(No Model.) 2 Sheets—Sheet 1.

G. W. N. YOST.

TYPE WRITING MACHINE.

No. 474,938. Patented May 17, 1892.

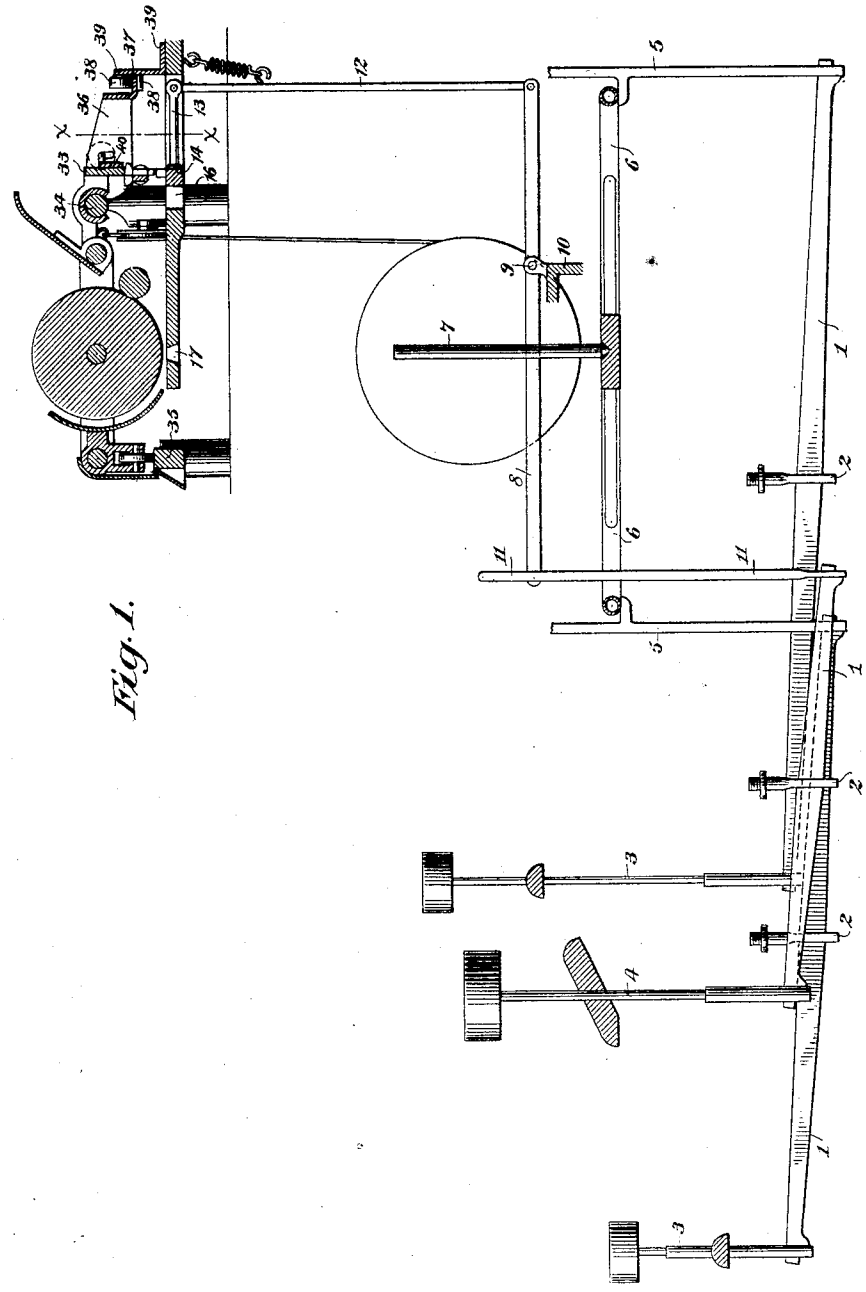

Fig. 1.

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Jacob Felbel.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

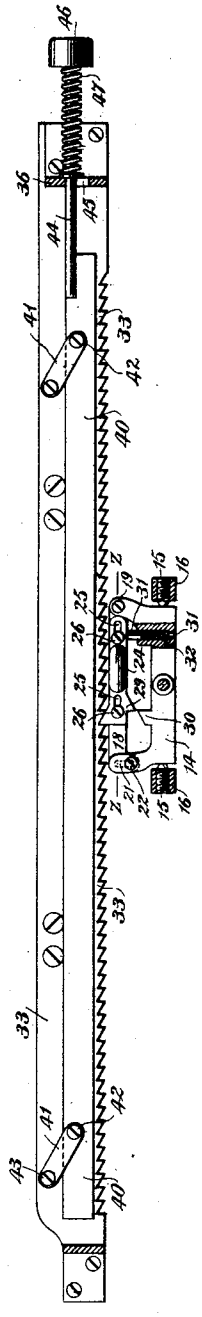


Fig. 3.

