(No Model.) 2 Sheets—Sheet 1.

B. A. BROOKS.

TYPE WRITING MACHINE.

No. 572,289. Patented Dec. 1, 1896.

Fig. 1,

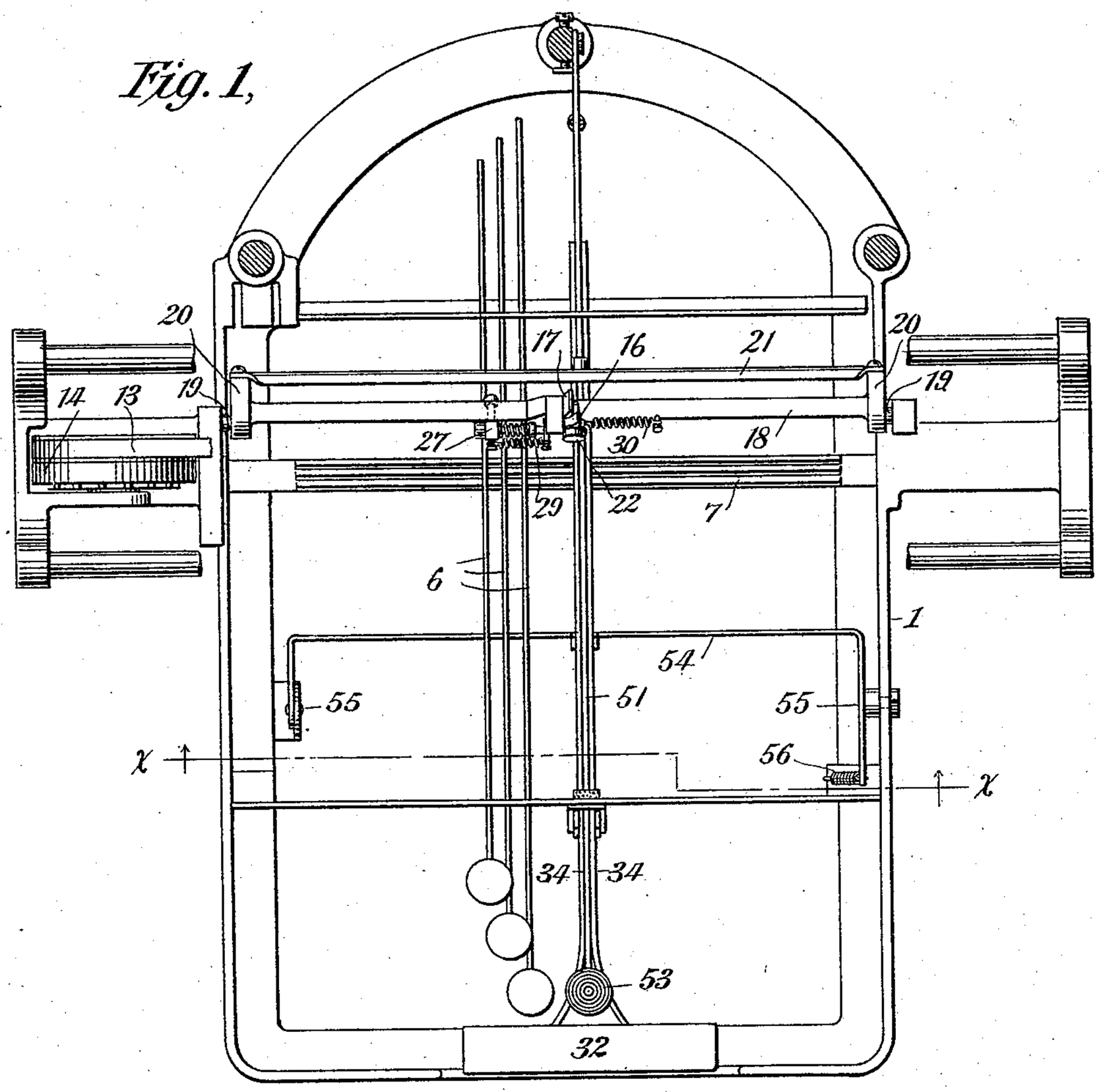
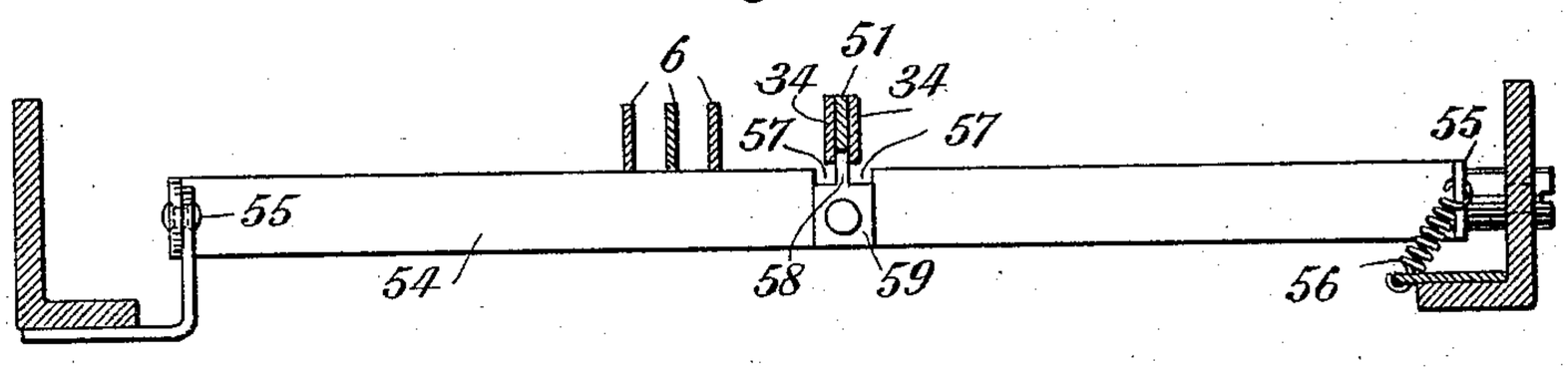


