection against the projection 28, which serves as a stop for said dog in its movement to the right, it being understood that at the time the dog 20 is vibrated to the right the dog 27 is at the limit of its throwing in the same direction and is resting against the stop 30. The screw-stop 30 is supported in a rearwardly-projecting wing 32, screwed upon a downward projection extending from a bearing 34, formed integral with the upwardly-extending arm or vertical member 35 of the dog-holder 16.

In the bearing 34 is mounted a screw 36, which at its forward end is provided with a leather or other soft or yielding buffer or cushion 37, which forms, in connection with the upwardly-projecting portion 38 of the framework, a stop for the forward vibration of the spacing-rocker and the devices carried thereby. This stop, as well as the stop 30, is adjustable, the screws being provided with locking-nuts to hold them in their desired positions. The arm 35 extends high enough to reach the level of the projection or offset 21

and form a stop for both dogs as they vibrate toward the left in the feed of the carriage.

Upon the spacing-rocker is arranged, as heretofore, a spiral spring 39, one end of which is attached to an adjustable collar 40 on the spacing-rocker and the other end of which is hooked over the stationary framework 38. The function of this spring is to return the spacing-rocker and its appendages to their normal positions after having been rocked forward by the vibration of any of the key-levers of the machine.

Formed integral with the spacing-rocker is an upwardly-extending arm, which at its uppermost end is bent to project toward the right and which at or near its extremity is cut away or notched at 42 to form a shoulder 43 to coact with the dog 27 to form a stop or detent for said dog, as will presently be more fully explained. For this arm 41 is provided a stop, made in the form of a screw 44 and extending forwardly through a lateral extension or support 45, formed integral with the dog-holder.

In Figs. 1 and 2 the parts are represented as in their normal positions, in which case the dog 20 stands in engagement with the feed-rack 6 of the power-driven carriage, the spring of which (not shown) acts in opposition to the weaker spring 31 of the dog and operates to hold said dog over to the limit of its vibration to the left and with its ledge or projection 21 in contact with the arm or vertical member 35. At this time the dog 27 stands out of engagement with the rack by reason of the spring 29 and at the limit of its vibration toward the right, with its shank resting against the stop 30, the upper or operating end of the dog 27 occupying a position to the right in line with the next succeeding notch of the rack. At this time, also, the back edge of the dog 27 is seated in the notch or cut-away 42, formed in the extremity of the arm 41. Now if the key-lever 13 be depressed to raise its type-bar the spacing-rocker will be vibrated and the dog 20 moved out of engagement with the rack 6 and the dog 27 moved into engagement therewith and into the notch immediately in rear of the one just vacated by the dog 20. As soon as the dog 20 is freed from the rack its spring 31 acts to throw it to the right until its projection 21 strikes against the projection 28 of the dog 27. If the depression of the key-lever referred to be made quickly and the finger removed before the type strikes the paper on the platen carried by the carriage, as usual, the type will continue to move toward the platen by momentum and make its impression and simultaneously the feed of the carriage will commence, the type-bar in this case being free to descend the instant it strikes the paper and before any rubbing action upon the paper can take place. In feeding thus the carriage-driving spring, acting through the rack, operates to pull the dog 27 toward the left against the tension of its

spring until said dog is arrested by the stop-arm 35. In thus moving toward the left the dog 27, by reason of the presence of the projections 21 and 28, operates to carry with it the dog 20, and the dog 27 is stopped by the arm 35 indirectly through said projections 21 and 28, the former coming into direct contact with the arm 35. While this feed of the carriage is taking place, the spacing-rocker, under the influence of its returning-spring 39, commences to rock rearwardly and carry the dogs in the same direction to swing the dog 27 out of engagement with the rack and the dog 20 back into engagement therewith and into the notch that the dog 27 leaves. As soon as the dog 27 is freed from the rack its spring 29 operates to vibrate toward the right against the back stop 30, the dog 20 remaining in the rack and at rest against the front stop 35, due to the superior force of the carriage-driving spring.

In the above-described operation it will be understood that the printing operation is supposed to have been so rapidly performed that at the time the type struck the paper on the platen the finger of the operator had been removed from the key-lever in order to allow the type to instantly recede after leaving its impression and the carriage-feed, which had begun before the impression, to be completed thereafter. When the key-lever is depressed in the case referred to, the arm 41 operates to vibrate the dog-holder 16 forwardly about the pivots 8, by reason of the contact of its upper end with the back edge of the dog 27, and thus move the dog 20 out of engagement with the rack and the dog 27 into engagement therewith, as shown, for example, at Fig. 3. At the time this shifting of position of the dogs takes place it is to be understood that the type has not quite reached the paper, but that the finger of the operator has been removed from the key-lever connected with said type. This condition of affairs permits of the type completing its upward stroke by momentum and at or about the same instant of the escaping devices, operating to effect the letter-spacing feed of the carriage, the feeding commencing before and ending after the impression. It will be observed that at the instant the finger is removed from the key-lever the returning-spring 39 operates to oscillate the spacing-rocker and vibrate the detent-arm 41 slightly rearwardly against its stop 44, thus moving the shoulder 43 out of the path of vibration of the dog 27, so as to allow it to move toward the left under the pull of the carriage-driving spring exerted through the carriage and the feed-rack. This initial rearward vibration of the arm 41, taking place as soon as the finger-key is released and while the type is moving to print by its momentum, enables the dog 27 to be moved or started at the proper time to effect what is known as the "reverse feed." At the time said initial vibration of the arm 41 takes