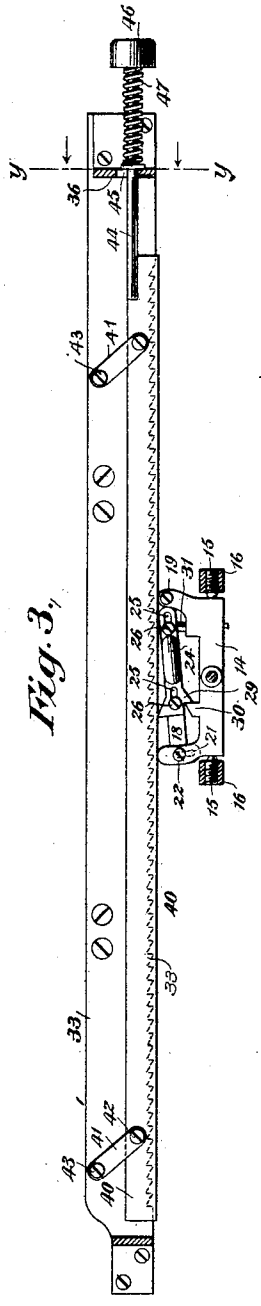


Fig. 6.

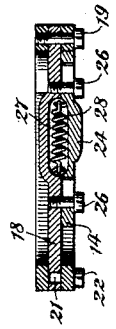


Fig. 4.

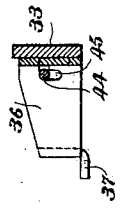
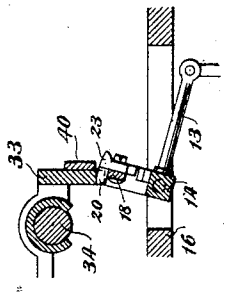


Fig. 5.



Witnesses

C. E. Ashley

H. W. Lloyd.

Inventor

George W. N. Yost

By his Attorney

Jacob Felbel

UNITED STATES PATENT OFFICE.

GEORGE W. N. YOST, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE YOST WRITING MACHINE COMPANY, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 474,938, dated May 17, 1892.

Application filed July 8, 1891. Serial No. 398,774. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. N. YOST, 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 in type-writing machines relates to release-keys; and it 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 a portion of a type-writing machine embodying my improvements. Fig. 2 is a vertical section of the upper portion of the machine, taken at the line *x x* of Fig. 1 and enlarged. Fig. 3 is a similar section to show the action of the release-key. Fig. 4 is a vertical cross-section taken at the line *y y* of Fig. 3. Fig. 5 is a vertical section of the escapement mechanism of the paper-carriage with the dogs in their unusual position; and Fig. 6 is a horizontal section, enlarged, taken at the line *z z* of Fig. 2.

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

The machine illustrated at Fig. 1 is that known as the "Yost type-writer," to which machine I have in practice applied the improvements made the subject-matter of this specification. I have, of course, omitted many of the parts of the Yost type-writer, and for a fuller understanding of said machine reference may be had to the English patent granted to me March 26, 1889, No. 5,136.

1 designates the key-levers; 2, the fulcrum-posts; 3, the finger-keys; 4, the space-key; 5, the connecting-rods for the type movement or levers, (not shown;) 6, the universal bar or wheel resting on projections on the connecting-rods, and 7 the lifting-spindle, through which passes a horizontal lever 8, fulcrumed at 9 in a stand or bracket 10 and connected at its front end to the upper end of a coupling-rod 11, which at its lower end is connected to the key-lever of the space-key.

The rear end of the lever 8 is pivoted to the lower end of a long link 12, whose upper end is pivoted to a rocker-arm 13, projecting rearwardly from a rocking frame or trunnion 14, supported by pivots or centers 15 in an arm or bracket 16, which may be extended forward and formed or provided with a center guide or directrix 17, as in the Yost machine.