Fig. 2,



WITNESSES:
C. E. Ashley
H. W. Lloyd.

INVENTOR:
Byron A. Brooks
By his Attorney
Jacob Felbel

(No Model.) 2 Sheets—Sheet 2.

B. A. BROOKS.

TYPE WRITING MACHINE.

No. 572,289. Patented Dec. 1, 1896.

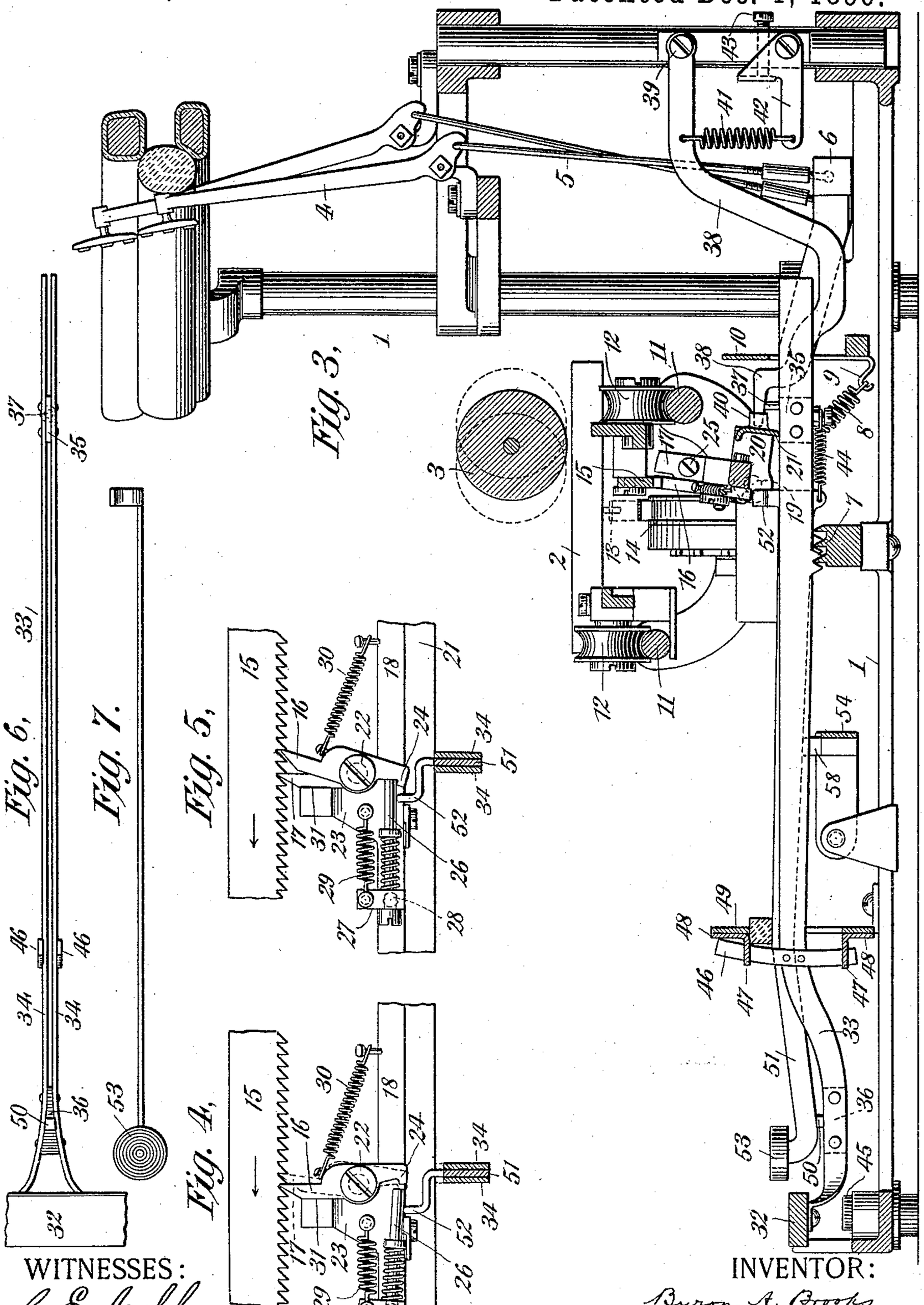


Fig. 3.

Fig. 6,

Fig. 7.

Fig. 5,

Fig. 4,

WITNESSES:

C. E. Ashley

H. W. Lloyd.

INVENTOR:

Byron A. Brooks

By his Attorney

Jacob Felbel

UNITED STATES PATENT OFFICE.

BYRON A. BROOKS, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE WYCKOFF, SEAMANS & BENEDICT, OF ILION, NEW YORK.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 572,289, dated December 1, 1896.

Application filed July 6, 1896. Serial No. 598,077. (No model.)

To all whom it may concern:

Be it known that I, BYRON A. BROOKS, a citizen of the United States, and a resident of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

This invention relates to improvements for enabling the paper-carriage to space doubly simultaneously with the striking of the last letter of a word, and has for its main object to provide a construction by which the ordinary or usual spacing key or bar may be employed in conjunction with the letter-keys to effect such double spacing and without the employment of any supplemental or auxiliary space key or bar; and to this 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 carrying out my invention I so construct and arrange the parts as that when the spacing-key is struck alone it effects only single letter-spacing of the paper-carriage, but when actuated simultaneously with any of the letter-keys double spacing of the paper-carriage is effected without depressing the spacing-key to any greater extent or operating it any differently than when actuated alone for single spacing.