place the pivot 17 of the dog-holder is carried rearwardly slightly by the spacing-rocker, and when the arm 41 has come into contact with its stop 44, which is connected to the dog-holder, the continued action of the spring 39 operates not only to return the spacing-rocker and the detaining-arm 41 to their first positions, but it also operates to return the dog-holder and the dogs to their first position, the final motion of the parts under the action of said spring being about the pivots or centers of the spacing-rocker. The rearward vibration of the spacing-rocker by the spring 39 is limited by a screw 45 in the spacing-rocker coming against the lower edge of the piece of framework 38.

In the above-described operations of the machine it has been supposed that the stroke was a rapid one and that the key-lever had been released before the type made its impression. I will now consider the action of the machine in a case where the writing is slowly performed or where the finger of the operator remains upon the key-lever at the time and after the type has made its impression.

It has been observed hereinbefore that the arm 41 operates to rock the dog-holder and carry the dog 27 into engagement with the rack upon the depression of the key-levers, and during said movement that the dog 27 remains in the notch or cut-away 42 and with its left-hand edge against the shoulder 43. As the dog 27 will remain in this position until the finger has been removed from the actuating-key lever, it will thus be apparent that when the key-lever is depressed and the pressure thereupon is continued after the type has reached the platen there cannot be any feed or movement of the carriage, because the dog 27 is held positively against the driving-power of the carriage by the shoulder or detent 43, as illustrated at Fig. 6, and for this reason no blurring of the impression can take place, even though the type be held up in contact with the paper or the usual interposed inking-ribbon. Immediately, however, the finger is removed from the key-lever the spring 39 operates to cast off the detent, as hereinbefore explained, and the feed takes place at once in the manner before described; but it commences and finishes while the type-bar is descending. Without this detent it will be observed that as soon as the dog 27 is rocked over into the rack the carriage would start to feed, and the finger being still upon the key-lever and the type held up against the platen there would be a rubbing or blurring of the impression. It will thus be seen that according to my present improvements the carriage is adapted to commence its feed slightly before the impression is made when the keys are operated rapidly or when the finger is removed before the type strikes to obtain the advantages accruing from what is known as the "reverse feed," and that the

carriage is prevented from starting to feed until after the impression has been made, if the key-lever be operated slowly or be held down until the time the type makes its impression. Thus the machine without change or adjustment is adapted equally well for the very rapid operator or the very slow operator or for any desired speed.

Numerous changes in detail construction and arrangement may be made without departing from the gist of my invention, which, it will be understood, may be used in machines of the wheel class as well as in machines of the bar class.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and letter-spacing dogs, of a detent or stop to prevent any feed of the carriage until after the finger of the operator has been removed from the type-actuating key.

2. In a type-writing machine, the combination, with a power-driven paper-carriage, a feed-rack, and letter-spacing dogs, of a rocking detent or stop arranged to hold one of said dogs and prevent the feed of the carriage as long as the type-actuating key is held depressed by the finger of the operator.

3. In a type-writing machine, the combination, with a power-driven paper-carriage, of a rack, a feeding-dog, a detaining-dog, a vibratory dog-holder, a spring-actuated spacing-rocker, and a detent connected to said spacing-rocker and adapted to co-operate with the

feeding-dog, substantially in the manner described.

4. In a type-writing machine, the combination, with a power-driven paper-carriage, of a rack, a spring-actuated spacing-rocker, a vibratory dog-holder pivotally connected to said rocker, a spring-actuated detaining-dog, a spring-actuated feeding-dog, and a detent or stop for the latter to prevent any feed of the carriage until the finger has been removed from the type-actuating key.

5. In a type-writing machine, the combination, with a power-driven paper-carriage, of a rack, a spring-actuated spacing-rocker having an arm provided with a detent, a vibratory dog-holder pivotally connected to said rocker and provided with letter-spacing dogs, and a stop or abutment on the dog-holder, whereby the said arm may vibrate the dog-holder in both directions.

6. In a type-writing machine, the combination, with a power-driven paper-carriage, of a rack, a spring-actuated spacing-rocker having an arm provided with a shoulder, and a dog-holder carrying a detaining-dog and a feeding-dog, the latter adapted to be engaged by said shoulder.

Signed at New York city, in the county of New York and State of New York, this 21st day of January, A. D. 1892.

GEORGE B. WEBB.

Witnesses:

JACOB FELBEL,
IDA MACDONALD.