An arm 18 is connected to the rocking frame or trunnion 14 at one end by a horizontal pivot 19, and said arm is formed or provided with a rigid dog or tooth 20 and at its opposite end is formed or provided with a slot 21, which embraces a fixed pin or screw 22 in the trunnion that serves to limit the vibration of the arm 18 and its appendages.

23 is a loose feeding-dog formed at one end of a bar or shank 24, which is slotted at 25 25 and connected to the arm 18 by screws or pins 26 26, passing through said slots and entering tapped holes in the arm 18. The arm 18 and the bar or shank 24 are each depressed or formed with a cavity to provide a housing 27 for the accommodation of a spiral spring 28, which at one end is connected to the arm 18 and at the other end to the bar or shank 24, and the tension of said spring is such that it is capable of moving the dog 23 to the right one letter-space distance, as will presently appear.

The dog 23 is provided with a projection 29, which is adapted to coact with a stop or abutment 30 on the trunnion to prevent the spring 28 from moving said dog whenever the latter and the arm 18 may be depressed or vibrated downwardly about the pivot 19. The arm 18 is provided with a pin or stem 31, which passes through a perforation in the trunnion and is surrounded therein by a spiral spring 32, whose function is to return the arm 18 and its appendages after they may have been depressed.

33 is a feed-rack mounted on a paper-carriage, which, as usual, is provided with a driving power—such, for instance, as the cord or chain and spring-drum described in the aforesaid patent granted to me. The paper-carriage, having the customary platen and feed-roll and other necessary devices, may be supported at its rear side upon a guide-rod 34 and at its front side upon a track or way 35. Normally the loose spring-actuated feeding-

dog 23 stands in engagement with the rack, as shown at Fig. 1. Whenever the space-key or any of the finger-keys may be depressed, the rocker-arm 13 is pulled down by the vibration of the lever 8 and the downward movement of the link 12, and the rigid holding-dog 20 is rocked into engagement with the teeth of the rack 33, and at this time no movement of the carriage takes place. As soon as the feeding-dog 23 is withdrawn from the rack the spring 28 moves it toward the right the distance of one notch or tooth of the rack, and when the pressure of the finger is released the parts all return to their normal positions and the feeding-dog 23 moves back into engagement with the rack, but into one notch behind that which it previously occupied. As soon as the rigid holding-dog 20 is withdrawn from the rack and the feeding-dog has re-engaged it the carriage-driving spring or power, being of superior force to that of the spring 28, operates to pull the carriage and rack and the dog 23 toward the left until the dog 23 comes to a stop by the right-hand ends of the slots 25 striking against the fixed pins or screws 26, which limit the throw of the dog in both directions of its movement. From the feed-rack a frame 36 extends rearwardly and is provided with a flange 37 practically the whole length of the carriage, which travels between guides 38 on a bracket 39, secured to the machine-frame.

40 designates a release bar or rod, which is as long as the feed-rack and is hung parallel thereto by means of two obliquely-arranged links 41, which are pivoted at 42 to the release rod or bar and at 43 to the feed-rack. To the left-hand end of the release-rod is connected a finger-key 44, which passes through an elongated vertical slot 45 in the frame or support 36 and terminates at its outer end beyond said frame in a push-button or head 46, between which and the frame 36 is arranged a spiral spring 47 to return the release-rod to its normal position after having been actuated. In the normal position the release-rod stands close to and parallel with the vertically-arranged rack 32 and with its lower edge just above or over the top of the feed-dog 23, as shown at Figs. 1 and 2.

When it may be desired to release the carriage from the feed-dogs in order to permit the carriage to be moved rapidly toward the left under the influence of its driving-spring, or in order to permit the carriage to be moved toward the right without having the rack bob over the feed-dog 23, the head or button 46 is pushed in or toward the right against the tension of the spring 47 and the release rod or bar moved in a similar direction; but by reason of the presence of the obliquely-arranged links 41 the said release rod or bar is caused to also move downwardly, as shown at Fig. 3, and bear upon the upper edge of the feeding-dog 23, and the extent of the downward movement of the release rod or bar is such that the dog 23 may be moved down entirely out of engagement with the feed-rack, the arm 18, which carries the dog 23, yielding or vibrating about its pivot 19 as the release-rod continues to depress the feed-dog 23. The movement of the release rod or bar to the right and down is limited by the slot 45 in the frame 36, the key or stem 44 coming to a stop at the lower end of said slot when the release rod or bar has been depressed sufficiently to disengage the feed-dog 23 from the rack. The upward or return movement of the release-rod by the spring 47 is also limited by the upper end of said slot, as clearly illustrated at Fig. 2. When the release rod or bar has been swung down to disengage the feed-dog 23 from its rack, the projection 29 moves behind the stop or abutment 30, as illustrated at Fig. 3, and prevents the spring 28 from driving the loose dog 23 to the right, so that said dog may instantly engage the rack and prevent any movement of the carriage on the removal of the pressure on the release-key.