In the accompanying drawings, Figure 1 is a skeleton plan view of a portion of a "Brooks" type-writer embodying my invention, some of the parts being broken away and many of the devices being omitted in order that the improvements may be more clearly exhibited. Fig. 2 is a vertical cross-section taken at the line $x\ x$ of Fig. 1. Fig. 3 is a central longitudinal vertical section of the said machine. Fig. 4 is an enlarged detail front elevation more particularly of the escapement mechanism and showing the parts thereof adapted for single spacing of the carriage. Fig. 5 is a like view and showing the action of the escapement mechanism for double spacing of the carriage. Fig. 6 is a plan view of the spacing-lever, and Fig. 7 is a like view of the stop-lever.

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

1 designates the general framework of the machine, 2 the paper-carriage as an entirety, and 3 the platen thereof, which, however, is shown only at Fig. 3 and in a detached condition. In this machine the platen has a central normal position and is adapted to be shifted either backward or forward therefrom, as indicated by the dotted lines, the type-bars having each three types adapted to the several positions of the platen.

5 are the connecting-rods joining the type-bars to the letter-key levers 6, which are fulcrumed between their ends on a cross-bar 7, and provided each with a returning-spring 8, attached at one end to the rear portion of the key-lever, and at its forward end to a hook 9 at the lower end of a vertical guide plate or comb 10.

Across the machine at about its middle are two guide-rails 11, suitably supported at their ends in brackets on the framework, upon which travel the antifriction rolls or wheels 12 at the front and rear portions of the carriage, to which is attached one end of a strap or band 13, the opposite end of which is connected to a spring-drum 14 for propelling the carriage.

Vertically arranged on the carriage is a straight feed-rack 15, with which coöperates a pivoted dog 16 and a rigid dog 17, both dogs being mounted on a rock-shaft 18, extending across the machine and having side pivots 19. The said rock-shaft is provided with rearwardly-extending arms 20, to which the ends of a transverse universal bar or bail 21 are secured. The said universal bar or bail rests upon the top edges of the letter-key levers at their rear shorter arms, so that when the front key-arms of said levers are depressed and the rear arms elevated said universal bar will be lifted, and through the connecting-arms 20 the rock-shaft 18 will be rocked and the dogs vibrated together in a plane at right angles to the rack.

The feeding-dog 16 is pivoted at 22 between its ends upon an arm or upright portion 23, formed integral with the rock-shaft 18, and said dog is beveled at its upper end and formed or provided at its lower end with

a lug 24, which projects toward the left. The rigid or detaining dog 17 is affixed to the said arm 23 by means of a screw 25 and is likewise beveled at its upper end.

Coöperating with the feeding-dog 16 is a pin or movable stop 26, which is mounted in a small bracket 27, pivoted horizontally at 28 to the rock-shaft and connected at its upper end to one end of a spring 29, whose other end is connected to the arm 23.

The projection 24 at the lower end of the feeding-dog is adapted to contact with the inner end of the pin 26, the said feeding-dog being connected at its upper end to one end of a spring 30, whose other end is attached to the rocker-bar. Normally, however, the upper portion of the feeding-dog 16 bears against a stop 31, formed on the arm 23, because said dog is normally in engagement with the feed-rack, which is always under pull of the spring-drum 14. When the rocker-bar 18 is actuated, the dog 16 is vibrated forward out of the rack and the spring 30 of said dog operates to tilt it about its pivot and throw its lower lug-carrying end against the end of the pin 26, provided that the rocker-bar is actuated by a letter-key or by the space-key alone, but not together. The contact of the lug 24 with the end of the pin limits the vibration of the feeding-dog to a distance of one notch or tooth of the letter-space rack, and hence upon the release of the key and the return of the rock-shaft the point or working end of the dog on its return movement enters the next notch or space on the feed-rack. It will of course be understood that when the feeding-dog is rocked foward the rigid dog is rocked into engagement with the rack and prevents the feed of the carriage at this time, but that on the return movement of the dogs the carriage feeds a single letter-space distance under the conditions named.

The space key or bar is designated by the numeral 32, and is mounted upon a lever 33, fulcrumed upon the transverse fulcrum-bar 7 and composed of two parallel bars 34, having separating-plates 35 and 36, the whole being joined together by means of rivets. The plate 35 is provided with a vertical projection 37, which bears against the under side of an irregularly-shaped lever 38, pivoted at 39 and connected at its front free end to a lug 40 at the rear side of the universal bar 21. The said lever 38 is provided with a returning-spring 41, one end of which is attached to a pivoted arm 42, for which is provided a screw 43 to enable the tension of the spring to be regulated.

When the space bar or key is depressed, the rear end of the lever 33 rises, and the pin 37, acting on the lever 38, lifts it and causes the universal-bar frame to rock and the dog 16 to vibrate forward out of the rack and the dog 17 into the rack. Upon the release of the pressure on the key 32 the dogs, universal-bar frame, and the lever 38 all return to their normal positions under the influence of the spring 41, a separate spring 44 being preferably provided to return the space-key lever to its normal position. The space-key 33 may act directly on the universal bar in a manner similar to the letter-keys and it may also act thereon through the pin 37, lever 38, and lug 40. The lever 38 and lug 40 are provided more particularly to connect the universal bar with its returning-spring 41. The depression of the space-key lever is preferably limited by a cushioned stop 45 under the head or bar 32 of said lever. Each space-key bar 34 is provided on its upper side with a guide-strip 46, which works in guide-slots 47 in small brackets or stands 48, attached to a guide plate or frame 49, which extends across the machine and is slotted for the passage of the levers of the keyboard.

The plate 36 is provided at its upper side with a projection 50, upon which rests the under side of a lever 51, which is likewise fulcrumed on the cross-bar 7, and at its rear shorter end is connected to one end of the spring 44, whose opposite end is connected to a pin or screw on the rear end of the space-key lever. The rear end of the lever 51 is provided with a portion which is bent laterally and then upwardly to form a finger 52 for operating upon the pin 26, and the front end of said lever 51 may be provided with a key or button 53, for a purpose which will hereinafter be explained.