The construction of feed rack and dogs shown herein is made the subject-matter of a separate application filed by me simultaneously with this, Serial No. 398,773, and I claim in this case, therefore, said construction of rack and dog only in combination with my novel construction and arrangement of release-key; but so far as the construction and arrangement of the release-key is concerned a feed rack and dogs of other construction and arrangement may be employed instead of that which is shown and described herein. For instance, the feed rack and dogs of the machine shown in my aforesaid patent, and shown, also, in the patent to Andrew W. Steiger, of June 23, 1891, No. 464,668, may be combined with my said release-key in lieu of the feed rack and dogs shown herein, as said release-rod will operate successfully with any letter-spacing dogs having a vibratory movement at right angles to the travel of the rack and paper-carriage, and having, also, an independent vibratory movement in a plane parallel with that in which the rack and carriage travel, or, in other words, at right angles to the plane of vibration of the rocking frame or trunnion.

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

1. In a type-writing machine, the combination, with a paper-carriage having a feed-rack, of a pair of letter-spacing dogs having a vibratory movement at right angles to the path of travel of the paper-carriage and having, also, an independent lateral vibratory movement, a release-rod, and a pair of links suspending said release-rod from said feed-rack, substantially as described.

2. In a type-writing machine, the combination, with a paper-carriage having a feed-rack, of a pair of letter-spacing dogs having a vibratory movement at right angles to the path of travel of the paper-carriage and having, also, an independent lateral vibratory movement, a release-rod suspended from said rack,

a frame having a slot, and a key or stem passing through said slot and provided with a returning-spring, substantially as described.

3. In a type-writing machine, the combination, with a paper-carriage having a feed-rack, of a pair of letter-spacing dogs having a vibratory movement at right angles to the path of travel of the paper-carriage and having, also, an independent lateral vibratory movement, a release-rod suspended by obliquely-arranged links from said feed-rack, a frame or support having a vertical slot, a key or stem at one end of said release-rod passing through said slot, and a returning-spring.

4. In a type-writing machine, the combination, with a paper-carriage having a feed-rack, of a pair of letter-spacing dogs having a vibratory movement at right angles to the path of travel of the paper-carriage and having, also, an independent lateral vibratory movement, a release-rod, a pair of links, each pivoted at one end to said rod and at the other end to said feed-rack, a stem or key having a head and provided with a spring, and a frame or support having a vertical slot, the ends of which are adapted to limit the movements of the release-rod, substantially as described.

5. In a type-writing machine, the combination, with a paper-carriage having a vertically-arranged feed-rack, of a rocking frame or trunnion, an arm pivoted to said trunnion and having a holding-dog, a loose spring-propelled feeding-dog mounted on said arm, and a release-rod pivotally suspended from and parallel with said feed-rack, substantially as described.

6. In a type-writing machine, the combination, with a paper-carriage having a vertically-arranged feed-rack, of a rocking frame or trunnion, an arm pivoted to said trunnion and having a holding-dog, a loose spring-propelled feeding-dog mounted on said arm, a release-rod pivotally suspended from and parallel with said feed-rack and having a stem or key and a returning-spring, and a frame or support provided with a vertical slot.

7. In a type-writing machine, the combination, with a paper-carriage having a vertically-arranged feed-rack, of a rocking frame or trunnion, a spring-actuated arm pivoted to said trunnion and having a rigid holding-dog, a spring-propelled feeding-dog mounted on said arm and provided with a projection, a stop or abutment on the rocking frame or trunnion, a release-rod, a pair of links pivoted each at one end to said rod and at the other end to said feed-rack, means, substantially as described, for actuating and limiting the movements of said release-rod, and a returning-spring, substantially as described.

Signed at New York city, in the county of New York and State of New York, this 7th day of July, A. D. 1891.

G. W. N. YOST.

Witnesses:
SAMUEL D. OSBORN,
JACOB FELBEL.