The bars 34 composing the space-key lever are of such shape and so separated as that the lever 51 may occupy a position between them for nearly the entire length of the key-levers, as shown at Figs. 2 and 3.

Extending across the machine and under all of the letter-key levers is a bail 54, which is pivoted at 55 and provided with a return-spring 56. About midway of its length the bail 54 is cut out to form two notches or depressions 57 to permit the space-key lever to be depressed without acting upon said bail, and at this locality between said notches is arranged a lug or projection 58, which may form part of a separate attached block 59 or of the bail itself, and which acts upon and is acted upon by the lever 51; that is to say, when the space-key is depressed the said projection 58 supports or sustains the lever 51 in its normal position, said lever being independent of the space-key lever, and when the lever 51 is depressed and bears down upon the upper end of said projection it causes the bail 54 to descend, as well as the space-key lever, which it likewise bears upon at the locality of the forward projection 50.

The operation and the use of the devices will be better understood from the following description: I have already described how the feed or escapement mechanism acts to permit the paper-carriage to feed a single letter-space distance when a letter-key is struck alone and when the parts are in the condition shown at Fig. 4. When the space-key is struck alone, the same result follows. That

is to say, the carriage feeds one letter-space. The space-key has the ordinary single down movement and no more than one letter-space can be obtained whatever the extent of depression of said key. When it may be desired to obtain a two-space feed of the carriage, as at the end of a word, the last letter of the word and the space-key are struck together and the carriage then automatically feeds the desired two-space distance. This takes place in the following manner: Upon depression of the letter-key the bail 54 is depressed and the supporting projection 58 is removed from the lever 51, but the said lever cannot descend in consequence thereof by reason of its independent support at the projection 50 on the space-key lever. Now it will be seen that if these two devices, supports, or stops 50 and 58 be removed from the lever 51 simultaneously, as by striking a letter-key and the space-key together, then the lever 51 is free to act, and that its key end will descend by gravity and its finger end 52 will rise and swing the pin 26 upwardly from the position shown at Fig. 4 to that shown at Fig. 5, and in the latter position of the pin it will be seen that the dog is capable of greater vibration and to the extent of two notches of the feed-rack. Hence when both the space-key and the letter-key are released the carriage will feed the desired two spaces and on the return movement of the space-key the lever 51 will be restored to its normal position.

From the foregoing it will be seen that when a letter-key is struck in the ordinary way alone only single spacing is obtainable, and that when the space-key is struck alone in the ordinary way single spacing only is likewise obtainable, but that when both these keys are struck together in the ordinary way double spacing results from such action.

As far as I am aware I am the first to provide any construction or arrangement of devices whereby such result may be accomplished, and hence I desire to claim as broadly as possible this improvement.

Various means have heretofore been devised and may be used in connection with the escapement mechanism to coöperate with the devices thereof to obtain either a single feed or a double feed, but the primary feature of my invention does not relate to such devices or improvements. It has reference principally to the provision of means connected to the letter-keys and to the space-key by which the actions referred to may be accomplished. Many devices may be employed instead of the pin 26 for enabling the dog to vibrate for a distance of one or two spaces at pleasure, and of course many different forms of dogs and escapement mechanisms may be employed in connection with my improvements without departing from the spirit of my invention.

In another application about to be filed by me I have shown my improvements applied to a Remington No. 6 machine in a manner quite different in detail construction and arrangement, and I have also carried out my invention in other forms.

In another application to be filed simultaneously with this by one Carlton C. W. Peck my invention is shown carried out in still another form, and in both of said other cases the constructions and arrangements therein exhibited may be regarded as modifications of my present invention.

I have refrained from exhibiting modifications of my invention in this case for the purpose, first, of simplifying this application as much as possible, and, secondly, for the reason that I desire to file separate applications for such modifications.

The purpose of the key-head or button 53 on the lever 51 is to enable the carriage to be fed a double space between words after the last letter has been written and without the aid of the space-key. When said button 53 is pressed down alone, the lever 51 forces down the space-key lever 33 and also the bail 54, the finger 52 rises and lifts the pin 26 and enables the dog to vibrate a distance of two teeth on the rack, and hence the carriage will feed two notches when the button 53 is released.

The pin or stop 26 is preferably loose in the bracket, so that it may have a slight endwise play to enable the recession of the carriage when the feed-dog is in engagement with the rack, and said pin is provided with a spring 60, which tends to press the pin toward the right.

It will thus be seen that I have provided a machine which may be used in the ordinary way by type-writers who do not desire to space simultaneously with the printing of the last letter of a word, and which may also be used by those who desire to space the carriage simultaneously for the space after the last letter of a word, or for the space before the first letter of the succeeding word, and this by merely striking the letter-key and the space-key together and without the employment of any separate or independent key or device, which must be manually independently operated to effect the purpose.

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

1. In a type-writing machine, the combination with the carriage, the letter-space feed mechanism, the letter-keys and the space-key, of two independent devices, one of which is operated by the letter-keys and the other by the space-key, and both so connected with the letter-space feed mechanism that while the operation of either device alone does not affect the letter-spacing, their conjoint operation produces a double space; substantially as set forth.

2. In a type-writing machine, the combination of two elements, one operated by the letter-keys and the other by the space-key, and means connecting said elements with the spacing dog and ratchet so that the operation

of either element singly does not affect the operation of the spacing-dog, but by their combined operation the dog is permitted to feed a double space; substantially as set forth.

3. In a type-writing machine, in combination, a paper-carriage, a letter-space escapement mechanism therefor constructed and arranged to effect either a single-space movement or a double-space movement of said carriage, a series of letter-keys connected to actuate said escapement mechanism, a space-key also connected to actuate said escapement mechanism, a device operated only by said letter-keys and a device operated only by said space-key, the construction and arrangement being such that when the letter-keys are actuated the device operated by the space-key serves to prevent the carriage from moving more than a letter-space distance, and such that when the space-key is actuated the device operated by the letter-keys serves also to prevent the carriage from moving more than a letter-space distance, and also such that when both a letter-key and the space-key are simultaneously actuated both of said devices are operated and the carriage is permitted to move a distance of two letter-spaces; substantially as set forth.

4. In a type-writing machine, in combination, the usual spacing-key having always the same depression and adapted when depressed alone to effect single spacing only, letter-keys having always the same depression, a rack, a dog adapted to yield either one tooth or two teeth of the rack, means for controlling the movement of the dog connected to the said spacing-key and to the letter-keys, and so arranged that when the letter-keys are operated alone and when the spacing-key is operated alone, the dog yields a single tooth only, but when the spacing-key and the letter-key are struck together the said controlling means is actuated and the dog permitted to yield two teeth; substantially as set forth.

5. In a type-writing machine, the combination of a paper-carriage, a letter-space escapement mechanism, letter-keys, a bail therefor carrying a stop, a spacing-key also carrying a stop, and a lever adapted to both said stops and to the escapement mechanism, substantially as set forth.

6. In a type-writing machine, the combination of a paper-carriage, a letter-space escapement mechanism including a spring-acted vibratory feeding-dog, a movable stop adapted to permit said dog to vibrate either for one letter-space or two letter-spaces as desired, but arranged to normally restrict said dog to vibrate one letter-space, a lever adapted to move said stop to a position such that the said dog may vibrate the distance of two letter-spaces, the letter-keys, a stop for said lever controlled by said letter-keys, a space-key and a second stop for said lever controlled by said space-key; substantially as set forth.

7. In a type-writing machine, the combination of a paper-carriage, a letter-space escapement mechanism including a pivoted spring-acted dog, a movable stop for said dog, a lever for acting on said stop, the letter-keys, a bail for said keys carrying a stop for said lever, and a space-key also carrying a stop for said lever; substantially as set forth.

8. In a type-writing machine, the combination of a paper-carriage, a letter-space escapement mechanism including a pivoted spring-acted dog, a movable stop therefor, a lever adapted to act on said stop, a space-key lever composed of two separated bars embracing said stop-actuating lever and provided with means to hold said lever at rest during type impressions, letter-key levers, and a bail adapted to be acted on by said letter-key levers and carrying means adapted to hold said stop-actuating lever at rest when said space-key lever is depressed; substantially as set forth.

9. In a type-writing machine, the combination of a paper-carriage, a letter-space escapement mechanism including a pivoted spring-acted feeding-dog, a movable stop for said dog, a lever adapted to vibrate said stop, letter-key levers, a bail therefor, and a space-key lever; the construction and arrangement being such that the said stop-actuating lever is supported by the space-key lever when a letter-key is depressed, and is supported by the said bail when the space-key is depressed, but when both keys are depressed together the said lever is adapted to vibrate and move the said dog-stop to a position such that the dog may vibrate the distance of two letter-spaces; substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 29th day of June, A. D. 1896.

BYRON A. BROOKS.

Witnesses:
JACOB FELBEL,
K. V. DONOVAN.